# Information sheet for environmental audits and preliminary risk screen assessments (PRSAs)



Publication 2009 June 2021

#### Victoria's audit system

An environmental audit system has operated in Victoria since 1989. The *Environment Protection Act 2017* (the Act) provides for the appointment of environmental auditors. It also provides for Environment Protection Authority (EPA or the Authority) to have a system of preliminary risk screen assessments (PRSAs) and environmental audits. These are used in the planning, approval, regulation and management of activities, and in protection of human health and the environment.

Under the Act, the functions of an environmental auditor include to:

- conduct PRSAs and environmental audits
- prepare and issue PRSA statements and reports, and environmental audit statements and reports.

The purpose of a PRSA is to:

- assess the likelihood of the presence of contaminated land
- determine if an environmental audit is required
- recommend a scope for the environmental audit if an environmental audit is required.

The purpose of an environmental audit is to:

- assess the nature and extent of the risk of harm to human health or the environment from contaminated land, waste, pollution, or any activity
- recommend measures to manage the risk of harm to human health or the environment from contaminated land, waste, pollution, or any activity
- make recommendations to manage any contaminated land, waste, pollution or activity.

Upon completion, all PRSAs and environmental audits require preparation of either a PRSA statement, accompanied by a PRSA report, or an environmental audit statement, accompanied by an environmental audit report.

A person may engage an environmental auditor to conduct a PRSA or an environmental audit.

EPA administers the environmental audit system and ensures an acceptable quality of environmental auditing is maintained. This is achieved by assessing auditor applications and conducting a quality assurance program. These measures ensure that PRSAs and environmental audits that environmental auditors undertake are completed in accordance with the relevant sections of the Act or any other Act, and with the guidelines the Authority or other government agencies have published.

#### **File structures**

EPA stores digital statements and reports from PRSAs and environmental audits in three parts:

- Part A, the PRSA or environmental audit report
- Part B, report appendices
- Part C, the PRSA statement and executive summary or environmental audit statement and executive summary.

Report executive summaries, findings and recommendations should be read and relied upon only in the context of the whole document, including any appendices and the PRSA statement or environmental audit statement.

#### Currency of PRSAs and environmental audits

PRSAs and environmental audits are based on the conditions encountered and information reviewed at the time of preparation. They don't represent any changes that may have occurred since the completion date. As it's not possible for the PRSA or audit report to present all data that could be of interest to all readers, consideration should be made to any appendices or referenced documentation for further information.

When information about the site changes from what was available at the time the PRSA or environmental audit was completed, or where an administrative error is identified, an environmental auditor may amend or withdraw PRSA or environmental audit statements and/or reports. Users are advised to check EPA's website to ensure documents' currency.

#### PDF searchability and printing

EPA can only provide PRSAs and environmental audit statements, reports and appendices that the environmental auditor provided to EPA via the EPA portal on the EPA website.

All statements and reports should be in a Portable Document Format (PDF) and searchable; however at times some appendices may be provided as image-only PDFs, which can affect searchability.

The PDF is compatible with Adobe Acrobat Reader, which is downloadable free from Adobe's Website (www.adobe.com).

#### **Further information**

For more information on Victoria's environmental audit system, visit EPA's website or contact EPA's Environmental Audit Unit.

Web: www.epa.vic.gov.au

Email: environmental.audit@epa.vic.gov.au



For languages other than English, please call **131 450**. Visit **epa.vic.gov.au/language-help** for next steps. If you need assistance because of a hearing or speech impairment, please visit **relayservice.gov.au** 





# Appendix A PRSA Statement

# Preliminary risk screen assessment statement

#### Under Part 8.3 of the Environment Protection Act 2017

Publication F1031.1 published February 2022

The purpose of a preliminary risk screen assessment is:

(a) to assess the likelihood of the presence of contaminated land; and

(b) to determine if an environmental audit is required; and

(c) if an environmental audit is required, to recommend a scope for the environmental audit.

It is important to note that a PRSA statement is not an environmental audit statement or an environmental audit report. It should not be construed as an environmental audit conducted to assess the suitability of land use.

This statement is a summary of the findings of a preliminary risk screen assessment conducted under Part 8.3 of the *Environment Protection Act 2017* for:

#### Schoolhouse Lane, Seaton, Victoria

#### Crown Allotment 62G, Parish of Glenmaggie, Volume 11737, Folio 349.

Further details are provided in the preliminary risk screen assessment report that accompanies this statement.

#### Section 1: Preliminary risk screen assessment overview

#### Environmental auditor details

Dr Darren Bennetts		
BlueSphere Environmental Pty Ltd		
113 Ferrars Street, Southbank, Victoria, 3006		
(03) 9699 5286		
dbennetts@bluesphere-enviro.com.au		

#### Site owner/occupant

Name:	Minister Administering the Education and Training Reform Act 2006 (Schools)
Company:	Victoria Government

#### Environmental auditor engaged by

Name:	Mai Pham	
Company:	Department of Treasury and Finance	
Relationship to site owner:	Assisting with potential divestment of the Site on behalf of the Site owner	

#### Reason for preliminary risk screen assessment

Planning scheme:	N/A
Permit details (if applicable):	N/A



#### Preliminary risk screen assessment statement

Other:	Voluntary	
Permit is attached (if applicable):	N/A	

#### Section 2: Assessment scope

#### Site details

Address:	Schoolhouse Lane, Seaton, Victoria		
Title details:	Crown Allotment 62G, Parish of Glenmaggie, Volume 11737, Folio 349		
Area (m²):	20,640		

 $\boxtimes$  a plan of the site is attached

#### Use or proposed use assessed

The below section details which land uses (current and proposed) the PRSA has assessed. Note, this is not a suitability of land use audit, rather an assessment to determine if an environmental audit is required for the land uses that apply to the specific PRSA.

#### Sensitive land use categories

Note that sensitive land uses in the *Environment Reference Standard 2021* (ERS 2021) are categorised as lower and high density. Lower density is where there is generally substantial access to soil and high density is restricted to developments that make maximum use of available land space, and there is minimal access to soil. For planning purposes, the *Ministerial Direction No. 1* (MD No.1) considers secondary schools and children's playgrounds to be sensitive land uses.

☑ Residential land use□ Child care centre

 $\boxtimes$  Other (lower density)

Pre-school
 Primary school

□ Secondary school

- Children's playground (indoor)
- □ Children's playground (outdoor)

#### Other land use categories

- □ Recreation/open space
- Parks and reserves
- ⊠ Agricultural
- □ Commercial
- Industrial
- □ Other land uses not captured by the above as described here:

#### Environmental elements assessed

- ⊠ Land
  - $\ensuremath{\boxtimes}$  all environmental values that apply to the land use category were considered  $\ensuremath{\mathsf{OR}}$
  - all environmental values that apply to the land use category, other than the following, were considered:
- ⊠ Water
  - ⊠ Surface water
    - $oxed{intermat}$  all environmental values that apply to the applicable segment were considered **OR**



#### Preliminary risk screen assessment statement

- □ all environmental values that apply to the applicable segment, other than the following, were considered:
- ⊠ Groundwater
  - $\boxtimes$  all environmental values that apply to the applicable segment were considered **OR**
  - □ all environmental values that apply to the applicable segment, other than the following, were considered:

#### Standards considered

**Environment Reference Standard 2021** 

National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013 AS 2159-2009, Piling – Design and Installation, Incorporating Amendment No. 1 (Standards Australia. October 2010).

#### Assumptions made during the assessment or any limitations

None

Exclusions from the assessment and the rationale for these

None

This statement is accompanied by the following preliminary risk screen assessment report

Title:	Preliminary Risk Screen Assessment, Former Seaton Heyfield Primary School Plantation, Schoolhouse Lane, Seaton, Victoria (BlueSphere Environmental Pty Ltd)		
Report no:	31105.01		
Date:	23 May 2022		



#### Section 3: Assessment outcome

Based on my assessment, I am of the opinion that an environmental audit is **not required** for the following land uses, **including** the use or proposed use for which the site has been assessed:

#### Sensitive land use categories

Note that sensitive land uses in the ERS 2021 are categorised as lower and high density. Lower density is where there is generally substantial access to soil and high density is restricted to developments that make maximum use of available land space, and there is minimal access to soil. For planning purposes, the MD No.1 considers secondary schools and children's playgrounds to be sensitive land uses.

🔲 High density	🖾 Residential land use	
	Child care centre	
🕅 Other (lewer density)	- Pre-school-	
	Primary school	
	Secondary school	
Children's playground (indoor)		

□ Children's playground (outdoor)

#### Other land use categories

- Recreation/open space
- Parks and reserves
- ⊠ Agricultural
- Commercial
- 🕂 Industrial
- Other land uses not captured by the above as described here:

#### Other information

- There are structures on the site that may contain (due to their age) hazardous building materials, however the environmental auditor has assessed during the PRSA that such building materials are not likely to indicate the presence of contaminated land.
- Soil pH is low in the areas assessed but is considered to be natural in origin. Local natural plants, grasses and fauna are likely to be adapted to this low pH level, however there may be some impact on the growth and development of some introduced plants, grasses, and fauna.
- Soil may adversely affect the integrity of concrete structures in contact with soil due to its acidity. Buildings and structures should be designed in accordance with AS 2159-2009.
- Inert waste materials are present on the ground surface at some locations which are considered to present an aesthetic issue. The environmental auditor has determined that these issues do not require further assessment to consider if a risk is posed to the use or proposed use of the site.



#### Section 4: Environmental auditor's declaration

I state that:

- I am appointed as an environmental auditor by the Environment Protection Authority Victoria under the *Environment Protection Act 2017*.
- The findings contained in this statement represents a true and accurate summary of the findings of the preliminary risk screen assessment that I have completed.

Date:	23 May 2022
Signed:	AA
Name:	Dr Darren Bennetts

**Environmental Auditor** 



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Disclaimer: BlueSphere Environmental Pty Ltd. (BlueSphere) does not warrant the accuracy or completeness of information displayed in this map and any person using it does so at their own risk. BlueSphere shall bear no responsibility or liability for any errors, faults, defects or omissions in the information.

 PROJECT ID
 31105.01

 DATE
 23/05/2022

 CREATED BY
 BS



#### Legend

Parcel Boundar
Site Boundary



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



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# SITE LOCATION PLAN

Preliminary Risk Screening Assessment

Schoolhouse Lane, Seaton Victoria



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# Appendix B PSI Report

# **PRELIMINARY SITE INVESTIGATION**

Former Seaton Heyfield Primary School Plantation Schoolhouse Lane Seaton, Victoria

**Prepared for:** 

Department of Treasury and Finance Level 1, Treasury Place Melbourne, Vic 3002

SLR Ref: 640.30268.00000-R01 Version No: -v3.0 January 2022

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SLR<sup>©</sup>

## CONTENTS PREPARED BY

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## **BASIS OF REPORT**

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Department of Treasury and Finance (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

## DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
640.30268.00000-R01-v3.0 (final)	19 January 2021	Sneha Bhattachan	Alan Bull	Alan Bull
640.30268.00000-R01-v2.0	23 December 2021	Sneha Bhattachan/ Paul Bay	Alan Bull	Alan Bull
640.30268.00000-R01-v1.0 (Issued Draft)	13 October 2021	Paul Bay	Paul Bay	Alan Bull



## CONTENTS ABBREVIATIONS

ASSAcid Sulfate SoilBTEXNBenzene, Toluene, Ethylbenzene, Xylene, NapthaleneCCCCation Exchange CapacityCoPCContaminants of Potential ConcernCUNClean-Up NoticesDBYDDial Before You DigDETDepartment of Education and TrainingDEWPDepartment of Education and TrainingDESDepartment of Sustainability and EnvironmentDSIDetailed Site InvestigationDTFDepartment of Treasury and FinanceELLEcological Investigation LevelsESLEcological Investigation LevelsESLEcological Screening LevelsESLEcological Screening LevelsEVEnvironment Protection AuthorityERSEnvironmental ValuesFZFarming ZoneGQRUZGround Vater Quality Restricted Use ZoneGPRGround Penetrating RadarHILHuman Health Investigation LevelsHSLHuman Health Screening LevelsLORLimit or ReportingMAHMonoaromatic Hydrocarbonsm BGLmetres below ground levelmg/kgMilligrams per kilogramNATANational Association of Testing AuthoritiesNEPCNational Association of Testing AuthoritiesNEPMNational Environment Protection MeasureOCPOrganophosphorus PesticidesOPPOrganophosphorus PesticidesOPPOrganophosphorus PesticidesPANPollution Abatement NoticesPIDPhoto Ionisation DetectorPFAS <th>ALS</th> <th colspan="2">Australian Laboratory Services</th>	ALS	Australian Laboratory Services	
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- Appendix C Borelogs
- Appendix D Laboratory Reports
- Appendix E Field Data Forms
- Appendix F Lotsearch Reports
- Appendix G Current and Historic Property Titles
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# **1** Introduction

SLR Consulting Pty Ltd (SLR) was engaged by the Department of Treasury and Finance (DTF) ("the client") to undertake a Preliminary Site Investigation (PSI) at the former Seaton Heyfield Primary School Plantation located at Schoolhouse Lane, Seaton, Victoria 3858 ("the site"). The boundary of the site is shown in blue in **Figure 1**.



#### Figure 1 Approximate Site Boundary (source: Google Earth 2021)

From information provided by the client, SLR understands the following:

- The site is referred to as the former Seaton Heyfield Primary School Plantation and is currently vacant.
- The site is owned by the Department of Education and Training (DET) and is proposed to be sold.
- DTF will be facilitating the sale.
- The site is currently zoned Public Use Zone for education purposes, however, is expected to be rezoned to Farming Zone or a Rural Living Zone, that would permit residential use.

## **1.1 Objectives**

The objectives of the assessment were to:

- Identify the potential for past or current activities at the site (and in the immediate surrounds) to cause contamination of land or groundwater at the site, including identifying areas of the site with differing levels of potential contamination (if applicable).
- Assess the areas of identified potentially contaminating activity or infrastructure and the potential for the protected Environmental Values of land to be impacted due to contamination.



• In the event that potential land contamination is identified, provide recommendations for further work necessary to assess the site's suitability for agricultural and residential land use.

The scope of Assessment has been limited for the purposes of the client and would not meet or follow the requirements of a Detailed Site Investigation (DSI) in accordance with Schedule B2 of the ASC NEPM.

# **1.2 Scope of Works**

The scope of works undertaken to meet the aforementioned objectives included the following three main tasks which are detailed in **Table 1**:

- Desktop review of publicly available information to identify key current features of the site and surrounds, the local hydrogeology and the current and historical activities at the site and surrounds.
- Site inspection to visually assess the site for evidence of contamination or contaminating activities.
- Limited soil contamination sampling and investigation targeting areas of potential contaminating activities or infrastructure.

Tasks	Works Completed
Desktop Review (using a rep	ort obtained from an external provider (Lotsearch))
Define the site, its features and the surrounding area	• Determined the legal description of the site (e.g., from the Land-data Property Report).
	• Defined the site boundaries.
	<ul> <li>Identified site features (e.g., buildings, services, infrastructure etc.).</li> </ul>
	<ul> <li>Summarised surrounding land uses including nearby sensitive environments / receptors.</li> </ul>
	• Identified zoning for the site and surrounding areas as per Local Planning Schemes.
	• Briefly described the topography and surface water drainage at the site.
	• Identified site or nearby properties on publicly available registers (e.g., EPA Priority Sites Register, Environmental Audit Reports Online, Energy Safe Australia register).
Hydrogeology and groundwater resource use	• Reviewed local and regional hydrogeology to indicate the site-specific conditions that may be encountered at the site (e.g., geology, aquifers present, groundwater flow etc.).
	<ul> <li>Groundwater utilisation search using the Victorian Water Measure Information System Database (Department of Environment, Land, Water and Planning, DELWP).</li> </ul>
Review of public records	• Established change in land ownership within historical certificates of title.
on site history	• Reviewed historical maps of the area through publicly available documents where available and relevant to the site.
	Reviewed historical aerial images.
	• Reviewed the information provided by Lotsearch from its internal databases.
	• Reviewed any available online information in regard to the history of the site.
Site Inspection	

#### Table 1Scope of Works Summary



#### Works Completed

- Inspected the site setting including topography, soil types and surface water bodies.
- Assessed the current site activities including for evidence of the potential for contamination.
- Assessed the site features and/or infrastructure which indicate the conducting of potentially contaminating activities or storage of hazardous materials currently or historically.
- Assessed surrounding areas for other potential sources of contamination.

Limited Soil Contamination Investigation		
Scope Derivation	<ul> <li>Determined an appropriate scope for the intrusive investigation to meet the objectives of the investigation for the limited soil assessment.</li> </ul>	
Fieldwork Preparation	<ul> <li>Prepared a work plan for field personnel, including set up of ArcGIS Collector for the site with pre-defined sample locations.</li> <li>Prepared field forms.</li> </ul>	
	<ul> <li>Prepared a safe work method statement (SWMS) for all tasks being undertaken in the field.</li> </ul>	
	<ul> <li>Conducted a 'Dial Before You Dig' (DBYD) enquiry to identify for underground services or assets and review the provided service plans.</li> </ul>	
Intrusive Investigation	<ul> <li>Searched for underground utilities, pipes, pits and other underground structures i.e., septic tank using geophysical methods such as Ground Penetrating Radar (GPR)</li> </ul>	
	<ul> <li>A total of eight test pits and five trenches were advanced near former infrastructures.</li> </ul>	
	<ul> <li>Tested selected soil samples for a broad range of analytes by a NATA accredited laboratory.</li> </ul>	
Report Preparation		
Preparation of this report, do with consideration of the ob	cailing the findings of the desktop review, site inspection and limited soil investigation, ectives of the PSI.	



# 2 Site Information

Site information presented in this section is based on the results of desktop investigation and the site inspection completed by an experienced SLR environmental scientist detailed in **Sections 3 and 4**.

## 2.1 Site Description

A summary of the property identification information is detailed below in **Table 2.** The detailed property report and planning property report (www.land.vic.gov.au) are provided in **Appendix H**. A current site layout plan (provided by the client) is provided as **Figure 1**, **Appendix A**.

Site Information	Details	
Site Address	Schoolhouse Lane, Seaton, Victoria 3858	
Land Title	Standard Parcel Identifier: 62G\ PP2679 Crown Description: Allotment 62G Parish of Glenmaggie	
Local Government	Wellington Shire Council	
Current Zoning	PUZ2 Public Use Zone - Education	
Planning Overlays	None listed	
Site Area	20,640 m <sup>2</sup>	
Current Occupier	The site is owned by DET and is currently vacant.	
Current Land Use	The site was observed to be vacant with no evidence of recent activity, however, is understood to have most recently been used by the Seaton Heyfield Primary School.	
Proposed Future Land Use	Farming Zone or Rural Living Zone	

#### Table 2 Summary of Property Information

# 2.2 Site Setting

Land use surrounding the site can be summarised by:

- North Agricultural (likely grazing) land, within a Farming Zone.
- South Agricultural (likely grazing) land, within a Farming Zone. Seaton township approximately 500 m south.
- East Agricultural (likely grazing) land, within a Farming Zone.
- West Agricultural (likely grazing) land, including within a Farming Zone or Rural Living Zone starting approximately 230 m west of the site.

# 2.3 Hydrogeological Setting

The hydrogeological setting is summarised in **Table 3** below, based on review of Visualising Victoria's Groundwater online portal, information provided in the Lotsearch report (**Appendix F**) and Environmental Audits previously completed in the vicinity of the site (discussed further in **Section 3**).

Table 3	Summary of the Regiona	l Hydrogeological and Soil Setting
---------	------------------------	------------------------------------

Site Aspects	Description	
Topography and Drainage	The north-west corner of the site is situated at approximately 130 metres Australian Height Datum (m AHD), which gradually falls to 120 m AHD towards the south-east, as shown in the land elevation contour plan provided in <b>Appendix F</b> . Regionally the area has a downward slope towards the south and south-east. Site surface is predominantly covered by vegetated areas, with surface water expected to infiltrate surface soils or run off-site to the south-east.	
Nearest surface water receptors	<ul> <li>A dam (approximately 400 m<sup>2</sup> in area) is located in the north-west corner of the site, which may collect some surface water flows from off-site rural landscape areas to the north and west of the site.</li> <li>A tributary of Back Creek is located approximately 40 m east of the site at its closest, with Back Creek itself approximately 300 m south of the site (running west to east) at its closest. Lake Glenmaggie is located approximately 6.5 km east of the site.</li> </ul>	
Regional geology	The regional geology is Pliocene to Pleistocene aged sand, silt and gravels of the Haunted Hills Formation. Soil landscapes underlying the site and surrounds are comprised of brown sodosols, which are characterised by dissected, undulating, high plain morphology, gently sloping to flat areas of hard neutral and acidic yellow mottled soils.	
Aquifer Geological Unit	The upper aquifer system of the Haunted Hills Formation is unconfined to semi-unconfined.	
Acid Sulfate Soils (ASS)	The site lies within an area of "low probability of occurrence" for ASS in accordance with the Atlas of Australian Acid Sulfate Soils (CSIRO Land and Water, 2011).	
Groundwater depth	Expected to be between 20 to 50 metres below ground level (m BGL).	
Groundwater flow	Groundwater is considered likely to flow to the south-east based on regional topography and location of nearby surface water receptors (Back Creek).	
Groundwater Quality	Groundwater salinity in the area is expected to range from of 1,000 to 3,500 mg/L TDS, classifying as Segment B in accordance with the Environmental Reference Standard (Vic Gov, 2021).	
Protected Environmental Values (Segment B)	<ul> <li>Water dependant ecosystems and species.</li> <li>Potable mineral water supply, although the site is not considered to be within an area where mineral water is present.</li> <li>Agriculture and irrigation (irrigation).</li> <li>Agriculture and irrigation (stock watering).</li> <li>Industrial and commercial use.</li> <li>Water-based recreation (primary contact recreation).</li> <li>Traditional Owner cultural values.</li> <li>Buildings and structures.</li> </ul>	



Site Aspects	Description
Registered Groundwater Bore Information	Review of borehole data provided in the Lotsearch report ( <b>Appendix F</b> ), containing data obtained from the DELWP Water Measurement Information System (WMIS), did not identify any bores within 1km of the site. The following bores were identified within 2 km of the site:
	• Six (6) groundwater bores listed for domestic and stock use.
	<ul> <li>Two (2) groundwater bores used for irrigation.</li> </ul>
	• Three (3) groundwater bores with either a listing "Non-Groundwater" or no listing for their
	use.
	<ul> <li>No groundwater bores listed for observation or investigation were identified.</li> </ul>
	• The closest groundwater extraction bore, listed as domestic/stock use, was located approximately 1.1 km south-west of the site.
	• The bores were installed to depths ranging between 8 m and 60 m deep (where this information was provided).
	<ul> <li>Note: Unregistered groundwater bores may be present in the area that do not appear on relevant databases.</li> </ul>



# **3** Contamination Desktop Review

## **3.1 Previous Investigations**

No reports for previous investigations undertaken at the site were made available for review, and the client was not aware of any investigation having been conducted.

## **3.2 Public Records Review**

A review of publicly available information, including EPA Victoria registers, was undertaken by SLR and Lotsearch (see **Appendix F**), to assess for properties in the area (including the site) that have potential to act as a source of contamination. Results of the review are summarised in **Table 4.** 

#### Table 4Review of Public Registers

Source	Register Details	Relevant Information
EPA Priority Sites Register (reviewed	Current EPA priority sites within 1 km	None identified.
4/8/21)	EPA priority sites and pollution notices within 1 km	None identified.
EPA Environmental Audit Reports Online (reviewed 4/8/21)	Completed Environmental Audits Within 1 km	None identified.
EPA Groundwater Quality Restricted Use Zone (GQRUZ) (reviewed 4/8/21)	Locations with areas of restricted groundwater extraction within 1 km	None identified.
EPA Licenses (reviewed 4/8/21)	Premises with EPA licensed activities within 1 km	None identified.
Various government department waste related databases/registers and a Lotsearch database collated from various historical sources (no information sources provided)	Locations and premises currently or formerly undertaking waste transport, management or disposal activities within 1 km	None identified.
Lotsearch database of current liquid fuel facilities	Fuel storage facilities within 1 km of the site	None listed
Lotsearch database on locations of PFAS Investigations	PFAS investigation and monitoring sites listed by Department of Defence, EPA Victoria and Airservices Australia	None listed



## **3.3 Public Record Search – Historical**

Other public records were searched to assess for potentially contaminating historical activities at and in the vicinity of the site. The detail of records reviewed is provided in **Table 5**.

#### Table 5 Summary of Historical Information Reviewed

Public Record	Source	Information Reviewed
Historical Aerial Imagery	DELWP	Historical aerial images between 1944 and 2020 (Lotsearch report in <b>Appendix F</b> )
	Nearmap	Aerial image from 2020 (online)
Historical Maps	NATMAP 1:100,000 Topographic Maps Geoscience Australia	One historical map dated 1975 (Lotsearch report in <b>Appendix F</b> )
Lotsearch database of former gasworks and liquid fuel facilities	Various sources, collected by Lotsearch	Listings of former gasworks or fuel facilities within 1 km of the site
Certificates of Title	Landata online system (Vic Government)	Historical titles pertaining to the site (Appendix G)
Available online information	Various	Any information related to the historical activities of the site as identified through an internet search.

A summary of historical land use or activity at the site based on the information reviewed from aerial photography is provided in **Table 6, Appendix B**. A copy of the aerial photos is provided in **Appendix G**.

#### Table 6Historical Land Uses and Site Development

Date	Source of Information	Comment
1944	Aerial Image	<b>On-site:</b> The site appears more densely vegetated with trees than the immediate surrounds. There are potentially buildings located in the central to north-east portion of the site, although the quality of the image makes this hard to determine. This however would be consistent with information provided by an interview with a local famer (Section 5). <b>Surrounding area:</b> Areas to the north, west and south of the site appeared to be cleared vacant land, indicating it is already being used for agricultural purposes at this time. Schoolhouse Lane is apparent to the immediate east of the site, as is the Seaton-Glenmaggie Road in its present-day alignment to the north. The area to the east of the site across Schoolhouse Lane appears to be covered by denser vegetation than the surrounding area in general.
1953	Historical Aerial Image	<b>On-site:</b> Two small buildings are apparent in the central to north-east portion of the site, otherwise the site appears consistent with the 1944 aerial image. <b>Surrounding area:</b> The area appears consistent with the 1944 aerial image.
1968	Historical Aerial Image	<b>On-site:</b> The site appears consistent with the 1953 aerial image. <b>Surrounding area:</b> Previously densely vegetated areas to the east of the site appear to have been cleared since the 1953 aerial image, otherwise the surrounding area appears consistent with the 1953 aerial image.
1972	Aerial Images	<b>On-site:</b> The buildings in the central to north-east of the site appear to have been removed. A small dam appears to have been established in the north-west corner of the site. <b>Surrounding area:</b> The area appears consistent with the 1968 aerial image.



Date	Source of	Comment			
1976	Historical Title	DET is the administrator of the site, with the site a reserve used for "Public Purposes (Educational Purposes)".			
1976	Aerial Images	<b>On-site:</b> A building is apparent in the central area of the site, consistent with the slab observed in the site inspection. A number of smaller structures are apparent in the immediate vicinity of this building, including a structure consistent with the present-day toilet. The remainder of the site appears consistent with the 1972 aerial image. <b>Surrounding area:</b> The area appears consistent with the 1972 aerial image.			
1981	Aerial Images	The site and surrounding area appear consistent with the 1976 aerial image.			
1986	Aerial Image	The site and surrounding area appear consistent with the 1981 aerial image.			
2013	Aerial Image	<b>On-site:</b> The main building and adjacent structures appear to have been removed, although the foundation of the building is evident, consistent with the present day. The footprint of the dam in the north-west corner of the site appears to be larger than in previous aerial photos. <b>Surrounding area:</b> The area appears consistent with the 1986 aerial image.			
2020	Aerial Image	The site and surrounding area appear consistent with the 2013 aerial image.			
October 2021	Google maps online	Seaton Country Fire Authority Fire Station is listed along Heyfield-Seaton Road approximately 560 m south-east of the site. An above ground storage (AST) tank is present at the front of that property, potentially either for fuel or water storage, although a large water tank is apparent directly to the west, indicating that the AST may be more likely for fuel.			

# 4 Site Inspection

An experienced SLR environmental scientist conducted an inspection of the site on the 27 September 2021. Photos taken during the site inspection are provided in **Appendix I**, and observations made can be summarised by:

- Entrance to the site was through a gate to Schoolhouse Lane.
- The site was vacant, with a fence along the eastern boundary along Schoolhouse Lane, however no fences on the remaining boundaries, with the boundaries of the site indicated by where vegetation ceased, and open grazing land began.
- Open paddocks with cattle grazing were observed to the north, south and west of the site, with nothing to prevent cattle from grazing on the site.
- Vegetation, including native and European trees, was scattered across the site.
- A gradual gradient to the south-east was observed.
- A dam was present in the north-west corner with the surrounding ground surface highly degraded by cows.
- No indications of potential fill soil deposition were observed (i.e., raised areas above the natural land elevation).
- Some small piles of solid waste were observed including:
  - A pile of tyres in the north-west.
  - A small pile of plastic sheeting and rope in the central west.

- Degraded agricultural equipment in the south-west as well as a degraded empty 200 L drum.
- A concrete slab, approximately 15 m long by 5 m wide, running north-south, was present in the central area of the site with no staining observed on the concrete.
- A small wooden toilet block was present to the south-west of this slab, with a concrete surface and corrugated iron roof.
- A circular concrete pit was located adjacent to the toil block and considered likely to be associated with a septic system.
- A small concrete slab with a low brick structure (possible barbeque) and another concrete slab with remnants of an above ground water tank were also observed in this area.
- No evidence of potential contamination (i.e., stained soils, observations of potential ACM or infrastructure indicating contaminating activities) was identified during the inspection.

# 5 Interview

While conducting the site inspection, the SLR scientist was approached by the farmer who currently leases the property, who provided the following information relevant to the site:

- The farmer leases the site for cattle grazing.
- The farmer has had association with the site (as neighbours) for approximately 70 years.
- The site was a school, which closed at around the time of World War II.
- The site was used as a school camp from the 1970s, with a log cabin constructed at that time.
- The site has been leased for cattle grazing "for many years".
- The site was "inspected a few years back then listed for divestment".
- A road reserve encircles the site.
- Over the years there have been a "few fires" at and around the site that the farmers have managed (not CFA), with only water used for the fire fighting.
- The farmers were not aware of any heating related fuel tanks and said heating was likely obtained from fireplaces.
- Stated that the concrete pit was associated with septic system.



# 6 Potential for Contamination Identified

Based on the findings of the desktop review, a summary of the identified activities to potentially contaminated land and/or groundwater at and in the vicinity of the site, along with associated contaminants of potential concern (CoPC), is provided in **Table 7**. High level recommendations for further assessment to assess the potential for contamination at the site is also provided within the table.

#### Table 7 Summary of Potential Contamination

Potentially Contaminating Infrastructure/ Activity	Potential Contamination	Time of Activity	Contaminants of Potential Concern (CoPC) Identified	Potential for Contamination at the Site	Further Investigation Recommended (Refer to Section 7 for investigation works conducted)
On-site					
Dumping of waste, including that observed during the site inspection	Leaching of contaminants into soil from dumped contaminated material or spillage of fuels or chemicals from waste.	Unknown, particularly since the site stopped being used as school camp	Total recoverable hydrocarbons (TRH), Polycyclic Aromatic Hydrocarbons (PAH), metals and asbestos	Medium	Targeted soil sampling of the agricultural equipment in the south of the site and tyre stockpile in the north-west of the site.
Demolition of former buildings and erosion of old buildings	Deposition of waste to surface erosion of metal and paint	Existing school buildings demolished around WWII, more recent school camp buildings demolished between 1986 and 2013	Asbestos and metals, particularly lead and zinc	Low to Medium (nothing identified by site inspection to indicate this)	Targeted soil sampling in the vicinity of the former buildings in the central to north-east area of the site and the toilet block and slabs in the central area of the site. Use of an excavator to conduct some shallow trenches in these areas would also be recommended.
Septic system	Seepage of effluent through soil	1970s to present	Nitrogen and phosphorous	Low	One test pit to 2 m depth in the vicinity of the identified pit.



Potentially Contaminating Infrastructure/ Activity	Potential Contamination	Time of Activity	Contaminants of Potential Concern (CoPC) Identified	Potential for Contamination at the Site	Further Investigation Recommended (Refer to Section 7 for investigation works conducted)
Off-site					
Surrounding agricultural use	Agricultural activity including application and storage of pesticides and fertilisers, fuel storage and equipment maintenance	Early 1900s to present	Nutrients, organochlorine pesticides (OCP) and organophosphorus pesticides (OPP), TRH, PAH, metals Low based on: • Farming limited to cattle grazing. • No evidence of maintenance areas close to the site.		None
Fire station ~560 m south- east of the site	Storage and spillage of fuels and fire- fighting foams	Unknown to present	TRH, monoaromatic hydrocarbons (MAH), PAH, per- and polyfluoroalkyl substances (PFAS).	Low, based on: <ul> <li>Inferred groundwater flow towards the south-east</li> <li>Distance from the site</li> </ul>	None



# 7 Limited Soil Investigation

The limited soil investigation was undertaken to assess the areas with potential for contamination as identified and recommended by the desktop review (refer to **Table 7**).

# 7.1 Sample Strategy and Methodology

The scope and method of the soil sampling fieldwork is summarised in Table 8 below.

Activity	Details			
Dates of Field Activity	11th November 2021			
Number of Locations	A total of 8 test pits and 5 trenches were advanced.			
Sampling Locations and Target Depths	<ul> <li>The sample locations are shown on Figure 2, Appendix A. The trenches were installed in the area of Former buildings (prior to 1950) in the central to northeastern portion of the site.</li> <li>The test pits targeted:</li> <li>Former and current infrastructure in the central area of the site.</li> <li>The septic system in the central area of the site.</li> <li>Waste piles in the southern and north-western portions of the site.</li> <li>Trenches and test pits were extended to a maximum 0.5 m depth, with the exception of the test pit adjacent to the septic tank, which was extended to 1.0 m depth (targeting the base of the septic tank).</li> </ul>			
Service Location	Dial Before You Dig review was conducted prior to excavation, along with a service location conducted by an accredited service locator.			
Excavation method	Test pits and trenches were installed with a small excavator (<2 tonnes).			
In-situ Survey	Soil samples were field screened using a calibrated Photo Ionisation Detector (PID) and noting any odours and any other olfactory signs of contamination. A calibration record for the PID is provided in <b>Appendix E.</b>			
Soil Logging	The records of the soils encountered, including depths and any relevant observations, were recorded on borehole records. Bore logs are provided in <b>Appendix C.</b>			
Sampling Method	Soil samples were collected directly from the excavator bucket.			
Sample Collection and Storage	Soil samples were placed into laboratory supplied containers that are labelled with an indelible marker pen and placed immediately in an ice chilled esky.			
QA/QC Testing	<ul> <li>The following QA/ QC samples were taken:</li> <li>One blind replicate and field spilt for every 20 primary samples or part thereof</li> <li>One trip blank per esky</li> </ul>			
Field Personnel	The fieldwork was undertaken by experienced environmental engineers in accordance with the agreed scope of work and using methods set out in the SLR sampling procedures.			
Sample Preservation and Transport	Samples were stored on ice, in an esky while on-site and in transit to the laboratory under Chain of Custody documentation.			

 Table 8
 Soil Sampling Scope and Methodology



Activity	Details
Test Pit and Trench Abandonment	Test pits and trenches were abandoned and backfilled with soil cuttings produced during excavation, then levelled with the surrounding ground.
Laboratories Used	Primary samples were submitted to Envirolab Services Pty Ltd (Envirolab), and the split sample was submitted to Australian Laboratory Services (ALS). Both laboratories are National Association of Testing Authorities (NATA) accredited for the analyses requested

Sampling locations are summarised in **Table 9** and shown on **Figure 2**, **Appendix A**. The sample locations were recorded on site by marking on an aerial map in real-time.

Table 9	Soil	Sampling	Locations
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Area	Location Name	Maximum Depth of Investigation	Rationale
Various locations spread out across site based on aforementioned potentially contaminating activities identified	TP01 to TP07, TP09 to TP13	0.5 m	<ul> <li>Targeting potentially contaminating activities identified:</li> <li>Former buildings (prior to 1950) in the central to north-east of the site.</li> <li>Former and current infrastructure in the central area of the site.</li> <li>Waste piles in the south and north-west of the site.</li> </ul>
Septic system in the central area of the site	TP08	1.0 m	Targeting the septic system in the central area of the site.

## 7.2 Laboratory Analysis

The analysis program included the contaminants of concern based on the site history review (see **Table 7**), as well as visual and olfactory observations made during fieldwork. The laboratory program is summarised in **Table 10**.

Samples	Analytes
TP01_0.1, TP02_0.1, TP03_0.1, TP04_0.05, TP05_0.3, TP06_0.1, TP09_0.1	TRH, BTEXN, PAH and metals
TP01_0.5, TP05_0.05, TP08_0.1, TP08_1.0, TP11_0.1	Nitrogen, Phosphorous
TP01_0.1, TP05_0.05	pH and CEC
TP07_0.1, TP10_0.1, TP11_0.1, TP13_0.05	Metals

Copies of the NATA stamped laboratory reports and the Chain of Custody and sample receipt records are included in **Appendix D.** Tabulated laboratory results are presented in **Appendix B**. The quality control/ quality assurance (QA/QC) of the soil sampling program is discussed in **Section 7.7**.



# 7.3 Environmental Values and Adopted Criteria

The following land use category, as set out in the Environment Reference Standard (ERS, Vic Gov, 2021), is considered applicable to the potential for residential use (as a conservative measure) within a farming zone is:

Sensitive use, including land used for residential use, a child care centre, pre-school, or primary school, being either: (i) high density, where development makes maximum use of available land space and there is minimal access to soil. (ii) other (lower density), where there is generally substantial access to soil.

The applicable Environmental Values (EV) to this land use setting include (Vic Gov, 2021):

- Land dependant ecosystems and species modified ecosystems.
- Human health.
- Buildings and structure.
- Aesthetics.
- Production of food, flora and fibre.

The indicators and objectives for each EV are also provided within Table 4.3 of the ERS. These have been applied as the adopted criteria as detailed in **Table 11**.

Environmental Value	Adopted Criteria			
Land dependant ecosystems and species - modified ecosystem	National Environment Protection Measure (NEPM) Ecological Investigation/Screening Levels (EIL/ESL): to assess potential risks to terrestrial ecosystems based on the following generic land use settings. Urban residential and public open space was considered to be the most relevant scenario for the proposed development at the site.			
Human health.	<b>NEPM Health Investigation/Screening Levels (HIL-A, HSL-A):</b> Standard residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), includes children's day care centres, preschools and primary schools.			
Buildings and structure.	The ERS defines the objectives for Aesthetics as "Land that is not corrosive to or otherwise adversely affecting the integrity of structures or building materials". Assessment criteria adopted for buildings and structures are available from Table 6.4.2 of Australian Standard AS2159-2009 (Australia Standard, 2009) based on soil pH and sulphate concentrations. While pH, sulphate, redox potential and salinity may have detrimental impacts upon buildings and structures, assessment of such risk falls outside the scope for this investigation.			
Aesthetics.	The ERS defines the objectives for Aesthetics as "Land that is not sensitive to the senses of human beings".			
Production of food, flora and fibre	The criteria adopted for Land dependant ecosystems and species - modified ecosystem is considered applicable to this environmental value.			

#### Table 11 Summary of adopted criteria for each environmental value

NEPM Management Limits for TRH fractions (Residential, parkland and public open space): Management limits where high concentrations of low toxicity hydrocarbons may be unacceptable due to the potential for formation of LNAPL, fire and explosive hazard and effects on buried infrastructure by hydrocarbons.

"Investigation levels" or "screening levels" presented in the NEPM (NEPC 2013) are not intended to be interpreted as "maximum permissible levels", "clean up levels" or "safe levels", rather, they are levels at which further investigation or assessment should be undertaken to provide assurance that unacceptable contamination does not occur to an extent that could cause harm or detriment for users of the land. The levels are based on general soil and site characteristics and are considered conservative as investigation/screening levels. Subsequent assessment on a site-specific basis often results in higher levels being acceptable. However, since the "investigation levels" or "screening levels" are generally set at conservatively low levels, they are often taken to be the acceptable levels.

#### 7.3.1 Site Specific EIL

NEPM (NEPC 2013) allows for calculation of EIL by the summing the Added Contaminant Level (ACL) and Ambient Background Concentration (ABC). The ACL is based on site-specific physico-chemical parameters measured at the site as shown in **Table 12** below. The derivation of the EIL is provided in **Appendix B**.

#### Table 12 Summary of physico-chemical parameters

Analytes	рН	CEC	Fresh/Aged	ABC (mg/kg)	ACL (mg/kg)	EIL (mg/kg)
Copper				10	55	65
Nickel	4.1	1.4	Aged	5	35	40
Zinc				40	90	130
Notes: CEC: Cation Exchange Capacity, lowest value used ABC: Ambient Background Concentration, sourced from Olszowy et al. VIC, old suburb, low traffic						
EIL: Ecological Investigation Level						

## 7.4 Field Observations

The general soil conditions observed across the site during the soil sampling program are summarised in **Table 13** below. Detailed soil descriptions are provided in the bore logs in **Appendix C.** 

#### Table 13Typical Soil Profile

Sub-Surface Horizon	Typical Depth Range	Description
Topsoil	Surface to ~ 0.3 m	Sandy SILT (ML), low plasticity, dark grey to brown, soft, soft to firm, slightly moist, no odour, with angular gravels, grass and roots, organic matter
Natural	~ 0.3 m to Target Depth	Silty CLAY (CH), high plasticity, very stiff, firm, moist, yellowish brown, slightly moist, no odour, no staining

#### 7.4.1 PID Screening Results

Soil samples were screened for the presence of Volatile Organic Compounds (VOC) using a PID in the headspace of bagged samples. The PID headspace readings were generally low and did not indicate significant or widespread contamination by VOC (that are normally detected by PID).



# 7.5 Laboratory Soil Results

The results of laboratory analysis have been compared against adopted assessment criteria and presented in **Table 1** of **Appendix B**. An interpretation of these data is summarised as follows:

- Concentration of all analytes were either reported below the laboratory limit of reporting or below the adopted human health and ecological criteria.
- Concentration of nutrients appeared to be elevated across the site in the surface samples with sampling in the vicinity of the septic not indicating elevated nutrient levels associated with the septic tank/septic system (surface samples were found relatively consistent at the three locations tested across the site, with sample collected at TP08 maximum depth of 1.0 m at septic tank significantly lower).
- pH levels ranged between 4.1 and 4.3 units which would be a moderate exposure classification for soils above groundwater (Australian Standard, 2009).
- Soil results were compared to EPA Publication 1828.2 for the purpose of providing a preliminary indication
  of their waste classification. Concentrations of analytes were within the range of EPA Fill Material<sup>1</sup> at sample
  locations SS10 and SS11. Soil analytical results compared to upper limits within EPA Publication 1828. 2 is
  presented in Table 2 of Appendix B.
- Asbestos or asbestos containing material was not encountered during the soil and field investigation within the test pits sampled.

The laboratory reports from primary and secondary laboratories are provided in **Appendix D.** 

## 7.6 Discussion

The potential risk posed to the Environmental Values of land based on the results of soil analysis and in consideration of the findings of the desktop and site history research is presented in **Table 14**.

Environmental Value	Comments
Land dependant ecosystems and species - modified ecosystem	Concentrations of all analytes were below the adopted ecological health criteria which does not indicate impacts to this environmental value at this site.
Human health	Concentrations of all analytes were below the adopted human health criteria which does not indicate impacts to this environmental value at the site.
Buildings and structure.	<ul> <li>pH levels indicate a moderate exposure classification of soils above groundwater.</li> <li>Samples were not analysed for chloride or sulphate and majority of the samples analysed from shallow (less than 2 m BGL) soils.</li> <li>As this report is not a corrosion risk assessment, specialist advice would be needed to assess potential corrosion risk to buildings and structures.</li> </ul>
Aesthetics.	Waste piles located in the south and north-west of the site would be considered aesthetically offensive to the senses of human beings.
Production of food, flora and fibre	Refer to comments for Land dependent ecosystems and species – modified ecosystems Environmental Value

#### Table 14 Risks to Environmental Values of land

<sup>1</sup> While a comparison of the analytical results has been compared against EPA Publication 1828.2, the assessment is only preliminary and not sufficient for off-site disposal. Should offsite disposal of soil be required, additional assessment will have to be conducted to meet the relevant guidelines.



# 7.7 Quality Assurance/ Quality Control (QA/QC)

The completeness, representativeness, comparability, accuracy and precision requirements have been met. A laboratory QA/QC report is provided as part of **Appendix B.** Overall, the data is considered to be of a suitable quality of the purpose of this investigation.



# 8 Findings and Conclusion

The desktop review and limited soil sampling program identified the following potentially contaminating infrastructure and activities:

- Former buildings (prior to 1950) in the central to north-east of the site.
- Former and current infrastructure in the central area of the site.
- Waste piles in the south and north-west of the site.
- The septic system in the central area of the site besides the bathroom.

Based on the limited soil investigation targeting these potentially contaminating activities, the following can be summarised:

- Waste piles located in the south and north-west of the site require removal before the site it suitable for its proposed use for a farming zone (including residential use).
- Analyte concentrations indicated no impacts to the environmental values in a low-density residential setting and the results indicate that the site would not be precluded (by contamination) for potential use within a farming zone (including residential use).
- The limited sampling indicates that the soil is within the range of EPA Fill Material. However, the assessment is only preliminary and not sufficient for off-site disposal.



# 9 References

Australian Standard (2009) Piling Design and Installation, AS 2159.

Environment Protection Authority (2021), *Environment Reference Standard (ERS)*, Environment Protection Act 2017, publication 26 May 2021.

National Environment Protection Council (NEPC) (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999*, NEPC, Canberra. April 2013.

Planning and Environmental Act 1987 (Act No. 45/1987)

SLR (2021) Draft Preliminary Site Investigation, Former Seaton Heyfield Primary School Plantation, Schoolhouse Lane, Seaton, Victoria, ref: 640.30268.00000-R01 dated 13 October 2021.



# **10** Limitations

The following information will assist in understanding the uncertainties relating to the interpretation of the data obtained during this investigation and the recommendations presented in the report and help with assessment and interpretation of the report.

SLR assumes no responsibility for the quality or accuracy of data obtained from external sources, or for occurrences outside the scope of works defined in this report.

All work conducted, and reports produced by SLR are prepared for a particular Client's objective and are based on a specific scope, conditions and limitations, as agreed upon between SLR and the Client. Information and/or report(s) prepared by SLR may therefore not be suitable for any use other than the intended objective.

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It is the responsibility of third parties to investigate fully to their satisfaction if any information and/or report(s) prepared by SLR, is suitable for a specific objective.

Services were conducted in a conscientious and professional manner. The nature of the task, however, and the likely disproportion between any damage or loss which might arise from the work and any report prepared as a result and the cost of our services is such that SLR cannot guarantee that all issues of concern/contamination have been identified.

The report(s) and/or information produced by SLR should not be reproduced and/or presented/reviewed except in full.


# Appendix A

Figures

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# **Appendix B**

Tables and QC Review

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### Table 1: Soil Analytical Results NEPM 2013

				TPH							Metal	ls							Inorgar	ics		
	Moisture Content	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Total)	Arsenic	Cadmium	Chromium (III+VI)	Copper	Phosphorus	Lead	Mercury	Nickel	Zinc	Nitrogen (Total Oxidised)	CEC	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Nitrogen (Total)
	%	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	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	mg/kg
LOR	0.1	25	50	100	100	50	4	0.4	1	1	10	1	0.1	1	1	0.5	1	0.1	0.1	0.1	0.1	10
NEPM 2013 Table 1A(1) HILs Res A Soil							100 <sup>#1</sup>	20		6000		300 <sup>#2</sup>	40 <sup>#3</sup>	400	7400							
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																						
NEPM 2013 Tables 1B(1) - 1B(5) EILs Urban residential and public open space							100		460	65 <sup>#10</sup>		1100 <sup>#10</sup>		40#10	130 <sup>#10</sup>							
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																						
0-1m																						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																						
0-2m																						
		-					-															

Location Code	Sample Depth (m)	Sampled Date	Sample Type	Field ID																						
TP01	0.1	11-Nov-2021	Normal	TP01_0.1	4	<25	<50	<100	<100	<50	<4	<0.4	4	1	-	5	<0.1	<1	15	-	1.5	0.7	0.4	0.3	<0.1	-
	0.5	11-Nov-2021	Normal	TP01_0.5	15	-	-	-	-	-	-	-	-	-	13	-	-	-	-	12	-	-	-	-	-	310
TP02	0.1	11-Nov-2021	Normal	TP02_0.1	3.8	<25	<50	<100	<100	<50	<4	<0.4	2	<1	-	1	<0.1	<1	<1	-	-	-	-	-	-	-
TP03	0.1	11-Nov-2021	Normal	TP03_0.1	8.8	<25	<50	<100	<100	<50	<4	<0.4	5	2	-	35	<0.1	2	9	-	-	-	-	-	-	-
TP04	0.05	11-Nov-2021	Normal	TP04_0.05	9	<25	<50	<100	<100	<50	<4	<0.4	6	2	-	15	<0.1	1	9	-	-	-	-	-	-	-
TP05	0.05	11-Nov-2021	Normal	TP05_0.05	8.5 - 8.9	-	-	-	-	-	<4	<0.4	6	3	91	42	0.1	2	15	1.4	1.4	0.7	0.5	0.2	<0.1	670
	0.3	11-Nov-2021	Normal	TP05_0.3	14	<25	<50	<100	<100	<50	<4	<0.4	23	3	-	8	<0.1	3	7	-	-	-	-	-	-	-
			Duplicate	BR02_20211111	12 - 14	<25	<50	<100	<100	<50	<4	<0.4	21	2	-	6	<0.1	3	5	-	-	-	-	-	-	-
			Split	SPL02_20211111	12.2	<10	<50	<100	<100	<50	<5	<1	22	<5	-	6	<0.1	4	5	-	-	-	-	-	-	-
TP06	0.1	11-Nov-2021	Normal	TP06_0.1	15	<25	<50	<100	150	150	<4	<0.4	10	7	-	12	<0.1	3	35	-	-	-	-	-	-	-
TP07	0.1	11-Nov-2021	Normal	TP07_0.1	17	-	-	-	-	-	<4	<0.4	12	5	-	11	<0.1	2	18	-	-	-	-	-	-	-
TP08	0.1	11-Nov-2021	Normal	TP08_0.1	5.8	-	-	-	-	-	-	-	-	-	130	-	-	-	-	31	-	-	-	-	-	1300
	1	11-Nov-2021	Normal	TP08_1.0	12	-	-	-	-	-	-	-	-	-	15	-	-	-	-	56	-	-	-	-	-	180
TP09	0.1	11-Nov-2021	Normal	TP09_0.1	6.7	<25	<50	<100	120	120	<4	<0.4	7	2	-	6	<0.1	2	31	-	-	-	-	-	-	-
TP10	0.1	11-Nov-2021	Normal	TP10_0.1	17	-	-	-	-	-	<4	<0.4	6	4	-	37	0.1	2	11	-	-	-	-	-	-	-
TP11	0.1	11-Nov-2021	Normal	TP11_0.1	9.3 - 9.4	-	-	-	-	-	<4	<0.4	9	3	87	25	<0.1	2	5	0.97	-	-	-	-	-	1100
TP13	0.05	11-Nov-2021	Normal	TP13_0.05	3.8	-	-	-	-	-	<4	<0.4	12	2	-	72	0.3	3	36	-	-	-	-	-	-	-

Env Stds Comments

#1:Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Shedule B7).

#2:Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered

where appropriate. #3:Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be considered if elemental mercury is present, or suspected to be present. #4:Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should meet BaP TEQ HIL) & napthalene (should meet relevant HSL)

#5:Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7) BaP TEQ calc by multiplying the conc of each carc. PAH in sample by its BaP TEF (ref Table 1A(1)) & summing

#6:Separate management limits for BTEX & naphthalene are not available hence should not be subtracted from the relevant fractions to obtain F1 & F2

#7:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#8:To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#9:Derived soil HSL exceeds soil saturation concentraiton #10: Site specific EILs calculated using pH 4.1, CEC 1.4 meq/100g and Olszowy et al. VIC Old Suburb, Low Traffic

								SL	R
				B	TEX				
Kjeldahl Nitrogen Total	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Total BTEX	
10	0.2	0.5	1	2	1	1	0.1	1	
	012	0.0		-			0.11		
	0.5	160	55			40	3		
	50	85	70			105			
-	<0.2	<0.5	<1	<2	<1	<1	<0.1	<1	
300	-	-	-	-	-	-	-	-	
•	<0.2	<0.5	<1	<2	<1	<1	<0.1	<1	
-	<0.2	<0.5	<1	<2	<1	<1	<0.1	<1	
670	<0.2	<0.0	< 1	<2	< 1	<	<0.1	< 1	
	<0.2	< 0.5	<1	<2	<1	<1	<0.1	<1	
-	< 0.2	< 0.5	<1	<2	<1	<1	<0.1	<1	
	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.2	
	< 0.2	< 0.5	<1	<2	<1	<1	< 0.1	<1	
-	-	-	-	-	-	-	-	-	
1300	-	-	-	-	-	-	-	-	
120	-	-	-	-	-	-	-	-	
-	<0.2	< 0.5	<1	<2	<1	<1	<0.1	<1	
-	-	-	-	-	-	-	-	-	
1100	-	-	-	-	-	- 1	-	-	

. . . . . . . .

### Table 1: Soil Analytical Results NEPM 2013

														D	٨Ц													трц				SDOCAS
					L					1			1	F/																		JFUCAS
					Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEO calc (Zero)	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34 (F3)	C34-C40 (F4)	C10-C40 (Total)	pH (CaCl2)
					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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
LOR					0.2	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.5	0.5	0.5	25	25	50	50	100	100	50	
NEPM 2013 Tal	ble 1A(1) HILs Res A Soil																				300#4	3 <sup>#5</sup>	3 <sup>#5</sup>	3 <sup>#5</sup>								
NEPM 2013 Tal	ble 1B(7) Management I	Limits in Res / Pa	arkland, Coarse	e Soil																					700 <sup>#6</sup>		1000 <sup>#6</sup>		2500	10000		
NEPM 2013 Tal	bles 1B(1) - 1B(5) EILs Ui	rban residential	and public ope	en space																												
NEPM 2013 Tal	ble 1A(3) Res A/B Soil H	SL for Vapour In	ntrusion, Sand																													
0-1m																										45#7		110 <sup>#8</sup>				
NEPM 2013 Tal	ble 1B(6) ESLs for Urban	n Res, Coarse So	il																													
0-2m										0.7																180 <sup>#7</sup>		120 <sup>#8</sup>	300	2800		
Location Code	Sample Depth (m)	Sampled Date	Sample Type	Field ID					1 0 1	0.05									1 0 1		0.05	0.5	0.5	0.5	0.5	0.5	50	50	100	100		
11P01	0.1	11-Nov-2021	Normal		<0.2	<0.1	<0.1	<0.1	<0.1	< 0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<25	<25	<50	<50	<100	<100	<50	4.1
TDOO	0.5	11-Nov-2021	Normal	TP01_0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u> </u>
TP02	0.1	11-Nov-2021	Normal	TP02_0.1	<0.2	<0.1	<0.1	<0.1	<0.1	< 0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.05	<0.5	< 0.5	< 0.5	<25	<25	<50	<50	<100	<100	<50	
TP03	0.1	11-Nov-2021	Normal	TP03_0.1	< 0.2	<0.1	<0.1	<0.1	<0.1	< 0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.05	< 0.5	< 0.5	< 0.5	<25	<25	<50	<50	<100	<100	<50	
TP04	0.05	11-Nov-2021	Normal	TP04_0.05	<0.2	<0.1	<0.1	<0.1	<0.1	< 0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<25	<25	<50	<50	<100	<100	<50	-
11P05	0.05	11-NOV-2021	Normal	TP05_0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 100	-	4.3
	0.3	11-INOV-2021	Normai	IP05_0.3	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<25	<25	<50	<50	<100	<100	<50	<u> </u>
			Duplicate	BRU2_20211111	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<25	<25	<50	<50	<100	<100	<50	<u> </u>
TDO/	0.1	11 Nov 2021	Split	SPLU2_20211111	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.Z	0.6	<0.5	<10	<10	<50	<50	<100	<100	<50	<u> </u>
TP06	0.1	11-Nov-2021	Normal	TP05_0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<25	<25	<50	<50	130	<100	130	<u> </u>
TP07	0.1	11-Nov-2021	Normal	TP07_0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u>⊢-</u>		<u> </u>
1908	0.1	11-NOV-2021	Normal	TP08_0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u>⊢</u>		
TDOO	0.1	11-NOV-2021	INOrmai	TP08_1.0	-	-	-	- 0.1	- 0.1	-	-	-	-	-	-	-	-	-	-	- 0.1	-	-	-	-	-	-	-	-	-	100	-	<u> </u>
11209	0.1	11-NOV-2021	INOrmal	TD10_01	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<u. i<="" th=""><th><u. i<="" th=""><th>&lt;0.1</th><th>&lt;0.1</th><th><u. i<="" th=""><th>&lt;0.05</th><th>&lt;0.5</th><th>&lt;0.5</th><th>&lt;0.5</th><th>&lt;25</th><th>&lt;25</th><th>&lt;50</th><th>&lt;50</th><th>100</th><th>&lt;100</th><th>100</th><th><u> </u></th></u.></th></u.></th></u.>	<u. i<="" th=""><th>&lt;0.1</th><th>&lt;0.1</th><th><u. i<="" th=""><th>&lt;0.05</th><th>&lt;0.5</th><th>&lt;0.5</th><th>&lt;0.5</th><th>&lt;25</th><th>&lt;25</th><th>&lt;50</th><th>&lt;50</th><th>100</th><th>&lt;100</th><th>100</th><th><u> </u></th></u.></th></u.>	<0.1	<0.1	<u. i<="" th=""><th>&lt;0.05</th><th>&lt;0.5</th><th>&lt;0.5</th><th>&lt;0.5</th><th>&lt;25</th><th>&lt;25</th><th>&lt;50</th><th>&lt;50</th><th>100</th><th>&lt;100</th><th>100</th><th><u> </u></th></u.>	<0.05	<0.5	<0.5	<0.5	<25	<25	<50	<50	100	<100	100	<u> </u>
	0.1	11-NOV-2021	INOrmal	TD11_0_1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u>⊢-</u>	<u> </u>	<u> </u>
11711	0.1	111-NOV-2021	INOrmal	1P11_0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<u>⊢-</u>	<u> </u>	
11413	0.05	111-Nov-2021	INormal	11113_0.05	· ·		-	-	-		-	-	- 1	-	-	-	-	-	- 1	-	-	-	-	-		-	-	-	-	1 - '	i - 1	

Env Stds Comments

#1:Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Shedule B7). #2:Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for

where 50% bioavailability considered. Site-specific bioavailability should be considered

where appropriate. #3:Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be considered if elemental mercury is present, or suspected to be present. #4:Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should meet BaP TEQ HIL) & napthalene (should meet relevant HSL)

#5:Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7) BaP TEQ calc by multiplying the conc of each carc. PAH in sample by its BaP TEF (ref Table 1A(1)) & summing

#6:Separate management limits for BTEX & naphthalene are not available hence should not be subtracted from the relevant fractions to obtain F1 & F2

#7:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#8:To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#9:Derived soil HSL exceeds soil saturation concentraiton #10: Site specific ELs calculated using pH 4.1, CEC 1.4 meq/100g and Olszowy et al. VIC Old Suburb, Low Traffic



### Table 2: Soil Analytical Results EPA Publication 1828.2

						Location Code	Т	P01	TP02	TP03	TP04			TP05		TP06	TP07	TP	208	TP09	TP10	TP11	TP13
					San	nple Depth (m)	0.1	0.5	0.1	0.1	0.05	0.05		0.3		0.1	0.1	0.1	1	0.1	0.1	0.1	0.05
						Sampled Date	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11	-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021	11-Nov-2021
						Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Split	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		l l	FPA Vic	FPA Vic	FPA Vic	FPA Vic	101_0.1	IPUI_0.5	<u>  1P02_0.1</u>	[IPU3_0.1	1P04_0.05	1905_0.05	1P05_0.3	BRU2_20211111	SPLU2_20211111	TP06_0.1	IP07_0.1	1908_0.1	1P08_1.0	1909_0.1	<u>  IPI0_0.1</u>	<u>  IPII_0.1</u>	<u>  IP13_0.05</u>
			Publication	Publication	Publication	Publication																	
			1828.2	1828.2	1828.2	1828.2																	
ChemName	output unit		Category A	Category B	Category C	Category D																	
Moisture Content	%	0.1					4	15	3.8	8.8	9	8.5 - 8.9	14	12 - 14	12.2	15	17	5.8	12	6.7	17	9.3 - 9.4	3.8
ТРН	-																						
<u>C6-C9</u>	mg/kg	25	2600	650	325	100	<25	-	<25	<25	<25	-	<25	<25	<10	<25	-	-	-	<25	-	-	
<u>C10-C14</u> C15_C29	mg/kg	50 100					<50	-	<50	<50	<50	-	<50	<50	<50	<50	-	-	-	<50	-	-	-
<u>C13-C20</u> C29-C36	ma/ka	100					<100	-	<100	<100	<100	-	<100	<100	<100	150		-	-	120			
C10-C36 (Total)	mg/kg	50	40000	10000	5000	1000	<50	-	<50	<50	<50	-	<50	<50	<50	150	-	-	-	120	-	-	-
Metals				500				1															<u> </u>
Cadmium	mg/kg	4	2000	500 100	100	20	<4	-	<4	<4	<4	<4	<4	<4	<5	<4	<4	-	-	<4	<4	<4	<4
Chromium (III+VI)	mg/kg	1	400	100	100	5	4	-	2	5	6	6	23	21	22	10	12	-	-	7	6	9	12
Copper	mg/kg	1	20000	5000	5000	100	1	-	<1	2	2	3	3	2	<5	7	5	-	-	2	4	3	2
Phosphorus	mg/kg	10	(000	1500	1500	200	-	13	-	-	-	91	-	-	-	-	-	130	15	-	-	87	70
Mercury	mg/kg mg/kg	01	300	75	75	300	<u>5</u> <0.1	-	<0.1	<u>35</u> <0.1	15 <0.1	42	<0.1	<b>0</b>	6 <0.1	<0.1	<0.1	-	-	<0.1	3/ 01	<0.1	0.3
Nickel	mg/kg	1	12000	3000	3000	60	<1	-	<1	2	1	2	3	3	4	3	2	-	-	2	2	2	3
Zinc	mg/kg	1	140000	35000	35000	200	15	-	<1	9	9	15	7	5	5	35	18	-	-	31	11	5	36
Inorganics	ma/ka	0.5						10				1.4						21	E4			0.07	
	mea/100a	0.5 1					1.5	- 12			-	1.4	-	-	-		-	-		-		- 0.97	-
Exchangeable Calcium	meq/100g	0.1					0.7	-			-	0.7	-	-	-	-	· ·	-	-	-	-	-	-
Exchangeable Magnesium	meq/100g	0.1					0.4	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Exchangeable Potassium	meq/100g	0.1					0.3	-	-	-	-	0.2	-	-	-	-		-	-	-	-	-	
Nitrogen (Total)	ma/ka	0.1 10					<u. i<="" th=""><th>310</th><th>-</th><th>-</th><th>-</th><th>670</th><th>-</th><th>-</th><th>-</th><th>-</th><th>-</th><th>- 1300</th><th>- 180</th><th>-</th><th>-</th><th>1100</th><th>-</th></u.>	310	-	-	-	670	-	-	-	-	-	- 1300	- 180	-	-	1100	-
Kjeldahl Nitrogen Total	mg/kg	10					-	300	-	-	-	670	-	-	-	-	-	1300	120	-	-	1100	-
BTEX								1															
Benzene	mg/kg	0.2	16	2200	2200	1	< 0.2	-	< 0.2	< 0.2	<0.2	-	< 0.2	<0.2	<0.2	<0.2	-	-	-	< 0.2	-	-	
Ethylbenzene	ma/ka	0.5	4800	1200	1200		<1	-	<0.5	<1	<1	-	<0.5	<1	<0.5	<0.5	-	-	-	<1			
Xylene (m & p)	mg/kg	2					<2	-	<2	<2	<2	-	<2	<2	<0.5	<2	-	-	-	<2	-	-	-
Xylene (o)	mg/kg	1			0.100		<1	-	<1	<1	<1	-	<1	<1	<0.5	<1	-	-	-	<1		-	
Xylene Total Naphthalene	mg/kg	1	9600	2400	2400		<1	-	<0.1	< 1	<1	-	<1	< 1	<0.5	<1	-	-	-	<1	-	-	
Total BTEX	mg/kg	1					<1	-	<1	<1	<1	-	<1	<1	<0.2	<1	-	-	-	<1	-	-	-
PAH								1							1								
Benzo(b+j+k)fluoranthene	mg/kg	0.2					<0.2	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	-0.5	<0.2	-	-	-	<0.2	-	-	-
Acenaphthylene	mg/kg	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.1		-	-	<0.1	-	-	
Anthracene	mg/kg	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.1	-	-	-	<0.1	-	-	-
Benz(a)anthracene	mg/kg	0.1	1(0	40	20	1	< 0.1	-	< 0.1	< 0.1	< 0.1	-	< 0.1	<0.1	<0.5	< 0.1	-	-	-	<0.1	-	-	
Benzo(a) pyrene Benzo(b+i)fluoranthene	mg/kg mg/kg	0.05	160	40	20	1	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.5	<0.05		-	-	<0.05		-	
Benzo(g,h,i)perylene	mg/kg	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.1	-	-	-	<0.1		-	-
Benzo(k)fluoranthene	mg/kg	0.5					-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-
Chrysene	mg/kg	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.1	-		-	<0.1	· ·		
Fluoranthene	ma/ka	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.1	-	-	-	<0.1	-	-	
Fluorene	mg/kg	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.1	-	-	-	<0.1	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	< 0.5	<0.1	-	-	-	<0.1	-	-	
Phenanthrene	mg/kg	0.1					<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.1	-	-	-	<0.1	-	-	
PAHs (Sum of total)	ma/ka	0.1					< 0.05	-	<0.05	<0.05	<0.05	-	< 0.05	<0.05	<0.5	<0.05	-	-	-	< 0.05			
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5					<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	1.2	<0.5	-	-	-	<0.5	-	-	-
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5					< 0.5	-	< 0.5	< 0.5	< 0.5	-	< 0.5	<0.5	0.6	< 0.5	-	-	-	< 0.5	-	-	<u> </u>
Benzo(a)pyrene IEQ calc (Zero)	mg/Kg	0.5					<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	-	-	
C6-C10	mg/kg	25					<25	-	<25	<25	<25	-	<25	<25	<10	<25	-	-	-	<25	-	-	-
C6-C10 (F1 minus BTEX)	mg/kg	25					<25	-	<25	<25	<25	-	<25	<25	<10	<25	-	-	-	<25	-	-	
$\frac{\text{C10-C16}}{\text{C10-C16}}$	mg/kg	50					<50	-	<50	<50	<50	-	<50	<50	<50	<50	-		-	<50	· ·		
C16-C34 (F3)	mg/kg	30 100					<00	-	<50	<50	<pre>&gt;</pre>	-	<00	<50	<50	<50	-	-	-	<pre><pu 100<="" pre=""></pu></pre>		-	
C34-C40 (F4)	mg/kg	100					<100	-	<100	<100	<100	-	<100	<100	<100	<100	-	-	-	<100	-	-	-
C10-C40 (Total)	mg/kg	50					<50	-	<50	<50	<50	-	<50	<50	<50	130	-	-	-	100	-	-	· ·
SPOCAS							A 1	1				4.2	, ,		1								<u> </u>
ph (CaCiz)	-						4.1		· ·	· ·	-	4.3	-	· ·	-	-	· ·	-	-	-	· ·	· ·	· ·

		SDG Field ID Sampled Date	ENVIROLAB 2021-11-12100:00:00 TP05_0.3 11-11-2021	ENVIROLAB 2021-11-12100:00:00 BR02_20211111 11-11-2021	RPD	ENVIROLAB 2021-11-22100:00:00 TP05_0.3 11-11-2021	ENVIROLAB 2021-11-22100:00:00 BR02_20211111 11-11-2021	RPD	ENVIROLAB 2021-11-12 TP05_0.3 11-11-2021
		Sample Type	Normal	Duplicate		Normal	Duplicate		Normal
			•			-			
ChemName	Units	LOR							
Moisture Content	%	0.1 : 1 (Interlab)	14	14	0	14	12	15	14
ТРН									
C6-C9	mg/kg	25				<25	<25	0	
C10-C14	mg/kg	50				<50	<50	0	
C15-C28	mg/kg	100				<100	<100	0	
C29-C36	mg/kg	100				<100	<100	0	
C10-C36 (Total)	mg/kg	50				<50	<50	0	
Metals									
Arsenic	mg/kg	4 : 5 (Interlab)	<4	<4	0				<4
Cadmium	mg/kg	0.4 : 1 (Interlab)	<0.4	<0.4	0				<0.4
Chromium (III+VI)	mg/kg	1:2 (Interlab)	23	21	9				23
Copper	mg/kg	1:5 (Interlab)	3	2	40				3
Lead	mg/kg	1:5 (Interlab)	8	6	29				8
Mercury	mg/kg	0.1	<0.1	<0.1	0				<0.1
Nickel	mg/kg	1:2 (Interlab)	3	3	0				3
Zinc	mg/kg	1:5 (Interlab)	/	5	33				/
BIEX					-				
Benzene	mg/kg	0.2			-	<0.2	<0.2	0	<0.2
Toluene	mg/kg	0.5				<0.5	<0.5	0	<0.5
	mg/kg	1				<1	<1	0	<1
Xylene (m & p)	mg/kg	2	-		-	<2	<2	0	<2
Xylene Total	mg/kg	1				<1	<1	0	<1
Naphthalono	mg/kg	1			-	<1	<1	0	
Naphthalono	mg/kg	0.1			-	<0.1	<0.1	0	
Total BTEX	mg/kg	1				<0.1	<0.1	0	<0.1
PAH	iiig/kg	ľ				<u> </u>		Ŭ	
Benzo(b+i+k)fluoranthene	ma/ka	0.2				<0.2	<0.2	0	<0.2
Acenaphthene	ma/ka	0.1				<0.1	<0.1	0	<0.1
Acenaphthylene	ma/ka	0.1				<0.1	<0.1	0	<0.1
Anthracene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Benz(a)anthracene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Benzo(a) pyrene	mg/kg	0.05				<0.05	<0.05	0	< 0.05
Benzo(g,h,i)perylene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Chrysene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Dibenz(a,h)anthracene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Fluoranthene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Fluorene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Phenanthrene	mg/kg	0.1				<0.1	<0.1	0	<0.1
Pyrene	mg/kg	0.1				<0.1	<0.1	0	<0.1
PAHs (Sum of total)	mg/kg	0.05				<0.05	<0.05	0	<0.05
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5				<0.5	<0.5	0	<0.5
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5				<0.5	<0.5	0	<0.5
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5				<0.5	<0.5	0	<0.5
TRH	-		1		<u> </u>				
C6-C10	mg/kg	25			<u> </u>	<25	<25	0	<25
C6-C10 (F1 minus BTEX)	mg/kg	25			<u> </u>	<25	<25	0	<25
C10-C16	mg/kg	50			<u> </u>	<50	<50	0	<50
C10-C16 (F2 minus Naphthalene)	mg/kg	50			<u> </u>	<50	<50	0	<50
C16-C34 (F3)	mg/kg	100				<100	<100	0	<100
C34-C40 (F4)	mg/kg	100				<100	<100	0	<100
• • • • • • • • • • • • • • • • • • •	(III)/KA	1231.1					< 2011		<50

 C10-C40 (Total)
 mg/kg
 50
 <5</th>

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

 \*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (1-10 x EQL); 30 (10-30 x EQL); 30 ( > 30 x EQL) )

 \*\*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 primary laboratory



2T00.00.00	ALSE-Melbourne 12-Nov-21	
2100.00.00	SPI 02 20211111	RPD
	11-11-2021	
	Split	
	•	
	12.2	14
	<5	0
	<1	0
	22	4
	<5	0
	6	29
	<0.1	0
	4	29
	5	33
	<0.2	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.2	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	c.u>	0
	<0.5	0
	<0.5	0
	<0.5	0
	<0.5	0
	12	82
	0.6	18
	<0.5	0
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	<50	ñ
	<50	õ
	<100	õ
	<100	ő
	<50	0
	100	Š



SDG	ENVIROLAB 2021-11-12T00:00:00
Field ID	TB02_20211111
Sampled Date	11-11-2021
Sample Type	Trip Blank

ChemName	Units	LOR	
BTEX			
Benzene	mg/kg	10000	
Toluene	µg/L	1	<1
Ethylbenzene	µg/L	1	<1
Xylene (m & p)	µg/L	2	<2
Xylene (o)	µg/L	1	<1
Xylene Total	µg/L	1	<1
Naphthalene	µg/L	1	<1
Total BTEX	µg/L	1	<1
ТРН			
C6-C9	mg/kg	100000	
TRH			
C6-C10	µg/L	10	<10
C6-C10 (F1 minus BTEX)	µg/L	10	<10

Inputs								
Select contaminant from list below								
Cu								
Below needed to calculate fresh and aged ACLs								
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)								
1.4								
Enter soil pH (calcium chloride method) (values from 1 to 14)								
4.1								
Enter organic carbon content (%OC) (values from 0 to 50%)								
1								
Below needed to calculate fresh and ared								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg), Leave blank if no measured value								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg). Leave blank if no measured value								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg). Leave blank if no measured value 40 or for fresh ABCs only								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg). Leave blank if no measured value 40 or for fresh ABCs only Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg). Leave blank if no measured value 40 or for fresh ABCs only Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg). Leave blank if no measured value 40 or for fresh ABCs only Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration or for aged ABCs only Enter State (or closest State)								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg). Leave blank if no measured value 40 or for fresh ABCs only Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration or for aged ABCs only Enter State (or closest State) VIC								
Below needed to calculate fresh and aged ABCs Measured background concentration (mg/kg). Leave blank if no measured value 40 or for fresh ABCs only Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration or for aged ABCs only Enter State (or closest State) VIC Enter traffic volume (high or low)								

Outputs											
Land use	Cu soil-sp	ecific EILs									
	(mg contaminant/	'kg dry soil)									
	Fresh	Aged									
National parks and areas of high conservation value	45	50									
Urban residential and open public spaces	55	65									
Commercial and industrial	60	75									

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Inputs			
Select contaminant from list below			
Ni			
Below needed to calculate fresh and aged ACLs			
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)			
1.4			
Below needed to calculate fresh and aged ABCs			
Measured background concentration (mg/kg). Leave blank if no measured value 40			
or for fresh ABCs only			
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration			
or for aged ABCs only			
Enter State (or closest State)			
VIC			

Enter traffic volume (high or low) low

Outputs					
Land use	Ni soil-specific EILs				
	(mg contaminant/kg dry soil)				
	Fresh	Aged			
National parks and areas of high conservation value	40	40			
Urban residential and open public spaces	40	40			
Commercial and industrial	40	45			

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
1.4
Enter soil pH (calcium chloride method) (values from 1 to 14)
4.1
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value 40
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)

low

Outputs				
Land use	Zn soil-specific EILs			
	(mg contaminant	/kg dry soil)		
	Fresh	Aged		
National parks and areas of high conservation value	45	45		
Urban residential and open public spaces	50	70		
Commercial and industrial	60	90		

## QA/QC Reports

### **Replicate Samples**

Throughout each monitoring event, two duplicate and two split samples were collected and submitted for laboratory analysis to ALS (Primary Laboratory) and Eurofins (secondary laboratory) respectively. The primary, duplicate, and split groundwater sample combinations are listed below in **Table B1**.

### Table B1 - Summary of QC combination

Parent Sample	Duplicate	Split	Sample Medium	Sample Date
TP05_0.3	BR02_20211111	SPL02_20211111	Soil	11 November 2021

With the exception of the analytes listed below in **Table B2** the remaining RPDs were considered acceptable for the primary and duplicate/split sample. As per the ASC NEPM and for the purpose of this investigation, a 30% RPD for concentrations more than ten times the limit of reporting has been adopted as acceptance criteria.

### Table B2 - Summary of RPDs exceeding the acceptable limit

Parent Sample	Sample Date	Duplicate / Split	Analyte	RPD %	Comment
TP05_0.3	11/11/21	Duplicate	Copper	40	This is not considered significant due to
TP05_0.3	11/11/21	Duplicate	Zinc	33	sample heterogeneity and low analyte
TP05_0.3	11/11/21	Split	Zinc	33	concentration.

### Equipment Rinsate and Trip Blanks<sup>1</sup>

**Table B3** below provides a summary of the rinsate and trip blank samples collected as part of this investigation and analytes detected within them. Refer to **Table 5** in **Appendix B** for the analytical results of the rinsate and trip blank samples.

### Table B3 - Summary of equipment rinsate and trip blank samples

Sample	Date	Analysis	Concentration
TB01_2021111	11/11/21	BTEX, TRH C <sub>6</sub> -C <sub>9</sub>	All analysis reported <lor< td=""></lor<>



 $<sup>^{1}</sup>$  The sampling frequency of Trip Blank samples deviates from that specified in the GQMP (SLR 2021).

# Appendix C

Borelogs

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SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.5 m LOGGED BY NB CHECKED BY SB

СОММ	IENTS		-	
Depth (m)	Material Description	Samples	DIA	Additional Comments
- 0.1	TOPSOIL Sandy SILT (ML), low plasticity, soft, light grey brown, slightly moist, no odour, no staining, with angular sand grains and root matter	TP01_0.1	0.0	Asbestos was not encountered during excavation
- 0.2	Silty CLAY (CH), high plasticity, stiff to very stiff, orange brown, slightly moist, no odour, no staining			
- 0.3 - - 0.4		TP01_0.3	0.0	
	EOI at target depth	TP01_0.5	0.0	
- 0.6				
- 0.7				
- 0.8				
- 0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.8 m LOGGED BY NB CHECKED BY NB

соми	ENTS					
Depth (m)	Material Description	Samples	DIA	Additional Comments		
_	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, light grey brown, slightly moist, no odour, no staining, with angular gravel (approx. 2cm) and root matter			Asbestos was not encountered during excavation		
0.1	Silty SAND (SD) poorly graded, find to medium grained, orongo brown	TP02_0.1	0.0			
- 0.2	slightly moist, no odour, no staining, with minor gravel content					
- 0.3		TP02_0.25	0.0			
-	Increasing sand content					
- 0.4		TP02_0.4	0.0			
- 0.5	light brown					
- 0.6		TP02_0.6	0.0			
- 0.7	Silty CLAY (CH), high plasticity, stiff to very stiff, orange brown, slightly moist, no odour, no staining					
-0.8-	FOI at largest death	TP02_0.8	0.0			
_						
- 0.9						

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SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.8 m LOGGED BY NB CHECKED BY SB

соми	IENTS			
Depth (m)	Material Description	Samples	DIA	Additional Comments
	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, dark brown, slightly moist, no odour, no staining, with root matter			Asbestos was not encountered during excavation
- 0.1		TP03_0.1	0.0	
- 0.2	Sandy CLAY (CL), low plasticity, firm to stiff, light grey, slightly moist, no odour, no staining			
- 0.3				
- 0.4				
- 0.5	Silty CLAY (CH) high plasticity stiff to very stiff, yellow to orange brown	TP03_0.5	0.0	
- 0.6	slightly moist, no odour, no staining			
- 0.7		ТР03_0.7	0.0	
<del>0.8</del>	EOI at 0.8 m			
- 0.9				

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SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.6 m LOGGED BY NB CHECKED BY SB

сомм	IENTS			
epth (m)	Material Description	amples	٩	Additional Comments
<u> </u>	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, dark brown, slightly moist, no odour, no staining, with root matter	0 TP04_0.05	<u>е</u> 0.0	Asbestos was not encountered during excavation
0.1	Sandy CLAY (CL), low plasticity, firm to stiff, light grey, slightly moist, no odour, no staining			
- 0.3		TP04_0.3	0.0	
- 0.4	Silty CLAY (CH) bigh placticity stiff to yory stiff, orange brown, slightly mojet			
- 0.5	no odour, no staining	TP04 0.5	0.0	
0.6				
0.0	EOI at 0.6 m			
- 0.7				
- 0.8				
0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.5 m LOGGED BY NB CHECKED BY SB

СОММ	IENTS					
Depth (m)	Material Description	Samples	DIA	Additional Comments		
- 0.1	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, dark grey brown, slightly moist, no odour, no staining, with root matter Silty CLAY (CH), high plasticity, stiff to very stiff, yellow brown, slightly moist, no odour, no staining	TP05_0.05	0.0	Asbestos was not encountered during excavation		
- 0.2						
- 0.3		TP05_0.3	0.0	BR02_20211111 SPL02_20211111		
- 0.4						
-0.6	EOI at 0.5 m					
0.7						
- 0.8						
0.9						



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.6 m LOGGED BY NB CHECKED BY SB

соми	IENTS			
Depth (m)	Material Description	Samples	DID	Additional Comments
	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, dark brown, slightly moist, no odour, no staining, with root matter	TP06_0.05	0.0	Asbestos was not encountered during excavation
0.1	Silty CLAY (CH), high plasticity, stiff to very stiff, orange brown, slightly moist, no odour, no staining			
0.2			0.0	
0.0		11 00_0.3	0.0	
0.4				
- 0.5		1206_0.5	0.0	
-0.6	EOI at 0,6 m			
0.7				
- 0.8				
- 0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.6 m LOGGED BY NB CHECKED BY SB

Соми	IENTS			
Depth (m)	Material Description	Samples	DIA	Additional Comments
	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, dark brown, slightly moist, no odour, no staining, with root matter	TP07_0.05	0.0	Asbestos was not encountered during excavation
- 0.1	Silty CLAY (CH), high plasticity, stiff to very stiff, orange brown, slightly moist, no odour, no staining			
- 0.2				
- 0.3		TP07_0.3	0.0	
- 0.4				
0.5		TP07_0.5	0.0	
0.6	EOI at 0.6 m			
- 0.7				
- 0.8				
- 0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 1.1 m LOGGED BY NB CHECKED BY SB

сомм	IENTS			
Depth (m)	Material Description	Samples	DIA	Additional Comments
- 0.1	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, brown, slightly moist, no odour, no staining, with root matter	TP08_0.1	0.0	Asbestos was not encountered during excavation
- 0.2				
- 0.3	Silty CLAY (CH), high plasticity, stiff to very stiff, orange brown, slightly moist, no odour, no staining			
- 0.4		TP08_0.4	0.0	
- 0.5				
- 0.6		TP08_0.6	0.0	
- 0.7				
- 0.8				
- 0.9				
- 1		TP08_1.0	0.0	
<del>1.1</del>	EOI at 1.1 m			

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SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.5 m LOGGED BY NB CHECKED BY SB

соми	ENTS			
Depth (m)	Material Description	Samples	DIA	Additional Comments
- 0.1	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, brown, slightly moist, no odour, no staining, with root matter	TP09_0.1	0.0	Asbestos was not encountered during excavation
- 0.2	Silty CLAY (CH), high plasticity, stiff to very stiff, yellow brown, slightly moist, no odour, no staining			
- 0.3		TP09_0.3	0.0	
- 0.4				
		TP08_0.5	0.0	
- 0.5	EOI at 0.5 m			
- 0.6				
- 0.7				
- 0.8				
- 0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.5 m LOGGED BY NB CHECKED BY SB

СОММ	ENTS			
Depth (m)	Material Description	Samples	DIA	Additional Comments
- 0.1	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, brown, slightly moist, no odour, no staining, with root matter	TP10_0.1	0.0	Asbestos was not encountered during excavation
- 0.2	Silty CLAY (CH), high plasticity, stiff to very stiff, yellow brown, slightly moist,			
- 0.3	no odour, no staining	TP10_0.3	0.0	
0.4 0.5	EOI at 0.4 m			
- 0.6				
- 0.7				
- 0.8				
- 0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.3 m LOGGED BY NB CHECKED BY SB

сомм	IENTS			
Depth (m)	Material Description	Samples	DIA	Additional Comments
- 0.1	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, brown, slightly moist, no odour, no staining, with root matter	TP11_0.1	0.0	Asbestos was not encountered during excavation
- 0.2	Silty CLAY (CH), high plasticity, stiff to very stiff, brown mottled with orange, slightly moist, no odour, no staining			
0.3	EQLot 0.2 m	TP11_0.3	0.0	
- 0.4				
- 0.5				
- 0.7				
- 0.8				
- - 0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.4 m LOGGED BY SB CHECKED BY SB

сомм	ENTS			
Depth (m)	Material Description	Samples	DIA	Additional Comments
- 0.1	TOPSOIL Silty SAND (SP), poorly graded, fine to medium grained, dark brown to light brown, slightly moist, no odour, no staining, with root matter Silty CLAY (CH), high plasticity, stiff to very stiff, brown, slightly moist, no	TP12_0.1	0.0	Asbestos was not encountered during excavation
- 0.2		TP12_0.3	0.0	
- 0.4	EOI at 0.4 m			
- 0.6				
- 0.7				
- 0.8				
- 0.9				



SAMPLING DATE 11 November 2021 EARTHWORKS COMPANY Seeker Utility EXCAVATOR TYPE 8 Tonne Excavator SAMPLING METHOD From bucket TOTAL DEPTH 0.4 m LOGGED BY SB CHECKED BY SB

соми	IENTS			
Depth (m)	Material Description	amples	Q	Additional Comments
	ALLUVIAL: Sandy GRAVEL (GW), well graded, fine to coarse grained, brown, slightly moist, no odour, no staining, with pebbles and rootlets	TP13_0.05	0.0	Asbestos was not encountered during excavation
- 0.1	Silty SAND (SP), poorly graded, fine to medium grained, dark brown to light brown, slightly moist, no odour, no staining	-		
- 0.2		TP13_0.2	0.0	
- 0.3	Silty CLAY (CH), high plasticity, stiff to very stiff, brown, slightly moist, no odour, no staining	TP13.04	0.0	
0.4	EOI at 0.4 m			
- 0.5				
- 0.6				
- 0.7				
- 0.8				
- 0.9				
L				

# **Appendix D**

Laboratory Reports

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Sample ID	Date & Time	Matrix 6, water, ACM, etc)	Containers an	d Preservatives	Š											
TPOL D.I	11/121	S	1		X		1 -					<u> </u>		<u> </u>		
TP01_0.3							1						+	<u> </u>		
TP01-0.5				,					,				<u>+</u>			
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ARN 29 001 E94 C12	OFFICE CANSERBA; GPC	<sup>0 8</sup> 00 410, Carborni, C	CLID 4740	Walay. D PERTH W	3 Murray Street, Perth, WA	TOWNSVELE: 17 Cann Townsville OLD 4810	en St, South	NEW PLYMOUTH: Louni 2, 10 Down Scient
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r attest that the proper field sampling procedures were used during the collection of these samples.           Relinguished By Sampler         Sign		12	Réceived by	sign JU	ALL	Date / Time	2/ul	Temperature Received:
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AND 2003 24 023     Picked Base     Picked Base     Picked Base     Picked Base     Picked Base       Picked Base     Lindbattor     Lindbattor<	StR Consulting Australia Pty Ltd	OFFICE CANBERRA: GAURER 410, Carberta	MACKAT: JI Reat Street, Marka	Tanikar, Nyika Kuy 14. pm PERTH: SOT Montay Sci	uswara 10WNSVII	(1-12 Cenner St. South	Prot Nelson, 7020 NJ NEW PLYMOLISM, Jacob 2, 10 Course Street			
	ABN 29 001 584 612	(Tick one) DARWIM: 21 Parap Rd. Darwm, kt )								
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iample Container Codres: P = Unpreserved Plastic; N = Nutric Preserved Plastic; ORC = Nutric Preserved ORC; SH = Sodium Hydroxide/Cd Preu wrfreight Unpreserved Vial SG = Sulfurit Preserved Amber Glass; H = HCG preserved Plastic; HS = HCG preserved Specietion bottle; SP = Sulfy Sottles; STT = Sterile Sodium Thiosulfate Preserved Bottles; G = yngepenned discus af in:	rrved; 5 = Sodiura Hydrosida Preserved Plastic; AG = J rk Preserved Plastic; F = Formaldebryda Preserved GU	Amber Glass Unpreserved; AP	Artreight Unpreserved Plaste	e V = VOA Val KCI Freserved, VB = 1	VOA Viai Sechum Bitulmhata Present ad	Van UTA Notific at the
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### Gemma Sliz

From:	Sneha Bhattachan <sbhattachan@slrconsulting.com></sbhattachan@slrconsulting.com>
Sent:	Monday, 15 November 2021 10:50 AM
To:	Gemma Sliz
Subject:	RE: Sample Receipt for 28646 640.30268

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Gemma.

Can we please add the following as well:

- pH + CEC for TP05/0.05 and TP01/0.1 -
- \_ Combo 3 - TP09/0.1, TP06/0.1, TP03/0.1, TP04/0.05
- Metals TP07/0.1 -
- Phosphorus and Nitrogen for TP01/0.5, TP08/1.0

Can we please remove analysis of Phosphorus and Nitrogen for TP08/0.6.

Kind Regards,

Sneha Bhattachan Senior Project Consultant - Land Quality & Remediation

61 3 9249 9414

61 3 9249 9400

+61 429 049 285

a sbhattachan@slrconsulting.com

SLR Consulting Australia Ptv Ltd Lvl 11, 176 Wellington Parade, East Melbourne, VIC, Australia, 3002

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From: Gemma Sliz <GSliz@envirolab.com.au> Sent: Monday, 15 November 2021 10:24 AM To: Sneha Bhattachan <sbhattachan@slrconsulting.com> Subject: Sample Receipt for 28646 640.30268

							JECT GOLD COAST: 255 Vinity Parado, Vervily Parado, Vervily Parado, Vervily Parado, New Under Not New 2056 Street, Lane Cove, Sydney, Children, Sydney, Chil												
SLR Consulting Australia Pty I	td			OFFICE []	OFFICE CANDERRA: GPD Dox 410, Camberra,									Inen St, South NEW PLYMOUTH: Level 2, 10 Devon Street					
ABN 29 001 584 612				(Tick one)										Roed, Auck/and 1010					
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CHAIN OF CUSTOD	Y DOCUMENTA	TION		PROJECT D	BRISBANE: Lo Spring Hill, QLU	evel 2, 15 Astor Terrace, D 4000	GOLD COAST: 194	Varsity Parade,	NEWCAST	LE: 10 Kings Road, New	* D SYD	NEY: 2 Lincoln Stree	n, Lane Cove, Sydney,	NELSON: 1	5/A Cambridge Street, Ricl	imond,	
SLR Consulting Australia Pty	Ltd			OFFICE	CANBERRA:	GPO Bos 410, Canberra,	MACKAY: 21 River	Street, Mackay,	PERTH: SC	3 Murray Street, Perth		VNSVILLE: 12 Can	nan St, South	Port Nelson	, 7020 NZ 40UTH: Level 2, 10 Dove	n Street	
ABN 29 001 584 612				(Tick one)	DARWIN: 21	Parap Rd, Oanwin, NT		11, 176 Weilington		PTON:		(NSVIIIE QLD 4810 (KLAND: 68 Beach R	load, Auckland 1010	East, Now P	lymauth, 4310 NZ		
CLIENT: DTF				I	LABORA	TORY:	nulsal	)L.	tocknampt	arters (consuming, cons	N2		Типатонг		C Number		
PROJECT: Starton	$\sim$				LABORA	TORY ADDRESS	; ;		<u> </u>	-			TAT	r)	2_ of 1		4
PROJECT NUMBER: 64	0.30268.				SAMPLE	R: A~	B -		-				🗆 Standar	d TAT b		<b>f</b>	
PROJECT MANAGER:	3	<u>) - ,                                   </u>			SAMPLE	R CONTACT No	NID .						🛛 Non Sta	ndard or Urge	int TAT		
	121 099 2	<u>کل</u>			Email Re	ports and Invoi	ces to: Sbh	atta	<u>chan</u>	<u>w sin</u>	Consi	thňg	Required TA	T: Standard			
						JESTED						0	o com	,			
						AN								Additic (Comment on or spec	inal Information any gross contamin cific requirements)	n nation	
No. Sam	ple ID 	Date & Time	Matrix (Soil, water, ACM, etc)	Containers and	d Preserva	atīves											
12 TPOY_ 0	)-3	n 11/21	S	L 1													
13 TP04 _0	). 5		2	<u> </u>													
14 TPO5 C	).05		2		<u> </u>												
15 TPOS_ O	.3	4	5		۱												• .
16 BR02_	20211111		2			_											
17 TP06_0	•1	4	٢		ţ											•	
18 TPO6_ 0.	3		2	<u>\</u>										۱			•
19 TPO6_ C	).6		S	<u> </u>													
20 TPOT_0	)•1	4	<u> </u>														
21 TP07	0.3		2	(													
22 707_0			<u> </u>														
Sample Container Codes: P = Unpreserved Pla Airfreight Unpreserved Vial SG = Sulfuric Prese Bottles; STT = Sterile Sodium Thiosulfate Prese	astic; A = Nitric Preserved Plastic; ORC erved Amber Glass; H = HCl preserved erved Bottles; G = unpreserved glass so	= Nitric Preserved ORG d Plastic; HS = HCl pre: il Jar;	; SH = Sodium Hydroxide/Co served Speciation bottle; SP =	l Preserved; S = Sodiur Sulfunc Preserved Plast	Hydroxide Pre lc; F = Formal	eserved Plastic; AG = # Idehyde Preserved Gla	mber Glass Unpreserved ss; Z = Zinc Acetate Pres	l; AP - Airfreight erved Bottle; E =	Unpreserved Plast EDTA Preserved B	ic V = VOA Vial HCl F ottles; ST = Sterile B	Preserved; VB = V Jottle; ASS = Plas	/OA Vial Sodium B stic Bag for Acid Su	isulphate Preserve ulphate Solls; B = U	d; VS = VOA Via†S inpreserved Bag; L	ulfuric Preserved; AV = 1 = Lugols Iodine Prese	rved	
l attest that the proper field samplir	ng procedures were used durin	g the collection o	f these samples.	1		1			1	4-1			. / 1		norsture Bocelu	]	
Relinquished By Sampler	sign	are		Date / Time	<u>2 ''</u>	121	Received by	Sign	<u> NX</u>			Date / Time	12/11	<u>2/</u>	iperature Receiv		
Relinguished By	Sign			Date / Time			Received by	Sign				Date / Time	<u> </u>				
<u>Relinquished By</u> Sign				Date / Time			Received by	Sign Date				Date / Time					

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<u>Relinquished By</u>

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CH/	AIN OF CUST	DDY DOCUME	INTATION		BANE: Level 2, 15 Astor Te	Trace, GOLD COAS	T: 194 Varsity Parade, OLD 4227		TLE: 10 Kings Road, Ne	ew D SY2	NEY: 2 Lincoln Stree	t, Lane Cove, Sydney,	NELSON:	6/A Cambridge Street, Richmond,	1		
SLR C	onsulting Australia	Pty Ltd				FICE CANBERRA: GPD 6xx 410, Canberra, GPD 6xx											
ABN :	29 001 584 612	_			(Tick one) DAR	Tick one) Carwin, NT Kelbourne, VI Carwin, NT Kelbourne, VI Carwin, VI Kelbourne, VI Carwin, VI Carvin, VI Car											
CLIEN	T DTF	· · · · ·			LAE	LABORATORY: EWICOLD . Turnaround Time COC Number											
PROJ	ict:	seaton	· · · · · · · · · · · · · · · · · · ·		LAE	LABORATORY ADDRESS: OF Negerch dlive, Goydon (the (TAT) Z of											
PROJ		40.302	\$ <u>6</u>		SAI	MPLER:	IB.						Standard		<u> </u>	ĺ	
PROJ	CT MANAGER:	<u> </u>		·	SA	MPLER CONTAC		<u>19 99</u>	<u>B13</u>	3			🛛 🛛 Non Stan	idard or Urg	ent TAT		
COM		I DIRECTIONS	265		Em	ail Reports and	nvoices to:	shatta	enan	(OC)	A Cox	sup	Received TAT	: Standard		4	
•						REQUESTED ANALYSIS							V-Car	Addition (Comment or or spe	onal Information 7 any gross contamination ccific tequirements)		
No.		Sample ID	Date & Time	Matrix (Soil, water, ACM, etc)	Containers and Pro	eservatives											
23'	TP08_0	<u>•1</u>	11/11/21	S	1												
24	TPO8_	)·4		۲,	1										,	1	
25	TP08_	0.6	,		<u>ر</u>												
26	TP 08	_1.D		<u>т</u>	۱												
27	TPO9_	0.1	1		1								1				
28	TPO9_	0.3	1	t	1						_						
29	TP09-	0.5	۲.	1	1							1					
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Sample Airfreigh Bottles;	Container Codes: P = Unpresen It Unpreserved Vial SG = Sulfuri STT = Sterile Sodium Thiosulfati	red Plastic; N = Nitric Preserved F c Preserved Amber Glass; H = H Preserved Bottles; G = unpreser	Plastic; ORC = Nitric Preserved ORC Cl preserved Plastic; HS = HCl preserved glass soil jar;	; SH = Sodium Hydroxide/Cr served Speciation bottle; SP a	d Preserved; S = Sodium Hydro = Sulfuric Preserved Plastic; F =	xide Preserved Plastic; Formaldehyde Preserv	AG = Amber Glass Unpres red Glass; Z = Zinc Acetati	erved; AP - Airfreight Preserved Bottle; E :	Unpreserved Plas = EDTA Preserved I	tic V = VOA Vial HCI Bottles; ST = Sterile	l Preserved: VB = Bottle; ASS = Pla	VOA Vial Sodium B stic Bag for Acid Si	ilsulphate Preserved ulphate Soils; B = Un	I; VS = VOA Vial 5 ipreserved Bag; I	Sulfuric Preserved; AV = U = Lugols Iodine Preserved	1	
l attes	t that the proper field sa	mpling procedures were u	sed during the collection o	f these samples.					11	A1 -1						1	
<u>Reling</u>	uished By Sampler	Sign	grats_		Date/Time	11/21	Received by	Sign	#hs	thick		Date / Time	12/11	21 Ten	nperature Received:		
<u>Relinc</u>	uished By	Sign			Date / Time		Received by	Sign	-			Date / Time					
Relinguished By Sign				Date / Time		Received by	Sign				Date / Time						

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# SLR

CHAIN OF CUSTODY DOCUMENTATION	PROJECT BRISBANE: Level 2, 15 Astor Terrace, Spring Hill, QLD 4000	GOLD COAST: 194 Varsity Pa	arade, NEWCASTLE: 10 Kings Road, New SYD	NEY: 2 Lincoln Street, Lane Cove, Sydney, NELSON: 6/A Cambridge Street, Richmond,
SLR Consulting Australia Pty Ltd	OFFICE CANBERRA: GPD Box 410, Canberra,	MACKAY: 21 River Street, Ma	ackay, D PERTH: S03 Murray Street, Perth, WA D TON	VNSVILE: 12 Cannan St, South NEW PLYMOUTH: Level 2, 10 Devan Street
ABN 29 001 584 612	(Tick one) DARWIN: 21 Parap Rd, Darwin, NT	MELBOURNE: LVI 11, 176 We	relingtion CI ROCKHAMPTON: CI AUC	-nsville QLD 4B10 East, New Plymouth, 4310 N2 (KLAND: 66 Beach Road, Auckland 1010
CLIENT:	LABORATORY:	manue, Last Meladuma, Vic at	002 rockhampton@sfrconsulting.com NZ	Turner d Time COC Number
PROJECT: Seaton	LABORATORY ADDRESS:	25 25	10050 Rd Croudon	A CUA ALA (TAT)
PROJECT NUMBER: 640. 30268	SAMPLER: NB		senico no u vyavy	SLEV VIC
PROJECT MANAGER:	SAMPLER CONTACT No:	0449 90	998133	Non Standard or Urgent TAT
PM CONTACT NO:	Email Reports and Invoid	ces to: Sbhatta	chan @ slr conjultion	Y.LOM , Required TAT: Standard
	REQUESTED ANALYSIS			Additional Information (Comment on any gross contamination or specific requirements)
No. Sample ID Date & Time Matrix (Soil, water, ACM, etc.)	ontainers and Preservatives			
30 TAO_ 0.1 1/11/21 Sort				
31 TP10_0.3.				
32 TP11_0.1				
33 TPI1_ 0.2				
34 TP12-0.1				
33 TP12_0.3.				
36 TP13_0-05				
37 TP13_0.2			· ·	
SO-TP13_0.4				
39 7302 2021 11 11				
40 - TPOY_0.05 V V				
Sample Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserv Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles; G = unpreserved glass soil Jar;	ved; S = Sodium Hydraxide Preserved Plastic; AG = Arr Ic Preserved Plastic; F = Formaldehyde Preserved Glass	mber Glass Unpreserved; AP - Airfr s; Z = Zinc Acetate Preserved Bott	freight Unpreserved Plastic V = VOA Vial HCI Preserved; VB = V tle; E = EDTA Preserved Bottles; ST = Sterlle Bottle; ASS = Plas	DA Vial Sodium Bisulphate Preserved; VS = VOA Via! Sulfuric Preserved; AV = tic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved
t attest that the proper field sampling procedures were used during the collection of these samples.           Relinguished By Sampler         Sign         Date	/Time 12 11 21	Received by Sig	n fastil	Date / Time $(2/a/2)$ Temperature Received:
Relinquished By Sign Date	/ Time	Received by Sig	gn	Date / Time
Relinquished By Sign Date	/ Time	Received by Sig		Date / Time

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#### Envirolab Services Pty Ltd ABN 37 112 535 645 - 002 25 Research Drive Croydon South VIC 3136 ph 03 9763 2500 fax 03 9763 2633 melbourne@envirolab.com.au www.envirolab.com.au

# **CERTIFICATE OF ANALYSIS 28646**

Client Details	
Client	SLR Consulting Aust. Pty Ltd (VIC)
Attention	Sneha Bhattachan
Address	Level 11, 176 Wellington Parade, EAST MELBOURNE, VIC, 3002

Sample Details	
Your Reference	<u>640.30268</u>
Number of Samples	39 Soil, 1 Water
Date samples received	12/11/2021
Date completed instructions received	15/11/2021

## **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	22/11/2021
Date of Issue	22/11/2021
NATA Accreditation Number 2901. This do	ocument shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17	7025 - Testing. Tests not covered by NATA are denoted with *

<u>Results Approved By</u> Chris De Luca, Operations Manager

#### Authorised By

Pamela Adams, Laboratory Manager

Envirolab Reference: 28646 Revision No: R00



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vTRH(C6-C10)/BTEXN in Soil						
Our Reference		28646-1	28646-4	28646-9	28646-17	28646-27
Your Reference	UNITS	TP01_0.1	TP02_0.1	TP03_0.1	TP06_0.1	TP09_0.1
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
vTRH C6 - C9	mg/kg	<25	<25	<25	<25	<25
vTRH C6 - C10	mg/kg	<25	<25	<25	<25	<25
TRH C6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total BTEX	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	92	93	91	95

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		28646-40
Your Reference	UNITS	TP04_0.05
Date Sampled		11/11/2021
Type of sample		Soil
Date extracted	-	16/11/2021
Date analysed	-	17/11/2021
vTRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
vTRH C6 - C10	mg/kg	<25
TRH C <sub>6</sub> - C <sub>10</sub> 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 BTEX	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	94

TRH Soil C10-C40 NEPM						
Our Reference		28646-1	28646-4	28646-9	28646-17	28646-27
Your Reference	UNITS	TP01_0.1	TP02_0.1	TP03_0.1	TP06_0.1	TP09_0.1
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100	<100	150	120
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	150	120
TRH >C10 -C16	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100	<100	130	100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	130	100
Surrogate o-Terphenyl	%	82	81	82	82	81

TRH Soil C10-C40 NEPM		
Our Reference		28646-40
Your Reference	UNITS	TP04_0.05
Date Sampled		11/11/2021
Type of sample		Soil
Date extracted	-	16/11/2021
Date analysed	-	18/11/2021
TRH C10 - C14	mg/kg	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	81

PAHs in Soil						
Our Reference		28646-1	28646-4	28646-9	28646-17	28646-27
Your Reference	UNITS	TP01_0.1	TP02_0.1	TP03_0.1	TP06_0.1	TP09_0.1
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j&k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc (Half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d <sub>14</sub>	%	94	96	88	94	94

PAHs in Soil		
Our Reference		28646-40
Your Reference	UNITS	TP04_0.05
Date Sampled		11/11/2021
Type of sample		Soil
Date extracted	-	16/11/2021
Date analysed	-	18/11/2021
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-d <sub>14</sub>	%	94

Acid Extractable metals in soil						
Our Reference		28646-1	28646-3	28646-4	28646-9	28646-14
Your Reference	UNITS	TP01_0.1	TP01_0.5	TP02_0.1	TP03_0.1	TP05_0.05
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Arsenic	mg/kg	<4	[NA]	<4	<4	<4
Cadmium	mg/kg	<0.4	[NA]	<0.4	<0.4	<0.4
Chromium	mg/kg	4	[NA]	2	5	6
Copper	mg/kg	1	[NA]	<1	2	3
Lead	mg/kg	5	[NA]	1	35	42
Mercury	mg/kg	<0.1	[NA]	<0.1	<0.1	0.1
Nickel	mg/kg	<1	[NA]	<1	2	2
Zinc	mg/kg	15	[NA]	<1	9	15
Phosphorus	mg/kg	[NA]	13	[NA]	[NA]	[NA]

Acid Extractable metals in soil						
Our Reference		28646-15	28646-16	28646-17	28646-20	28646-23
Your Reference	UNITS	TP05_0.3	BR02_20211111	TP06_0.1	TP07_0.1	TP08_0.1
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Arsenic	mg/kg	<4	<4	<4	<4	[NA]
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	[NA]
Chromium	mg/kg	23	21	10	12	[NA]
Copper	mg/kg	3	2	7	5	[NA]
Lead	mg/kg	8	6	12	11	[NA]
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	[NA]
Nickel	mg/kg	3	3	3	2	[NA]
Zinc	mg/kg	7	5	35	18	[NA]
Phosphorus	mg/kg	[NA]	[NA]		[NA]	130

Acid Extractable metals in soil						
Our Reference		28646-26	28646-27	28646-30	28646-32	28646-36
Your Reference	UNITS	TP08_1.0	TP09_0.1	TP10_0.1	TP11_0.1	TP13_0.05
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Arsenic	mg/kg	[NA]	<4	<4	<4	<4
Cadmium	mg/kg	[NA]	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	[NA]	7	6	9	12
Copper	mg/kg	[NA]	2	4	3	2
Lead	mg/kg	[NA]	6	37	25	72
Mercury	mg/kg	[NA]	<0.1	0.1	<0.1	0.3
Nickel	mg/kg	[NA]	2	2	2	3
Zinc	mg/kg	[NA]	31	11	5	36
Phosphorus	mg/kg	15	[NA]	[NA]	[NA]	[NA]

Acid Extractable metals in soil		
Our Reference		28646-40
Your Reference	UNITS	TP04_0.05
Date Sampled		11/11/2021
Type of sample		Soil
Date digested	-	16/11/2021
Date analysed	-	17/11/2021
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	6
Copper	mg/kg	2
Lead	mg/kg	15
Mercury	mg/kg	<0.1
Nickel	mg/kg	1
Zinc	mg/kg	9

Miscellaneous Inorg - soil						
Our Reference		28646-1	28646-3	28646-14	28646-23	28646-26
Your Reference	UNITS	TP01_0.1	TP01_0.5	TP05_0.05	TP08_0.1	TP08_1.0
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Total Nitrogen in soil	mg/kg	[NA]	310	[NA]	1,300	180
TKN as N in soil	mg/kg	[NA]	300	[NA]	1,300	120
NOx as N in soil	mg/kg	[NA] 12		[NA]	31	56
pH 1:5 soil:CaCl <sub>2</sub>	pH Units	4.1	[NA]	4.3	[NA]	[NA]

Moisture						
Our Reference		28646-1	28646-3	28646-4	28646-9	28646-14
Your Reference	UNITS	TP01_0.1	TP01_0.5	TP02_0.1	TP03_0.1	TP05_0.05
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Moisture	%	4.0	15	3.8	8.8	8.9
Moisture						
Our Reference		28646-15	28646-16	28646-17	28646-20	28646-23
Your Reference	UNITS	TP05_0.3	BR02_20211111	TP06_0.1	TP07_0.1	TP08_0.1
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Moisture	%	14	14	15	17	5.8
Moisture						
Our Reference		28646-26	28646-27	28646-30	28646-32	28646-36
Your Reference	UNITS	TP08_1.0	TP09_0.1	TP10_0.1	TP11_0.1	TP13_0.05
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/11/2021	16/11/2021	16/11/2021	16/11/2021	16/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Moisture	%	12	6.7	17	9.3	3.8
Moisture						
Our Reference		28646-40				

Our Reference		28646-40
Your Reference	UNITS	TP04_0.05
Date Sampled		11/11/2021
Type of sample		Soil
Date prepared	-	16/11/2021
Date analysed	-	17/11/2021
Moisture	%	9.0

Cation exchange capacity			
Our Reference		28646-1	28646-14
Your Reference	UNITS	TP01_0.1	TP05_0.05
Date Sampled		11/11/2021	11/11/2021
Type of sample		Soil	Soil
Date extracted	-	19/11/2021	19/11/2021
Date analysed	-	19/11/2021	19/11/2021
Exchangeable Ca	meq/100g	0.7	0.7
Exchangeable K	meq/100g	0.3	0.2
Exchangeable Mg	meq/100g	0.4	0.5
Exchangeable Na	meq/100g	<0.1	<0.1
Cation Exchange Capacity	meq/100g	1.5	1.4

vTRH(C6-C10)/BTEXN in Water		
Our Reference		28646-39
Your Reference	UNITS	TB02_20211111
Date Sampled		11/11/2021
Type of sample		Water
Date extracted	-	15/11/2021
Date analysed	-	15/11/2021
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	<10
TRH C6 - C10	µg/L	<10
TRH C <sub>6</sub> -C <sub>10</sub> less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Total +ve Xylenes	µg/L	<1
Total BTEX in water	µg/L	<1
Surrogate Dibromofluoromethane	%	121
Surrogate toluene-d8	%	107
Surrogate 4-BFB	%	91

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
Inorg-055	Nitrate - determined colourimetrically. Soils are analysed following a water extraction. Water samples are filtered on receipt prior to analysis.
Inorg-055/062	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	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.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-022	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
	For soil results:-
	<ol> <li>'EQ PQL'values are assuming all contributing PAHs reported as <pql actually="" and="" approach="" are="" at="" be="" calculation="" can="" conservative="" contribute="" false="" give="" given="" is="" li="" may="" most="" not="" pahs="" positive="" pql.="" present.<="" teq="" teqs="" that="" the="" this="" to=""> <li>'EQ zero'values are assuming all contributing PAHs reported as <pql and="" approach="" are="" below="" but="" calculation="" conservative="" contribute="" false="" is="" least="" li="" more="" negative="" pahs="" pql.<="" present="" susceptible="" teq="" teqs="" that="" the="" this="" to="" when="" zero.=""> <li>'EQ half PQL'values are assuming all contributing PAHs reported as <pql +ve="" a="" above.="" and="" approaches="" are="" between="" conservative="" half="" hence="" individual="" is="" least="" li="" lowest="" mid-point="" most="" note,="" of="" pahs="" pahs"="" pahs.<="" positive="" pql="" pql.="" reflective="" simply="" stipulated="" sum="" the="" therefore"="" total=""> </pql></li></pql></li></pql></li></ol>
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.

Method ID	Methodology Summary
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 Recove				covery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/11/2021	[NT]		[NT]	[NT]	16/11/2021	
Date analysed	-			17/11/2021	[NT]		[NT]	[NT]	17/11/2021	
vTRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	<25	[NT]		[NT]	[NT]	97	
vTRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	<25	[NT]		[NT]	[NT]	97	
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]		[NT]	[NT]	84	
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]		[NT]	[NT]	97	
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	104	
m+p-xylene	mg/kg	2	Org-023	<2	[NT]		[NT]	[NT]	99	
o-Xylene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	112	
Naphthalene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	[NT]	
Surrogate aaa-Trifluorotoluene	%		Org-023	95	[NT]		[NT]	[NT]	98	

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate Spike Re				covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/11/2021	[NT]		[NT]	[NT]	16/11/2021	
Date analysed	-			18/11/2021	[NT]		[NT]	[NT]	18/11/2021	
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	<50	[NT]		[NT]	[NT]	96	
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	91	
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	107	
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	<50	[NT]		[NT]	[NT]	96	
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	91	
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	107	
Surrogate o-Terphenyl	%		Org-020	78	[NT]	[NT]	[NT]	[NT]	87	[NT]

QUALITY CONTROL: PAHs in Soil					Du	plicate		Spike Re	covery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/11/2021	[NT]		[NT]	[NT]	16/11/2021	
Date analysed	-			18/11/2021	[NT]		[NT]	[NT]	18/11/2021	
Naphthalene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	92	
Acenaphthylene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Acenaphthene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	96	
Fluorene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	98	
Phenanthrene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	96	
Anthracene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Fluoranthene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	94	
Pyrene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	98	
Benzo(a)anthracene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Chrysene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	88	
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-022	<0.2	[NT]		[NT]	[NT]	[NT]	
Benzo(a)pyrene	mg/kg	0.05	Org-022	<0.05	[NT]		[NT]	[NT]	96	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Surrogate p-Terphenyl-d <sub>14</sub>	%		Org-022	82	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONT	ROL: Acid E	xtractabl	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			16/11/2021	20	16/11/2021	16/11/2021		16/11/2021	[NT]
Date analysed	-			17/11/2021	20	17/11/2021	17/11/2021		17/11/2021	[NT]
Arsenic	mg/kg	4	Metals-020 ICP- AES	<4	20	<4	<4	0	104	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP- AES	<0.4	20	<0.4	<0.4	0	105	[NT]
Chromium	mg/kg	1	Metals-020 ICP- AES	<1	20	12	12	0	103	[NT]
Copper	mg/kg	1	Metals-020 ICP- AES	<1	20	5	7	33	103	[NT]
Lead	mg/kg	1	Metals-020 ICP- AES	<1	20	11	11	0	102	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	20	<0.1	<0.1	0	106	[NT]
Nickel	mg/kg	1	Metals-020 ICP- AES	<1	20	2	3	40	102	[NT]
Zinc	mg/kg	1	Metals-020 ICP- AES	<1	20	18	20	11	104	[NT]
Phosphorus	mg/kg	10	Metals-020 ICP- AES	<10	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CO	NTROL: Miso	cellaneou	is Inorg - soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			17/11/2021	[NT]		[NT]	[NT]	17/11/2021	
Date analysed	-			18/11/2021	[NT]		[NT]	[NT]	18/11/2021	
Total Nitrogen in soil	mg/kg	10	Inorg-055/062	<10	[NT]		[NT]	[NT]	[NT]	
TKN as N in soil	mg/kg	10	Inorg-062	<10	[NT]		[NT]	[NT]	102	
NOx as N in soil	mg/kg	0.5	Inorg-055	<0.5	[NT]		[NT]	[NT]	1000	
pH 1:5 soil:CaCl <sub>2</sub>	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: Cation exchange capacity						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	28646-14
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	1	0.7	0.7	0	96	82
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	1	0.3	0.3	0	91	88
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	1	0.4	0.4	0	92	85
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	1	<0.1	<0.1	0	83	82
Cation Exchange Capacity	meq/100g	1	Metals-020	<1	1	1.5	1.4	7	[NT]	[NT]

QUALITY CONTR	ROL: vTRH((	C6-C10)/E	BTEXN in Water			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			15/11/2021	[NT]		[NT]	[NT]	15/11/2021	
Date analysed	-			15/11/2021	[NT]		[NT]	[NT]	15/11/2021	
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-023	<10	[NT]		[NT]	[NT]	98	
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-023	<10	[NT]		[NT]	[NT]	98	
Benzene	µg/L	1	Org-023	<1	[NT]		[NT]	[NT]	102	
Toluene	µg/L	1	Org-023	<1	[NT]		[NT]	[NT]	98	
Ethylbenzene	µg/L	1	Org-023	<1	[NT]		[NT]	[NT]	96	
m+p-xylene	µg/L	2	Org-023	<2	[NT]		[NT]	[NT]	98	
o-xylene	µg/L	1	Org-023	<1	[NT]		[NT]	[NT]	103	
Naphthalene	µg/L	1	Org-023	<1	[NT]		[NT]	[NT]	80	
Surrogate Dibromofluoromethane	%		Org-023	113	[NT]		[NT]	[NT]	94	
Surrogate toluene-d8	%		Org-023	107	[NT]		[NT]	[NT]	93	
Surrogate 4-BFB	%		Org-023	90	[NT]		[NT]	[NT]	101	

<b>Result Definiti</b>	ons
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

<b>Quality Control</b>	Quality Control Definitions					
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.					
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.					
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.					
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.					
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.					

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

## Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

# **Chris De Luca**



From:	Sneha Bhattachan <sbhattachan@slrconsulting.com></sbhattachan@slrconsulting.com>
Sent:	Monday, 22 November 2021 5:15 PM
To:	Chris De Luca
Subject:	RE: Results for Registration 28646 640.30268

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Chris,

- Can we please conduct the following: TP05/0.05 and TP11/0.1– Nitrogen and Phosphorus
  - TP05/0.3 BTEX/TRH/PAHs # 15
  - BR01 20211111 BTEX/TRH/PAHs \_

#16

Kind Regards,



# Sneha Bhattachan

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12 Winners: RoSPA President's Award 2020

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From: Chris De Luca <CDeLuca@envirolab.com.au> Sent: Monday, 22 November 2021 3:00 PM To: Sneha Bhattachan <sbhattachan@slrconsulting.com> Subject: Results for Registration 28646 640.30268

Please refer to attached for: a copy of the Certificate of Analysis a copy of the COC/paperwork received from you **ESDAT** Extracts an Excel or .csv file containing the results



Envirolab Services Pty Ltd ABN 37 112 535 645 - 002 25 Research Drive Croydon South VIC 3136 ph 03 9763 2500 fax 03 9763 2633 melbourne@envirolab.com.au www.envirolab.com.au

# **CERTIFICATE OF ANALYSIS 28646-A**

Client Details	
Client	SLR Consulting Aust. Pty Ltd (VIC)
Attention	Sneha Bhattachan
Address	Level 11, 176 Wellington Parade, EAST MELBOURNE, VIC, 3002

Sample Details	
Your Reference	<u>640.30268</u>
Number of Samples	39 Soil, 1 Water
Date samples received	12/11/2021
Date completed instructions received	22/11/2021

## **Analysis Details**

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

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

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

Report Details					
Date results requested by	29/11/2021				
Date of Issue	29/11/2021				
NATA Accreditation Number 2901. This document shall not be reproduced except in full.					
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Results Approved By Chaminda Gunasekara, Inorganics Team Leader Chris De Luca, Operations Manager

#### Authorised By

Pamela Adams, Laboratory Manager

Envirolab Reference: 28646-A Revision No: R00



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vTRH(C6-C10)/BTEXN in Soil			
Our Reference		28646-A-15	28646-A-16
Your Reference	UNITS	TP05_0.3	BR02_20211111
Date Sampled		11/11/2021	11/11/2021
Type of sample		Soil	Soil
Date extracted	-	23/11/2021	23/11/2021
Date analysed	-	24/11/2021	24/11/2021
vTRH C6 - C9	mg/kg	<25	<25
vTRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total BTEX	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	103

TRH Soil C10-C40 NEPM			
Our Reference		28646-A-15	28646-A-16
Your Reference	UNITS	TP05_0.3	BR02_20211111
Date Sampled		11/11/2021	11/11/2021
Type of sample		Soil	Soil
Date extracted	-	23/11/2021	23/11/2021
Date analysed	-	25/11/2021	25/11/2021
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50
TRH C15 - C28	mg/kg	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100
TRH >C34 -C40	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	95	96

PAHs in Soil			
Our Reference		28646-A-15	28646-A-16
Your Reference	UNITS	TP05_0.3	BR02_20211111
Date Sampled		11/11/2021	11/11/2021
Type of sample		Soil	Soil
Date extracted	-	23/11/2021	23/11/2021
Date analysed	-	25/11/2021	25/11/2021
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j&k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc (Half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d <sub>14</sub>	%	114	108

Acid Extractable metals in soil			
Our Reference		28646-A-14	28646-A-32
Your Reference	UNITS	TP05_0.05	TP11_0.1
Date Sampled		11/11/2021	11/11/2021
Type of sample		Soil	Soil
Date digested	-	24/11/2021	24/11/2021
Date analysed	-	24/11/2021	24/11/2021
Phosphorus	mg/kg	91	87

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Miscellaneous Inorg - soil			
Our Reference		28646-A-14	28646-A-32
Your Reference	UNITS	TP05_0.05	TP11_0.1
Date Sampled		11/11/2021	11/11/2021
Type of sample		Soil	Soil
Date prepared	-	25/11/2021	25/11/2021
Date analysed	-	25/11/2021	25/11/2021
Total Nitrogen in soil	mg/kg	670	1,100
TKN as N in soil	mg/kg	670	1,100
NOx as N in soil	mg/kg	1.4	0.97

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Moisture					
Our Reference		28646-A-14	28646-A-15	28646-A-16	28646-A-32
Your Reference	UNITS	TP05_0.05	TP05_0.3	BR02_20211111	TP11_0.1
Date Sampled		11/11/2021	11/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	24/11/2021	24/11/2021	24/11/2021	24/11/2021
Date analysed	-	25/11/2021	25/11/2021	25/11/2021	25/11/2021
Moisture	%	8.5	14	12	9.4

Method ID Inorg-008	Methodology Summary Moisture content determined by heating at 105°C for a minimum of 12 hours.
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
	Nitrate - determined colourimetrically. Soils are analysed following a water extraction. Water samples are filtered on receipt
Inorg-055	prior to analysis.
Inorg-055/062	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-022	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
	For soil results:-
	<ol> <li>'EQ PQL'values are assuming all contributing PAHs reported as <pql actually="" and="" approach="" are="" at="" be="" calculation="" can="" conservative="" contribute="" false="" give="" given="" is="" li="" may="" most="" not="" pahs="" positive="" pql.="" present.<="" teq="" teqs="" that="" the="" this="" to=""> <li>'EQ zero'values are assuming all contributing PAHs reported as <pql and="" approach="" are="" below="" but="" calculation="" conservative="" contribute="" false="" is="" least="" li="" more="" negative="" pahs="" pql.<="" present="" susceptible="" teq="" teqs="" that="" the="" this="" to="" when="" zero.=""> <li>'EQ half PQL'values are assuming all contributing PAHs reported as <pql a="" above.<="" and="" approaches="" are="" between="" conservative="" half="" hence="" least="" li="" mid-point="" most="" pql.="" stipulated="" the=""> <li>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.</li> </pql></li></pql></li></pql></li></ol>
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. 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						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			23/11/2021	[NT]		[NT]	[NT]	23/11/2021	
Date analysed	-			24/11/2021	[NT]		[NT]	[NT]	24/11/2021	
vTRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	<25	[NT]		[NT]	[NT]	98	
vTRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	<25	[NT]		[NT]	[NT]	98	
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]		[NT]	[NT]	91	
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]		[NT]	[NT]	99	
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	104	
m+p-xylene	mg/kg	2	Org-023	<2	[NT]		[NT]	[NT]	99	
o-Xylene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	109	
Naphthalene	mg/kg	1	Org-023	<1	[NT]		[NT]	[NT]	[NT]	
Surrogate aaa-Trifluorotoluene	%		Org-023	100	[NT]		[NT]	[NT]	99	

QUALITY COM	Duplicate Sp				Spike Re	covery %				
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			23/11/2021	[NT]		[NT]	[NT]	23/11/2021	
Date analysed	-			26/11/2021	[NT]		[NT]	[NT]	26/11/2021	
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	<50	[NT]		[NT]	[NT]	102	
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	109	
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	117	
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	<50	[NT]		[NT]	[NT]	102	
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	109	
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	<100	[NT]		[NT]	[NT]	117	
Surrogate o-Terphenyl	%		Org-020	106	[NT]	[NT]	[NT]	[NT]	111	[NT]

QUALITY CONTROL: PAHs in Soil						Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			23/11/2021	[NT]		[NT]	[NT]	23/11/2021	
Date analysed	-			25/11/2021	[NT]		[NT]	[NT]	25/11/2021	
Naphthalene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	108	
Acenaphthylene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Acenaphthene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	110	
Fluorene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	92	
Phenanthrene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	110	
Anthracene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Fluoranthene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	98	
Pyrene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	102	
Benzo(a)anthracene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Chrysene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	102	
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-022	<0.2	[NT]		[NT]	[NT]	[NT]	
Benzo(a)pyrene	mg/kg	0.05	Org-022	<0.05	[NT]		[NT]	[NT]	108	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022	<0.1	[NT]		[NT]	[NT]	[NT]	
Surrogate p-Terphenyl-d <sub>14</sub>	%		Org-022	112	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			24/11/2021	[NT]		[NT]	[NT]	24/11/2021	[NT]
Date analysed	-			24/11/2021	[NT]		[NT]	[NT]	24/11/2021	[NT]
Phosphorus	mg/kg	10	Metals-020 ICP- AES	<10	[NT]		[NT]	[NT]	95	[NT]
#### Client Reference: 640.30268

QUALITY CONTROL: Miscellaneous Inorg - soil						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			25/11/2021	[NT]		[NT]	[NT]	25/11/2021	[NT]
Date analysed	-			25/11/2021	[NT]		[NT]	[NT]	25/11/2021	[NT]
Total Nitrogen in soil	mg/kg	10	Inorg-055/062	<10	[NT]		[NT]	[NT]	[NT]	[NT]
TKN as N in soil	mg/kg	10	Inorg-062	<10	[NT]		[NT]	[NT]	106	[NT]
NOx as N in soil	mg/kg	0.5	Inorg-055	<0.5	[NT]	[NT]	[NT]	[NT]	104	[NT]

#### Client Reference: 640.30268

<b>Result Definiti</b>	ons
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

#### Client Reference: 640.30268

<b>Quality Control</b>	Quality Control Definitions								
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.								
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.								
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.								
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.								
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.								

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

#### Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

# SLR

CHAIN OF CUSTODY DOCUMENTATION	PROJECT D SRISBANE: Level 2, 15 Aster Terrare, spring HIII, QLD 4000 D GLD COAST: 194 Vorsky Parade, Vorsky Par	
SLR Consulting Australia Pty Ltd	OFFICE CANBERRA: GPO Bux 410, Canberra, Canber	
ABN 29 001 584 612	(Tick one) DARWIN: 22 Parap Rd, Darwin, NI Sector Vindering Store (11,1,176 Wellington) Control (11,176 Wellington	
CLIENT: DTF	LABORATORY: AUS Turnaround Time COC Number	
PROJECT: @ Seaton Soil Assessment	LABORATORY ADDRESS: 2-5 Westall food, Springvorp (TAT) of	
PROJECT NUMBER: 640- 30269	SAMPLER:NB	
PROJECT MANAGER: Sheha Bhattachan	SAMPLER CONTACT No: 044998133	
PM CONTACT No: 0429049285	Email Reports and Invoices to: sphattachan a sir consulting on Required TAT: Standard	
	Additional Information (Comment on any gross contamination or specific requirements)	
No. Sample ID Date & Time Matrix (Soil, water, ACM, etc)	Containers and Preservatives	
1 SP202-202/11/1 11/11/21 Soil	$\times$	
	Keiden	
	Received: 211 (SoTCarrier: Environmental Diversion Melbourne	vision
	Choic: Work Order Refere	
	B tooblicks ( MA ALS)	
Sample Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd P: Artfreight Unpreserved Vial SG = Sulfunc Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = St Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles; G = unpreserved glass soil jar;	reserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Alrfreight Unpreserved Plastic V = VOA Vial HCI Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = V( Ifuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved; II and II	
I attest that the proper field sampling procedures were used during the collection of these samples.           Relinguished By Sampler         Sign         E	12/11/2(         Received by         Sign         Add =         Date / Time         12/11/21         eleptrone : + 51-3-8549 9600	•==== • • • • •
Relinquished By Sign C	Received by         ELG         Sign         YS         Date / Time         12         11         21	
Relinquished By ELS Sign KS	Nate / Time         IZ         II         ZI         Received by         Sign         Date / Time	



#### **CERTIFICATE OF ANALYSIS**

Work Order	EM2122796	Page	: 1 of 6
Client	SLR CONSULTING AUSTRALIA PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: Sneha Bhattachan	Contact	: Hannah White
Address	: LEVEL 11 176 WELLINGTON PARADE EAST MELBOURNE 3002	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	:	Telephone	: +61-3-8549 9600
Project	: 640.30269	Date Samples Received	: 12-Nov-2021 15:05
Order number	:	Date Analysis Commenced	: 17-Nov-2021
C-O-C number	:	Issue Date	: 19-Nov-2021 20:55
Sampler	: NB		Hacanra NATA
Site	:		
Quote number	: EN/333 Secondary work BQ		Accreditation No. 825
No. of samples received	: 1		Accredited for compliance with
No. of samples analysed	: 1		ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

#### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



#### **General Comments**

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

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

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

 Key :
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

 LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG005T: EM2122778 #1, Poor matrix spike recovery for Arsenic and Lead due to sample matrix. Confirmed by re-extraction and re-analysis.

# Page : 3 of 6 Work Order : EM2122796 Client : SLR CONSULTING AUSTRALIA PTY LTD Project : 640.30269



#### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SPL02_20211111					
		Samplir	ng date / time	11-Nov-2021 00:00					
Compound CA	S Number	LOR	Unit	EM2122796-001					
				Result					
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content		1.0	%	12.2					
G005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5					
Cadmium	7440-43-9	1	mg/kg	<1					
Chromium	7440-47-3	2	mg/kg	22					
Copper	7440-50-8	5	mg/kg	<5					
Lead	7439-92-1	5	mg/kg	6					
Nickel	7440-02-0	2	mg/kg	4					
Zinc	7440-66-6	5	mg/kg	5					
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1					
EP075(SIM)B: Polynuclear Aromatic Hydrocarb	ons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5					
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5					
Acenaphthene	83-32-9	0.5	mg/kg	<0.5					
Fluorene	86-73-7	0.5	mg/kg	<0.5					
Phenanthrene	85-01-8	0.5	mg/kg	<0.5					
Anthracene	120-12-7	0.5	mg/kg	<0.5					
Fluoranthene	206-44-0	0.5	mg/kg	<0.5					
Pyrene	129-00-0	0.5	mg/kg	<0.5					
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5					
Chrysene	218-01-9	0.5	mg/kg	<0.5					
Benzo(b+j)fluoranthene 205-99-2	2 205-82-3	0.5	mg/kg	<0.5					
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5					
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5					
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5					
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5					
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5					
<sup>^</sup> Sum of polycyclic aromatic hydrocarbons		0.5	mg/kg	<0.5					
^ Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5					
<sup>^</sup> Benzo(a)pyrene TEQ (half LOR)		0.5	mg/kg	0.6					
^ Benzo(a)pyrene TEQ (LOR)		0.5	mg/kg	1.2					
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction		10	mg/kg	<10					

# Page : 4 of 6 Work Order : EM2122796 Client : SLR CONSULTING AUSTRALIA PTY LTD Project : 640.30269



#### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SPL02_20211111	 	 
		Samplii	ng date / time	11-Nov-2021 00:00	 	 
Compound	CAS Number	LOR	Unit	EM2122796-001	 	 
				Result	 	 
EP080/071: Total Petroleum Hydrocarbon	is - Continued					
C10 - C14 Fraction		50	mg/kg	<50	 	 
C15 - C28 Fraction		100	mg/kg	<100	 	 
C29 - C36 Fraction		100	mg/kg	<100	 	 
^ C10 - C36 Fraction (sum)		50	mg/kg	<50	 	 
EP080/071: Total Recoverable Hydrocarb	ons - NEPM 201	3 Fractior	ıs			
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	 	 
^ C6 - C10 Fraction minus BTEX	C6_C10-BTEX	10	mg/kg	<10	 	 
(F1)						
>C10 - C16 Fraction		50	mg/kg	<50	 	 
>C16 - C34 Fraction		100	mg/kg	<100	 	 
>C34 - C40 Fraction		100	mg/kg	<100	 	 
^ >C10 - C40 Fraction (sum)		50	mg/kg	<50	 	 
^ >C10 - C16 Fraction minus Naphthalene		50	mg/kg	<50	 	 
(F2)						
EP080: BTEXN						
Benzene	71-43-2	0.2	mg/kg	<0.2	 	 
Toluene	108-88-3	0.5	mg/kg	<0.5	 	 
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	 	 
meta- & para-Xylene 10	08-38-3 106-42-3	0.5	mg/kg	<0.5	 	 
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	 	 
^ Sum of BTEX		0.2	mg/kg	<0.2	 	 
^ Total Xylenes		0.5	mg/kg	<0.5	 	 
Naphthalene	91-20-3	1	mg/kg	<1	 	 
EP075(SIM)S: Phenolic Compound Surrog	gates					
Phenol-d6	13127-88-3	0.5	%	95.8	 	 
2-Chlorophenol-D4	93951-73-6	0.5	%	95.7	 	 
2.4.6-Tribromophenol	118-79-6	0.5	%	91.5	 	 
EP075(SIM)T: PAH Surrogates						
2-Fluorobiphenyl	321-60-8	0.5	%	94.2	 	 
Anthracene-d10	1719-06-8	0.5	%	110	 	 
4-Terphenyl-d14	1718-51-0	0.5	%	105	 	 
EP080S: TPH(V)/BTEX Surrogates						
1.2-Dichloroethane-D4	17060-07-0	0.2	%	84.0	 	 
Toluene-D8	2037-26-5	0.2	%	96.8	 	 



#### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SPL02_20211111				
	Sampling date / time			11-Nov-2021 00:00				
Compound	CAS Number	LOR	Unit	EM2122796-001				
				Result				
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	110				



#### Surrogate Control Limits

Sub-Matrix: SOIL	Recovery Limits (%)		
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surroga	tes		
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

# Appendix E

Field Data Forms

www.slrconsulting.com



#### EQUIPMENT QUALITY REPORT

#### MiniRae 3000 PID:

Equipment Code: MPI-219 Serial Number: 592-908219

The following equipment has been issued as follows:

✓ Equipment is clean & filters replaced

✓ Pump, lamp & battery voltage check

Calibration R	esults				
Parameter	Standard	Result	Range	Alarm Settings	Cal Gas Expiry Date
Fresh Air	0 ppm	0.0 ppm	± 1 ppm		Fresh Air
Isobutylene	100 ppm*	100.5 ppm	± 2 ppm	Lo Alarm 25ppm 🗹 Hi Alarm 100ppm 🗹 STEL 25ppm 🗹 TWA 10ppm 🗹	67 – WO253106-55 Exp. 18/5/25
Correction					

Date: \_\_\_\_\_10/11/2021

Calibrated by: <u>Tom Campbell</u>

\*For quality control purposes HydroTerra can supply gas calibration data.

Please check that the following items are received and all items are returned. Please clean equipment before retuning. A minimum \$20 service/repair charge applies to any unclean or damaged items.

Photo Ref.	Item (See photo at the back of this form)	HT Id No.	Sent	Returned
1	Hard case for PID	N/A	$\checkmark$	
2	Manual, Quick Start Guide, Calibration certificate	N/A	✓	
3	MiniRae 3000 PID (plus yellow rubber boot)	MPI-219	✓	
4	Spare alkaline battery compartment with batteries	N/A	✓	
	6.04 V Spare water trap filter(s) Oty 1			
5	Charger 240/110V to 12V 500mA	N/A	✓	
6	Flow Gas Regulator (Optional – Charge extra)			
7	Isobutylene 100ppm Gas bottle (Optional –			
	Charge extra)			
-	Test and tag	N/A	$\checkmark$	

✓ Equipment voltage
 ✓ Pre-delivery Calibration Test Complete

Date: \_\_\_\_\_10/11/2021

Calibrated by: <u>Tom Campbell</u>

HT JOB NO: 18678

CLIENTS REF: P/O No: 640.30269

RETURN DATE: / / TIME:

CONDITION ON RETURN:



**≫** DataStream



# Appendix F

Lotsearch Reports

www.slrconsulting.com



#### Address: Schoolhouse Lane, Seaton, VIC 3858 Date: 04 Aug 2021 11:11:27 Reference: LS022964 EP

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features. You should obtain independent advice before you make any decision based on the information within the report. The detailed terms applicable to use of this report are set out at the end of this report.

## **Dataset Listing**

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	19/07/2021	19/07/2021	Monthly	-	-	-	-
Current EPA Priority Sites	Environment Protection Authority (Vic)	02/08/2021	30/06/2021	Monthly	1000	0	0	0
Former EPA Priority Sites & other Remedial Notices	Environment Protection Authority (Vic)	25/01/2021	25/01/2021	Monthly	1000	0	0	0
EPA PFAS Site Investigations	Environment Protection Authority (Vic)	03/08/2021	18/09/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	02/08/2021	02/08/2021	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	restigation Department of Defence ogram -		02/08/2021	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	stralia National Airservices Australia ment Program		07/07/2021	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	efence 3 Year Regional Department of Defence orgram		11/05/2021	Quarterly	2000	0	0	0
EPA Environmental Audit Environment Protection Authority (Vic) Reports		22/07/2021	22/07/2021	Monthly	1000	0	0	0
EPA Groundwater Zones with Restricted Uses	PA Groundwater Zones Environment Protection Authority (Vic) vith Restricted Uses		12/07/2021	Monthly	1000	0	0	0
Current EPA Licensed Activities	Environment Protection Authority (Vic)	22/07/2021	22/07/2021	Monthly	1000	0	0	0
Former EPA Licensed Activities	ormer EPA Licensed Environment Protection Authority (Vic)		22/07/2021	Monthly	1000	0	0	0
EPA Works Approvals	Environment Protection Authority (Vic)	01/07/2021	01/07/2021	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000	0	0	0
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	1000	0	0	0
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	12/08/2020	12/08/2020	Quarterly	1000	0	0	0
EPA Victorian Landfill Register	Environment Protection Authority (Vic)	04/08/2021	25/08/2020	Quarterly	1000	0	0	0
Former Gasworks	Various historical sources collated by Lotsearch	15/08/2017	15/08/2017	Not required	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	15/03/2012	Annually	1000	0	0	0
Historical Business Directories (Premise & Intersection Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	150	0	0	0
Historical Business Directories (Road & Area Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	150	-	0	0
Historical Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	ical Business Directory leaners & Motor jes/Service Stations ise & Intersection les)			Not required	500	0	0	0
Historical Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	torical Business Directory Cleaners & Motor ages/Service Stations ad & Area Matches)			Not required	500	-	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	31/05/2021	31/05/2021	Quarterly	1000	0	0	4
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	0	1	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	0	2	-	-

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	16/02/2021	16/02/2021	Quarterly	2000	0	0	8
Groundwater Boreholes Earth Resources Database	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	20/05/2021	17/02/2010	Annually	2000	0	0	2
Groundwater Boreholes Fed Uni	Federation University Australia	21/12/2017	07/01/2014	As required	2000	0	0	0
Historical Mining Activity - Shafts	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	11/05/2021	11/05/2021	Annually	1000	0	0	0
Geological Units 1:250,000	gical Units 1:250,000 State Government Victoria - Department of Economic Development, Jobs, Transport and Resources		24/06/2014	Unknown	1000	1	-	6
Geological Structures 1:250,000	eological Structures 250,000 State Government Victoria - Department of Economic Development, Jobs, Transport and Resources		24/06/2014	Unknown	1000	0	-	0
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	0	-	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	1	1	1
Victorian Soil Type Mapping	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	24/08/2017	21/03/2016	Unknown	1000	1	2	4
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Coastal Acid Sulfate Soils	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	28/03/2017	30/03/2011	None planned	1000	0	0	0
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	06/07/2021	30/06/2021	Monthly	1000	1	2	6
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	06/07/2021	30/06/2021	Monthly	1000	0	0	2
Commonwealth Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000	0	0	0
National Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000	0	0	0
Victorian Heritage Register	State Government Victoria - Department of Environment, Land, Water & Planning	03/05/2021	03/05/2021	Quarterly	1000	0	0	0
Cultural Heritage Sensitivity	State Government Victoria - Department of Premier and Cabinet	31/05/2021	31/05/2021	Quarterly	1000	0	1	1
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	03/05/2021	03/05/2021	Quarterly	1000	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	12/07/2021	30/12/2020	Quarterly	1000	1	1	25
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	11/05/2021	05/02/2018	Quarterly	1000	0	0	0
Victorian Coastal Inundation Sea Level Rise	State Government Victoria - Department of Environment, Land, Water & Planning	10/04/2018	24/10/2017	Unknown	1000	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	1000	1	1	3
Ramsar Wetland Areas in Victoria	State Government Victoria - Department of Environment, Land, Water & Planning	25/02/2021	13/03/2019	Annually	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	1	1	4
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	1	1	9





#### **Topographic Data**

Schoolhouse Lane, Seaton, VIC 3858





Lotsearch Pty Ltd ABN 89 600 168 018

Elevation Contours (m AHD) 10m Interval at 1:25,000





## **EPA Priority Sites & Pollution Notices**

Schoolhouse Lane, Seaton, VIC 3858

#### **Current EPA Priority Sites Register**

Sites on the current EPA priority sites register that exist within the dataset buffer:

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

## Former EPA Priority Sites & Other Pollution Notices

Sites within the dataset buffer that have been issued a Pollution Notice: Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

## **PFAS Investigation & Management Programs**

Schoolhouse Lane, Seaton, VIC 3858

#### **EPA PFAS Site Investigations**

Sites being investigated by the EPA for PFAS contamination within the dataset buffer:

Map ID	Site Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

EPA PFAS Site Investigations Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

#### Defence PFAS Investigation & Management Program Investigation Sites

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation & Management Program Data Custodian: Department of Defence, Australian Government

#### Defence PFAS Investigation & Management Program Management Sites

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation & Management Program Data Custodian: Department of Defence, Australian Government

## Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Location Confidence	Distance	Direction
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

## **Defence Sites**

Schoolhouse Lane, Seaton, VIC 3858

## **Defence 3 Year Regional Contamination Investigation Program**

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

## **EPA Records**

Schoolhouse Lane, Seaton, VIC 3858

#### **EPA Environmental Audits**

EPA environmental audit records that exist within the dataset buffer: Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Audit Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

Environmental Audit Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

## **EPA Records**

#### Schoolhouse Lane, Seaton, VIC 3858

#### **EPA Groundwater Zones with Restricted Uses**

#### EPA GQRUZ records that exist within the dataset buffer:

Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Status	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental GQRUZ Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

## **EPA Activities**

Schoolhouse Lane, Seaton, VIC 3858

#### **EPA Licensed Activities**

EPA licensed activities that exist within the dataset buffer:

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

#### Former EPA Licensed Activities

Former EPA licensed activities that exist within the dataset buffer:

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

#### **EPA Works Approvals**

#### EPA works approvals that exist within the dataset buffer:

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

## Waste Management Facilities & Landfills

Schoolhouse Lane, Seaton, VIC 3858

#### National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist (m)	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Australian Government Geoscience Australia Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

#### **Statewide Waste and Resource Recovery Infrastructure Plan Facilities**

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the dataset buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

#### **EPA Prescribed Industrial Waste**

EPA Prescribed Industrial Waste treaters, disposers and permitted transporters within the dataset buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist' (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Source: State Government Victoria - Environment Protection Authority (EPA)

## Waste Management Facilities & Landfills

Schoolhouse Lane, Seaton, VIC 3858

## **EPA Victorian Landfill Register**

EPA Victorian Landfill Register sites within the dataset buffer:

Landfill Register No.	Site	Address	Operating Status	Est. Year Of Closure	Waste type	Loc Conf	Dist' (m)	Direction
No records in buffer								

EPA Victorian Landfill Register Data Source: State Government Victoria - Environment Protection Authority (EPA)

## Former Gasworks and Liquid Fuel Facilities

Schoolhouse Lane, Seaton, VIC 3858

#### **Former Gasworks**

Former Gasworks identified from various historical sources within the dataset buffer: Note - As this is a dataset collated from various historical sources, it is not an exhaustive list of all former Gasworks

Map Id	Site Name	Date Opened	Year Closed	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Collated from various historical sources

## **National Liquid Fuel Facilities**

#### National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

National Liquid Fuel Facilities Data Source: Geoscience Australia

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## **Historical Business Directories**

Schoolhouse Lane, Seaton, VIC 3858

#### Business Directory Records 1905-1991 Premise or Road Intersection Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1980, 1970, 1960, 1950, 1945, 1925 & 1905, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

#### Business Directory Records 1905-1991 Road or Area Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1980, 1970, 1960, 1950, 1945, 1925 & 1905, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
	No records in buffer					

## **Historical Business Directories**

Schoolhouse Lane, Seaton, VIC 3858

#### Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from Sands & McDougall's Directories and UBD Business Directories, mapped to a premise or road intersection within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

#### Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, mapped to a road or an area within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
	No records in buffer					

#### Aerial Imagery 2020





#### Aerial Imagery 2013





#### **Aerial Imagery 1986**




























## **Historical Map 1975**





### **Features of Interest**





# **Features of Interest**

Schoolhouse Lane, Seaton, VIC 3858

### **Features of Interest**

Features of Interest within the dataset buffer:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
765299	reserve	park	Seaton Recreation Reserve	556m	South West
1142639	recreational resource	playground		588m	South West
1142634	sport facility	tennis court		607m	South West
649723	community venue	hall	Seaton Public Hall	622m	South West

Features of Interest Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

### **Depth to Watertable**





# Hydrogeology & Groundwater

Schoolhouse Lane, Seaton, VIC 3858

#### Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	Onsite

Hydrogeology Map of Australia: Commonwealth of Australia (Geoscience Australia) Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

### **Groundwater Salinity**

On-site Groundwater Salinity:

Groundwater Salinity	Percent Of Site Area
1,000 - 3,500 mg/l	100

#### **Depth to Watertable**

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
20 to 50 metres	96
10 to 20 metres	4

#### **Surface Elevation**

Approximate on-site Surface Elevation:

#### Surface Elevation

122 AHDm to 136 AHDm

## **Basement Elevation**

#### Approximate on-site Basement Elevation:

Basement Elevation - Basement Rocks comprise Lower Palaeozoic basement rocks that form the highlands and the crystalline basement; and Mesozoic rocks of the Otway and Gippsland basins both outcropping and subsurface

107 AHDm to 120 AHDm

Groundwater Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

### **Groundwater Boreholes**





# **Groundwater Boreholes**

Schoolhouse Lane, Seaton, VIC 3858

# **Boreholes (DELWP WMIS)**

Boreholes from the Department of Environment, Land, Water & Planning's Water Measurement Information System, within the dataset buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
65423	Domestic, Stock	0.00m-0.30m TOP SOIL 0.30m-6.70m YELLOW CLAY 6.70m-10.90m WHITE CLAY AND GRAVEL 10.90m-14.60m RED CLAY AND GRAVEL 14.60m-18.20m GREY CLAY 18.20m-28.90m DARK GREY CLAY 28.90m-51.80m BASALT	0.00m-30.00m INNER LINING - CASING = Galvanised Iron 30.00m-51.80m INNER LINING - SCREEN = Galvanised Iron		30.00m-51.80m Basalt	1990-02-10	1077	South West
65424	Domestic, Stock	0.00m-0.30m TOP SOIL 0.30m-7.00m WHITE AND PINK CLAY 7.00m-20.00m LIGHT BROWN CLAY 20.00m-21.30m LIGHT BROWN SANDSTONE 21.30m-27.40m SANDSTONE 27.40m-45.70m BASALT	0.00m-30.00m INNER LINING - CASING = Galvanised Iron 30.00m-45.70m INNER LINING - SCREEN = Galvanised Iron		30.00m-45.70m Basalt	1990-02-13	1237	South West
WRK074366	Domestic & Stock	0.00m-1.00m SOIL 1.00m-11.00m CLAY 11.00m-38.00m ROCK 38.00m-53.00m ROCK	0.20m-12.00m INNER LINING - CASING = Pvc Class 12 12.00m-38.00m INNER LINING - CASING = Pvc Class 12 38.00m-43.00m INNER LINING - SLOT = Pvc Class 12 0.00m-4.00m OUTER LINING - GRAVEL = Cement			2013-07-30	1527	West
WRK967148	Domestic & Stock		0.30m-42.00m INNER LINING - CASING = Pvc 42.00m-60.00m INNER LINING - SLOT = Pvc 0.10m-1.00m OUTER LINING - GRAVEL = Cement 8.00m-8.20m OUTER LINING - GRAVEL = Seal 33.00m-33.20m OUTER LINING - GRAVEL = Seal		42.00m-60.00m Mudstone	2006-03-04	1796	North West
307661	Non Groundwater					1982-03-12	1810	South East
WRK043109	Domestic, Irrigation, Stock	4.88m-5.79m BIG GRAVEL 5.79m-10.06m CLAY	4.88m-10.06m INNER LINING - CASING = Steel			1986-10-19	1920	North
WRK043740	Domestic, Stock	0.00m-0.30m TOPSOIL 0.30m-54.86m BASALT 54.86m-61.57m COARSE SAND	0.00m-54.86m INNER LINING - CASING = Galvanised Iron 54.86m-61.57m INNER LINING - SCREEN = Galvanised Iron		54.86m-61.57m Sand	1988-02-29	1949	West
WRK094781	Irrigation	0.00m-1.50m TOP SOIL 1.50m-5.50m GRAVEL 5.50m-8.00m ROCK	0.00m-2.00m INNER LINING - CASING = Pvc 2.00m-5.50m INNER LINING - SCREEN = Pvc 5.50m-8.00m INNER LINING - CASING = Pvc 1.50m-8.00m OUTER LINING - GRAVEL = Gravel			2016-08-20	1991	North

Boreholes WMIS Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# **Groundwater Boreholes**

#### Schoolhouse Lane, Seaton, VIC 3858

### **Boreholes (Earth Resources Database)**

Boreholes from the Earth Resources dataset, within the dataset buffer:

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
307661		Private Individual/Corporati on		Rotary (diamond/drag bit)		12/03/1982	48.00	90.00	10	1809	South East
926882		CSR Coal Division		Percussion	Completed	12/03/1982	48.00		150	1810	South East

Boreholes Earth Resources Data Source: © The State of Victoria, Department of Economic Development, Jobs, Transport and Resources 2015. Creative Commons Attribution 3.0 Australia

# **Boreholes (Federation University)**

Boreholes from the Federation University Australia dataset, within the dataset buffer:

Bore Id	Authority	Туре	Uses	Initial TD	Log	Dist (m)	Direct
N/A	No records within buffer						

Boreholes FedUni Data Source: © Federation University Australia

# **Historical Mining Activity - Shafts**

Schoolhouse Lane, Seaton, VIC 3858

### **Historical Mining Activity - Shafts**

Mine Shaft Locations were collected by a variety of methods from 1869 in some areas of the state, mainly concentrating in Ballarat and Bendigo. In places a shaft may be recorded multiple times with a different source. In cases where several shaft locations are shown close together (generally with separations less than stated position errors) and they have different sources, it is possible that one shaft has been mapped several times. In cases where several shaft locations are shown close together but they have the same information source, it is possible that each shaft location represents a different shaft on the ground.

Historical Mine Shafts within the dataset buffer:

Map Id	Name	Source	Depth (m)	Collar (ft)	Fill/Cap Method	Location Desc	Location Accuracy	Distance	Direction
N/A	No records in buffer								

Historical Mining Activity Data Custodian: State Government Victoria - Dept of Economic Development, Jobs, Transport & Resources

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# Geology 1:250,000





# Geology

Schoolhouse Lane, Seaton, VIC 3858

# **Geological Units**

#### What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Nlh	Haunted Hills Formation( Nlh): generic	Sand, silt, gravel: various shades of brown, yellow, red, white; variably sorted; variably rounded; crudely to well-bedded; commonly strongly oxidised with ironstone near the top and also within the formation	Pliocene to Pleistocene	sand (significant); silt material (significant); gravel material (significant)	1:250,000

#### What are the Geological Units within the dataset buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Nlh	Haunted Hills Formation( Nlh): generic	Sand, silt, gravel: various shades of brown, yellow, red, white; variably sorted; variably rounded; crudely to well-bedded; commonly strongly oxidised with ironstone near the top and also within the formation	Pliocene to Pleistocene	sand (significant); silt material (significant); gravel material (significant)	1:250,000
Nul	Glenmaggie Basalt( Nul): generic	Basalt flows; alkali olivine basalt, olivine tholeiite and hawaiite, with alkali olivine basalt being the most abundant	Aquitanian to Aquitanian	alkali basalt (dominant); tholeiitic basalt (subordinate); hawaiite (subordinate)	1:250,000
Qa1	alluvium( Qa1): generic	Gravel, sand, silt: variably sorted and rounded; generally unconsolidated; includes deposits of low terraces; alluvial floodplain deposits	Pleistocene to Holocene	gravel material (significant); sand (significant); silt material (significant)	1:250,000
Qa2	alluvial terrace deposits( Qa2): generic	Gravel, sand, silt: variably sorted and rounded, generally unconsolidated; dissected to form terraces higher than Qa1, alluvial floodplain deposits	Pleistocene to Pleistocene	gravel material (significant); sand (significant); silt material (significant)	1:250,000
Sjd	Donnellys Creek Siltstone (Sjd): generic	Siltstone, rare sandstone: siltstone dark grey to green-grey; finely banded and bioturbated; sandstone very thinly bedded	Rhuddanian to Aeronian	siltstone (all); sandstone (rare)	1:250,000
Sjl	Lazarini Siltstone (Sjl): generic	Dark grey to green-grey siltstone with bedding in the form of colour banding; abundant dark bioturbation blebs; lowest portion contains interbedded quartz sandstone beds.	Bolindian to Rhuddanian	siltstone (dominant); sandstone (minor proportion)	1:250,000

Geology Data Custodian: State Government Victoria - Dept of Economic Development, Jobs, Transport & Resources Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# Geology

Schoolhouse Lane, Seaton, VIC 3858

#### **Geological Structures**

What are the Geological Faults or Faulted Contacts onsite?

Map Id	Туре	Name	Contact	Positional Accuracy	Dataset
No features					1:250,000

What are the Dykes, Marker Beds and Veins onsite?

Map Id	Туре	Name	Description	Positional Accuracy	Dataset
No Data Coverage					

What are the Shear Zones onsite (1:250,000 scale)?

Map Id	Туре	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

What are the Geological Faults or Faulted Contacts within the dataset buffer?

Map Id	Туре	Name	Contact	Positional Accuracy	Dataset
No features					1:250,000

What are the Dykes, Marker Beds and Veins within the dataset buffer?

Map Id	Туре	Name	Description	Positional Accuracy	Dataset
No Data Coverage					

What are the Shear Zones within the dataset buffer (1:250,000 scale)?

Map Id	Туре	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

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### **Atlas of Australian Soils**





# **Soil Landscapes**

Schoolhouse Lane, Seaton, VIC 3858

# **Atlas of Australian Soils**

#### Australian soil types within the dataset buffer:

Symbol	Soil Order	Map Unit Description	Distance
Ub29	Sodosol	Dissected, undulating, high plain: gently sloping to flat areas of hard neutral and acidic yellow mottled soils (Dy3.42 and Dy3.41) in association with sandy neutral and acidic yellow mottled soils (Dy5.42 and Dy5.41), especially on the crests of low ridges and knolls; gilgais and occasional areas of (Dy3.43) occur in the flatter situations; ironstone gravs are common and gravely phases a feature; narrow stream valleys are deeply entrenched in places.	Om

Atlas of Australian Soils: CSIRO

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Victorian Soil Type Mapping Schoolhouse Lane, Seaton, VIC 3858





# **Soils Landscapes**

Schoolhouse Lane, Seaton, VIC 3858

# Victorian Soil Type Mapping

Victorian Soil Types within the dataset buffer:

Symbol	Description	Distance
SOAB	Brown Sodosols	0m
RUCY	Leptic Rudosols	85m
DEAB	Brown Dermosols	740m
FEAA	Red Ferrosols	759m

Victorian Soil Type Mapping Data Source: Department of Economic Development, Jobs, Transport and Resources Creative Commons Attribution 4.0 International © Commonwealth of Australia http://creativecommons.org/licenses/by/4.0/

### **Atlas of Australian Acid Sulfate Soils**





# **Acid Sulfate Soils**

Schoolhouse Lane, Seaton, VIC 3858

# **Atlas of Australian Acid Sulfate Soils**

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

PROBCLASS	Description	Distance
В	Low Probability of occurrence. 6-70% chance of occurrence.	0m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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# **Acid Sulfate Soils**

#### Schoolhouse Lane, Seaton, VIC 3858

### **Coastal Acid Sulfate Soils**

#### What are the on-site Coastal Acid Sulfate Soil types?

Coastal Acid Sulfate Soil Types	
There are no Acid Sulfate areas onsite	

#### What are the Coastal Acid Sulfate Soil types within the dataset buffer?

Coastal Acid Sulfate Soil Types	Distance	Direction
There are no Acid Sulfate areas within the report buffer		

Coastal Acid Sulfate Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

### **Planning Zones**





# Planning

Schoolhouse Lane, Seaton, VIC 3858

#### **Planning Zones**

Planning zones within the dataset buffer:

Zone Code	Description	Distance	Direction
PUZ2	PUBLIC USE ZONE - EDUCATION	0m	Onsite
FZ	FARMING ZONE	0m	East
RLZ2	RURAL LIVING ZONE - SCHEDULE 2	237m	South West
PCRZ	PUBLIC CONSERVATION AND RESOURCE ZONE	344m	South West
PCRZ	PUBLIC CONSERVATION AND RESOURCE ZONE	556m	South West
PCRZ	PUBLIC CONSERVATION AND RESOURCE ZONE	823m	North West

Planning Zone Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

### **Planning Overlays**





# Planning

Schoolhouse Lane, Seaton, VIC 3858

# **Planning Overlays**

Planning overlays within the dataset buffer:

Zone Code	Description	Distance	Direction
BMO	BUSHFIRE MANAGEMENT OVERLAY	561m	North West
BMO1	BUSHFIRE MANAGEMENT OVERLAY - SCHEDULE 1	882m	South West

Planning Overlay Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# Heritage

Schoolhouse Lane, Seaton, VIC 3858

## **Commonwealth Heritage List**

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch Creative Commons 3.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/3.0/au/deed.en

# **National Heritage List**

# What are the National Heritage List Items located within the dataset buffer? Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch Creative Commons 3.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/3.0/au/deed.en

## Victorian Heritage Register

#### What are the Victorian Heritage Register items located within the dataset buffer?:

VHR Number	Description	Distance	Direction
N/A	No records within buffer		

Victorian Heritage Register Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons Attribution 4.0 International © Commonwealth of Australia http://creativecommons.org/licenses/by/4.0/

# **Cultural Heritage Sensitivity**





# Heritage

Schoolhouse Lane, Seaton, VIC 3858

# **Cultural Heritage Sensitivity**

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Victorian Aboriginal Heritage Regulations 2018, within the dataset buffer:

Map Id	Distance	Direction
9075	51m	South

Cultural Heritage Sensitivity Data Custodian: State Government Victoria - Department of Premier and Cabinet Creative Commons Attribution 4.0 International © Commonwealth of Australia http://creativecommons.org/licenses/by/4.0/

### **Natural Hazards**





# **Natural Hazards**

Schoolhouse Lane, Seaton, VIC 3858

### **Bushfire Prone Areas**

What are the designated bushfire prone areas within the dataset buffer?

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
20	Designated Bushfire Prone Area	LEGL./19-225	WELLINGTON	10/09/2019	0m	Onsite

Bushfire Prone Area Data Custodian: State Government Victoria - Dept of Transport, Planning & Local Infrastructure Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

## **Fire History**

What are the fire history records of fires primarily on public land, within the dataset buffer?

Map Id	Fire Type	Fire Key	Season	Fire No	Fire Name	Treatment	Fire Cover	Start Date	Dist (m)	Direction
67897	BUSHFIRE	W201343007	2013	7	ABERFELDY - DONNELLYS	FIRE		17/01/2013	0m	Onsite
27517	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	250m	North West
29062	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	259m	North
29058	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	267m	North
28583	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	289m	North
27402	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	305m	North West
27658	BUSHFIRE	W200706999	2007	999		FIRE	0-9		336m	South West
27833	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	368m	North
27407	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	396m	North West
27300	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	455m	North West
27408	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	481m	North West
27401	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	510m	North West
26209	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	564m	North West
27403	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	601m	North West
26211	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	647m	North West
27932	BUSHFIRE	W200706999	2007	999		FIRE	0-9		656m	North East
27861	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	708m	North
27473	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	718m	North West
27476	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	725m	North

Map Id	Fire Type	Fire Key	Season	Fire No	Fire Name	Treatment	Fire Cover	Start Date	Dist (m)	Direction
27927	BUSHFIRE	W200706999	2007	999		FIRE	0-9		742m	North East
27933	BUSHFIRE	W200706999	2007	999		FIRE	0-9		801m	East
28207	BUSHFIRE	W200706999	2007	999		FIRE	0-9		802m	East
27939	BUSHFIRE	W200706999	2007	999		FIRE	0-9		883m	North East
27303	BUSHFIRE	W20079912	2007	12		FIRE	0-9	01/12/2006	885m	North West
28208	BUSHFIRE	W200706999	2007	999		FIRE	0-9		965m	North East

Fire History Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# Flood - 1 in 100 year modelled flood extent

#### What 1 in 100 year flood extent features exist within the dataset buffer?

Feature	Source	Method	Scale	Modified Date	Distance	Direction
N/A	No records within buffer					

Flood Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# **Natural Hazards**

Schoolhouse Lane, Seaton, VIC 3858

## Victorian Coastal Inundation Sea Level Rise

#### What coastal inundation sea level rise features exist within the dataset buffer?

Description	Distance	Direction
No records within buffer		

Victorian Coastal Inundation Sea Level Rise Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning

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## Ecological Constraints - Native Vegetation 2005 & Ramsar Wetlands



Schoolhouse Lane, Seaton, VIC 3858



## **Ecological Constraints**

Schoolhouse Lane, Seaton, VIC 3858

## Native Vegetation (Modelled 2005 Ecological Vegetation Classes)

What native vegetation exists within the dataset buffer?

Veg Code	EVC Name	EVCCode	Group	Subgroup	Bioregion	Conservation Status	Geographic Occurance	Distance
GipP0151	Plains Grassy Forest	0151	Plains Woodlands or Forests	Freely-draining	Gippsland Plain	Vulnerable	Common	0m
GipP0047	Valley Grassy Forest	0047	Dry Forests	Sheltered and/or higher altitude	Gippsland Plain	Vulnerable	Minor	248m
GipP0175	Grassy Woodland	0175	Lower Slopes or Hills Woodlands	Grassy	Gippsland Plain	Endangered	Common	505m

Native Vegetation Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

## **Ramsar Wetlands**

What Ramsar wetland areas exist within the dataset buffer?

Map ID	Site Name	Lake Name	Distance	Direction
N/A	No records within buffer			

Ramsar Wetland Area Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

## **Ecological Constraints - Groundwater Dependent Ecosystems Atlas**

Schoolhouse Lane, Seaton, VIC 3858





## **Ecological Constraints**

Schoolhouse Lane, Seaton, VIC 3858

## **Groundwater Dependent Ecosystems Atlas**

### What GDEs exist within the dataset buffer?

GDE Type	Name	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial		Low potential GDE - from national assessment	Dissected high plateaus on various resistant rocks, with isolated high plains.	Vegetation	Unconsolidated sedimentary	0m
Aquatic	BACK CREEK	High potential GDE - from national assessment	Dissected high plateaus on various resistant rocks, with isolated high plains.	River	Unconsolidated sedimentary	236m
Terrestrial		Moderate potential GDE - from national assessment	Terraced plains with sand and gravels	Vegetation	Unconsolidated sedimentary	276m
Aquatic		Unclassified potential GDE - from regional studies	Terraced plains with sand and gravels	Wetland	Unconsolidated sedimentary	959m

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology

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# Inflow Dependent Ecosystems Likelihood Schoolhouse Lane, Seaton, VIC 3858





## **Ecological Constraints**

Schoolhouse Lane, Seaton, VIC 3858

## Inflow Dependent Ecosystems Likelihood

#### What IDEs exist within the dataset buffer?

GDE Type	Name	IDE Likelih ood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial		3	Dissected high plateaus on various resistant rocks, with isolated high plains.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		6	Dissected high plateaus on various resistant rocks, with isolated high plains.	Vegetation	Unconsolidated sedimentary	164m
Aquatic	BACK CREEK	5	Dissected high plateaus on various resistant rocks, with isolated high plains.	River	Unconsolidated sedimentary	236m
Terrestrial		7	Terraced plains with sand and gravels	Vegetation	Unconsolidated sedimentary	254m
Terrestrial		8	Terraced plains with sand and gravels	Vegetation	Unconsolidated sedimentary	375m
Terrestrial		4	Dissected high plateaus on various resistant rocks, with isolated high plains.	Vegetation	Unconsolidated sedimentary	671m
Terrestrial		5	Dissected high plateaus on various resistant rocks, with isolated high plains.	Vegetation	Unconsolidated sedimentary	766m
Terrestrial		10	Terraced plains with sand and gravels	Vegetation	Unconsolidated sedimentary	816m
Aquatic		8	Terraced plains with sand and gravels	Wetland	Unconsolidated sedimentary	959m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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## **Location Confidences**

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading "LC" or "LocConf". These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

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# **Appendix G**

**Current and Historical Property Titles** 

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#### CROWN FOLIO STATEMENT

Page 1 of 1

VOLUME 11737 FOLIO 349 No CofT exists Security no : 124091769530P Produced 11/08/2021 02:48 PM

CROWN FOLIO

#### LAND DESCRIPTION

Crown Allotment 62G Parish of Glenmaggie. Created by instrument MI101809B 06/08/2016

#### CROWN LAND ADMINISTRATOR

MINISTER ADMINISTERING THE EDUCATION AND TRAINING REFORM ACT 2006 (SCHOOLS) of LEVEL 2 2 TREASURY PLACE EAST MELBOURNE VIC 3002 AN778210N 28/04/2017

#### STATUS, ENCUMBRANCES AND NOTICES

INDIGENOUS LAND USE AGREEMENT as to part MI101812N 06/08/2016 NATIVE TITLE DETERMINATION VID6007/1998

#### DIAGRAM LOCATION

SEE CD041464H FOR FURTHER DETAILS AND BOUNDARIES

#### ACTIVITY IN THE LAST 125 DAYS

NIL

-----END OF CROWN FOLIO STATEMENT------

Additional information: (not part of the Crown Folio Statement)

Street Address: SCHOOLHOUSE LANE SEATON VIC 3858

DOCUMENT END



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HTSTORTCAL	SEARCH	STATEMENT	T.and	IIco	Victoria	Page 1	of 3
HISTORICAL	SEARCH	SIAICMENI	Lana	use	VICLOIIA	Page i	013

Produced 11/08/2021 02:55 PM

Volume 11737 Folio 349 Folio Creation: Created as crown land continued as computer folio

#### RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Typ Details	e and
06/08/2016	06/08/2016	MI101810S	N	CROWN LAND REPORT	STATUS

#### RECORD OF VOTS DEALINGS

Date Lodged for	Date Recorded	Dealing	Imaged
Registration	on Register		

26/06/2018 26/06/2018 AR170793N N	26/06/2018	26/06/2018	AR170793N	N
-----------------------------------	------------	------------	-----------	---

RECTIFICATION MODIFY CROWN ADMINISTRATOR

RESULTING ADMINISTRATOR: MINISTER ADMINISTERING THE EDUCATION AND TRAINING REFORM ACT 2006 (SCHOOLS) of LEVEL 2 2 TREASURY PLACE EAST MELBOURNE VIC 3002 AN778210N 28/04/2017

03/06/2019 03/06/2019 AS224920D Y

CROWN REMOVAL OF A TEMPORARY RESERVATION CROWN TEMPORARY RESERVE MI101811Q REMOVED

STATEMENT END

#### VOTS Snapshot

VOLUME 11737 FOLIO 349 124072562111T Produced 26/06/2018 11:34 am

\*\* COFT SHOULD NOT BE PRODUCED \*\*

CROWN FOLIO

#### LAND DESCRIPTION

Crown Allotment 62G Parish of Glenmaggie. Created by instrument MI101809B 06/08/2016

#### CROWN LAND ADMINISTRATOR

Title 11737/349



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HISTORICAL.	SEARCH	STATEMENT	Land	IIse	Victoria	Page	2 of 3
HISIOKICAD	SEARCH	SIVIENDI	Lanu	056	VICLUIIA	Faye	2013

DEPARTMENT OF EDUCATION AND TRAINING of MI101809B 06/08/2016

#### STATUS, ENCUMBRANCES AND NOTICES

RESERVATION MI101811Q 06/08/2016 TEMPORARY PUBLIC PURPOSES (EDUCATIONAL PURPOSES) OP121669

INDIGENOUS LAND USE AGREEMENT as to part MI101812N 06/08/2016 NATIVE TITLE DETERMINATION VID6007/1998

#### DIAGRAM LOCATION

SEE CD041464H FOR FURTHER DETAILS AND BOUNDARIES

#### HISTORICAL REPRINT(S)

Historical Crown Parcel Report

This is a report on the parcel from 1 October 2001. It is a statement of the historic legal status of the parcel.For historical research further documentation is available through Land Use Victoria.

Land Description Allotment: 62G Section: Township: Parish: Glenmaggie

Standard Parcel Identifier (SPI): 62G\PP2679

End Of Land Description Details

Status Details-Number of Status:1

Status: 1 of 1 Currency of Status: CURRENT Parcel Status: Crown land (reserved) Reserve Type: Temporary Reserve Purpose: PUBLIC PURPOSES (EDUCATIONAL PURPOSES) Park:

Administrator: Department of Education and Training

Related instruments Gazette Year: 1976

Page: 3071 Number:



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HISTORICAL SEARCH	STATEMENT	Lan	d Use Victoria	Page 3 of 3
Act Year:			Number:	
Special Gazette Date:		Page:	Number:	
Order in Council Date:	12-OCT-1976			
Reference Plan: OP1216	69			
Title Reference:	Volume	Folio:		
Status Remark:				

Standard Parcel Identifiers (SPI) that contain land excised from the parcel: None

End Of Status Details

Native Title: National Native Title Tribunal Determination Number: VID6007/1998 Determination Found: Native Title exists Applies To: Part of the land parcel Date: 22-OCT-2010 For more information go to the National Native Title Register at http://www.nntt.gov.au/

End Of Report

# **Appendix H**

**Property Reports** 

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### PLANNING PROPERTY REPORT



From www.planning.vic.gov.au at 14 July 2021 05:05 PM

#### **PROPERTY DETAILS**

Crown Description:	Allot. 62G PARISH C	OF GLENMAGGIE	
Address:	SCHOOLHOUSE LAI	NE SEATON 3858	
Standard Parcel Identifier (SP	): 62G\PP2679		
Local Government Area (Cour	ncil): WELLINGTON		www.wellington.vic.gov.au
Council Property Number:	329193		
Planning Scheme:	Wellington		Planning Scheme - Wellington
Directory Reference:	Vicroads 82 C8		
UTILITIES		STATE ELECTORATES	
Rural Water Corporation: So	outhern Rural Water	Legislative Council:	EASTERN VICTORIA

Urban Water Corporation: Gippsland Water Melbourne Water: Power Distributor:

Outside drainage boundary AUSNET

Legislative Assembly:

**GIPPSLAND EAST** 

#### OTHER

Registered Aboriginal Party: Gunaikurnai Land and Waters **Aboriginal Corporation** 

#### View location in VicPlan

#### **Planning Zones**



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

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## PLANNING PROPERTY REPORT



#### **Planning Overlays**



#### **Further Planning Information**

Planning scheme data last updated on 8 July 2021.

A planning scheme sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting https://www.planning.vic.gov.au

This report is NOT a Planning Certificate issued pursuant to Section 199 of the Planning and Environment Act 1987. It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to Titles and Property Certificates at Landata - https://www.landata.vic.gov.au

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit https://mapshare.maps.vic.gov.au/vicplan

For other information about planning in Victoria visit https://www.planning.vic.gov.au

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### PLANNING PROPERTY REPORT



#### **Designated Bushfire Prone Areas**

This parcel is in a designated bushfire prone area.

Special bushfire construction requirements apply. Planning provisions may apply.



Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011 and amended from time to time.

The Building Regulations 2018 through application of the Building Code of Australia, apply bushfire protection standards for building works in designated bushfire prone areas.

Designated bushfire prone areas maps can be viewed on VicPlan at <u>https://mapshare.maps.vic.gov.au/vicplan</u> or at the relevant local council.

Note: prior to 8 September 2011, the whole of Victoria was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website https://www.vba.vic.gov.au

Copies of the Building Act and Building Regulations are available from http://www.legislation.vic.gov.au

For Planning Scheme Provisions in bushfire areas visit <u>https://www.planning.vic.gov.au</u>

#### **Native Vegetation**

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme. For more information see Native Vegetation (Clause 52.17) with local variations in Native Vegetation (Clause 52.17) Schedule

To help identify native vegetation on his property and the application of Clause 52.17 please visit the Native Vegetation Information Management system <a href="https://nvim.delwp.vic.gov.au/">https://nvim.delwp.vic.gov.au/</a> and <a href="https://nvim.delwp.vic.gov.au/">Native vegetation (environment.vic.gov.au/</a> or please contact your relevant council.

You can find out more about the natural values on your property through NatureKit NatureKit (environment.vic.gov.au)

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# Appendix I

Site Photographs

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Photograph 1: Small slab with potential remnant barbeque in central area of site



Photograph 2: Inside toilet block in central area of the site





Photograph 3: Slab in central area of the site



Photograph 4: Slab with remnant water tank in central area of the site





Photograph 5: Toilet block in central area of the site



Photograph 6: Pit adjacent to toilet block, considered potential septic system





Photograph 7: Stockpile of tyres and other solid waste in the north-west of the site



Photograph 8: Pile of agricultural equipment and drum in south of the site





Photograph 9: Drum in southern portion of the site



Photograph 10: Plastic pile in west of the site





Photograph 11: Dam in north-west corner of the site



Photograph 12: Looking west of site to open grazing land





Photograph 13: Looking at southern area of the site, with residence beyond to south of the site



### **ASIA PACIFIC OFFICES**

#### BRISBANE

Level 2, 15 Astor Terrace Spring Hill QLD 4000 Australia T: +61 7 3858 4800 F: +61 7 3858 4801

#### MACKAY

21 River Street Mackay QLD 4740 Australia T: +61 7 3181 3300

#### PERTH

Ground Floor, 503 Murray Street Perth WA 6000 Australia T: +61 8 9422 5900 F: +61 8 9422 5901

#### AUCKLAND

Level 4, 12 O'Connell Street Auckland 1010 New Zealand T: 0800 757 695

#### CANBERRA

GPO 410 Canberra ACT 2600 Australia T: +61 2 6287 0800 F: +61 2 9427 8200

#### MELBOURNE

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#### SYDNEY

Tenancy 202 Submarine School Sub Base Platypus 120 High Street North Sydney NSW 2060 Australia T: +61 2 9427 8100 F: +61 2 9427 8200

#### NELSON

6/A Cambridge Street Richmond, Nelson 7020 New Zealand T: +64 274 898 628

#### DARWIN

Unit 5, 21 Parap Road Parap NT 0820 Australia T: +61 8 8998 0100 F: +61 8 9370 0101

#### NEWCASTLE

10 Kings Road New Lambton NSW 2305 Australia T: +61 2 4037 3200 F: +61 2 4037 3201

#### TOWNSVILLE

12 Cannan Street South Townsville QLD 4810 Australia T: +61 7 4722 8000 F: +61 7 4722 8001

#### **GOLD COAST**

Level 2, 194 Varsity Parade Varsity Lakes QLD 4227 Australia M: +61 438 763 516

#### **NEWCASTLE CBD**

Suite 2B, 125 Bull Street Newcastle West NSW 2302 Australia T: +61 2 4940 0442

#### WOLLONGONG

Level 1, The Central Building UoW Innovation Campus North Wollongong NSW 2500 Australia T: +61 2 4249 1000



### DATA QUALITY ASSESSMENT SUMMARY

Report Details	
Envirolab Report Reference	<u>28646</u>
Client ID	SLR Consulting Aust. Pty Ltd (VIC)
Project Reference	640.30268
Date Issued	22/11/2021

### QC DATA

All laboratory QC data was within the Envirolab Group's specifications.

#### HOLDING TIME COMPLIANCE EVALUATION

All preservation / holding times (based on AS/ASPHA/ISO/NEPM/USEPA reference documents and standards) are compliant.

Certain analyses have had their recommended technical holding times elongated by filtering and/or freezing on receipt at the laboratory (e.g. BOD, chlorophyll/Pheophytin, nutrients and acid sulphate soil tests).

#### COMPLIANCE TO QC FREQUENCY (NEPM)

Internal laboratory QC rate complies with NEPM requirements (LCS/MB/MS 1 in 20, Duplicates 1 in 10 samples). Note, samples are batched together with other sample consignments in order to assign QC sample frequency.

Duplicate(s) was performed as per NEPM frequency	
Laboratory Control Sample(s) were analysed with the samples received $\checkmark$	
A Method Blank was performed with the samples received $\checkmark$	
Matrix spike(s) was performed as per NEPM frequency (Not Applicable for Air samples)	

Refer to Certificate of Analysis for all Quality Control data.



Envirolab Services Pty Ltd ABN 37 112 535 645 - 002 25 Research Drive Croydon South VIC 3136 ph 03 9763 2500 fax 03 9763 2633 melbourne@envirolab.com.au www.envirolab.com.au

### SAMPLE RECEIPT ADVICE

Client Details	
Client	SLR Consulting Aust. Pty Ltd (VIC)
Attention	Sneha Bhattachan

Sample Login Details	
Your reference	640.30267
Envirolab Reference	28646
Date Sample Received	12/11/2021
Date Instructions Received	12/11/2021
Date Results Expected to be Reported	On Hold

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	39 Soil, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4.6
Cooling Method	Ice
Sampling Date Provided	YES

Comments Nil

Please direct any queries to:

Pamela Adams	Chris De Luca
Phone: 03 9763 2500	Phone: 03 9763 2500
Fax: 03 9763 2633	Fax: 03 9763 2633
Email: padams@envirolab.com.au	Email: cdeluca@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645 - 002 25 Research Drive Croydon South VIC 3136 ph 03 9763 2500 fax 03 9763 2633 melbourne@envirolab.com.au www.envirolab.com.au

Sample ID	VOCs in soil	vTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBsin Soil	Speciated Phenols in Soil	Acid Extractable metalsin soil	Total Cyanide	Hexavalent Chromium, Cr6+	Total Fluoride	pH1:5 soil:water	Asbestos ID - soils	On Hold
TP01_0.1															$\checkmark$
TP01_0.3															✓
TP01_0.5															✓
TP02_0.1															✓
TP02_0.25															$\checkmark$
TP02_0.4															$\checkmark$
TP02_0.6															$\checkmark$
TP02_0.8															✓
TP03_0.1															✓
TP03_0.5															$\checkmark$
TP03_0.7															✓
TP04_0.3															✓
TP04_0.5															$\checkmark$
TP05_0.05															✓
TP05_0.3															✓
BR02_20211111															✓
TP06_0.1															✓
TP06_0.3															✓
TP06_0.6															✓
TP07_0.1															$\checkmark$
TP07_0.3															$\checkmark$
TP07_0.6															$\checkmark$
TP08_0.1															$\checkmark$
TP08_0.4															$\checkmark$
TP08_0.6															$\checkmark$
TP08_1.0															$\checkmark$
TP09_0.1															$\checkmark$
TP09_0.3															$\checkmark$
TP09_0.5															$\checkmark$
TP10_0.1															√
TP10_0.3															✓
TP11_0.1															$\checkmark$



Envirolab Services Pty Ltd ABN 37 112 535 645 - 002 25 Research Drive Croydon South VIC 3136 ph 03 9763 2500 fax 03 9763 2633 melbourne@envirolab.com.au www.envirolab.com.au

Sample ID	VOCs in soil	VTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBsin Soil	Speciated Phenols in Soil	Acid Extractable metalsin soil	Total Cyanide	Hexavalent Chromium, Cr6+	Total Fluoride	pH1:5 soil:water	Asbestos ID - soils	On Hold
TP11_0.3															$\checkmark$
TP12_0.1															$\checkmark$
TP12_0.3															$\checkmark$
TP13_0.05															$\checkmark$
TP13_0.2															✓
TP13_0.4															$\checkmark$
TB02_20211111															$\checkmark$
TP04_0.05															$\checkmark$

The ' $\checkmark$ ' 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.



QUALITY CONTROL REPORT					
Work Order	: EM2122796	Page	: 1 of 7		
Client	: SLR CONSULTING AUSTRALIA PTY LTD	Laboratory	: Environmental Division	Melbourne	
Contact	: Sneha Bhattachan	Contact	: Hannah White		
Address	: LEVEL 11 176 WELLINGTON PARADE FAST MEI BOURNE 3002	Address	: 4 Westall Rd Springval	e VIC Australia 3171	
Telephone	:	Telephone	: +61-3-8549 9600		
Project	: 640.30269	Date Samples Received	: 12-Nov-2021	SMIIII.	
Order number	:	Date Analysis Commenced	: 17-Nov-2021		
C-O-C number	:	Issue Date	: 19-Nov-2021		
Sampler	: NB				
Site	:				
Quote number	: EN/333 Secondary work BQ			Accreditation No. 82	
No. of samples received	: 1			Accredited for compliance wit ISO/IEC 17025 - Testin	
No. of samples analysed	: 1				

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

#### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



#### **General Comments**

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

 Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

 LOR = Limit of reporting

 RPD = Relative Percentage Difference

 # = Indicates failed QC



#### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL						Laboratory L	Duplicate (DUP) Repor	t	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Tot	al Metals by ICP-A	ES (QC Lot: 4019870)							
EM2122773-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	Anonymous	Anonymous	Anonymous	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	Anonymous	Anonymous	Anonymous	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
EA055: Moisture Co	ntent (Dried @ 105	-110°C) (QC Lot: 4019083)							
EM2122775-005	Anonymous	EA055: Moisture Content		0.1	%	Anonymous	Anonymous	Anonymous	0% - 50%
EM2122802-001	Anonymous	EA055: Moisture Content		0.1	%	Anonymous	Anonymous	Anonymous	No Limit
EG035T: Total Reco	overable Mercury b	v FIMS (QC Lot: 4019871)							
EM2122773-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
EP075(SIM)B: Polyn	uclear Aromatic Hy	vdrocarbons (OC Lot: 4018934)							
EM2122682-022	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
EP080/071: Total Pe	troleum Hydrocarb	oons (QC Lot: 4018898)							
EM2122069-065	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
EM2122777-001	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
EP080/071: Total Pe	troleum Hydro <u>carb</u>	oons (QC Lot: 4018935)							
EM2122682-022	Anonymous	EP071: C15 - C28 Fraction		100	mg/kg	Anonymous	Anonymous	Anonymous	No Limit
		EP071: C29 - C36 Fraction		100	mg/kg	Anonymous	Anonymous	Anonymous	No Limit

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Project	640.30269



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)	
EP080/071: Total Petroleum Hvdrocarbons (QC Lot: 4018935) - continued										
EM2122682-022	Anonymous	EP071: C10 - C14 Fraction		50	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP071: C10 - C36 Fraction (sum)		50	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4018898)										
EM2122069-065	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
EM2122777-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
EP080/071: Total Red	overable Hydrocarbons - N	EPM 2013 Fractions (QC Lot: 4018935)								
EM2122682-022	Anonymous	EP071: >C16 - C34 Fraction		100	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP071: >C34 - C40 Fraction		100	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP071: >C10 - C16 Fraction		50	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP071: >C10 - C40 Fraction (sum)		50	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
EP080: BTEXN (QC Lot: 4018898)										
EM2122069-065	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
EM2122777-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
			106-42-3			-	-			
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	Anonymous	Anonymous	Anonymous	No Limit	
		EP080: Naphthalene	91-20-3	1	ma/ka	Anonymous	Anonymous	Anonymous	No Limit	



#### Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL		Method Blank (MB)	Laboratory Control Spike (LCS) Report									
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)				
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4019870)												
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	98.1	70.0	130				
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	59.0	50.0	130				
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	104	70.0	130				
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	93.3	70.0	130				
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	94.2	70.0	130				
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	99.0	70.0	130				
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	74.3	70.0	130				
EG035T: Total Recoverable Mercury by FIMS(	QCLot: 4019871)											
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	86.7	70.0	130				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbo	ons (QCLot: 4018934)											
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	99.2	85.7	123				
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	100	81.0	123				
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	102	83.6	120				
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	99.4	81.3	126				
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	101	79.4	123				
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	101	81.7	127				
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	100	78.3	124				
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	100	79.9	128				
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	99.4	76.9	123				
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	102	80.9	130				
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	3 mg/kg	100	70.0	121				
	205-82-3											
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	98.7	80.4	130				
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	97.3	70.2	123				
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	97.9	67.9	122				
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	97.9	65.8	123				
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	98.1	65.8	127				
EP080/071: Total Petroleum Hydrocarbons (QC	Lot: 4018898)											
EP080: C6 - C9 Fraction		10	mg/kg	<10	36 mg/kg	105	58.6	131				
EP080/071: Total Petroleum Hydrocarbons (QC	Lot: 4018935)											
EP071: C10 - C14 Fraction		50	mg/kg	<50	650 mg/kg	104	75.0	128				
EP071: C15 - C28 Fraction		100	mg/kg	<100	2920 mg/kg	102	82.0	123				
EP071: C29 - C36 Fraction		100	mg/kg	<100	1380 mg/kg	99.8	82.4	121				
EP071: C10 - C36 Fraction (sum)		50	mg/kg	<50								
EP080/071: Total Recoverable Hydrocarbons - N	EPM 2013 Fractions (QCL)	ot: 4018898)										
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Sub-Matrix: SOIL	Method Blank (MB)	Laboratory Control Spike (LCS) Report							
				Report	Spike	Spike Recovery (%)	Acceptable	e Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4018898) - continued									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	102	59.3	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4018935)									
EP071: >C10 - C16 Fraction		50	mg/kg	<50	920 mg/kg	118	77.0	130	
EP071: >C16 - C34 Fraction		100	mg/kg	<100	3700 mg/kg	100	81.5	120	
EP071: >C34 - C40 Fraction		100	mg/kg	<100	270 mg/kg	110	73.3	137	
EP071: >C10 - C40 Fraction (sum)		50	mg/kg	<50					
EP080: BTEXN (QCLot: 4018898)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	102	61.6	117	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	103	65.8	125	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	104	65.8	124	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	4 mg/kg	111	64.8	134	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	110	68.7	132	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	83.6	61.8	123	



#### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL			Matrix Spike (MS) Report				
				Spike	Spike Recovery (%)	Acceptable	e Limits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Tot	al Metals by ICP-AES (QCLot: 4019870)						
EM2122778-001	Anonymous	EG005T: Arsenic	7440-38-2	Anonymous	Anonymous	Anonymous	Anonymous
		EG005T: Lead	7439-92-1	Anonymous	Anonymous	Anonymous	Anonymous
EM2122778-001	Anonymous	EG005T: Cadmium	7440-43-9	Anonymous	Anonymous	Anonymous	Anonymous
		EG005T: Chromium	7440-47-3	Anonymous	Anonymous	Anonymous	Anonymous
		EG005T: Copper	7440-50-8	Anonymous	Anonymous	Anonymous	Anonymous
		EG005T: Nickel	7440-02-0	Anonymous	Anonymous	Anonymous	Anonymous
		EG005T: Zinc	7440-66-6	Anonymous	Anonymous	Anonymous	Anonymous
EP075(SIM)B: Polyn	uclear Aromatic Hydrocarbons (QCLot: 40	)18934)					
EM2122682-019	Anonymous	EP075(SIM): Acenaphthene	83-32-9	Anonymous	Anonymous	Anonymous	Anonymous
		EP075(SIM): Pyrene	129-00-0	Anonymous	Anonymous	Anonymous	Anonymous
EP080/071: Total Pe	troleum Hydrocarbons (QCLot: 4018898)						
EM2122317-003	Anonymous	EP080: C6 - C9 Fraction		Anonymous	Anonymous	Anonymous	Anonymous
EP080/071: Total Pe	troleum Hydrocarbons (QCLot: 4018935)						
EM2122670-001	Anonymous	EP071: C10 - C14 Fraction		Anonymous	Anonymous	Anonymous	Anonymous
		EP071: C15 - C28 Fraction		Anonymous	Anonymous	Anonymous	Anonymous
		EP071: C29 - C36 Fraction		Anonymous	Anonymous	Anonymous	Anonymous
EP080/071: Total Re	coverable Hydrocarbons - NEPM 2013 Frac	ctions (QCLot: 4018898)					
EM2122317-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	Anonymous	Anonymous	Anonymous	Anonymous
EP080/071: Total Re	coverable Hydrocarbons - NEPM 2013 Frag	ctions (QCLot: 4018935)					
EM2122670-001	Anonymous	EP071: >C10 - C16 Fraction		Anonymous	Anonymous	Anonymous	Anonymous
		EP071: >C16 - C34 Fraction		Anonymous	Anonymous	Anonymous	Anonymous
		EP071: >C34 - C40 Fraction		Anonymous	Anonymous	Anonymous	Anonymous
EP080: BTEXN (QC	Lot: 4018898)						
EM2122317-003	Anonymous	EP080: Benzene	71-43-2	Anonymous	Anonymous	Anonymous	Anonymous
		EP080: Toluene	108-88-3	Anonymous	Anonymous	Anonymous	Anonymous



## QA/QC Compliance Assessment for DQO Reporting

Work Order	: EM2122796	Page	: 1 of 5
Client	SLR CONSULTING AUSTRALIA PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: Sneha Bhattachan	Telephone	: +61-3-8549 9600
Project	: 640.30269	Date Samples Received	: 12-Nov-2021
Site	:	Issue Date	: 19-Nov-2021
Sampler	: NB	No. of samples received	:1
Order number	:	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

### **Summary of Outliers**

#### **Outliers : Quality Control Samples**

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- <u>NO</u> Matrix Spike outliers occur.
- For all regular sample matrices, <u>NO</u> surrogate recovery outliers occur.

#### **Outliers : Analysis Holding Time Compliance**

• NO Analysis Holding Time Outliers exist.

#### **Outliers : Frequency of Quality Control Samples**

Quality Control Sample Frequency Outliers exist - please see following pages for full details.



#### **Outliers : Quality Control Samples**

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

#### **Outliers : Frequency of Quality Control Samples**

#### Matrix: SOIL

Matrix: SOIL

Method

Quality Control Sample Type	Со	Count Rate (%) Qu		(%)	Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
Total Mercury by FIMS	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846. APHA, AS and NEPM (2013). A listing of breaches is provided in the Summary of Outliers.

#### Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

#### Sample Date Extraction / Preparation Analvsis Container / Client Sample ID(s) Date extracted Due for extraction Evaluation Date analysed Due for analysis Evaluation EA055: Moisture Content (Dried @ 105-110°C) Soil Glass Jar - Unpreserved SPL02 20211111 11-Nov-2021 17-Nov-2021 25-Nov-2021 1 EG005(ED093)T: Total Metals by ICP-AES Soil Glass Jar - Unpreserved $\checkmark$ SPL02 20211111 11-Nov-2021 18-Nov-2021 10-May-2022 18-Nov-2021 10-May-2022 $\checkmark$ EG035T: Total Recoverable Mercury by FIMS Soil Glass Jar - Unpreserved SPL02 20211111 11-Nov-2021 18-Nov-2021 09-Dec-2021 19-Nov-2021 09-Dec-2021 1 EP075(SIM)B: Polynuclear Aromatic Hydrocarbons Soil Glass Jar - Unpreserved SPL02 20211111 11-Nov-2021 18-Nov-2021 25-Nov-2021 28-Dec-2021 $\checkmark$ 18-Nov-2021 $\checkmark$ EP080/071: Total Petroleum Hydrocarbons Soil Glass Jar - Unpreserved SPL02 20211111 11-Nov-2021 17-Nov-2021 25-Nov-2021 17-Nov-2021 25-Nov-2021 $\checkmark$ Soil Glass Jar - Unpreserved SPL02 20211111 28-Dec-2021 $\checkmark$ 11-Nov-2021 18-Nov-2021 25-Nov-2021 $\checkmark$ 18-Nov-2021

#### Evaluation: \* = Holding time breach ; $\checkmark$ = Within holding time.

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Matrix: SOIL				Evaluation	: × = Holding time	breach ; 🗸 = Withi	n holding time
Method	Sample Date	Ex	traction / Preparation		Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved							
SPL02_20211111	11-Nov-2021	17-Nov-2021	25-Nov-2021	✓	17-Nov-2021	25-Nov-2021	✓
Soil Glass Jar - Unpreserved							
SPL02_20211111	11-Nov-2021	18-Nov-2021	25-Nov-2021	✓	18-Nov-2021	28-Dec-2021	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved							
SPL02_20211111	11-Nov-2021	17-Nov-2021	25-Nov-2021	✓	17-Nov-2021	25-Nov-2021	✓



### **Quality Control Parameter Frequency Compliance**

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: SOIL				Evaluatio	n: × = Quality Co	ntrol frequency	not within specification ; $\checkmark$ = Quality Control frequency within specification.
Quality Control Sample Type		С	ount		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	9	11.11	5.00	1	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	0	8	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	9	22.22	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



### **Brief Method Summaries**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



## **SAMPLE RECEIPT NOTIFICATION (SRN)**

Work Order	:	EM2122796					
Client	:	SLR CONSULTING AUSTRALIA PTY LTD	Laboratory	: Environmental Division Melbourne			
Contact	:	Sneha Bhattachan	Contact	: Hannah W	hite		
Address : LEVEL 11 176 WELLINGTON PARADE EAST MELBOURNE 3002			Address	4 Westall Rd Springvale VIC Australia 3171			
E-mail	:	sbhattachan@slrconsulting.com	E-mail	: Hannah.W	hite@alsglobal.com		
Telephone	:		Telephone	: +61-3-854	9 9600		
Facsimile	:		Facsimile	: +61-3-854	9 9626		
Project	:	640.30269	Page	: 1 of 2			
Order number :		Quote number	EM2018HEGAUS0002 (EN/333 Secondary work BQ)				
C-O-C number	:		QC Level	: NEPM 201	3 B3 & ALS QC Standard		
Site	:						
Sampler	:	NB					
Dates							
Date Samples Rece	ived	: 12-Nov-2021 15:05	Issue Date		: 16-Nov-2021		
Client Requested Du Date	e	: 19-Nov-2021	Scheduled Reportin	ig Date	i 19-Nov-2021		
Delivery Deta	ils						
Mode of Delivery		: Carrier	Security Seal		: Intact.		
No. of coolers/boxes	\$	: 1	Temperature		: 7.1°C - Ice present		
Receipt Detail		:	No. of samples rece	eived / analysed	: 1/1		

#### **General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Sample(s) received in non-ALS container(s).
- Please direct any queries related to sample condition / numbering / breakages to Client Services.
- Sample Disposal Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- Analytical work for this work order will be conducted at ALS Springvale.
- Please refer to the Proactive Holding Time Report table below which summarises breaches of
  recommended holding times that have occurred prior to samples/instructions being received at
  the laboratory. The laboratory will process these samples unless instructions are received from
  you indicating you do not wish to proceed. The absence of this summary table indicates that all
  samples have been received within the recommended holding times for the analysis requested.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.



#### Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

#### • No sample container / preservation non-compliance exists.

#### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

#### OIL - S-26 metals/TRH/BTEXN/PAH OIL - EA055-103 **Aoisture Content** Matrix: SOIL Sample ID Laboratory sample Sampling date / ID time EM2122796-001 11-Nov-2021 00:00 SPL02\_20211111 1

#### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

#### Requested Deliverables

#### ACCOUNTS PAYABLE AU

- A4 - AU Tax Invoice (INV)	Email	accountspayableau@slrconsulting.c om
Sneha Bhattachan		
<ul> <li>*AU Certificate of Analysis - NATA (COA)</li> </ul>	Email	sbhattachan@slrconsulting.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	sbhattachan@slrconsulting.com
- A4 - AU Tax Invoice (INV)	Email	sbhattachan@slrconsulting.com
- AU Interpretive QC Report (Anon QCI Not Rep) (QCI_NoAnon)	Email	sbhattachan@slrconsulting.com
- AU QC Report (Anon QC Not Rep) - NATA (QC_NoAnon)	Email	sbhattachan@slrconsulting.com
- Chain of Custody (CoC) (COC)	Email	sbhattachan@slrconsulting.com
- EDI Format - ENMRG (ENMRG)	Email	sbhattachan@slrconsulting.com
- EDI Format - ESDAT (ESDAT)	Email	sbhattachan@slrconsulting.com



## Appendix C Certificate of Title



#### CROWN FOLIO STATEMENT

Page 1 of 1

VOLUME 11737 FOLIO 349 No CofT exists Security no : 124091769530P Produced 11/08/2021 02:48 PM

CROWN FOLIO

#### LAND DESCRIPTION

Crown Allotment 62G Parish of Glenmaggie. Created by instrument MI101809B 06/08/2016

#### CROWN LAND ADMINISTRATOR

MINISTER ADMINISTERING THE EDUCATION AND TRAINING REFORM ACT 2006 (SCHOOLS) of LEVEL 2 2 TREASURY PLACE EAST MELBOURNE VIC 3002 AN778210N 28/04/2017

#### STATUS, ENCUMBRANCES AND NOTICES

INDIGENOUS LAND USE AGREEMENT as to part MI101812N 06/08/2016 NATIVE TITLE DETERMINATION VID6007/1998

#### DIAGRAM LOCATION

SEE CD041464H FOR FURTHER DETAILS AND BOUNDARIES

#### ACTIVITY IN THE LAST 125 DAYS

NIL

-----END OF CROWN FOLIO STATEMENT------

Additional information: (not part of the Crown Folio Statement)

Street Address: SCHOOLHOUSE LANE SEATON VIC 3858

DOCUMENT END

## Appendix D

Auditor's Evaluation of Quality and Completeness



### Appendix D – Auditor Evaluation of Quality and Completeness

This appendix presents an overview of the quality of information used by the Auditor to form his opinions on the contamination status of the Site for the purposes of completing the PRSA.

The primary documents relied upon by the Auditor are identified in Section 3 of the PRSA report. These documents include the following key information:

- Site setting and historical information
- Soil investigation methodology
- Laboratory analysis and quality control.

The PSI, which was the primary document produced by the assessment consultant for consideration in the PRSA, was subject to review by the Auditor and his support team. Key aspects of the review process outlined above are described further in the following sections.

#### 1 Site Setting and Historical Information

A site setting and historical review of the Site and surrounding area was completed by SLR Consulting Australia Pty Ltd (SLR). The information is compiled in the report:

• SLR (2022) Preliminary Site Investigation, Former Seaton Heyfield Primary School Plantation, Schoolhouse Lane, Seaton, Victoria. Prepared by SLR for DTF, January 2022.

The review was conducted in general accordance with guidance provided in the following documents:

- Australia Standard (AS 4482.1) Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds (Standards Australia, 2005); and
- NEPC 1999. National Environmental Protection (Assessment of Site Contamination) Measure 1999, National Environment Protection Council as amended 15 May 2013, Comlaw No. F2013C00288. In particular, Schedule B2: Guideline on Site Characterisation.

The combined sources of historical information included the following:

- Current and historical land title information including historical business directories
- Published topography, geology and hydrogeology maps
- Review of historical maps including Melways
- Lotsearch database including former gasworks and liquid fuel facilities, Defence Sites, and waste and resource facilities
- Review of publicly available completed Environmental Audit Reports and EPA Victoria Groundwater Quality Restricted Use Zones and Priority Sites Register
- Review of historical aerial photographs from 1944 to 2020
- CSIRO Australian Soil Resource Information System (ASRIS) acid sulfate soil map,
- Department of Environment, Land, Water and Planning (DELWP) Water Measurement Information System reports.

The Auditor considers the combined historical review undertaken by SLR, in conjunction with the Auditor's own research, is sufficient to provide an adequate understanding of the history of the Site and potentially contaminating historical activities.

#### 2 Soil Investigation Methodology

The limited soil investigation was completed by SLR and is compiled within the following document:

• SLR (2022) Preliminary Site Investigation, Former Seaton Heyfield Primary School Plantation, Schoolhouse Lane, Seaton, Victoria. Prepared by SLR for DTF, January 2022 (herein referred to as the SLR PSI Report).



It is noted that quality control reports relating to the laboratory analyses undertaken are not provided in the SLR PSI Report. There were requested from DTF by the Auditor during the PRSA and provided separately. These have been included in Appendix B of the PRSA.

Guidance on undertaking soil investigations include the following documents:

- NEPC 1999. National Environmental Protection (Assessment of Site Contamination) Measure 1999, National Environment Protection Council as amended 15 May 2013, Comlaw No. F2013C00288;
- Australia Standard (AS 4482.1) Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds (Standards Australia, 2005);
- Environmental Protection Authority, *Waste disposal categories characteristics and thresholds* Publication 1828.2, 1 July 2021; and
- Environment Protection Authority, Industrial Waste Resource Guidelines (IWRG) Publication 701, Sampling and Analysis of Wasters, Wastewaters, Oils and Wastes, 2009.

Primary components of the soil investigation conducted, together with the Auditor's observations and comments in relation to the works conducted by SLR, are summarised in the following table.

Objective	Auditors Observations and Comments
Soil Sampling Coverage	The PSI included the collection of soil samples targeting specific areas around the Site including the septic system, the former buildings, and the waste stockpiles.
	Targeted sampling was undertaken by SLR by advancing eight test pits and five trenches for soil sampling. TP01-TP07 and TP09-TP13 were advanced to 0.5 m and targeted the former buildings in the central and north-eastern portion of the Site, former and current infrastructure in the central area of the Site and waste piles in the south and north-western portions of the Site. TP13 was advanced to 1.0 m and targeted the septic system in the central portion of the Site.
	The Auditor considers that the sample locations were appropriately positioned to target for all identified potential sources of contamination for the purposes of this PRSA.
Soil Sample Collection Methods	Soil samples were collected with the aid of a small excavator from the test pits or trenches.
	All soil samples were placed into laboratory supplied jars (with dedicated disposable nitrile gloves).
	Soil samples from the test pits and trenches were typically obtained from the near surface (0.05-0.1 m bgl), 0.3 and 0.5 m or when there was an observed change in lithology.
	The Auditor considers this an acceptable approach.
Decontamination	The potential for cross-contamination was managed by collecting soil samples into laboratory supplied jars using dedicated disposable nitrile gloves which were changed between the collection of soil samples.
	The Auditor considers this to be an acceptable approach.
Field Measurements	Field screening for volatile organic compounds (VOCs) was conducted using a portable photoionisation detector (PID) on all soil sample locations.
	Instrument calibration was conducted by the supplier prior to use. Calibration certificates were provided for 10 November 2021 (Appendix E of the SLR PSI Report).
	The field measurements are corroborated by the laboratory data and is considered to be adequate to assess the potential for volatile contamination at the Site.

#### Table 1 Soil Investigation Summary



Objective	Auditors Observations and Comments
Field Documentation	Field documentation of the soil sampling program was provided in the form of borelogs containing PID concentrations, depth of samples taken and the observed lithology. Borelogs are provided in Appendix C of the SLR PSI Report. The sample identification number and depth of soil sample were recorded on chain of custody (COC) documentation, which are provided in D of the SLR PSI Report.
Sample Handling	Soil samples were collected into laboratory supplied glass jars and transported to NATA accredited laboratories in coolers with ice with COC documentation. COC documentation is provided in Appendix D of the SLR PSI Report.
	A temperature exceedance was reported for the following batches:
	Secondary laboratory batch EM2122796: The SRN indicates that samples were received at temperature of 7.1°C above the preferred temperature of <5°C. The sample was received with ice. The dispatch time is not noted on the COC, therefore it cannot be ascertained if the slight exceedance was due to delayed transportation or a cooling issue. As this relates to the secondary laboratory and the exceedance is relatively minor, it is not considered material to the outcome of the PRSA.
Number and Type of Quality Control Samples	Quality control samples were collected during the soil sampling programs at the following frequencies:
	<ul> <li>1 intra-laboratory sample was collected and analysed for a total of 13 primary samples analysed which meets the minimum recommended frequency of 5% (1 in 20 primary samples).</li> <li>1 inter-laboratory sample was collected and analysed for a total of 13 primary samples analysed which meets the minimum recommended frequency of 5% (1 in 20 primary samples).</li> <li>1 trip blank was collected and analysed.</li> </ul>
	Overall, the number of quality control samples collected is considered to be sufficient to appraise the accuracy and precision of the analyses for the CoPCs.
Selection of Chemical Analytes	The selection of chemical analytes included all relevant CoPCs as identified in the CSM for the Site. This included metals/metalloids, total recoverable hydrocarbons (TRHs), polycyclic aromatic hydrocarbons (PAHs), BTEXN, total nitrogen, total kjeldahl nitrogen, nitrate/nitrite, phosphorous, pH, and cation exchange capacity.
	The Auditor is satisfied that the laboratory analytical suite was appropriate based on the historical potential for contamination sources identified.

#### 3 Laboratory Analysis and Quality Control

Laboratory analyses undertaken as part of the PSI are documented within the SLR PSI report.

Guidance on undertaking laboratory analysis and interpreting quality control results include the following documents:

- NEPC 1999. National Environmental Protection (Assessment of Site Contamination) Measure 1999, National Environment Protection Council as amended 15 May 2013, Comlaw No. F2013C00288;
- Australia Standard (AS 4482.1) Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds (Standards Australia, 2005);
- Environmental Protection Authority, *Waste disposal categories characteristics and thresholds* Publication 1828.2, 1 July 2021; and
- Environment Protection Authority, Industrial Waste Resource Guidelines (IWRG) Publication 701, Sampling and Analysis of Wasters, Wastewaters, Oils and Wastes, 2009.



Primary components of a laboratory analysis and quality control program relevant to this PRSA, together with the Auditor's observations and comments in relation to the works conducted by SLR, are summarised in the following table.

Objective	Auditors Observations and Comments
National Association of Testing Authority (NATA) Accreditation	EnviroLab was the nominated primary laboratory, while ALS was the nominated secondary laboratory for soil analysis. Both Envirolab and ALS are NATA accredited for the soil analyses undertaken.
Sample Holding Times	Soil samples were extracted and analysed within the recommended holding times.
Limits of Reporting	The laboratory limits of reporting (LOR) were acceptable for soil.
Intra Laboratory Field Duplicates	A review of the assessor's QA/QC report for soil and the relative percentage difference (RPD) table in the SLR PSI Report noted that the RPD for copper (40%) and zinc (33%) were above the preferred criterion of 30%. WSP considered that these RPDs were not significant due to sample heterogeneity and low analyte concentration, which the Auditor notes results in the RPDs being artificially elevated. All remaining RPD results were within the acceptable range.
	The Auditor considered that an acceptable level of accuracy was achieved for the purposes of this PRSA.
Inter Laboratory Field Duplicates	A review of the assessor's QA/QC report for soil and the relative percentage difference (RPD) table in the SLR PSI Report noted that the split sample had a RPD reading of 33% for zinc above the preferred criterion of 30%. However, it was noted that this RPDs was not considered significant due to sample heterogeneity and low analyte concentration, which the Auditor notes results in the RPDs being artificially elevated. All remaining RPD results were within the acceptable range. Overall, the Auditor considered that an acceptable level of precision was
	achieved, and the non-compliances would not affect data interpretation.
Rinsate Blanks	Rinsate samples were not collected, which was appropriate for the sampling methodology employed.
Field Blanks	Field blank samples were not collected.
Trip Blanks	Analyte concentrations in all trip blank samples collected were reported below the laboratory LORs.
Laboratory Generated Quality Control Data	<ul> <li>A review was conducted on laboratory generated quality control data inclusive of:</li> <li>Frequency of quality control testing;</li> <li>Method blanks;</li> <li>Internal laboratory duplicates;</li> <li>Matrix spikes; and</li> <li>Surrogate spikes.</li> </ul> The review noted a small number of non-compliances however, overall the Auditor considered that their impact was not significant and they were not considered to affect data interpretation.
Anomalous Results	There were no anomalous results reported during the soil investigation. All PID readings reported were 0 ppm which is consistent with the absence of volatile contaminants identified in the laboratory results. In addition, no odours or staining was observed in the soil.

#### Table 2 Laboratory Analysis and Quality Control Summary



#### 4 Auditor's Overall Assessment of Adequacy

In the Auditor's opinion, the overall quality and reliability of information generated from the investigations undertaken was sufficient for the purposes of this PRSA.



# Appendix E

Site Photographs









VIC | SA | QLD







