Preliminary Risk Screen Assessment (PRSA)

Jetty Road, Stage 2 North Area, Curlewis, Victoria

Prepared for:

Cardno Victoria Pty Ltd

Prepared by:

EHS Support

19 September 2022

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Table of Contents

Executive Summary **1**

1 Introduction **3**

1.1 Purpose and Objectives 5
1.2 Scope of PRSA 5
1.3 Auditor's Support Team 7

2 Site Description and Environmental Setting **8**

2.1 Site Details 8
2.2 Current Site Features 8
2.2.1 31 – 70 McDermott Road 8
2.2.2 91 – 125 Coriyule Road 9
2.3 Environmental Setting 9
2.3.1 Topography 9
2.3.2 Surface Conditions 9
2.3.3 Vegetation 9
2.3.4 Hydrology 10
2.3.5 Acid Sulfate Soils 10
2.3.6 Geology 10
2.3.7 Hydrogeology 10

3 Site History and Site Inspection **12**

4 Previous Site Assessments **15**

4.1 Environmental Site Assessment (ESA Group, 2019) 15
4.1.1 Scope and Methodology 15
4.1.2 Overview of Results and Conclusions 16
4.1.2.1 Site History Review 16
4.1.2.2 Soil Sampling 16
4.1.3 Auditor Comments and Review of Quality Assurance and Quality Control 17
4.2 Environmental Investigation (ESA Group, 2022) 19
4.2.1 Scope and Methodology 20
4.2.2 Overview of Results and Conclusions 20
4.2.2.1 Soil Sampling 20
4.2.2.2 Conceptual Site Model 21
4.2.3 Auditor Comments and Review of Quality Assurance and Control 22
4.3 Auditor's Opinion on the Adequacy of Previous Assessments 23

5 Conceptual Site Model Summary **24**

5.1 Potential Sources of Contamination and Contaminates of Concern Source Pathway Receptor Summary 24
5.2 Potential Receptors 25
5.2.1 Environmental Values – Soil 25
5.2.2 Environmental Values – Water 25
5.3 Summary of Potential Receptors and Migration Pathways 26

6 Summary and Findings 30

6.1 Land Classification 30
6.2 Likelihood of Contamination 30
6.3 Assessment of Possible Impacts on Environmental Values 30
6.3.1 Assessment of Environmental Values of Surface Water 31
6.4 Determination of an Environmental Audit 31
6.5 Assessment Exclusions 32

7 Limitations 33

8 References 34

List of Tables

Table 0-1 Summary of PRSA information
Table 0-2 Physical Site information
Table 1-1 PRSA Scope and Key Information
Table 2-1 Site Details and Information
Table 2-2 Summary of Geology
Table 2-3 Summary of Hydrogeology
Table 4-1 Summary of Environmental Site Assessment (ESA Group, 2019)
Table 4-2 Evaluation of ESA Report (ESA Group, 2019)
Table 4-3 Summary of Environmental Investigation (ESA Group, 2022)
Table 4-4 Evaluation of ESA Report (ESA Group, 2022)
Table 5-1 Summary of Potential Sources of Contamination and Contaminants of Concern
Table 5-2 Environmental Values of Land, Potential Receptors and Migration and Exposure Pathways
Table 5-3 Environmental Value of Groundwater, Potential Receptors and Migration and Exposure Pathways
Table 6-1 Assessment of Environmental Values of Land
Table 6-2 Assessment of Environmental Values of Groundwater
Table 6-3 Summary of PRSA Statements

List of Figures

Figure 1-1 Site plan showing Jetty Road – Stage 2 Development Area

List of Figures (Appended)

Figure 1 Site Plan
Figure 2 Site Plan showing Existing and Historical Features
Figure 3 Site Plan showing Previous Soil Sampling Locations and Dieldrin Exceedances

List of Appendices

Appendix A Preliminary Risk Screen Assessment Statements
Appendix A1 PRSA Statement for 32 – 70 McDermott Road, Curlewis
Appendix A2 PRSA Statement for 91 – 125 Coriyule Road, Curlewis (Northern Section of Property)
Appendix A3 PRSA Statement for 91 – 125 Coriyule Road, Curlewis (Southern Section of Property)
Appendix B Previous Environmental Assessment Reports
Appendix B1 Environmental Assessment - 32-70 McDermott Road and 91-125 Coriyule Road, Curlewis (ESA, 2019)
Appendix B2 Environmental Investigation - 91-125 Coriyule Road, Curlewis (ESA, 2022)

Acronyms

AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment Conservation Council
AST	aboveground storage tank
Cardno	Cardno Victoria Pty Ltd
CoGG	City of Greater Geelong Council
COPC	contaminant of potential concern
DPO	Development Plan Overlay
DQOs	data quality objectives
EAO	Environmental Audit Overlay
EHS	Environmental, Health and Safety
EHS Support	EHS Support Pty Ltd
EP	Environmental Professional
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
GDE	groundwater dependent ecosystem
IDE	inflow dependent ecosystem
NHMRC	National Health and Medical Research Council
OCPs	organochlorine pesticides
OPPs	organophosphate pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	polychlorinated biphenyl
PRSA	Preliminary Risk Screen Assessment
SGV DELWP	State Government Victoria – Department of Environment, Land, Water & Planning
TPH	total petroleum hydrocarbons
UST	underground storage tank
VOC	Volatile Organic Compound

Executive Summary

The following tables provide a summary of the findings from the Preliminary Risk Screen Assessment (PRSA), completed by Stephen Cambridge of EHS Support Pty Ltd ('EHS Support'), who is an Environmental Auditor appointed pursuant to the *Environment Protection Act 2017*.

Table 0-1 Summary of PRSA information

Auditor	Stephen Cambridge
Auditor Account Number	186656
Name of person requesting PRSA	Peter Preece (Cardno Consulting Pty Ltd)
Relationship of person requesting PRSA to site	Development consultant and representative to site owners
Name of site owners	Graham and Heather Moss & Curlewis Bellarine Pty Ltd
Date of auditor engagement	06 April 2022
Completion date of the PRSA	19 September 2022
Reason for PRSA	To assess the potential for contamination associated with land which is subject to redevelopment to various landuses including low density residential landuse, as part of a Development Plan Overlay for Jetty Road Stage 2 Development
Elements of the environment assessed	Land, water (surface water and groundwater)
Planning permit number	Not applicable. The site will be subject to a Development Plan Overlay
EPA region	South-West Region
Municipality	City of Greater Geelong
Dominant – Lot on plan	Lot 1 on Title Plan 198964
Additional – Lot on plan(s)	Lot 9 on Lot Plan 10309 Lot 10 on Lot Plan 10309
Site/premises name	Jetty Road, Stage 2 – North
Building/complex sub-unit No.	-
Street/Lot – Lower No.	91
Street/Lot – Upper No.	125
Street Name	Coriyule
Street type	Road
Street suffix	-
Suburb	Curlewis
Postcode	3222
Building/complex sub-unit No.	-
Street/Lot – Lower No.	32
Street/Lot – Upper No.	70
Street Name	McDermott
Street type	Road
Street suffix	-
Suburb	Curlewis
Postcode	3222
Site area (m^2)	520,057 m^2 (52Ha) approximately

Plan of site/premises/location showing the PRSA site boundary attached	Figure 1 (appended)
Members and categories of support team utilised	• Dana McCue (Human health risk assessment) • Matthew Russ (Contaminated Land)
Further work or requirements	Environmental audit required in some areas of the site (refer to PRSA Statements in **Appendix A**)
Nature and extent of continuing risk of harm	In accordance with the Planning Practice Note 30 (July 2021) and based on the site history reviewed as part of this PRSA, the site has a medium potential for contamination in some areas, due to known concentrations of dieldrin in surface soils exceeding the adopted criterion for human consumption of poultry and eggs; and areas of suspected filling which have not been assessed on the northern property. It is noted that the soil results for organochlorine pesticides, which were reviewed as part of this PRSA, do not exceed the criteria for low density residential landuse (where poultry is not kept), nor do they exceed the criteria for public open space such as parks or playgrounds.
Outcome of the PRSA report	An environmental audit is required in some areas of the site, and part of the site does not require and Environmental Audit (refer to PRSA Statements in **Appendix A**)

Table 0-2 Physical Site information

Historical land use	Open farmland (grazing and cropping)
Current land use	Open farmland (grazing) and vacant land
Proposed land use	Mixed landuse development including sensitive landuses such as low-density residential development
Current land use zoning	Farming
Proposed land use zoning	Residential
Surrounding land use – north	Farming
Surrounding land use – south	Recreation (Curlewis Golf Club)
Surrounding land use – east	Residential properties
Surrounding land use – west	Farming
Has EPA been notified about the site under Section 40 of the Environment Protection Act 2017?	No
Nearest surface water receptor – name	Unnamed Dam (on-site). There is also an unnamed ephemeral creek that runs from the southern dam to the north-west
Nearest surface water receptor – direction	On-site (dam and unnamed ephemeral creek)
Likely point of groundwater discharge	Port Phillip Bay (Corio Bay)
Site aquifer formation	Moorabool Viaduct Sands and/or Quaternary Dune Deposits
Groundwater segment	Segment C

1 Introduction

At the request of Cardno Victoria Pty Ltd (Cardno) acting on behalf of the land owners, Stephen Cambridge of EHS Support completed a PRSA as an EPA Auditor appointed pursuant to the *Environment Protection Act 2017* (the Act), in accordance with Division 2, Part 8.3 of the Act, for an area of land referred to as "Jetty Road, Stage 2 North", located in Curlewis, Victoria, referred to as the site. The location of the site is shown in **Figure 1** (appended).

The following properties are included in the area of land referred to as "Jetty Road, Stage 2 – North", and are subject to this PRSA:

- 32 – 70 McDermott Road, Curlewis, 3222
- 91 – 125 Coriyule Road, Curlewis, 3222

We understand that Cardno is currently in the process of compiling documentation for submission of the Development Plan Overlay (DPO) application to the Planning Authority, being City of Greater Geelong Council (CoGG), and in accordance with the Planning Practice Note 30 (July 2021), that a PRSA is to be conducted to determine whether the site is potentially contaminated, and whether the site or parts of the site are recommended for an Audit to be undertaken.

The PRSA is required to assess the capacity of the site to support future sensitive uses as part of the proposed amendment. The assessment of potentially contaminated land is required in line with *Ministerial Direction Number 1 – Potentially Contaminated Land*, and *Planning Practice Note 30 (July 2021)*.

The land subject to this PRSA is part of a broader development project referred to as "Jetty Road, Stage 2", which encompasses the site boundary and additional land to the south. Stephen Cambridge of EHS Support has also been engaged to prepare a PRSA for the land to the south (collectively referred to as "Jetty Road, Stage 2 – South"). The PRSA for "Jetty Road, Stage 2 – South", is provided in a separate document titled *Preliminary Risk Screen Assessment, Jetty Road, Stage 2 – South*. Due to the size of each of the sites, and the geographical separation between the two areas, it was the preference of EPA that two separate PRSAs were to be conducted (i.e., Jetty Road Stage 2 North, and Jetty Road Stage 2 South).

An extract of a site plan showing the entire area of the "Jetty Road – Stage 2" development is provided in **Figure 1-1** below.

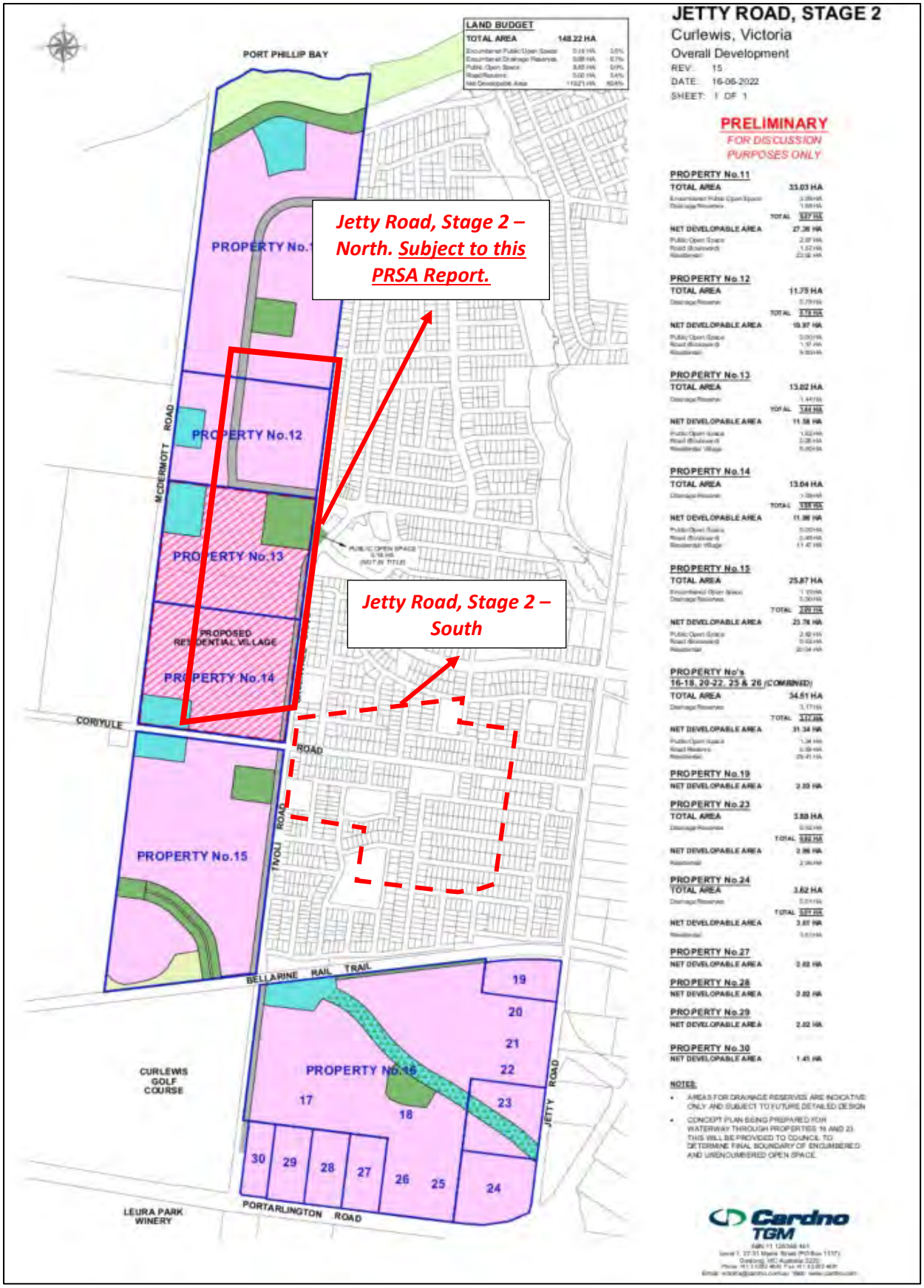


Figure 1-1 Site plan showing Jetty Road – Stage 2 Development Area

1.1 Purpose and Objectives

Under Section 204(2) of the *Environment Protection Act 2017* (the Act), the purpose of a PRSA 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.

The objective of this PRSA is to assess the likelihood of the presence of contaminated land at the site and determine whether or not an environmental audit is required, in order to assist the Planning Authority in making an assessment of the suitability of the site for the proposed land use. It is understood that the Planning Authority (CoGG), will implement Environmental Audit Overlays (EAOs) to the land which requires an Audit as an outcome of this PRSA.

1.2 Scope of PRSA

The scope of works for the PRSA is in accordance with the methodology outlined in EPA Guideline 2021 (February 2022).

To meet the project objectives, the following scope of works has been completed for the PRSA:

- A site visit and visual inspection of the site and surrounds was conducted on 22 April 2022 by Stephen Cambridge of EHS Support, which included recording of observations relevant to the potential for contamination to be present on the site.
- Review of the following environmental assessment reports prepared by Environmental Site Assessments Pty Ltd (ESA Group) including site history reviews and soil sampling and analytical results, included as **Appendix B**;
    - *Environmental Assessment, 32-70 McDermott Road and 91 – 125 Coriyule Road, Curlewis*, 2019, prepared by Environmental Site Assessments Pty Ltd
    - *Environmental Investigation, 91 – 124 Coriyule Road, Curlewis*, 2022, prepared by Environmental Site Assessments Pty Ltd
- Supplementary site history reviews such as review of Victoria Unearthed database, further information from previous site owners, and recent historical aerial photographs for relevant site history information for the site and surrounds.
- Development of a Conceptual Site Model (CSM).
- Assessed the likelihood of the presence of contaminated land.
- Prepared this PRSA report and PRSA Statements, included in **Appendix A**.

The PRSA scope and key information is summarised in the following table.

Table 1-1 PRSA Scope and Key Information

Item	Description
Historical land use	Farming, including cattle grazing and cropping (including potato farming)
Current land use	Farming and vacant land
Proposed land use	Residential (including low density) open space and infrastructure such as roads
Elements of the environment assessed in the PRSA	☒ Land: all environmental values that apply to the land use category to be considered ☒ Water (surface water): all environmental values that apply to the applicable segment to be considered ☒ Water (groundwater): all environmental values that apply to the applicable segment to be considered
Elements of the environment excluded from the PRSA	Ambient air and ambient sound were excluded as they were not considered relevant to the assessment of land for the potential presence of contamination for this site
Standards and reference documents considered	Environment Protection Act 2017 Environment Protection Regulations 2021 Environment Reference Standard 2021 National Environment Protection Council, 1999. National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013) Environmental Auditor Guidelines – Provision of statements and reports for environmental audits and preliminary risk screen assessments (EPA Publication 2022), August 2021 Guidelines for conducting preliminary risk screen assessments (EPA Publication 2021), February 2022 Standards Australia, 2005, AS4482.1-2005, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds. Standards Australia, 1999, AS4482.2-1999, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 2: Volatile Substances. Western Australian State Government, Department of Primary Industries and Regional Development, Chickens, eggs and organochlorines (https://www.agric.wa.gov.au/livestock-biosecurity/chickens-eggs-and-organochlorines)
Assumptions and limitations of the PRSA	None
Exclusions from the PRSA	None

1.3 Auditor's Support Team

The Auditor obtained input for the PRSA from the following professionals:

- Ms Dana McCue is a qualified and experienced human health risk assessor who provided advice on the adoption of the criteria used for organochlorine residues in soil, with respect to poultry in a residential setting.
- Mr Matthew Russ is a qualified environmental engineer and scientist with over 7 years of experience in the contaminated land industry. Matthew was directly involved in reviewing previous environmental site assessment reports and historical site information to inform the PRSA.

2 Site Description and Environmental Setting

2.1 Site Details

The site includes two separately owned land areas, which are currently owned by Graham and Heather Moss (32 – 70 McDermott Road) and Curlewis Bellarine Pty Ltd (91 – 125 Coriyule Road) and is bounded by Tivoli Drive and Greenvale Drive to the east, McDermott Road to the west, the Bellarine Rail Trail to the south, and farming properties to the north. Coriyule Road runs east-west through the centre of the site, separating the two properties.

A summary of important site information is presented in **Table 2-1** below. The location of the site is shown in **Figure 1** (appended).

Table 2-1 Site Details and Information

Items	Details
Site Address	32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis
Site Area	Approximately 52 Hectares
Title Identification (Lot & DP)	32 – 70 McDermott Road: Lot 9 on Lot Plan (LP) 10309 and Lot 10 on Lot Plan (LP) 10309 91 – 125 Coriyule Road: Lot 1 on Title Plan (TP) 198964
Local Government Administration (LGA)	City of Greater Geelong
Zoning of Site and Surrounding Area	The site is zoned Farming Zone (FZ)
Site Overlays	No overlays exist at the site. However, areas of the site are listed as areas of cultural heritage sensitivity
Current Site Use	The site is used for farming purposes and/or vacant
Future Site Use	Residential development site, including open space and infrastructure development
Adjacent Site Uses	• **North:** Farming land • **East:** Residential properties/developments • **South**: Curlewis Golf Club • **West:** Farming land

2.2 Current Site Features

2.2.1 31 – 70 McDermott Road

The property at 31 – 70 McDermott Road is approximately 26 Ha and has been used for crop farming (including potato farming) since circa 1960s, with different crops rotating through the various paddocks. This area continues to be used for farming and is predominantly open land with the exception of a derelict shed in the southern portion of this property.

At the time of the site inspection, this property comprised of general paddocks with the exception of several burn piles (trees, fence post etc) and a derelict shed in the central and southern portions of this property. Significant filling was not observed on this property with the exception of an area to the east of the derelict shed which may have been filled as concrete fragments were evident at the surface and the land appeared to be filled above the levels of the surrounding land contours. A large in ground concrete water tank was also present to the immediate south of the derelict shed.

Key existing and historical site features relevant to potentially contaminating activities on this property are shown on **Figure 2** (appended).

2.2.2 91 – 125 Coriyule Road

The property at 91 – 125 Coriyule Road, which is also approximately 26 Ha, has also historically been used for crop farming (including potato farming) and grazing purposes. Anecdotal evidence provided by the previous owner of the site indicates that crop farming only occurred in the northern and central portions of this property, and the southern areas were only used for grazing. At the time of the site inspection this property was open farmland with a small residential dwelling and yard along the western boundary.

A large dam with a gully for water flow was located in the southern portion of the property. A smaller dam was also located within the gully and also in the northern portion of the property. A historical dam was located in the northeast corner of this property but was infilled in circa 2014.

Key existing and historical site features on this property are shown on **Figure 2** (appended).

2.3 Environmental Setting

2.3.1 Topography

Surface elevation at the site is approximately 38 to 55 mAHD. The site generally slopes towards the north to northwest. A gully is present running in a northeast direction from the property to the south (Curlewis Golf Club) to the dam on 91 – 125 Coriyule Road. The gully continues off-site to the property located west of 91 – 125 Coriyule Road.

2.3.2 Surface Conditions

The site is predominantly unsealed and open paddocks. The exception to this is beneath the residential dwelling located on the western boundary of 91 – 125 Coriyule Road.

2.3.3 Vegetation

Vegetation at the site predominantly comprises of grasses with sparse trees. Trees are only located in the central portion of the southern site area, and near the residential dwelling on the southern site area.

Native vegetation comprising of grassy woodlands (lower slopes or hills woodlands) may be present on the site.

2.3.4 Hydrology

Surface water is likely to infiltrate directly into the subsurface in unsealed areas. During high rainfall surface water is likely to flow into low lying areas, including the dams and gully located in the southern portion of the site. The nearest surface water body/bodies are the dams located in the southern portion of the site. The gully likely forms an ephemeral creek during high rainfall events. Water likely flows through the gully into the dam located on 91 – 125 Coriyule Road, then off-site to the west.

The nearest surface water body/bodies located off-site are the dams located on adjacent properties, the nearest of which is located immediately south of the site at the Curlewis Golf Club. It is likely that this off-site dam floods, water runs through the gully onto the southern portion of the site.

Lake Lorne is located approximately 1 km east of the site, and Port Phillip Bay (Corio Bay) is located approximately 1.1 km north of the site.

2.3.5 Acid Sulfate Soils

The area is mapped on the Atlas of Acid Sulfate Soils (CSIRO) as being at low probability of occurrence on site (6 – 70 %).

2.3.6 Geology

According to the Portarlington 1:63,360 Geological Map, the site is likely underlain by gravel, sand and silt of the Moorabool Viaduct Sands and sand, silts, and clays from dune deposits. A summary of the lithology of these geological units is presented in **Table 2-2**.

Table 2-2 Summary of Geology

Age	Formation/Unit	Area	Description
Miocene to Pliocene	Moorabool Viaduct Sands	Northern Portion of Site	Gravel, sand and silt (marine to nonmarine deposits)
Pleistocene to Holocene	Dune Deposits	Southern Portion of Site	Sand, silt and clay (inland dune and some swamp deposits)

2.3.7 Hydrogeology

A summary of the expected site hydrogeology is provided in **Table 2-3**. Based on State-wide groundwater maps, groundwater is expected to be encountered between 5 and 20 metres below ground level (m bgl) across the site. Shallower groundwater may be encountered in the vicinity of the dam and gully in the southern portion of the site.

Groundwater is expected to exist within an aquifer of the Moorabool Viaduct Sands or Dune Deposits. This aquifer is likely to be characteristic of an unconfined aquifer where the main transport and storage mechanisms is via primary porosity between gravels and sands within the aquifer matrix. Clay rich lenses within these formations may also result in semi-confined conditions in some areas on a regional scale.

The direction of groundwater flow at the site is currently unknown however is likely to be towards the north to northwest, towards Port Phillip Bay (Corio Bay). However, local variations may exists influenced by surface topography and surrounding water bodies.

According to the State-wide groundwater salinity map, groundwater salinity beneath the site is expected to range between 3,500 – 7,000 mg/L. Based on the expected salinity, groundwater beneath the site would be classified as Segment C or D groundwater in accordance with the Environmental Reference Standard, 2021 (ERS, 2021).

Table 2-3 Summary of Hydrogeology

Item	Details
Depth to water	Between 5 and 20 m bgl, with shallower groundwater in areas
Aquifer(s)	Moorabool Viaduct Sands or Dune Deposits
Groundwater flow direction	Unknown, likely towards the north to northwest
Groundwater salinity and segment[1]	Segment C or D (3,500 – 7,000 mg/L)
Environmental Values of groundwater to be protected (based on Segment C) in accordance with the ERS, 2021	• Water dependent ecosystems and species • Potable mineral water supply • Agriculture and irrigation (stock watering) • Industrial and commercial use • Water-based recreation (primary contract recreation) • Traditional owner cultural values • Buildings and structures • Geothermal properties
Point of groundwater discharge	Unknown. Likely Port Phillip Bay or surrounding artificial waterways such as dams.
Surrounding groundwater bores (within a 2 km radius)[2]	There are 12 registered bores within a 2km radius of the site. Information from these bores include: • One groundwater bore (134237) is registered on-site for groundwater investigation use. This bore is located in the northeast corner of 91 – 125 Coriyule • Lithology encountered during installation of bores included sand, silty sand, clayey sand, silty clay
Surrounding groundwater uses	Surrounding bores were registered for the following uses: • Groundwater investigation bores (5) • Domestic and Stock (6) • Unknown (1)
Nearest extractive use	The nearest groundwater well (WRK965678) to the site used for domestic and stock purposes is approximately 400 m to the north.

3 Site History and Site Inspection

A detailed site history review was completed as part of the previous assessments completed at the site. A review of previous assessments completed at the site is outlined in **Section 4**. In addition, the Auditor undertook: a review of more recent aerial photographs; verification of publicly available information including information on the Victoria Unearthed website; and also obtained additional site history information from the previous site owners.

Based on the information reviewed, the site has historically been used for farming purposes, including cropping in some areas, by various private owners. A review of historical business directories, certificates of title and aerial photographs does not suggest that the site was used for any other purposes, with only minor changes to site features observed since circa 1950s, including vegetation clearing, rotating of crops and construction of new structures (residential dwelling in southern portion of the site).

The Auditor undertook an inspection of the site on 22 April 2022. The objective of the site inspection was to identify areas that may indicate the potential for contamination of the land. The site was observed and photographed to document the conditions during the site walkover. Key site features observed are outlined in **Section 2**. In summary, there were no potentially contaminating features identified on the site with the exception of minor areas of suspected historical filling. The site was observed to be used for general farming, with no sheep/cattle dips observed or evidence of significantly filled land.

In addition, anecdotal information was also provided by the former owner of 91 – 125 Coriyule Road (Mark Chergwin), which indicated that the northern portion of this property was used for crops rotated with grazing, however, there was no specific recollection of the use of pesticides as part of the cropping. The former owner noted that the southern portion of this property was only used for grazing. The current owner of 31 – 70 McDermott Road (Heather Moss) indicated that no filling of land had occurred on this property, however that Council had used the southern portion of the site as a laydown area for road and drainage works along Coriyule Road, which can be seen from the most recent aerial photographs.

The land use, based on the site history information, is presented on **Figure 2** attached.

Photographs from the site inspection are presented as follows.

Photographs from 31 – 70 McDermott Road

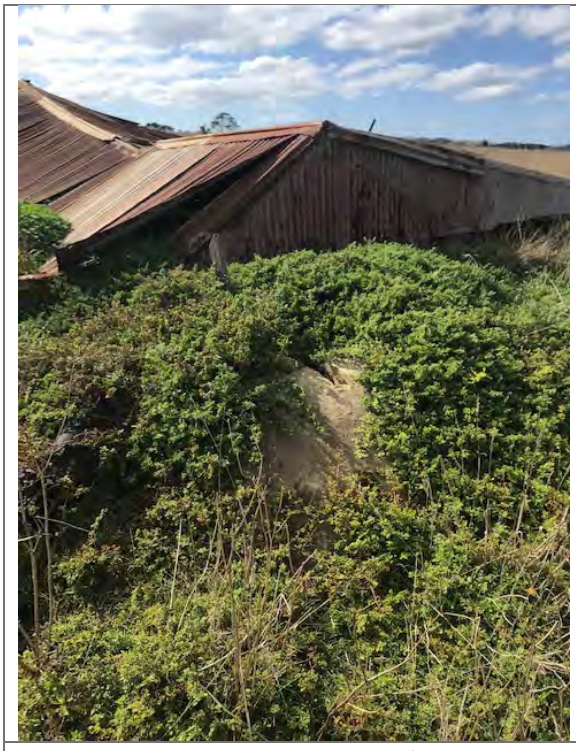


Photo 1: Former Shed and top of in-ground water tank

Photo 2: Burn pile of fence posts and former trees

Photo 3: General paddock areas

Photo 4: General paddock areas

Photographs from 91 – 125 Coriyule Road

Photo 5: Large dam on southern part of property

Photo 6: location of filled dam in north-eastern corner of property

Photo 7: gully in southern part of property

Photo 8: General paddock areas

Photo 9: stock pens north of existing house

Photo 10: general rubbish south of existing house

4 Previous Site Assessments

4.1 Environmental Site Assessment (ESA Group, 2019)

Prior to EHS Support been engaged to complete the PRSA, Environmental Site Assessments Pty Ltd (ESA Group) was engaged by the current landowners to undertake an environmental site assessment (ESA) with limited soil sampling at the site. It is noted that the EPA PRSA guidelines do not generally allow multiple phases of soil investigation or grid-based soil sampling. However, in this case the first ESA was undertaken prior to the PRSA commencing, and therefore the Auditor has relied on this as part of the site history information, which was clarified with, and acceptable to, EPA. A summary of key information relating to the assessment completed by ESA Group is provided in **Table 4-1** and is further detailed in the following sections, including a review of the suitability of the assessment to inform the PRSA.

Table 4-1 Summary of Environmental Site Assessment (ESA Group, 2019)

Report Title	Environmental Assessment, 32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis
Report Date	22/02/2019
Environmental Assessor	Environmental Site Assessments Pty Ltd (ESA Group)
Type of Assessment	Environmental site assessment with limited sampling
Dates of Field Inspections / Investigations	13 February 2019
Scope of Works	• Site history review • Site inspection • Limited soil sampling • Preparation of report outlining conclusions and recommendations
Analytical NATA Accredited Laboratories	Primary Laboratory: ALS Environmental Secondary Laboratory: Eurofins Scientific

4.1.1 Scope and Methodology

ESA Group was engaged by the current site owners to undertake an ESA with limited soil sampling at the site to determine whether the site is potentially contaminated in accordance with Ministerial Direction No.1 – Potentially Contaminated Land.

The scope of the ESA and limited sampling included:

- Site history review to assist in determining its potential for contamination, including review of the following:
  - Historical certificates of titles and ownership details;
  - Historical aerial photographs, business directories and maps;
  - EPA records including licensed premises, works approvals, notices, priority sites, environmental audits, and groundwater quality restricted use zones; and
  - Review of information regarding landfills, waste management facilities, dry cleaners, gasworks, and mechanics/service stations.

- Collection of geological and hydrogeological information about the site and its surrounds;
- An inspection of the site;
- A limited soil sampling program comprising of the collection of shallow soil samples from 24 locations and analysis of samples for contaminants of potential concern along with select analysis for broad analytical suites; and
- Preparation of report outlining key conclusions and recommendations.

4.1.2 Overview of Results and Conclusions

4.1.2.1 Site History Review

The site history review completed by ESA Group indicates that the site has historically been used for farming purposes, including cropping in some areas, by various private owners. A review of historical business directories, certificates of title and aerial photographs does not suggest that the site was used for any other purposes, with only minor changes to site features observed since circa 1950s, including vegetation clearing, rotating of crops and construction of new structures (residential dwelling in southern portion of the site).

In addition, a review of historical business directories and EPA records relating to the surrounding areas did not identify any significant potential off-site sources of contamination.

Based on the site history results, ESA Group concluded that the historical use of the site represented a low to medium risk of contamination, predominantly due to the potential historical application of fertilizers and herbicides for cropping. The ESA report listed the following potential contaminants of concern based on the site history information:

- Fertilisers: copper and cadmium; and
- Herbicides: arsenic, mercury, organochlorines, and organophosphates.

The auditor notes that the site history review was generally appropriate to assess the potential for contamination to be present at the site from historical sources of contamination. The ESA report listed organochlorines and organophosphates as herbicides, however the Auditor considers that they are associated with pesticide use, rather than herbicide, however this is not considered to affect the conclusions of the PRSA, as analysis for likely pesticide residues was conducted in any event. In addition, the Auditor undertook a supplementary review of annual historical aerial photographs between 2009 and 2022 to check if any filling had occurred during that period. The supplementary review identified a former dam located in the northeast corner of 91 – 125 Coriyule Road which was subsequently filled with unknown material. Sampling of this area was undertaken during the timeframe of the PRSA and is detailed in Section 4.2.

4.1.2.2 Soil Sampling

Due to the potential historical application of fertilizers and herbicides at the site, ESA Group undertook a limited soil sampling program for the identified potential contaminants of concern.

The soil sampling program comprised of the collection of shallow soil samples from between 0 – 0.15 m below ground level (m bgl) at 24 grid-based locations across the site. Shallow soils encountered at the site typically composed of medium plasticity dark brown clayey silts. No elevated PID readings were recorded, nor was any evidence of odorous or stained soils documented, however no soil bore logs were provided in the report.

Soil samples were selected for the following analysis:

- 18 soil samples for organochlorine pesticides (OCPs), organophosphate pesticides (OPPs) and metals (arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, mercury, manganese, nickel, lead, selenium vanadium and zinc)
- 6 soil samples for Broad NEPM Suite (metals, total recoverable hydrocarbons (TRHs), benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAHs), phenols, OCPs, OPPs, PCBs and cyanide)

Analytical results were compared to human health and ecological based criteria for a low-density residential land use, including human health investigation and screening levels (HILs and HSLs), ecological investigation and screening levels (EILs and ESLs) and TPH management limits, as per the ASC NEPM 2013.

ESA Group concluded that concentrations of all analytes were below the adopted criteria, and therefore as per Ministerial Direction No. 1, the site was considered suitable for a sensitive use (i.e., low density residential).

However, the Auditor notes that concentrations of OCPs, predominantly dieldrin (up to 0.63 mg/kg) were reported in the majority of shallow soil samples above the *Government of Western Australia – Department of Primary Industries and Regional Development*[1] criterion of 0.06 mg/kg, which is protective of poultry and eggs for human consumption. Under the proposed low-density residential land use of the site, the production of chickens or eggs for domestic purposes may occur, and therefore this criterion is considered to be relevant.

Based on the spatial distribution of dieldrin concentrations at the site, the dieldrin appears to be restricted to areas where the site history review indicates the land was used for cropping. This encompasses the entire area of 32 – 70 McDermott Road, and the northern and central areas of 91 – 125 Coriyule Road. Concentrations of dieldrin were not reported in the southern areas of 91 – 125 Coriyule Road where only grazing occurred historically.

A site plan showing the location of concentrations of dieldrin is provided in **Figure 3** (appended).

4.1.3 Auditor Comments and Review of Quality Assurance and Quality Control

Overall, the Auditor notes that the ESA and limited soil sampling was generally appropriate and formed a suitable basis to assess the potential for contamination to be present at the site.

A review of the ESA and limited soil sampling completed by ESA Group indicates that it largely met the requirements outlined in schedule B2 of the ASC NEPM 2013 and AS 4482.1-*2005 Guide to the investigation and sampling of sites with potentially contaminated soil – Non-volatile and Semi-volatile compounds*, to the extent applicable based on the scope and objectives.

An evaluation of key requirements and QAQC procedures, including Auditor comments, is summarised below.

[1] https://www.agric.wa.gov.au/livestock-biosecurity/chickens-eggs-and-organochlorines

Table 4-2 Evaluation of ESA Report (ESA Group, 2019)

Item		Auditor Comments	Suitable to Inform PRSA
Preliminary Investigation			
Site History Review		The site history review completed is presented in Section 3 and 4 of the ESA report. The Auditor considers that the site history documentation was of sufficient quality in which to base the conclusions regarding the potential for contamination at the site, and included all relevant information to the site, as detailed in Schedule B2 of the ASC NEPM 2013. The Auditor undertook some supplementary site history reviews were considered necessary.	Partially
Environmental Setting		The environmental setting is documented in Section 2 of the ESA report. The environmental setting provides key information relating to expected topography, geology, and hydrogeological conditions at the site.	Yes
Site Inspection		A site inspection was completed as part of the ESA and is summarised in Section 5. The auditor undertook more recent site inspection in 2022.	Yes
Conceptual Site Model (CSM)			
Potential Sources and Contaminants of Concern		A limited CSM was included in the ESA report, however, the CSM only identified potential sources of contamination and potential contaminants of concern, rather than also detailing potential receptors and exposure pathways. An updated CSM is included as part of this PRSA.	Partially
Potential Affected Media			
Potential Receptors and Exposure Pathways			
Limited Soil Sampling Program			
Data Quality Objectives (DQOs)		No DQOs were included in the ESA report. Given that the soil sampling completed was limited, the omission of DQOs is not considered significant.	NA
Sampling and Analysis Quality Plan (SAQP)		A brief SAQP is outlined in Section 7 of the ESA report.	Partially
Soil Sampling Program	Grid-based sample locations	Soil samples were retrieved from a total of 24 grid-based sampling locations. It is noted that the number of grid-based sampling locations was not in accordance with the minimum number of sample locations outline in AS 4482.1 2005. However, this is not considered to be significant based on the scope and objectives of the limited sampling. As previously noted, grid-based sampling is generally not advised to be undertaken under the EPA PRSA Guidelines, however as this sampling was undertaken prior to the PRSA commencing, the Auditor has relied on the sampling results as part of the existing information for the site.	Yes
	Sampling Procedures	Sampling procedures are outlined in Section 7 of the ESA report and were generally appropriate	Yes
	Field Records and Field Methods	Adopted field methods were documented in Section 7 of the ESA report and are generally considered appropriate. Although field records such as bore logs or photographs were not included in the ESA report, general field observations such as PID and odours were documented in the report.	Yes

Item		Auditor Comments	Suitable to Inform PRSA
	Analytical Suite	The adopted analytical suite included potential contaminates of concern and a broader suite of analytes and is therefore considered to be appropriate. It is noted that no specific details on herbicide use at the site was obtained from the site history review, therefore this is a potential data gap for the cropping areas of the site.	Partially
	Adopted Criteria	HIL/HSLs, EIL/ESLs and TPH management limits were adopted. Additional applicable criteria for OCPs was not adopted, however the auditor has compared analytical concentrations to additional criteria for human consumption of poultry and eggs, where not applied as part of the site assessment.	Partially
	Sample Preservation	Based on the documented field methods, sample preservation procedures adopted were generally appropriate. However, no sample receipt notices (SRNs) were included in the report to confirm this.	Partially
	QAQC – Field Duplicates and Triplicates	A total of 24 primary samples were analysed. One duplicate and one triplicate sample pair was analysed during the field program. It is noted that this is not strictly in accordance with ASC NEPM 2013 which require 5% duplicate and triplicate samples be collected (1:20 primary samples). Given that the sampling methodology adopted was consistent, this is not considered to be significant. Relative percent differences (RPDs) were below the acceptance criteria of 30%.	Partially
	QAQC – Field Rinsate and Trip Blanks	Field, rinsate and trip blanks were retrieved during the soil sampling program at an appropriate frequency (i.e., one per day etc.). All analytes were below the laboratory limit of reporting in the blank samples	Yes
	QAQC – Internal Laboratory QAQC	A review of internal laboratory QAQC procedures is documented in Section 7 of the ESA report. A review of the internal laboratory QAQC results indicates that all samples were received and analysed within the acceptable holding times, and all method blanks, internal duplicates, laboratory spikes and matrix spike relevant to the site were within the acceptable limits.	Yes

4.2 Environmental Investigation (ESA Group, 2022)

In 2022, ESA Group was engaged by the current landowners of 91 – 125 Coriyule Road to undertake an environmental investigation of unknown material used to backfill a former dam in the northeast corner of this property, as identified during a supplementary review of recent historical aerial photographs by the Auditor.

A summary of key information relating to the investigation completed by ESA Group is provided in Table 4-3, and is further detailed in the following sections, including a review of the suitability of the assessment to inform the PRSA.

Table 4-3 Summary of Environmental Investigation (ESA Group, 2022)

Report Title	Environmental Investigation, 91 – 125 Coriyule Road, Curlewis
Report Date	01/08/2022
Environmental Assessor	Environmental Site Assessments Pty Ltd (ESA Group)
Type of Assessment	Soil Assessment
Dates of Field Inspections / Investigations	19 July 2022
Scope of Works	• Soil sampling program • Preparation of conceptual site model • Preparation of report outlining conclusions and recommendations
Analytical NATA Accredited Laboratories	Primary Laboratory: ALS Environmental Secondary Laboratory: Eurofins Scientific

4.2.1 Scope and Methodology

The scope of the environmental investigation included:

- Excavation and soil sampling from four (4) test pits within the former dam area;
- Excavation of an additional twelve (12) test pits to inform extent of backfill material;
- Analysis of samples for contaminants of potential concern including PAHs, metals, OCPs, TRHs, pH, chloride and sulfate;
- Preparation of a conceptual site model encompassing the entire property at 91 – 125 Coriyule Road based on the results of the investigation and the limited sampling completed as part of the 2019 ESA (ESA Group, 2019); and
- Preparation of report outlining key conclusions and recommendations.

It is noted that this investigation did not include further investigation within the property at 32 – 70 McDermott Road.

4.2.2 Overview of Results and Conclusions

4.2.2.1 Soil Sampling

The soil sampling program comprised of the collection of soil samples from test pits excavated within and surrounding the former dam located in the northeast corner of 91 – 125 Coriyule Road.

A total of four test pits were excavated within the inferred footprint of the former dam, and an additional twelve pits was excavated in areas outside of the dam. A site plan showing the location of the test pits is provided in **Figure 3** (appended).

Fill soils encountered comprised of light brown to orange, loose sandy clays with medium plasticity. Fill soils were encountered up to a depth of 2.6 m bgl within the former dam footprint, and 1.0 m bgl in the area immediately surrounding the dam where there was further evidence of historical filling. Underlying natural soils typically comprised of brown to dark brown, high plasticity clays and sandy silts. No elevated PID readings were recorded, nor was any evidence of odorous or stained soils documented.

Two soil samples per test pit (total of 8) excavated within the dam footprint were selected for analysis. No samples were retrieved from the additional twelve test pits excavated as these were only used for observational purposes (i.e., presence or absence of fill material).

Soil samples were selected for the following analysis:

- 8 soil samples for OCPs, metals (arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, mercury, manganese, nickel, lead, selenium vanadium and zinc), PAHs and TRHs.
- 2 soil samples were also selected for pH, chloride, and sulfate analysis.

In addition to the above, a further two samples from outside of the dam footprint were selected for analysis for pH, clay content, cation exchange capacity, total organic carbon, iron, copper, lead, nickel, and zinc to inform site specific EILs.

Analytical results were compared to human health and ecological based criteria for a low-density residential land use, including human health investigation and screening levels (HILs and HSLs), ecological investigation and screening levels (EILs and ESLs) and TPH management limits, as per the ASC NEPM 2013. Additional criteria from the Canadian Council of Ministers of the Environment (CCME) and United States Environmental Protection Agency (US EPA) were also adopted in lieu of Australian based criteria (where applicable).

ESA Group concluded that concentrations of all analytes were below the adopted criteria, except for elevated manganese at one location above the US EPA ecological based criteria of 220 mg/kg. ESA Group concluded that the elevated concentration of manganese was likely representative of natural soil conditions rather than pollution.

Based on the Auditor review of the soil analytical results, the Auditor generally agrees with the conclusions. Regarding the elevated manganese concentrations, manganese is naturally elevated in many Australian soils. For example, the background ranged reported in ANZECC *Guidelines for the Assessment and Management of Contaminated Sites*, 1992, is 4 mg/kg to 12,600 mg/kg. Therefore, the US EPA ecological criteria for manganese may be overly conservative for Australian conditions. Furthermore, the bioavailability of manganese is linked to soil pH, organic matter content, moisture, and soil aeration. Manganese toxicity occurs mostly at a soil pH of below 5.5 (Schulte and Kelling, 1999) and mainly effects plants shoots. The pH reported at the site ranged from 6.2 – 8.1, indicating that potential risk to ecological receptors is likely to be low.

4.2.2.2 Conceptual Site Model

As part of the environmental investigation, ESA Group prepared a CSM for the property at 91 – 125 Coriyule Road based on the results of the soil sampling completed and previous soil sampling completed as part of the ESA (ESA Group, 2019).

The CSM prepared by ESA Group provided a good representation of site related information regarding contamination sources, receptors, and exposure pathways.

Overall, ESA Group concluded that although material used to backfill the former dam located in the northeast corner of the property is unlikely to pose a risk to environmental values applicable under the proposed future low density residential land use, elevated dieldrin identified in the 2019 ESA may preclude the environmental values of maintenance of ecosystems and production of food, flora and fibre and require further investigation.

4.2.3 Auditor Comments and Review of Quality Assurance and Control

Overall, the Auditor notes environmental investigation was generally appropriate and formed a suitable basis to assess the potential for contamination to be present due to material used to backfill a former dam in the northeast corner of the property.

A review of the investigation completed by ESA Group indicates that it largely met the requirements outlined in Schedule B2 of the ASC NEPM 2013 and AS 4482.1-*2005 Guide to the investigation and sampling of sites with potentially contaminated soil – Non-volatile and Semi-volatile compounds*, to the extent applicable based on the scope and objectives.

An evaluation of key requirements and QAQC procedures, including auditor comments, is summarised below.

Table 4-4 Evaluation of ESA Report (ESA Group, 2022)

Item		Auditor Comments	Suitable to Inform PRSA
Conceptual Site Model (CSM)			
Potential Sources and Contaminants of Concern		A CSM was included in Section 7 of the investigation report was generally in accordance with Schedule B2 of the ASC NEPM 2013. An updated CSM is included as part of this PRSA.	Yes
Potential Affected Media			
Potential Receptors and Exposure Pathways			
Soil Sampling Program			
Data Quality Objectives (DQOs)		DQOs are outlined in Section 4 of the investigation report. The DQOs outlined are considered appropriate for the investigation and is generally consistent with the DQO process outlined in Schedule B2 of the ASC NEPM 2013.	Yes
Sampling and Analysis Quality Plan (SAQP)		A brief SAQP is outlined in Section 5 of the investigation report.	Yes
Soil Sampling Program	Targeted Sampling Locations	Soil samples were positioned appropriately to target material used to backfill the former dam. Observational test pits were also positioned appropriately to determine the lateral extent of the backfill material. The targeted sampling was considered to be within the EPA Guidelines for PRSAs for soil sampling.	Yes
	Sampling Procedures	Sampling procedures are outlined in Section 6 of the investigation report and were generally appropriate	Yes
	Field Records and Field Methods	Adopted field methods were documented in Section 6 of the investigation report and are generally considered appropriate. A copy of field records, including bore logs and calibration certificates, was provided in Appendix 3 and Appendix 5	Yes
	Analytical Suite	The adopted analytical suite included potential contaminates of concern and is therefore considered to be appropriate.	Yes
	Adopted Criteria	HIL/HSLs, EIL/ESLs and TPH management limits were adopted. In addition, criteria from the CCMA or US EPA was also adopted in lieu of Australian based criteria (where required).	Yes

Item		Auditor Comments	Suitable to Inform PRSA
	Sample Preservation	Based on the documented field methods, sample preservation procedures adopted were generally appropriate. However, no sample receipt notices (SRNs) were included in the report to confirm this.	Partially
	QAQC – Field Duplicates and Triplicates	A total of 10 primary samples were analysed. One duplicate and one triplicate sample pair was analysed during the field program., which is in accordance with ASC NEPM 2013 which require 5% duplicate and triplicate samples be collected (1:20 primary samples). RPDs were generally reported below the acceptance criteria of 30%, with the exception of barium (116%), lead (117%), nickel (87%) and zinc (140%). A review of the reported concentrations indicate that the elevated RPDs are likely due to minor sample heterogeneity within the fill and will not impact on the results of the investigation.	Yes
	QAQC – Field Rinsate and Trip Blanks	Field and trip blanks were retrieved during the soil sampling program at an appropriate frequency (i.e., one per day etc.). No rinsate sample was retrieved, however, it is noted that no reusable equipment (such as a hand auger) was used. All analytes were below the laboratory limit of reporting in the blank samples.	Yes
	QAQC – Internal Laboratory QAQC	A review of internal laboratory QAQC procedures is documented in Section 6 of the ESA report. A review of the internal laboratory QAQC results indicates that all samples were received and analysed within the acceptable holding times with the exception of pH, and all method blanks, internal duplicates, laboratory spikes and matrix spike relevant to the site were within the acceptable limits. The minor holding time exceedance for pH analysis is not considered to be significant and unlikely to impact on the results of the investigation.	Yes

4.3 Auditor's Opinion on the Adequacy of Previous Assessments

The Auditor considers that although data-gaps remain in relation to potential risk associated with dieldrin concentrations in soil at the site and the possible use of other herbicides in the cropping areas not included in the previous analytical suite, the information included in the previous investigations is sufficient on which to base the conclusions and recommendation of this PRSA.

5 Conceptual Site Model Summary

The Conceptual Site Model (CSM) represents site related information regarding the potential for contamination sources, migration pathways and receptors.

The requirement for the development of a conceptual site model (CSM) is provided in Schedule B2 and B4 of the NEPM (NEPC, 2013). The CSM represents site-related information regarding contamination sources, migration pathways and receptors.

The development of a CSM is a dynamic process and information and assessments relevant to the site model should be used to update and review the current CSM.

The essential elements of an initial CSM are:

- Known and potential sources of contamination and contaminants of concern;
- Potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air) and contaminant transport and migration mechanisms;
- Potential human and ecological receptors; and
- Potential exposure pathways.

5.1 Potential Sources of Contamination and Contaminates of Concern Source Pathway Receptor Summary

Based on the site history review and site inspection, the below table summaries existing and historical on or off-site sources or activities that may have the potential to result in contamination. The table also identifies potentially affected media and list contaminants of potential concern (COPC) associated with each existing or historical source/activity.

Table 5-1 Summary of Potential Sources of Contamination and Contaminants of Concern

Potential Source Considered	Media that could be impacted	Potential Contaminants of Concern	Relevance to site
Historical Farming – Crop Farming (including potato farming)	Soil, groundwater, surface water	Metals, OCPs and OPPs	Concentrations of dieldrin have been reported above the adopted criterion for poultry and eggs for human consumption in areas where crop farming has occurred. Therefore, this potential source is considered to exist in areas of the site used for crop farming and is considered relevant for soil that could be used for future poultry and egg production in a residential setting.
Historical Farming – Grazing	Soil, groundwater, surface water	Nutrients, OCPs and OPPs	The site history indicates that areas of the site when not used for cropping were used for general grazing. However, general grazing uses are unlikely to result in contamination at the site and is therefore not considered relevant.
Historical Filling	Soil, groundwater, surface water	Metals, TRHs, BTEXN, PAHs, OCPs, OPPs and asbestos	The site history review and site inspection identified areas of filling. Sampling and analysis completed due to filling of a former dam in the northeast corner of at 91 – 125 Coriyule Road indicated that fill material in this area did not represent a source of contamination. However, areas of potential fill were also identified in the area immediately surrounding the derelict shed on 32 – 70 McDermott Road which have not been assessed. Therefore, this potential source is relevant in this area.

Potential Source Considered	Media that could be impacted	Potential Contaminants of Concern	Relevance to site
Storage of fuels and chemicals as part of farming practices	Soil, groundwater, surface water	Metals, hydrocarbons, nutrients	With the exception of the derelict shed located in the northern portion of the site. There was no evidence of storage sheds on the site, therefore this potential source is not considered to exist at the site
Animal pest control (e.g., sheep dips)	Soil, groundwater, surface water	Arsenic, pesticides	No evidence of sheep dips or other animal pest treatment on site, therefore this potential source is not considered to exist at the site
Septic tanks	Soil, groundwater, surface water	Nutrients, metals, E. coli	Although listed as not being present in the previous ESA report (ESA, 2019), a septic tank may be associated with the house on the southern property. The Auditor considers that providing any such septic tank is decommissioned in accordance with EPA Guideline 891.4, then the septic tank assessment is not required to form part of the Audit scope. This approach was discussed and agreed with EPA.

5.2 Potential Receptors

5.2.1 Environmental Values – Soil

The ERS, 2021, details the environmental values of land (i.e., soil) to be protected under a number of different land use scenarios and also provides environmental quality objectives for the protection of these environmental values.

The site is proposed to be used for residential purposes and is therefore consistent with the sensitive land use scenario (i.e., low density residential) and some areas of open space and recreation.

The environmental values of land applicable for the site are:

- Maintenance of ecosystems (modified to highly modified ecosystems)
- Human health
- Aesthetics
- Buildings and Structures
- Production of food, flora, and fibre

5.2.2 Environmental Values – Water

The ERS, 2021, defines the environmental values of water, including surface water (and associated sediments) and groundwater which must be protected. The environmental values of groundwater which must be protected are based on the groundwater salinity and the groundwater segment applicable. Groundwater of higher quality (lower salinity) has more environmental values then low quality (more saline) groundwater.

Based on the expected TDS, the most conservative groundwater segment likely encountered at the site is **Segment C.** Therefore, the environmental values of groundwater requiring protection are:

- Water dependent ecosystems
- Potable mineral water supply
- Agriculture and irrigation (stock watering)
- Industrial and commercial uses
- Water-based recreation (primary contact recreation)
- Traditional owners cultural values
- Buildings and structures
- Geothermal properties

The environmental values of water dependent ecosystems is applicable at the point of groundwater discharge, which is inferred to be Port Phillip Bay (Corio Bay) located 1.1 km to the north of the site.

As the site and depth to water are not located in an area of geothermic importance (i.e. temperatures of groundwater are unlikely to be between 30-70 degrees Celsius), and the natural quality of the groundwater is unlikely to be effervescent, the environmental values of geothermal properties and potable mineral water supply is not considered relevant.

As no surface water bodies are present on site, other than man-made dams and a gully which may include periodic surface water flows, the environmental values of surface water are not considered relevant on the site.

5.3 Summary of Potential Receptors and Migration Pathways

A summary of potential receptors based on the environmental values of the environment applicable at the site are summarised in **Table 5-2** and **Table 5-3**. This includes potential contaminant migration and exposure pathways, and whether the environmental values are likely to be impacted based on the historical use of the site.

Table 5-2 Environmental Values of Land, Potential Receptors and Migration and Exposure Pathways

Environmental Value	Potential Existing and Future Receptors		Potentially Affected Media, Migration and Exposure Pathways	Environmental Value Potentially Impacted
	On-site	Off-site		
Maintenance of ecosystems (modified to highly modified ecosystem)	**Yes** – Ecological receptors such as vegetation (trees, grasses)	**No** – Although ecological receptors exists off-site, they are unlikely to be impacted by soil contamination (if present) on-site.	Exposure by ecological receptors to contaminants through direct contact in soil. Exposure by future site users to contaminants through direct dermal contact and ingestion of soils (in unsealed areas). Secondary exposure by future site users to contaminants via consumption of potentially contaminated produce (chickens, eggs, vegetables etc.) Exposure by construction and maintenance workers to contaminants through direct dermal contact ingestion of soil.	**Yes** In areas of historical cropping and fill material
Human Health	**Yes** – receptors including future adult and child residents and users of open space and recreation	**Yes** – Receptors including surrounding members of the public, workers, and residents		**Yes** In areas of historical cropping and fill material
Aesthetics	**Yes** – receptors including future adult and child residents and users of open space and recreation	**Yes** – Receptors including surrounding members of the public, workers, and residents		**No**
Building and Structures	**Yes** – receptors including future residential buildings	**No**– Although buildings and structures exists off-site, they are unlikely to be impacted by soil contamination (if present) on-site.		**No**
Production of food, flora, and fibre	**Yes** – future residents may potentially grow produce (i.e., chickens, eggs, vegetable gardens and fruit trees)	**No -** Although receptors exists off-site, they are unlikely to be impacted by soil contamination (if present) on-site.		**Yes** In areas of historical cropping and fill material

Table 5-3 Environmental Value of Groundwater, Potential Receptors and Migration and Exposure Pathways

Environmental Value	Potential Existing and Future Receptors		Potential Migration and Exposure Pathways	Environmental Value Potentially Impacted
	On-site	Off-site		
Water dependent ecosystems	**No –** Surface water bodies located on-site include artificial waterways such as dams, therefore, this environmental value is unlikely to be applicable. It is noted that the gully may form an ephemeral creek at the site during high rainfall events, however, this likely flows into off-site artificial waterways (dam located to the west)	**Yes** – Port Phillip Bay (Corio Bay) is located approximately 1.1 km to the north of the site	Potential sources of contamination identified on-site are unlikely to result in groundwater contamination therefore potential impacts to environmental values of groundwater are likely to be negligible	**No**
Agriculture and Irrigation – Stock Watering	**Unlikely but possible –** No groundwater bores are registered for this use on-site. Although unlikely, this environmental value may still be relevant in the future	**Yes –** Several existing groundwater bores in the surrounding area are registered for domestic and stock uses. Therefore, this environmental value is considered to be relevant.		**No**
Industrial and Commercial Use	**No –** Based on the existing and proposed land use, this environmental value is unlikely to be realised.	**No –** Based on the surrounding land use which is predominantly residential and farming, this environmental value is unlikely to be realised.		**No**
Water-based recreation (primary contract recreation)	**Unlikely but possible -** No groundwater bores are registered for this use on-site. Although unlikely, this environmental value may still be relevant in the future	**Yes –** Several existing groundwater bores in the surrounding area are registered for domestic and stock uses. This may include domestic groundwater supply for filling of swimming pools. Therefore, this		**No**

Environmental Value	Potential Existing and Future Receptors		Potential Migration and Exposure Pathways	Environmental Value Potentially Impacted
	On-site	Off-site		
		environmental value is considered to be relevant.		
Traditional owners, cultural and spiritual values	**No –** groundwater is not expected to discharge to any surface water bodies on the site.	**Yes** – These environmental values may be applicable at Port Phillip Bay.		**No**
Buildings and structures	**No** – buildings and structures will be present on-site in the future but are unlikely to intercept groundwater	**No** – buildings and structures are present off-site but are unlikely to intercept groundwater		**No**

6 Summary and Findings

6.1 Land Classification

In accordance with the Planning Practice Note 30 (July 2021) and based on the site history reviewed as part of this PRSA, the site has a medium potential for contamination in some areas, due to known concentrations of dieldrin in surface soils exceeding the adopted criterion for human consumption of poultry and eggs, and areas of suspected filling which have not been assessed on the northern property. It is noted that the soil results for organochlorine pesticides, which were reviewed as part of this PRSA, do not exceed the criteria for low density residential land use (where poultry is not kept), nor do they exceed the criteria for public open space such as parks or playgrounds.

6.2 Likelihood of Contamination

Based on the PRSA, inclusive of review of information included within previous environmental assessment reports and the Auditor's site inspection, it is considered that it is likely that contamination is present at the site in some areas which may impact on the environmental values of the site under some planned future land use scenarios. As such, an Audit is recommended for parts of the site, which is further detailed in **Appendix A**.

6.3 Assessment of Possible Impacts on Environmental Values

The Auditor's assessment of possible impacts on the environmental values associated with the proposed use of the site are documented in the following tables.

Table 6-1 Assessment of Environmental Values of Land

Environmental Value	Auditors Assessments
Land dependent ecosystems and species	Environmental value is potentially impacted in areas where historical cropping has resulted in dieldrin concentrations exceeding the adopted criterion for human consumption of poultry and eggs, or in areas where importation of fill has occurred and has not been assessed as shown on the attached figures.
Human health	Environmental value is potentially impacted in areas where historical cropping has resulted in dieldrin concentrations exceeding the adopted criterion for human consumption of poultry and eggs, or in areas where importation of fill has occurred and has not been assessed as shown on the attached figures. It is noted that the soil results for organochlorine pesticides, which were reviewed as part of this PRSA, do not exceed the criteria for low density residential land use (where poultry is not kept), nor do they exceed the criteria for public open space such as parks or playgrounds.
Buildings and Structures	Environmental value is not considered likely to be impacted
Aesthetics	Environmental value is not considered likely to be impacted

Environmental Value	Auditors Assessments
Production of Food, Fibre and Flora	Environmental value is potentially impacted in areas where historical cropping has resulted in dieldrin concentrations exceeding the adopted criterion for human consumption of poultry and eggs, or in areas where importation of fill has occurred and has not been assessed as shown on the attached figures.

Table 6-2 Assessment of Environmental Values of Groundwater

Environmental Value	Auditors Assessments
Water dependent ecosystems and species	Environmental value is not considered likely to be impacted
Potable mineral water supply	Environmental value is not considered likely to be impacted and this environmental value is unlikely to apply at the site
Agriculture and irrigation (stock watering)	Environmental value is not considered likely to be impacted
Industrial and commercial use	Environmental value is not considered likely to be impacted
Water based recreation (primary contact recreation)	Environmental value is not considered likely to be impacted
Traditional Owner cultural values	Environmental value is not considered likely to be impacted
Buildings and structures	Environmental value is not considered likely to be impacted
Geothermal properties	Environmental value is not considered likely to be impacted and this environmental value is unlikely to apply at the site

6.3.1 Assessment of Environmental Values of Surface Water

Several dams exist at the site. In accordance with the ERS, 2021, environmental values of surface water do not apply at off-stream private dams. Regardless, environmental values of surface water are unlikely to be impacted by the historical use of the site.

6.4 Determination of an Environmental Audit

Based on the results of the PRSA and supporting information, including the previous environmental site assessments included in **Appendix B**, the Auditor is of the opinion that an environmental audit, to be conducted in accordance with Section 208 of the *Environment Protection Act 2017*, is required in some areas of the site for the proposed development which includes a low-density residential subdivision and open space use. This conclusion is based on the known presence of concentrations of organochlorine pesticides (including dieldrin) in surface soils exceeding the adopted criterion for human consumption of poultry and eggs, related to historical cropping activities, and also areas of suspected imported fill which have not been assessed in the northern property.

It is noted that the soil results for organochlorine pesticides, which were reviewed as part of this PRSA, do not exceed the criteria for low density residential land use (where poultry is not kept), nor do they exceed the criteria for public open space such as parks or playgrounds.

Areas of the site where cropping and filling has not historically occurred, and/or where environmental investigations completed to date have not identified contaminated soils, are not considered to require an environmental audit.

In view of the above, three PRSA Statements outlining the results and conclusion of the PRSA have been prepared as detailed in the table below. A copy of the PRSA statements is provided in **Appendix A**, including site plans showing where each PRSA statement is applicable.

Table 6-3 Summary of PRSA Statements

PRSA Statement	Area	Conclusions and Requirements
1	Entire property at 31 – 70 McDermott Road	• Historical cropping known to have occurred. • Concentrations of dieldrin reported in shallow soil samples exceeding the adopted criterion for human consumption of poultry and eggs. • Areas of filling in the vicinity of the derelict shed requiring further investigation/assessment. • **Environmental audit required** to assess potential risk due to dieldrin in soils and area of potential filling in the southern part of the site. In addition, some analysis of soils for herbicides is also required in former cropping areas, which was not fully conducted as part of the previous environmental site assessments.
2	Northern portion of property at 91 – 125 Coriyule Road	• Historical cropping known to have occurred. • Concentrations of dieldrin reported in shallow soil samples exceeding the adopted criterion for human consumption of poultry and eggs. • The former backfilled dam area in the north-east corner of the site has been assessed, which indicated this area is not potentially contaminated. • **Environmental audit required** to assess potential risk due to dieldrin in soils. In addition, some analysis of herbicides in soils is also required in former cropping areas, which was not fully conducted as part of the previous environmental site assessments.
3	Southern portion of property at 91 – 125 Coriyule Road	• Historical farming was only reported to comprise of cattle grazing. • No obvious areas of filling or other potential sources of contamination identified. • Previous investigations have not identified concentrations of contaminants of potential concern above the adopted site assessment criteria. • **No environmental audit is required**.

6.5 Assessment Exclusions

The PRSA did not include any exclusions relevant to the scope conducted.

7 Limitations

EHS Support has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Cardno Victoria Pty Ltd and only those third parties who have been authorised in writing by EHS Support to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated March 2022.

A PRSA is not an Environmental Audit in accordance with Section 208 of the Act. A PRSA, as defined by the EPA Guidelines and the Act, makes conclusions on the potential for contamination to be present at the site, and not the suitability of the site for the intended use.

The methodology adopted and sources of information used by EHS Support are outlined in this report. No indications were found during our investigations that information contained in this report as provided to EHS Support was false.

This report was prepared in September 2022 and is based on the conditions encountered and information reviewed at the time of preparation. EHS Support disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

This report contains information obtained by inspection, desktop site history investigation and review of previous environmental assessment reports completed by third parties. This information is directly relevant only to the information obtained at the time of the assessment.

Where conditions encountered at the site are subsequently found to differ significantly from those anticipated in this report, EHS Support must be notified of any such findings and be provided with an opportunity to review the recommendations of this report.

Whilst to the best of our knowledge information contained in this report is accurate at the date of issue, subsurface conditions, including groundwater levels can change in a limited time. Therefore, this document and the information contained herein should only be regarded as valid at the time of the investigation unless otherwise explicitly stated in this report.

8 References

Legislation

State of Victoria, Environment Protection Act 2017

State of Victoria, Environment Protection Regulations 2021, SR Number 47/2021 (25 May 2021)

State of Victoria, Environment Reference Standard, Victorian Government Gazette Number S245, 26 May 2021

Guidelines

Department of Environment, Land, Water and Planning (2021), Potentially Contaminated Land, Planning Practice Note 30, July 2021

EPA Victoria, 2021, Environmental Auditor Guidelines – Provision of statements and reports for environmental audits and preliminary risk screening assessments (EPA Publication 2022, August 2021)

EPA Victoria, 2022, Guidelines for conducting preliminary risk screen assessments (EPA Publication 2021), February 2022

Ministerial Direction No. 1 – Potentially Contaminated Land 2021

National Environment Protection Council, 1999. National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013)

Standards Australia, 2005, AS4482.1-2005, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds.

Standards Australia, 1999, AS4482.2-1999, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 2: Volatile Substances.

Western Australian State Government, Department of Primary Industries and Regional Development, Chickens, eggs and organochlorines (https://www.agric.wa.gov.au/livestock-biosecurity/chickens-eggs-and-organochlorines)

Site Specific References

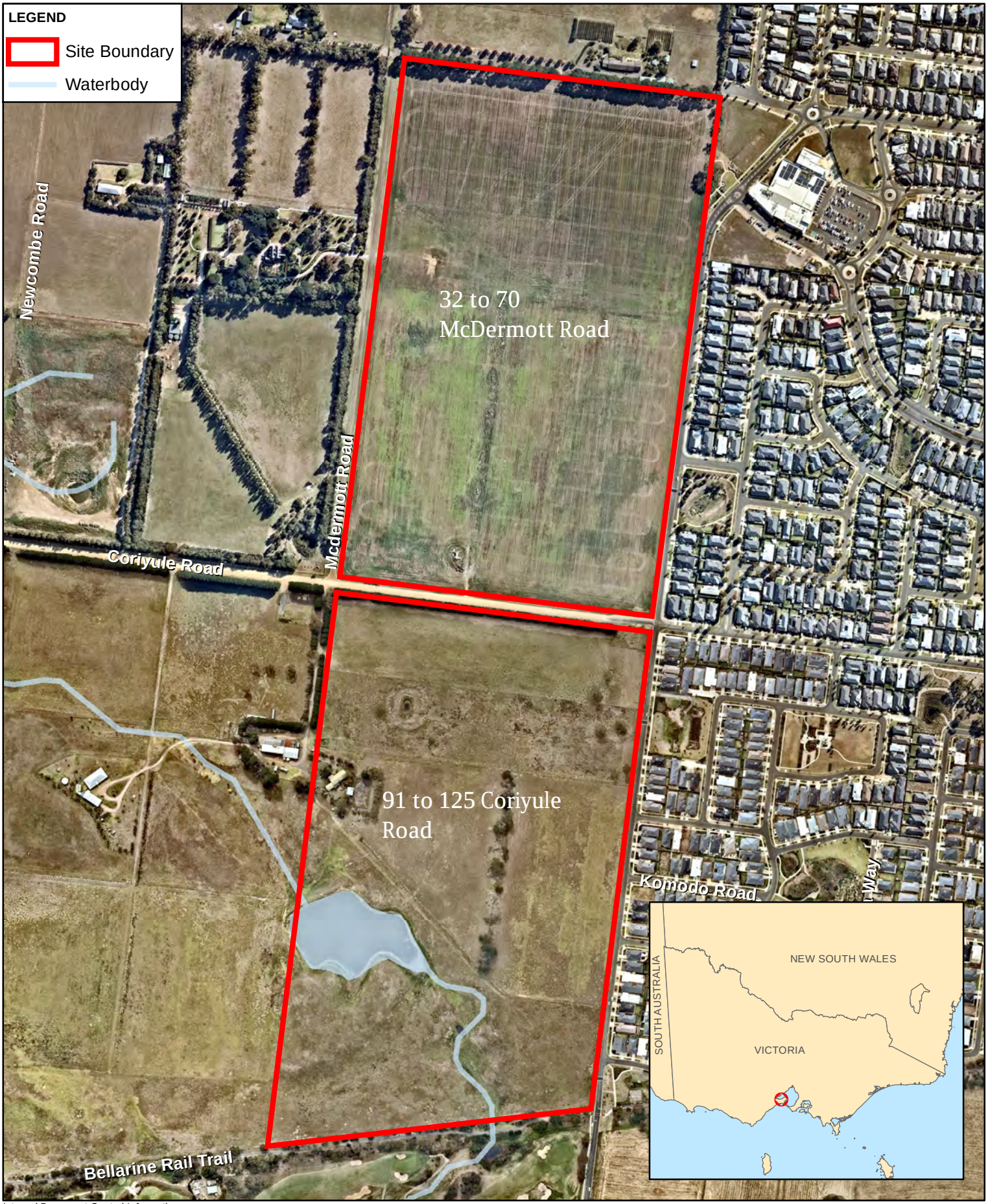
Australian and New Zealand Environment and Conservation Council (ANZECC), 1992. *Guidelines for the Assessment and Remediation of Contaminated Sites*.

Environmental Site Assessments Pty Ltd, 2019. Environmental Assessment *32-70 McDermott Road and 91 – 125 Coriyule Road, Curlewis*, 2019, prepared by Environmental Site Assessments Pty Ltd

Environmental Site Assessments Pty Ltd, 2022. *Environmental Investigation, 91 – 124 Coriyule Road, Curlewis*, 2022, prepared by Environmental Site Assessments Pty Ltd

Schulte, EE., K.A. Kelling, 1999. *Soil and applied manganese*. Understanding Plant Nutrients, A2526

Figures



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Site Plan

0 50 100 200 300 400 Meters

1 cm = 0 km [Page Size: A4]

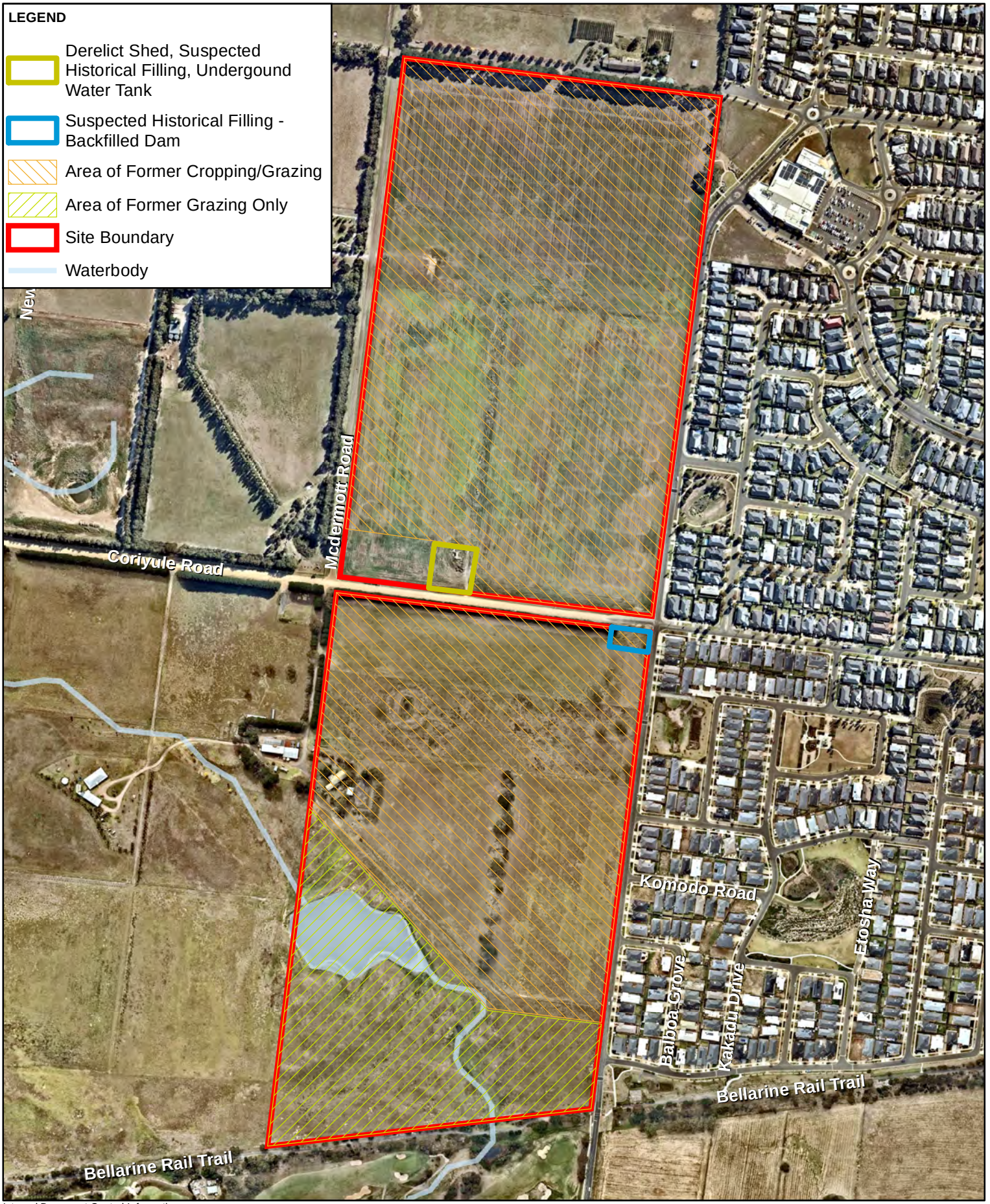
Jetty Road Stage 2 North PRSA

EHS Support

Figure 1

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	AUS_C03860
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA 1994 MGA Zone 55
SCALE:	1:6,165
AERIAL IMAGE SOURCE:	Nearmap Pty Ltd

N



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Site Plan Showing Existing and Historical Features

0 50 100 200 300 400 Meters
1 cm = 0 km [Page Size: A4]

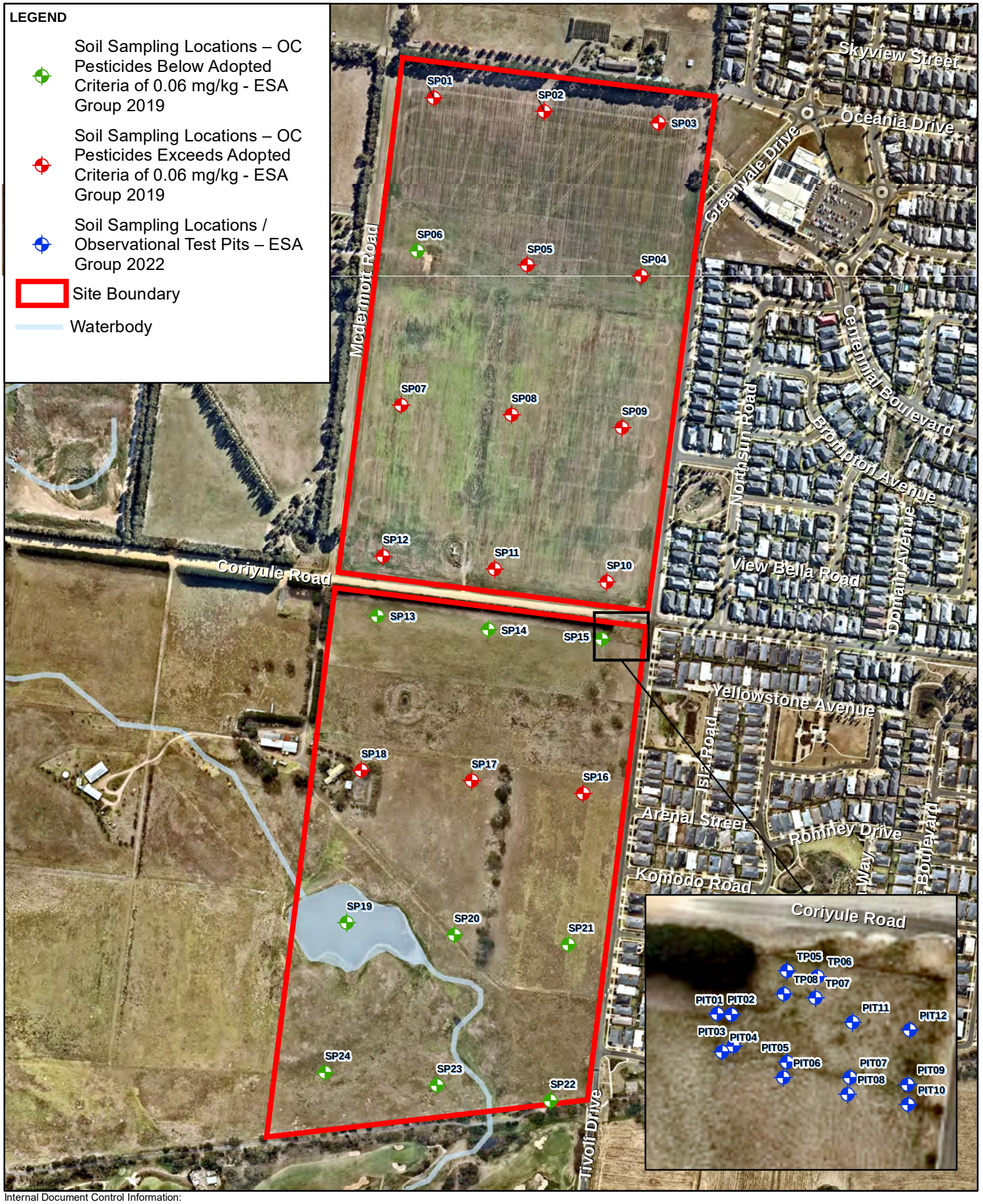
Jetty Road Stage 2 North PRSA

EHS Support

Figure 2

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	AUS_C03860
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA 1994 MGA Zone 55
SCALE:	1:6,165
AERIAL IMAGE SOURCE:	Nearmap Pty Ltd

N



Internal Document Control Information:
User Name: Danny.Barnes; Date and Time Printed: 29/08/22 4:17:23 PM; Document Path: J:\EHSS_GIS\AUSC03860_JettyRoadStage2\01_ANALYSIS\Figure3.mxd

Site Plan Showing Previous Soil Sampling Locations and Dieldrin Exceedances

0 50 100 200 300 400 Meters
1 cm = 0 km [Page Size: A4]

Jetty Road Stage 2 North PRSA

EHS Support

Figure 3

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	AUS_C03860
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA 1994 MGA Zone 55
SCALE:	1:6,165
AERIAL IMAGE SOURCE:	Nearmap Pty Ltd

N

Appendix A Preliminary Risk Screen Assessment Statements

Appendix A1 PRSA Statement for 32 – 70 McDermott Road, Curlewis

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:

Jetty Road, Stage 2 – North

(32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis, VIC, 3222)

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

Name:	[redacted]
Company:	EHS Support Pty Ltd
Address:	Level 4, 27-31 King St, Melbourne, VIC, 3000
Phone:	[redacted]
Email:	[redacted]

Site owner/occupant

Name:	Graham and Heather Moss, and Curlewis Bellarine Pty Ltd
Company:	-

Environmental auditor engaged by

Name:	[redacted]
Company:	Cardno Victoria Pty Ltd
Relationship to site owner:	Planning consultant for owners

Reason for preliminary risk screen assessment

Planning scheme:	Not applicable. PRSA is to support Development Plan Overlay and later subdivision for residential use and open space recreation use.

Permit details (if applicable):	Not applicable
Other:	
☐ Permit is attached (if applicable):	

Section 2: Assessment scope

Site details

Address:	32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis, VIC, 3222 **Note**: this Statement and outcome only applies to part of the site for which the PRSA was conducted, defined as 32 – 70 McDermott Road, Curlewis, VIC, 3222. The area of the site subject to this Statement is provided in the attached PRSA Statement **Figure 1-1**
Title details:	32 – 70 McDermott Road: Lot 9 on Lot Plan 10309 and Lot 10 on Lot Plan 10309 91 – 125 Coriyule Road: Lot 1 on Title Plan 198964
Area (m^2):	520,057 (this is the entire Jetty Road Stage 2 North area).

☒ 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.

☐ High density

☒ Other (lower density)

☒ Residential land use
☐ Child care centre
☐ 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
  ☒ all environmental values that apply to the land use category were considered **OR**

☐ all environmental values that apply to the land use category, other than the following, were considered:

☒ Water

☒ Surface water

☒ 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:

☒ Groundwater

☒ 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, Victorian Government Gazette Number S245, 26 May 2021
- National Environment Protection Council, 1999. National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013)
- Standards Australia, 2005, AS4482.1-2005, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds.
- Standards Australia, 1999, AS4482.2-1999, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 2: Volatile Substances.

Assumptions made during the assessment or any limitations

None

Exclusions from the assessment and the rationale for these

Ambient air and ambient sound environmental values have not been considered, because they are not relevant to the assessment of contaminated land

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

Title:	Preliminary Risk Screen Assessment – Jetty Road, Stage 2 – North, Curlewis, Victoria
Report no:	C03860_Jetty_Road_Stage_2_North_R01
Date:	19 September 2022

Section 3: Assessment outcome

Based on my assessment, I am of the opinion that an environmental audit is **required** for the following land uses, **including** the use or proposed use for which the site has been assessed:

Note: this statement and outcome only applies to part of the site, defined as 32 – 70 McDermott Road, Curlewis, VIC, 3222. The area of the site subject to this statement is provided in the attached PRSA statement **Figure 1-1**.

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

☒ Other (lower density)

☒ Residential land use
☒ Child care centre
☒ 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

Note: the proposed use of the site is primarily low density residential with some recreation/open space included. Although the other landuses noted above are not currently proposed at the site, these landuses may also require an Environmental Audit to be completed.

Reason for environmental audit

An Environmental Audit is required based on the known presence of concentrations of organochlorine pesticides (including dieldrin) in surface soils exceeding the adopted criterion for human consumption of poultry and eggs, related to historical cropping activities. It is noted that the soil results for organochlorine pesticides, which were reviewed as part of this PRSA, do not exceed the criteria for low density residential landuse (where poultry is not kept), nor do they exceed the criteria for public open space such as parks or playgrounds. There are also areas of suspected imported fill which have not been assessed in southern part of the site in the vicinity of the shed in this part of the site. In addition, analysis of soils for herbicides is also required in former cropping areas, which was not conducted as part of the previous environmental site assessments.

Proposed scope of environmental audit

Site to be audited:	32 – 70 McDermott Road, Curlewis, VIC, 3222
Site/premises name	-
Address	32 – 70 McDermott Road, Curlewis, VIC, 3222
Title details	Lot 9 on Lot Plan 10309 and Lot 10 on Lot Plan 10309
Area (m^2)	261,065
Use or **proposed use** of the site to be audited:	Sensitive land use categories ☐ High density ☒ Residential land use ☐ Child care centre ☐ Pre-school ☐ Primary school ☐ Secondary school ☒ Other (lower density) ☐ 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:
Elements of the environment to be assessed in the environmental audit:	☒ Land ☒ all environmental values that apply to the land use category to be considered **OR** ☐ all environmental values that apply to the land use category, other than the following, to be considered:
	☐ Water ☐ Surface water ☐ all environmental values that apply to the segment to be considered **OR** ☐ all environmental values that apply to the segment, other than the following, to be considered: ☐ Groundwater ☐ all environmental values that apply to the segment to be considered **OR** ☐ all environmental values that apply to the segment, other than the following, to be considered:

Standards and reference documents to be considered:	• Environment Reference Standard, Victorian Government Gazette Number S245, 26 May 2021 • National Environment Protection Council, 1999. National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013) • Standards Australia, 2005, AS4482.1-2005, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds. • Standards Australia, 1999, AS4482.2-1999, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 2: Volatile Substances. • Western Australian State Government, Department of Primary Industries and Regional Development, Chickens, eggs and organochlorines (https://www.agric.wa.gov.au/livestock-biosecurity/chickens-eggs-and-organochlorines)
Exclusions from the environmental audit and rationale for these:	Potential risk to environmental values of surface water and groundwater considered low based on the results of the PRSA. Consideration of these elements may be required depending on the results of further assessment completed as part of the environmental audit.
Assumptions made or limitations on the environmental audit:	The proposed scope of the Environmental Audit is based on the results of the PRSA conducted and the Auditor's opinion on the potential for contamination. This does not limit the Audit scope to be changed if different site conditions are encountered or the Auditor considers that other scope items are considered necessary to complete the Environmental Audit at that time.

Note: An assessment that an environmental audit is not required does not include any comment on as to whether responsibilities under section 39 of the *Environment Protection Act 2017* (duty to manage contaminated land) exist for the person in management or control of the land. Please refer to EPA publication 1977, *Assessing and controlling contaminated land risks: A guide to meeting the duty to manage for those in management or control of land* (https://www.epa.vic.gov.au/about-epa/publications/1977).

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:	19 September 2022
Signed:	
Name:	Stephen Cambridge
	Environmental Auditor

Internal Document Control Information:
User Name: Danny.Barnes; Date and Time Printed: 29/08/22 4:57:13 PM; Document Path: J:\EHSS_GIS\AUSC03860_JettyRoadStage2\01_ANALYSIS\PRSA-Figure1.mxd

PRSA Statement Area

0 40 80 160 240 320 Meters
1 cm = 0 km [Page Size: A4]

Jetty Road Stage 2 North PRSA

EHS Support

Figure 1-1

N

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	AUS_C03860
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA 1994 MGA Zone 55
SCALE:	1:5,000
AERIAL IMAGE SOURCE:	Nearmap Pty Ltd

Appendix A2 PRSA Statement for 91 – 125 Coriyule Road, Curlewis (Northern Section of Property)

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:

Jetty Road, Stage 2 – North

(32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis, VIC, 3222)

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

Name:	[redacted]
Company:	EHS Support Pty Ltd
Address:	Level 4, 27-31 King St, Melbourne, VIC, 3000
Phone:	[redacted]
Email:	

Site owner/occupant

Name:	Graham and Heather Moss and Curlewis Bellarine Pty Ltd
Company:	-

Environmental auditor engaged by

Name:	[redacted]
Company:	Cardno Victoria Pty Ltd
Relationship to site owner:	Planning consultant for owner

Reason for preliminary risk screen assessment

Planning scheme:	Not applicable. PRSA is to support Development Plan Overlay and later subdivision for residential use and open space recreation use.

Permit details (if applicable):	Not applicable
Other:	
☐ Permit is attached (if applicable):	

Section 2: Assessment scope

Site details

Address:	32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis, VIC, 3222 **Note**: this Statement and outcome only applies to part of the site for which the PRSA was conducted, defined as the Northern part of 91 – 125 Coriyule Road, Curlewis, VIC, 3222. The area of the site subject to this Statement is provided in the attached PRSA Statement **Figure 1-2**.
Title details:	32 – 70 McDermott Road: Lot 9 on Lot Plan 10309 and Lot 10 on Lot Plan 10309 91 – 125 Coriyule Road: Lot 1 on Title Plan 198964
Area (m^2):	520,057

☒ 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.

☐ High density

☒ Other (lower density)

☒ Residential land use
☐ Child care centre
☐ 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
  ☒ all environmental values that apply to the land use category were considered **OR**

☐ all environmental values that apply to the land use category, other than the following, were considered:

☒ Water

☒ Surface water

☒ 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:

☒ Groundwater

☒ 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, Victorian Government Gazette Number S245, 26 May 2021
- National Environment Protection Council, 1999. National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013)
- Standards Australia, 2005, AS4482.1-2005, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds.
- Standards Australia, 1999, AS4482.2-1999, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 2: Volatile Substances.

Assumptions made during the assessment or any limitations

None

Exclusions from the assessment and the rationale for these

Ambient air and ambient sound environmental values have not been considered, because they are not relevant to the assessment of contaminated land

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

Title:	Preliminary Risk Screen Assessment – Jetty Road, Stage 2 – North, Curlewis, Victoria
Report no:	C03860_Jetty_Road_Stage_2_North_R01
Date:	19 September 2022

Section 3: Assessment outcome

Based on my assessment, I am of the opinion that an environmental audit is **required** for the following land uses, **including** the use or proposed use for which the site has been assessed:

Note: this statement and outcome only applies to part of the site, defined as the northern part of 91 – 125 Coriyule Road, Curlewis, VIC, 3222. The area of the site subject to this statement is provided in the attached PRSA statement **Figure 1-2**.

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

☒ Other (lower density)

☒ Residential land use
☒ Child care centre
☒ 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

Note: the proposed use of the site is primarily low density residential with some recreation/open space included. Although the other landuses noted above are not currently proposed at the site, these landuses would also require an Environmental Audit to be completed.

Reason for environmental audit

An Environmental Audit is required based on the known presence of concentrations of organochlorine pesticides (including dieldrin) in surface soils exceeding the adopted criterion for human consumption of poultry and eggs, related to historical cropping activities. It is noted that the soil results for organochlorine pesticides, which were reviewed as part of this PRSA, do not exceed the criteria for low density residential landuse (where poultry is not kept), nor do they exceed the criteria for public open space such as parks or playgrounds. In addition, analysis of soils for herbicides is also required in former cropping areas, which was not conducted as part of the previous environmental site assessments.

Proposed scope of environmental audit

Site to be audited:	Northern part of 91 – 125 Coriyule Road, Curlewis, VIC, 3222
Site/premises name	-
Address	Part of 91 – 125 Coriyule Road, Curlewis, VIC, 3222
Title details	Part of Lot 1 on Title Plan 198964
Area (m^2)	258,992
Use or proposed use of the site to be audited:	Sensitive land use categories ☐ High density ☒ Other (lower density) ☒ Residential land use ☐ Child care centre ☐ 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:
Elements of the environment to be assessed in the environmental audit:	☒ Land ☒ all environmental values that apply to the land use category to be considered **OR** ☐ all environmental values that apply to the land use category, other than the following, to be considered:
	☐ Water ☐ Surface water ☐ all environmental values that apply to the segment to be considered **OR** ☐ all environmental values that apply to the segment, other than the following, to be considered: ☐ Groundwater ☐ all environmental values that apply to the segment to be considered **OR** ☐ all environmental values that apply to the segment, other than the following, to be considered:

Standards and reference documents to be considered:	• Environment Reference Standard, Victorian Government Gazette Number S245, 26 May 2021 • National Environment Protection Council, 1999. National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013) • Standards Australia, 2005, AS4482.1-2005, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds. • Standards Australia, 1999, AS4482.2-1999, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 2: Volatile Substances. • Western Australian State Government, Department of Primary Industries and Regional Development, Chickens, eggs and organochlorines (https://www.agric.wa.gov.au/livestock-biosecurity/chickens-eggs-and-organochlorines)
Exclusions from the environmental audit and rationale for these:	Potential risk to environmental values of surface water and groundwater considered low based on the results of the PRSA. Consideration of these elements may be required depending on the results of further assessment completed as part of the environmental audit.
Assumptions made or limitations on the environmental audit:	The proposed scope of the Environmental Audit is based on the results of the PRSA conducted and the Auditor's opinion on the potential for contamination. This does not limit the Audit scope to be changed if different site conditions are encountered or the Auditor considers that other scope items are considered necessary to complete the Environmental Audit at that time.

Note: An assessment that an environmental audit is not required does not include any comment on as to whether responsibilities under section 39 of the *Environment Protection Act 2017* (duty to manage contaminated land) exist for the person in management or control of the land. Please refer to EPA publication 1977, *Assessing and controlling contaminated land risks: A guide to meeting the duty to manage for those in management or control of land* (https://www.epa.vic.gov.au/about-epa/publications/1977*)*.

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:	19 September 2022
Signed:	
Name:	Stephen Cambridge
	Environmental Auditor

Internal Document Control Information:
User Name: Danny.Barnes; Date and Time Printed: 29/08/22 5:08:35 PM; Document Path: J:\EHSS_GIS\AUSC03860_JettyRoadStage2\01_ANALYSIS\PRSA-Figure1_2.mxd

PRSA Statement Area

0 30 60 120 180 240 Meters
1 cm = 0 km [Page Size: A4]

Jetty Road Stage 2 North PRSA

EHS Support

Figure 1-2

N

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	AUS_C03860
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA 1994 MGA Zone 55
SCALE:	1:4,000
AERIAL IMAGE SOURCE:	Nearmap Pty Ltd

Appendix A3 PRSA Statement for 91 – 125 Coriyule Road, Curlewis (Southern Section of Property)

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:

Jetty Road, Stage 2 – North

(32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis, VIC, 3222)

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

Name:	[redacted]
Company:	EHS Support Pty Ltd
Address:	Level 4, 27-31 King St, Melbourne, VIC, 3000
Phone:	[redacted]
Email:	

Site owner/occupant

Name:	Graham and Heather Moss and Curlewis Bellarine Pty Ltd
Company:	-

Environmental auditor engaged by

Name:	[redacted]
Company:	Cardno Victoria Pty Ltd
Relationship to site owner:	Planning consultant for owner

Reason for preliminary risk screen assessment

Planning scheme:	Not applicable. PRSA is to support Development Plan Overlay and later subdivision for residential use and open space recreation use.

Permit details (if applicable):	Not applicable
Other:	
☐ Permit is attached (if applicable):	

Section 2: Assessment scope

Site details

Address:	32 – 70 McDermott Road and 91 – 125 Coriyule Road, Curlewis, VIC, 3222 **Note**: this Statement and outcome only applies to part of the site for which the PRSA was conducted, defined as the Southern part of 91 – 125 Coriyule Road, Curlewis, VIC, 3222. The area of the site subject to this Statement is provided in the attached PRSA Statement **Figure 1-3**.
Title details:	32 – 70 McDermott Road: Lot 9 on Lot Plan 10309 and Lot 10 on Lot Plan 10309 91 – 125 Coriyule Road: Lot 1 on Title Plan 198964
Area (m^2):	520,057

☒ 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.

☐ High density

☒ Other (lower density)

☒ Residential land use
☐ Child care centre
☐ 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
  ☒ all environmental values that apply to the land use category were considered **OR**

☐ all environmental values that apply to the land use category, other than the following, were considered:

☒ Water

☒ Surface water

☒ 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:

☒ Groundwater

☒ 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, Victorian Government Gazette Number S245, 26 May 2021
- National Environment Protection Council, 1999. National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013)
- Standards Australia, 2005, AS4482.1-2005, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds.
- Standards Australia, 1999, AS4482.2-1999, Australian Standard: Guide to the Investigation and Sampling of Potentially Contaminated Soil. Part 2: Volatile Substances.

Assumptions made during the assessment or any limitations

None

Exclusions from the assessment and the rationale for these

Ambient air and ambient sound environmental values have not been considered, because they are not relevant to the assessment of contaminated land

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

Title:	Preliminary Risk Screen Assessment – Jetty Road, Stage 2 – North, Curlewis, Victoria
Report no:	C03860_Jetty_Road_Stage_2_North_R01
Date:	19 September 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:

Note: this statement and outcome only applies to part of the site, defined as the southern part of 91 – 125 Coriyule Road, Curlewis, VIC, 3222. The area of the site subject to this statement is provided in the attached PRSA statement **Figure 1-3.**

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

☒ Other (lower density)
☒ Child care centre
☒ 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

Note: the proposed use of the site is primarily low density residential with some recreation/open space included. Although the other landuses noted above are not currently proposed at the site, these landuses would also not require an Environmental Audit to be completed.

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:	19 September 2022
Signed:	
Name:	Stephen Cambridge
	Environmental Auditor

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User Name: Danny.Barnes; Date and Time Printed: 29/08/22 5:10:37 PM; Document Path: J:\EHSS_GIS\AUSC03860_JettyRoadStage2\01_ANALYSIS\PRSA-Figure1_3.mxd

PRSA Statement Area

0 30 60 120 180 240 Meters

1 cm = 0 km [Page Size: A4]

Jetty Road Stage 2 North PRSA

EHS Support

Figure 1-3

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	AUS_C03860
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA 1994 MGA Zone 55
SCALE:	1:4,000
AERIAL IMAGE SOURCE:	Nearmap Pty Ltd

N

Appendix B Previous Environmental Assessment Reports

Appendix B1 Environmental Assessment - 32-70 McDermott Road and 91-125 Coriyule Road, Curlewis (ESA, 2019)

Environmental Assessment

32-70 McDermott Rd & 91-125 Coriyule Rd, Curlewis

Prepared for:

Heather & Graham Moss / Curlewis Bellarine Pty Ltd

Environmental Site Assessments

office@esagroup.com.au | 0433 747 187 | www.esagroup.com.au

Document Control

Environmental Site Assessments Pty Ltd
PO Box 3106
Waurn Ponds 3216
Phone: 0433 747 187

Report Title	Environmental Assessment – 32-70 McDermott Road and 91-125 Coriyule Road, Curlewis
Doc. Ref	ESA/370/2018
Client	Heather & Graham Moss / Curlewis Bellarine Pty Ltd
Signatures	Prepared and Authorised by: [redacted] Managing Director

Revision Status

Revision #	Status	Date	Writer
1	Final	22/02/19	S. Lillas

Documents Distribution

Revision #	Number of copies	Type	Recipient	Position and Company
1	1	Email	[redacted]	Group Manager (Town Planning) - TGM Group

Contents

Document Control 2
Revision Status 2
Documents Distribution 2
Contents 3
Appendices 4
CONCLUSION OF ENVIRONMENTAL ASSESSMENT 5
1.0 INTRODUCTION 5
1.1 Project Understanding and Objectives 5
1.2 Scope of Work Undertaken 6
2.0 PRELIMINARY STUDY 6
2.1 Site Details 6
2.2 Current Use 6
2.3 Surrounding Land Use 6
2.4 Relevant Planning Information 6
2.5 Regional Geology 7
2.6 Potential Acid Sulfate Soils 7
2.7 Regional Hydrogeology 7
2.8 Nearest Surface Water Bodies 7
2.9 Groundwater Quality Restricted Use Zones (‘GQRUZ’) 7
2.10 Previous Investigations 7
3.0 SITE HISTORY REVIEW 7
3.1 Title Information 7
3.2 Historical Aerial Photographs 10
3.3 Cathodic Protection Systems 10
3.4 Waste Management Facilities 10
3.5 Former Gasworks 10
3.6 Dry Cleaners, Motor Garages & Service Stations 10
3.7 Historical Mining Activity – Shafts 10
4.0 EPA RECORDS SEARCH 11
4.1 Current and Former EPA Priority Sites Register (‘PSR’) Review 11
4.2 Environmental Audit Reports 11
4.3 Current and Former EPA Licensed Activities 11
4.4 EPA Works Approvals 11
4.5 EPA Prescribed Waste Database 11
4.6 EPA Victorian Landfill Register 11
5.0 SITE INSPECTION 11
6.0 POTENTIAL CONTAMINANTS OF CONCERN 13
Preliminary Study Conclusions and Recommendations 13
7.0 SOIL SAMPLING PROGRAM 13
7.1 Relevant Guidelines and Standards 16
7.2 Quality Assurance / Quality Control 16
7.2.1 Environmental Site Assessments Quality Assurance (‘QA’) Program 16

7.2.2 Environmental Site Assessments Quality Control ('QC') Program 16
7.2.3 Sample Documentation 17
7.2.4 Packaging and Transport 17
7.2.5 Field Notes 17
7.3 Results of Analysis 18
7.4 Laboratory QA/QC 18
7.4.1 ALS Environmental Laboratory 18
7.4.2 Eurofins MGT Laboratory 18
7.4.3 Sample Holding Times and Sample Receipt Temperature 19
7.4.4 Conclusion 19
7.5 Field Quality Control Samples 19
7.5.1 Blind Replicate and Split samples 19
7.5.2 Trip, Field and Rinsate Blanks 19
8.0 REFERENCES 19

Appendices

Appendix 1: Property Reports

Appendix 2: Lotsearch Report

Appendix 3: Title History

Appendix 4: ESV Cathodic Protection Search

Appendix 5: Sample Locations

Appendix 6: PID Calibration Form

Appendix 7: Comparison Tables

Appendix 8: Laboratory Chain of Custody Forms and Certificates of Analysis

CONCLUSION OF ENVIRONMENTAL ASSESSMENT

Conclusions	There is a Low likelihood of chemical contamination of soil in the paddocks due to application of fertilisers and/or herbicides. There is a Low likelihood of contamination of soil at the Site due to industrial waste. There is a Low probability of occurrence of Acid Sulfate soils on Site. The Site is surrounded by low risk properties. There is no apparent soil staining, soil discolouration or odours at the Site. There is no apparent asbestos contamination. There is no apparent Prescribed Industrial Waste or Putrescible Waste. There is no apparent imported fill on Site.
Risk of Contamination	Based on all available information, this soil at the Site has a Low risk of contamination. All soils analysed were BELOW the upper thresholds for NEPM HIL A, HSL A/B, ESLs (Urban Residential) and Management Limits (Residential/Parkland). As per the Ministerial Direction No. 1, the Site is suitable for a sensitive use (defined as residential, child-care centre, pre-school centre or primary school), agriculture or public open space.

1.0 INTRODUCTION

Environmental Site Assessments Pty Ltd ('ESA') was engaged by Heather & Graham Moss / Curlewis Bellarine Pty Ltd ('the Client') to undertake an Environmental Assessment ('EA') at 32-70 McDermott Road and 91-125 Coriyule Road, Curlewis ('the Site'). The Site is currently zoned as Farming ('FZ').

The client plans to develop the Site for conventional residential use. The intention of the EA is to determine whether the Site is potentially contaminated.

Potentially contaminated land is defined in Ministerial Direction No. 1 – Potentially Contaminated Land, as land used or known to have been used for industry, mining or the storage of chemicals, gas, wastes or liquid fuel (if not ancillary to another use of land). This practice note also deals with land that may have been contaminated by other means such as by ancillary activities, contamination from surrounding land, fill using contaminated soil or agricultural uses.

Ministerial Direction No. 1 – Potentially Contaminated Land (Direction No. 1) requires planning authorities when preparing planning scheme amendments, to satisfy themselves that the environmental conditions of land proposed to be used for a sensitive use (defined as residential, child-care centre, pre-school centre or primary school), agriculture or public open space are, or will be, suitable for that use.

1.1 Project Understanding and Objectives

This EA will involve the collection and assessment of information derived from records of its previous use (preliminary study) and a Site inspection coupled with limited soil sampling.

Limited soil sampling is carried out to:

(a) Produce evidence through an investigation to indicate whether a Site is potentially contaminated; and

(b) Determine whether a Detailed Site Investigation ('DSI') should be conducted.[1]

[1] Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds AS 4482.1—2005.

1.2 Scope of Work Undertaken

Based on the project understanding and objectives described above, ESA undertook the following scope of works:

- The collection of historical information about the Site uses to assist in determining its potential for contamination;
- The collection of geological and hydrogeological information about the Site and its surroundings;
- A physical inspection of the Site;
- A limited soil-sampling program to provide an initial indication of the likely contamination status of the Site soils; and
- A report of the findings and recommendations.

2.0 PRELIMINARY STUDY

2.1 Site Details

The following table summarises the relevant details that describe the Site.

Site Address	32-70 McDermott Road and 91-125 Coriyule Road, Curlewis
Current Site Owner	Heather and Graham Moss (32-70 McDermott Road, Curlewis) Curlewis Bellarine Pty Ltd (91-125 Coriyule Road, Curlewis)
Current Title Volumes/Folios	5298/594 (32-70 McDermott Road, Curlewis) 10978/324 (91-125 Coriyule Road, Curlewis)
Municipality	Greater Geelong
Current Land Use Zonings	Farming
Current Site Uses	Farming
Lot and Plan Numbers	Lots 9 & 10 on PS010309 (32-70 McDermott Road, Curlewis) Lot 1 on TP198964M (91-125 Coriyule Road, Curlewis)
Area of Site (Approximate)	52 Ha

2.2 Current Use

The Site is currently being used for farming purposes (livestock and crops).

2.3 Surrounding Land Use

North	Farming
South	Special Use
East	General Residential and Commercial
West	Farming

2.4 Relevant Planning Information

Under the Greater Geelong planning scheme, the Site is currently zoned as Farming ('FZ'). Planning reports sourced from the Department of Planning and Community Development (www.dpcd.vic.gov.au/planning) are included in **Appendix 1.**

Per the planning reports, the Site is not currently subject to the requirements of an Environmental Audit Overlay ('EAO') or any other overlays.

2.5 Regional Geology

Per the Lotsearch report (**Appendix 2**) the geology on Site is:

- Brighton Group(Nb): Gravel, sand, silt: variably calcareous to ferruginous sandstones and coquinas; marine to nonmarine; and
- Source-bordering dune deposits (Qdi): Sand, silt, clay: inland dune deposits, some swamp deposits; mostly source-bordering.

Within 1 kilometre of the Site are Nb, Nubc and Qdi.

2.6 Potential Acid Sulfate Soils

Per the Lotsearch report (**Appendix 2**), the potential for ASS on Site is low (6-70%).

2.7 Regional Hydrogeology

Per the Lotsearch report (**Appendix 2**), the following is known about the hydrogeology for the Site and immediate surrounds.

Depth to Upper Aquifer	<5m BGL (9% of the Site) 5 - 10m BGL (60% of the Site) 10 - 20m BGL (31% of the Site)
TDS (mg/L)	3,500 – 7,000
Groundwater Beneficial Use Segment (per SEPP)	C
Surface Elevation above sea level (m AHD)	38 – 55
Inferred Groundwater Flow Direction	Northwest towards Port Phillip Bay

Table 2.7

Per the Lotsearch report (**Appendix 2**) there are 26 groundwater bores within a 2km radius of the Site.

The wells are used for the following purposes:

- Groundwater Investigation;
- Domestic; and
- Stock.

Per the Lotsearch report (**Appendix 2**), the lithology is:

- Silt material (significant); sand (significant); gravel material (significant); and
- Sand (significant); silt material (significant); clay lithology (significant)

2.8 Nearest Surface Water Bodies

There is a waterbody at the southwest of the Site. Port Phillip Bay is ~1km to the north of the Site.

2.9 Groundwater Quality Restricted Use Zones ('GQRUZ')

Per the Lotsearch report (**Appendix 2**) there are no zones within 1km of the Site.

2.10 Previous Investigations

There are no known previous investigations.

3.0 SITE HISTORY REVIEW

3.1 Title Information

Copies of Title Information are contained in **Appendix 3** and summarised in Table 3.1 below.

32-70 McDermott Road, Curlewis

Land	Volume/Folio	Parent Volume/Folio	Registered Proprietor/s	Date	Status
Lots 9 and 10 on Plan of Subdivision 010309	05298/594	03001/084	Graham Willis Moss & Heather Joyce Moss	07/09/2009	Current
			Graham Willis Moss	08/08/1979	History
			Edna May Nickelson, Freda Moss, Dulcie Mary Ward & Vernie Nash	25/06/1974	History
			Stanley Samuel Nash & Keith Nash	25/06/1974	History
			Stanley Nash (Farmer)	21/10/1929	History
			Reginald Benham, George Percy Benham, Edward Herbert Benham & William Northcote Benham	03/01/1929	History
			Aaron Benham (Farmer)	15/06/1927	History
Crown Portion Three, Parish of Bellarine, County of Grant	03001/084	02539/717 02673/589	Peter Paul McDermott (Farmer)	01/06/1915	History
			Thomas McDermott & Peter McDermott (Farmers)	16/01/1904	History
Crown Portions One, Two and Three, Parish of Bellarine, County of Grant	02539/717	01948/511 02083/593	Michael McDermott	30/07/1894	History

Land	Volume/Folio	Parent Volume/Folio	Registered Proprietor/s	Date	Status
Lots Eight, Nine and Ten on Plan of Subdivision 3907 Part of Crown Portions Two and Three, Parish of Bellarine, County of Grant	02673/589	01948/511 02083/593	Michael McDermott	30/12/1897	History
No Data	01948/511	Nil	No Data	No Data	History
Parts of Crown Portions Three and Four, Parish of Bellarine, County of Grant	02083/593	Nil	The Scarborough Estate and Land Investment Company Limited	23/06/1889	History
			The Reverend James Davy Dodgson (Minister)	03/01/1889	History

91-125 Coriyule Road, Curlewis

Land	Volume/Folio	Parent Volume/Folio	Registered Proprietor/s	Date	Status
Lot 1 on Title Plan 198964M	10978/324	09105/585	Curlewis Bellarine Pty Ltd	25/01/2018	Current
			Mark Ronald Chirgwin	15/09/1998	History
Lot 15 on Plan of Subdivision No. 10309, Part of Crown Portion Three, Parish of Bellarine, County of Grant	09105/585	05646/156	Patricia May Gwendoline Chirgwin	14/08/1975	History
Part of Crown Portion Three, Parish of Bellarine, County of Grant	05646/156	03001/084	Patricia May Gwendoline Chirgwin	16/12/1963	History
			Alan Leslie Whitcombe & Ian Maxwell Whitcombe (Farmers)	08/06/1950	History

Land	Volume/Folio	Parent Volume/Folio	Registered Proprietor/s	Date	Status
			Amelia Mary Howard	09/04/1930	History

Table 3.1

3.2 Historical Aerial Photographs

A range of aerial photographs are contained within the Lotsearch report (**Appendix 2**) and described below.

Year	Observations
1950	• There is one structure in the centre of the Site. • The Site appears to be used for farming purposes. • A tributary is apparent in the south of the Site.
1962	• Trees bordering the structure in the centre of the Site have been cleared. • A dam has been constructed in the west of the Site. • No other changes.
1964	• Dam in the west of the Site has been filled. • There is a new large waterbody at the southwest of the Site which the tributary appears to drain into. • No other changes.
1970	• No change from 1964.
1978	• The waterbody at the southwest has grown larger.
1984	• A new structure (house) is visible on the southwest of the Site. • The lake has reduced in size.
1990	• No change from 1984.
2012	• The lake has increased in size. • No other changes from 1984.

3.3 Cathodic Protection Systems

A request was made through Energy Safe Victoria ('ESV') regarding the presence of Cathodic Protection Systems on Site. ESV confirmed that there are no Cathodic Protection Systems registered for the Site. The ESV response can be found in **Appendix 4.**

3.4 Waste Management Facilities

Per the Lotsearch report (**Appendix 2**), there have been no Waste Management Facilities on or within 1km of the Site.

3.5 Former Gasworks

Per the Lotsearch report (**Appendix 2**), there have been no Gasworks on or within 1km of the Site.

3.6 Dry Cleaners, Motor Garages & Service Stations

Per the Lotsearch report (**Appendix 2**), there have been no Dry Cleaners, Motor Garages & Service Stations on or within 1km of the Site.

3.7 Historical Mining Activity – Shafts

Per the Lotsearch report (**Appendix 2**), there have been no Shafts on or within 1km of the Site.

4.0 EPA RECORDS SEARCH

4.1 Current and Former EPA Priority Sites Register ('PSR') Review

Per the Lotsearch report (**Appendix 2**), no Clean Up or Pollution Abatement Notices (relevant to land and/or groundwater contamination) have been issued to the owner or occupier of the Site. There were no properties within 1km of the Site listed on the current or former PSR.

4.2 Environmental Audit Reports

Per the Lotsearch report (**Appendix 2**), there have been no previous environmental audits on Site. There have been no environmental audits conducted within 1km of the Site.

4.3 Current and Former EPA Licensed Activities

Per the Lotsearch report (**Appendix 2**), there are no current or former EPA licensed activities or works approvals on or within 1km of the Site.

4.4 EPA Works Approvals

Per the Lotsearch report (**Appendix 2**), there are no current EPA licensed works approvals for the Site or within 1km.

4.5 EPA Prescribed Waste Database

Per the Lotsearch report (**Appendix 2**), there are no listed treaters or disposers on or within 1km of the Site.

4.6 EPA Victorian Landfill Register

Per the Lotsearch report (**Appendix 2**), there are no landfills on or within 1km of the Site.

5.0 SITE INSPECTION

Land Parcel Site Inspection Details	
Date and Time of Inspection	13 February 2019, 10.00 – 11.35 am
Weather Conditions	Fine
Current Site Uses	Crops and Livestock
Previous Site Uses	Farming
Site Coverage incl. condition and type of ground cover, e.g. bare ground, bitumen, concrete, gravel, etc.	Bare ground.
Current Adjacent Land Uses incl. the apparent condition of adjacent properties	Farming, Residential and Commercial. Good condition.
Details of Structures on Site incl. location and condition of all visible features, including foundations, positions of former buildings, tanks, pits, wells, drains and bores.	One vacant house on 91-125 Coriyule Road, Curlewis. No other structures.
Process Details (in relation to previous Site use)	Nil apparent.
Details of Chemical use incl. chemical storage and transfer areas, including the presence of waste or chemical containers	Nil apparent.

Presence of above ground storage tanks	Nil apparent.
Presence of underground storage tanks	Nil apparent.
Presence of septic tanks	Nil apparent.
Water use	Town supply.
Details of waste handling	Nil apparent.
Evidence of burning of burying of waste	Nil apparent.
Spill Incidents	Nil apparent.
Spill control systems, e.g. bund (materials of construction should be noted)	Nil apparent.
Locations of dispensing or fill points	Nil apparent.
Evidence of Fill Materials	Nil apparent.
Presence of any stockpiled material	Nil apparent.
Evidence of scrap and industrial or chemical waste	Nil apparent.
Evidence of settlement, subsidence and disturbed ground	Nil apparent.
Evidence of on Site or adjacent cut and fill activities or quarrying	Nil apparent.
Evidence of Contamination (discoloured soil, polluted water, affected plant growth)	Nil apparent.
Potential Asbestos containing material	Nil apparent.
Animal populations	Livestock.
Significant odours	Nil apparent.
Assessment of soil loss or deposition that has occurred in the past and evaluation of the future erosion potential	Nil apparent.
The direction of the flow of water run-off from the Site and adjacent properties	South.
The depth of any standing water, the direction and rate of flow of rivers, streams or canals, together with their flood levels and any tidal fluctuations	Nil apparent.
Transformers	Nil apparent.

6.0 POTENTIAL CONTAMINANTS OF CONCERN

According to AS4482.1[2], the Site has the following potential contaminants of concern due to its previous land uses:

- Fertilisers – Copper, Cadmium; and
- Herbicides – Arsenic, Mercury, Organochlorines, Organophosphates.

There were no instances of Asbestos Containing Material ('ACM') observed on Site.

Preliminary Study Conclusions and Recommendations	
Conclusions	There is a Medium likelihood of chemical contamination of surface soils in the paddocks due to application of fertilisers and/or herbicides. There is a Low likelihood of contamination of soil at the Site due to industrial waste. There is a Low probability of occurrence of Acid Sulfate soils on Site. The Site is surrounded by low risk properties. There is no apparent soil staining, soil discolouration or odours at the Site. There is no apparent asbestos contamination. There is no apparent Prescribed Industrial Waste or Putrescible Waste. There is no apparent imported fill on Site.
Risk of Contamination	Based on information collected to this point, soils at the Site have a Low-Medium risk of contamination.
Recommendations	Surface soil samples from the paddocks are required to discount impacts due to fertiliser/herbicide contamination.

7.0 SOIL SAMPLING PROGRAM

This sampling program was undertaken on Site on 13 February 2019. Soil samples were collected by ESA staff from the surface soils (0-0.15m BGL) by hand auger. The auger was cleaned between samples with phosphate free detergent and rinsed with deionised water. The approximate sampling points for the Site are shown in **Appendix 5**.

Table 7.0 illustrates the samples that were collected. The soil samples that were collected consisted of:

- CLAYEY SILT: Medium Plasticity, Dark Brown, Loose, Moist.

A Photoionisation Detector ('PID') was employed to screen samples for Volatile Organic Compounds ('VOC'). The following methodology was employed:

- A sample of soil was carefully collected with minimal disturbance that could cause loss of volatile constituents;
- The sample was immediately extruded into a plastic bag and sealed;
- The sealed bag containing the sample was crushed between the fingers to disperse the sample and release volatile constituents;
- The inlet tube of the PID was then inserted through a small opening in the bag into the headspace over the sample; and
- The PID response (in ppm) was measured within 2-3 seconds and the result recorded on the field form.#

The PID calibration form is attached as **Appendix 6.**

[2] AS 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil - Non-volatile and Semi-Volatile compounds

Sample ID	Sampling Point	Depth of Sample (m BGL)	Lab Analysis	PID (PPM)/Odour
SP01/0-0.15 QC03 QC04	SP01	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP02/0-0.15	SP02	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP03/0-0.15	SP03	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP04/0-0.15	SP04	0-0.15	NEPM Suite*	0.0/Nil
SP05/0-0.15	SP05	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP06/0-0.15	SP06	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP07/0-0.15	SP07	0-0.15	NEPM Suite*	0.0/Nil
SP08/0-0.15	SP08	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP09/0-0.15	SP09	0-0.15	NEPM Suite*	0.0/Nil
SP10/0-0.15	SP10	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP11/0-0.15	SP11	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP12/0-0.15	SP12	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP13/0-0.15	SP13	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP14/0-0.15	SP14	0-0.15	NEPM Suite*	0.0/Nil
SP15/0-0.15	SP15	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil

Sample ID	Sampling Point	Depth of Sample (m BGL)	Lab Analysis	PID (PPM)/Odour
SP16/0-0.15	SP16	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP17/0-0.15	SP17	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP18/0-0.15	SP18	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP19/0-0.15	SP19	0-0.15	NEPM Suite*	0.0/Nil
SP20/0-0.15	SP20	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP21/0-0.15	SP21	0-0.15	NEPM Suite*	0.0/Nil
SP22/0-0.15	SP22	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP23/0-0.15	SP23	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
SP24/0-0.15	SP24	0-0.15	OC/OP Pesticides including Dieldrin and 15 Metals**	0.0/Nil
QC01 (Trip Blank)	N/A	N/A	TRH C6-C10 & BTEXN	N/A
QC02 (Field Blank)	SP01	N/A	OC/OP Pesticides including Dieldrin and 15 Metals**	N/A
QC05 (Rinsate Blank)	SP24	N/A	OC/OP Pesticides including Dieldrin and 15 Metals**	N/A

Table 7.0

* = 15 Metals including As, Ba, Be, B, Cd, Cr, Co, Cu, Hg, Mn, Ni, Pb, Se V, Zn, TRH (C6-C36 or 40) / BTEXN, PAH/Phenols (16 PAHs & 12 Phenols), OC/OP Pesticides Including Triazine, Pesticides (Atrazine) and Bifenthrin, PCB, Cyanide – WAD, Chromium – Hexavalent (Alkaline Leach)

** = 15 Metals including As, Ba, Be, B, Cd, Cr, Co, Cu, Hg, Mn, Ni, Pb, Se V, Zn

The following sections describe the guidelines, standards and investigation methods adopted for the soil sampling program.

7.1 Relevant Guidelines and Standards

The sampling program was undertaken in accordance with the following guidelines, standards and policies:

- 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);
- Australia Standard (AS 4482.2) - Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 2: Volatile Substances (Standards Australia, 1999);
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended); and
- State Environment Protection Policy (Prevention and Management of Contamination of Land) No. S95, EPA Victoria, June 2002.

7.2 Quality Assurance / Quality Control

7.2.1 Environmental Site Assessments Quality Assurance ('QA') Program

Environmental Site Assessments has developed and implemented a Quality Assurance Program in general accordance with the following guidelines:

- 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
- National Environment Protection Council (NEPC) - National Environment Protection (Assessment of Site Contamination) Measure (NEPM) - Schedule B3 Guideline on Laboratory Analysis of Potentially Contaminated Soils, 1999 (Amended).

As part of the Quality Assurance Program, Environmental Site Assessments ensures that the following methodology is employed:

- The use of appropriately qualified and trained environmental scientists to perform intrusive works;
- The use of standardised field sheets to record the findings of the Site investigations;
- The collection and analysis of Quality Control samples as per AS 4482.1;
- The use of Chain of Custody procedures to ensure that sample integrity is maintained through the transport and handling stages; and
- Only using NATA accredited laboratories for the analysis of samples collected during the investigation activities.

As per the Environmental Site Assessments Quality Assurance Program, the following data quality indicators were used for the assessment of the laboratory analytical data:

- All sample analysis to be conducted using NATA registered methods in accordance with NEPM 1999 (Amended) guidelines;
- Laboratory method blank analysis required to be below the Limit of Reporting (LOR); and
- Surrogate compound concentrations required to be spiked at similar concentration to sample result.

7.2.2 Environmental Site Assessments Quality Control ('QC') Program

The overall precision of field quality control samples, laboratory split samples and laboratory duplicates is generally assessed by their Relative Percentage Difference (RPD), given by:

$$\frac{(C1 - C2)\ x\ 100}{\frac{(C1 + C2)}{2}}$$

Where:

C1 is the primary sample concentration.

C2 is the duplicate sample concentration.

The Relative Percentage Difference (RPD) of duplicated analysis were calculated and compared to the following criteria for acceptability. The acceptance criteria are listed in AS4482.1 (2005):

- Less than 30-50% for field duplicates (blind replicate and split samples);
- Less than 30% for laboratory duplicates where the detection is less than 10 times the LOR;
- Less than 20% for laboratory duplicates where the detection is greater than 10 times the LOR;
- RPDs for control spike duplicates will be compared to an acceptable limit of 20%;
- RPDs for matrix spike duplicates will be compared to an acceptable limit of 20%; and

- Percentage recoveries of control spikes and matrix spikes will be compared to an acceptable range of 70% – 130%. Where this range is exceeded, reference to the laboratories internal data quality objective limits will be made. In addition, percentage recoveries of surrogates will also be compared to the USEPA surrogate recovery limits.

7.2.3 Sample Documentation

All samples collected were labelled in a clear and precise way for proper identification in the field and for tracking in the laboratory.

The samples had identifiable and unique numbers. The sample labels contained the following information:

- Company name;
- Name of sampler;
- Sample ID; and
- Date/Time sample was collected.

Chain-of-custody forms were used to document sample collection and transport to laboratories for analysis. All sample transports for analysis were accompanied by a chain-of-custody form.

The chain-of-custody forms identified the contents of each transport and maintained the custodial integrity of the samples. The coolers in which samples were stored were sealed with self-adhesive custody seals. All custody seals were signed.

7.2.4 Packaging and Transport

All sample containers were placed in a plastic cooler. The following outlines the packaging procedures that were followed for samples:

- When ice was used, it was packed in zip-locked, double plastic bags. The drain plug of the cooler was sealed with fiberglass tape to prevent melting ice from leaking out of the cooler;
- The bottom of the cooler was lined with bubble wrap to prevent breakage during transport;
- All glass sample containers were enclosed in bubble wrap to prevent breakage;
- Where required, empty space in the cooler was filled with bubble wrap to prevent movement and breakage during transport;
- Ice used to cool samples was placed on top and around the samples to chill them to the correct temperature; and
- Each cooler was securely taped shut with signed custody seals.

7.2.5 Field Notes

The following information was recorded during the collection of each sample:

- Sample location and description;
- Sampling area sketch showing sample location and measured distances (where required);
- Sampler's name(s);
- Date and time of sample collection;
- Sample ID;
- Type of soil/material encountered (Fill, Natural etc.);
- PID readings;
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odours, colours etc.);
- Soil descriptions as per AS1726-1993; and
- Sample preservation details.

In addition to the sampling information, the following specific information was also recorded in the field logbook:

- Team members and their responsibilities;
- Time of arrival/entry on Site and time of Site departure;
- Other personnel on Site;
- Summary of any meetings or discussions;
- Deviations from sampling plans;
- Changes in personnel and responsibilities with reasons for the changes; and
- Calibration readings for any equipment used and equipment model and serial number.

7.3 Results of Analysis

Investigation levels and **screening levels** are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required.

Investigation and screening levels provide the basis of Tier 1 risk assessment. A Tier 1 assessment is a risk-based analysis comparing Site data with generic investigation and screening levels for various land uses to determine the need for further assessment or development of an appropriate management strategy. The application of investigation and screening levels is subject to a range of limitations.

Health investigation levels ('HILs') have been developed for a broad range of metals and organic substances. The HILs are applicable for assessing human health risk via all relevant pathways of exposure. The HILs are generic to all soil types and apply generally to a depth of 3m below the surface for residential use. Site-specific conditions should determine the depth to which HILs apply for other land uses.

Health screening levels ('HSLs') have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via the inhalation and direct contact pathways. The HSLs depend on specific soil physicochemical properties, land use scenarios, and the characteristics of building structures. They apply to different soil types, and depths below surface to >4m.

Ecological screening levels ('ESLs') have been developed for selected petroleum hydrocarbon compounds and total petroleum hydrocarbon (TPH) fractions and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse- and fine-grained soils and various land uses. They are generally applicable to the top 2m of soil.

Petroleum hydrocarbon management limits (**'management limits'**) are applicable to petroleum hydrocarbon compounds only. They are applicable as screening levels following evaluation of human health and ecological risks and risks to groundwater resources. They are relevant for operating Sites where significant sub-surface leakage of petroleum compounds has occurred and when decommissioning industrial and commercial Sites.

The laboratories used for conducting the soil analysis were Australian Laboratory Services Pty Ltd ('ALS') and Eurofins MGT ('MGT'). Both ALS and MGT are NATA certified for the analysis undertaken.

The comparison tables for laboratory results are attached in **Appendix 7**. All chain of custody forms, certificates of analysis and laboratory QA/QC documents are in **Appendix 8.** The laboratory report numbers are EM1902040 & 640789.

The laboratory results were compared with NEPM 1999 (Amended) guidelines for HIL A, HSL A/B, ESLs (Urban Residential) and Management Limits (Residential/Parkland).

<u>The comparison results were as follows:</u>

- There were no results in excess of NEPM HIL A, HSL A/B, ESLs (Urban Residential) and Management Limits (Residential/Parkland) upper thresholds.

As per the Ministerial Direction No. 1, the Site is suitable for a sensitive use (defined as residential, child-care centre, pre-school centre or primary school), agriculture or public open space.

7.4 Laboratory QA/QC

As part of their NATA accreditation, ALS and MGT perform internal duplicate analysis of samples for comparison of results to demonstrate precision. Laboratory standards including matrix spike samples, laboratory control samples and surrogates are also conducted as a basis to demonstrate accuracy. In addition, internal laboratory blank samples are run to assess the potential for laboratory equipment errors. The laboratory QA/QC results are attached in **Appendix 8.**

7.4.1 ALS Environmental Laboratory

- For all matrices, no Method Blank value outliers occur.
- For soil, Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For soil, Matrix Spike outliers occur.
- For all matrices, no Surrogate Recovery outliers occur.

7.4.2 Eurofins MGT Laboratory

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

- For all matrices, no Matrix Spike outlier occur.
- For all matrices, no Surrogate Recovery outliers occur.

7.4.3 Sample Holding Times and Sample Receipt Temperature

Sample holding times were within acceptable ranges from collection to extraction. The documented temperature of samples upon receipt at the respective laboratory was within an acceptable range.

7.4.4 Conclusion

A review of the laboratory reports indicates that ALS and MGT have met their internal acceptance criteria for the quality control samples.

7.5 Field Quality Control Samples

7.5.1 Blind Replicate and Split samples

The relative percentage difference was calculated for the blind (QC03) and split samples (QC04). The comparison table is attached to **Appendix 7.**

For the blind sample there were no RPD exceedances.

For the split sample there were no RPD exceedances.

7.5.2 Trip, Field and Rinsate Blanks

Trip blanks (QC01) evaluate if the transport and handling procedures are introducing contaminants into the samples, and if cross contamination in the form of VOC migration has occurred between the collected samples. Field blanks (QC02) evaluate whether contaminants have been introduced into the samples during the sampling due to contamination from sample containers. Equipment rinsate blanks (QC05) evaluate field sampling and decontamination procedures.

Analysis of these quality control samples indicate that transport and handling, sample containers and decontamination procedures have not resulted in cross-contamination of the collected soil samples. The table of results is attached in **Appendix 7.**

There were no analyte levels greater than the limit of reporting ('LOR').

8.0 REFERENCES

- Ministerial Direction No. 1 – Potentially Contaminated Land ('Direction No. 1')
- National Environment Protection Council 1999 (As Amended) - National Environment Protection (Assessment of Site Contamination) Measure – Guideline on Investigation Levels for Soil and Groundwater.
- Standards Australia. 2005. AS 4482.1, Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile compounds. Standards Association of Australia
- Standards Australia. 1999. AS4482.1, Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances. Standards Association of Australia

DISCLAIMER

This disclaimer, together with any limitations specified in the report, applies to use of this report.

This report was prepared in accordance with a contracted scope of services. There were a series of cost, time and other constraints which have affected the accuracy and completeness of investigations undertaken.

This report has been prepared solely for use by, and is confidential to; the client who contracted the scope of services and Environmental Site Assessments accepts no responsibility for its use by other persons.

The contract for the preparation of this report contains express limitations upon the liability of Environmental Site Assessments which should be considered carefully. This report is subject to copyright protection and the copyright owner reserves its rights. This report does not constitute legal advice.

This report must be read in conjunction with the Statement of Qualifications and Limitations contained within it.

STATEMENT OF QUALIFICATIONS AND LIMITATIONS

It is not possible to identify all contamination or potential contaminants in or under the surface of the Site. This is an intrinsic risk when investigating potentially and contaminated Sites. As such, Environmental Site Assessments has prepared the following information which details the limitations of this environmental report.

In preparing this report, Environmental Site Assessments has relied on client/ third party information which was not verified by Environmental Site Assessments and Environmental Site Assessments does not accept responsibility for omissions or inaccuracies in the client/ third party information.

This report is based solely on the specific instructions received from its client and/or the scope of work agreed between Environmental Site Assessments and its client. Those instructions and/or scope of work may not be fully described in this report.

This report is based on the Site conditions identified at the time of inspection. It is not possible to identify all contamination or potential contaminants in or under the surface of the Site.

Investigations undertaken in respect of this report may have been constrained by the particular Site conditions, such as the location of buildings, services and vegetation. Further, changes that may have occurred after inspection.

As a result of these matters, not all relevant Site history, contaminants or potential for contamination may have been identified in this report. No warranties express or implied, as to the accuracy or completeness of the matters contained within it are made.

Although normal standards of professional practice have been applied, the absence of any identified potential for air, soil or groundwater impacts on the subject property should not be interpreted as a conclusion that impacts do not exist on the Site.

Subsurface conditions can vary across a particular Site, which cannot be wholly defined by investigation.

As a result, it is unlikely that the results and estimations presented in this report will reflect the extremes of conditions within the Site. Subsurface conditions including impact concentrations can change in a limited period of time. Any information provided may be based on "spot" tests. Conditions may vary between or beyond those locations from the interpreted conditions based on the actual data.

The analyses, evaluations, opinions and conclusions presented in this report are based on the information provided, and they could change if the information is in fact found to be unrepresentative of conditions between sampling and analysis locations.

The assessment and remediation of contamination is a developing science. Clean Up technology is constantly changing as scientific information on data collection, risk assessment, toxicology and remediation technologies are published. Further, opinions can vary as to the criterion for whether particular conditions constitute contamination, and if so how that contamination should be addressed or remediated. Different persons might reasonably or otherwise form opinions different to those of Environmental Site Assessments.

Use of the Site for any purpose may require planning and other approvals and, in some cases, EPA and accredited Site auditor approvals. Environmental Site Assessments offers no opinion as to the likelihood of obtaining any such approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for significant environment works.

The ongoing use of the Site or use of the Site for a different purpose may require the owner/ user to manage and/ or remediate Site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report. This report is not intended to be used for the purposes of tendering, programming of works, refurbishment works or demolition works unless used in conjunction with a specification detailing the extent of the works.

To ensure its contextual integrity, the report must be read in its entirety and should not be copied, distributed or referred to in part only. Environmental Site Assessments makes no determination or recommendation regarding a decision whether to acquire or provide financing with respect to the Site.

Environmental Site Assessments

Appendix 1: Property Reports

Property Report from www.land.vic.gov.au on 19 December 2018 12:03 PM

Address: 32-70 MCDERMOTT ROAD CURLEWIS 3222
Lot and Plan Number: This property has 2 parcels. See table below.
Standard Parcel Identifier (SPI): See table below.
Local Government (Council): GREATER GEELONG **Council Property Number:** 256372
Directory Reference: Melway 456 B10

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply. Planning provisions may apply.

Further information about the building control system and building in bushfire prone areas can be found in the Building Commission section of the Victorian Building Authority website www.vba.vic.gov.au

Parcel Details

Lot/Plan or Crown Description	SPI
Lot 9 LP10309	9\LP10309
Lot 10 LP10309	10\LP10309

State Electorates

Legislative Council: WESTERN VICTORIA
Legislative Assembly: BELLARINE

Utilities

Rural Water Corporation: Southern Rural Water
Urban Water Corporation: Barwon Water
Melbourne Water: outside drainage boundary
Power Distributor: POWERCOR (Information about choosing an electricity retailer)

Planning Zone Summary

Planning Zone: FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE (FZ)
Planning Overlay: None
Areas of Aboriginal Cultural Heritage Sensitivity:
All or part of this property is an 'area of cultural heritage sensitivity'.

Planning information continued on next page

Land .vic.gov.au

Planning scheme data last updated on 11 December 2018.

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 Planning Schemes Online

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

The Planning Property Report includes separate maps of zones and overlays

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 Planning Maps Online

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

Heritage Register data last updated on 26 November 2018.

This report is NOT a **Heritage Certificate** issued pursuant to Section 50 of the Heritage Act 1995.
It does not show places which may be under consideration for inclusion in the Victorian Heritage Register.

For more information on the **Victorian Heritage Register** go to Victorian Heritage Database

Other information about the heritage status of this property, how to obtain a Heritage Certificate, and any heritage approvals that may be required, may be obtained from Heritage Victoria

Areas of Aboriginal Cultural Heritage Sensitivity

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

If a significant land use change is proposed (for example, a subdivision into 3 or more lots), a cultural heritage management plan may be triggered. One or two dwellings, works ancillary to a dwelling, services to a dwelling, alteration of buildings and minor works are examples of works exempt from this requirement.

Under the Aboriginal Heritage Act 2006, where a cultural heritage management plan is required, planning permits, licences and work authorities cannot be issued unless the cultural heritage management plan has been approved for the activity.

For further information about whether a Cultural Heritage Management Plan is required go to http://www.aav.nrms.net.au/aavQuestion1.aspx

More information, including links to both the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2018, can also be found here - https://www.vic.gov.au/aboriginalvictoria/heritage/planning-and-heritage-management-processes.html

Area Map

PLANNING PROPERTY REPORT

From www.planning.vic.gov.au on 19 December 2018 12:03 PM

PROPERTY DETAILS

Address:	**32-70 MCDERMOTT ROAD CURLEWIS 3222**
Lot and Plan Number:	**Lot 9 LP10309**
Standard Parcel Identifier (SPI):	**9\LP10309**
Local Government Area (Council):	**GREATER GEELONG** www.geelongaustralia.vic.gov.au
Council Property Number:	**256372**
Planning Scheme:	**Greater Geelong** planning-schemes.delwp.vic.gov.au/schemes/greatergeelong
Directory Reference:	**Melway 456 B10**

This property has 2 parcels. For full parcel details get the free Basic Property report at Property Reports

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Urban Water Corporation:	**Barwon Water**
Melbourne Water:	**outside drainage boundary**
Power Distributor:	**POWERCOR**

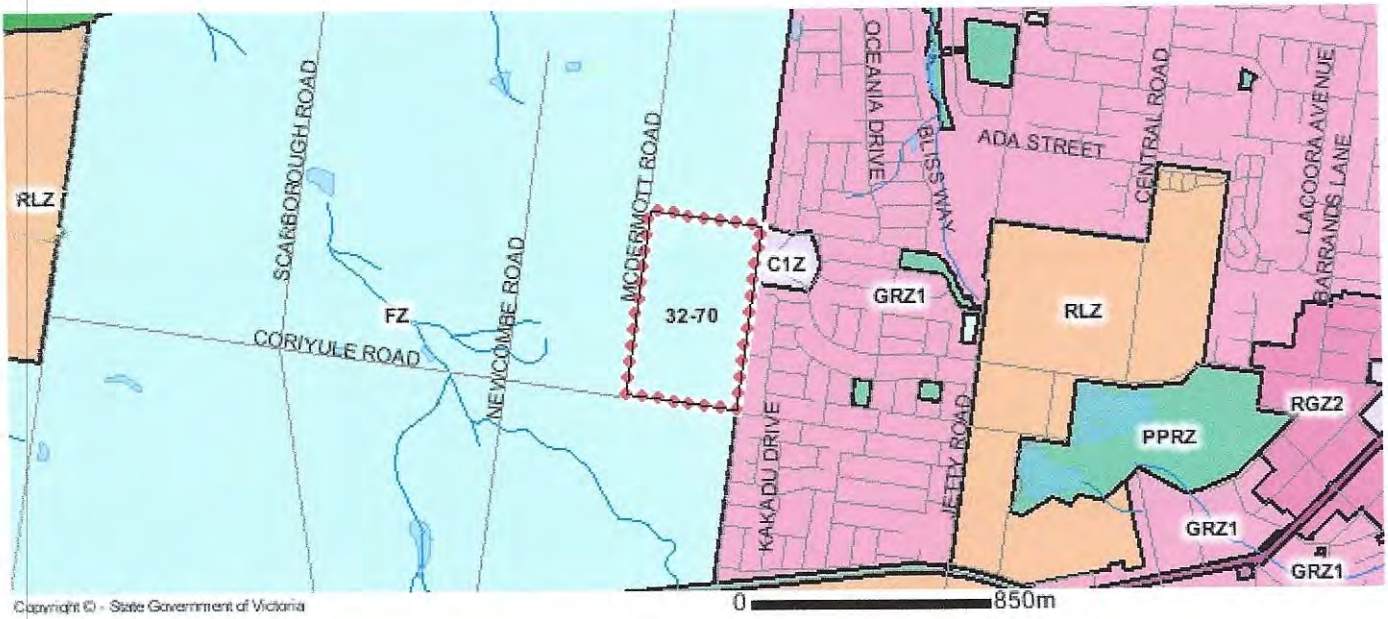
STATE ELECTORATES

Legislative Council:	**WESTERN VICTORIA**
Legislative Assembly:	**BELLARINE**

Planning Zones

FARMING ZONE (FZ)

SCHEDULE TO THE FARMING ZONE (FZ)



C1Z - Commercial 1
C2Z - Commercial 2
FZ - Farming
GRZ - General Residential
PCRZ - Public Conservation & Resource
PPRZ - Public Park & Recreation
PUZ1 - Public Use - Service & Utility
RDZ1 - Road - Category 1
RGZ - Residential Growth
RLZ - Rural Living

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

PLANNING PROPERTY REPORT

Planning Overlay

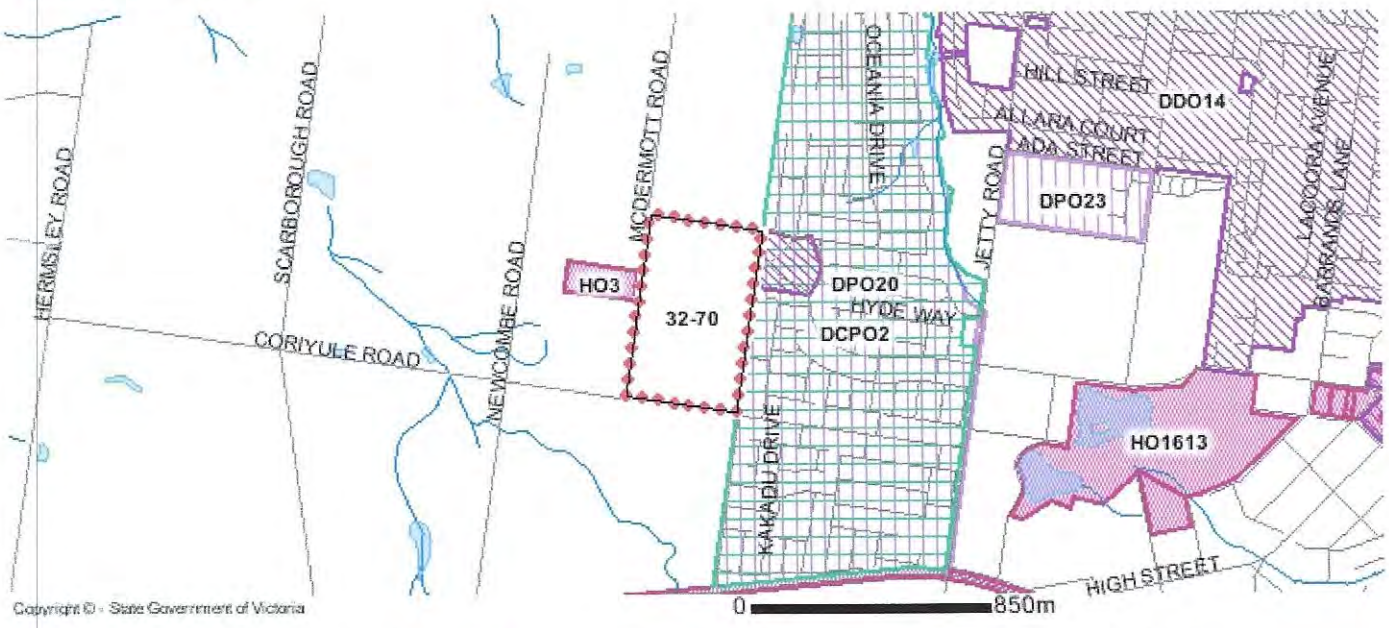
None affecting this land - there are overlays in the vicinity

DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY (DCPO)

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DEVELOPMENT PLAN OVERLAY (DPO)

HERITAGE OVERLAY (HO)



DCPO - Development Contributions Plan

DDO - Design and Development

DPO - Development Plan

HO - Heritage

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend.

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Areas of Aboriginal Cultural Heritage Sensitivity

All or part of this property is an 'area of cultural heritage sensitivity'.

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

If a significant land use change is proposed (for example, a subdivision into 3 or more lots), a cultural heritage management plan may be triggered. One or two dwellings, works ancillary to a dwelling, services to a dwelling, alteration of buildings and minor works are examples of works exempt from this requirement.

Under the Aboriginal Heritage Act 2006, where a cultural heritage management plan is required, planning permits, licences and work authorities cannot be issued unless the cultural heritage management plan has been approved for the activity.

For further information about whether a Cultural Heritage Management Plan is required go to http://www.aav.nrms.net.au/aavQuestion1.aspx

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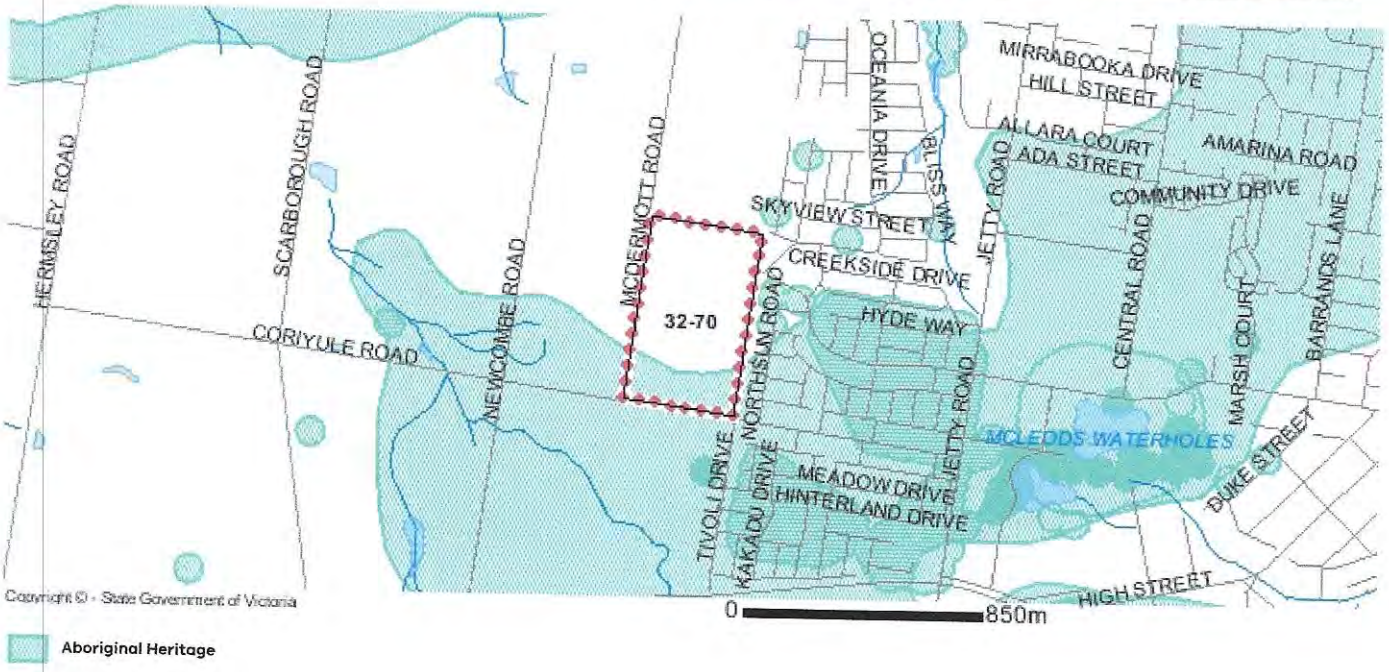

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Further Planning Information

Planning scheme data last updated on 11 December 2018.

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

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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 http://mapshare.maps.vic.gov.au/vicplan

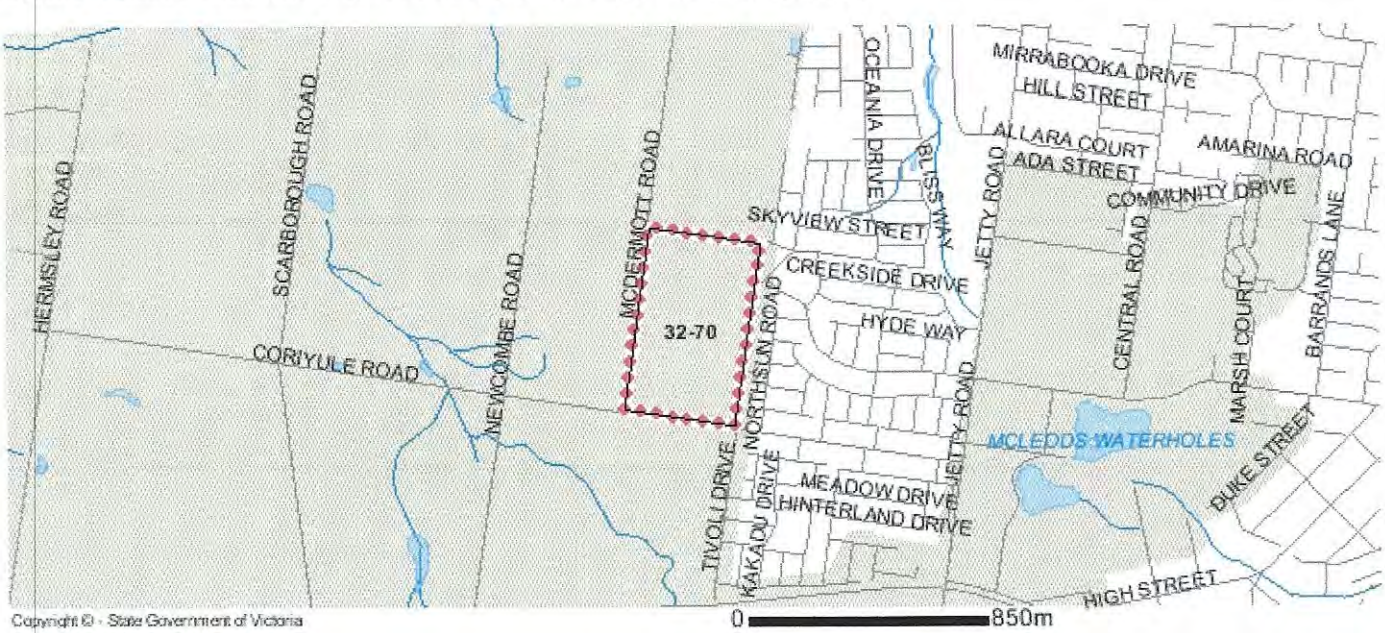
For other information about planning in Victoria visit https://www.planning.vic.gov.au

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Designated Bushfire Prone Area

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply. Planning provisions may apply.



Copyright © - State Government of Victoria

Designated Bushfire Prone Area

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 http://mapshare.maps.vic.gov.au/vicplan 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 www.vba.vic.gov.au

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

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

Property Report from www.land.vic.gov.au on 19 December 2018 12:04 PM

Address: 91-125 CORIYULE ROAD CURLEWIS 3222
Lot and Plan Number: Lot 1 TP198964
Standard Parcel Identifier (SPI): 1\TP198964
Local Government (Council): GREATER GEELONG **Council Property Number:** 267421
Directory Reference: Melway 456 C10

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply. Planning provisions may apply.

Further information about the building control system and building in bushfire prone areas can be found in the Building Commission section of the Victorian Building Authority website www.vba.vic.gov.au

State Electorates

Legislative Council: WESTERN VICTORIA
Legislative Assembly: BELLARINE

Utilities

Rural Water Corporation: Southern Rural Water
Urban Water Corporation: Barwon Water
Melbourne Water: outside drainage boundary
Power Distributor: POWERCOR (Information about choosing an electricity retailer)

Planning Zone Summary

Planning Zone: FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE (FZ)
Planning Overlay: None
Areas of Aboriginal Cultural Heritage Sensitivity:
All or part of this property is an 'area of cultural heritage sensitivity'.

Planning information continued on next page

Land
.vic.gov.au

Planning scheme data last updated on 11 December 2018.

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 Planning Schemes Online

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the *Planning and Environment Act 1987.*
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To obtain a Planning Certificate go to Titles and Property Certificates

The Planning Property Report includes separate maps of zones and overlays

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 Planning Maps Online

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

Areas of Aboriginal Cultural Heritage Sensitivity

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

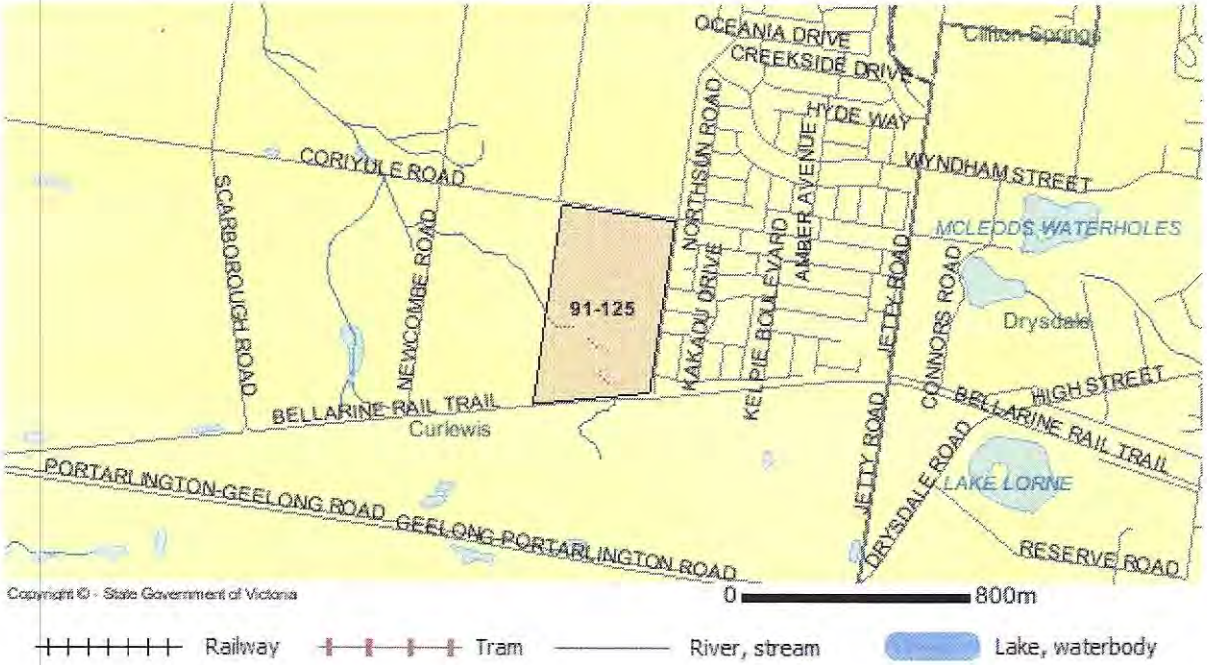
If a significant land use change is proposed (for example, a subdivision into 3 or more lots), a cultural heritage management plan may be triggered. One or two dwellings, works ancillary to a dwelling, services to a dwelling, alteration of buildings and minor works are examples of works exempt from this requirement.

Under the Aboriginal Heritage Act 2006, where a cultural heritage management plan is required, planning permits, licences and work authorities cannot be issued unless the cultural heritage management plan has been approved for the activity.

For further information about whether a Cultural Heritage Management Plan is required go to http://www.aav.nrms.net.au/aavQuestion1.aspx

More information, including links to both the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2018, can also be found here - https://www.vic.gov.au/aboriginalvictoria/heritage/planning-and-heritage-management-processes.html

Area Map



PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

From www.planning.vic.gov.au on 19 December 2018 12:04 PM

PROPERTY DETAILS

Address:	**91-125 CORIYULE ROAD CURLEWIS 3222**
Lot and Plan Number:	**Lot 1 TP198964**
Standard Parcel Identifier (SPI):	**1\TP198964**
Local Government Area (Council):	**GREATER GEELONG** www.geelongaustralia.vic.gov.au
Council Property Number:	**267421**
Planning Scheme:	**Greater Geelong** planning-schemes.delwp.vic.gov.au/schemes/greatergeelong
Directory Reference:	**Melway 456 C10**

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Urban Water Corporation:	**Barwon Water**
Melbourne Water:	**outside drainage boundary**
Power Distributor:	**POWERCOR**

STATE ELECTORATES

Legislative Council:	**WESTERN VICTORIA**
Legislative Assembly:	**BELLARINE**

Planning Zones

FARMING ZONE (FZ)

SCHEDULE TO THE FARMING ZONE (FZ)

C1Z - Commercial 1
C2Z - Commercial 2
FZ - Farming
GRZ - General Residential
PPRZ - Public Park & Recreation
PUZ1 - Public Use - Service & Utility
PUZ4 - Public Use - Transport
RDZ1 - Road - Category 1
RGZ - Residential Growth
RLZ - Rural Living
SUZ - Special Use

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

PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

Planning Overlay

None affecting this land - there are overlays in the vicinity

DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY (DCPO)

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DEVELOPMENT PLAN OVERLAY (DPO)

HERITAGE OVERLAY (HO)

PUBLIC ACQUISITION OVERLAY (PAO)

VEGETATION PROTECTION OVERLAY (VPO)

DCPO - Development Contributions Plan

DDO - Design and Development

DPO - Development Plan

HO - Heritage

PAO - Public Acquisition

VPO - Vegetation Protection

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend.

PLANNING PROPERTY REPORT

Areas of Aboriginal Cultural Heritage Sensitivity

All or part of this property is an 'area of cultural heritage sensitivity'.

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

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More information, including links to both the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2018, can also be found here - https://www.vic.gov.au/aboriginalvictoria/heritage/planning-and-heritage-management-processes.html

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Further Planning Information

Planning scheme data last updated on 11 December 2018.

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

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PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

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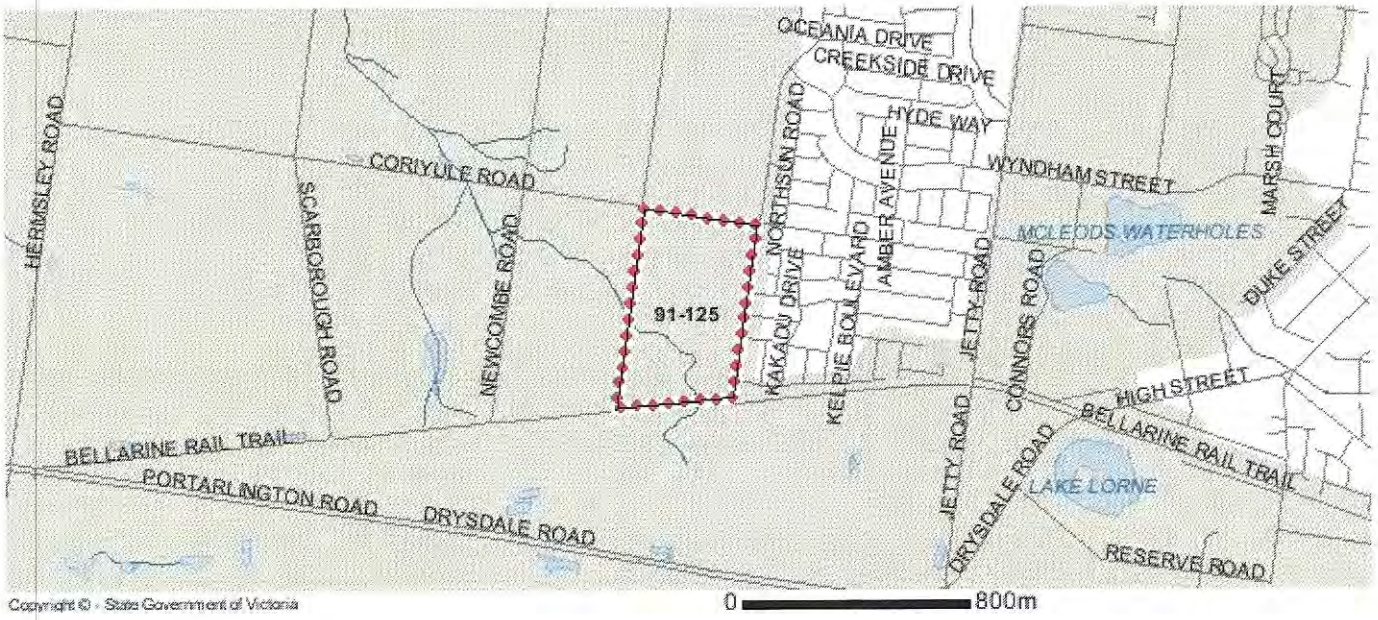

Designated Bushfire Prone Area

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Designated bushfire prone areas maps can be viewed on VicPlan at http://mapshare.maps.vic.gov.au/vicplan 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 www.vba.vic.gov.au

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

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

Environmental Site Assessments

Appendix 2: Lotsearch Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: 32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Date: 19 Dec 2018 16:18:00

Reference: LS004828 EP

Table of Contents

Location Confidences 2
Dataset Listings 3
Site Location Aerial 5
Topographic Features 6
Elevation Contours 7
EPA Records 8
Waste Management Facilities 12
Former Gasworks 13
Historical Business Activities 14
Historical Aerial Imagery & Maps 18
Features of Interest 31
Hydrogeology & Groundwater 33
Groundwater Boreholes 35
Historical Mining Activity 40
Geology 41
Soil Types 44
Acid Sulfate Soils 48
Planning Zones 51
Planning Overlays 53
Heritage 55
Natural Hazards 59
Ecological Constraints 62
Terms & Conditions 68

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 confidence is given under the field heading “LocConf” or “Location Confidence”.

Location Confidence	Description
Premise Match	Georeferenced to the site location / premise or part of site
Area 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
Buffered Point	Feature is a buffered point
Network of Features	Georeferenced to a network of features

Dataset Listing

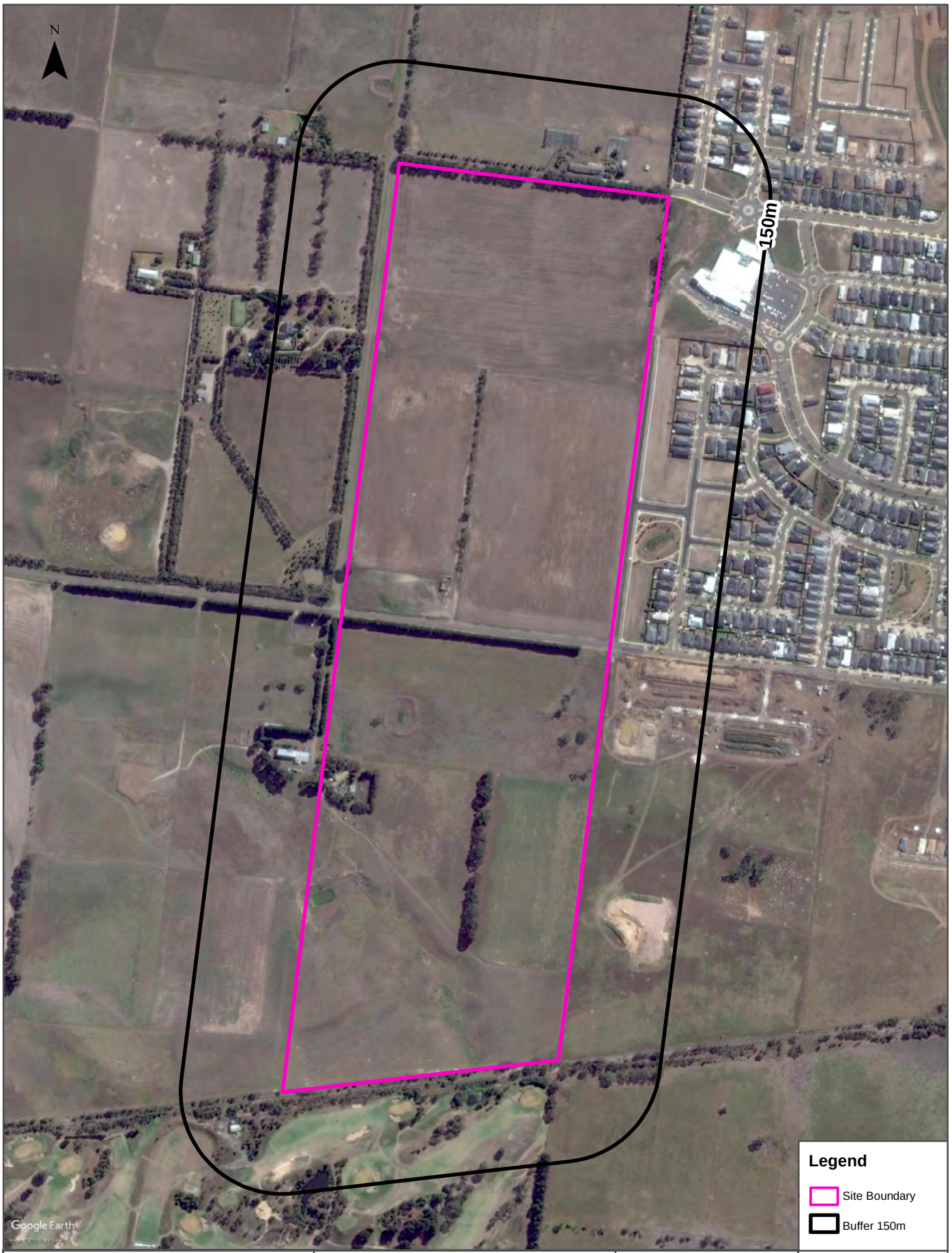
Datasets contained within this report, detailing their source and data currency:

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	08/10/2018	08/10/2018	Quarterly	-	-	-	-
Current Priority Sites	Environment Protection Authority (Vic)	17/12/2018	31/10/2018	Monthly	1000	0	0	0
Former Priority Sites & other Pollution Notices	Environment Protection Authority (Vic)	19/11/2018	19/10/2018	Monthly	1000	0	0	0
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	17/12/2018	17/12/2018	Monthly	1000	0	0	0
Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	17/12/2018	17/12/2018	Monthly	1000	0	0	0
Licensed Activities	Environment Protection Authority (Vic)	18/12/2018	18/12/2018	Monthly	1000	0	0	0
Former Licensed Activities	Environment Protection Authority (Vic)	18/12/2018	18/12/2018	Monthly	1000	0	0	0
Works Approvals	Environment Protection Authority (Vic)	17/12/2018	17/12/2018	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	06/11/2018	07/03/2017	Quarterly	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)	23/10/2018	23/10/2018	Quarterly	1000	0	0	0
EPA Victorian Landfill Register	Environment Protection Authority (Vic)	04/12/2018	04/12/2018	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
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1960-62 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1960-62 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	12/10/2018	12/10/2018	Quarterly	1000	1	3	24
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	3	-	-
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	-	-

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	30/10/2018	01/10/2018	Quarterly	2000	1	1	12
Groundwater Boreholes Earth Resources Database	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	27/07/2018	17/02/2010	As required	2000	0	0	2
Groundwater Boreholes Fed Uni	Federation University Australia	21/12/2017	07/01/2014	As required	2000	1	1	12
Historical Mining Activity - Shafts	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	18/10/2018	20/07/2018	As required	1000	0	0	0
Geological Units 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	2	-	3
Geological Structures 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	0	-	0
Dykes and Marker Beds 50k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	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	CSIRO	19/05/2017	17/02/2011	As required	1000	1	1	2
Victorian Soil Type Mapping	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	24/08/2017	21/03/2016	Unknown	1000	2	2	4
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	3
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	04/12/2018	28/11/2018	Monthly	1000	1	6	17
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	04/12/2018	28/11/2018	Monthly	1000	0	6	12
Victorian Heritage Register	State Government Victoria - Department of Environment, Land, Water & Planning	12/10/2018	12/10/2018	Quarterly	1000	0	1	1
Cultural Heritage Sensitivity	State Government Victoria - Department of Planning and Community Development	12/10/2018	12/10/2018	Quarterly	1000	2	6	24
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	12/10/2018	16/05/2018	Quarterly	1000	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	12/10/2018	28/06/2018	Quarterly	1000	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	12/10/2018	18/11/2014	Quarterly	1000	0	0	1
Victorian Coastal Inundation Sea Level Rise	Department of Environment, Land, Water & Planning	10/04/2018	24/10/2017	Unknown	1000	0	0	8
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	2
Ramsar Wetlands	State Government Victoria - Department of Environment, Land, Water & Planning	28/03/2017	24/06/2013	None planned	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	1	1	3
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	2	3	5

Aerial Imagery 2017

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

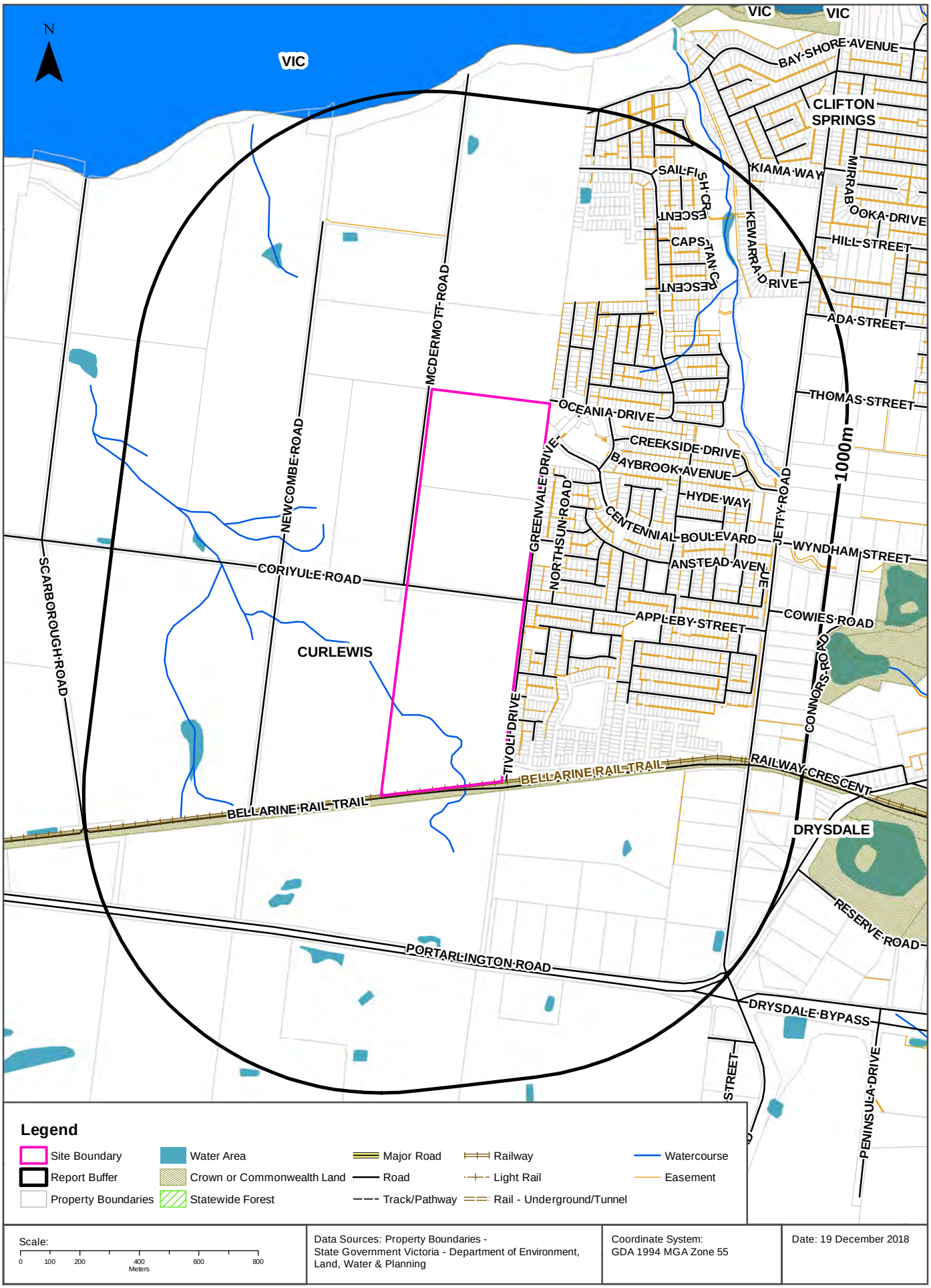


Scale:	Data Source Aerial Imagery: © 2018 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 55	Date: 19 December 2018

0 100 200 400
Meters

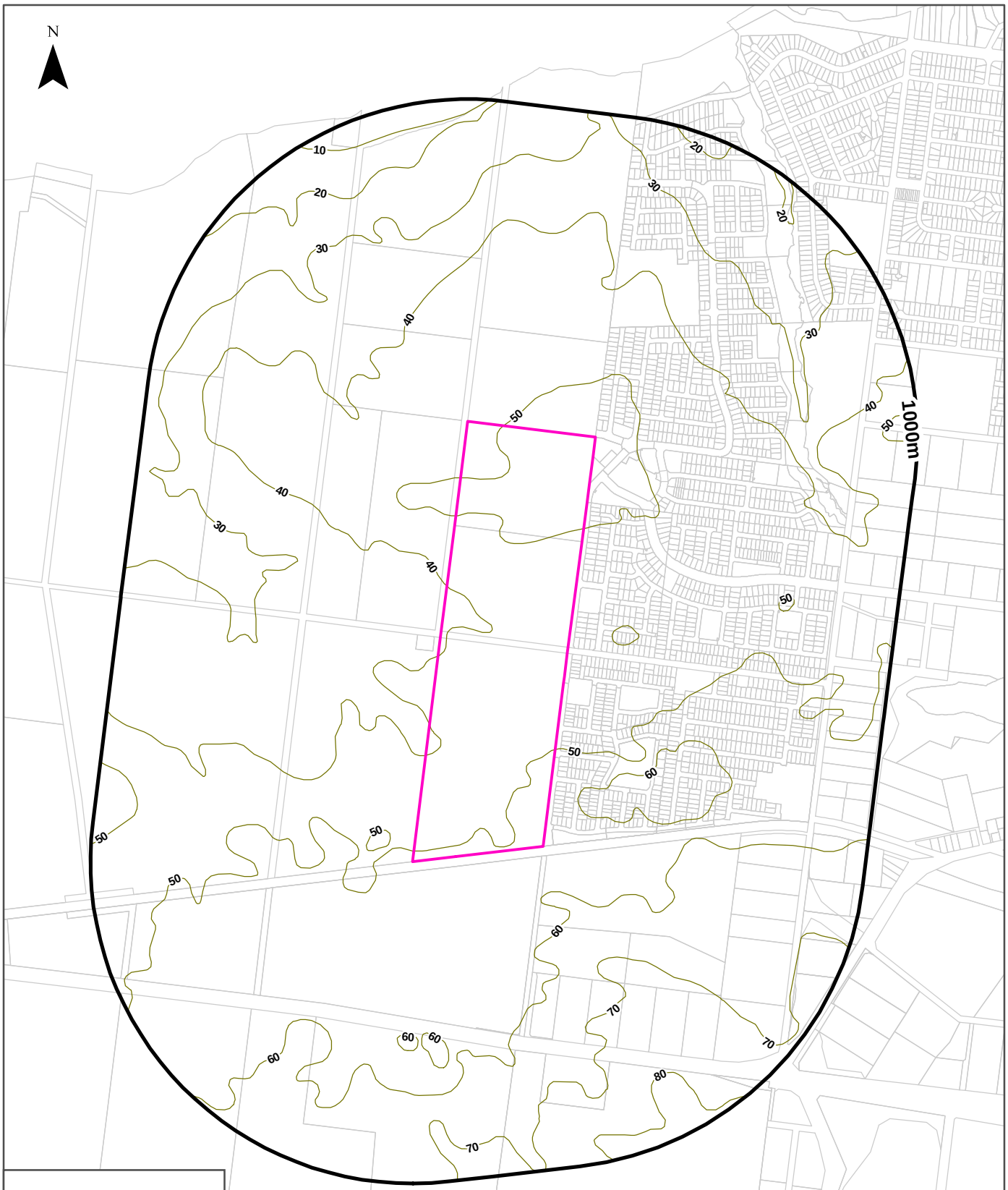
Topographic Data

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



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

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Accuracy & Currency: This 10m interval contour data was originally captured in 1974 at 1:25,000 scale. The accuracy of this data means that it must not be used for any design or engineering works, but only as a general guide to topography.The planimetric accuracy is that not more than 10% of well-defined points will be in error more than 16m, with a worse case scenario of +/- 30m. For vertical positional accuracy of points determined from contours there is an expectation that the elevation accuracy (standard deviation) will be half the value of the contour interval.

Scale: 0 100 200 400 600 800 Meters	Data Sources: Property Boundaries - State Government Victoria - Department of Environment, Land, Water & Planning	Coordinate System: GDA 1994 MGA Zone 55	Date: 19 December 2018

EPA Records

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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)

EPA Records

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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	Loc Conf	Distance	Direction
N/A	No records in buffer							

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

EPA Records

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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	Loc Conf	Distance	Direction
N/A	No records in buffer						

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

EPA Records

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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

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)

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

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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

Historical Business Directories

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

1970 Business Directory Records
Premise or Road Intersection Matches

Records from the 1970 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1970 Business Directory Records
Road or Area Matches

Records from the 1970 UBD Business Directory, 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:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

1960-62 Business Directory Records
Premise or Road Intersection Matches

Records from the 1960-62 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Directory	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1960-62 Business Directory Records
Road or Area Matches

Records from the 1960-62 UBD Business Directory, 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:

Business Activity	Premise	Ref No.	Directory	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

1950 Business Directory Records
Premise or Road Intersection Matches

Records from the 1950 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Records
Road or Area Matches

Records from the 1950 UBD Business Directory, 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:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

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

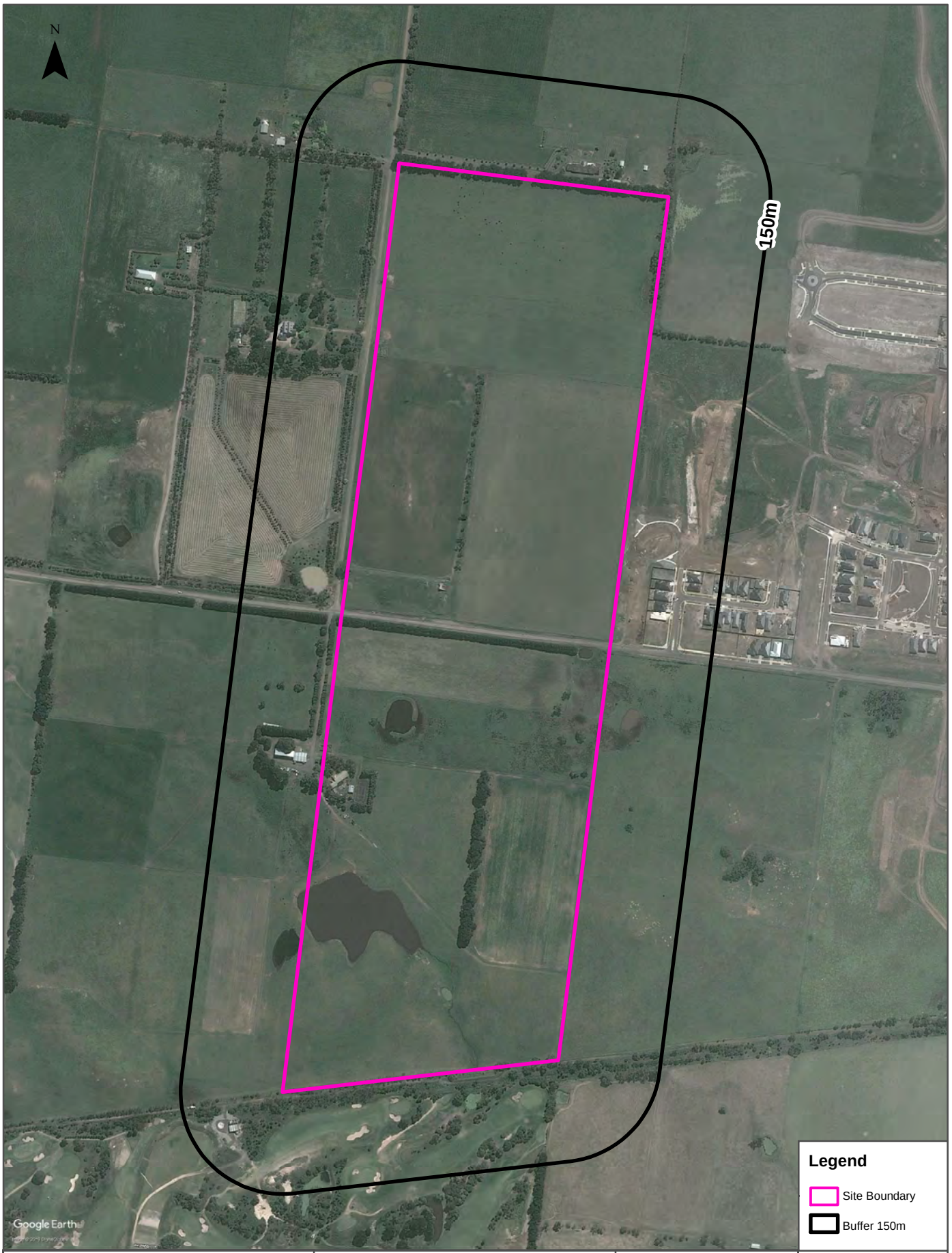
Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Aerial Imagery 2012

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Scale:
0 100 200 400
Meters

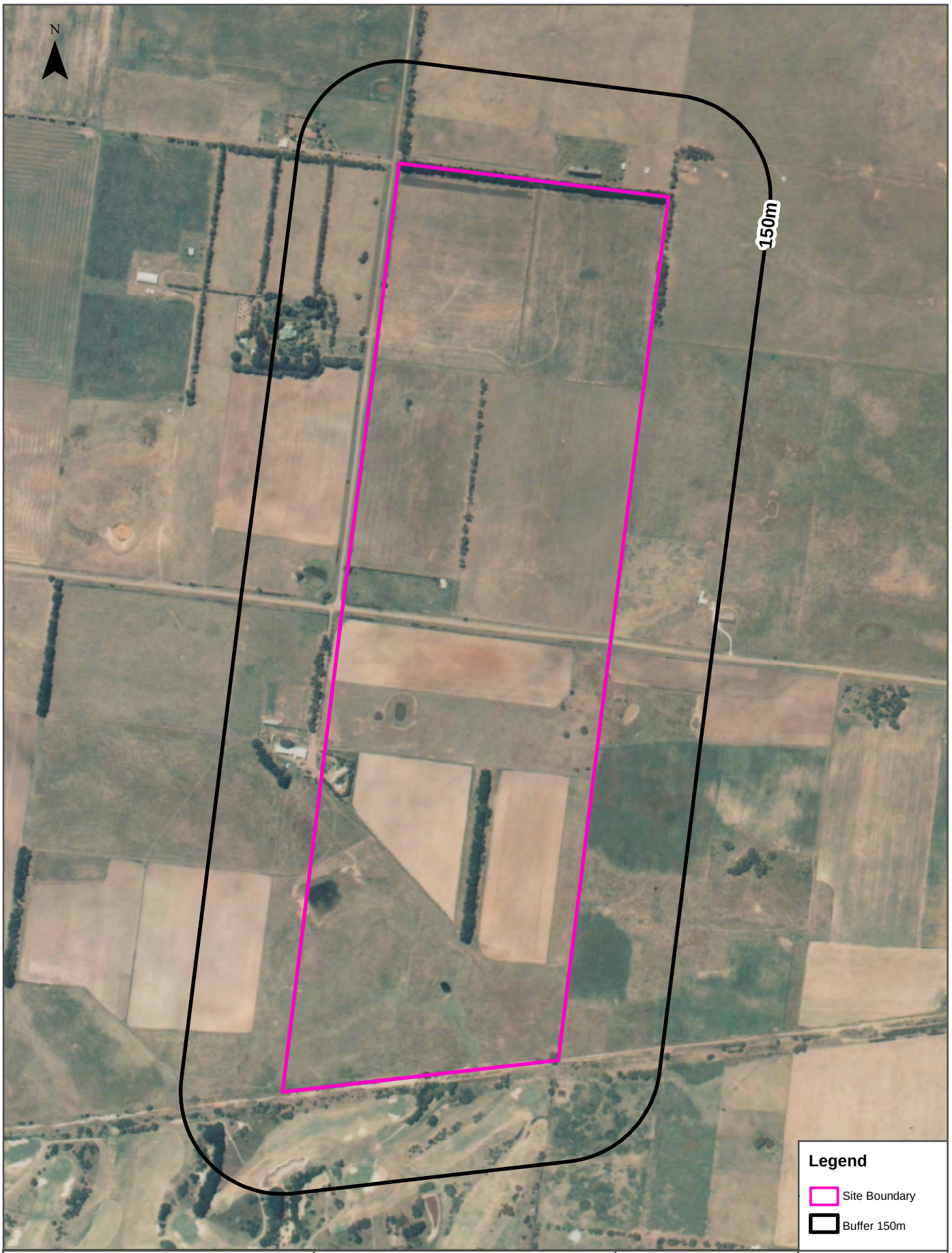
Data Source Aerial Imagery: © 2018 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 19 December 2018

Aerial Imagery 1990

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Aerial Imagery 1984

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 20 December 2018
0 100 200 400 Meters	© Department of Environment, Land, Water and Planning (Vicmap Topographic Mapping Program)	GDA 1994 MGA Zone 55	

Aerial Imagery 1984

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Aerial Imagery 1978

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Aerial Imagery 1970

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Aerial Imagery 1964

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Aerial Imagery 1962

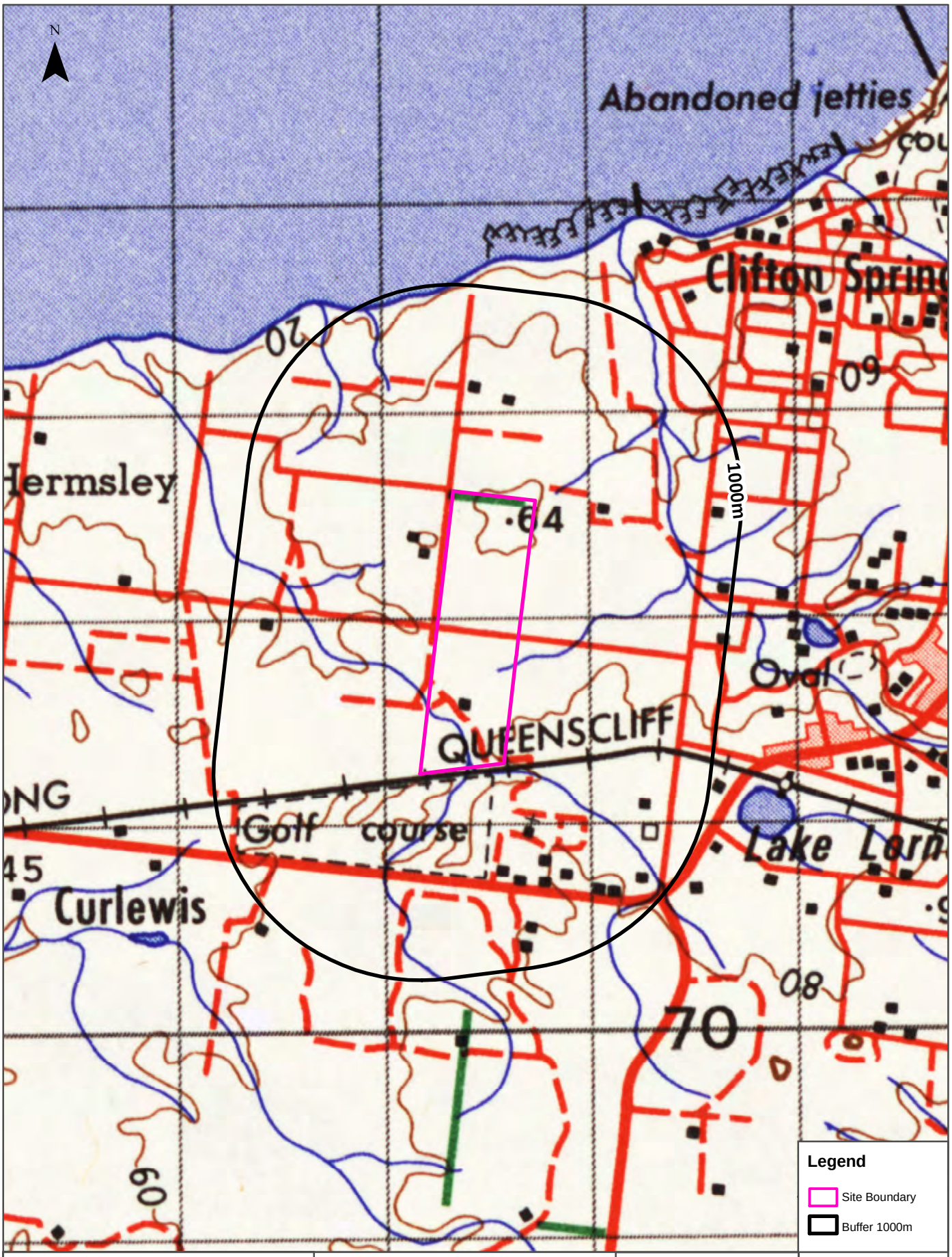
32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Aerial Imagery 1950

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

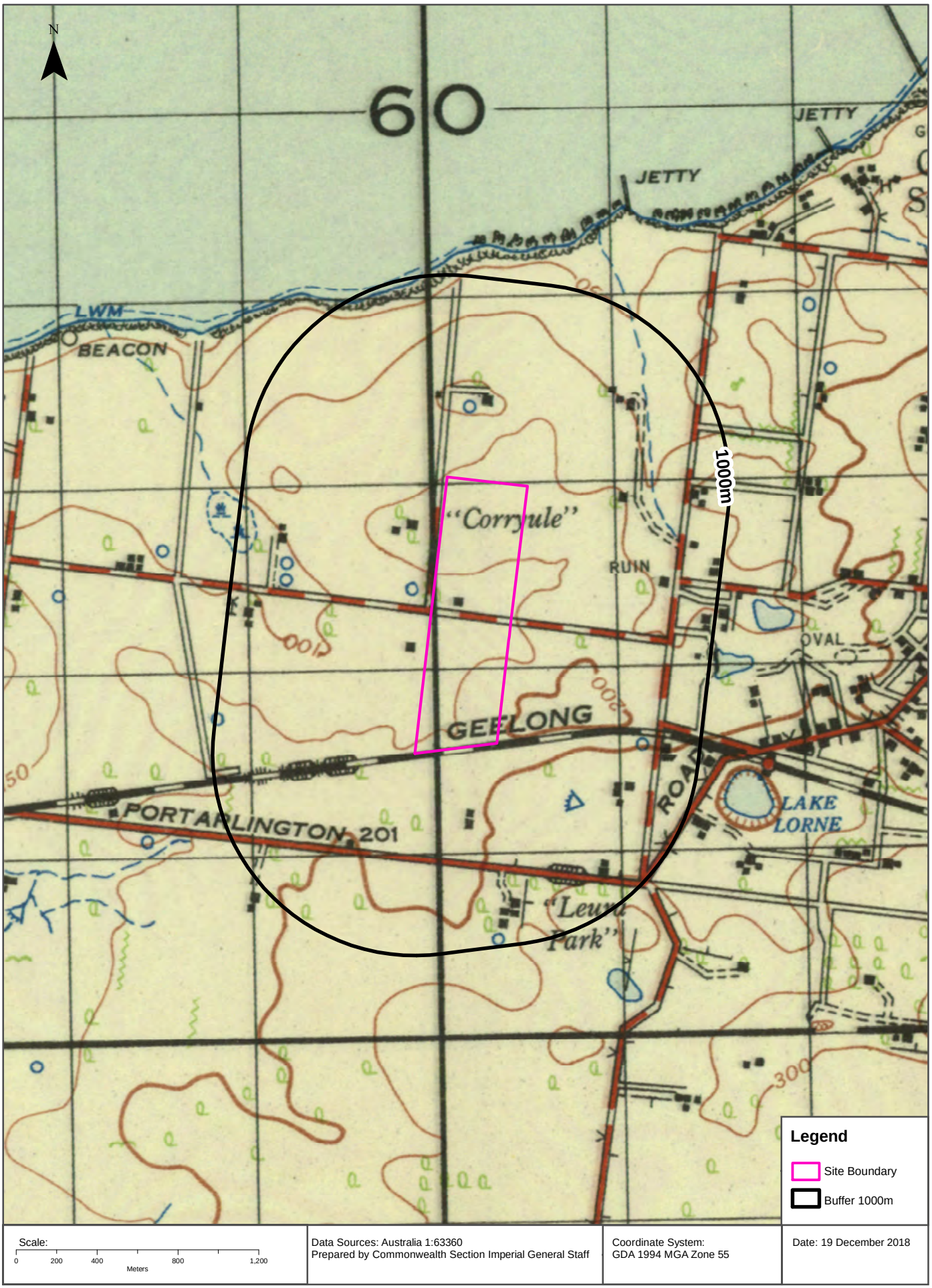
Historical Map 1970

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



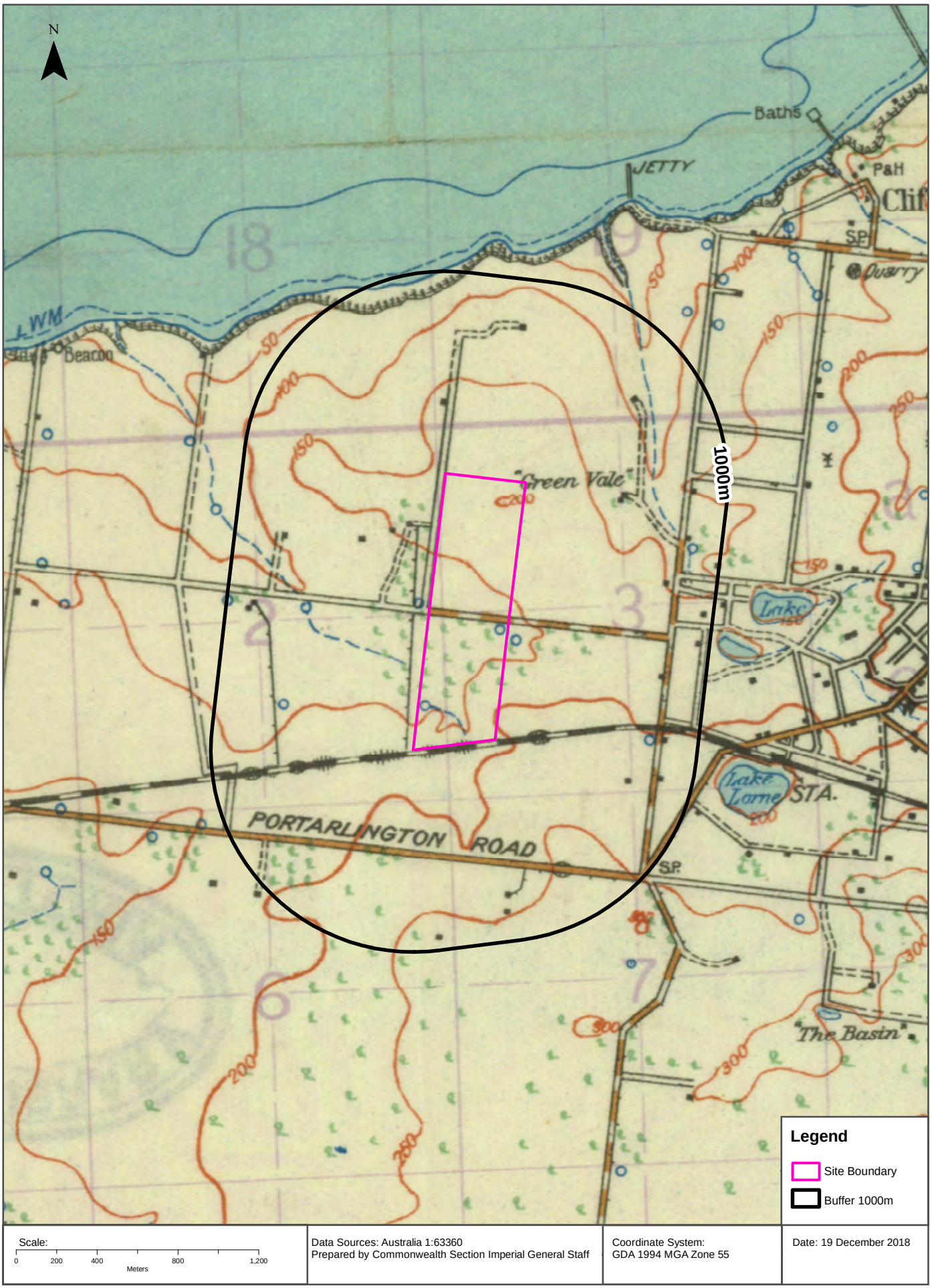
Historical Map c.1955

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



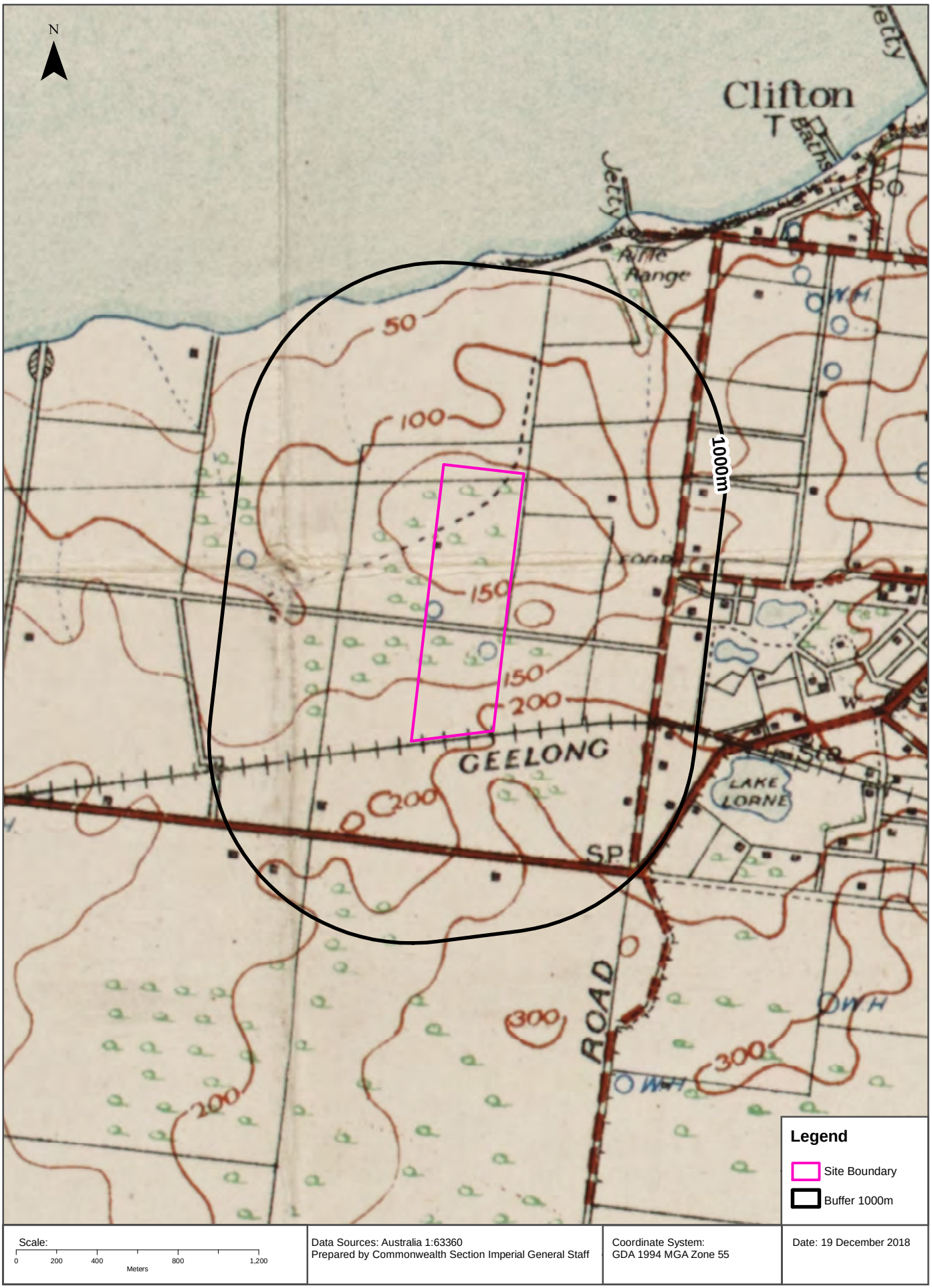
Historical Map c.1929

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



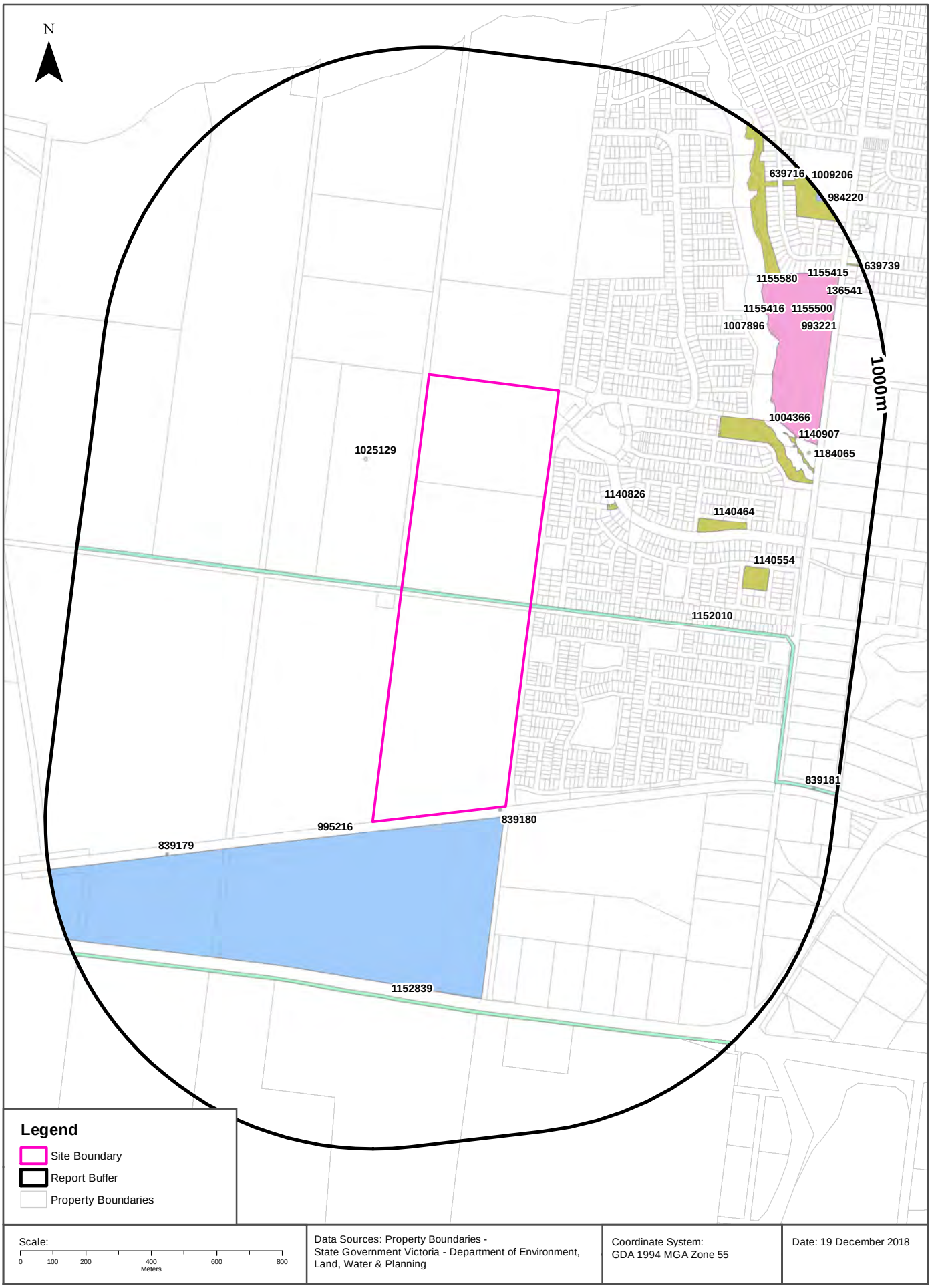
Historical Map c.1914

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Features of Interest

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Features of Interest

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

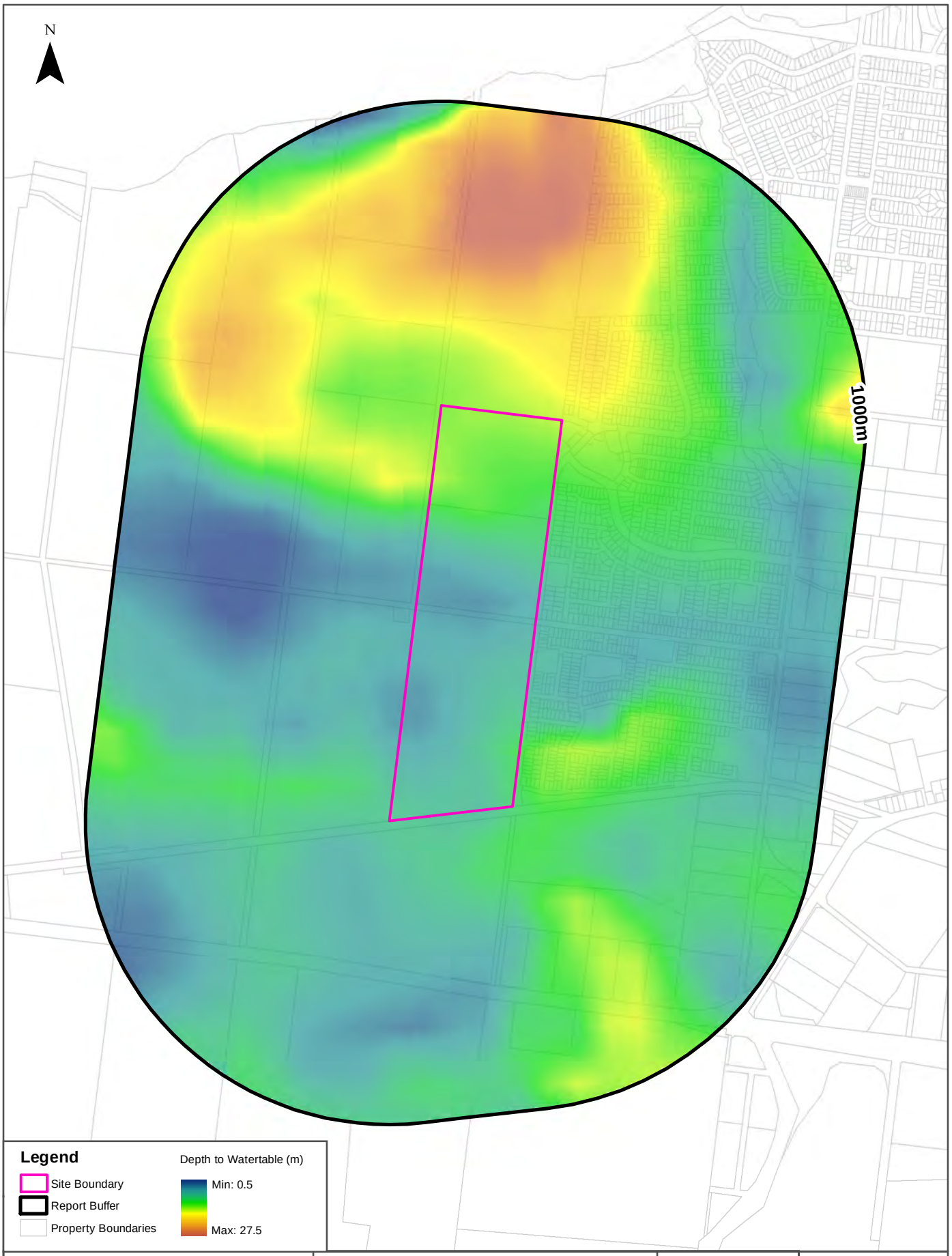
Features of Interest

Features of Interest within the dataset buffer:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
1152010	power line	power sub transmission		0m	Onsite
839180	sign	emergency marker	BRT116	3m	South
995216	sport facility	golf course	Curlewis Golf Club	30m	South West
1025129	landmark	tourist attraction	Coriyule Homestead	154m	North West
1140826	reserve	park		194m	North East
1140464	reserve	park		474m	East
1004366	reserve	park	Percy Cherry Park	501m	North East
1152839	power line	power sub transmission		517m	West
839179	sign	emergency marker	BRT115	631m	South West
1140554	reserve	park		632m	East
1007896	education centre	education complex		647m	North East
1140907	reserve	park		696m	North East
639716	reserve	park		725m	North East
1155416	sport facility	sports ground		748m	North East
1184065	care facility	child care	Eclipse Early Education Curlewis	778m	North East
1155580	recreational resource	playground		789m	North East
993221	care facility	child care	Clifton Springs Primary School Outside School Hours Care	796m	North East
1155415	sport facility	sports ground		802m	North East
1155500	recreational resource	playground		862m	North East
136541	education centre	primary school	Clifton Springs Primary School	878m	North East
1009206	reserve	park	Jetty Road Reserve	901m	North East
839181	sign	emergency marker	BRT117	923m	South East
639739	reserve	park		962m	North East
984220	sport facility	tennis court		979m	North East

Depth to Watertable

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Data Sources:- Property Boundaries: State Government Victoria - Department of Environment, Land, Water & Planning; Depth to Watertable: The State of Victoria, Department of Environment, Land, Water & Planning. Resampled (bilinear) to 10m.

Coordinate System: GDA 1994 MGA Zone 55

Date: 19 December 2018

Hydrogeology & Groundwater

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive aquifers of low to moderate productivity	0m	Onsite

Hydrogeology Map of Australia: Commonwealth of Australia (Geoscience Australia)

Groundwater Salinity

On-site Groundwater Salinity:

Groundwater Salinity	Percent Of Site Area
3,500 - 7,000 mg/l	100

Depth to Watertable

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
5 to 10 metres	60
10 to 20 metres	31
Less than 5 metres	9

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
38 AHDm to 55 AHDm

Basement Elevation

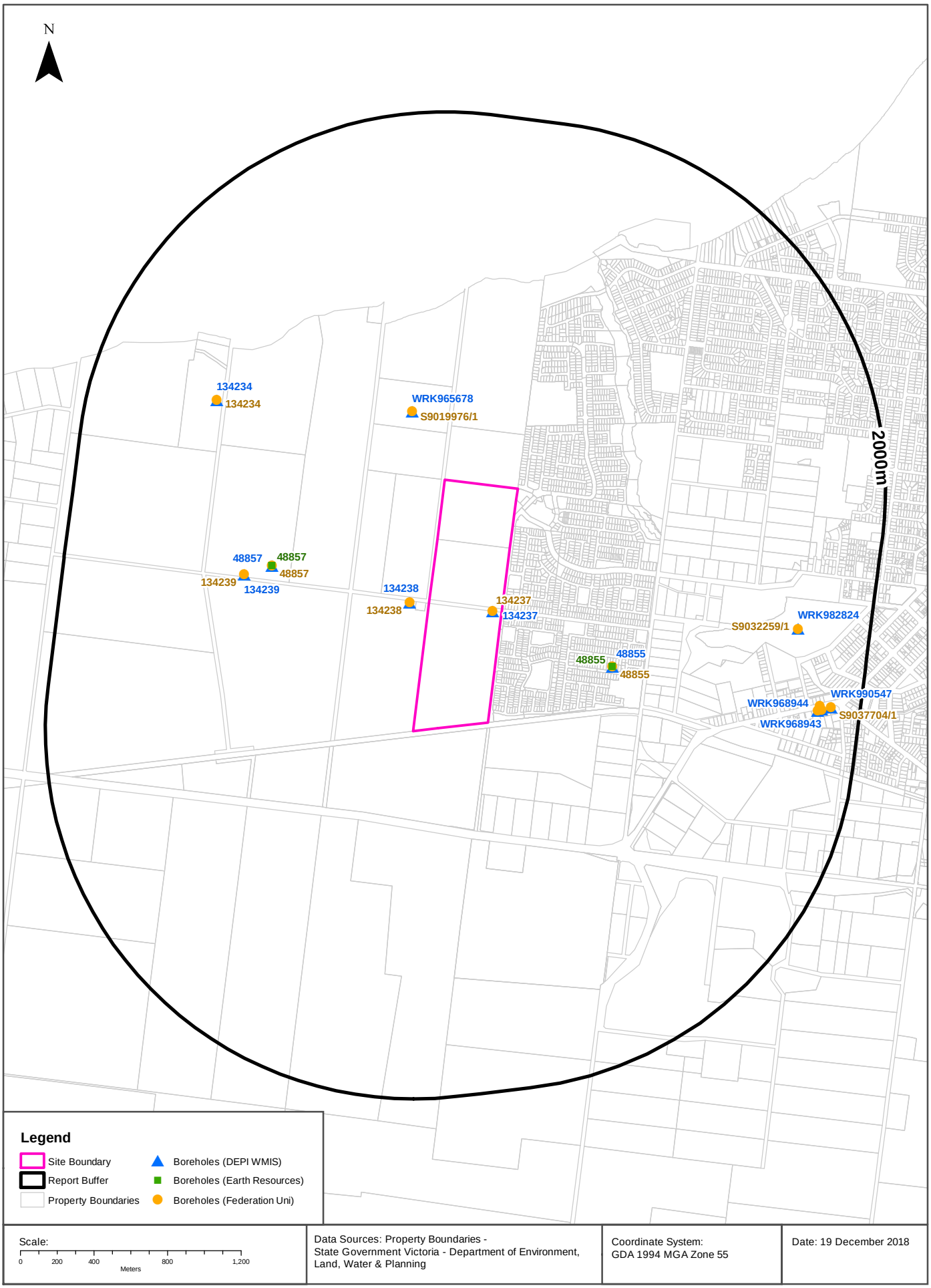
Approximate on-site Basement Elevation:

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
-46 AHDm to -10 AHDm

Groundwater Data Custodian: State Government Victoria - Dept of Environment, Land, Water & Planning

Groundwater Boreholes

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Groundwater Boreholes

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Boreholes (DEPI WMIS)

Boreholes from the Department of Environment and Primary Industries' Water Measurement Information System, within the dataset buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
134237	Groundwater Investigation	0.00m-1.00m SAND SILTY SAND 1.00m-4.00m CLAYEY SAND 4.00m-6.00m SILTY CLAY 6.00m-8.00m CLAYEY SAND 8.00m-20.80m CLAYEY SAND	-0.50m-17.50m INNER LINING - CASING = Pvc 17.50m-19.00m INNER LINING - SCREEN = Pvc 19.00m-20.80m INNER LINING - CASING = Pvc 0.00m-9.00m OUTER LINING - GRAVEL = Cement 9.00m-13.00m OUTER LINING - GRAVEL = Bentonite 13.00m-20.80m OUTER LINING - GRAVEL = Gravel		17.50m-19.00m Sand	1998-03-13	0	Onsite
134238	Groundwater Investigation	0.00m-1.50m SAND 1.50m-4.00m CLAYEY SAND 4.00m-6.00m BROWN CLAYEY SAND 6.00m-15.80m CLAYEY SAND & GRAVEL	-0.50m-12.50m INNER LINING - CASING = Pvc 12.50m-14.20m INNER LINING - SCREEN = Pvc 14.20m-15.80m INNER LINING - CASING = Pvc 0.00m-2.00m OUTER LINING - GRAVEL = Cement 2.00m-5.00m OUTER LINING - GRAVEL = Bentonite 5.00m-15.80m OUTER LINING - GRAVEL = Gravel			1998-03-13	103	West
WRK965678	Domestic & Stock	0.00m-2.00m BROWN CLAY 2.00m-12.00m YELLOW SANDSTONE 12.00m-15.50m BROWN SANDSTONE 15.50m-20.00m YELLOW SANDSTONE 20.00m-22.00m FINE BROWN SAND 22.00m-27.00m COARSE GRAVEL	-0.50m-22.00m INNER LINING - CASING = Pvc 22.00m-27.00m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Cement			2004-07-27	408	North
48855	Domestic, Stock	0.00m-2.00m BROWN CLAY 2.00m-3.00m GREY CLAY 3.00m-5.00m YELLOW CLAY 5.00m-7.00m PIPE CLAY 7.00m-12.00m YELLOW CLAY 12.00m-18.00m YELLOW SAND	0.00m-18.00m INNER LINING - CASING = Pvc 0.00m-18.00m INNER LINING - SCREEN = Pvc		0.00m-18.00m Clay	1982-12-30	633	South East
48857	Domestic, Stock	0.00m-1.00m TOP SOIL 1.00m-3.00m BROWN CLAY 3.00m-5.00m YELLOW SAND 5.00m-9.00m GREY SAND 9.00m-11.00m OFF WHITE SAND 11.00m-13.00m SAND CLAY 13.00m-18.30m SOFT SANDSTONE	0.00m-12.00m INNER LINING - CASING = Pvc 12.00m-18.00m INNER LINING - SCREEN = Pvc		12.00m-18.00m Sandstone	1983-01-06	873	West
134239	Groundwater Investigation	0.00m-1.00m SAND SANDY SILT 1.00m-20.00m CLAYEY SAND	0.00m-17.00m INNER LINING - CASING = Pvc 17.00m-18.50m INNER LINING - SCREEN = Pvc 18.50m-20.00m INNER LINING - CASING = Pvc 0.00m-7.50m OUTER LINING - GRAVEL = Cement 7.50m-14.50m OUTER LINING - GRAVEL = Bentonite 14.50m-20.00m OUTER LINING - GRAVEL = Gravel		17.00m-18.50m Sand	1998-03-16	1015	West
134234	Groundwater Investigation	0.00m-1.00m SAND SILTY SAND 1.00m-4.50m CLAYEY SAND MOTTLED 4.50m-12.80m CLAYEY SAND LIGHT BROWN	-0.50m-9.50m INNER LINING - CASING = Pvc 9.50m-11.00m INNER LINING - SCREEN = Pvc 11.00m-12.80m INNER LINING - CASING = Pvc 0.00m-6.50m OUTER LINING - GRAVEL = Cement 6.50m-7.00m OUTER LINING - GRAVEL = Bentonite 7.00m-12.80m OUTER LINING - GRAVEL = Gravel		9.50m-11.00m Sand	1998-03-16	1312	North West
WRK982824							1607	East

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK968944	Domestic & Stock		0.00m-18.70m INNER LINING - CASING = Pvc 18.70m-25.00m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Cement 0.50m-15.00m OUTER LINING - GRAVEL = Cement 15.00m-16.00m OUTER LINING - GRAVEL = Bentonite 16.00m-25.00m OUTER LINING - GRAVEL = Gravel			2005-03-10	1771	East
WRK968942	Domestic & Stock		0.00m-15.00m INNER LINING - CASING = Pvc 15.00m-22.50m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Cement 0.50m-10.20m OUTER LINING - GRAVEL = Cement 10.20m-11.00m OUTER LINING - GRAVEL = Bentonite 11.00m-22.50m OUTER LINING - GRAVEL = Gravel			2005-03-10	1778	East
WRK968943	Domestic & Stock		0.00m-17.90m INNER LINING - CASING = Pvc 17.90m-23.90m INNER LINING - SCREEN = Pvc 0.00m-0.50m OUTER LINING - GRAVEL = Cement 0.50m-10.00m OUTER LINING - GRAVEL = Cement 10.00m-11.00m OUTER LINING - GRAVEL = Bentonite 11.00m-23.90m OUTER LINING - GRAVEL = Gravel			2005-03-10	1790	East
WRK990547	Groundwater Investigation					2009-04-22	1840	East

Groundwater Boreholes

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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
48855		Private Individual/Corporation	Domestic & Stock water supply	Percussion (cable)		30/12/1982	18.00		100	632	South East
48857		Private Individual/Corporation	Domestic & Stock water supply	Percussion (cable)		06/01/1983	18.30		100	873	West

Boreholes (Federation University)

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

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
134237		Groundwater	Investigation		D: 0.000m-1.000m Sand Silty Sand D: 1.000m-4.000m Clayey Sand D: 4.000m-6.000m Silty Clay D: 6.000m-8.000m Clayey Sand D: 8.000m-20.800m Clayey Sand	0	Onsite
134238		Groundwater	Investigation		D: 0.000m-1.500m Sand D: 1.500m-4.000m Clayey Sand D: 4.000m-6.000m Brown Clayey Sand D: 6.000m-15.800m Clayey Sand & Gravel	103	West
S9019976/1		Groundwater	Domestic (DM) Stock (ST)		D: 0.000m-2.000m Brown Clay D: 2.000m-12.000m Yellow Sandstone D: 12.000m-15.500m Brown Sandstone D: 15.500m-20.000m Yellow Sandstone D: 20.000m-22.000m Fine Brown Sand D: 22.000m-27.000m Coarse Gravel	408	North
48855	Private Landholders Bore	Groundwater	Domestic Stock	2099.00	D: 0.000m-2.000m Brown Clay D: 2.000m-3.000m Grey Clay D: 3.000m-5.000m Yellow Clay D: 5.000m-7.000m Pipe Clay D: 7.000m-12.000m Yellow Clay D: 12.000m-18.000m Yellow Sand	633	South East
48857	Private Landholders Bore	Groundwater	Domestic Stock	438.40	D: 0.000m-1.000m Top Soil D: 1.000m-3.000m Brown Clay D: 3.000m-5.000m Yellow Sand D: 5.000m-9.000m Grey Sand D: 9.000m-11.000m Off White Sand D: 11.000m-13.000m Sand Clay D: 13.000m-18.300m Soft Sandstone	873	West
134239		Groundwater	Investigation		D: 0.000m-1.000m Sand Sandy Silt D: 1.000m-20.000m Clayey Sand	1015	West
134234		Groundwater	Investigation		D: 0.000m-1.000m Sand Silty Sand D: 1.000m-4.500m Clayey Sand Mottled D: 4.500m-12.800m Clayey Sand Light Brown	1312	North West
S9032259/1	Private Landholders Bore	Groundwater				1607	East
S9022023/3		Groundwater	Domestic and Stock			1771	East

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
S9022023/1		Groundwater	Domestic and Stock			1778	East
S9022023/2		Groundwater	Domestic and Stock			1790	East
S9037704/1		Groundwater	Groundwater Investigation			1840	East

Boreholes FedUni Data Source: © Federation University Australia

Historical Mining Activity - Shafts

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Historical Mining Activity - Shafts

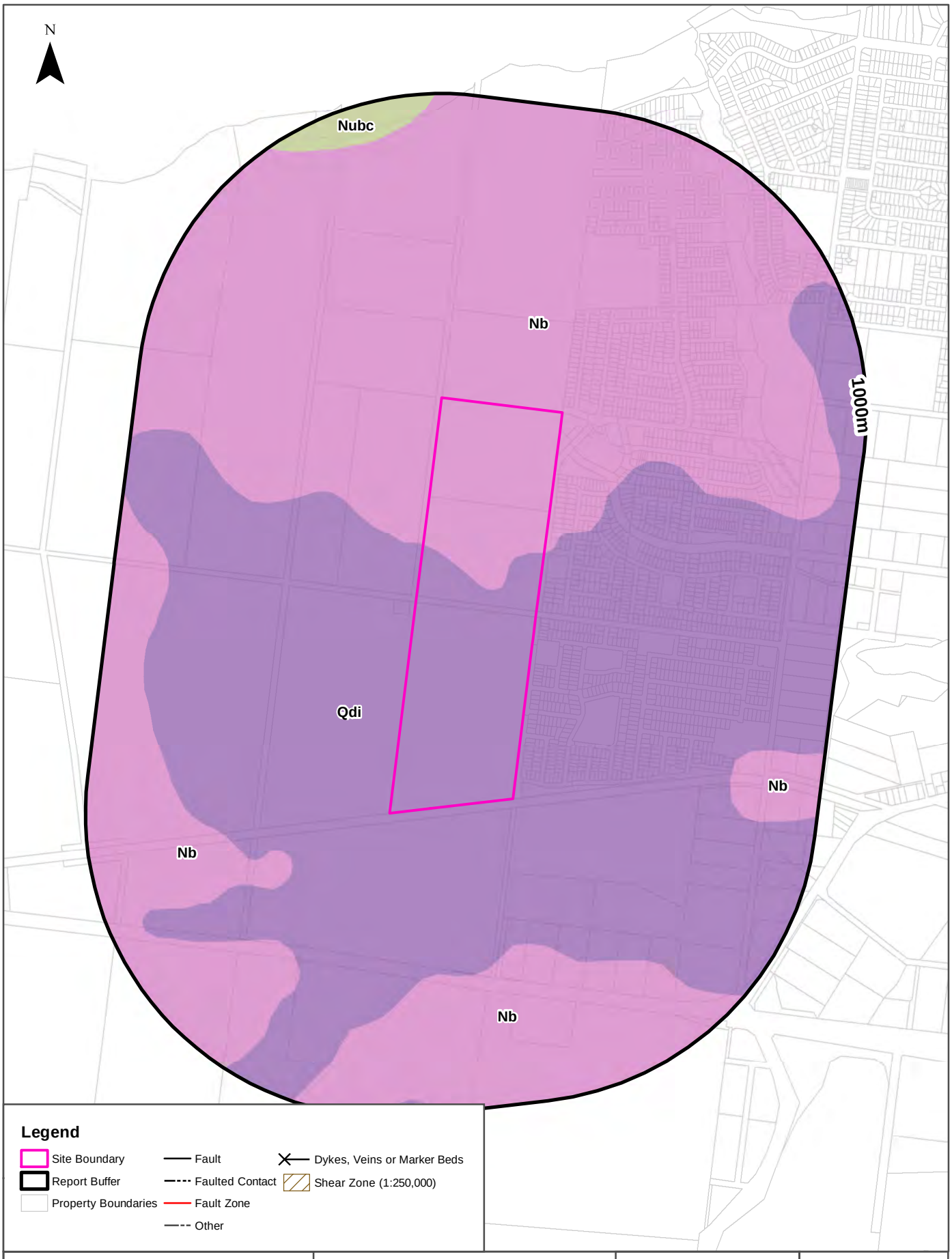
Mine Shaft Locations were collected by a variety of methods from 1869 in some areas of the state, mainly concentrating in Ballarat and Bendigo. In places a shaft may be recorded multiple times with a different source. In cases where several shaft locations are shown close together (generally with separations 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								

Geology 1:50,000

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Geology

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Geological Units

What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Nb	Brighton Group(Nb): generic	Gravel, sand, silt: variably calcareous to ferruginous sandstones and coquinas; marine to nonmarine	Miocene to Pliocene	silt material (significant); sand (significant); gravel material (significant)	1:50,000
Qdi	source-bordering dune deposits (Qdi): generic	Sand, silt, clay: inland dune deposits, some swamp deposits; mostly source-bordering	Pleistocene to Holocene	sand (significant); silt material (significant); clay lithology (significant)	1:50,000

What are the Geological Units within the dataset buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Nb	Brighton Group(Nb): generic	Gravel, sand, silt: variably calcareous to ferruginous sandstones and coquinas; marine to nonmarine	Miocene to Pliocene	silt material (significant); sand (significant); gravel material (significant)	1:50,000
Nubc	Clifton Springs Tuff (Nubc): generic	Tuff, basalt plug	Miocene to Miocene	tuff (major proportion); basalt (minor proportion)	1:50,000
Qdi	source-bordering dune deposits (Qdi): generic	Sand, silt, clay: inland dune deposits, some swamp deposits; mostly source-bordering	Pleistocene to Holocene	sand (significant); silt material (significant); clay lithology (significant)	1:50,000

Geology

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Geological Structures

What are the Geological Faults or Faulted Contacts onsite?

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

What are the Dykes, Marker Beds and Veins onsite?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

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

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

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

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

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

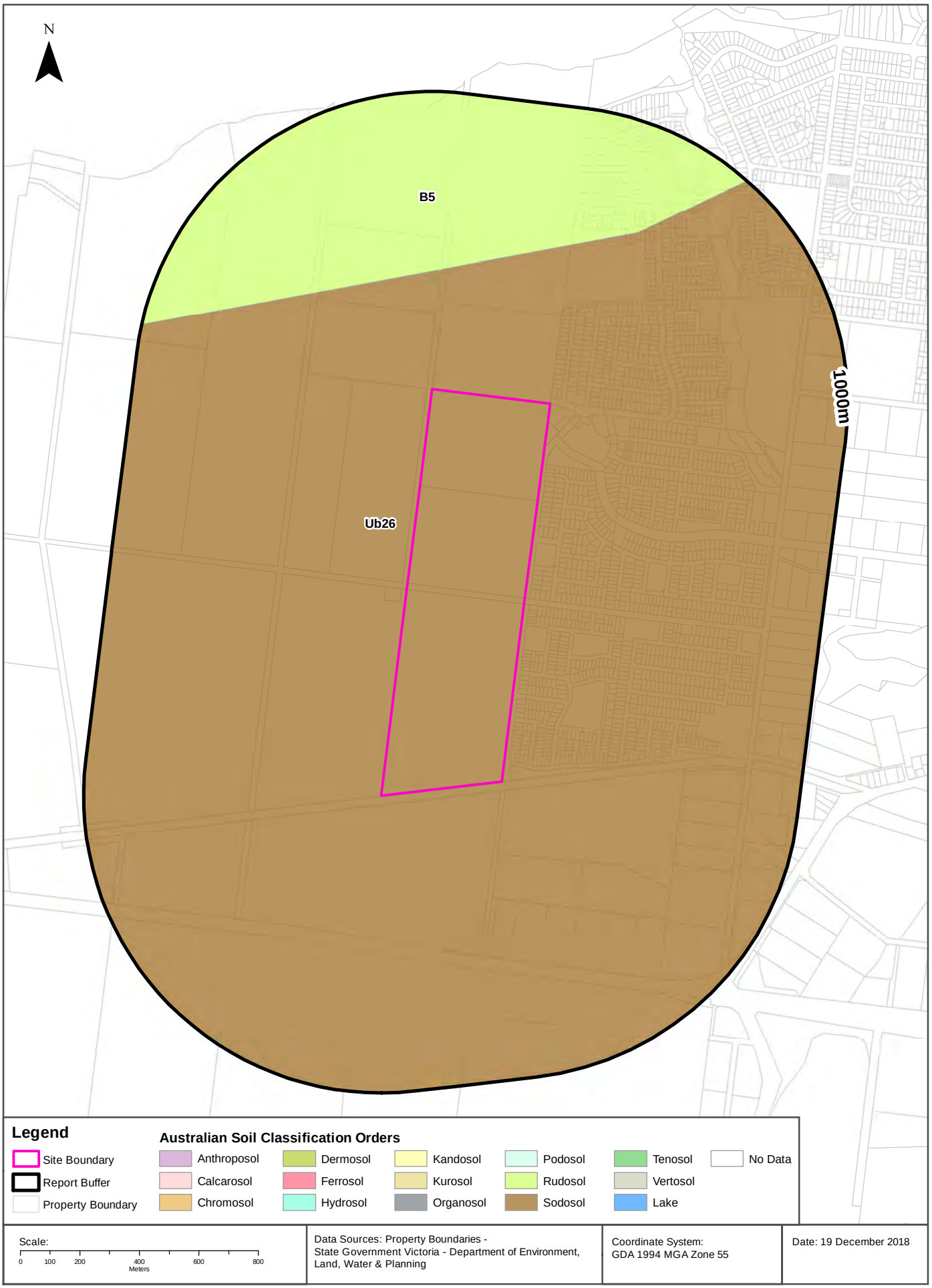
Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

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

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

Atlas of Australian Soils

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Soil Landscapes

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Atlas of Australian Soils

Australian soil types within the dataset buffer:

Symbol	Soil Order	Map Unit Description	Distance
Ub26	Sodosol	Undulating area of hard neutral and alkaline yellow mottled soils (Dy3.42 and Dy3.43), possibly with some areas of cracking clays (Ug5.1 and Ug5.2); layering of soil materials is evident ill places bow the sola of present-day soils and includes sandy ironstone and grey billy; occasional dunes of leached sands (Uc2.2) in the vicinity of coastal plains.	0m
B5	Rudosol	Coastal plains with dunes, swamps, and lakes: plains and dunes of siliceous sands (Uc1.2) and silty soils (Um1) and plains of clay soils (Uf) and (Ug); some terrace remnants where the plains merge with the stream valleys of dark, deep, porous loamy soils (Um6.12) on the lower terraces, and hard alkaline soils (Dr2.23) on the higher terraces.	390m

Victorian Soil Type Mapping

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Soil Landscapes

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

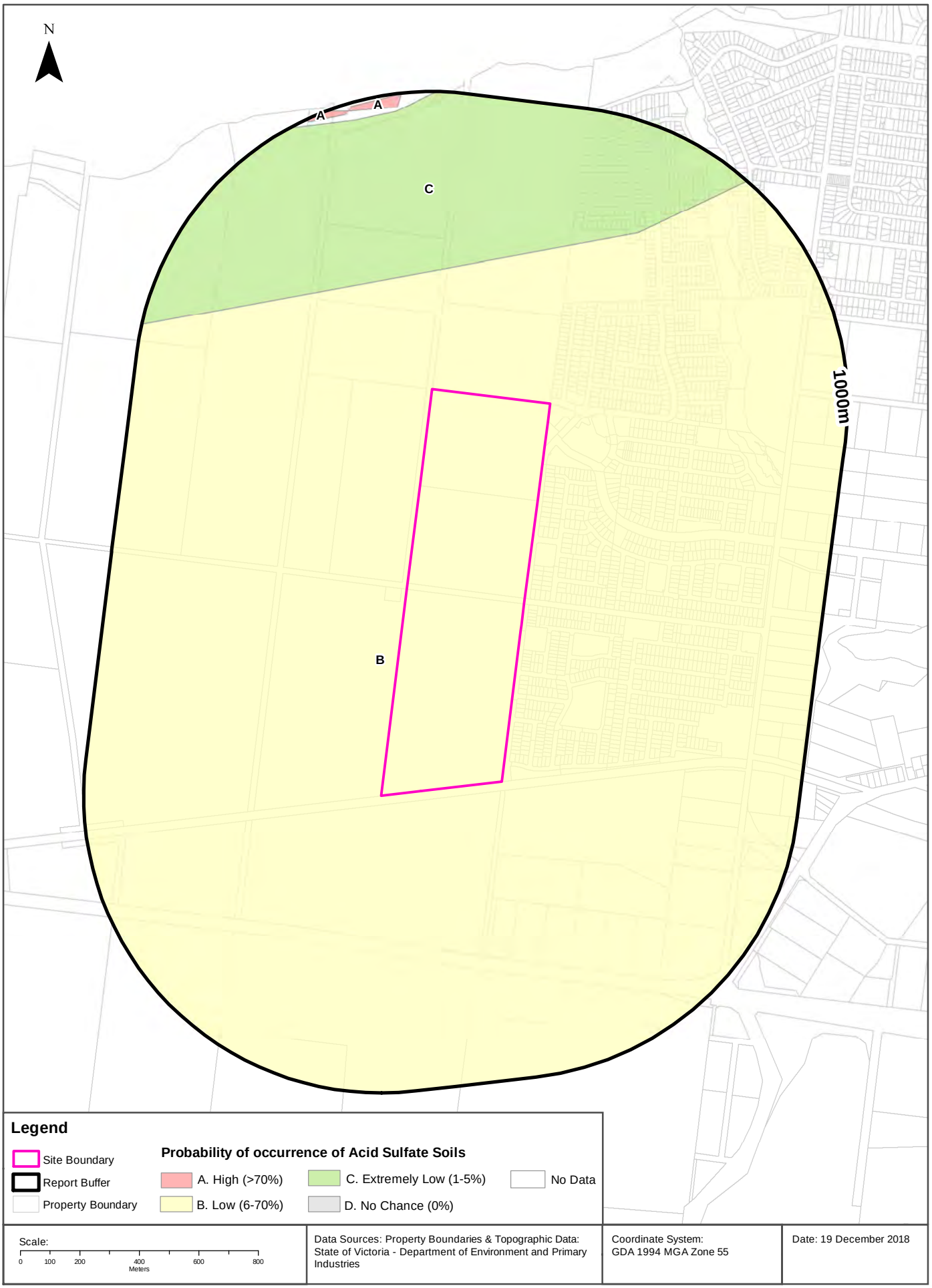
Victorian Soil Type Mapping

Victorian Soil Types within the dataset buffer:

Symbol	Description	Distance
CHAD	Grey Chromosols	0m
POAL	Aeric Podosols	0m
CABD	Calcic Calcarosols	659m
VEAE	Black Vertosols	984m

Atlas of Australian Acid Sulfate Soils

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Acid Sulfate Soils

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Atlas of Australian Acid Sulfate Soils

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

PROBCLASS	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	390m
A	High Probability of occurrence. >70% chance of occurrence.	954m

Coastal Acid Sulfate Soils

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Coastal Acid Sulfate Soils

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

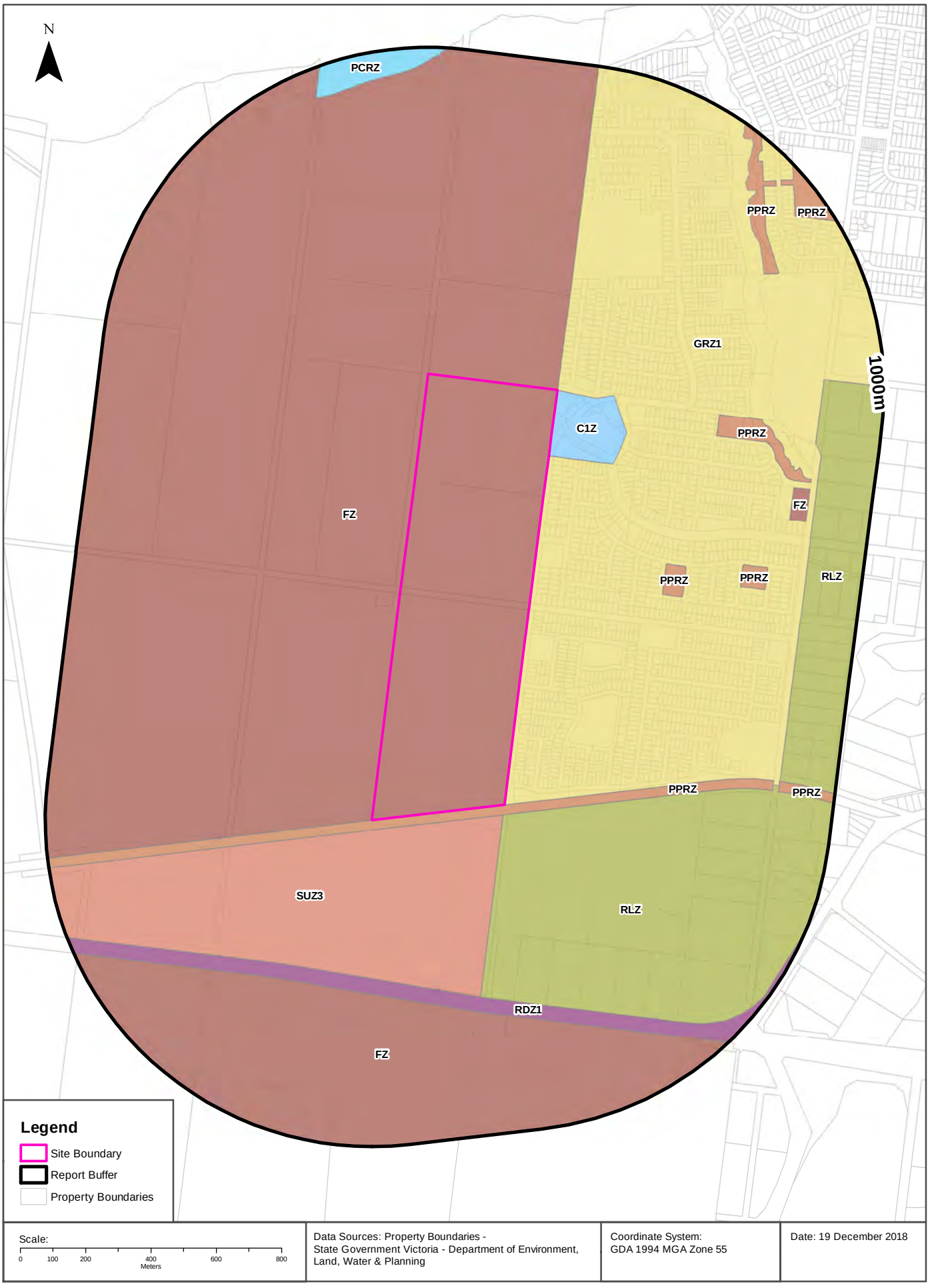
Coastal Acid Sulfate Soil Types
There are no Acid Sulfate areas onsite

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		

Planning Zones

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Planning Zones

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

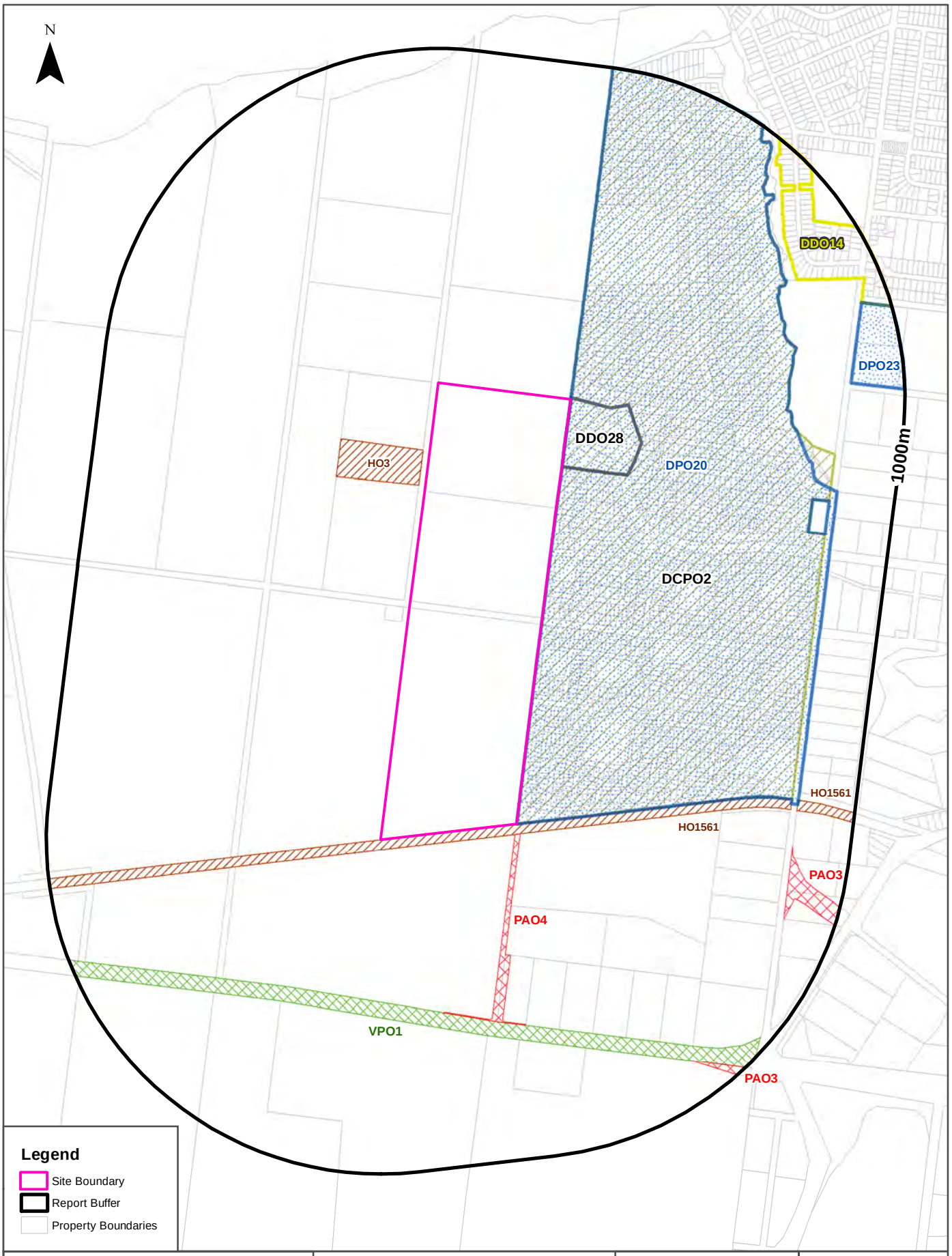
Planning Zones

Planning zones within the dataset buffer:

Zone Code	Description	Distance	Direction
FZ	FARMING ZONE	0m	Onsite
C1Z	COMMERCIAL 1 ZONE	0m	North East
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	0m	North East
PPRZ	PUBLIC PARK AND RECREATION ZONE	0m	South West
RLZ	RURAL LIVING ZONE	30m	South East
SUZ3	SPECIAL USE ZONE - SCHEDULE 3	30m	South West
PPRZ	PUBLIC PARK AND RECREATION ZONE	398m	East
RDZ1	ROAD ZONE - CATEGORY 1	479m	North West
PPRZ	PUBLIC PARK AND RECREATION ZONE	501m	North East
FZ	FARMING ZONE	525m	South West
PPRZ	PUBLIC PARK AND RECREATION ZONE	632m	East
PPRZ	PUBLIC PARK AND RECREATION ZONE	724m	North East
FZ	FARMING ZONE	755m	East
RLZ	RURAL LIVING ZONE	804m	East
PPRZ	PUBLIC PARK AND RECREATION ZONE	827m	South East
PPRZ	PUBLIC PARK AND RECREATION ZONE	901m	North East
PCRZ	PUBLIC CONSERVATION AND RESOURCE ZONE	904m	West

Planning Overlays

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Planning Overlays

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

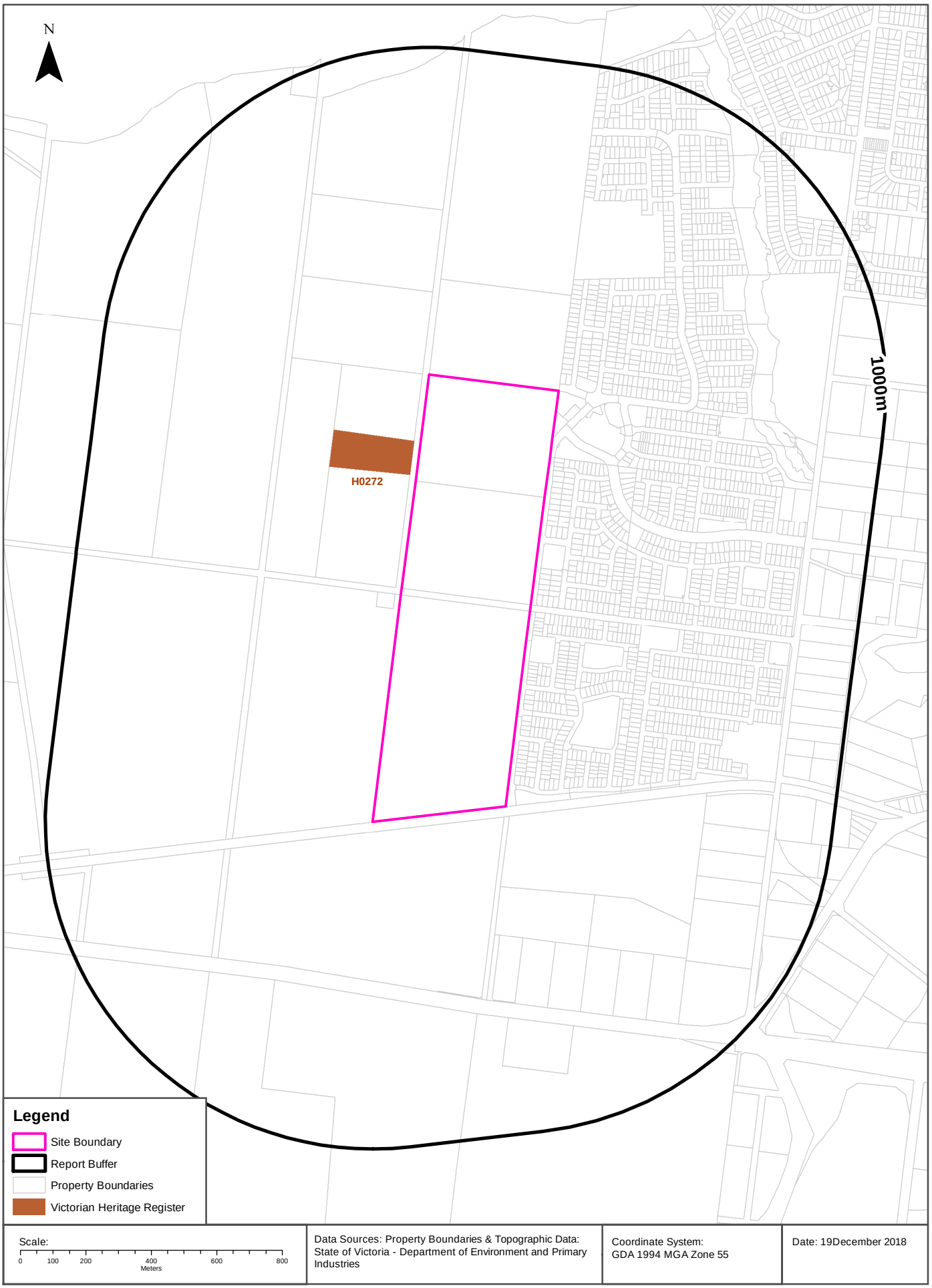
Planning Overlays

Planning overlays within the dataset buffer:

Zone Code	Description	Distance	Direction
DCPO2	DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY - SCHEDULE 2	0m	North East
DDO28	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 28	0m	North East
DPO20	DEVELOPMENT PLAN OVERLAY - SCHEDULE 20	0m	North East
HO1561	HERITAGE OVERLAY (HO1561)	0m	South West
HO3	HERITAGE OVERLAY (HO3)	20m	North West
PAO4	PUBLIC ACQUISITION OVERLAY 4	30m	South
VPO1	VEGETATION PROTECTION OVERLAY - SCHEDULE 1	479m	West
DDO14	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 14	766m	North East
HO1561	HERITAGE OVERLAY (HO1561)	827m	South East
PAO3	PUBLIC ACQUISITION OVERLAY 3	828m	South East
DPO23	DEVELOPMENT PLAN OVERLAY - SCHEDULE 23	840m	North East
PAO3	PUBLIC ACQUISITION OVERLAY 3	880m	South East

Victorian Heritage Register

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Heritage

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

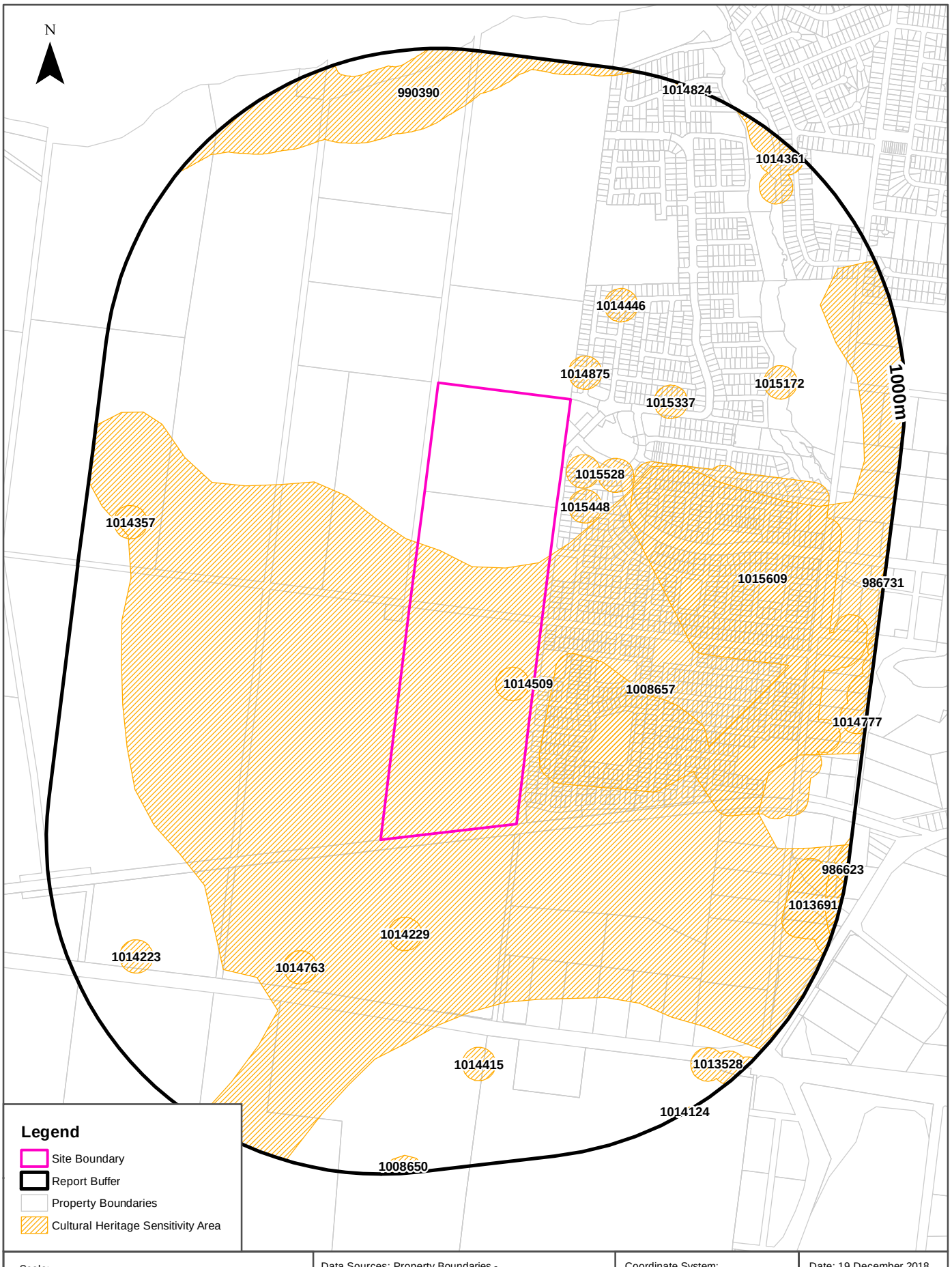
Victorian Heritage Register

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

VHR Number	Description	Distance	Direction
H0272	CORIYULE HOMESTEAD	19m	North West

Cultural Heritage Sensitivity

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Heritage

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

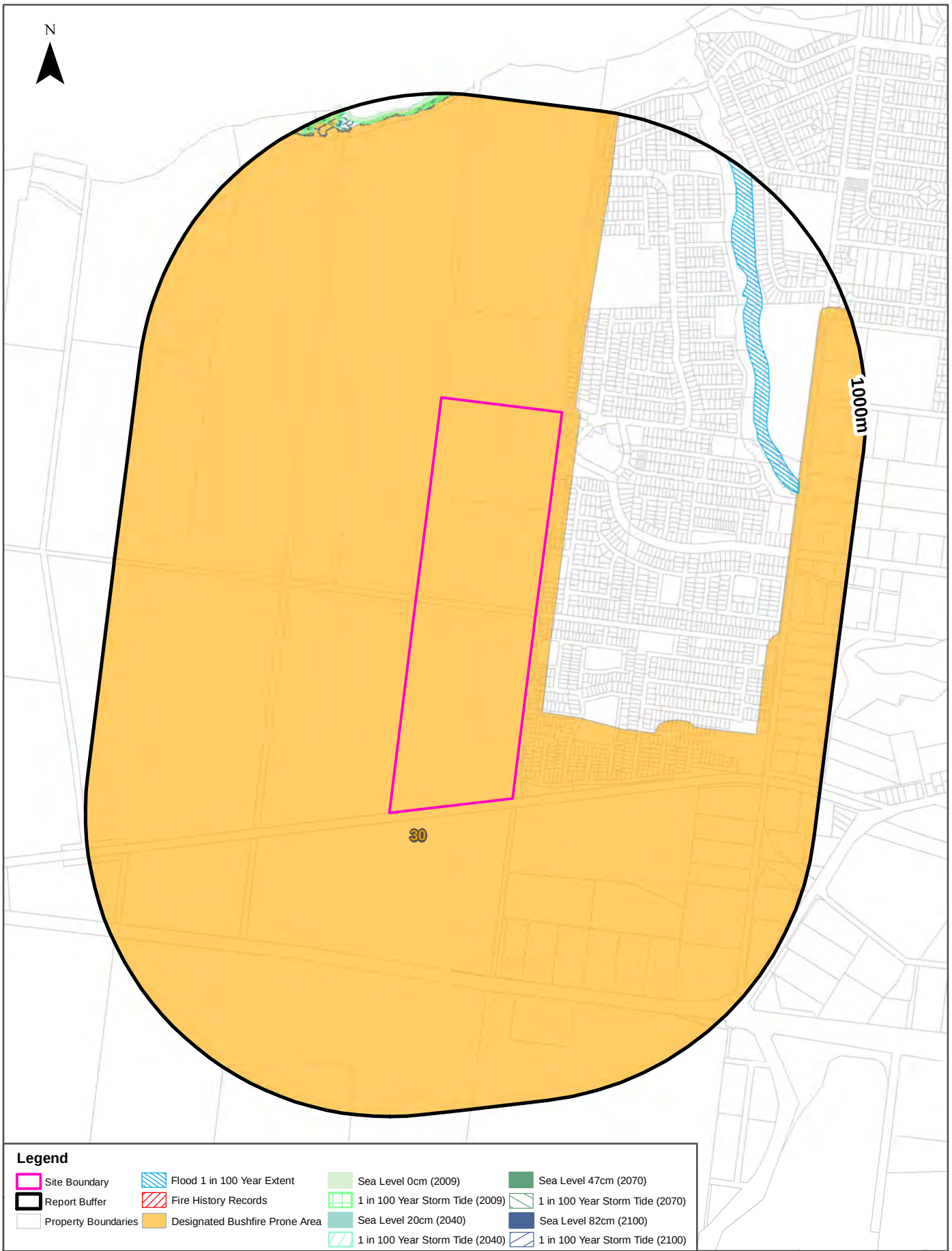
Cultural Heritage Sensitivity

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Victorian Aboriginal Heritage Regulations 2007, within the dataset buffer:

Map Id	Distance	Direction
1008657	0m	Onsite
1014509	0m	Onsite
1015528	15m	North East
1015448	35m	North East
1014875	41m	North East
1015609	42m	East
1014229	238m	South
1015337	250m	North East
1014446	269m	North East
1014763	401m	South West
1015172	580m	North East
1014415	650m	South
990390	748m	North West
1014223	760m	South West
1014357	810m	West
1014361	834m	North East
1013691	840m	South East
1013528	869m	South East
1014777	920m	East
986623	946m	South East
1008650	946m	South
1014824	978m	North
1014124	989m	South East
986731	994m	East

Natural Hazards

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Natural Hazards

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Bushfire Prone Areas

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

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
30	Designated Bushfire Prone Area	LEGL./18-241	GREATER GEELONG	16/05/2018	0m	Onsite

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
N/A	No records within buffer									

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
100 Year Flood Outline	Unknown	Little info available		01/01/2000	630m	North East

Natural Hazards

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

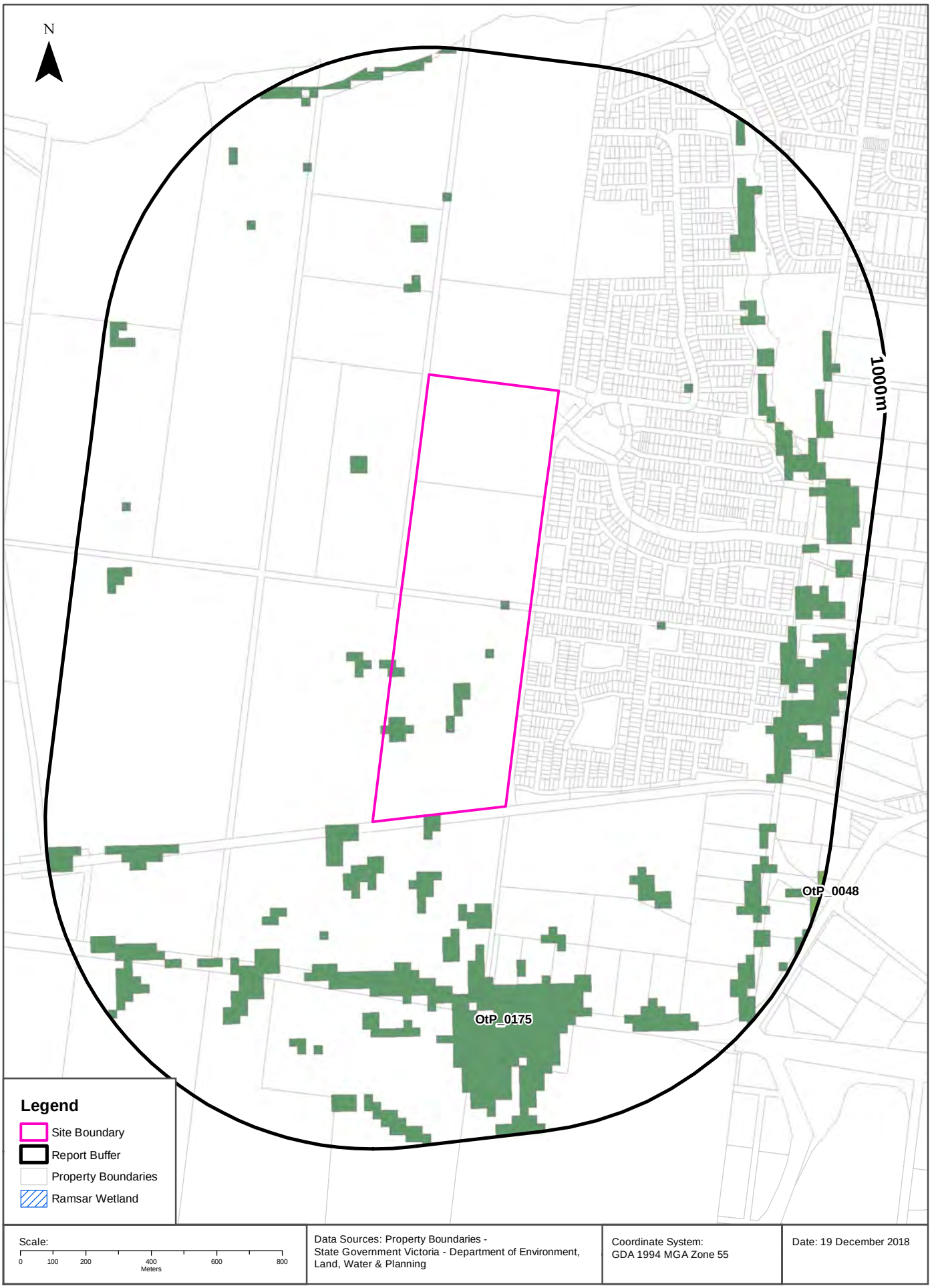
Victorian Coastal Inundation Sea Level Rise

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

Description	Distance	Direction
Inundation to 1-in-100 year storm tide level with storm surge increased by 19% plus 82 cm sea level rise (2100)	921m	West
Inundation to 1-in-100 year storm tide level with storm surge increased by 6% plus 20 cm sea level rise (2040)	929m	West
Inundation to 1-in-100 year storm tide level with storm surge increased by 13% plus 47 cm sea level rise (2070)	929m	West
Projected 82cm sea level rise by 2100	931m	North West
Current (2009) inundation to 1-in-100 year storm tide level	932m	West
Projected 47cm sea level rise by 2070	934m	North West
Projected 20cm sea level rise by 2040	938m	North
Current (2009) sea level	941m	North

Ecological Constraints - Native Vegetation 2005 & Ramsar Wetlands

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Ecological Constraints

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

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
OtP_0175	Grassy Woodland	0175	Lower Slopes or Hills Woodlands	Grassy	Otway Plain	Endangered	Common	0m
OtP_0048	Heathy Woodland	0048	Heathy Woodlands	Dry and/or better drained	Otway Plain	Least Concern	Common	938m

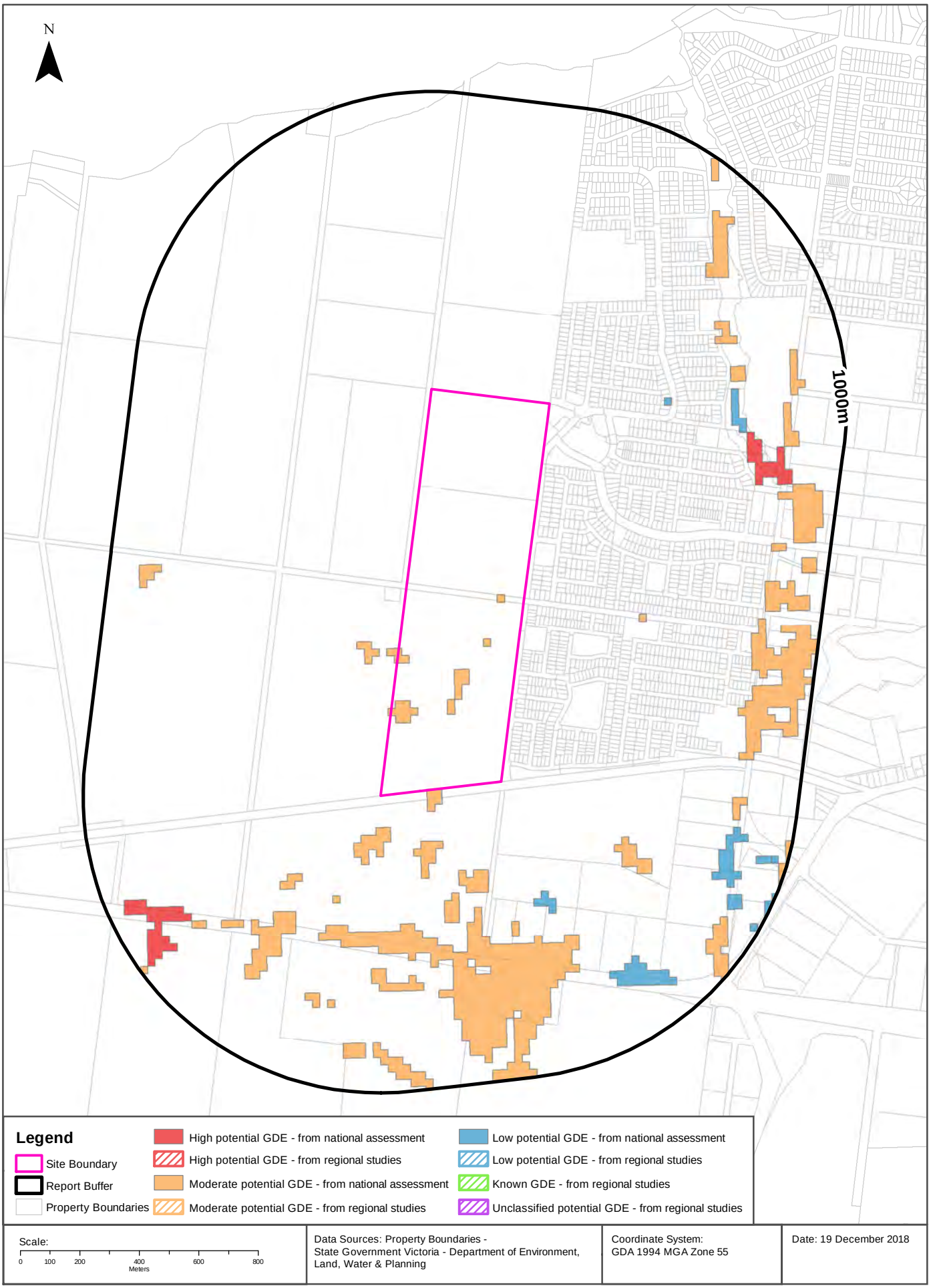
Ramsar Wetlands

What Ramsar wetland areas exist within the dataset buffer?

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

Groundwater Dependent Ecosystems Atlas

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Ecological Constraints

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

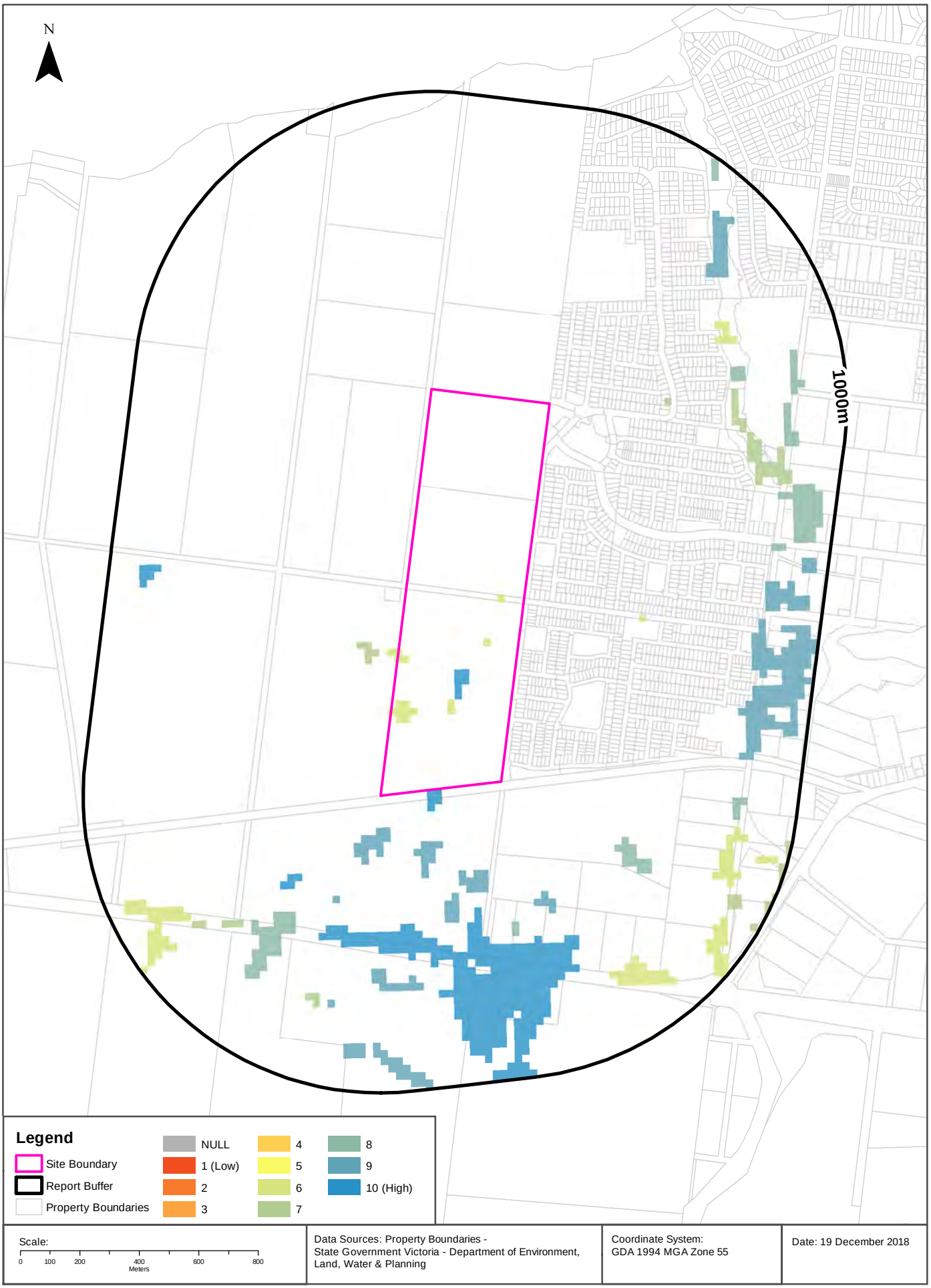
Groundwater Dependent Ecosystems Atlas

What GDEs exist within the dataset buffer?

GDE Type	Name	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial		Moderate potential GDE - from national assessment	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		Low potential GDE - from national assessment	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	383m
Terrestrial		High potential GDE - from national assessment	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	668m

Inflow Dependent Ecosystems Likelihood

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222



Ecological Constraints

32-70 McDermott Road & 91-125 Coriyule Road, Curlewis, VIC 3222

Inflow Dependent Ecosystems Likelihood

What IDEs exist within the dataset buffer?

GDE Type	Name	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial		6	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		10	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		7	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	61m
Terrestrial		9	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	106m
Terrestrial		8	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	433m

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Environmental Site Assessments

Appendix 3: Title History

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 05298 FOLIO 594

Security no : 124075602283J
Produced 08/01/2019 11:02 AM

LAND DESCRIPTION

Lots 9 and 10 on Plan of Subdivision 010309.
PARENT TITLE Volume 03001 Folio 084
Created by instrument 1322424 15/06/1927

REGISTERED PROPRIETOR

Estate Fee Simple
Joint Proprietors
GRAHAM WILLIS MOSS
HEATHER JOYCE MOSS both of 32 JONES ROAD DRYSDALE VIC 3222
AG737967T 07/09/2009

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan or imaged folio set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE LP010309 FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

DOCUMENT END

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Land Use Victoria.

Document Type	**Plan**
Document Identification	**LP010309**
Number of Pages (excluding this cover sheet)	**1**
Document Assembled	**08/01/2019 11:08**

LP 10309

EDITION 2

PLAN MAY BE LODGED 29/9/24

COLOUR CODE

E-1 & R1 = BROWN

ROADS COLORED BROWN

Measurements are in Links

Conversion Factor

LINKS x 0.201168 = METRES

ENCUMBRANCES

AS TO THE LAND MARKED E-2 THE EASEMENT CREATED BY INSTRUMENT K403484

PLAN OF SUBDIVISION OF PART OF CROWN PORTION 3

PARISH OF BELLARINE

COUNTY OF GRANT

V.3001 F.600084

CORIO BAY

NEWCOMBE ROAD

MCDERMOTT ROAD

CURLEWIS ROAD

CORYULE ROAD

RAILWAY

LP111165

LP97562

7 94. 0. 9

8 65. 0. 29 8/10

9 32. 0. 37

10 32. 0. 11 2/10

11 29. 0. 46/10

12 82. 1. 12

15 63. 3. 28 7/10

E-1

E-2

R1

LAND	I.D.	MODIFICATION	DEALING NUMBER	EDITION	ASSISTANT REGISTRAR OF TITLES
LOT 12	E-2	CREATION OF EASEMENT	K403484	2	A.D.

Produced 08/01/2019 11:08 AM

Volume 5298 Folio 594
Folio Creation: Created as paper folio continued as computer folio
Parent title Volume 03001 Folio 084

THE IMAGE OF THE FOLIO CEASED TO BE THE DIAGRAM LOCATION ON 13/02/2006 02:41:25 PM

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged
15/09/2008	15/09/2008	AG082117S	Y

MORTGAGE OF LAND
MORTGAGE AG082117S 15/09/2008
SOUTHERN FINANCE LTD

18/08/2009	18/08/2009	AG698493C	Y

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AG082117S

07/09/2009	07/09/2009	AG737967T	Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
GRAHAM WILLIS MOSS
TO:
GRAHAM WILLIS MOSS
HEATHER JOYCE MOSS

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Joint Proprietors
GRAHAM WILLIS MOSS
HEATHER JOYCE MOSS both of 32 JONES ROAD DRYSDALE VIC 3222
AG737967T 07/09/2009

STATEMENT END

VOTS Snapshot

Volume 05298 Folio 594
124027305707M
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LAND DESCRIPTION

Lots 9 and 10 on Plan of Subdivision 010309.
PARENT TITLE Volume 03001 Folio 084
Created by instrument 1322424 15/06/1927

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
GRAHAM WILLIS MOSS of CLAREDON ROAD DRYSDALE
H635136 08/08/1979

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan or imaged folio set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE LP010309 FOR FURTHER DETAILS AND BOUNDARIES

Paper Title Images

5298/594 - Version 0, Date 13/11/1999

Entered in the Register Book

Vol. 5298 Fol. 1059594

DIEU ET MON DROIT

VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1915."

Aaron Benham of Drysdale Farmer is- -

now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All *that piece of Land delineated and coloured* **red on the map in the margin containing Sixty-four acres One rood Eight perches and-two-tenths of a perch or thereabouts being Lots 9 and 10 on Plan of Subdivision----- No.10309 lodged in the Office of Titles and being part of Crown Portion Three------- Parish of Bellarine County of Grant**- -

Dated the **Fifteenth** *day of* **June** *One thousand nine hundred and* **twenty-seven.**

J Brawin
Assistant Registrar of Titles.

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO.

ORIGINAL CERTIFICATE.
Not to be dealt with outside the Titles Office.

The Measurements are in links.

T05298-594-1-6

Vol. 3001 *Fol.* 600084 | *Transfer.* 1322424 | *Application.*

REGINALD BENHAM of Drysdale, GEORGE PERCY BENHAM of Bayles and EDWARD HERBERT BENHAM and WILLIAM NORTHCOTE BENHAM, both of Nar Nar Goon, all Farmers, are now joint proprietors of the within described estate by transfer registered on 3rd January 1929 and numbered 1397303.

31.1.29 Assistant Registrar of Titles.

Stanley Nash of Drysdale Farmer is now the proprietor of the within described estate by transfer registered on 21st October 1929 and numbered 1434234

Assistant Registrar of Titles

STANLEY NASH died on 2nd September 1973
Probate of his Will has been granted to
STANLEY SAMUEL NASH and KEITH NASH
Registered 25th June 1974
No.F355247

EDNA MAY NICKELSON of De Burgh Road Drysdale Married Woman FREDA MOSS of 29 Fenwick Street Portarlington Married Woman DULCIE MARY WARD of 20 Yardley Street Maidstone Married Woman and VERNIE NASH of 36 Weller Street Geelong West Gentleman are now proprietors as TENANTS IN COMMON IN EQUAL SHARES
Registered 25th June 1974
No.F355248

GRAHAM WILLIS MOSS of Claredon Road Drysdale Farmer is now the proprietor
Registered 8th August 1979
No.H635136

MORTGAGE to HUBERT PERCY BOWMAN and IAN ROBERT KNOX
Registered 8th August 1979
No.H635137

DISCHARGED 16 OCT 1991

MORTGAGE to HUBERT PERCY BOWMAN and IAN ROBERT KNOX
Registered 8th August 1979
No.H635138

DISCHARGED -1 MAR 1988

Amended (DISCHARGED) No. P249041 Q 24 JUL 1989

Produced 08/01/2019 11:21 AM

Volume 3001 Folio 084
Folio Creation: Created as paper folio continued as computer folio

Parent titles :
Volume 02539 Folio 717 Volume 02673 Folio 589

STATEMENT END

VOTS Snapshot

NIL

Paper Title Images

3001/084 - Version 0, Date 07/01/2000

Entered in the Register Book

Vol 3001 Fol 600084

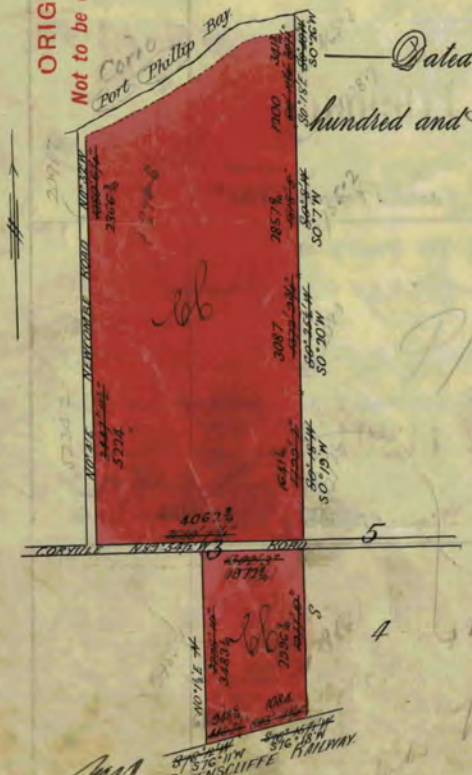
VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1890."

Thomas Mc Dermott and Peter Mc Dermott both of Drysdale Farmers are now the proprietors of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All those pieces of Land, delineated and colored red on the Map in the margin, containing four hundred and ~~seven~~ acres ~~and twenty~~ one rood and eight perches or thereabouts being parts of Crown Portion three Parish of Bellarine County of Grant Together with a right of carriage-way over Coryule Road colored brown on plan of Subdivision No. 3907 lodged in the Office of Titles

C.O. 22648 11/1/24



The Measurements are in ~~Feet & Inches~~

Dated the Sixteenth day of January One thousand nine hundred and four

A Haskett

Assistant Registrar of Titles.

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO.

A Mortgage from Michael Mc Dermott to David Aitken the younger registered on the 7th day of November 1900 and Vol 2007 84 in the Register Book

The above Mortgage is DISCHARGED

Thos Gleeson

Assistant Registrar of Titles.

18th December 1924

1894 Vol. 2539 2673 Fol. 507717. 534589. Transfer 483007. Application

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to it.	Number or Symbol thereon.
Charge DISCHARGED 19th August 1925 Assistant Registrar of Titles	The 16th January 1904 at 11.15 a.m.	Thomas McDermott and Peter McDermott to Alice Jane McDermott H. Hosken Assistant Registrar of Titles.	229097
Memo No. 58959.		Peter McDermott the surviving registered proprietor Thomas McDermott the other registered proprietor having predeceased him died the 15th day of September 1914. On the 17th day of February 1915 probate of the will of the said Peter McDermott was granted to Peter Paul McDermott of Scarborough House Drysdale Farmer as executor. Dated the 1st day of June 1915 10.7.15 Wm. Jm. Kay. Assistant Registrar of Titles.	

TRANSFER as to part to Berton Thomas Joy Ingles registered on 16th December 1925 and numbered 1245811.
CANCELLED as to part See Certificate of Title Vol. 5137 Fol. 1027232
J.B. Worrell
Assistant Registrar of Titles.
Area 82-1-12

TRANSFER AS TO PART to Alexander Joseph Symons registered on 7th June 1929 numbered 1416900
CANCELLED AS TO PART See Certificate of Title Vol. 5546 Fol. 1109065
Thos Gleeson
Area A. R. P. 91-0-9 Assistant Registrar of Titles.

TRANSFER AS TO PART to Aaron Benham registered on 15th June 1927. numbered 1322424
CANCELLED AS TO PART See Certificate of Title Vol 5298 Fol. 1059594
Area A. R. P. 64.1.8 $\frac{3}{10}$.
J Drawin
Assistant Registrar of Titles

TRANSFER AS TO PART to Archibald Hamilton Ross registered on 15th June 1929 numbered 1417695 G
CANCELLED AS TO PART See Certificate of Title Vol. 5546 Fol. 1109066
Thos Gleeson
Area A. R. P. 65-0-29 $\frac{8}{10}$ Assistant Registrar of Titles.

TRANSFER AS TO PART to William John Matcham registered on 17th June 1927. numbered 1322689
CANCELLED AS TO PART See Certificate of Title Vol 5298 Fol. 1059595
Area A. R. P. 29.0.4 $\frac{6}{10}$.
J Drawin
Assistant Registrar of Titles

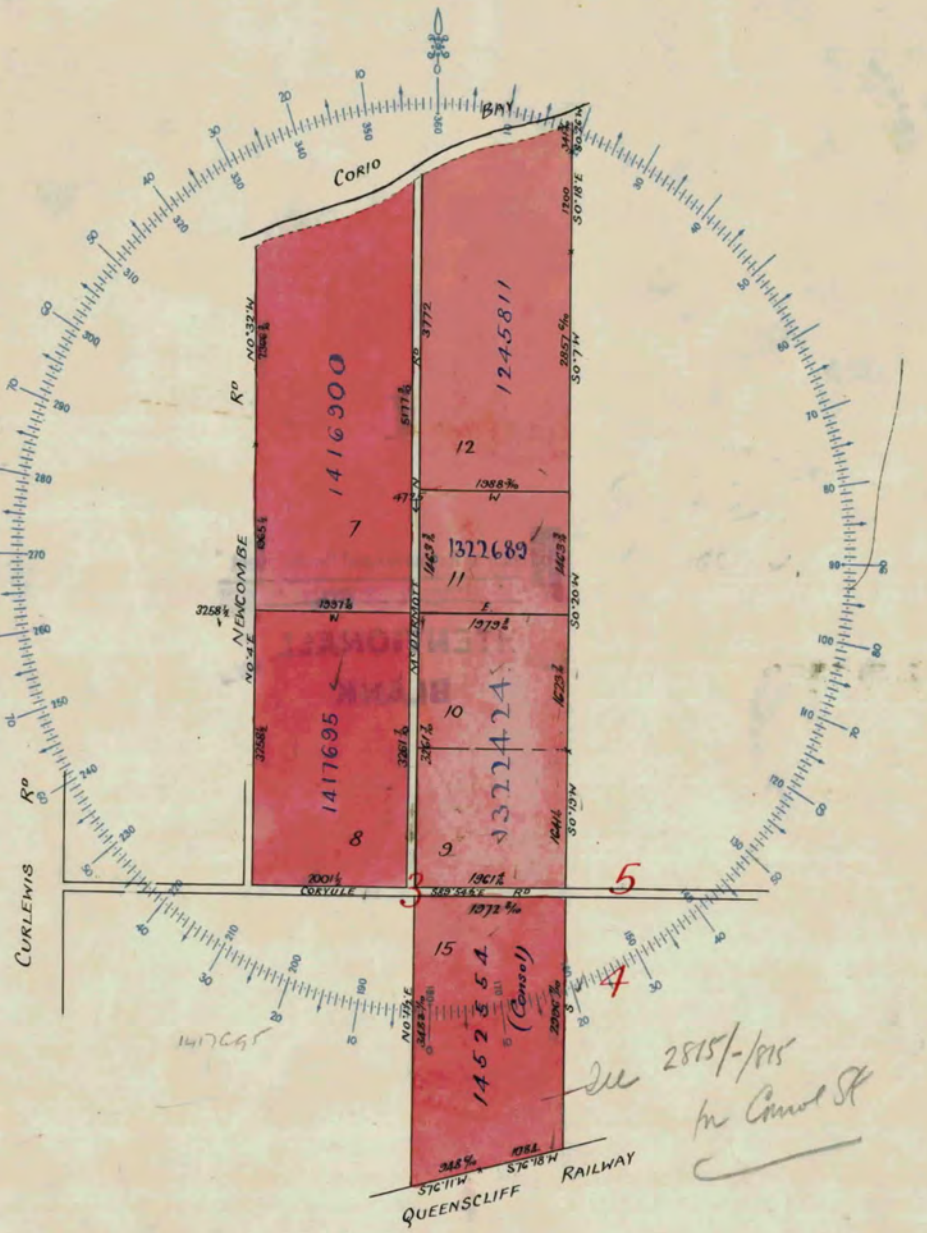
TRANSFER AS TO PART to Amelia Mary Howard registered on 9th April 1930. numbered 1452554.
CANCELLED AS TO PART See Certificate of Title Vol. 5646 Fol. 1129156
J.B. Worrell
Assistant Registrar of Titles

CAVEAT No. 75269 LODGED 30th November 1927 affecting part of the land herein
CAVEAT No. 75269 WITHDRAWN 31st March 1930
AEH

Assistant Registrar of Titles.

SCALE: 15 Chains to one inch.

Vol. 3001 fol. -084



T03001-084-2-0

L.P. 10309

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Produced 14/01/2019 02:03 PM

Volume 2539 Folio 717
Folio Creation: Details Unknown

Parent titles :
Volume 01948 Folio 511 Volume 02083 Folio 593

STATEMENT END

VOTS Snapshot

NIL

Paper Title Images

2539/717 - Version 0, Date 19/03/2000

Entered in the Register Book

Vol. 2539 Fol. 507717.

PARCELS INDEX

SECONDARY STORAGE

VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1890."

Michael McDermott of Fairview Street Newtown near Geelong Gentleman is now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All those pieces of Land, delineated and colored red and blue on the Map ~~in the margin~~ annexed hereto containing eight hundred and thirty three acres one rood and thirty six perches or thereabouts being part of Crown Portions one, two, and three Parish of Bellarine County of Grant Together with a right of carriage way over the roads delineated and colored brown on the said map —

Dated the thirtieth — day of July — One thousand eight hundred and ninety-four.

WRAndrews
Assistant Registrar of Titles.

OFFICE OF TITLES VICTORIA

ORIGINAL CERTIFICATE.
Not to be dealt with outside the Titles Office.

CANCELLED

ENCUMBRANCES REFERRED TO.

As to the land colored blue.
The easement created by Instrument of Transfer No 921006 in the Register Book
WRA

The above Encumbrance has been removed vide R.L. 1872
WRAndrews
Asst Reg of T
25th February

T02539-717-1-8

The Measurements are in

Vol. 1948 2083 Fol. 389511 416593 . Transfer 348258 Application.

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to It.	Number or Symbol thereon.
M[illegible] DISCHARGED as to the land in Transfer No 371151 WR Andrews ASST. REGR. OF TITLES 15th December 1897	7th September 1894 at 12.5 p.m. DISCHARGED ASST. REGR. OF TITLES WR Andrews 7 November 1900	Michael McDermott to Joseph Henry Grey and George Lawaluk Bell Edward Barrett Assistant Registrar of Titles.	160066
Transfer as to part. CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE VOL. 2675 FOL. 534902 ... RDS. ... PER. WR Andrews ASST. REGR. OF TITLES	The 15th December 1897 at 3 p.m.	Michael McDermott to William Gordon Coughlan WR Andrews Assistant Registrar of Titles.	371151
Caveat No 33172 lodged 18 October 1900 at 2.15 pm affecting balance of the land herein. Caveat No 33172 lapsed 29 November 1900 at 3 pm		Assistant Registrar of Titles.	
Mortgage DISCHARGED as [illegible] ASST. REGR. OF TITLES 4th April 1901	The 7th November 1900 at 2 pm	Michael McDermott to David Aitken the younger WR Andrews Assistant Registrar of Titles.	300784
Transfer as to part. CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE VOL. 2815 FOL. 562815 Edward Barrett ASSISTANT REGISTRAR OF TITLES	The 3rd April 1901 at 11.38 am.	Michael McDermott to Thomas McDermott and Peter McDermott Edward Barrett Assistant Registrar of Titles.	435811

Memo No 32653.
Thomas McDermott and Peter McDermott both of Drysdale Farmers are registered proprietors of the balance of the within described land as executors to whom probate of the will of Michael McDermott who died on the 8th June 1903 was granted on the 18th July 1903.
Dated the 16th January 1904.
H. Hooken
Assistant Registrar of Titles.

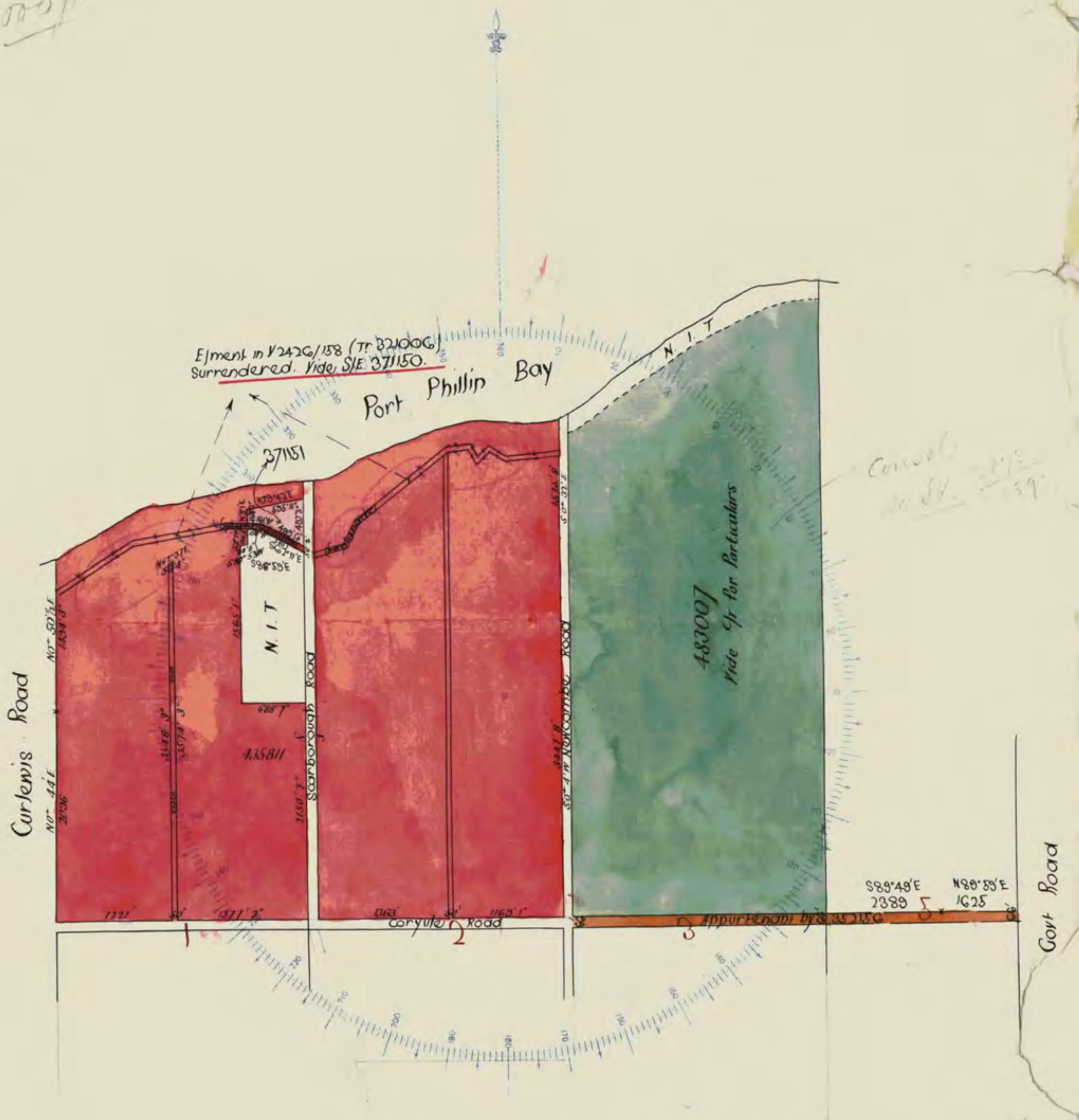
MEMORIAL OF INSTRUMENT. TIME OF PRODUCTION FOR REGISTRATION: THE 16th DAY OF January 1904 AT 11.50 O'CLOCK IN THE fore NOON. NATURE OF INSTRUMENT: Transfer as to balance. NAMES OF THE PARTIES THERETO: Thomas McDermott and Peter McDermott to Thomas McDermott and Peter McDermott. NUMBER OR SYMBOL THEREON: 483007. H. Hooken ASSISTANT REGISTRAR OF TITLES.

VOL 3001 FOL 600084

Titles Office Record of Subdivision

SCALE
100ft to one inch

Register Book Vol. 2539 Fol. 507717



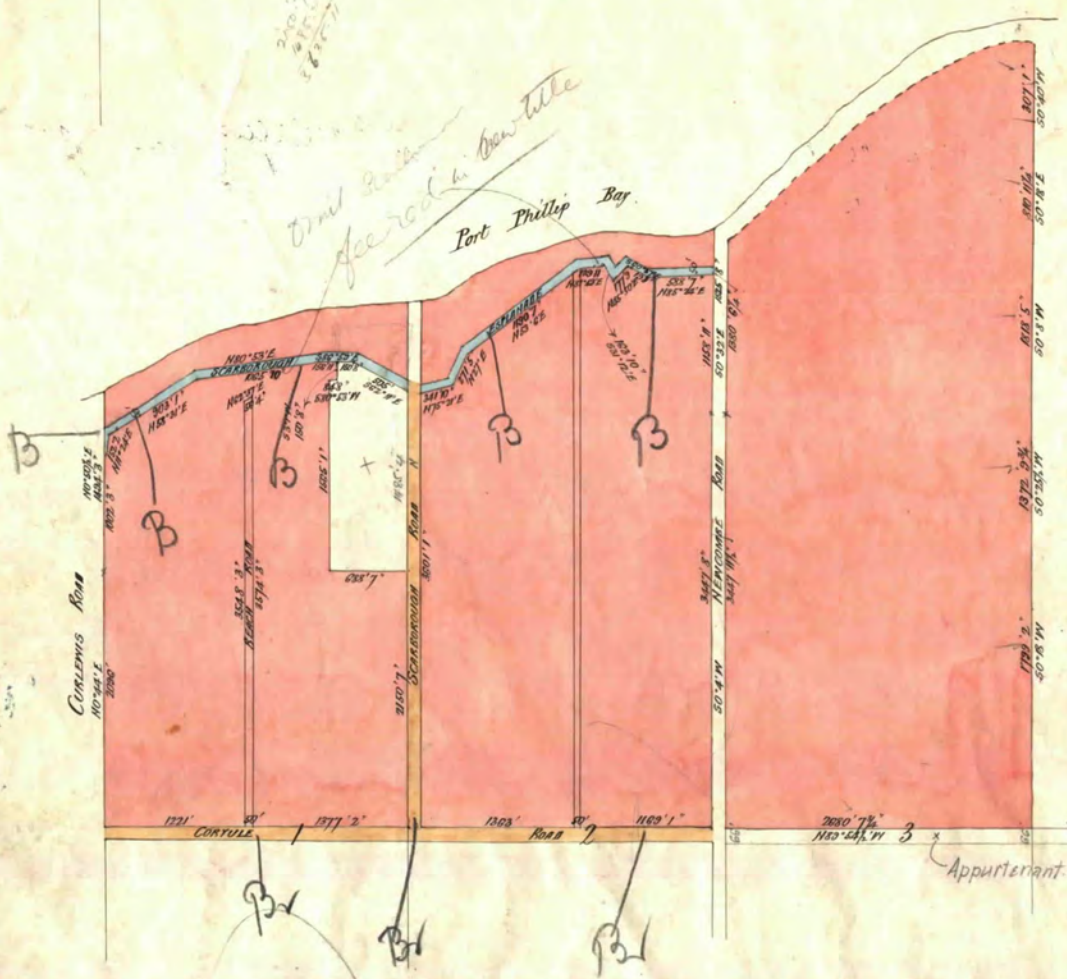
T02539-717-2-6

Eh. Ull 10/1/98

This is the annexed sheet referred to in Certificate of Title entered in the Register Book, Vol. 2539 Fol. 507717

W R Andrews

Assistant Registrar of Titles.



All measurements in Feet & Inches

Natural Resources and Environment

AGRICULTURE • RESOURCE • CULTIVATION • LAND MANAGEMENT

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Produced 08/01/2019 11:42 AM

Volume 2673 Folio 589
Folio Creation: Details Unknown

Parent titles :
Volume 01948 Folio 511 Volume 02083 Folio 593

STATEMENT END

VOTS Snapshot

NIL

Paper Title Images

2673/589 - Version 1, Date 12/12/2000

Entered in the Register Book

Vol. 2673 Fol. 534589

VICTORIA.

PARCELS INDEX

SECONDARY STORAGE

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1890."

Michael Mc Dermott of "Coryule" Drysdale Gentleman is now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All those pieces of Land, delineated and colored red on the Map in the margin, Containing Two hundred and thirteen acres two roods and ten perches or thereabouts being Lots Eight Nine and Ten on Plan of Subdivision No 3904 lodged in the office of Titles and being part of Crown Portions Two and Three Parish of Bellarine County of Grant. Together with a right of carriage way over the roads delineated and colored brown on the said maps ——

Dated the Thirtieth day of December One thousand eight hundred and ninety-Seven. —

E. J. Duncombe

Assistant Registrar of Titles.

ENCUMBRANCES REFERRED TO.

CANCELLED

ORIGINAL CERTIFICATE.

Not to be dealt with outside the Titles Office.

The Measurements are in links

T02673-589-1-6

Vol. ~~2033~~ 1940 Fol. ~~416593~~ 389511 Transfer 389156 Application

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to it.	Number or Symbol thereon.
Caveat No. 331772 lodged 18 October 1900 at 2.45 pm			
Caveat No. 331772 lapsed 29 November 1900 at 3 pm			
		Assistant Registrar of Titles.	
Mortgage DISCHARGED as to part. Edward Darnell ASST. REGISTRAR OF TITLES 3 April 1901	The 9th November 1900 at 2 pm	Michael McDermott to David Aitken the younger W.R. Andrews Assistant Registrar of Titles.	200784
Transfer as to part. CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE VOL. 2815 FOL 562815 Edward Darnell ASSISTANT REGISTRAR OF TITLES	The 3rd April 1901 at 11.38 a.m.	Michael McDermott to Thomas McDermott and Peter McDermott Edward Darnell Assistant Registrar of Titles.	435811

Memo No. 32653
Thomas McDermott and Peter McDermott both of Drysdale Farmers are registered proprietors of the balance of the within described land as Executors to whom probate of the will of Michael McDermott who died on the 8th June 1903 was granted on the 18th July 1903.
Dated the 16th January 1904.
H. Hosken
Assistant Registrar of Titles.

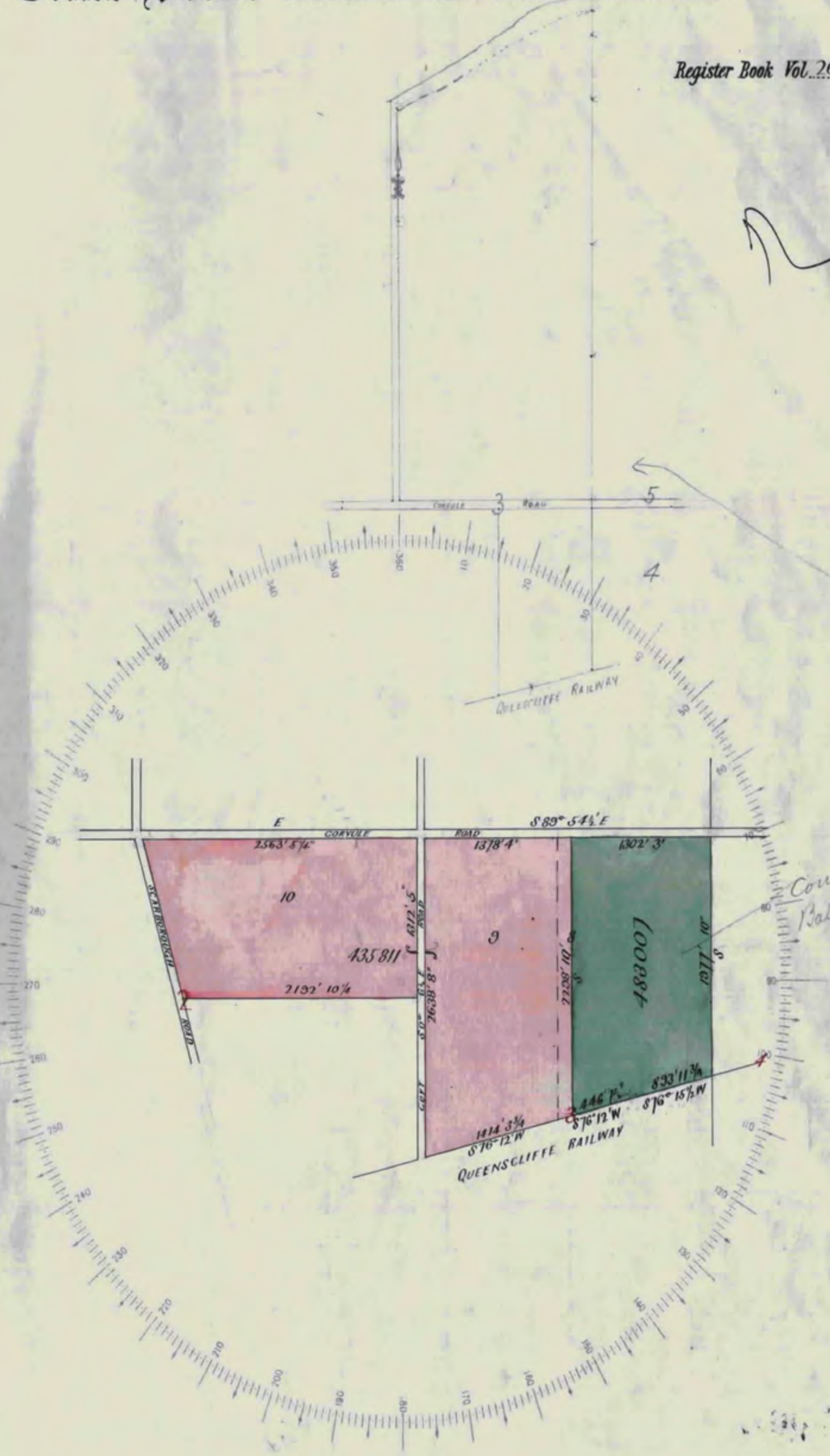
Transfer as to balance VOL 3001 FOL 600084	The 16th January 1904 at 11.15 a.m.	Thomas McDermott and Peter McDermott to Thomas McDermott and Peter McDermott H. Hosken Assistant Registrar of Titles.	483007
		Assistant Registrar of Titles.	

Titles Office Record of Subdivision

SCALE

1000 ft. to one inch

Register Book Vol. 2673 fol. 589



T02673-589-2-4

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Volume 1948 Folio 511
Folio Creation: Details Unknown

STATEMENT END

VOTS Snapshot

NIL

Paper Title Images

1948/511 - Version 0, Date 12/08/2000

Produced 16/01/2019 07:39 AM

Volume 2083 Folio 593
Folio Creation: Details Unknown

STATEMENT END

VOTS Snapshot

NIL

Paper Title Images

2083/593 - Version 0, Date 23/02/2000

Entered in the Register Book Vol. 2083 Fol. 416593

VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND STATUTE."

The Reverend James Davy Dodgson of Victoria Parade East Melbourne Wesleyan Minister is now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All that piece of Land, delineated and colored red on the Map in the margin, containing eight hundred and seventeen acres and sixteen perches or thereabouts being parts of Crown Portions three and four Parish of Bellarine County of Grant

Dated the third day of January One thousand eight hundred and eighty-nine.

Jas Davidson
Assistant Registrar of Titles.

ENCUMBRANCES REFERRED TO.

A Contract of Sale of the above land made between the above named James Davy Dodgson and the Honorable George Le Fevre Member of the Legislative Council John Ferguson William Queenland Charles Stuart Paterson dated the third day one thousand eight hundred and eighty eight

Memo: The above encumbrance has ceased to affect 10th December 1895

Edward Dowell
Assistant Registrar of Titles
A 3071

Title 6000
T = 6035. 6

Vol. Fol. Transfer Application 24521

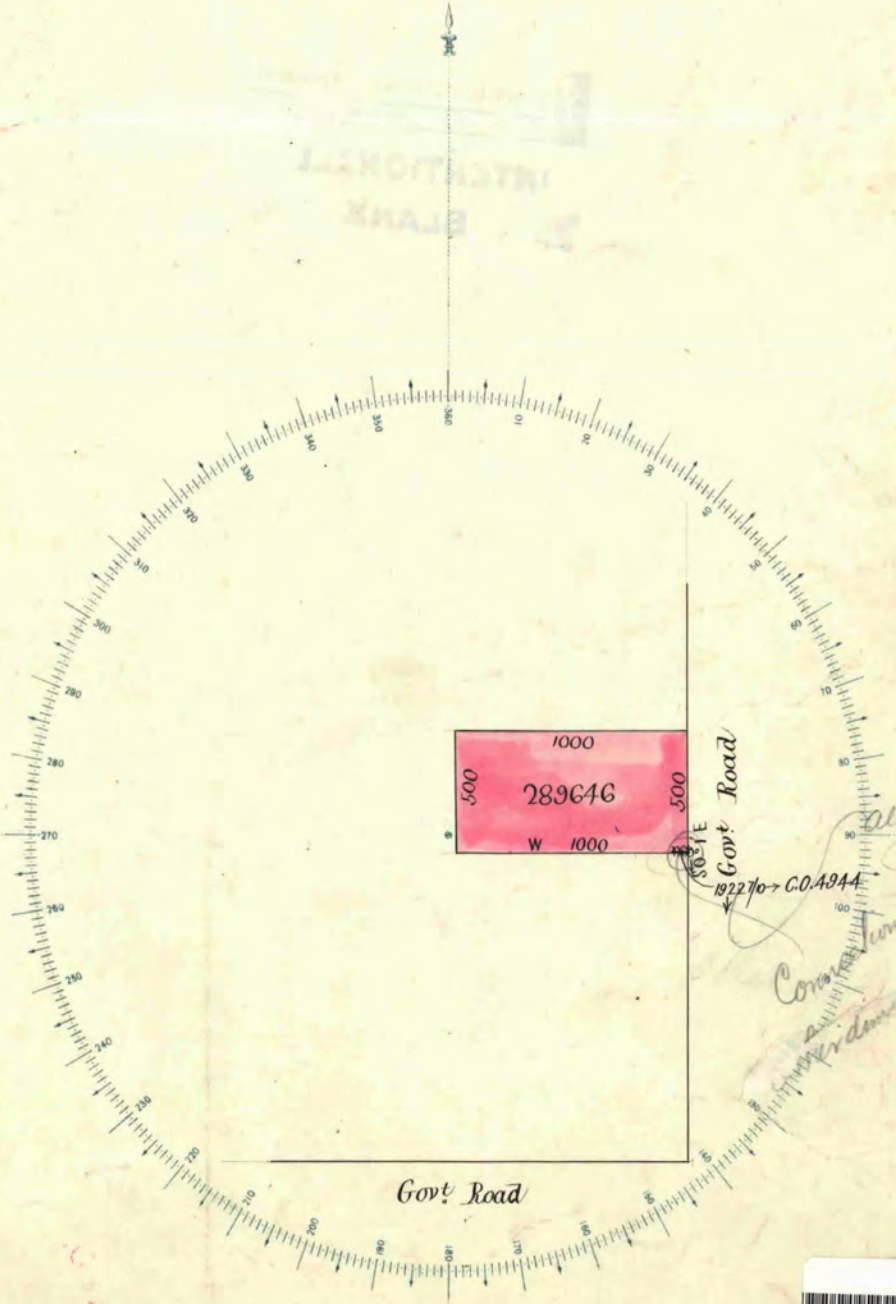
Nature of Instrument.	Day and Hour of its Production	Names of the Parties to it.	Number or Symbol thereon.
The Scarborough Estate and Land Investment Company Limited of 62 Flinders Lane West Melbourne is now the Proprietor of the within-described Estate and Land, by Transfer from the hereinnamed James Davy Hodgson, registered on the 2nd day of June 1889, at 1.39 o'clock in the afternoon, and Numbered 357921. Forde Assistant Registrar of Titles.			
Caveat No. 20150 lodged 20 August 1889 at 1.40 pm affecting Mortgage No. 104305 Caveat Lapsed 18th August 1893 at 3 pm Assistant Registrar of Titles.			
Transfer as to part TITLE VOL. 2306 FOL. 461010 Forde ASST. REGR. OF TITLES	The 1st October 1890 at 1.58 p.m.	The Scarborough Estate and Land Investment Company Limited — To — Cornelius Fogarty Forde Assistant Registrar of Titles.	289646
Transfer as to part TITLE VOL. 2539 FOL. 507717 W.R. Andrews ASST. REGISTRAR OF TITLES	The 30th July 1894 at 2 p.m.	The Scarborough Estate and Land Investment Company Limited to Michael McDermott W.R. Andrews Assistant Registrar of Titles.	348258
	The 1st August 1896 at	The Scarborough Estate and Land Investment Company Limited to The Colonial Bank of Australasia Limited Assistant Registrar of Titles.	399799

For continuation of endorsements see annexed Sheet marked "A"

Titles Office Record of Subdivision

SCALE
5 Chs: to one inch

Register Book Vol. 2083 fol. 416593



T02083-593-2-1

SHEET 1

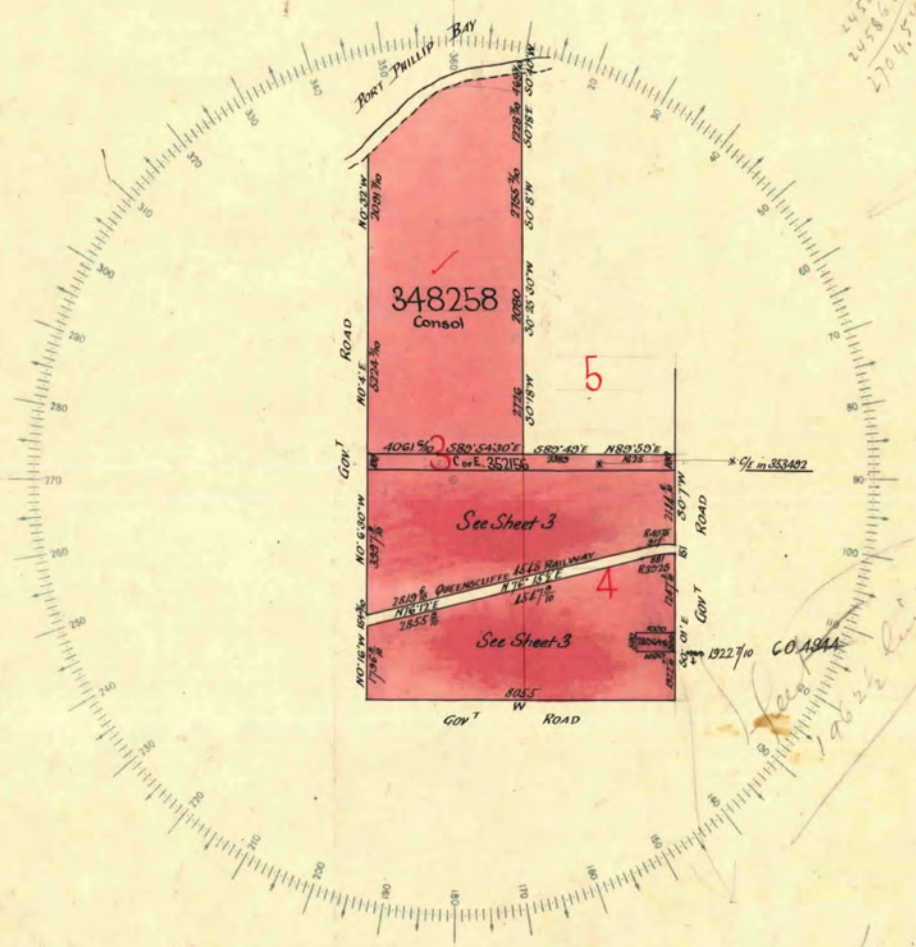
Sheet 2 attached
" 3 "

Titles Office Record of Subdivision

SCALE

30 chains to one inch

Register Book Vol. 2083 fol. 593



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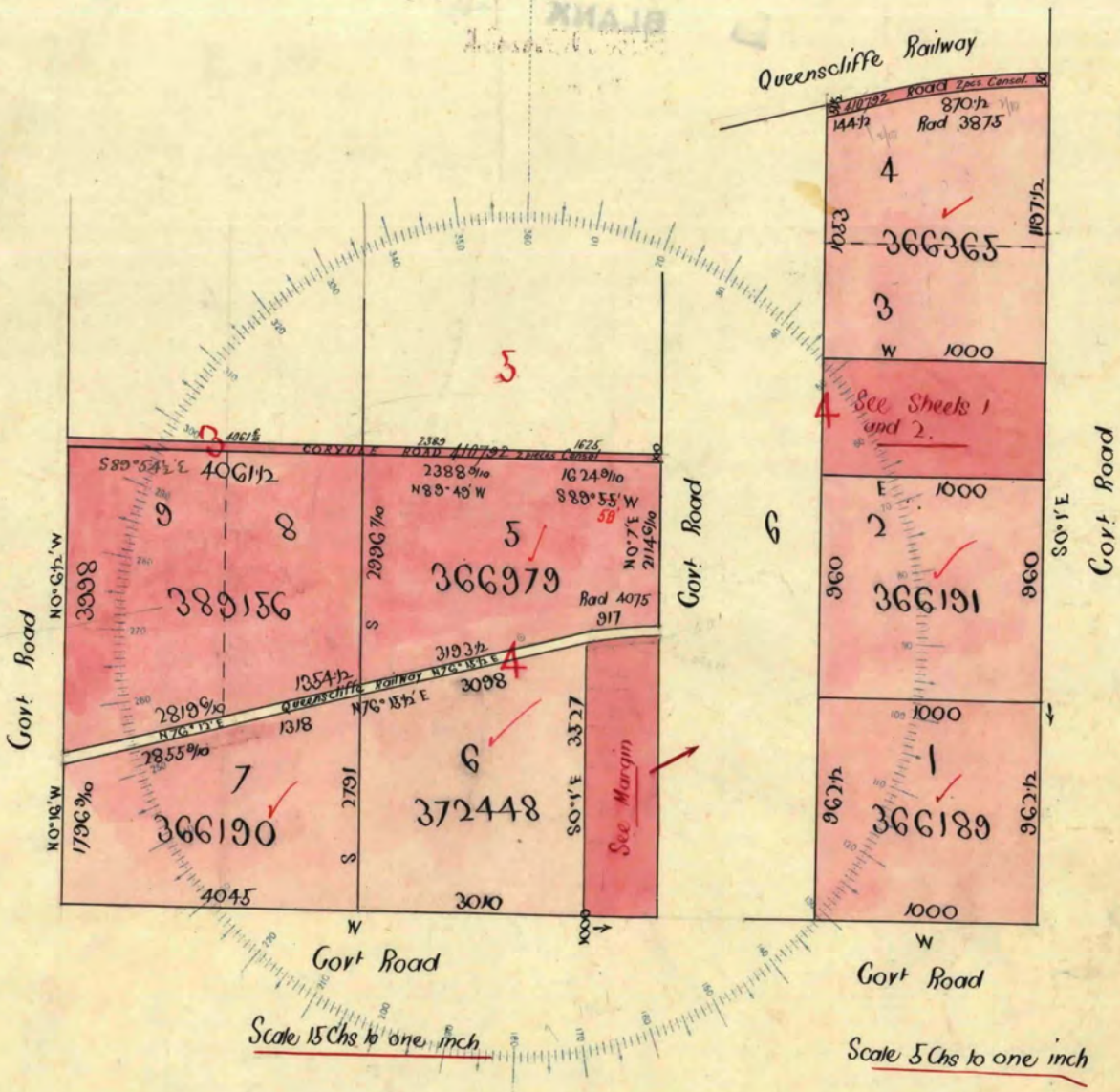
Titles Office Record of Subdivision

SCALE

..... to one inch

Register Book Vol. 2083 Fol. 416593



T02083-593-4-7

Sheet 3

L.P. 3907

22/1/96

This is the Sheet marked "A" referred to in the Certificate of Title entered in the Register Book Vol. 2083 Fol. 416 & 93.

A.W. Farland
Assistant Registrar of Titles.

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to it.	Number or Symbol thereon.
Creation of Easement	The 12th October 1894 at 12.38 pm	The Scarborough Estate and Land Investment Company Limited to Michael McDermott A.W. Farland Assistant Registrar of Titles.	352156
Creation of Easement Wm Andrews Vol 2556	The 12th December 1894 at 11.40 a.m	The Scarborough Estate and Land Investment Company Limited to William Cudgenal Reynolds. Wm Andrews Assistant Registrar of Titles.	20 Dec 92 Fol 511061
Transfer as to part. CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE, VOL. 2597 FOL. 519282 AREA, 9 AC. 2 RDS. 20 PER. Edw.d J. Duncombe ASST. REGR. OF TITLES.	The 13th January 1896 at 3pm.	The Scarborough Estate and Land Investment Company Limited to Mary Wisbey. Edw.d J. Duncombe Assistant Registrar of Titles.	366189
Transfer as to part. CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE, VOL. 2597 FOL. 519283 AREA, 92 AC. 3 RDS. 27 9/10 PER. Edw.d J. Duncombe ASST. REGR. OF TITLES.	The 13th January 1896 at 3pm	The Scarborough Estate and Land Investment Company Limited to John McMaster. Edw.d J. Duncombe Assistant Registrar of Titles.	366190
Transfer as to part. CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE, VOL. 2597 FOL. 519284 AREA, 11 AC. 1 RDS. 39 PER. Edw.d J. Duncombe ASST. REGR. OF TITLES.	The 18th January 1896 at 11.30 am	The Scarborough Estate and Land Investment Company Limited to Thomas Matthews. Edw.d J. Duncombe Assistant Registrar of Titles.	366365.
Transfer as to part and Creation of Easement CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE, VOL. 2599 FOL. 519602 AREA, 100 AC. 2 RDS. 23 2/10 PER. Wm Andrews ASST. REGR. OF TITLES.	The 8th February 1896 at 11.11am	The Scarborough Estate and Land Investment Company Limited to Thomas Tobias Grigg Wm Andrews Assistant Registrar of Titles.	366979

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to it.	Number or Symbol thereon.
Transfer as to part CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE, VOL. 2611 FOL. 522152 AREA, 9 AC. 2 RDS. 16 PER. Edw.d J. Duncombe ASST. REGR. OF TITLES.	The 13th January 1896 3 pm	The Scarborough Estate and Land Investment Company Limited to William Foster Edw.d J. Duncombe Assistant Registrar of Titles.	366/191
Transfer as to part and Creation of Easements CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE, VOL. 2618 FOL. 523535 AREA, 95 AC. 0 RDS. 12 PER. Edward Barrett ASST. REGR. OF TITLES.	The 13th July 1896 at 2.10 pm	The Scarborough Estate and Land Investment Company Limited to Henry Allen Edward Barrett Assistant Registrar of Titles.	342448
Transfer as to part and Creation of Easement CANCELLED AS TO THE LAND IN CERTIFICATE OF TITLE VOL. 2673 FOL. 534589 E.J. Duncombe ASSISTANT REGISTRAR OF TITLES	The 30th December 1897 at 1 pm	The Scarborough Estate and Land Investment Company Limited in Liquidation to Michael McDermott E.J. Duncombe Assistant Registrar of Titles.	389156
Transfer as to balance Vol 2740 Fol 547807	The 15th August 1899 at 12-27 pm	The Scarborough Estate and Land Investment Company Limited in Liquidation to The Colonial Bank of Australasia Limited W. McBryce Assistant Registrar of Titles.	410792
		Assistant Registrar of Titles.	
		Assistant Registrar of Titles.	

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 10978 FOLIO 324

Security no : 124075729850Y
Produced 16/01/2019 11:50 AM

LAND DESCRIPTION

Lot 1 on Title Plan 198964M.
PARENT TITLE Volume 09105 Folio 585
Created by instrument AE734204J 17/11/2006

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
CURLEWIS BELLARINE PTY LTD of UNIT 11 41 SABRE DRIVE PORT MELBOURNE VIC 3207
AQ666908S 25/01/2018

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP198964M FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 91-125 CORIYULE ROAD CURLEWIS VIC 3222

DOCUMENT END

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Land Use Victoria.

Document Type	**Plan**
Document Identification	**TP198964M**
Number of Pages (excluding this cover sheet)	**1**
Document Assembled	**16/01/2019 12:22**

TITLE PLAN		EDITION 1	TP 198964M

Location of Land

Parish: BELLARINE
Township:
Section:
Crown Allotment:
Crown Portion: 3(PT)

Last Plan Reference: LP10309
Derived From: VOL 9105 FOL 585
Depth Limitation: NIL

Notations

ANY REFERENCE TO MAP IN THE TEXT MEANS THE DIAGRAM SHOWN ON THIS TITLE PLAN

Description of Land / Easement Information

ALL THAT piece of land delineated and coloured red on the map hereon being ~~part of~~ Lot 15 on Plan of Subdivision No.10309 and being part of Crown Portion 3 Parish of Bellarine County of Grant Together with a right of carriage way over Coryule Road coloured brown on the said Plan of Subdivision

THIS PLAN HAS BEEN PREPARED FOR THE LAND REGISTRY, LAND VICTORIA, FOR TITLE DIAGRAM PURPOSES AS PART OF THE LAND TITLES AUTOMATION PROJECT
COMPILED: 23/11/2000
VERIFIED: SO'C

COLOUR CODE
R = RED

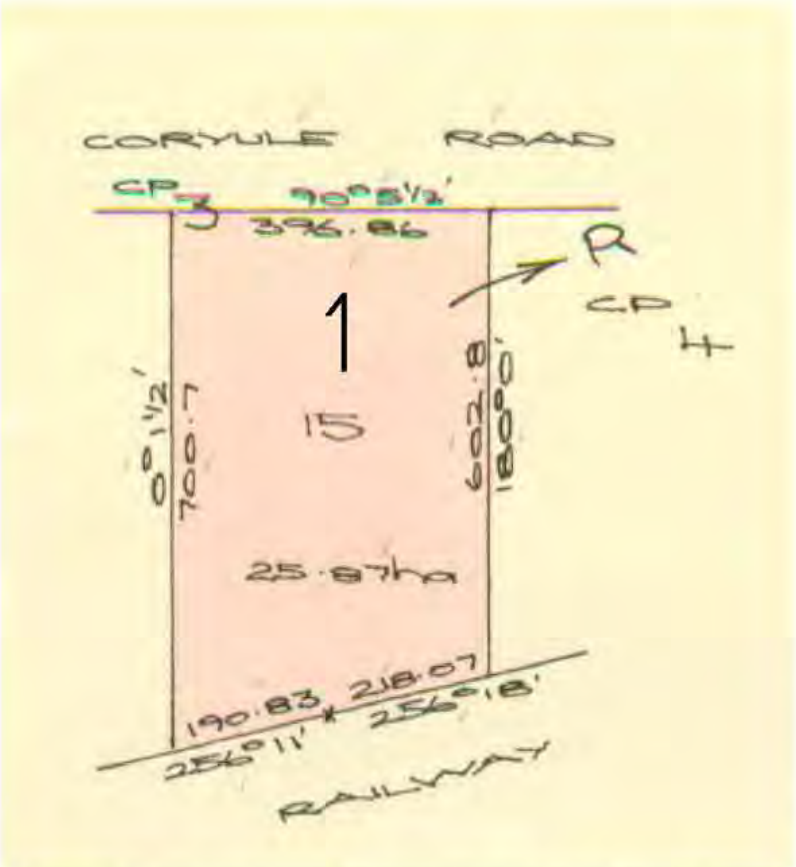


TABLE OF PARCEL IDENTIFIERS

WARNING: Where multiple parcels are referred to or shown on this Title Plan this does not imply separately disposable parcels under Section 8A of the Sale of Land Act 1962

PARCEL 1 = LOT 15 ON LP10309

LENGTHS ARE IN METRES	Metres = 0.3048 x Feet Metres = 0.201168 x Links		Sheet 1 of 1 sheets

Produced 16/01/2019 12:22 PM

Volume 10978 Folio 324
Folio Creation: Created as a computer folio
Parent title Volume 09105 Folio 585

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged
13/12/2006	13/12/2006	AE784245L	Y
MORTGAGE OF LAND MORTGAGE AE784245L 13/12/2006 BENDIGO BANK LTD			
13/12/2006	13/12/2006	AE784244N	Y
DISCHARGE OF MORTGAGE MORTGAGE(S) REMOVED AC598544E			
05/09/2008	05/09/2008	AG068565T	Y
MORTGAGE OF LAND MORTGAGE AG068565T 05/09/2008 SEWELLS FINANCE LIMITED			
05/09/2008	05/09/2008	AG068564V	Y
DISCHARGE OF MORTGAGE AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S) MORTGAGE AE784245L			
28/01/2009	28/01/2009	AG314208B	Y
MORTGAGE OF LAND MORTGAGE AG314208B 28/01/2009 SEWELLS FINANCE LTD			
10/04/2010	10/04/2010	AH151531Q	N
RECTIFICATION MODIFY MORTGAGE MORTGAGE AG068565T 05/09/2008 SEWELLS FINANCE LTD			
04/06/2010	04/06/2010	AH275179K	Y
CAVEAT CAVEAT AH275179K 04/06/2010			

Caveator
CURLEWIS BELLARINE PTY LTD
Capacity PURCHASER/FEE SIMPLE
Lodged by
RISTEVSKI LAWYERS
Notices to
RISTEVSKI LAWYERS of 1 HIGH STREET DRYSDALE VIC 3222

02/02/2011 02/02/2011 AH759751L Y

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AG314208B

18/02/2014 18/02/2014 AK907721X Y

DISCHARGE OF MORTGAGE
AFFECTED ENCUMBRANCE(S) AND REMOVED MORTGAGE(S)
MORTGAGE AG068565T

18/07/2014 18/07/2014 AL238140P Y

CAVEAT
CAVEAT AL238140P 18/07/2014
Caveator
CURLEWIS BELLARINE PTY LTD
Grounds of Claim
PURCHASERS' CONTRACT WITH THE FOLLOWING PARTIES AND DATE.
Parties
THE REGISTERED PROPRIETOR(S)
Date
14/07/2014
Estate or Interest
FREEHOLD ESTATE
Prohibition
ABSOLUTELY
Lodged by
MADDOCKS - LAWYERS
Notices to
MADDOCKS of 140 WILLIAM STREET MELBOURNE VIC 3000

18/07/2014 18/07/2014 AL238139X Y

WITHDRAWAL OF CAVEAT
CAVEAT AH275179K REMOVED

25/01/2018 25/01/2018 AQ666908S Y

TRANSFER OF LAND BY ENDORSEMENT AND REMOVAL OF CAVEAT AL238140P
FROM:
MARK RONALD CHIRGWIN
TO:
CURLEWIS BELLARINE PTY LTD

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
CURLEWIS BELLARINE PTY LTD of UNIT 11 41 SABRE DRIVE PORT MELBOURNE VIC 3207
AQ666908S 25/01/2018
AND LAPSING OF CAVEAT AL238140P

STATEMENT END

VOTS Snapshot

Volume 10978 Folio 324
124019764288G
Produced 20/11/2006 09:42 am

LAND DESCRIPTION

Lot 1 on Title Plan 198964M (formerly known as Lot 15 on Plan of Subdivision 010309).
PARENT TITLE Volume 09105 Folio 585
Created by instrument AE734204J 17/11/2006

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
MARK RONALD CHIRGWIN of 135 CORYULE RD CURLEWIS 3222
V639918V 15/09/1998

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AC598544E 13/01/2004
AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP198964M FOR FURTHER DETAILS AND BOUNDARIES

Produced 16/01/2019 02:06 PM

Volume 5646 Folio 156
Folio Creation: Details Unknown

Parent titles :
Volume 02815 Folio 815 Volume 03001 Folio 084

STATEMENT END

VOTS Snapshot

NIL

Paper Title Images

5646/156 - Version 0, Date 30/10/1999

Entered in the Register Book

Vol. 5646 Fol. 129156

CANCELLED

VICTORIA.

Certificate of Title,

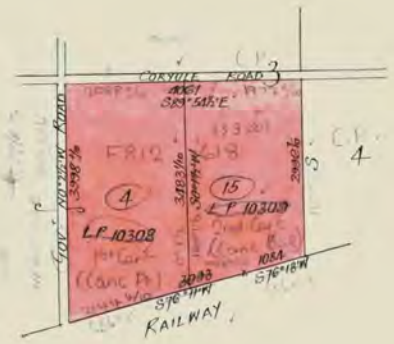
UNDER THE "TRANSFER OF LAND ACT 1928."

Amelia Mary Howard of Drysdale Married Woman is - - - - - - - - - - - - - - - - -
now the proprietor of an Estate in Fee-simple, subject to the Encumbrances
notified hereunder in All *that piece of Land, delineated and coloured*
red on the map in the margin containing One hundred and forty-one acres Three roods -
and Twenty-nine perches or thereabouts being part of Crown Portion Three Parish of -
Bellarine County of Grant - Together with a right of carriage way over Coryule Road
colored brown on Plan of Subdivision No.10309 lodged in the Office of Titles - - - -

Dated the Ninth *day of* April *One*
thousand nine hundred and thirty.

Assistant Registrar of Titles.

ENCUMBRANCES REFERRED TO.



T05646-156-1-1

ORIGINAL CERTIFICATE.
Not to be dealt with outside the Titles Office.

The Measurements are in links

Vol. 3001 Fol. 600084 Transfer. 1452551 Application
2815 562815

MORTGAGE to THE COMMISSIONERS OF THE STATE SAVINGS BANK OF VICTORIA registered
DISCHARGED
on 9 April 1930 numbered 644026.
Assistant Registrar of Titles
8th June 1950

The endorsement must be done on the duplicate
6/6/50

Red Ink No. 4837022
Amelia Mary Howard died
on 12th January 1944 Probate of her Will
has been granted to
Public Trustee
Dated 22nd February 1950
Assistant Registrar of Titles

Alan Leslie Whitcombe and Ian Maxwell Whitcombe
both of Drysdale Farmers
are now joint proprietors of the within described
estate by transfer registered on 8th June 1950
and numbered 2335228
26-10-50
Assistant Registrar of Titles

PATRICIA MAY GWENDOLINE CHIRGWIN of Drysdale Married Woman is now the proprietor
Registered 16th December 1963
No.B821575
OFFICE OF TITLES R.L. VICTORIA

TRANSFER No. F812618 registered 14th August 1975
CANCELLED See Vol. 9105 Fol. 584
585
OFFICE OF TITLES A.S. VICTORIA

CANCELLED

Environmental Site Assessments

Appendix 4: ESV Cathodic Protection Search

19 December, 2018

energysafe VICTORIA

Creating a safer state with electricity and gas

To: Seton Lillas

Environmental Site Assessment

T: 0433 747 187

SEARCH FOR CATHODIC PROTECTION SYSTEMS

With reference to your email of 19/12/2018, a search of the CP database has failed to identify any cathodic protection systems that have been registered at the following locations:

- ***32-70 McDermott Road, Curlewis***
- ***91-125 Coriyule Road, Curlewis***

Yours sincerely

Peter Wade
MANAGER ELECTROLYSIS MITIGATION

Disclaimer

Energy Safe Victoria provides this information in good faith, but cannot guarantee the accuracy or validate the information provided. The Cathodic Protection (CP) database is a register of currently operating Cathodic Protection systems in Victoria and was established in 1970. The CP database is administered under the Electricity Safety Act 1998 and the Electricity Safety (Cathodic Protection) Regulations 2009.
Some underground fuel tanks may not be listed in the CP database including: if the tank is not metallic (therefore not requiring CP); the tank is metallic but CP was not installed; the CP system was not registered, or the CP system has been de-commissioned.
If you believe underground tanks may be present and not shown on ESV's database you should conduct your own tests and investigations.

Environmental Site Assessments

Appendix 5: Sample Locations

Environmental Site Assessments

Phone: 03 5221 8136
office@esagroup.com.au
PO Box 3106,
Waurn Ponds, VIC 3216
www.esagroup.com.au

Legend

Sample Points

Aerial sourced from Nearmap

Designed:	S. Lillas	Revision:	1
Drawn:	S. Lillas	Date:	19/12/18
File:	Sample Locations.pdf		

N

Title:	Sample Locations
Project:	Environmental Assessment
Location:	32-70 McDermott Road and 91-125 Coriyule Road, Curlewis
Client:	Heather & Graham Moss / Curlewis Bellarine Pty Ltd

Environmental Site Assessments

Appendix 6: PID Calibration Form

AES
ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
PID	10.6eV	1062R129024	Isobutylene	100 PPM	S110317-1		0	100

Calibrated/Repaired by: DARREN FRANCALANZA Date: 17.10.2018 Next Due: 17.04.2019

Melbourne	**Head Office**	2 Merchant Avenue	THOMASTOWN VIC 3074	T: +(613) 9464 2300	F: + (613) 9464 3421
Sydney	S14 Lvl 2	6-8 Holden Street	ASHFIELD NSW 2131	T: +(612) 9716 5966	F: + (612) 9716 5988
Perth	Unit 6	41 Holder Way	MALAGA WA 6090	T: +(618) 9249 5663	F: + (618) 9249 5362
Brisbane	Unit 17	23 Ashtan Place	BANYO QLD 4014	T: +(617) 3267 1433	F: + (617) 3267 3559

sales@aesolutions.com.au

ISO Certified 9001:2008

www.aesolutions.com.au

Environmental Site Assessments

Appendix 7: Comparison Tables

		OCP		BTEX								Cyanides	Halogenated Benzenes	Halogenated Phenols						Herbicides	Inorganics		Lead		
	Tokuthion	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAV	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	Cyanide (WAD)	Hexachlorobenzene	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,6-dichlorophenol	2-chlorophenol	Pentachlorophenol	Atrazine	Moisture	Moisture Content (dried @ 103°C)	Lead	Arsenic	Barium
	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
EQL				0.2	0.5	0.5	0.2	0.5	0.5	0.5	10	1	0.05	0.5	0.5	0.5	0.5	0.5	2	0.05	1		5	2	10
NEPM 2013 Table 1A(1) HILs Res A Soil													10						100	320			300	100	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																									
0-1m				0.5|0.6|0.7	NL|55	160|390|480				40|95|110	40|45|50													
NEPM 2013 Table 1B(6) ESLs for Urban Res				65		105																			
0-2m				50	70|125	85				45|105															
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland																									

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type																						
SP01	0-0.15	QC03	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	7.2	-	8	6	40
SP01	0-0.15	QC04	13/02/2019	SILT	<0.2	<0.1	<0.1	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	5.7	8.5	4.6	37
SP01	0-0.15	SP01/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	7.7	-	8	<5	40
SP02	0-0.15	SP02/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	6	-	8	6	50
SP03	0-0.15	SP03/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	6.3	-	8	7	50
SP04	0-0.15	SP04/0-0.15	13/02/2019	SILT	-	-	-	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<10	<1	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.05	7.1	-	7	<5	50
SP05	0-0.15	SP05/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	4	-	6	<5	20
SP06	0-0.15	SP06/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	3.2	-	11	8	20
SP07	0-0.15	SP07/0-0.15	13/02/2019	SILT	-	-	-	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<10	<1	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.05	3.8	-	11	<5	20
SP08	0-0.15	SP08/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	2.2	-	6	<5	10
SP09	0-0.15	SP09/0-0.15	13/02/2019	SILT	-	-	-	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<10	<1	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.05	3.3	-	<5	<5	10
SP10	0-0.15	SP10/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	5.8	-	7	<5	30
SP11	0-0.15	SP11/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	7	-	6	<5	20
SP12	0-0.15	SP12/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	2.8	-	5	<5	<10
SP13	0-0.15	SP13/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	4.1	-	<5	<5	20
SP14	0-0.15	SP14/0-0.15	13/02/2019	SILT	-	-	-	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<10	<1	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.05	3.2	-	<5	<5	20
SP15	0-0.15	SP15/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	2.9	-	6	<5	20
SP16	0-0.15	SP16/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	2.8	-	5	<5	20
SP17	0-0.15	SP17/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	1.8	-	<5	<5	10
SP18	0-0.15	SP18/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	2.3	-	<5	<5	20
SP19	0-0.15	SP19/0-0.15	13/02/2019	SILT	-	-	-	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<10	<1	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.05	5.9	-	7	<5	30
SP20	0-0.15	SP20/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	2.5	-	<5	<5	10
SP21	0-0.15	SP21/0-0.15	13/02/2019	SILT	-	-	-	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<10	<1	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.05	1.7	-	<5	<5	20
SP22	0-0.15	SP22/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	2.1	-	<5	<5	20
SP23	0-0.15	SP23/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	3.1	-	<5	<5	20
SP24	0-0.15	SP24/0-0.15	13/02/2019	SILT	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	3.8	-	<5	<5	20

Environmental Site Assessments

Metals

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Chromium (Trivalent)	Cobalt	Copper	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					1	10	0.4	0.5	2		2	5	5	0.1	2	5	5	5
NEPM 2013 Table 1A(1) HILs Res A Soil					60	4500	20	100			100	6000	3800	40	400	200		7400
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																		
0-1m																		
NEPM 2013 Table 1B(6) ESLs for Urban Res																		
0-2m																		
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland																		
SP01	0-0.15	QC03	13/02/2019	SILT	<1	<50	<1	-	14	-	7	5	230	<0.1	9	<5	28	13
SP01	0-0.15	QC04	13/02/2019	SILT	<2	<10	<0.4	<1	16	16	6.8	5.9	220	<0.1	8.9	-	29	14
SP01	0-0.15	SP01/0-0.15	13/02/2019	SILT	<1	<50	<1	-	14	-	7	6	226	<0.1	8	<5	27	14
SP02	0-0.15	SP02/0-0.15	13/02/2019	SILT	<1	<50	<1	-	23	-	7	7	221	<0.1	14	<5	34	16
SP03	0-0.15	SP03/0-0.15	13/02/2019	SILT	<1	<50	<1	-	17	-	8	7	290	<0.1	11	<5	35	14
SP04	0-0.15	SP04/0-0.15	13/02/2019	SILT	<1	<50	<1	<0.5	13	-	6	5	173	<0.1	7	<5	22	13
SP05	0-0.15	SP05/0-0.15	13/02/2019	SILT	<1	<50	<1	-	10	-	4	<5	93	<0.1	5	<5	24	7
SP06	0-0.15	SP06/0-0.15	13/02/2019	SILT	<1	<50	<1	-	11	-	2	<5	51	<0.1	4	<5	32	6
SP07	0-0.15	SP07/0-0.15	13/02/2019	SILT	<1	<50	<1	<0.5	6	-	<2	<5	42	<0.1	2	<5	14	13
SP08	0-0.15	SP08/0-0.15	13/02/2019	SILT	<1	<50	<1	-	6	-	<2	<5	31	<0.1	3	<5	13	9
SP09	0-0.15	SP09/0-0.15	13/02/2019	SILT	<1	<50	<1	<0.5	4	-	<2	<5	19	<0.1	<2	<5	12	5
SP10	0-0.15	SP10/0-0.15	13/02/2019	SILT	<1	<50	<1	-	11	-	5	<5	141	<0.1	6	<5	20	9
SP11	0-0.15	SP11/0-0.15	13/02/2019	SILT	<1	<50	<1	-	6	-	<2	<5	42	<0.1	3	<5	12	9
SP12	0-0.15	SP12/0-0.15	13/02/2019	SILT	<1	<50	<1	-	5	-	<2	<5	23	<0.1	2	<5	12	<5
SP13	0-0.15	SP13/0-0.15	13/02/2019	SILT	<1	<50	<1	-	6	-	<2	<5	40	<0.1	4	<5	22	<5
SP14	0-0.15	SP14/0-0.15	13/02/2019	SILT	<1	<50	<1	<0.5	6	-	<2	<5	26	<0.1	4	<5	26	<5
SP15	0-0.15	SP15/0-0.15	13/02/2019	SILT	<1	<50	<1	-	6	-	<2	<5	37	<0.1	4	<5	19	<5
SP16	0-0.15	SP16/0-0.15	13/02/2019	SILT	<1	<50	<1	-	8	-	3	<5	68	<0.1	4	<5	15	17
SP17	0-0.15	SP17/0-0.15	13/02/2019	SILT	<1	<50	<1	-	3	-	<2	<5	13	<0.1	<2	<5	9	6
SP18	0-0.15	SP18/0-0.15	13/02/2019	SILT	<1	<50	<1	-	6	-	<2	<5	32	<0.1	3	<5	15	7
SP19	0-0.15	SP19/0-0.15	13/02/2019	SILT	<1	<50	<1	<0.5	14	-	3	<5	78	<0.1	12	<5	49	13
SP20	0-0.15	SP20/0-0.15	13/02/2019	SILT	<1	<50	<1	-	4	-	<2	<5	48	<0.1	2	<5	11	9
SP21	0-0.15	SP21/0-0.15	13/02/2019	SILT	<1	<50	<1	<0.5	5	-	<2	<5	119	<0.1	2	<5	11	6
SP22	0-0.15	SP22/0-0.15	13/02/2019	SILT	<1	<50	<1	-	4	-	<2	<5	17	<0.1	<2	<5	11	<5
SP23	0-0.15	SP23/0-0.15	13/02/2019	SILT	<1	<50	<1	-	3	-	<2	<5	49	<0.1	<2	<5	9	5
SP24	0-0.15	SP24/0-0.15	13/02/2019	SILT	<1	<50	<1	-	5	-	<2	<5	61	<0.1	4	<5	22	8

Organochlorine Pesticides

LocCode	Field_ID	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HILs Res A Soil					6		50						240		270			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																		
0-1m																		
NEPM 2013 Table 1B(6) ESLs for Urban Res																		
0-2m																		
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland																		
SP01	QC03	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.05	<0.05	<0.05	<0.05	<0.05
SP01	QC04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05
SP01	SP01/0-0.15	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.05	<0.05	<0.05	<0.05	<0.05
SP02	SP02/0-0.15	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.05	<0.05	<0.05	<0.05	<0.05
SP03	SP03/0-0.15	<0.05	<0.05	<0.05	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.23	<0.05	<0.05	<0.05	<0.05
SP04	SP04/0-0.15	<0.05	<0.05	<0.05	0.35	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.35	<0.05	<0.05	<0.05	<0.05
SP05	SP05/0-0.15	<0.05	<0.05	<0.05	0.28	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.28	<0.05	<0.05	<0.05	<0.05
SP06	SP06/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP07	SP07/0-0.15	<0.05	<0.05	<0.05	0.38	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.38	<0.05	<0.05	<0.05	<0.05
SP08	SP08/0-0.15	<0.05	<0.05	<0.05	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.26	<0.05	<0.05	<0.05	<0.05
SP09	SP09/0-0.15	<0.05	<0.05	<0.05	0.33	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.33	<0.05	<0.05	<0.05	<0.05
SP10	SP10/0-0.15	<0.05	<0.05	<0.05	0.38	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.38	<0.05	<0.05	<0.05	<0.05
SP11	SP11/0-0.15	<0.05	<0.05	<0.05	0.35	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.35	<0.05	<0.05	<0.05	<0.05
SP12	SP12/0-0.15	<0.05	<0.05	<0.05	0.21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.21	<0.05	<0.05	<0.05	<0.05
SP13	SP13/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP14	SP14/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP15	SP15/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP16	SP16/0-0.15	0.09	<0.05	<0.05	0.63	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	0.09	0.63	<0.05	<0.05	<0.05	<0.05
SP17	SP17/0-0.15	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.08	<0.05	<0.05	<0.05	<0.05
SP18	SP18/0-0.15	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	0.09	<0.05	<0.05	<0.05	<0.05
SP19	SP19/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP20	SP20/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP21	SP21/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP22	SP22/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP23	SP23/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SP24	SP24/0-0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

										Organophosphorous Pesticides																												
	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Azinophos methyl	Bolstar (Sulprofos)	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)
	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	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.05	0.05	0.05	0.05	0.05	0.05		0.05		0.05	0.05	0.05	0.05	0.05				0.05	0.05	0.05		0.05				0.05	0.05		0.2	
NEPM 2013 Table 1A(1) HILs Res A Soil	10				6		300	20						160																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																															
0-1m																															
NEPM 2013 Table 1B(6) ESLs for Urban Res																															
0-2m																															
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland																															

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type																																		
SP01	0-0.15	QC03	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP01	0-0.15	QC04	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
SP01	0-0.15	SP01/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP02	0-0.15	SP02/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP03	0-0.15	SP03/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP04	0-0.15	SP04/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP05	0-0.15	SP05/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP06	0-0.15	SP06/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP07	0-0.15	SP07/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP08	0-0.15	SP08/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP09	0-0.15	SP09/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP10	0-0.15	SP10/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP11	0-0.15	SP11/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP12	0-0.15	SP12/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP13	0-0.15	SP13/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP14	0-0.15	SP14/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP15	0-0.15	SP15/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP16	0-0.15	SP16/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP17	0-0.15	SP17/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP18	0-0.15	SP18/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP19	0-0.15	SP19/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP20	0-0.15	SP20/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP21	0-0.15	SP21/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP22	0-0.15	SP22/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP23	0-0.15	SP23/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-
SP24	0-0.15	SP24/0-0.15	13/02/2019	SILT	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-

												PAH	PAH/Phenols																					
												Benzo[b+j]fluoranthene	2,4-dimethylphenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Carcinogenic PAHs (as B(a)P TPE)	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)
												Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Prothiofos	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos													
												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
EQL												0.5	0.5	0.5	0.5	1	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	0.5	0.5
NEPM 2013 Table 1A(1) HILs Res A Soil																												3						300
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																																		
0-1m																																	3|4|5	
NEPM 2013 Table 1B(6) ESLs for Urban Res																																		
0-2m																						0.7												
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland																																		
LocCode	**Sample_Depth_Range**	**Field_ID**	**Sampled_Date-Time**	**Env_Stds_Conditional_Matrix_Type**																														
SP01	0-0.15	QC03	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP01	0-0.15	QC04	13/02/2019	SILT	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP01	0-0.15	SP01/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP02	0-0.15	SP02/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP03	0-0.15	SP03/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP04	0-0.15	SP04/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<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
SP05	0-0.15	SP05/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP06	0-0.15	SP06/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP07	0-0.15	SP07/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<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
SP08	0-0.15	SP08/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP09	0-0.15	SP09/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<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
SP10	0-0.15	SP10/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP11	0-0.15	SP11/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP12	0-0.15	SP12/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP13	0-0.15	SP13/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP14	0-0.15	SP14/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<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
SP15	0-0.15	SP15/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP16	0-0.15	SP16/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP17	0-0.15	SP17/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP18	0-0.15	SP18/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP19	0-0.15	SP19/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<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
SP20	0-0.15	SP20/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP21	0-0.15	SP21/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<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
SP22	0-0.15	SP22/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP23	0-0.15	SP23/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP24	0-0.15	SP24/0-0.15	13/02/2019	SILT	<0.2	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

				Pesticides							Polychlorinated Biphenyls	SVOCs	TPH										
	Phenanthrene	Phenol	Pyrene	Bifenthrin	Demeton-S-methyl	Fenamiphos	Mirex	Parathion	Pirimiphos-methyl	Pirimphos-ethyl	PCBs (Sum of total)	EPN	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C10 - C40 (Sum of total)	C6-C10
	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
EQL	0.5	0.5	0.5	0.05	0.05	0.05	0.2	0.2		0.05	0.1		50	100	100	50	10	50	100	100	50	50	10
NEPM 2013 Table 1A(1) HILs Res A Soil		3000		600			10				1												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																							
0-1m																110|230|280							
NEPM 2013 Table 1B(6) ESLs for Urban Res													120	1300	5600								180
0-2m													120	300	2800								180
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland													1000	2500|3500	10000								700|800

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type																					
SP01	0-0.15	QC03	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP01	0-0.15	QC04	13/02/2019	SILT	-	-	-	-	-	-	-	<0.2	<0.2	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-
SP01	0-0.15	SP01/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP02	0-0.15	SP02/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP03	0-0.15	SP03/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP04	0-0.15	SP04/0-0.15	13/02/2019	SILT	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.05	<0.1	-	<50	<100	<100	<50	<10	<50	<100	<100	<50	<50	<10
SP05	0-0.15	SP05/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP06	0-0.15	SP06/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP07	0-0.15	SP07/0-0.15	13/02/2019	SILT	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.05	<0.1	-	<50	<100	<100	<50	<10	<50	<100	<100	<50	<50	<10
SP08	0-0.15	SP08/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP09	0-0.15	SP09/0-0.15	13/02/2019	SILT	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.05	<0.1	-	<50	<100	<100	<50	<10	<50	<100	<100	<50	<50	<10
SP10	0-0.15	SP10/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP11	0-0.15	SP11/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP12	0-0.15	SP12/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP13	0-0.15	SP13/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP14	0-0.15	SP14/0-0.15	13/02/2019	SILT	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.05	<0.1	-	<50	<100	<100	<50	<10	<50	<100	<100	<50	<50	<10
SP15	0-0.15	SP15/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP16	0-0.15	SP16/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP17	0-0.15	SP17/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP18	0-0.15	SP18/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP19	0-0.15	SP19/0-0.15	13/02/2019	SILT	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.05	<0.1	-	<50	<100	<100	<50	<10	<50	<100	<100	<50	<50	<10
SP20	0-0.15	SP20/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP21	0-0.15	SP21/0-0.15	13/02/2019	SILT	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.05	<0.1	-	<50	<100	<100	<50	<10	<50	<100	<100	<50	<50	<10
SP22	0-0.15	SP22/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP23	0-0.15	SP23/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
SP24	0-0.15	SP24/0-0.15	13/02/2019	SILT	-	-	-	-	<0.05	<0.05	-	<0.2	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-

Field Duplicates (SOIL)
Filter: SDG in('ALSE-M

	SDG	ALSE-Melbourne 14-Feb-19	ALSE-Melbourne 14-Feb-19		ALSE-Melbourne 14-Feb-19	ALSE-Melbourne 14-Feb-19	
	Field ID	SP01/0-0.15	QC03	RPD	SP01/0-0.15	QC04	RPD
	Sampled Date/Time	13/02/2019 10:14	13/02/2019 10:14		13/02/2019 10:14	13/02/2019 10:14	
Chem_Gr	ChemNam	Units	EQL						
Halogenat	Hexachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
ed Benzenes									
Inorganics	Moisture	%	1	7.7	7.2	7	7.7		
Lead	Lead	mg/kg	5	8.0	8.0	0	8.0	8.5	6
Metals	Arsenic	mg/kg	5 (Primary): 2 (Interlab)	<5.0	6.0	18	<5.0	4.6	0
	Barium	mg/kg	10	40.0	40.0	0	40.0	37.0	8
	Beryllium	mg/kg	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
	Boron	mg/kg	50 (Primary): 10 (Interlab	<50.0	<50.0	0	<50.0	<10.0	0
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab	<1.0	<1.0	0	<1.0	<0.4	0
	Chromium	mg/kg	2 (Primary): 5 (Interlab)	14.0	14.0	0	14.0	16.0	13
	Cobalt	mg/kg	2 (Primary): 5 (Interlab)	7.0	7.0	0	7.0	6.8	3
	Copper	mg/kg	5	6.0	5.0	18	6.0	5.9	2
	Manganes	mg/kg	5	226.0	230.0	2	226.0	220.0	3
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	2 (Primary): 5 (Interlab)	8.0	9.0	12	8.0	8.9	11
	Selenium	mg/kg	5	<5.0	<5.0	0	<5.0		
	Vanadium	mg/kg	5 (Primary): 10 (Interlab	27.0	28.0	4	27.0	29.0	7
	Zinc	mg/kg	5	14.0	13.0	7	14.0	14.0	0
Organochl	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin + Di	mg/kg	0.05	0.05	0.05	0	0.05	<0.05	0
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	chlordane	mg/kg	0.05 (Primary): 0.1 (Inter	<0.05	<0.05	0	<0.05	<0.1	0
	Chlordane	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Chlordane	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	DDT	mg/kg	0.2 (Primary): 0.05 (Inter	<0.2	<0.2	0	<0.2	<0.05	0
	DDT+DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Dieldrin	mg/kg	0.05	0.05	0.05	0	0.05	<0.05	0
	Endosulfar	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Endosulfar	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfar	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfar	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin ald	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin ket	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	g-BHC (Lir	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Methoxych	mg/kg	0.2 (Primary): 0.05 (Inter	<0.2	<0.2	0	<0.2	<0.05	0
orine Pesticides									
Organopho	Azinophos	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Bromopho	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Carbopher	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Chlorfenvi	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Chlorpyrifo	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Chlorpyrifo	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Diazinon	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Dichlorvos	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Dimethoat	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Ethion	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Fenthion	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Malathion	mg/kg	0.05 (Primary): 0.2 (Inter	<0.05	<0.05	0	<0.05	<0.2	0
	Methyl par	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0
	Monocroto	mg/kg	0.2 (Primary): 2 (Interlab	<0.2	<0.2	0	<0.2	<2.0	0
	Prothiofos	mg/kg	0.05	<0.05	<0.05	0	<0.05		
sphorous Pesticides									
Pesticides	Demeton-S	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Fenamipho	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Parathion	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0
	Pirimphos-	mg/kg	0.05	<0.05	<0.05	0	<0.05		

*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: 80 (1-10 x EQL); 50 (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

Field Blanks (WATER)
Filter: SDG in('ALSE-Melbourne 14-Feb-19')

SDG	ALSE-Melbourne 14-Feb-19	ALSE-Melbourne 14-Feb-19	ALSE-Melbourne 14-Feb-19
Field ID	QC02	QC05	QC01
Sampled_Date/Time	13/02/2019 10:04	13/02/2019 15:00	13/02/2019 10:02
Sample Type	Field_B	Rinsate	Trip_B

Chem_Group	ChemName	Units	EQL			
BTEX	Benzene	µg/L	1			<1
	Ethylbenzene	µg/L	2			<2
	Toluene	µg/L	2			<2
	Total BTEX	mg/l	0.001			<0.001
	Xylene (m & p)	µg/L	2			<2
	Xylene (o)	µg/L	2			<2
	Xylene Total	µg/L	2			<2
	C6-C10 less BTEX (F1)	mg/l	0.02			<0.02
Halogenated Benzenes	Hexachlorobenzene	µg/L	0.5	<0.5	<0.5	
Lead	Lead	mg/l	0.001	<0.001	<0.001	
Metals	Arsenic	mg/l	0.001	<0.001	<0.001	
	Barium	mg/l	0.001	<0.001	<0.001	
	Beryllium	mg/l	0.001	<0.001	<0.001	
	Boron	mg/l	0.05	<0.05	<0.05	
	Cadmium	mg/l	0.0001	<0.0001	<0.0001	
	Chromium (III+VI)	mg/l	0.001	<0.001	<0.001	
	Cobalt	mg/l	0.001	<0.001	<0.001	
	Copper	mg/l	0.001	<0.001	<0.001	
	Manganese	mg/l	0.001	<0.001	<0.001	
	Mercury	mg/l	0.0001	<0.0001	<0.0001	
	Nickel	mg/l	0.001	<0.001	<0.001	
	Selenium	mg/l	0.01	<0.01	<0.01	
	Vanadium	mg/l	0.01	<0.01	<0.01	
	Zinc	mg/l	0.005	<0.005	<0.005	
Organochlorine Pesticides	4,4-DDE	µg/L	0.5	<0.5	<0.5	
	a-BHC	µg/L	0.5	<0.5	<0.5	
	Aldrin	µg/L	0.5	<0.5	<0.5	
	Aldrin + Dieldrin	µg/L	0.5	<0.5	<0.5	
	b-BHC	µg/L	0.5	<0.5	<0.5	
	chlordane	µg/L	0.5	<0.5	<0.5	
	Chlordane (cis)	µg/L	0.5	<0.5	<0.5	
	Chlordane (trans)	µg/L	0.5	<0.5	<0.5	
	d-BHC	µg/L	0.5	<0.5	<0.5	
	DDD	µg/L	0.5	<0.5	<0.5	
	DDT	µg/L	2	<2	<2	
	DDT+DDE+DDD	µg/L	0.5	<0.5	<0.5	
	Dieldrin	µg/L	0.5	<0.5	<0.5	
	Endosulfan I	µg/L	0.5	<0.5	<0.5	
	Endosulfan II	µg/L	0.5	<0.5	<0.5	
	Endosulfan sulphate	µg/L	0.5	<0.5	<0.5	
	Endrin	µg/L	0.5	<0.5	<0.5	
	Endrin aldehyde	µg/L	0.5	<0.5	<0.5	
	Endrin ketone	µg/L	0.5	<0.5	<0.5	
	g-BHC (Lindane)	µg/L	0.5	<0.5	<0.5	
	Heptachlor	µg/L	0.5	<0.5	<0.5	
	Heptachlor epoxide	µg/L	0.5	<0.5	<0.5	
	Methoxychlor	µg/L	2	<2	<2	
Organophosphorous Pesticides	Azinophos methyl	µg/L	0.5	<0.5	<0.5	
	Bromophos-ethyl	µg/L	0.5	<0.5	<0.5	
	Carbophenothion	µg/L	0.5	<0.5	<0.5	
	Chlorfenvinphos	µg/L	0.5	<0.5	<0.5	
	Chlorpyrifos	µg/L	0.5	<0.5	<0.5	
	Chlorpyrifos-methyl	mg/l	0.0005	<0.0005	<0.0005	
	Diazinon	µg/L	0.5	<0.5	<0.5	
	Dichlorvos	µg/L	0.5	<0.5	<0.5	
	Dimethoate	µg/L	0.5	<0.5	<0.5	
	Ethion	µg/L	0.5	<0.5	<0.5	
	Fenthion	µg/L	0.5	<0.5	<0.5	
	Malathion	µg/L	0.5	<0.5	<0.5	
	Methyl parathion	µg/L	2	<2	<2	
	Monocrotophos	µg/L	2	<2	<2	
	Prothiofos	µg/L	0.5	<0.5	<0.5	
PAH/Phenols	Naphthalene	µg/L	5			<5
Pesticides	Demeton-S-methyl	µg/L	0.5	<0.5	<0.5	
	Fenamiphos	µg/L	0.5	<0.5	<0.5	
	Parathion	µg/L	2	<2	<2	
	Pirimphos-ethyl	µg/L	0.5	<0.5	<0.5	
TPH	C6 - C9	µg/L	20			<20
	C6-C10	mg/l	0.02			<0.02

Environmental Site Assessments

Appendix 8: Laboratory Chain of Custody Forms and Certificates of Analysis

CHAIN OF CUSTODY

ALS Laboratory: please tick

☐ **Sydney:** 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 9794 8555 E: samples.sydney@alsenviro.com

☐ **Newcastle:** 5 Rosegum Rd, Warabrook NSW 2304 Ph:02 4968 9433 E: samples.newcastle@alsenviro.com

☐ **Brisbane:** 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com

☐ **Townsville:** 14-15 Desma Ct, Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com

☐ **Melbourne:** 2-4 Westall Rd, Springvale VIC 3171 Ph:03 8549 9600 E: samples.melbourne@alsenviro.com

☐ **Adelaide:** 2-4 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsenviro.com

☐ **Perth:** 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com

☐ **Launceston:** 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT: ENVIRONMENTAL SITE ASSESSMENTS	TURNAROUND REQUIREMENTS: X Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: PO BOX 3106, WAURN PONDS VIC 3216	Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes No N/A
PROJECT: CURLEWIS	ALS QUOTE NO.: MEBQ-159-15 V2	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:	°C
PROJECT MANAGER: Seton Lillas	CONTACT PH: 0433747187 OF: 1 2 3 4 5 6 7	Other comment:	
SAMPLER: A/A	SAMPLER MOBILE: A/A		
COC emailed to ALS? NO	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): seton@envirositeassessments.com			
Email Invoice to (will default to PM if no other addresses are listed): accounts@envirositeassessments.com			
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: COMPOSITE AS PER BELOW.			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
S. Lillas	Rui M		
DATE/TIME: 14/2/19 9.11	DATE/TIME: 14/2/19	DATE/TIME:	DATE/TIME:
	21 20		

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field			Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TRH C6-C10+BTEX	OC/OP Pesticides + 15 Metals	NEPM Suite	
1 •	QC01	13/2/19 10.02	W			X			
2	QC02	" 10.04	W				X		
3 •	SP01/0-0.15	" 10.14	S				X		
4 •	QC03	" 10.14	"				X		
5 •	SP02/0-0.15	" 10.19	"				X		
6 •	SP03/0-0.15	" 10.21	"				X		
7 •	SP04/0-0.15	" 10.24	"					X	
8 •	SP05/0-0.15	" 10.28	"				X		
9 •	SP06/0-0.15	" 10.30	"				X		
10 •	SP07/0-0.15	" 10.48	"					X	
11 •	SP08/0-0.15	" 10.53	"				X		
12 •	SP09/0-0.15	" 10.36	"					X	
				TOTAL		1	8	3	

Environmental Division
Melbourne
Work Order Reference
EM1902040

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic

V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick

☐ **Sydney:** 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E: samples.sydney@alsenviro.com

☐ **Newcastle:** 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com

☐ **Brisbane** 32 Shand St, Stafford QLD 4053 Ph 07 3243 7222 E: samples.brisbane@alsenviro.com

☐ **Townsville:** 14-15 Desma Ct, Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com

☐ **Melbourne:** 3-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com

☐ **Adelaide:** 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsenviro.com

☐ **Perth:** 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com

☐ **Launceston:** 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT: ENVIRONMENTAL SITE ASSESSMENTS	TURNAROUND REQUIREMENTS :	X	Standard TAT (List due date):
OFFICE: PO BOX 3106, WAURN PONDS VIC 3216			Non Standard or urgent TAT (List due date):
PROJECT: CURLEWIS	ALS QUOTE NO.:		COC SEQUENCE NUMBER (Circle) COC: 1 (2) 3 4 5 6 7
ORDER NUMBER:			OF: 1 2 (3) 4 5 6 7
PROJECT MANAGER: Seton Lillas	CONTACT PH: 0433747187		
SAMPLER: A/A	SAMPLER MOBILE: A/A		
COC emailed to ALS? NO	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): seton@envirositeassessments.com			
Email Invoice to (will default to PM if no other addresses are listed): accounts@envirositeassessments.com			

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Free ice / frozen ice bricks present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: °C
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 14/2/19 @ 1.20	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: COMPOSITE AS PER BELOW.

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field									Additional Information				
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (*refer to codes below*)	TOTAL BOTTLES	WEPM Suite	OC/OP pesticides + 15 Metals												
13	SP10/0-0.15	13/2/19 11.35	S				X												
14	SP11/0-0.15	" 10.44	"				X												
15	SP12/0-0.15	" 10.50	"				X												
16	SP13/0-0.15	" 11.31	"				X												
17	SP14/0-0.15	" 11.29	"			X													
18	SP15/0-0.15	" 11.27	"				X												
19	SP16/0-0.15	" 11.25	"				X												
20	SP17/0-0.15	" 11.23	"				X												
21	SP18/0-0.15	" 11.21	"				X												
22	SP19/0-0.15	" 11.03	"			X													
23	SP20/0-0.15	" 11.16	"				X												
24	SP21/0-0.15	" 11.14				+													
				TOTAL		3	9												

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic

V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

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☐ **Brisbane** 32 Shand St Stafford QLD 4053 Ph 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ **Townsville** 14-15 Desma Ct, Bohle QLD 4818 Ph:07 4796 0600 E: townsville.environmental@alsenviro.com
☐ **Melbourne** 2-4 Westall Rd, Springvale VIC 3171 Ph 03 8549 9600 E: samples.melbourne@alsenviro.com
☐ **Adelaide** 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsenviro.com
☐ **Perth** 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsenviro.com
☐ **Launceston** 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT: ENVIRONMENTAL SITE ASSESSMENTS		TURNAROUND REQUIREMENTS :	X Standard TAT (List due date):
OFFICE:	PO BOX 3106, WAURN PONDS VIC 3216		Non Standard or urgent TAT (List due date):
PROJECT: CURLEWIS		ALS QUOTE NO.:	
ORDER NUMBER:			
PROJECT MANAGER: Seton Lillas		CONTACT PH: 0433747187	
SAMPLER: A/A		SAMPLER MOBILE: A/A	
COC emailed to ALS? NO		EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed): seton@envirositeassessments.com			
Email Invoice to (will default to PM if no other addresses are listed): accounts@envirositeassessments.com			

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Free ice / frozen ice bricks present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: °C
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 14/2/19	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: COMPOSITE AS PER BELOW. C1-20P

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field								Additional Information				
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	OC/OP Pesticides + 15 Metals												
25	SP22/0-0.15	13/2/19 11:11	S			+												
26	SP23/0-0.15	" 11:09	"			+												
27	SP24/0-0.15	" 11:06	"			+												
28	QC05	" 11:35	W			X												
				TOTAL		4												

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1902040**	Page	: 1 of 31
Client	: **ENVIRONMENTAL SITE ASSESSMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR SETON LILLAS	Contact	: Larissa Burns
Address	: P.O. BOX 3106 WAURN PONDS VIC 3216	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9644
Project	: Curlewis	Date Samples Received	: 14-Feb-2019 13:20
Order number	:	Date Analysis Commenced	: 15-Feb-2019
C-O-C number	: ----	Issue Date	: 20-Feb-2019 17:21
Sampler	: AA		
Site	: ----		
Quote number	: MEBQ/159/15 V2		
No. of samples received	: 28		
No. of samples analysed	: 28		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.

- EP080: Unable to determine matrix spike recovery for EM1901980_015 due to high level contaminants.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) 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.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP01/0-0.15	QC03	SP02/0-0.15	SP03/0-0.15	SP04/0-0.15
			Client sampling date / time	13-Feb-2019 10:14	13-Feb-2019 10:14	13-Feb-2019 10:19	13-Feb-2019 10:21	13-Feb-2019 10:24
Compound	CAS Number	LOR	Unit	EM1902040-003	EM1902040-004	EM1902040-005	EM1902040-006	EM1902040-007
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.7	7.2	6.0	6.3	7.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	6	6	7	<5
Barium	7440-39-3	10	mg/kg	40	40	50	50	50
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	14	14	23	17	13
Cobalt	7440-48-4	2	mg/kg	7	7	7	8	6
Copper	7440-50-8	5	mg/kg	6	5	7	7	5
Lead	7439-92-1	5	mg/kg	8	8	8	8	7
Manganese	7439-96-5	5	mg/kg	226	230	221	290	173
Nickel	7440-02-0	2	mg/kg	8	9	14	11	7
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	27	28	34	35	22
Zinc	7440-66-6	5	mg/kg	14	13	16	14	13
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	----	----	----	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	1	mg/kg	----	----	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP01/0-0.15	QC03	SP02/0-0.15	SP03/0-0.15	SP04/0-0.15
			Client sampling date / time	13-Feb-2019 10:14	13-Feb-2019 10:14	13-Feb-2019 10:19	13-Feb-2019 10:21	13-Feb-2019 10:24
Compound	CAS Number	LOR	Unit	EM1902040-003	EM1902040-004	EM1902040-005	EM1902040-006	EM1902040-007
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	**0.05**	**0.05**	**0.05**	**0.23**	**0.35**
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	2385-85-5	0.20	mg/kg	----	----	----	----	<0.20
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	**0.05**	**0.05**	**0.05**	**0.23**	**0.35**
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP01/0-0.15	QC03	SP02/0-0.15	SP03/0-0.15	SP04/0-0.15
			Client sampling date / time	13-Feb-2019 10:14	13-Feb-2019 10:14	13-Feb-2019 10:19	13-Feb-2019 10:21	13-Feb-2019 10:24
Compound	CAS Number	LOR	Unit	EM1902040-003	EM1902040-004	EM1902040-005	EM1902040-006	EM1902040-007
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	----	----	----	----	<0.05
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	----	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
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	205-99-2 205-82-3	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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP01/0-0.15	QC03	SP02/0-0.15	SP03/0-0.15	SP04/0-0.15
				Client sampling date / time	13-Feb-2019 10:14	13-Feb-2019 10:14	13-Feb-2019 10:19	13-Feb-2019 10:21	13-Feb-2019 10:24
Compound	CAS Number	LOR	Unit		EM1902040-003	EM1902040-004	EM1902040-005	EM1902040-006	EM1902040-007
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	----	<0.5
^ 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
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 Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	----	<10
>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 (F2)	----	50	mg/kg		----	----	----	----	<50
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	108-38-3 106-42-3	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
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	**101**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP01/0-0.15	QC03	SP02/0-0.15	SP03/0-0.15	SP04/0-0.15
				Client sampling date / time	13-Feb-2019 10:14	13-Feb-2019 10:14	13-Feb-2019 10:19	13-Feb-2019 10:21	13-Feb-2019 10:24
Compound	CAS Number	LOR	Unit		EM1902040-003	EM1902040-004	EM1902040-005	EM1902040-006	EM1902040-007
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		102	104	97.6	107	102
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		89.7	96.8	92.7	116	111
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	----	99.6
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	----	99.6
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	----	86.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	----	104
Anthracene-d10	1719-06-8	0.5	%		----	----	----	----	120
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	----	111
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	70.4
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	64.2
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	85.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP05/0-0.15	SP06/0-0.15	SP07/0-0.15	SP08/0-0.15	SP09/0-0.15
			Client sampling date / time	13-Feb-2019 10:28	13-Feb-2019 10:30	13-Feb-2019 10:48	13-Feb-2019 10:33	13-Feb-2019 10:36
Compound	CAS Number	LOR	Unit	EM1902040-008	EM1902040-009	EM1902040-010	EM1902040-011	EM1902040-012
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	4.0	3.2	3.8	2.2	3.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	8	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	20	20	10	10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	11	6	6	4
Cobalt	7440-48-4	2	mg/kg	4	2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	6	11	11	6	<5
Manganese	7439-96-5	5	mg/kg	93	51	42	31	19
Nickel	7440-02-0	2	mg/kg	5	4	2	3	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	24	32	14	13	12
Zinc	7440-66-6	5	mg/kg	7	6	13	9	5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	----	<0.5	----	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	1	mg/kg	----	----	<1	----	<1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP05/0-0.15	SP06/0-0.15	SP07/0-0.15	SP08/0-0.15	SP09/0-0.15
			Client sampling date / time	13-Feb-2019 10:28	13-Feb-2019 10:30	13-Feb-2019 10:48	13-Feb-2019 10:33	13-Feb-2019 10:36
Compound	CAS Number	LOR	Unit	EM1902040-008	EM1902040-009	EM1902040-010	EM1902040-011	EM1902040-012
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	**0.28**	<0.05	**0.38**	**0.26**	**0.33**
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	2385-85-5	0.20	mg/kg	----	----	<0.20	----	<0.20
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	**0.28**	<0.05	**0.38**	**0.26**	**0.33**
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP05/0-0.15	SP06/0-0.15	SP07/0-0.15	SP08/0-0.15	SP09/0-0.15
				Client sampling date / time	13-Feb-2019 10:28	13-Feb-2019 10:30	13-Feb-2019 10:48	13-Feb-2019 10:33	13-Feb-2019 10:36
Compound	CAS Number	LOR	Unit		EM1902040-008	EM1902040-009	EM1902040-010	EM1902040-011	EM1902040-012
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	----	<0.05	----	<0.05
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	----	<0.05	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	----	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	----	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	----	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	----	<0.5	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP05/0-0.15	SP06/0-0.15	SP07/0-0.15	SP08/0-0.15	SP09/0-0.15
			Client sampling date / time	13-Feb-2019 10:28	13-Feb-2019 10:30	13-Feb-2019 10:48	13-Feb-2019 10:33	13-Feb-2019 10:36
Compound	CAS Number	LOR	Unit	EM1902040-008	EM1902040-009	EM1902040-010	EM1902040-011	EM1902040-012
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	**0.6**	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	**1.2**	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	----	<0.2
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	<1	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	**99.2**	----	**99.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP05/0-0.15	SP06/0-0.15	SP07/0-0.15	SP08/0-0.15	SP09/0-0.15
				Client sampling date / time	13-Feb-2019 10:28	13-Feb-2019 10:30	13-Feb-2019 10:48	13-Feb-2019 10:33	13-Feb-2019 10:36
Compound	CAS Number	LOR	Unit		EM1902040-008	EM1902040-009	EM1902040-010	EM1902040-011	EM1902040-012
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		105	87.1	104	100	94.6
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		108	94.3	88.3	88.1	87.0
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	101	----	101
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	99.0	----	98.9
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	86.4	----	85.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	105	----	104
Anthracene-d10	1719-06-8	0.5	%		----	----	120	----	122
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	108	----	110
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	75.9	----	72.3
Toluene-D8	2037-26-5	0.2	%		----	----	68.1	----	65.2
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	90.1	----	87.7

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP10/0-0.15	SP11/0-0.15	SP12/0-0.15	SP13/0-0.15	SP14/0-0.15
			Client sampling date / time	13-Feb-2019 10:39	13-Feb-2019 10:44	13-Feb-2019 10:50	13-Feb-2019 11:31	13-Feb-2019 11:29
Compound	CAS Number	LOR	Unit	EM1902040-013	EM1902040-014	EM1902040-015	EM1902040-016	EM1902040-017
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.8	7.0	2.8	4.1	3.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	30	20	<10	20	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	11	6	5	6	6
Cobalt	7440-48-4	2	mg/kg	5	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	7	6	5	<5	<5
Manganese	7439-96-5	5	mg/kg	141	42	23	40	26
Nickel	7440-02-0	2	mg/kg	6	3	2	4	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	20	12	12	22	26
Zinc	7440-66-6	5	mg/kg	9	9	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	----	----	----	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	1	mg/kg	----	----	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP10/0-0.15	SP11/0-0.15	SP12/0-0.15	SP13/0-0.15	SP14/0-0.15
			Client sampling date / time	13-Feb-2019 10:39	13-Feb-2019 10:44	13-Feb-2019 10:50	13-Feb-2019 11:31	13-Feb-2019 11:29
Compound	CAS Number	LOR	Unit	EM1902040-013	EM1902040-014	EM1902040-015	EM1902040-016	EM1902040-017
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	**0.38**	**0.35**	**0.21**	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	2385-85-5	0.20	mg/kg	----	----	----	----	<0.20
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	**0.38**	**0.35**	**0.21**	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP10/0-0.15	SP11/0-0.15	SP12/0-0.15	SP13/0-0.15	SP14/0-0.15
				Client sampling date / time	13-Feb-2019 10:39	13-Feb-2019 10:44	13-Feb-2019 10:50	13-Feb-2019 11:31	13-Feb-2019 11:29
Compound	CAS Number	LOR	Unit		EM1902040-013	EM1902040-014	EM1902040-015	EM1902040-016	EM1902040-017
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	----	----	----	<0.05
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
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	205-99-2 205-82-3	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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP10/0-0.15	SP11/0-0.15	SP12/0-0.15	SP13/0-0.15	SP14/0-0.15
				Client sampling date / time	13-Feb-2019 10:39	13-Feb-2019 10:44	13-Feb-2019 10:50	13-Feb-2019 11:31	13-Feb-2019 11:29
Compound	CAS Number	LOR	Unit		EM1902040-013	EM1902040-014	EM1902040-015	EM1902040-016	EM1902040-017
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	----	<0.5
^ 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
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 Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	----	<10
>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 (F2)	----	50	mg/kg		----	----	----	----	<50
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	108-38-3 106-42-3	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
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	**106**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP10/0-0.15	SP11/0-0.15	SP12/0-0.15	SP13/0-0.15	SP14/0-0.15
				Client sampling date / time	13-Feb-2019 10:39	13-Feb-2019 10:44	13-Feb-2019 10:50	13-Feb-2019 11:31	13-Feb-2019 11:29
Compound	CAS Number	LOR	Unit		EM1902040-013	EM1902040-014	EM1902040-015	EM1902040-016	EM1902040-017
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		106	103	101	93.0	104
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		94.7	102	93.8	92.8	100.0
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	----	105
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	----	103
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	----	91.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	----	108
Anthracene-d10	1719-06-8	0.5	%		----	----	----	----	124
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	----	113
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	70.9
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	61.4
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	86.8

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP15/0-0.15	SP16/0-0.15	SP17/0-0.15	SP18/0-0.15	SP19/0-0.15
			Client sampling date / time	13-Feb-2019 11:27	13-Feb-2019 11:25	13-Feb-2019 11:23	13-Feb-2019 11:21	13-Feb-2019 11:03
Compound	CAS Number	LOR	Unit	EM1902040-018	EM1902040-019	EM1902040-020	EM1902040-021	EM1902040-022
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	2.9	2.8	1.8	2.3	5.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	20	10	20	30
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	8	3	6	14
Cobalt	7440-48-4	2	mg/kg	<2	3	<2	<2	3
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	6	5	<5	<5	7
Manganese	7439-96-5	5	mg/kg	37	68	13	32	78
Nickel	7440-02-0	2	mg/kg	4	4	<2	3	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	19	15	9	15	49
Zinc	7440-66-6	5	mg/kg	<5	17	6	7	13
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	----	----	----	<0.5
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	1	mg/kg	----	----	----	----	<1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP15/0-0.15	SP16/0-0.15	SP17/0-0.15	SP18/0-0.15	SP19/0-0.15
				Client sampling date / time	13-Feb-2019 11:27	13-Feb-2019 11:25	13-Feb-2019 11:23	13-Feb-2019 11:21	13-Feb-2019 11:03
Compound	CAS Number	LOR	Unit		EM1902040-018	EM1902040-019	EM1902040-020	EM1902040-021	EM1902040-022
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	**0.63**	**0.08**	**0.09**	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	**0.09**	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	2385-85-5	0.20	mg/kg		----	----	----	----	<0.20
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	**0.63**	**0.08**	**0.09**	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	**0.09**	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP15/0-0.15	SP16/0-0.15	SP17/0-0.15	SP18/0-0.15	SP19/0-0.15
				Client sampling date / time	13-Feb-2019 11:27	13-Feb-2019 11:25	13-Feb-2019 11:23	13-Feb-2019 11:21	13-Feb-2019 11:03
Compound	CAS Number	LOR	Unit		EM1902040-018	EM1902040-019	EM1902040-020	EM1902040-021	EM1902040-022
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	----	----	----	<0.05
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
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	205-99-2 205-82-3	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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP15/0-0.15	SP16/0-0.15	SP17/0-0.15	SP18/0-0.15	SP19/0-0.15
				Client sampling date / time	13-Feb-2019 11:27	13-Feb-2019 11:25	13-Feb-2019 11:23	13-Feb-2019 11:21	13-Feb-2019 11:03
Compound	CAS Number	LOR	Unit		EM1902040-018	EM1902040-019	EM1902040-020	EM1902040-021	EM1902040-022
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	----	<0.5
^ 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
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 Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	----	<10
>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 (F2)	----	50	mg/kg		----	----	----	----	<50
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	108-38-3 106-42-3	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
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	**101**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP15/0-0.15	SP16/0-0.15	SP17/0-0.15	SP18/0-0.15	SP19/0-0.15
				Client sampling date / time	13-Feb-2019 11:27	13-Feb-2019 11:25	13-Feb-2019 11:23	13-Feb-2019 11:21	13-Feb-2019 11:03
Compound	CAS Number	LOR	Unit		EM1902040-018	EM1902040-019	EM1902040-020	EM1902040-021	EM1902040-022
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		101	87.2	114	116	98.4
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		94.8	88.3	114	112	92.6
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	----	115
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	----	113
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	----	102
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	----	118
Anthracene-d10	1719-06-8	0.5	%		----	----	----	----	101
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	----	124
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	69.7
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	65.8
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	87.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP20/0-0.15	SP21/0-0.15	SP22/0-0.15	SP23/0-0.15	SP24/0-0.15
			Client sampling date / time	13-Feb-2019 11:16	13-Feb-2019 11:35	13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00
Compound	CAS Number	LOR	Unit	EM1902040-023	EM1902040-024	EM1902040-025	EM1902040-026	EM1902040-027
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	2.5	1.7	2.1	3.1	3.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	10	20	20	20	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	5	4	3	5
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	<5
Manganese	7439-96-5	5	mg/kg	48	119	17	49	61
Nickel	7440-02-0	2	mg/kg	2	2	<2	<2	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	11	11	11	9	22
Zinc	7440-66-6	5	mg/kg	9	6	<5	5	8
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	<0.5	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	1	mg/kg	----	<1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP20/0-0.15	SP21/0-0.15	SP22/0-0.15	SP23/0-0.15	SP24/0-0.15
			Client sampling date / time	13-Feb-2019 11:16	13-Feb-2019 11:35	13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00
Compound	CAS Number	LOR	Unit	EM1902040-023	EM1902040-024	EM1902040-025	EM1902040-026	EM1902040-027
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	2385-85-5	0.20	mg/kg	----	<0.20	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP20/0-0.15	SP21/0-0.15	SP22/0-0.15	SP23/0-0.15	SP24/0-0.15
			Client sampling date / time	13-Feb-2019 11:16	13-Feb-2019 11:35	13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00
Compound	CAS Number	LOR	Unit	EM1902040-023	EM1902040-024	EM1902040-025	EM1902040-026	EM1902040-027
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	----	<0.05	----	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
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	205-99-2 205-82-3	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	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP20/0-0.15	SP21/0-0.15	SP22/0-0.15	SP23/0-0.15	SP24/0-0.15
				Client sampling date / time	13-Feb-2019 11:16	13-Feb-2019 11:35	13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00
Compound	CAS Number	LOR	Unit		EM1902040-023	EM1902040-024	EM1902040-025	EM1902040-026	EM1902040-027
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	----
^ 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	----	----	----
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 Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	----
>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 (F2)	----	50	mg/kg		----	<50	----	----	----
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	108-38-3 106-42-3	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	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**107**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP20/0-0.15	SP21/0-0.15	SP22/0-0.15	SP23/0-0.15	SP24/0-0.15
				Client sampling date / time	13-Feb-2019 11:16	13-Feb-2019 11:35	13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00
Compound	CAS Number	LOR	Unit		EM1902040-023	EM1902040-024	EM1902040-025	EM1902040-026	EM1902040-027
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		119	103	113	117	112
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		114	96.6	114	112	108
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	100	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	102	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	89.6	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	106	----	----	----
Anthracene-d10	1719-06-8	0.5	%		----	123	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	112	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	69.0	----	----	----
Toluene-D8	2037-26-5	0.2	%		----	63.7	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	84.2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	QC01	QC02	QC05	----	----
			Client sampling date / time	13-Feb-2019 10:02	13-Feb-2019 10:04	13-Feb-2019 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1902040-001	EM1902040-002	EM1902040-028	--------	--------
				Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	<0.001	----	----
Boron	7440-42-8	0.05	mg/L	----	<0.05	<0.05	----	----
Barium	7440-39-3	0.001	mg/L	----	<0.001	<0.001	----	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<0.001	<0.001	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	<0.001	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L	----	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	----	<0.005	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	----	<0.5	<0.5	----	----
gamma-BHC	58-89-9	0.5	µg/L	----	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	----	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	----	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	----	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	----	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	----	<0.5	<0.5	----	----
4.4`-DDE	72-55-9	0.5	µg/L	----	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	----	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	----	<0.5	<0.5	----	----
4.4`-DDD	72-54-8	0.5	µg/L	----	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	----	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	QC02	QC05	----	----
				Client sampling date / time	13-Feb-2019 10:02	13-Feb-2019 10:04	13-Feb-2019 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1902040-001	EM1902040-002	EM1902040-028	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.5	µg/L		----	<0.5	<0.5	----	----
4.4`-DDT	50-29-3	2.0	µg/L		----	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L		----	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L		----	<2.0	<2.0	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		----	<0.5	<0.5	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		----	<0.5	<0.5	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		----	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		----	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		----	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L		----	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L		----	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L		----	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		----	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L		----	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L		----	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L		----	<0.5	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		----	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L		----	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		----	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		----	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		----	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L		----	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L		----	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L		----	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L		----	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		----	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	QC02	QC05	----	----
				Client sampling date / time	13-Feb-2019 10:02	13-Feb-2019 10:04	13-Feb-2019 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1902040-001	EM1902040-002	EM1902040-028	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		----	**83.4**	**94.2**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		----	**79.3**	**89.9**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**80.4**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**82.9**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**93.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	36	140
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
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

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1902040**	Page	: 1 of 22
Client	: **ENVIRONMENTAL SITE ASSESSMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR SETON LILLAS	Contact	: Larissa Burns
Address	: P.O. BOX 3106 WAURN PONDS VIC 3216	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +6138549 9644
Project	: Curlewis	Date Samples Received	: 14-Feb-2019
Order number	:	Date Analysis Commenced	: 15-Feb-2019
C-O-C number	: ----	Issue Date	: 20-Feb-2019
Sampler	: AA		
Site	: ----		
Quote number	: MEBQ/159/15 V2		
No. of samples received	: 28		
No. of samples analysed	: 28		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. 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*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

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 Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2188757)									
EM1901959-026	Anonymous	EA055: Moisture Content	----	0.1	%	18.5	18.7	1.01	0% - 50%
EM1902035-002	Anonymous	EA055: Moisture Content	----	0.1	%	3.8	3.2	15.3	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2188758)									
EM1902040-011	SP08/0-0.15	EA055: Moisture Content	----	0.1	%	2.2	2.1	5.93	No Limit
EM1902040-021	SP18/0-0.15	EA055: Moisture Content	----	0.1	%	2.3	2.4	5.63	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 2187475)									
EM1901990-022	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	100	90	11.0	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	6	30.5	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	991	855	14.7	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	171	175	2.41	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	248	227	9.02	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	11	12	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	763	801	4.80	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1902040-005	SP02/0-0.15	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	60	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	23	23	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	9	20.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	14	13	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 2187475) - continued									
EM1902040-005	SP02/0-0.15	EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	221	238	7.54	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	34	34	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	16	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 2187485)									
EM1902040-013	SP10/0-0.15	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	30	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	11	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	7	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	141	133	5.91	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	20	21	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	9	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1902040-022	SP19/0-0.15	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	30	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	18	23.6	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	15	22.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	9	22.6	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	78	76	3.14	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	49	62	24.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	13	17	23.4	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2187476)									
EM1901990-022	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1902040-005	SP02/0-0.15	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2187486)									
EM1902040-013	SP10/0-0.15	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1902040-022	SP19/0-0.15	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 2191373)									
EM1901990-012	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1902118-006	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 2191366)									
EM1902040-010	SP07/0-0.15	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.00	No Limit
EM1901990-002	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2190227)									
EM1902040-007	SP04/0-0.15	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2190225)									
EM1902040-013	SP10/0-0.15	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	0.38	0.34	11.4	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1902040-007	SP04/0-0.15	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2190225) - continued									
EM1902040-007	SP04/0-0.15	EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	0.35	0.34	4.62	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Mirex	2385-85-5	0.05	mg/kg	<0.20	<0.20	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2190265)									
EM1902064-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1901990-007	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2190265) - continued									
EM1901990-007	Anonymous	EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2190225)									
EM1902040-013	SP10/0-0.15	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2190225) - continued									
EM1902040-013	SP10/0-0.15	EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1902040-007	SP04/0-0.15	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2190265)									
EM1902064-002	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2190265) - continued									
EM1901990-007	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068C: Triazines (QC Lot: 2190225)									
EM1902040-013	SP10/0-0.15	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1902040-007	SP04/0-0.15	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP068C: Triazines (QC Lot: 2190265)									
EM1902064-002	Anonymous	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1901990-007	Anonymous	EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP068D: Pyrethroids (QC Lot: 2190225)									
EM1902040-013	SP10/0-0.15	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1902040-007	SP04/0-0.15	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP068D: Pyrethroids (QC Lot: 2190265)									
EM1902064-002	Anonymous	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1901990-007	Anonymous	EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2190228)									
EM1902040-007	SP04/0-0.15	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 2190228) - continued									
EM1902040-007	SP04/0-0.15	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2190228)									
EM1902040-007	SP04/0-0.15	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2187344)									
EM1901980-015	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	431	# 285	40.8	0% - 20%
EM1902040-010	SP07/0-0.15	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2190229)									
EM1902040-007	SP04/0-0.15	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2187344)									
EM1901980-015	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	508	# 345	38.4	0% - 20%
EM1902040-010	SP07/0-0.15	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2190229)									
EM1902040-007	SP04/0-0.15	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 2187344)									
EM1901980-015	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	7.9	4.6	53.5	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	89.2	# 59.2	40.5	0% - 20%
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	21.7	# 14.8	38.1	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	104	# 74.0	33.9	0% - 20%
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	37.3	# 26.1	35.4	0% - 20%
		EP080: Naphthalene	91-20-3	1	mg/kg	8	8	0.00	No Limit
EM1902040-010	SP07/0-0.15	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 2190479)									
EM1902040-002	QC02	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1902048-008	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	2.04	2.05	0.342	0% - 20%
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.062	0.062	0.00	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.599	0.599	0.00	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 2190479) - continued									
EM1902048-008	Anonymous	EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.008	0.008	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.07	0.07	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2190644)									
EM1902015-079	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1902080-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2186831)									
EM1902012-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	970	960	1.37	0% - 20%
EM1902020-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2186831)									
EM1902012-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	900	880	1.68	0% - 20%
EM1902020-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2186831)									
EM1902012-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	112	111	0.00	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	6	6	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	27	28	0.00	0% - 50%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	76	73	4.25	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	5	5	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	89	86	3.09	0% - 50%
EM1902020-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (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 Spike (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) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2187475)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	98.0	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	97.5	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	103	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	94.1	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	90.2	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	97.8	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	95.1	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	91.9	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	102	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.6	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	94.6	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	94.9	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	79	110
EG005T: Total Metals by ICP-AES (QCLot: 2187485)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.6	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	99.6	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	105	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	101	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	91.4	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	100	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	94.7	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	93.8	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	92.8	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	99.1	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.6	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	95.4	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	95.8	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	99.9	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2187476)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.8	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2187486)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.8	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2191373)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2191373) - continued								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	79.8	75	112
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 2191366)								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	20 mg/kg	102	83	114
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2190227)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1.27 mg/kg	93.1	63	115
EP068A: Organochlorine Pesticides (OC) (QCLot: 2190225)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	71	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	102	72	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	66	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	60	120
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	62	120
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	70	122
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	70	121
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	68	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	71	124
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	71	122
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	65	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	71	121
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	63	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	70	122
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	69	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	69	129
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	64	129
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	106	62	129
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	114	76	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	85.8	58	129
EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	0.5 mg/kg	116	76	124
EP068A: Organochlorine Pesticides (OC) (QCLot: 2190265)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	71	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	105	72	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	66	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	60	120
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	62	120
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	70	122
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	70	121
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2190265) - continued								
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	114	71	124
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	71	122
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	106	65	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	71	121
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	63	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	70	122
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	69	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	108	69	129
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	112	64	129
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	114	62	129
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	112	76	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	113	58	129
EP068: Mirex	2385-85-5	0.05	mg/kg	<0.05	0.5 mg/kg	116	76	124
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2190225)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.7	72	134
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	63	141
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	87.1	10	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	70.6	62	130
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	70	124
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	70	121
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	79.6	60	126
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	113	65	126
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	73	122
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	67	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	76.1	59	126
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	67	124
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	57	130
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	70	122
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	54	133
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	70	123
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	67	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	71	129
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	31	141
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2190265)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	72	134
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	63	141
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	80.9	10	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	62	130
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.9	70	124

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2190265) - continued								
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	70	121
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	100	60	126
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	119	65	126
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	100.0	73	122
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	112	67	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	94.1	59	126
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	67	124
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	57	130
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	70	122
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	54	133
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	70	123
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	67	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	106	71	129
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	31	141
EP068C: Triazines (QCLot: 2190225)								
EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	72	123
EP068C: Triazines (QCLot: 2190265)								
EP068: Atrazine	1912-24-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	72	123
EP068D: Pyrethroids (QCLot: 2190225)								
EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	107	68	129
EP068D: Pyrethroids (QCLot: 2190265)								
EP068: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	68	129
EP075(SIM)A: Phenolic Compounds (QCLot: 2190228)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	106	77	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	105	78	126
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	105	77	125
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	106	76	130
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	104	53	118
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	106	71	128
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	102	73	126
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	102	73	128
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	97.8	69	123
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	94.3	64	122
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	92.8	70	128
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	61.2	20	113
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2190228)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	106	77	129
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	103	74	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2190228) - continued								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	106	78	129
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	104	78	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	109	83	130
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	113	76	129
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	110	79	134
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	111	84	135
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	106	72	125
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	112	76	135
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	91.7	69	123
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	109	77	131
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	91.2	65	116
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	88.1	65	124
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	86.6	66	127
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	87.3	65	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2187344)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	75.6	61	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2190229)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	105	72	122
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	109	84	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	98.0	79	119
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2187344)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	74.3	60	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2190229)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	101	77	121
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	104	83	121
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	95.0	65	123
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 2187344)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	78.0	63	119
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	81.0	67	126
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	80.8	66	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	87.1	68	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	90.2	73	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	85.8	61	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 2190479)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	95.4	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	104	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.6	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.9	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.3	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.6	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.9	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	99.0	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.8	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.8	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	97.1	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	104	88	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2190644)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	83.7	76	115
EP068A: Organochlorine Pesticides (OC) (QCLot: 2187062)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	2.5 µg/L	96.5	56	118
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	2.5 µg/L	72.7	49	114
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	2.5 µg/L	85.3	60	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	2.5 µg/L	82.8	53	121
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	2.5 µg/L	82.6	59	117
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	2.5 µg/L	82.5	54	120
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	2.5 µg/L	79.5	54	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	2.5 µg/L	84.0	58	121
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	2.5 µg/L	83.1	52	124
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	2.5 µg/L	84.0	55	122
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	2.5 µg/L	82.6	55	121
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	2.5 µg/L	68.8	55	122
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	2.5 µg/L	81.7	52	122
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	2.5 µg/L	78.1	56	131
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	2.5 µg/L	81.5	57	121
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	2.5 µg/L	78.8	55	125
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	2.5 µg/L	78.9	58	126
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	2.5 µg/L	74.8	50	126
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	2.5 µg/L	76.9	51	132
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	2.5 µg/L	78.3	58	121
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	2.5 µg/L	74.7	50	134

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2187062)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	2.5 µg/L	73.8	47	127
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	2.5 µg/L	67.4	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	2.5 µg/L	10.6	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	2.5 µg/L	71.8	45	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	2.5 µg/L	85.2	56	119
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	2.5 µg/L	85.4	57	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	2.5 µg/L	84.7	51	131
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	2.5 µg/L	86.9	57	125
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	2.5 µg/L	82.4	57	120
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	2.5 µg/L	84.0	54	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	2.5 µg/L	83.2	49	138
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	2.5 µg/L	81.9	57	119
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	2.5 µg/L	83.0	53	130
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	2.5 µg/L	84.6	56	121
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	2.5 µg/L	83.4	48	138
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	2.5 µg/L	78.9	54	123
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	2.5 µg/L	82.1	56	126
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	2.5 µg/L	80.9	54	126
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	2.5 µg/L	71.4	23	160
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2186831)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	79.1	65	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2186831)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	78.6	64	124
EP080: BTEXN (QCLot: 2186831)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	76.2	69	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	85.0	73	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	89.1	71	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	88.0	72	129
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	87.2	76	129
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	85.8	70	125

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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2187475)							
EM1901990-027	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	101	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	98.4	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	102	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.8	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	96.0	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	# Not Determined	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	91.4	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	107	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	89.7	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	94.2	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	74	128
EG005T: Total Metals by ICP-AES (QCLot: 2187485)							
EM1902040-014	SP11/0-0.15	EG005T: Arsenic	7440-38-2	50 mg/kg	102	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	105	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	107	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	101	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	99.1	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	102	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	103	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	100	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	95.3	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	96.5	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	102	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2187476)							
EM1901990-027	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	98.8	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2187486)							
EM1902040-014	SP11/0-0.15	EG035T: Mercury	7439-97-6	0.5 mg/kg	94.0	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 2191373)							
EM1902040-007	SP04/0-0.15	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	67.1	58	114
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 2191366)							
EM1901990-013	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	20 mg/kg	104	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2190227)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2190227) - continued							
EM1902040-010	SP07/0-0.15	EP066: Total Polychlorinated biphenyls	----	1.27 mg/kg	95.0	44	144
EP068A: Organochlorine Pesticides (OC) (QCLot: 2190225)							
EM1902040-004	QC03	EP068: gamma-BHC	58-89-9	0.5 mg/kg	96.9	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	89.3	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	100	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	93.0	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	92.2	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	108	20	133
EP068A: Organochlorine Pesticides (OC) (QCLot: 2190265)							
EM1901990-012	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	87.8	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	52.7	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	99.1	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	102	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	43.2	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	22.3	20	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2190225)							
EM1902040-004	QC03	EP068: Diazinon	333-41-5	0.5 mg/kg	95.6	49	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	84.5	41	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	88.1	47	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	80.3	45	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	77.1	40	128
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2190265)							
EM1901990-012	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	93.7	49	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	60.5	41	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	76.8	47	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	76.7	45	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	80.0	40	128
EP075(SIM)A: Phenolic Compounds (QCLot: 2190228)							
EM1902040-010	SP07/0-0.15	EP075(SIM): Phenol	108-95-2	3 mg/kg	100	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	97.8	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	102	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	94.6	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	80.0	15	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2190228)							
EM1902040-010	SP07/0-0.15	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	101	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	107	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2187344)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2187344) - continued							
EM1901980-015	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	# Not Determined	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2190229)							
EM1902040-012	SP09/0-0.15	EP071: C10 - C14 Fraction	----	806 mg/kg	100	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	105	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	95.2	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2187344)							
EM1901980-015	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	# Not Determined	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2190229)							
EM1902040-012	SP09/0-0.15	EP071: >C10 - C16 Fraction	----	1160 mg/kg	97.3	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	101	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	92.9	44	126
EP080: BTEXN (QCLot: 2187344)							
EM1901980-015	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	# Not Determined	50	136
		EP080: Toluene	108-88-3	2 mg/kg	# Not Determined	56	139

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 2190479)							
EM1902040-002	QC02	EG020A-T: Arsenic	7440-38-2	1 mg/L	93.6	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	95.7	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	97.1	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.4	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.9	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	90.6	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	90.9	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	92.9	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	95.4	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	94.4	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	91.1	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.8	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2190644)							
EM1902016-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	87.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2186831)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2186831) - continued							
EM1902012-003	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	56.3	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2186831)							
EM1902012-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	56.5	44	122
EP080: BTEXN (QCLot: 2186831)							
EM1902012-003	Anonymous	EP080: Benzene	71-43-2	20 µg/L	69.3	68	130
		EP080: Toluene	108-88-3	20 µg/L	79.3	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1902040**	Page	: 1 of 11
Client	: **ENVIRONMENTAL SITE ASSESSMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR SETON LILLAS	Telephone	: +6138549 9644
Project	: Curlewis	Date Samples Received	: 14-Feb-2019
Site	: ----	Issue Date	: 20-Feb-2019
Sampler	: AA	No. of samples received	: 28
Order number	:	No. of samples analysed	: 28

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

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO 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

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP080/071: Total Petroleum Hydrocarbons	EM1901980--015	Anonymous	**C6 - C9 Fraction**	----	40.8 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1901980--015	Anonymous	**C6 - C10 Fraction**	C6_C10	38.4 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1901980--015	Anonymous	**Toluene**	108-88-3	40.5 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1901980--015	Anonymous	**Ethylbenzene**	100-41-4	38.1 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1901980--015	Anonymous	**meta- & para-Xylene**	108-38-3 106-42-3	33.9 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1901980--015	Anonymous	**ortho-Xylene**	95-47-6	35.4 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1901990--027	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1901990--027	Anonymous	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1901990--027	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Petroleum Hydrocarbons	EM1901980--015	Anonymous	**C6 - C9 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1901980--015	Anonymous	**C6 - C10 Fraction**	C6_C10	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080: BTEXN	EM1901980--015	Anonymous	**Toluene**	108-88-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Pesticides by GCMS	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

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.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
SP01/0-0.15, QC03, SP02/0-0.15, SP03/0-0.15, SP04/0-0.15, SP05/0-0.15, SP06/0-0.15, SP07/0-0.15, SP08/0-0.15, SP09/0-0.15, SP10/0-0.15, SP11/0-0.15, SP12/0-0.15, SP13/0-0.15, SP14/0-0.15, SP15/0-0.15, SP16/0-0.15, SP17/0-0.15, SP18/0-0.15, SP19/0-0.15, SP20/0-0.15, SP21/0-0.15, SP22/0-0.15, SP23/0-0.15, SP24/0-0.15	**13-Feb-2019**	**----**	----	----	**15-Feb-2019**	27-Feb-2019	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
SP01/0-0.15, QC03, SP02/0-0.15, SP03/0-0.15, SP04/0-0.15, SP05/0-0.15, SP06/0-0.15, SP07/0-0.15, SP08/0-0.15, SP09/0-0.15, SP10/0-0.15, SP11/0-0.15, SP12/0-0.15, SP13/0-0.15, SP14/0-0.15, SP15/0-0.15, SP16/0-0.15, SP17/0-0.15, SP18/0-0.15, SP19/0-0.15, SP20/0-0.15, SP21/0-0.15, SP22/0-0.15, SP23/0-0.15, SP24/0-0.15	**13-Feb-2019**	**18-Feb-2019**	12-Aug-2019	✓	**18-Feb-2019**	12-Aug-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
SP01/0-0.15, QC03, SP02/0-0.15, SP03/0-0.15, SP04/0-0.15, SP05/0-0.15, SP06/0-0.15, SP07/0-0.15, SP08/0-0.15, SP09/0-0.15, SP10/0-0.15, SP11/0-0.15, SP12/0-0.15, SP13/0-0.15, SP14/0-0.15, SP15/0-0.15, SP16/0-0.15, SP17/0-0.15, SP18/0-0.15, SP19/0-0.15, SP20/0-0.15, SP21/0-0.15, SP22/0-0.15, SP23/0-0.15, SP24/0-0.15	**13-Feb-2019**	**18-Feb-2019**	13-Mar-2019	✓	**19-Feb-2019**	13-Mar-2019	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	13-Mar-2019	✓	**19-Feb-2019**	25-Feb-2019	✓
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK028SF)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**19-Feb-2019**	04-Mar-2019	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
SP01/0-0.15, QC03, SP02/0-0.15, SP03/0-0.15, SP04/0-0.15, SP05/0-0.15, SP06/0-0.15, SP07/0-0.15, SP08/0-0.15, SP09/0-0.15, SP10/0-0.15, SP11/0-0.15, SP12/0-0.15, SP13/0-0.15, SP14/0-0.15, SP15/0-0.15, SP16/0-0.15, SP17/0-0.15, SP18/0-0.15, SP19/0-0.15, SP20/0-0.15, SP21/0-0.15, SP22/0-0.15, SP23/0-0.15, SP24/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
SP01/0-0.15, QC03, SP02/0-0.15, SP03/0-0.15, SP04/0-0.15, SP05/0-0.15, SP06/0-0.15, SP07/0-0.15, SP08/0-0.15, SP09/0-0.15, SP10/0-0.15, SP11/0-0.15, SP12/0-0.15, SP13/0-0.15, SP14/0-0.15, SP15/0-0.15, SP16/0-0.15, SP17/0-0.15, SP18/0-0.15, SP19/0-0.15, SP20/0-0.15, SP21/0-0.15, SP22/0-0.15, SP23/0-0.15, SP24/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓
EP068C: Triazines							
Soil Glass Jar - Unpreserved (EP068)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓
EP068D: Pyrethroids							
Soil Glass Jar - Unpreserved (EP068)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**15-Feb-2019**	27-Feb-2019	✓	**15-Feb-2019**	27-Feb-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**15-Feb-2019**	27-Feb-2019	✓	**15-Feb-2019**	27-Feb-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**18-Feb-2019**	27-Feb-2019	✓	**18-Feb-2019**	30-Mar-2019	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SP04/0-0.15, SP07/0-0.15, SP09/0-0.15, SP14/0-0.15, SP19/0-0.15, SP21/0-0.15	**13-Feb-2019**	**15-Feb-2019**	27-Feb-2019	✓	**15-Feb-2019**	27-Feb-2019	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC02, QC05	**13-Feb-2019**	**18-Feb-2019**	12-Aug-2019	✓	**18-Feb-2019**	12-Aug-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC02, QC05	**13-Feb-2019**	**----**	----	----	**19-Feb-2019**	13-Mar-2019	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068)							
QC02, QC05	**13-Feb-2019**	**15-Feb-2019**	20-Feb-2019	✓	**15-Feb-2019**	27-Mar-2019	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
QC02, QC05	**13-Feb-2019**	**15-Feb-2019**	20-Feb-2019	✓	**15-Feb-2019**	27-Mar-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**13-Feb-2019**	**15-Feb-2019**	27-Feb-2019	✓	**15-Feb-2019**	27-Feb-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**13-Feb-2019**	**15-Feb-2019**	27-Feb-2019	✓	**15-Feb-2019**	27-Feb-2019	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**13-Feb-2019**	**15-Feb-2019**	27-Feb-2019	✓	**15-Feb-2019**	27-Feb-2019	✓

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**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	40	**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
Pesticides by GCMS	EP068	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Pesticides by GCMS	EP068	0	7	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	**10.53**	**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)							
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**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)							
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**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)							
Pesticides by GCMS	EP068	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
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 (2013) 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 (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
WAD Cyanide by Segmented Flow Analyser	EK028SF	SOIL	In house: Referenced to APHA 4500-CN-O. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate. Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN- The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4 ¿pyridine carboxylic and 1,3 - dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. 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 (2013) Schedule B(3) (Method 502 and 507)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	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. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The 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 (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
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 (2013) Schedule B(3) (Method 202)
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.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☒ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS Page 1 of 1

Company Name : ESA	Contact Name: S. Lillas	Purchase Order :	COC Number :
Office Address : PO Box 3106	Project Manager : A/A	PROJECT Number :	Eurofins | mgt quote ID :
Waurn Ponds VIC 3216	Email for results : office@esagroup.com.au	PROJECT Name : CURLEWIS	Data output format:

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	OC/OP Pesticides	15 Metals
1	QC04	13/2/19	S	x	x
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	

Sample comments:

Laboratory Staff

Relinquished By: S. Lillas
Date & Time: 14/2/19 9.13
Signature:

Received By: Catherine EG
Date & Time: 14/2 2.30pm
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☒ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number: 640789

Environmental Site Assessments P/L
2 Homestead Crt
Highton
VIC 3216

Attention: **- Seton Lillas (cc All SRA/Summary/Reports)**

Report **640789-S**
Project name CURLEWIS
Received Date Feb 14, 2019

Client Sample ID			**QC04**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M19-Fe19815**
Date Sampled			**Feb 13, 2019**
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	94
Tetrachloro-m-xylene (surr.)	1	%	106
Organophosphorus Pesticides			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2

Client Sample ID			QC04
Sample Matrix			Soil
Eurofins | mgt Sample No.			M19-Fe19815
Date Sampled			Feb 13, 2019
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Dimethoate	0.2	mg/kg	< 0.2
Disulfoton	0.2	mg/kg	< 0.2
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	74
Chromium (hexavalent)	1	mg/kg	< 1
Chromium (trivalent)	5	mg/kg	16
% Moisture	1	%	5.7
Heavy Metals			
Arsenic	2	mg/kg	4.6
Barium	10	mg/kg	37
Beryllium	2	mg/kg	< 2
Boron	10	mg/kg	< 10
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	16
Cobalt	5	mg/kg	6.8
Copper	5	mg/kg	5.9
Lead	5	mg/kg	8.5
Manganese	5	mg/kg	220
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	8.9
Vanadium	10	mg/kg	29
Zinc	5	mg/kg	14

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Organochlorine Pesticides	Melbourne	Feb 18, 2019	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Feb 18, 2019	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Chromium (hexavalent)	Melbourne	Feb 18, 2019	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Heavy Metals	Melbourne	Feb 18, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Feb 15, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Environmental Site Assessments P/L
Address: 2 Homestead Crt
Highton
VIC 3216

Project Name: CURLEWIS

Order No.:
Report #: 640789
Phone:
Fax:

Received: Feb 14, 2019 2:30 PM
Due: Feb 21, 2019
Priority: 5 Day
Contact Name: - Seton Lillas (cc All

Eurofins | mgt Analytical Services Manager : Cindi Guo

Sample Detail						Organochlorine Pesticides	Organophosphorus Pesticides	NEPM 1999 Metals : Metals M15	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	QC04	Feb 13, 2019		Soil	M19-Fe19815	X	X	X	X
Test Counts						1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	82			70-130	Pass	
4.4'-DDD	%	110			70-130	Pass	
4.4'-DDE	%	93			70-130	Pass	
4.4'-DDT	%	99			70-130	Pass	
a-BHC	%	78			70-130	Pass	
Aldrin	%	95			70-130	Pass	
b-BHC	%	95			70-130	Pass	
d-BHC	%	76			70-130	Pass	
Dieldrin	%	87			70-130	Pass	
Endosulfan I	%	89			70-130	Pass	
Endosulfan II	%	93			70-130	Pass	
Endosulfan sulphate	%	77			70-130	Pass	
Endrin	%	93			70-130	Pass	
Endrin aldehyde	%	88			70-130	Pass	
Endrin ketone	%	101			70-130	Pass	
g-BHC (Lindane)	%	93			70-130	Pass	
Heptachlor	%	100			70-130	Pass	
Heptachlor epoxide	%	105			70-130	Pass	
Hexachlorobenzene	%	102			70-130	Pass	
Methoxychlor	%	94			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	92			70-130	Pass	
Dimethoate	%	81			70-130	Pass	
Ethion	%	123			70-130	Pass	
Fenitrothion	%	105			70-130	Pass	
Methyl parathion	%	109			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mevinphos			%	109			70-130	Pass	
LCS - % Recovery									
Chromium (hexavalent)			%	99			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	104			80-120	Pass	
Barium			%	116			80-120	Pass	
Beryllium			%	119			80-120	Pass	
Boron			%	118			80-120	Pass	
Cadmium			%	109			80-120	Pass	
Chromium			%	110			80-120	Pass	
Cobalt			%	105			80-120	Pass	
Copper			%	106			80-120	Pass	
Lead			%	105			80-120	Pass	
Manganese			%	107			80-120	Pass	
Mercury			%	108			75-125	Pass	
Nickel			%	105			80-120	Pass	
Vanadium			%	107			80-120	Pass	
Zinc			%	103			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M19-Fe18687	NCP	%	79			70-130	Pass	
4.4'-DDD	M19-Fe16334	NCP	%	75			70-130	Pass	
4.4'-DDE	M19-Fe18687	NCP	%	86			70-130	Pass	
4.4'-DDT	M19-Fe11522	NCP	%	83			70-130	Pass	
a-BHC	M19-Fe18687	NCP	%	82			70-130	Pass	
Aldrin	M19-Fe18687	NCP	%	91			70-130	Pass	
b-BHC	M19-Fe18687	NCP	%	80			70-130	Pass	
d-BHC	M19-Fe18687	NCP	%	72			70-130	Pass	
Dieldrin	M19-Fe18687	NCP	%	90			70-130	Pass	
Endosulfan I	M19-Fe18687	NCP	%	81			70-130	Pass	
Endosulfan II	M19-Fe18687	NCP	%	94			70-130	Pass	
Endosulfan sulphate	M19-Fe18687	NCP	%	80			70-130	Pass	
Endrin	M19-Fe18687	NCP	%	77			70-130	Pass	
Endrin aldehyde	M19-Fe18687	NCP	%	83			70-130	Pass	
Endrin ketone	M19-Fe18687	NCP	%	82			70-130	Pass	
g-BHC (Lindane)	M19-Fe18687	NCP	%	80			70-130	Pass	
Heptachlor	M19-Fe18687	NCP	%	74			70-130	Pass	
Heptachlor epoxide	M19-Fe18687	NCP	%	99			70-130	Pass	
Hexachlorobenzene	M19-Fe18687	NCP	%	108			70-130	Pass	
Methoxychlor	M19-Fe11522	NCP	%	74			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M19-Fe20757	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Fe19729	NCP	%	102			75-125	Pass	
Barium	S19-Fe19729	NCP	%	103			75-125	Pass	
Beryllium	S19-Fe19729	NCP	%	121			75-125	Pass	
Boron	S19-Fe19729	NCP	%	100			75-125	Pass	
Cadmium	S19-Fe19729	NCP	%	100			75-125	Pass	
Chromium	S19-Fe19729	NCP	%	105			75-125	Pass	
Cobalt	S19-Fe19729	NCP	%	103			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper	S19-Fe19729	NCP	%	103			75-125	Pass	
Lead	S19-Fe19729	NCP	%	103			75-125	Pass	
Manganese	S19-Fe19729	NCP	%	101			75-125	Pass	
Mercury	S19-Fe19729	NCP	%	106			70-130	Pass	
Nickel	S19-Fe19729	NCP	%	100			75-125	Pass	
Vanadium	S19-Fe19729	NCP	%	104			75-125	Pass	
Zinc	S19-Fe19729	NCP	%	98			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S19-Fe18848	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S19-Fe18848	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S19-Fe18848	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Mevinphos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S19-Fe18848	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S19-Fe18848	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S19-Fe18848	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M19-Fe20756	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
% Moisture	M19-Fe19843	NCP	%	7.1	7.0	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Fe19729	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Barium	S19-Fe19729	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Beryllium	S19-Fe19729	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	S19-Fe19729	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	S19-Fe19729	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Fe19729	NCP	mg/kg	11	11	2.0	30%	Pass	
Cobalt	S19-Fe19729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S19-Fe19729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S19-Fe19729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Manganese	S19-Fe19729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S19-Fe19729	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Fe19729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Vanadium	S19-Fe19729	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	S19-Fe19729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

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

Authorised By

Cindi Guo	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Appendix B2 Environmental Investigation - 91-125 Coriyule Road, Curlewis (ESA, 2022)

Environmental
Site Assessments

ENVIRONMENTAL INVESTIGATION
91-125 CORIYULE ROAD, CURLEWIS

Prepared for
CURLEWIS BELLARINE PTY LTD

Document Control

Environmental Site Assessments Pty Ltd
A.B.N: 13 160 886 911
Unit 4, 6-10 Apparel Close,
Breakwater VIC 3216
Australia

Phone: 0433 747 187
Email: office@esagroup.com.au
Web: www.esagroup.com.au

Report Title:	Environmental Investigation | 91-125 Coriyule Road, Curlewis
Doc. Ref:	ESA/2022/096
Client:	Curlewis Bellarine Pty Ltd
Signatures:	Prepared and Authorised by: [redacted] Principal Environmental Scientist

Revision Status

Revision #	Status	Date	Writer
1	Final	1 August 2022	Seton Lillas

Documents Distribution

Revision #	Number of copies	Type	Recipient Name, Position and Company
1	1	Email	[redacted] Development Manager, SOHO Living
1	1	Email	[redacted], Principal Environmental Engineer / EPA Appointed Auditor (Vic, NT, ACT), EHS Support.

Contents

Document Control 2
Revision Status 2
Documents Distribution 2
Appendices 4
1.0 INTRODUCTION 3
1.1 Scope of Work Undertaken 3
2.0 PRELIMINARY STUDY 3
2.1 Site Details 3
2.2 Current Use 3
2.3 Surrounding Land Zones 3
2.4 Relevant Planning Information 4
2.5 Regional Geology 4
2.6 Potential Acid Sulfate Soils 4
2.7 Regional Hydrogeology 4
2.8 Nearest Surface Water Bodies 5
3.0 POTENTIAL CONTAMINANTS OF CONCERN 5
3.1 Potential Contamination Sources 5
3.1.1 On-Site “Contaminants of Potential Concern” 5
3.1.2 Off-Site “Contaminants of Potential Concern” 5
4.0 DATA QUALITY OBJECTIVES (‘DQO’s’) 5
5.0 SOIL INVESTIGATION 7
5.1 Soil Collection and Analysis 8
5.1.1 Results of Analysis 9
5.1.2 Discussion of Exceedances 9
6.0 SOIL SAMPLING METHODOLOGY AND QUALITY CONTROL 9
6.1 Relevant Guidelines and Standards 9
6.2 Environmental Site Assessments Quality Assurance (QA) Program 9
6.3 Environmental Site Assessments Quality Control (‘QC’) Program 10
6.4 Field Quality Control Samples 10
6.4.1 Assessment of Field Variability (Blind Replicate and Split samples) 10
6.4.2 Trip Blanks 11
6.4.3 Field Blanks 11
6.5 Laboratory Quality Control 11
6.5.1 Sample Holding Times and Sample Receipt Temperature 11
6.5.2 Conclusion 11
6.6 Sample Documentation 11
6.7 Packaging and Transport 12
6.8 Field Notes 12
7.0 CONCEPTUAL SITE MODEL 12
7.1 Local and regional setting 12
7.2 Current and proposed Site use and general condition 13
7.3 Historical Information Concerning the Site 14

7.3.1 Site Uses 14
7.3.2 On-Site Potential Contaminants of Potential Concern 14
7.3.3 Off-Site Potential Contaminants of Potential Concern 14
7.4 Source Characterisation 14
7.4.1 Identified impacts and chemicals of concern – Soil 14
7.5 Fate and Transport 15
7.5.1 Possible Transport Mechanisms 15
7.5.2 Potential Receptors and Exposure Pathways 15
7.6 Outstanding Data Gaps (Soils) 15
7.7 Outstanding Data Gaps (Groundwater) 15
8.0 RISKS TO ENVIRONMENTAL VALUES 16
9.0 CONCLUSIONS AND RECOMMENDATIONS 16
9.1 Conclusions 16
9.2 Recommendations 16
10.0 REFERENCES 16

Appendices

Appendix 1: Comparison Tables

Appendix 2: Sample and Observation Pit Locations

Appendix 3: Bore Logs

Appendix 4: EIL Calculations

Appendix 5: PID Calibration Form

Appendix 6: Laboratory Chain of Custody Forms and Certificates of Analysis

Acronym	Definition
ACM	Asbestos Containing Material
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS	Australian Standard
B(a)P	Benzo(a)pyrene
BGL	Below Ground Level
BTOC	Below Top of Casing
CIRIA	Construction Industry Research and Information Association
COC	Chain of Custody
CSM	Conceptual Site Model
CUN	Clean Up Notice
DBYD	Dial Before You Dig
EA	Environmental Assessment
ESA	Environmental Site Assessments Pty Ltd
EPA	Environment Protection Authority
km	Kilometre
L	Litre
LFG	Landfill Gas
LFGRA	Landfill Gas Risk Assessment
LOR	Limit of Reporting
m	Metre
m BGL	Metres Below Ground Level
MGA	Map Grid of Australia
mm	Millimetre
MMBW	Melbourne Metropolitan Board of Works
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
PAHs	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulfate Soils
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoate
PFHxS	Perfluorohexanesulfonate
PFOS	Perfluorooctanesulfonate
PID	Photoionisation Detector
ppm	Parts Per Million
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percentage Difference
SAQP	Sampling Analysis Quality Plan
SP	Sample Point
TRHs	Total Recoverable Hydrocarbons
UST	Underground Service Tank
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

Environmental Site Assessments Pty Ltd ('ESA') was engaged by Curlewis Bellarine Pty Ltd ('the Client') to undertake an Environmental Investigation ('EI') at 91-125 Coriyule Road, Curlewis. The client intends (subject to council approval) to develop the Site for low-density residential use.

A review of aerial photographs has revealed that material was imported into the northeast of the Site to fill a dam and surrounding land. These are included in the report "Environmental Assessment – 32-70 McDermott Road & 91-125 Coriyule Road, Curlewis – ESA/370/2018 (22/09/2019) - Environmental Site Assessments Pty Ltd".

A Sampling and Analysis Plan ('SAQP') was developed by ESA for further investigation on-Site and is documented in "Sampling and Analysis Quality Plan (Soil) – Jetty Road, Stage 2, Curlewis – ESA/2022/066 (30 May 2022) – Environmental Site Assessments Pty Ltd".

1.1 Scope of Work Undertaken

Four (4) test pits will be created within the filled dam and vicinity to determine the depth of fill and composition.

Two (2) soil samples per pit will be collected and analysed for PAHs, Metals, OCPs and TRHs.

If potential ACM is located, it will be analysed for Asbestos ID and Friability.

One sample of fill and one of natural soil will be analysed for pH, Chloride and Sulfate.

Samples of natural soil from 0-1m and 1-2m BGL will be collected from Site. They will be collected from an area unlikely to have been impacted by Site activities. The samples will be analysed for the following:

- pH;
- Clay Content;
- Cation Exchange Capacity;
- Total Organic Carbon (%);
- Iron (%);
- Copper;
- Lead;
- Nickel; and
- Zinc.

The EILs will be calculated for the Site using the NEPM EIL derivation spreadsheet.

Pits will also be created at the edge of the filled area to determine the lateral and vertical extent of fill.

2.0 PRELIMINARY STUDY

2.1 Site Details

The following table summarises the relevant details that describe the Site.

Site Address	91-125 Coriyule Road, Curlewis
Current Site Owner/s	Curlewis Bellarine Pty Ltd
Current Title Volumes/Folios	10978/324
Municipality	Greater Geelong
Land Description	Lot 1 on Title Plan 198964M
Zone	Farming ('FZ')

Table 2.1 – Site Details

2.2 Current Use

The Site is currently not in use.

2.3 Surrounding Land Zones

North	Farming

South	Special Use
East	General Residential
West	Farming

Table 2.3 – Surrounding Land Zones

2.4 Relevant Planning Information

Under the City of Greater Geelong planning scheme, the Site is currently zoned as Farming ('FZ').

The Site is not currently subject to the requirements of an Environmental Audit Overlay ('EAO').

2.5 Regional Geology

- Source-bordering dune deposits (Qdl1): Sand, silt, clay: inland dune deposits, some swamp deposits; mostly source bordering.

2.6 Potential Acid Sulfate Soils

The potential for PASS on-Site is Low.

2.7 Regional Hydrogeology

The following is known about the hydrogeology for the Site and its immediate surrounds.

TDS (mg/L)	3,500 – 7,000
Groundwater Beneficial Use Segment (per ERS[1])	C / D
Environmental Values to be Protected	Water Dependant Ecosystems and Species Potable Mineral Water Supply Agriculture and Irrigation (Stock Watering) Industrial and Commercial Use Water Based Recreation (Primary Contact Recreation) Traditional Owner Cultural Values Buildings and Structures Geothermal Properties
Depth to Upper Aquifer (m BGL)	<5 – 20
Surface Elevation above Sea Level (m AHD)	38 - 55
Inferred Groundwater Flow Direction	Northwest
Likely Point of Discharge	Port Phillip Bay

Table 2.7 - Regional Hydrogeology

There are 26 groundwater wells within a 2km radius of the Site.

The wells are used for the following purposes:

- Investigation;
- Domestic; and
- Stock.

1 State Government of Victoria - Environmental Reference Standards (26 May 2021)

2.8 Nearest Surface Water Bodies

- Port Phillip Bay - ~1km to the north of Site.

3.0 POTENTIAL CONTAMINANTS OF CONCERN

3.1 Potential Contamination Sources

Potential sources of contamination on- and off-Site have been identified based on previous investigations. They are listed in the following sections.

3.1.1 On-Site "Contaminants of Potential Concern"

Source	Contaminants of Potential Concern
Crop Growing	Organochlorine Pesticides.
Imported Fill	Polycyclic Aromatic Hydrocarbons ('PAHs'), Heavy Metals, Organochlorine Pesticides ('OCPs'), Total Recoverable Hydrocarbons ('TRHs') & Asbestos.

Table 3.1.1 - On-Site COPCs

3.1.2 Off-Site "Contaminants of Potential Concern"

Source	Contaminants of Potential Concern
Nil	Nil

Table 3.1.2 – Off-Site COPCs

4.0 DATA QUALITY OBJECTIVES ('DQO's')

DQO's were developed for this EI in line with the relevant guidelines and standards.

The DQO process is a seven-step iterative planning approach that is used to define the type, quantity and quality of data needed to inform decisions relating to the environmental condition of a site.

The seven steps in the DQO process are:

Step 1: State the problem;

Step 2: Identify the decision;

Step 3: Identify the inputs to the decision;

Step 4: Define the study boundaries;

Step 5: Develop a decision rule;

Step 6: Specify limits on decision errors; and

Step 7: Optimise the design for obtaining data.

A preliminary Conceptual Site Model ('CSM') is required to complete Step 1. The CSM is attached to Section 7.0 of this report.

Step 1: State the problem	This EI will focus on establishing: • The types of contaminants (if any) present in the fill at the northeast of Site; and • The lateral and vertical extent of the fill.
Step 2: Identify the decision	**Primary Questions** • What is the spatial distribution of contaminants in fill and do they present a potential risk to human health and the environment based on NEPM HILs, HSLs, ESLs and EILs?

	Secondary Questions (If soil contamination exists) • Is soil contamination a significant risk to groundwater? • What is the potential for erosion of contaminated Site soils? • What is the potential for soil ingestion/dermal contact/inhalation (dust)? • Are the environmental values of land precluded by soil contamination?
Step 3: Identify the inputs to the decision	The potential for soil contamination will be assessed through the following: Four (4) test pits will be created within the filled dam and vicinity to determine the depth of fill and composition. Two (2) soil samples per pit will be collected and analysed for PAHs, Metals, OCPs and TRHs. If potential ACM is located, it will be analysed for Asbestos ID and Friability. One sample of fill and one of natural soil will be analysed for pH, Chloride and Sulfate. Samples of natural soil from 0-1m and 1-2m BGL will be collected from Site. They will be collected from an area unlikely to have been impacted by Site activities. The samples will be analysed for the following: • pH; • Clay Content; • Cation Exchange Capacity; • Total Organic Carbon (%); • Iron (%); • Copper; • Lead; • Nickel; and • Zinc. The EILs will be calculated for the Site using the NEPM EIL derivation spreadsheet. Pits will also be created at the edge of the filled area to determine the lateral and vertical extent of fill.
Step 4: Define the study boundaries	The boundary of the study will be the perimeter of Site
Step 5: Develop a decision rule	Overall Decision Rule: • If concentrations of COPC's in soils exceed EI risk-based screening criteria, additional data will need to be collected. • If a constituent (not currently listed as a COPC) is present in soils at concentrations significantly higher than background and if the maximum detected concentration is greater than its screening criterion, then the constituent will be considered a COPC, and will be evaluated further as part of a Detailed Site Investigation ('DSI').
Step 6: Specify limits on decision errors	There are two types of error:

	• Deciding that the fill is acceptable when it is not. A 5% limit will be applied; and • Deciding that the fill is unacceptable when it is. A 20% limit will be applied.
Step 7: Optimise the design for obtaining data	• Sample locations have been chosen based on historical photographs to enable ESA to target the fill. • The sampling undertaken as part of the EI will provide data about COPC's for the Site. It may not be conclusive proof of the existence of contamination at the Site and may need to be expanded on as part of a Detailed Site Investigation.

Table 4.0 – DQO's

5.0 SOIL INVESTIGATION

As previously mentioned, the client intends to develop the Site for a sensitive use (low-density residential). Per the Environment Reference Standard (26 May 2021) the environmental values of land to be protected for this use are:

- Land Dependent Ecosystems and Species (Modified and Highly Modified);
- Human Health;
- Buildings and Structures;
- Aesthetics; and
- Production of Food, Flora and Fibre.

For each of the relevant environmental values a soil assessment guideline has been adopted as summarised in Table 5.0 below. Screening level criteria are provided in the tabulated laboratory results in **Appendix 1.**

Environmental Value	Adopted Assessment Guidelines
Land Dependent Ecosystems and Species (Modified and Highly Modified)	• National Environment Protection (Assessment of Site Contamination) Measure 1999 (As Amended) ESLs (Urban Residential) and EILs; • Canadian Council of Ministers of the Environment ('CCME') – Canadian Environmental Quality Guidelines ('CEQGs') – Barium, Cobalt; • EPA Victoria Publication 1828.2 – Waste Disposal Categories – Characteristics and Thresholds – pH; and • US EPA Eco-Tox SSLs – Manganese.
Human Health	• National Environment Protection (Assessment of Site Contamination) Measure 1999 (As Amended) HIL A and HSL A/B; and • USEPA Regional Screening Levels ('RSLs') – Residential Use – Barium.
Buildings and Structures	• Standards Australia - Australian Standard: Piling – Design and Installation (AS2159-2009).
Aesthetics	• Land that is not offensive to the senses of human beings.
Production of Food, Flora and Fibre	• National Environment Protection (Assessment of Site Contamination) Measure 1999 (As Amended) HILs A, HSL A/B, ESLs (Urban Residential) and EILs; • USEPA Regional Screening Levels ('RSLs') – Residential Use – Barium. • Canadian Council of Ministers of the Environment ('CCME') – Canadian Environmental Quality Guidelines ('CEQGs') – Barium, Cobalt; • EPA Victoria Publication 1828.2 – Waste Disposal Categories – Characteristics and Thresholds – pH; and • US EPA Eco-Tox SSLs – Manganese.

Table 5.0 – Adopted Assessment Guidelines

In addition to samples collected as part of the EI, two soil samples were collected and analysed for calculation of the Site-specific EILs. Samples of natural on-Site soils were collected from 0-1m BGL (EIL/0.5-0.65) and 1-2m BGL (EIL/1.5-1.65). The samples

were obtained from natural soils at the east of the Site (see **Appendix 2**). This location was chosen as it was not likely to be impacted by historical Site activities based on information gathered from aerial photographs. The bore log is in **Appendix 3**.

Site specific EILs were generated using the "EIL Calculation Spreadsheet" referenced by the NEPM 1999 (As Amended) guidelines. See **Appendix 4**.

Table 5.1 below summarises the Site specific EILs calculated for soil at 0-1 and 1-2m BGL and adopted for this investigation.

Analyte	EIL Value 0 to <1m BGL - Aged	EIL Value 1 to 2m BGL - Aged
Arsenic (Generic)	100 mg/kg	100 mg/kg
DDT (Generic)	180 mg/kg	180 mg/kg
Naphthalene (Generic)	170 mg/kg	170 mg/kg
Lead	1109 mg/kg	1108 mg/kg
Copper	220 mg/kg	60 mg/kg
Nickel	320 mg/kg	150 mg/kg
Zinc	720 mg/kg	360 mg/kg

Table 5.1 - Adopted Ecological Investigation Levels

5.1 Soil Collection and Analysis

Soil sampling was undertaken on 19 July 2022 with the aid of an excavator. Samples were collected from the bucket using a nitrile gloved hand. Gloves were changed between samples. Bore logs of the soils encountered are in **Appendix 3**.

A Photoionisation Detector ('PID') was employed to screen samples for Volatile Organic Compounds ('VOCs'). The following methodology was employed:

- A sample of soil was carefully collected with minimal disturbance that could cause loss of volatile constituents;
- The sample was immediately extruded into a plastic bag and sealed;
- The sealed bag containing the sample was crushed between the fingers to disperse the sample and release volatile constituents;
- The inlet tube of the PID was then inserted through a small opening in the bag into the headspace over the sample; and
- The PID response (in ppm) was measured within 2-3 seconds and the result recorded on the field form.

The PID factory calibration certificate is attached to **Appendix 5**. All samples were analysed using the PID and the results are shown in Table 5.1 below. Table 5.1 also illustrates the samples that were collected, and the analysis undertaken.

Sample ID	Sampling Point	Depth of Sample (m BGL)	Lab Analysis	PID (PPM) / Odour	Visual Contamination
TP05/0-0.15	TP05	0-0.15	PAHs, 15 Metals, OCPs & TRHs	0.0 / Nil	Nil
QC01					
QC02					
TP05/2.35-2.5		2.35-2.5			
TP06/0-0.15	TP06	0-0.15	PAHs, 15 Metals, OCPs, TRHs, pH, Chloride & Sulfate		
TP06/2.45-2.6		2.45-2.6	PAHs, 15 Metals, OCPs & TRHs		
TP07/0-0.15	TP07	0-0.15	PAHs, 15 Metals, OCPs & TRHs		
TP07/1.95-2.1		1.95-2.1			
TP08/0-0.15	TP08	0-0.15	PAHs, 15 Metals, OCPs & TRHs		
TP08/1.95-2.1		1.95-2.1			

Sample ID	Sampling Point	Depth of Sample (m BGL)	Lab Analysis	PID (PPM) / Odour	Visual Contamination
EIL/1.5-1.65	EIL	1.5-1.65	pH, Chloride & Sulfate		

Table 5.1 - Sample Details

5.1.1 Results of Analysis

The laboratories used for conducting the soil analysis were ALS Environmental ('ALS') and Eurofins Scientific ('Eurofins'). Both laboratories are NATA certified for the analysis undertaken.

All chain of custody forms, certificates of analysis and laboratory QA/QC documents are in **Appendix 6**. The laboratory report numbers are EM2213760 & 907169. The comparison tables for laboratory results are attached as **Appendix 1**.

The results were as follows:

- There was one exceedance of EILs for Manganese;
- The fill and natural soils investigated on-Site are "Non-Aggressive" for concrete and steel piles; and
- All soils encountered were aesthetically suitable for a sensitive use and no ACM was encountered.

The approximate lateral extent of the fill is shown in **Appendix 2**.

5.1.2 Discussion of Exceedances

The fill soils used to backfill the dam area differ in their appearance and composition to those found naturally on-Site. Due to the fill soils volume and consistency they were likely sourced locally as there have been housing developments in the vicinity that have involved excavations (based on aerial photographs).

According to Geovic (https://gsv.vic.gov.au/), the other geology in the vicinity of Site consists of Moorabool Viaduct Sand ('Nbm').

According to Victorian Background Soil Database (https://soilexplorer.org.au/[2]) soils in Greater Geelong (within the Brighton Group) have elevated levels of Manganese (Min: <5 mg/kg, Max: 407 mg/kg).

During the soil sampling undertaken as part of "Environmental Assessment – 32-70 McDermott Road & 91-125 Coriyule Road, Curlewis – ESA/370/2018 (22/09/2019) - Environmental Site Assessments Pty Ltd" samples were analysed for Manganese for both addresses. 32-70 McDermott Road predominantly has a native geology of Nbm.

The results for Manganese at 32-70 McDermott Road (SP01 – SP12) ranged from 23 – 290mg/kg. 91-125 Coriyule Road predominantly has a native geology of Qdl1. The results for Manganese at 91-125 Coriyule Road (SP13 – SP22) ranged from 13 – 119 mg/kg.

Based on the information collected and detailed above, the Manganese results reported for fill soils are likely to be naturally occurring and hence not pollution.

6.0 SOIL SAMPLING METHODOLOGY AND QUALITY CONTROL

6.1 Relevant Guidelines and Standards

The sampling program was undertaken in accordance with the following guidelines, standards, and policies:

- 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).
- Australia Standard (AS 4482.2) - Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 2: Volatile Substances (Standards Australia, 1999).
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended).
- State Government of Victoria - Environmental Reference Standards (26 May 2021).

6.2 Environmental Site Assessments Quality Assurance (QA) Program

Environmental Site Assessments has developed and implemented a Quality Assurance Program in general accordance with the following guidelines:

- 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).

[2] Mikkonen, H.G., Bentley, P.D., Barker, A.O., Dasika, R., Wallis, C.J., Clarke, B.O., Reichman, S.M., 2018. Victorian Background Soil Database, Version 1.0. RMIT University, Melbourne, Australia. http://doi.org/10.4225/61/5a3ae6d48570c

- National Environment Protection Council (NEPC) - National Environment Protection (Assessment of Site Contamination) Measure (NEPM) - Schedule B3 Guideline on Laboratory Analysis of Potentially Contaminated Soils, 1999 (As Amended).

As part of the Quality Assurance Program, Environmental Site Assessments ensures that the following methodology is employed:

- The use of appropriately qualified and trained environmental scientists to perform intrusive works;
- The use of standardised field sheets to record the findings of the site investigations;
- The collection and analysis of Quality Control samples as per AS 4482.1;
- The use of Chain of Custody procedures to ensure that sample integrity is maintained through the transport and handling stages; and
- Only using NATA accredited laboratories for the analysis of samples collected during the investigation activities.

As per the Environmental Site Assessments Quality Assurance Program, the following data quality indicators were used for the assessment of the laboratory analytical data:

- All sample analysis to be conducted using NATA registered methods in accordance with NEPM 1999 (Amended) guidelines.
- Laboratory method blank analysis required to be below the Limit of Reporting (LOR); and
- Surrogate compound concentrations required to be spiked at similar concentration to sample result.

6.3 Environmental Site Assessments Quality Control ('QC') Program

The overall precision of field quality control samples, laboratory split samples and laboratory duplicates is generally assessed by their Relative Percentage Difference ('RPD'), given by:

$$\frac{(C1 - C2)\ x\ 100}{\frac{(C1 + C2)}{2}}$$

Where:

C1 is the primary sample concentration.

C2 is the duplicate sample concentration.

The RPD of duplicated analysis were calculated and compared to the following criteria for acceptability. The acceptance criteria are listed in AS4482.1 (2005):

- Less than 30-50% for field duplicates (blind replicate and split samples);
- The significance of other field quality control samples (equipment rinsate samples, trip blank samples, trip spike samples and field blanks) need to be evaluated with respect to the actual field samples;
- Less than 30% for laboratory duplicates where the detection is less than 10 times the LOR;
- Less than 20% for laboratory duplicates where the detection is greater than 10 times the LOR;
- RPDs for control spike duplicates will be compared to an acceptable limit of 20%;
- RPDs for matrix spike duplicates will be compared to an acceptable limit of 20%; and
- Percentage recoveries of control spikes and matrix spikes will be compared to an acceptable range of 70% – 130%. Where this range is exceeded, reference to the laboratories internal data quality objective limits will be made. In addition, percentage recoveries of surrogates will also be compared to the USEPA surrogate recovery limits.

6.4 Field Quality Control Samples

The complete RPD comparison tables are in **Appendix 1**.

The comparison tables for the trip and field blanks are in **Appendix 1.**

6.4.1 Assessment of Field Variability (Blind Replicate and Split samples)

Two quality control soil samples were collected for every twenty primary soil samples analysed.

Quality control samples were preserved, packaged, and sealed in the same manner as the primary samples. A separate sample number was assigned to each QC sample, and it was submitted blind to the laboratory.

- One blind (QC01) and one split sample (QC02) were collected as part of the soil sampling program.
- The blind sample was submitted to ALS whilst the split sample was submitted to Eurofins.
- The RPDs were calculated for these samples.
- For the blind sample there was an elevated RPD for Nickel (51%).
- For the split sample there were elevated RPDs for Barium (116%), Lead (117%), Nickel (87%) and Zinc (140%).

<u>The following comments should be noted when interpreting the elevated RPD calculations:</u>

- Where results were outside the acceptable range, these were all less than an order of magnitude from the original; and

- It is considered that the variations reported may be due to differences in inter-lab testing procedures and/or heterogeneity of samples.

RPD exceedances are not considered to adversely affect the data quality and hence, alter the findings of the investigation. Where the reported concentrations of the quality control sample are higher than the primary samples, the higher concentrations were adopted for comparison against the relevant screening criteria.

6.4.2 Trip Blanks

Trip blanks were prepared to evaluate if the transport and handling procedures had introduced contaminants into the samples, and if cross contamination in the form of VOC migration had occurred between the collected samples. Trip blanks were placed in every cooler box containing soil samples undertaking volatile analysis.

- One trip blank (TB01) was collected as part of the sampling program and analysed for TRH C6-C10 and BTEXN.
- All results were below LOR.

6.4.3 Field Blanks

Field blanks were collected to evaluate whether contaminants were introduced into the samples during the sampling due to ambient conditions or from sample containers.

- One field blank (FB01) was collected as part of the sampling program and analysed for OC/OPPs, BTEXN and 15 Metals.
- All results were below the LOR.

6.5 Laboratory Quality Control

As part of their NATA accreditation, laboratories perform internal duplicate analysis of samples for comparison of results to demonstrate precision. Laboratory standards including matrix spike samples, laboratory control samples and surrogates are also conducted as a basis to demonstrate accuracy. In addition, internal laboratory blank samples are run to assess the potential for laboratory equipment errors. The laboratories QC results are attached in **Appendix 6**.

ALS

- NO Method Blank value outliers occur.
- NO Laboratory Control outliers occur.
- NO Duplicate outliers occur.
- NO Matrix Spike outliers occur.
- NO Surrogate Recovery outliers occur.

Eurofins

- NO Method Blank value outliers occur.
- NO Laboratory Control outliers occur.
- NO Duplicate outliers occur.
- NO Matrix Spike outliers occur.
- NO Surrogate Recovery outliers occur.

6.5.1 Sample Holding Times and Sample Receipt Temperature

The documented temperature of samples upon receipt at the respective laboratory was within an acceptable range. No analysis holding times exist.

6.5.2 Conclusion

A review of the laboratory reports indicates that the laboratories have met their internal acceptance criteria for the quality control samples.

6.6 Sample Documentation

All samples collected were labelled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The samples had identifiable and unique numbers.

The sample labels contained the following information:

- Company name;
- Name of sampler;
- Sample ID; and
- Date/Time sample was collected.

Chain-of-custody forms were used to document sample collection and transport to laboratories for analysis. All sample transports for analysis were accompanied by a chain-of-custody form.

Forms were completed and sent with the samples for each laboratory and each transport (i.e., each day). If multiple coolers were sent to a single laboratory on a single day, forms were completed and sent with the samples for each cooler.

The chain-of-custody forms identified the contents of each transport and maintained the custodial integrity of the samples. The coolers in which samples were stored were sealed with self-adhesive custody seals. All custody seals were signed.

6.7 Packaging and Transport

All sample containers were placed in a plastic cooler.

The following outlines the packaging procedures that were followed for samples:

- When ice was used, it was packed in zip-locked, double plastic bags. The drain plug of the cooler was sealed with fiberglass tape to prevent melting ice from leaking out of the cooler;
- The bottom of the cooler was lined with bubble wrap to prevent breakage during transport;
- All glass sample containers were enclosed in bubble wrap to prevent breakage;
- Where required, empty space in the cooler was filled with bubble wrap to prevent movement and breakage during transport;
- Ice used to cool samples was placed on top and around the samples to chill them to the correct temperature; and
- Each cooler was securely taped shut with signed custody seals.

6.8 Field Notes

The following information was recorded during the collection of samples:

- Sample location and description;
- Sampling area sketch showing sample location and measured distances (where required);
- Sampler's name(s);
- Date and time of sample collection;
- Sample ID;
- Type of soil/material encountered (Fill, Natural etc.);
- GPS Coordinates;
- Photoionisation Detector ('PID') readings;
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odours, colours etc.);
- Soil descriptions as per AS1726-1993; and
- Sample preservation details.

7.0 CONCEPTUAL SITE MODEL

For an assessment to be made of the potential sources of impact, chemicals of concern, transport mechanisms and receptors, a Conceptual Site Model ('CSM') has been developed from the information obtained to date for the Site.

7.1 Local and regional setting	
Location	91-125 Coriyule Road, Curlewis
Zoning	Farming
Surrounding Land Uses	North – Farming South – Special Use East – General Residential West – Farming
Geology	Source-bordering dune deposits (Qdl1): Sand, silt, clay: inland dune deposits, some swamp deposits; mostly source bordering.
Hydrogeology	• Groundwater on-Site is likely to be between <5 and 20m BGL; and • The groundwater flow direction is inferred to be northwest.

Groundwater Segment (Per Table 5.2 of the Environmental Reference Standards (26 May 2021)	C / D
Environmental values of the groundwater that must be protected in accordance with Table 5.3 of the Environmental Reference Standards (26 May 2021)	• Water Dependent Ecosystems and Species; • Potable Mineral Water Supply; • Agriculture and Irrigation (Stock Watering); • Industrial and Commercial; • Water-Based Recreation (Primary Contact Recreation); • Traditional Owner Cultural Values; • Cultural and Spiritual Values; • Buildings and Structures; and • Geothermal Properties.
Protected Environmental Values of Land (Per Table 4.2 of the Environmental Reference Standards (26 May 2021)	• Land Dependent Ecosystems and Species (Modified and Highly Modified); • Human Health; • Buildings and Structures; • Aesthetics; and • Production of Food, Flora and Fibre.
7.2 Current and proposed Site use and general condition	
Current ownership and use(s)	Currently owned by Curlewis Bellarine Pty Ltd. The Site is currently vacant and unused.
Current condition of the Site, including infrastructure, paving/ground surface conditions and any other relevant information	There is only one building on-Site which is an abandoned house. The Site is mostly bare soil or grass.
Soil profile	**NATURAL PROFILE** SANDY SILT: Low Plasticity, Brown, Loose, Moist OVER CLAY: High Plasticity, Dark Brown, Firm, Moist OVER CLAY: High Plasticity, Brown or Dark Brown with Orange Mottle, Firm, Moist, Black Inclusions **FILL PROFILE** FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist OR FILL: SANDY CLAY. Medium Plasticity, Brown/Orange, Loose, Moist OR FILL: SAND. Low Plasticity, Orange, Loose, Moist OR FILL: SANDY CLAY. Medium Plasticity, Orange, Loose, Moist OVER FILL: SILTY SAND. Low Plasticity, White/Grey, Loose, Dry OR FILL: SANDY CLAY. Medium Plasticity, Brown, Loose, Moist OR

	FILL: SILT. Low Plasticity, Brown, Loose, Moist

7.3 Historical Information Concerning the Site

7.3.1 Site Uses

Historical information suggests that the Site has been used for grazing and crop growing.

7.3.2 On-Site Potential Contaminants of Potential Concern

Source	Contaminants of Potential Concern
Crop Growing	Organochlorine Pesticides.
Imported Fill	Polycyclic Aromatic Hydrocarbons ('PAHs') Total Recoverable Hydrocarbons ('TRHs') and Heavy Metals.

7.3.3 Off-Site Potential Contaminants of Potential Concern

Source	Contaminants of Potential Concern
Nil	Nil

7.4 Source Characterisation

Soil

- Grid-based soil sampling was undertaken on-Site on 13 February 2019 by ESA.
- Surface soil samples (0-0.15m BGL) were collected and analysed for potential COPCs associated with on-Site sources.
- Targeted soil sampling of the infilled dam and vicinity in the northeast of Site was undertaken by ESA on 19 July 2022.
- Soil samples were collected and analysed for potential COPCs associated with on-Site sources.

Groundwater

- No groundwater investigation has been undertaken to date.

7.4.1 Identified impacts and chemicals of concern – Soil

Chemicals of concern and which criteria they exceed	• Based on Western Australia guidance introduced in 2022 (https://www.agric.wa.gov.au/livestock-biosecurity/chickens-eggs-and-organochlorines) soil samples collected and analysed from SP18, SP19 and SP20 as part of "Environmental Assessment – 32-70 McDermott Road & 91-125 Coriyule Road, Curlewis – ESA/370/2018 (22/09/2019) - Environmental Site Assessments Pty Ltd" now exceed the Dieldrin upper threshold (0.06 mg/kg) for producing chickens or eggs. • There was one exceedance of EILs for Manganese within the fill soils identified in the EI.
Comparison to background levels	A review of Geovic and the Victorian Background Soil Database was undertaken. Based on the information collected, the Manganese exceedance reported for fill soil at TP07 is likely to be naturally occurring and hence not pollution.

7.5 Fate and Transport	
7.5.1 Possible Transport Mechanisms	
Soil	• Potential leaching into underlying soils and groundwater; and • Wind erosion and atmospheric dispersion.
Subsurface Infrastructure	• Underground services - underground services have the potential to transmit contaminants given that they are usually backfilled with gravel which has a higher permeability than the surrounding aquifer lithology.
Groundwater	• Via aquifer to down-gradient surface water body; and • Unsaturated zone and perched groundwater – i.e., solute transport of contaminants through the unsaturated zone and via perched groundwater.
Surface Waters	• Runoff of surface waters containing impacted soils to the south of the Site.
7.5.2 Potential Receptors and Exposure Pathways	
Soil	• Ingestion of surface soil by Site users; • Human contact with surface and sub-surface soils; • Plant uptake through garden cultivation in surface and sub-surface soils and subsequent ingestion through consumption of the garden produce; • Plants and soil fauna; • Dermal contact with surface and sub-surface soils by Site workers (short-term construction or maintenance activity); • Ingestion of soils by Site workers (short-term construction or maintenance activity); • Inhalation of airborne dusts by Site workers (short-term construction or maintenance activity) with surface and sub-surface soils; • Inhalation of airborne dusts by future residents; and • Off-Site impact through dust inhalation resulting from on-Site construction activity/disturbance of surface soils.
Groundwater	• Users of extracted groundwater; and • Off-Site ecosystems, where groundwater may discharge.
Surface Waters	• Stormwater impacts from polluted waters running off into surface drains.
7.6 Outstanding Data Gaps (Soils)	
General	• Further soil investigation is required in identified areas on-Site with levels of Dieldrin in excess of the adopted guideline for producing chickens or eggs.
7.7 Outstanding Data Gaps (Groundwater)	
General	• Groundwater well installation, sampling and analysis on-Site is recommended to determine the groundwater segment, flow direction and protected environmental values.

Table 7.0 – Conceptual Site Model

8.0 RISKS TO ENVIRONMENTAL VALUES

Based on a data collected to date, the risks to the environmental values of land are as follows.

Environmental Values	Proposed development
Maintenance of ecosystems	
Natural Ecosystems	N/A
Modified Ecosystems	×
Highly Modified Ecosystems	×
Human Health	✓
Buildings and Structures	✓
Aesthetics	✓
Production of Food, Flora and Fibre	×
Notes: ✓- Indicates Site conditions do not preclude this environmental value × - Indicates Site conditions preclude this environmental value N/A – Not applicable	

Table 8.0 – Environmental Value Summary Table

9.0 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- The Site has historically been used for grazing and growing crops.
- A review of aerial photographs identified that fill had been imported to backfill a dam and surrounding land in the northeast of Site.
- ESA staff attended Site and collected samples of the fill soils for analysis of COPCs.
- One result for Manganese was in excess of the adopted EIL's.
- A review of Geovic and the Victorian Background Soil Database was undertaken. Based on the information collected, the Manganese exceedance reported for fill soil at TP07 is likely to be naturally occurring and hence not pollution.
- A review of Dieldrin results from a sampling program undertaken on-Site by ESA in 2019 indicates that three samples had Dieldrin levels in excess of the adopted guideline for producing chickens or eggs.
- Based on this fact, the environmental values Maintenance of Ecosystems and Production of Food, Flora and Fibre are precluded at this stage.

9.2 Recommendations

- ESA understands that the Site will be investigated further as part of an Environmental Audit.

10.0 REFERENCES

- Canadian Council of Ministers of the Environment – Soil Quality Guidelines for the Protection of Environmental and Human Health.
- Department of Environment, Land, Water and Planning – Potentially Contaminated Land – Planning Practice Note 30 (July 2021).
- EPA Victoria - Publication 1828.2 – Waste Disposal Categories – Characteristics and Thresholds
- Friebel and Nadebaum (2011). CRC Care Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater.
- Ministerial Direction No. 1 – Potentially Contaminated Land ('Direction No. 1').
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (As Amended).
- Standards Australia (2005). Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 1: Non-volatile and Semi-Volatile Compounds. Australian Standard AS 4482.1-2005.
- Standards Australia (1999). Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 2: Volatile Substances. Australian Standard AS 4482.2-1999.
- Standards Australia (2009). Piling – Design and Installation. Australian Standard AS 2159-2009.
- Standards Australia (1993) – Geotechnical Site Investigations AS 1726-1993.
- State Government of Victoria - Environment Protection Act 2017.
- State Government of Victoria – Environment Protection Regulations 2021.

- State Government of Victoria - Environment Reference Standard (26 May 2021).
- United States Environmental Protection Agency (USEPA). Ecological Soil Screening Levels.
- United States Environmental Protection Agency (USEPA). Regional Screening Levels.

DISCLAIMER

This disclaimer, together with any limitations specified in the report, applies to use of this report.

This report was prepared in accordance with a contracted scope of services. There were a series of cost, time and other constraints which have affected the accuracy and completeness of investigations undertaken.

This report has been prepared solely for use by, and is confidential to; the client who contracted the scope of services and Environmental Site Assessments accepts no responsibility for its use by other persons.

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This report must be read in conjunction with the Statement of Qualifications and Limitations contained within it.

STATEMENT OF QUALIFICATIONS AND LIMITATIONS

It is not possible to identify all contamination or potential contaminants in or under the surface of the site. This is an intrinsic risk when investigating potentially and contaminated sites. As such, Environmental Site Assessments has prepared the following information which details the limitations of this environmental report.

In preparing this report, Environmental Site Assessments has relied on client/ third party information which was not verified by Environmental Site Assessments and Environmental Site Assessments does not accept responsibility for omissions or inaccuracies in the client/ third party information.

This report is based solely on the specific instructions received from its client and/or the scope of work agreed between Environmental Site Assessments and its client. Those instructions and/or scope of work may not be fully described in this report.

This report is based on the site conditions identified at the time of inspection. It is not possible to identify all contamination or potential contaminants in or under the surface of the site.

Investigations undertaken in respect of this report may have been constrained by the particular site conditions, such as the location of buildings, services and vegetation. Further, changes that may have occurred after inspection.

As a result of these matters, not all relevant site history, contaminants or potential for contamination may have been identified in this report.

No warranties express or implied, as to the accuracy or completeness of the matters contained within it are made.

Although normal standards of professional practice have been applied, the absence of any identified potential for air, soil or groundwater impacts on the subject property should not be interpreted as a conclusion that impacts do not exist on the site.

Subsurface conditions can vary across a particular site, which cannot be wholly defined by investigation.

As a result, it is unlikely that the results and estimations presented in this report will reflect the extremes of conditions within the site. Subsurface conditions including impact concentrations can change in a limited period of time. Any information provided may be based on "spot" tests. Conditions may vary between or beyond those locations from the interpreted conditions based on the actual data.

The analyses, evaluations, opinions and conclusions presented in this report are based on the information provided, and they could change if the information is in fact found to be unrepresentative of conditions between sampling and analysis locations.

The assessment and remediation of contamination is a developing science. Clean Up technology is constantly changing as scientific information on data collection, risk assessment, toxicology and remediation technologies are published. Further, opinions can vary as to the criterion for whether particular conditions constitute contamination, and if so how that contamination should be addressed or remediated. Different persons might reasonably or otherwise form opinions different to those of Environmental Site Assessments.

Use of the site for any purpose may require planning and other approvals and, in some cases, EPA and accredited site auditor approvals. Environmental Site Assessments offers no opinion as to the likelihood of obtaining any such approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for significant environment works.

The ongoing use of the site or use of the site for a different purpose may require the owner/ user to manage and/ or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.

This report is not intended to be used for the purposes of tendering, programming of works, refurbishment works or demolition works unless used in conjunction with a specification detailing the extent of the works.

To ensure its contextual integrity, the report must be read in its entirety and should not be copied, distributed or referred to in part only.

Environmental Site Assessments makes no determination or recommendation regarding a decision whether to acquire or provide financing with respect to the site.

Appendix 1: Comparison Tables

	TRH							BTEX					
	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene 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
EQL	10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1A(1) HILs Res A Soil													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion													
0-1m		40|45|50		110|230|280				0.5|0.6|0.7	160|390|480	NL|55			40|95|110
1-2m		65|70|90		NL|240				0.5|0.7|1	NL|220	NL			60|210|310
2-4m		100|110|150		NL|440				0.5|1|2	NL|310	NL			NL|95
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance		125		25	-	-		10	65	40			1.6
EILs 0-<1m BGL													
EILs 1-2m BGL													
Buildings and Structures - Concrete Piles													
Buildings and Structures - Steel Piles													

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type												
EIL	1.5-1.65	EIL/1.5-1.65	19/07/2022	CLAY	-	-	-	-	-	-	-	-	-	-	-	-
TP05	0-0.15	QC01	19/07/2022	CLAY	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05	0-0.15	QC02	19/07/2022	CLAY	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	-	-
TP05	0-0.15	TP05/0-0.15	19/07/2022	CLAY	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP05	2.35-2.5	TP05/2.35-2.5	19/07/2022	SAND	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06	0-0.15	TP06/0-0.15	19/07/2022	CLAY	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP06	2.45-2.6	TP06/2.45-2.6	19/07/2022	SAND	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07	0-0.15	TP07/0-0.15	19/07/2022	CLAY	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP07	1.95-2.1	TP07/1.95-2.1	19/07/2022	CLAY	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08	0-0.15	TP08/0-0.15	19/07/2022	CLAY	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
TP08	1.95-2.1	TP08/1.95-2.1	19/07/2022	SAND	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5

❶ US EPA Regional Screening Levels (Residential Use). For direct contact exposure pathways only.
❷ CCME (2007) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health
❸ US EPA Eco-Tox SSLs
❹ EPA Victoria Publication 1828.2
NE Not Established

		Halogenated Benzenes	Inorganics			Metals										
	Total BTEX	Hexachlorobenzene	Chloride	pH	Sulphate	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese
	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.2	0.05	10		50	2	10	1	10	0.4		2	2	5	5	5
NEPM 2013 Table 1A(1) HILs Res A Soil		10		4-10 (4)		100	15000 (1)	60	4500	20	100	NE	100	6000	300	3800
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																
0-1m																
1-2m																
2-4m																
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance																
EILs 0-<1m BGL				4-10 (4)		100	500 (2)		NE			NE	50 (2)	220	1109	220 (3)
EILs 1-2m BGL				4-10 (4)		100	500 (2)		NE			NE	50 (2)	60	1108	220 (3)
Buildings and Structures - Concrete Piles				>5.5	<5000											
Buildings and Structures - Steel Piles			<5000	>5												

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type															
EIL	1.5-1.65	EIL/1.5-1.65	19/07/2022	CLAY	-	-	990	6.2	480	10	-	-	-	-	-	-	8	8	-
TP05	0-0.15	QC01	19/07/2022	CLAY	<0.2	<0.05	-	-	-	<5	40	<1	<50	<1	-	36	9	8	6	203
TP05	0-0.15	QC02	19/07/2022	CLAY	-	<0.05	-	-	-	7.9	75	<2	17	<0.4	<1	17	<5	11	19	210
TP05	0-0.15	TP05/0-0.15	19/07/2022	CLAY	<0.2	<0.05	-	-	-	7	20	<1	<50	<1	-	22	9	<5	5	172
TP05	2.35-2.5	TP05/2.35-2.5	19/07/2022	SAND	<0.2	<0.05	-	-	-	<5	10	<1	<50	<1	-	11	3	<5	<5	17
TP06	0-0.15	TP06/0-0.15	19/07/2022	CLAY	<0.2	<0.05	440	8.1	60	5	20	<1	<50	<1	-	16	6	<5	<5	76
TP06	2.45-2.6	TP06/2.45-2.6	19/07/2022	SAND	<0.2	<0.05	-	-	-	<5	10	<1	<50	<1	-	11	4	<5	<5	23
TP07	0-0.15	TP07/0-0.15	19/07/2022	CLAY	<0.2	<0.05	-	-	-	5	30	<1	<50	<1	-	23	10	<5	5	246
TP07	1.95-2.1	TP07/1.95-2.1	19/07/2022	CLAY	<0.2	<0.05	-	-	-	16	30	<1	<50	<1	-	25	7	7	5	37
TP08	0-0.15	TP08/0-0.15	19/07/2022	CLAY	<0.2	<0.05	-	-	-	6	20	<1	<50	<1	-	20	6	<5	<5	70
TP08	1.95-2.1	TP08/1.95-2.1	19/07/2022	SAND	<0.2	<0.05	-	-	-	7	30	<1	<50	<1	-	21	8	8	8	96

(1) US EPA Regional Screening Levels (Residential Use). For direct contact exposure pathways only.
(2) CCME (2007) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health
(3) US EPA Eco-Tox SSLs
(4) EPA Victoria Publication 1828.2
NE Not Established

																					Organochlorine F
	Mercury	Nickel	Selenium	Vanadium	Zinc	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD
	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
EQL	0.1	2	5	5	5			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HILs Res A Soil	40	400	200	390❶	7400						6		50						240
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																			
0-1m																			
1-2m																			
2-4m																			
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance																			
EILs 0-<1m BGL		320		130❷	720													180	
EILs 1-2m BGL		150		130❷	360													180	
Buildings and Structures - Concrete Piles																			
Buildings and Structures - Steel Piles																			

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type																			
EIL	1.5-1.65	EIL/1.5-1.65	19/07/2022	CLAY	-	48	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05	0-0.15	QC01	19/07/2022	CLAY	<0.1	32	<5	44	19	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP05	0-0.15	QC02	19/07/2022	CLAY	<0.1	7.5	-	21	57	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
TP05	0-0.15	TP05/0-0.15	19/07/2022	CLAY	<0.1	19	<5	46	10	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP05	2.35-2.5	TP05/2.35-2.5	19/07/2022	SAND	<0.1	6	<5	17	<5	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP06	0-0.15	TP06/0-0.15	19/07/2022	CLAY	<0.1	10	<5	34	8	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP06	2.45-2.6	TP06/2.45-2.6	19/07/2022	SAND	<0.1	8	<5	27	<5	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP07	0-0.15	TP07/0-0.15	19/07/2022	CLAY	<0.1	24	<5	43	12	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP07	1.95-2.1	TP07/1.95-2.1	19/07/2022	CLAY	<0.1	20	<5	92	13	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP08	0-0.15	TP08/0-0.15	19/07/2022	CLAY	<0.1	15	<5	43	9	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
TP08	1.95-2.1	TP08/1.95-2.1	19/07/2022	SAND	<0.1	25	<5	55	23	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05

❶ US EPA Regional Screening Levels (Residential Use). For direct contact exposure pathways only.
❷ CCME (2007) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health
❸ US EPA Eco-Tox SSLs
❹ EPA Victoria Publication 1828.2
NE Not Established

	Pesticides													PAHs					
	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene
	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
EQL	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05		0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1A(1) HILs Res A Soil		270				10				6		300	20						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																			
0-1m																			
1-2m																			
2-4m																			
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance																			
EILs 0-<1m BGL																			
EILs 1-2m BGL																			
Buildings and Structures - Concrete Piles																			
Buildings and Structures - Steel Piles																			

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type																		
EIL	1.5-1.65	EIL/1.5-1.65	19/07/2022	CLAY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05	0-0.15	QC01	19/07/2022	CLAY	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP05	0-0.15	QC02	19/07/2022	CLAY	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP05	0-0.15	TP05/0-0.15	19/07/2022	CLAY	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP05	2.35-2.5	TP05/2.35-2.5	19/07/2022	SAND	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP06	0-0.15	TP06/0-0.15	19/07/2022	CLAY	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP06	2.45-2.6	TP06/2.45-2.6	19/07/2022	SAND	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP07	0-0.15	TP07/0-0.15	19/07/2022	CLAY	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP07	1.95-2.1	TP07/1.95-2.1	19/07/2022	CLAY	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP08	0-0.15	TP08/0-0.15	19/07/2022	CLAY	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP08	1.95-2.1	TP08/1.95-2.1	19/07/2022	SAND	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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❷ CCME (2007) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health
❸ US EPA Eco-Tox SSLs
❹ EPA Victoria Publication 1828.2
NE Not Established

	PAH												TPH				
	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	10	20	50	50	50
NEPM 2013 Table 1A(1) HILs Res A Soil											3	300					
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion																	
0-1m								3|4|5									
1-2m								NL									
2-4m								NL									
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance																	
EILs 0-<1m BGL																	
EILs 1-2m BGL																	
Buildings and Structures - Concrete Piles																	
Buildings and Structures - Steel Piles																	

LocCode	Sample_Depth_Range	Field_ID	Sampled_Date-Time	Env_Stds_Conditional_Matrix_Type																	
EIL	1.5-1.65	EIL/1.5-1.65	19/07/2022	CLAY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05	0-0.15	QC01	19/07/2022	CLAY	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP05	0-0.15	QC02	19/07/2022	CLAY	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<20	<20	<50	<50	<50
TP05	0-0.15	TP05/0-0.15	19/07/2022	CLAY	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP05	2.35-2.5	TP05/2.35-2.5	19/07/2022	SAND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP06	0-0.15	TP06/0-0.15	19/07/2022	CLAY	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP06	2.45-2.6	TP06/2.45-2.6	19/07/2022	SAND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP07	0-0.15	TP07/0-0.15	19/07/2022	CLAY	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP07	1.95-2.1	TP07/1.95-2.1	19/07/2022	CLAY	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP08	0-0.15	TP08/0-0.15	19/07/2022	CLAY	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50
TP08	1.95-2.1	TP08/1.95-2.1	19/07/2022	SAND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100	<50

❶ US EPA Regional Screening Levels (Residential Use). For direct contact exposure pathways only.
❷ CCME (2007) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health
❸ US EPA Eco-Tox SSLs
❹ EPA Victoria Publication 1828.2
NE Not Established

Field Duplicates (SOIL)
Filter: SDG in('ALSE-Melbourne 19-Jul-22')

SDG	ALSE-Melbourne 19-Jul-22	ALSE-Melbourne 19-Jul-22		ALSE-Melbourne 19-Jul-22	ALSE-Melbourne 19-Jul-22	
Field ID	TP05/0-0.15	QC01	RPD	TP05/0-0.15	QC02	RPD
Sampled Date/Time	19/07/2022 8:54	19/07/2022 8:54		19/07/2022 8:54	19/07/2022 8:54	

Chem_Gr	ChemName	Units	EQL						
	Moisture Content	%	1	13.2	21.9	50	13.2		
TRH	C6-C10	mg/kg	10 (Primary): 20 (Interla	<10.0	<10.0	0	<10.0	<20.0	0
	C6-C10 (F1 minus BTEX)	mg/kg	10 (Primary): 20 (Interla	<10.0	<10.0	0	<10.0	<20.0	0
	C10-C16	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
	C10-C16 (F2 minus Naphthalene)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
	C16-C34	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
	C34-C40	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
	C10-C40 (Sum of total)	mg/kg	50 (Primary): 100 (Interl	<50.0	<50.0	0	<50.0	<100.0	0
BTEX	Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2		
	Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5		
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	0	<0.5		
	Xylene (m & p)	mg/kg	0.5	<0.5	<0.5	0	<0.5		
	Xylene (o)	mg/kg	0.5	<0.5	<0.5	0	<0.5		
	Xylene Total	mg/kg	0.5	<0.5	<0.5	0	<0.5		
	Total BTEX	mg/kg	0.2	<0.2	<0.2	0	<0.2		
Halogenat	Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
ed Benzenes									
Metals	Arsenic	mg/kg	5 (Primary): 2 (Interlab)	7.0	<5.0	33	7.0	7.9	12
	Barium	mg/kg	10	20.0	40.0	67	**20.0**	**75.0**	**116**
	Beryllium	mg/kg	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
	Boron	mg/kg	50 (Primary): 10 (Interla	<50.0	<50.0	0	<50.0	17.0	0
	Cadmium	mg/kg	1 (Primary): 0.4 (Interlab	<1.0	<1.0	0	<1.0	<0.4	0
	Chromium (III+VI)	mg/kg	2 (Primary): 5 (Interlab)	22.0	36.0	48	22.0	17.0	26
	Cobalt	mg/kg	2 (Primary): 5 (Interlab)	9.0	9.0	0	9.0	<5.0	57
	Copper	mg/kg	5	<5.0	8.0	46	<5.0	11.0	75
	Lead	mg/kg	5	5.0	6.0	18	**5.0**	**19.0**	**117**
	Manganese	mg/kg	5	172.0	203.0	17	172.0	210.0	20
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	2 (Primary): 5 (Interlab)	**19.0**	**32.0**	**51**	**19.0**	**7.5**	**87**
	Selenium	mg/kg	5	<5.0	<5.0	0	<5.0		
	Vanadium	mg/kg	5 (Primary): 10 (Interlab	46.0	44.0	4	46.0	21.0	75
	Zinc	mg/kg	5	10.0	19.0	62	**10.0**	**57.0**	**140**
Organochl	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	chlordane	mg/kg	0.05 (Primary): 0.1 (Inte	<0.05	<0.05	0	<0.05	<0.1	0
	Chlordane (cis)	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Chlordane (trans)	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	DDT	mg/kg	0.2 (Primary): 0.05 (Inte	<0.2	<0.2	0	<0.2	<0.05	0
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan	mg/kg	0.05	<0.05	<0.05	0	<0.05		
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan II	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Endrin ketone	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	Methoxychlor	mg/kg	0.2 (Primary): 0.05 (Inte	<0.2	<0.2	0	<0.2	<0.05	0
orine Pesticides									
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a) pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b+j)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	1 (Primary): 0.5 (Interlat	<1.0	<1.0	0	<1.0	<0.5	0
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
TPH	C6-C9	mg/kg	10 (Primary): 20 (Interla	<10.0	<10.0	0	<10.0	<20.0	0
	C10-C14	mg/kg	50 (Primary): 20 (Interla	<50.0	<50.0	0	<50.0	<20.0	0
	C15-C28	mg/kg	100 (Primary): 50 (Interl	<100.0	<100.0	0	<100.0	<50.0	0
	C29-C36	mg/kg	100 (Primary): 50 (Interl	<100.0	<100.0	0	<100.0	<50.0	0
	C10-C36	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0

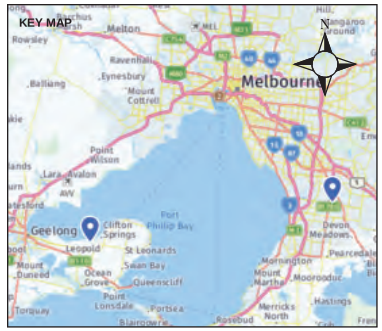
*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Blanks (WATER)
Filter: SDG in('ALSE-Melbourne 19-Jul-22')

SDG	ALSE-Melbourne 19-Jul-22	ALSE-Melbourne 19-Jul-22
Field ID	FB01	TB01
Sampled_Date/Time	19/07/2022 7:15	19/07/2022 7:00
Sample Type	Field_B	Trip_B

Chem_Group	ChemName	Units	EQL		
BTEX	Benzene	µg/L	1		<1
	Toluene	µg/L	2		<2
	Ethylbenzene	µg/L	2		<2
	Xylene (m & p)	µg/L	2		<2
	Xylene (o)	µg/L	2		<2
	Xylene Total	µg/L	2		<2
	Total BTEX	µg/L	1		<1
Halogenated Benzenes	Hexachlorobenzene	µg/L	0.5	<0.5	
Metals	Arsenic	mg/l	0.001	<0.001	
	Barium	mg/l	0.001	<0.001	
	Beryllium	mg/l	0.001	<0.001	
	Boron	mg/l	0.05	<0.05	
	Cadmium	mg/l	0.0001	<0.0001	
	Chromium (III+VI)	mg/l	0.001	<0.001	
	Cobalt	mg/l	0.001	<0.001	
	Copper	mg/l	0.001	<0.001	
	Lead	mg/l	0.001	<0.001	
	Manganese	mg/l	0.001	<0.001	
	Mercury	mg/l	0.0001	<0.0001	
	Nickel	mg/l	0.001	<0.001	
	Selenium	mg/l	0.01	<0.01	
	Vanadium	mg/l	0.01	<0.01	
	Zinc	mg/l	0.005	<0.005	
Organochlorine Pesticides	4,4-DDE	µg/L	0.5	<0.5	
	a-BHC	µg/L	0.5	<0.5	
	Aldrin	µg/L	0.5	<0.5	
	Aldrin + Dieldrin	µg/L	0.5	<0.5	
	b-BHC	µg/L	0.5	<0.5	
	chlordane	µg/L	0.5	<0.5	
	Chlordane (cis)	µg/L	0.5	<0.5	
	Chlordane (trans)	µg/L	0.5	<0.5	
	d-BHC	µg/L	0.5	<0.5	
	DDD	µg/L	0.5	<0.5	
	DDT	µg/L	2	<2	
	DDT+DDE+DDD	µg/L	0.5	<0.5	
	Dieldrin	µg/L	0.5	<0.5	
	Endosulfan I	µg/L	0.5	<0.5	
	Endosulfan II	µg/L	0.5	<0.5	
	Endosulfan sulphate	µg/L	0.5	<0.5	
	Endrin	µg/L	0.5	<0.5	
	Endrin aldehyde	µg/L	0.5	<0.5	
	Endrin ketone	µg/L	0.5	<0.5	
	g-BHC (Lindane)	µg/L	0.5	<0.5	
	Heptachlor	µg/L	0.5	<0.5	
	Heptachlor epoxide	µg/L	0.5	<0.5	
	Methoxychlor	µg/L	2	<2	
Organophosphorous Pesticides	Azinophos methyl	µg/L	0.5	<0.5	
	Bromophos-ethyl	µg/L	0.5	<0.5	
	Carbophenothion	µg/L	0.5	<0.5	
	Chlorfenvinphos	µg/L	0.5	<0.5	
	Chlorpyrifos	µg/L	0.5	<0.5	
	Chlorpyrifos-methyl	mg/l	0.0005	<0.0005	
	Diazinon	µg/L	0.5	<0.5	
	Dichlorvos	µg/L	0.5	<0.5	
	Dimethoate	µg/L	0.5	<0.5	
	Ethion	µg/L	0.5	<0.5	
	Fenthion	µg/L	0.5	<0.5	
	Malathion	µg/L	0.5	<0.5	
	Methyl parathion	µg/L	2	<2	
	Monocrotophos	µg/L	2	<2	
	Prothiofos	µg/L	0.5	<0.5	
PAH	Naphthalene	µg/L	5		<5
Pesticides	Demeton-S-methyl	µg/L	0.5	<0.5	
	Fenamiphos	µg/L	0.5	<0.5	
	Parathion	µg/L	2	<2	
	Pirimphos-ethyl	µg/L	0.5	<0.5	
TPH	C6-C9	µg/L	20		<20
TRH	C6-C10	µg/L	20		<20
	C6-C10 (F1 minus BTEX)	µg/L	20		<20

Appendix 2: Sample and Observation Pit Locations



LEGEND

Sample Locations

CLIENT
CURLEWIS BELLARINE PTY LTD

PROJECT
91-125 CORIYULE ROAD, CURLEWIS

TITLE
SAMPLE LOCATIONS

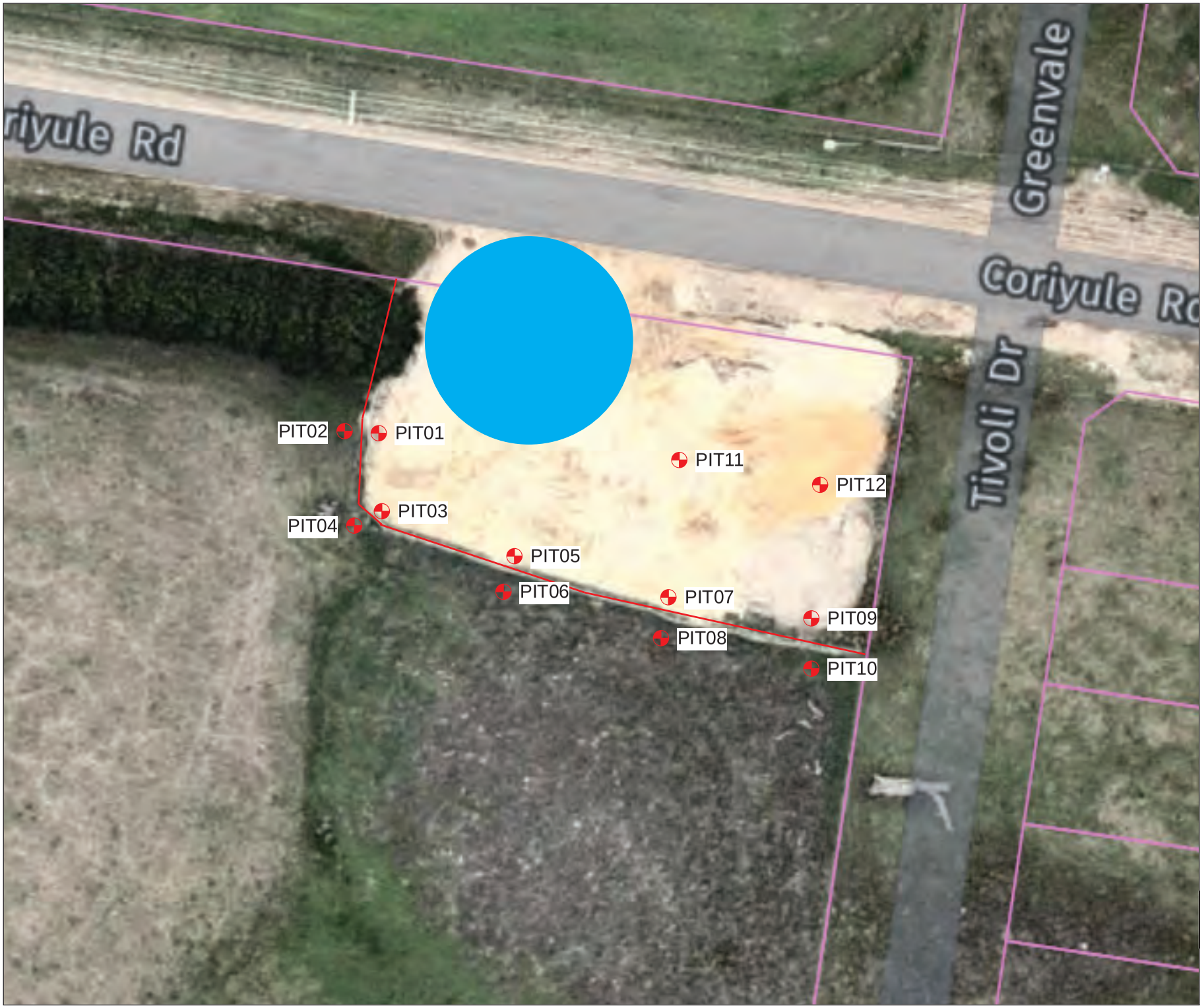
CONSULTANT
Environmental Site Assessments

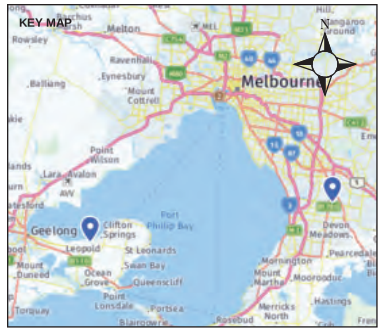
DD-MM-YYYY	19-07-2022
DESIGNED	SL
PREPARED	SL
APPROVED	SL

PROJECT NO.	REV.	FIGURE
ESA/2022/096	1	1

0 Metres 12

Image: 9 December 2011





LEGEND

- Observation Pits
- Approximate Dam Location
- Approximate Extent of Fill

CLIENT
CURLEWIS BELLARINE PTY LTD

PROJECT
91-125 CORIYULE ROAD, CURLEWIS

TITLE
OBSERVATION PIT LOCATIONS

CONSULTANT
Environmental Site Assessments

DD-MM-YYYY	19-07-2022
DESIGNED	SL
PREPARED	SL
APPROVED	SL

PROJECT NO.	REV.	FIGURE
ESA/2022/096	1	2

0 Metres 8

Image: May 17, 2014

Appendix 3: Bore Logs

BOREHOLE NUMBER: EIL

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.1		SM	SANDY SILT: Low Plasticity, Brown, Loose, Moist				
0.2 – 0.5		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				
0.5 – 0.6				EIL/0.5-0.65	X	0.0	Nil
0.7 – 1.6		CL	CLAY: High Plasticity, Brown with Orange Mottle, Firm, Moist, Black Inclusions				
1.5 – 1.6				EIL/1.5-1.65	X	0.0	Nil

EIL terminated at 1.65m BGL

BOREHOLE NUMBER: PIT01

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.4		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist			0.0	Nil
0.4 – 0.55		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT01 terminated at 0.55m BGL

BOREHOLE NUMBER: PIT02

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.14		SM	SANDY SILT: Low Plasticity, Brown, Loose, Moist			0.0	Nil
0.14 – 0.28		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT02 terminated at 0.3m BGL

BOREHOLE NUMBER: PIT03

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist			0.0	Nil
0.36		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT03 terminated at 0.5m BGL

BOREHOLE NUMBER: PIT04

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.14		SM	SANDY SILT: Low Plasticity, Brown, Loose, Moist			0.0	Nil
0.14 – 0.28		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT04 terminated at 0.3m BGL

BOREHOLE NUMBER: PIT05

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.4		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist			0.0	Nil
0.4 – 0.55		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT05 terminated at 0.55m BGL

BOREHOLE NUMBER: PIT06

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.14		SM	SANDY SILT: Low Plasticity, Brown, Loose, Moist			0.0	Nil
0.14 – 0.28		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT06 terminated at 0.3m BGL

BOREHOLE NUMBER: PIT07

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.44		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist			0.0	Nil
0.44 – 0.6		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT07 terminated at 0.6m BGL

BOREHOLE NUMBER: PIT08

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.14		SM	SANDY SILT: Low Plasticity, Brown, Loose, Moist			0.0	Nil
0.14 – 0.28		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT08 terminated at 0.3m BGL

BOREHOLE NUMBER: PIT09

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.48		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist			0.0	Nil
0.48 – 0.64		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT09 terminated at 0.65m BGL

BOREHOLE NUMBER: PIT10

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.14		SM	SANDY SILT: Low Plasticity, Brown, Loose, Moist			0.0	Nil
0.14 – 0.28		CL	CLAY: High Plasticity, Dark Brown, Firm, Moist				

PIT10 terminated at 0.3m BGL

BOREHOLE NUMBER: PIT11

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.5		SC	FILL: SANDY CLAY. Medium Plasticity, Orange, Loose, Moist			0.0	Nil
0.5 – 1		SM	FILL: SILTY SAND. Low Plasticity, White/Grey, Loose, Dry				
1 – 1.15		CL	CLAY: High Plasticity, Brown with Orange Mottle, Firm, Moist, Black Inclusions				
1.15 – 1.2							

PIT11 terminated at 1.15m BGL

BOREHOLE NUMBER: PIT12

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0 – 0.3		SW	FILL: SAND. Low Plasticity, Orange, Loose, Moist			0.0	Nil
0.3 – 1.1		ML	FILL: SILT. Low Plasticity, Brown, Loose, Moist				
1.1 – 1.3		CL	CLAY: High Plasticity, Dark Brown with Orange Mottle, Firm, Moist, Black Inclusions				

PIT12 terminated at 1.25m BGL

BOREHOLE NUMBER: TP05

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist	TP05/0-0.15	X	0.0	Nil
0.2							
0.4							
0.6							
0.8							
1							
1.2		SM	FILL: SILTY SAND. Low Plasticity, White/Grey, Loose, Dry				
1.4							
1.6							
1.8							
2							
2.2							
2.4				TP05/2.35-2.5	X	0.0	Nil
2.6		CL	CLAY: High Plasticity, Brown with Orange Mottle, Firm, Moist, Black Inclusions				
2.8							

TP05 terminated at 2.65m BGL

BOREHOLE NUMBER: TP06

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist	TP06/0-0.15	X	0.0	Nil
1.2		SM	FILL: SILTY SAND. Low Plasticity, White/Grey, Loose, Dry	TP06/2.45-2.6	X	0.0	Nil
2.6		CL	CLAY: High Plasticity, Dark Brown with Orange Mottle, Firm, Moist, Black Inclusions				
2.8							

TP06 terminated at 2.80m BGL

BOREHOLE NUMBER: TP07

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0		SC	FILL: SANDY CLAY. Medium Plasticity, Brown/Orange, Loose, Moist	TP07/0-0.15	X	0.0	Nil
0.2							
0.4							
0.6							
0.8							
1		SC	FILL: SANDY CLAY. Medium Plasticity, Brown, Loose, Moist				
1.2							
1.4							
1.6							
1.8							
2				TP07/1.95-2.1	X	0.0	Nil
2.2		CL	CLAY: High Plasticity, Brown with Orange Mottle, Firm, Moist, Black Inclusions				
2.4							

TP07 terminated at 2.25m BGL

BOREHOLE NUMBER: TP08

Client Curlewis Bellarine Pty Ltd
Project Number ESA/2022/096
Date Started 19/07/22 **Date Completed** 19/07/22
Contractor Kennedys
Equipment Excavator
Hole Size Various

Project Name Environmental Investigation
Location 91-125 Coriyule Road, Curlewis
Hole Location (GPS) Per Map

Logged By S. Lillas
Notes

Depth (m)	Graphic Log	Classification Symbol	Material Description	Sample ID	Analysed	PID (ppm)	Odour/ Staining
0		SC	FILL: SANDY CLAY. Medium Plasticity, Light Brown/Orange, Loose, Moist	TP08/0-0.15	X	0.0	Nil
1		SM	FILL: SILTY SAND. Low Plasticity, White/Grey, Loose, Dry	TP08/1.95-2.1	X	0.0	Nil
2		CL	CLAY: High Plasticity, Brown with Orange Mottle, Firm, Moist, Black Inclusions				

TP08 terminated at 2.25m BGL

Appendix 4: EIL Calculations

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)
22.4
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.7
Enter organic carbon content (%OC) (values from 0 to 50%)
1.5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
9
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	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	60	80
Urban residential and open public spaces	120	220
Commercial and industrial	170	320

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)
8
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.2
Enter organic carbon content (%OC) (values from 0 to 50%)
0.25
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
8
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	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	25
Urban residential and open public spaces	35	60
Commercial and industrial	50	85

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)
22.4
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
36
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	50	85
Urban residential and open public spaces	130	320
Commercial and industrial	210	530

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)
8
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
48
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	50	65
Urban residential and open public spaces	80	150
Commercial and industrial	110	220

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)
22.4
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.7
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
23
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	90	180
Urban residential and open public spaces	290	720
Commercial and industrial	450	1100

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)
8
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.2
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
23
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	55	95
Urban residential and open public spaces	150	360
Commercial and industrial	230	550

Appendix 5: PID Calibration Form

AES
sensing safety

Calibration and Service Report – PID

Company:	Environmental Site Assessment	**Manufacturer:**	RAE	**Serial #:**	595-000843
Contact:	Seton Lillas	**Instrument:**	MINIRAE LITE SN: 595-000843	**Asset #:**	
Address:	2 Homestead Court Highton VIC 3216	**Model:**	MiniRAE Lite	**Part #:**	059-A126-100
		Configuration:	VOC	**Sold:**	25.03.2013
		Wireless:	-	**Last Cal:**	17.06.2021
Phone:	0433 747 187	**Network ID:**	-	**Job #:**	136391
Fax:		**Unit ID:**	-	**Cal Spec:**	
Email:	seton@envirositeassessments.c	**Details:**		**Order #:**	PO-0026

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
Oxygen								
LEL								
PID	050-0000-004. 10.6EV 1/ 2 INCH LAMP	1062R129024	Isobutylene	100 PPM	4311-1-1		0	100.3
Battery	059-3051-000. LI-ION BA TTERY FOR MINIRAE							
Toxic 1								
Toxic 2								
Toxic 3								
Toxic 4	-							
Toxic 5								
Toxic 6								

Calibrated/Repaired by: LACHLAN JOYCE Date: 26.04.2022 Next Due: 26.10.2022

Appendix 6: Laboratory Chain of Custody Forms and Certificates of Analysis

CHAIN OF CUSTODY

ALS Laboratory: please tick

Melbourne: 2-4 Westall Rd. Springvale VIC 3171
Ph 03 8549 9600 E: samples.melbourne@alsenviro.com

CLIENT: ENVIRONMENTAL SITE ASSESSMENTS	TURNAROUND REQUIREMENTS :	X	Standard TAT
OFFICE: PO BOX 3106, WAURN PONDS VIC 3216			Non Standard or urgent TAT (Due date):
PROJECT: 91-125 Corigula Rodd	ALS QUOTE NO.: MEBQ-159-15 V2		COC SEQUENCE NUMBER: COC: (1) 2 3 4 5 6 7; OF: 1 (2) 3 4 5 6 7
ORDER NUMBER:			
PROJECT MANAGER: Seton Lillas	CONTACT PH: 0433747187		
SAMPLER: Seton Lillas	SAMPLER MOBILE: 0433747187		
COC emailed to ALS? NO	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): office@esagroup.com.au			
Email Invoice to (will default to PM if no other addresses are listed): accounts@esagroup.com.au			

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
S. Lillas	KSF		
DATE/TIME: 19/7/22 12.00	DATE/TIME: 19/7/22 15:40	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: COMPOSITE AS PER BELOW.

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TRH C6-C10/BTEX (V)	OC/OPPs + 15 Metals	PAHs, 15 Metals, OCPs	TRHs	pH, Chloride, Sulphate		Chloride + Sulphate	pH, Clay Content, CEC, TOC, Iron (%), Copper, Lead, Nickel, Zinc, Arsenic	
1	TB01	7.00 19/7/22	W		1	X								
2	FB01	7.15 "	"		2		X							
3	E1L/0.5-0.65	8.30 "	S	Jar + bag									X	
4	E1L/1.5-1.65	8.36 "	"	"								X	X	
5	TP05/0-0.15	8.54 "	"					X	X					
6	QC01	" "	"					X	X					
7	TP05/2.35-2.5	8.55 "	"					X	X					
8	TP06/0-0.15	9.03 "	"					X	X	X				
9	TP06/2.45-2.6	9.05 "	"					X	X					
10	TP07/0-0.15	9.24 "	"					X	X					
11	TP07/1.95-2.1	9.26 "	"					X	X					
12	TP08/0-0.15	9.15 "	"					X	X					
				TOTAL		1	1	8	8	1		1	2	

Environmental Division
Melbourne
Work Order Reference
EM2213760

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick

Melbourne 2-4 Westall Rd, Springvale VIC 3171
Ph 03 8549 9600 E. samples.melbourne@alsenviro.com

CLIENT: ENVIRONMENTAL SITE ASSESSMENTS		TURNAROUND REQUIREMENTS :		Standard TAT	FOR LABORATORY USE ONLY (Circle)
OFFICE:	PO BOX 3106, WAURN PONDS VIC 3216			Non Standard or urgent TAT (Due date):	Custody Seal Intact? Yes No N/A
PROJECT:		ALS QUOTE NO.: MEBQ-159-15 V2		COC SEQUENCE NUMBER	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:				COC: 1 (2) 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER:	Seton Lillas	CONTACT PH: 0433747187		OF: 1 (2) 3 4 5 6 7	Other comment:
SAMPLER:	Seton Lillas	SAMPLER MOBILE: 0433747187	RELINQUISHED BY: S. Lillas	RECEIVED BY: KPV	RELINQUISHED BY:
COC emailed to ALS?	NO	EDD FORMAT (or default):	DATE/TIME:	DATE/TIME:	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): office@esagroup.com.au					RECEIVED BY:
Email Invoice to (will default to PM if no other addresses are listed): accounts@esagroup.com.au					DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: COMPOSITE AS PER BELOW.

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES								Additional Information				
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE(refer to codes below)	TOTAL BOTTLES	+ PAHs, 15 incl Lys,	OCPs, TRHs											
13	TP08/1.95-2.1	9.17 19/7/12	S			+	+											
				TOTAL		9	9											

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2213760**	Page	: 1 of 19
Client	: **ENVIRONMENTAL SITE ASSESSMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: SETON LILLAS	Contact	: Katie Davis
Address	: P.O. BOX 3106 WAURN PONDS VIC 3216	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 91-125 Coriyule Road	Date Samples Received	: 19-Jul-2022 15:40
Order number	: ----	Date Analysis Commenced	: 20-Jul-2022
C-O-C number	: ----	Issue Date	: 26-Jul-2022 18:27
Sampler	: SETON LILLAS		
Site	: ----		
Quote number	: MEBQ/159/15 V2		
No. of samples received	: 13		
No. of samples analysed	: 13		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
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*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic 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 Contract 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.

- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above 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.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	EIL/0.5-0.65	EIL/1.5-1.65	TP05/0-0.15	QC01	TP05/2.35-2.5
			Sampling date / time	19-Jul-2022 08:30	19-Jul-2022 08:36	19-Jul-2022 08:54	19-Jul-2022 08:54	19-Jul-2022 08:55
Compound	CAS Number	LOR	Unit	EM2213760-003	EM2213760-004	EM2213760-005	EM2213760-006	EM2213760-007
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	6.7	6.2	----	----	----
EA002-AD: pH (Soils) dried at 40°C								
pH Value	----	0.1	pH Unit	7.8	7.1	----	----	----
EA010-AD: Conductivity (Soils) dried at 40°C								
Electrical Conductivity @ 25°C	----	1	µS/cm	137	618	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	22.0	----	----	----
Moisture Content	----	1.0	%	29.4	----	13.2	21.9	6.0
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	60	63	----	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.46	2.60	----	----	----
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	12.2	----	----	----	----
ø Exchangeable Magnesium	----	0.2	meq/100g	7.0	----	----	----	----
ø Exchangeable Potassium	----	0.2	meq/100g	2.0	----	----	----	----
ø Exchangeable Sodium	----	0.2	meq/100g	1.2	----	----	----	----
ø Cation Exchange Capacity	----	0.2	meq/100g	22.4	----	----	----	----
ø Exchangeable Calcium Percent	----	0.2	%	54.4	----	----	----	----
ø Exchangeable Magnesium Percent	----	0.2	%	31.1	----	----	----	----
ø Exchangeable Potassium Percent	----	0.2	%	9.0	----	----	----	----
ø Exchangeable Sodium Percent	----	0.2	%	5.5	----	----	----	----
ø Calcium/Magnesium Ratio	----	0.2	-	1.8	----	----	----	----
ø Magnesium/Potassium Ratio	----	0.2	-	3.5	----	----	----	----
ED008: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	2.6	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	3.8	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.4	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	1.2	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	8.0	----	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	----	480	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	990	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	EIL/0.5-0.65	EIL/1.5-1.65	TP05/0-0.15	QC01	TP05/2.35-2.5
			Sampling date / time	19-Jul-2022 08:30	19-Jul-2022 08:36	19-Jul-2022 08:54	19-Jul-2022 08:54	19-Jul-2022 08:55
Compound	CAS Number	LOR	Unit	EM2213760-003	EM2213760-004	EM2213760-005	EM2213760-006	EM2213760-007
				Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	10	7	<5	<5
Barium	7440-39-3	10	mg/kg	----	----	20	40	10
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	<1
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	22	36	11
Cobalt	7440-48-4	2	mg/kg	----	----	9	9	3
Copper	7440-50-8	5	mg/kg	9	8	<5	8	<5
Iron	7439-89-6	0.005	%	4.61	4.32	----	----	----
Lead	7439-92-1	5	mg/kg	9	8	5	6	<5
Manganese	7439-96-5	5	mg/kg	----	----	172	203	17
Nickel	7440-02-0	2	mg/kg	36	48	19	32	6
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	----	46	44	17
Zinc	7440-66-6	5	mg/kg	23	23	10	19	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
EP004: Organic Matter								
Organic Matter	----	0.5	%	2.5	0.6	----	----	----
Total Organic Carbon	----	0.5	%	1.5	<0.5	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	EIL/0.5-0.65	EIL/1.5-1.65	TP05/0-0.15	QC01	TP05/2.35-2.5
			Sampling date / time	19-Jul-2022 08:30	19-Jul-2022 08:36	19-Jul-2022 08:54	19-Jul-2022 08:54	19-Jul-2022 08:55
Compound	CAS Number	LOR	Unit	EM2213760-003	EM2213760-004	EM2213760-005	EM2213760-006	EM2213760-007
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	EIL/0.5-0.65	EIL/1.5-1.65	TP05/0-0.15	QC01	TP05/2.35-2.5
			Sampling date / time	19-Jul-2022 08:30	19-Jul-2022 08:36	19-Jul-2022 08:54	19-Jul-2022 08:54	19-Jul-2022 08:55
Compound	CAS Number	LOR	Unit	EM2213760-003	EM2213760-004	EM2213760-005	EM2213760-006	EM2213760-007
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	<1
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	**91.8**	**85.4**	**86.7**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	**100**	**91.7**	**82.3**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	**104**	**98.1**	**102**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	**103**	**95.9**	**99.1**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	**100**	**91.0**	**93.4**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	**104**	**95.4**	**99.4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	EIL/0.5-0.65	EIL/1.5-1.65	TP05/0-0.15	QC01	TP05/2.35-2.5
				Sampling date / time	19-Jul-2022 08:30	19-Jul-2022 08:36	19-Jul-2022 08:54	19-Jul-2022 08:54	19-Jul-2022 08:55
Compound	CAS Number	LOR	Unit		EM2213760-003	EM2213760-004	EM2213760-005	EM2213760-006	EM2213760-007
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		----	----	**117**	**109**	**114**
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	**114**	**105**	**109**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	**90.6**	**90.3**	**107**
Toluene-D8	2037-26-5	0.2	%		----	----	**84.4**	**89.3**	**100**
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	**100.0**	**97.8**	**121**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP06/0-0.15	TP06/2.45-2.6	TP07/0-0.15	TP07/1.95-2.1	TP08/0-0.15
			Sampling date / time	19-Jul-2022 09:03	19-Jul-2022 09:05	19-Jul-2022 09:24	19-Jul-2022 09:26	19-Jul-2022 09:15
Compound	CAS Number	LOR	Unit	EM2213760-008	EM2213760-009	EM2213760-010	EM2213760-011	EM2213760-012
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	8.1	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	13.1	7.9	19.6	14.2	9.5
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	60	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	440	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	5	<5	5	16	6
Barium	7440-39-3	10	mg/kg	20	10	30	30	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	11	23	25	20
Cobalt	7440-48-4	2	mg/kg	6	4	10	7	6
Copper	7440-50-8	5	mg/kg	<5	<5	<5	7	<5
Lead	7439-92-1	5	mg/kg	<5	<5	5	5	<5
Manganese	7439-96-5	5	mg/kg	76	23	246	37	70
Nickel	7440-02-0	2	mg/kg	10	8	24	20	15
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	34	27	43	92	43
Zinc	7440-66-6	5	mg/kg	8	<5	12	13	9
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP06/0-0.15	TP06/2.45-2.6	TP07/0-0.15	TP07/1.95-2.1	TP08/0-0.15
			Sampling date / time	19-Jul-2022 09:03	19-Jul-2022 09:05	19-Jul-2022 09:24	19-Jul-2022 09:26	19-Jul-2022 09:15
Compound	CAS Number	LOR	Unit	EM2213760-008	EM2213760-009	EM2213760-010	EM2213760-011	EM2213760-012
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP06/0-0.15	TP06/2.45-2.6	TP07/0-0.15	TP07/1.95-2.1	TP08/0-0.15
			Sampling date / time	19-Jul-2022 09:03	19-Jul-2022 09:05	19-Jul-2022 09:24	19-Jul-2022 09:26	19-Jul-2022 09:15
Compound	CAS Number	LOR	Unit	EM2213760-008	EM2213760-009	EM2213760-010	EM2213760-011	EM2213760-012
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**88.8**	**81.6**	**80.5**	**83.2**	**83.9**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**102**	**77.1**	**78.6**	**91.2**	**86.6**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**97.6**	**92.0**	**94.5**	**98.0**	**95.4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP06/0-0.15	TP06/2.45-2.6	TP07/0-0.15	TP07/1.95-2.1	TP08/0-0.15
				Sampling date / time	19-Jul-2022 09:03	19-Jul-2022 09:05	19-Jul-2022 09:24	19-Jul-2022 09:26	19-Jul-2022 09:15
Compound	CAS Number	LOR	Unit		EM2213760-008	EM2213760-009	EM2213760-010	EM2213760-011	EM2213760-012
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		94.8	89.5	92.0	95.5	93.4
2.4.6-Tribromophenol	118-79-6	0.5	%		88.7	83.1	84.8	92.8	88.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		95.0	90.4	92.5	95.5	95.3
Anthracene-d10	1719-06-8	0.5	%		109	103	103	107	109
4-Terphenyl-d14	1718-51-0	0.5	%		105	98.7	101	106	105
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		95.9	90.6	90.2	88.2	81.5
Toluene-D8	2037-26-5	0.2	%		95.6	86.5	88.0	85.9	77.2
4-Bromofluorobenzene	460-00-4	0.2	%		109	104	101	97.9	96.9

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP08/1.95-2.1	----	----	----	----
			Sampling date / time	19-Jul-2022 09:17	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2213760-013	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.5**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**7**	----	----	----	----
Barium	7440-39-3	10	mg/kg	**30**	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**21**	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	**8**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**8**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**8**	----	----	----	----
Manganese	7439-96-5	5	mg/kg	**96**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**25**	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	**55**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**23**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP08/1.95-2.1	----	----	----	----
			Sampling date / time	19-Jul-2022 09:17	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2213760-013	--------	--------	--------	--------
				Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
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	205-99-2 205-82-3	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	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ 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	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP08/1.95-2.1	----	----	----	----
			Sampling date / time	19-Jul-2022 09:17	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2213760-013	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
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 Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>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 (F2)	----	50	mg/kg	<50	----	----	----	----
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	108-38-3 106-42-3	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	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**82.6**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**90.8**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**91.4**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**88.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**86.6**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**89.1**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**100**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**98.0**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08/1.95-2.1	----	----	----	----
				Sampling date / time	19-Jul-2022 09:17	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2213760-013	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**84.4**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**76.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**95.5**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	FB01	----	----	----
			Sampling date / time	19-Jul-2022 07:00	19-Jul-2022 07:15	----	----	----
Compound	CAS Number	LOR	Unit	EM2213760-001	EM2213760-002	--------	--------	--------
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----
Boron	7440-42-8	0.05	mg/L	----	<0.05	----	----	----
Barium	7440-39-3	0.001	mg/L	----	<0.001	----	----	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	----	----	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L	----	<0.5	----	----	----
gamma-BHC	58-89-9	0.5	µg/L	----	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L	----	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L	----	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L	----	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	----	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L	----	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L	----	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L	----	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	----	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB01	FB01	----	----	----
				Sampling date / time	19-Jul-2022 07:00	19-Jul-2022 07:15	----	----	----
Compound	CAS Number	LOR	Unit		EM2213760-001	EM2213760-002	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Endosulfan sulfate	1031-07-8	0.5	µg/L		----	<0.5	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L		----	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		----	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		----	<2.0	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		----	<0.5	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		----	<0.5	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		----	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		----	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		----	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		----	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L		----	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L		----	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		----	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		----	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L		----	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L		----	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		----	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L		----	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		----	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		----	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		----	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		----	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		----	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L		----	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		----	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		----	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	FB01	----	----	----
			Sampling date / time	19-Jul-2022 07:00	19-Jul-2022 07:15	----	----	----
Compound	CAS Number	LOR	Unit	EM2213760-001	EM2213760-002	--------	--------	--------
				Result	Result	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	**91.6**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	**109**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**109**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**97.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**103**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP075(SIM)S: Phenolic Compound Surrogates			
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

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2213760**	Page	: 1 of 15
Client	: **ENVIRONMENTAL SITE ASSESSMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: SETON LILLAS	Contact	: Katie Davis
Address	: P.O. BOX 3106 WAURN PONDS VIC 3216	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 91-125 Coriyule Road	Date Samples Received	: 19-Jul-2022
Order number	: ----	Date Analysis Commenced	: 20-Jul-2022
C-O-C number	: ----	Issue Date	: 26-Jul-2022
Sampler	: SETON LILLAS		
Site	: ----		
Quote number	: MEBQ/159/15 V2		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
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 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*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic 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 Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4472880)									
EM2213751-013	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	50	51	0.0	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	13	14	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	30	31	0.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	18	17	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	26	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	364	368	0.9	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	65	66	1.7	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	67	68	1.9	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	110	100	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	44300	43500	1.8	0% - 20%
EM2213760-009	TP06/2.45-2.6	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	10	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit

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 (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4472880) - continued									
EM2213760-009	TP06/2.45-2.6	EG005T: Manganese	7439-96-5	5	mg/kg	23	22	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	27	24	13.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	10400	9160	12.5	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4475784)									
EM2213745-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.7	7.8	0.0	0% - 20%
EM2213754-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.7	7.8	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4472211)									
EM2213751-006	Anonymous	EA055: Moisture Content	----	0.1	%	23.1	24.5	5.9	0% - 20%
EM2213760-005	TP05/0-0.15	EA055: Moisture Content	----	0.1	%	13.2	13.7	3.6	0% - 50%
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 4475777)									
EM2213760-003	EIL/0.5-0.65	ED006: Calcium/Magnesium Ratio	----	0.1	-	1.8	1.8	0.0	No Limit
		ED006: Magnesium/Potassium Ratio	----	0.1	-	3.5	3.4	0.0	0% - 50%
		ED006: Exchangeable Calcium Percent	----	0.2	%	54.4	54.5	0.2	0% - 20%
		ED006: Exchangeable Magnesium Percent	----	0.2	%	31.1	30.9	0.4	0% - 20%
		ED006: Exchangeable Potassium Percent	----	0.2	%	9.0	9.0	0.0	0% - 20%
		ED006: Exchangeable Sodium Percent	----	0.2	%	5.5	5.5	0.0	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	12.2	12.8	4.9	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	7.0	7.3	4.3	0% - 20%
		ED006: Exchangeable Potassium	----	0.2	meq/100g	2.0	2.1	5.2	0% - 50%
		ED006: Exchangeable Sodium	----	0.2	meq/100g	1.2	1.3	0.0	No Limit
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	22.4	23.5	4.7	0% - 20%
ED008: Exchangeable Cations (QC Lot: 4479098)									
EM2213760-004	EIL/1.5-1.65	ED008: Exchangeable Calcium	----	0.1	meq/100g	2.6	2.6	0.0	0% - 20%
		ED008: Exchangeable Magnesium	----	0.1	meq/100g	3.8	3.9	0.0	0% - 20%
		ED008: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
		ED008: Exchangeable Sodium	----	0.1	meq/100g	1.2	1.2	0.0	0% - 50%
		ED008: Cation Exchange Capacity	----	0.1	meq/100g	8.0	8.1	1.7	0% - 20%
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QC Lot: 4473385)									
EM2213552-001	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	120	140	12.5	No Limit
EM2213657-028	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	3750	3200	15.7	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 4471674)									
EM2213552-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	270	260	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4472881)									
EM2213751-013	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2213760-009	TP06/2.45-2.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 4472796)									

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 (%)*
EP004: Organic Matter (QC Lot: 4472796) - continued									
EM2213723-018	Anonymous	EP004: Organic Matter	----	0.5	%	5.3	5.4	2.4	0% - 50%
		EP004: Total Organic Carbon	----	0.5	%	3.0	3.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4471603)									
EM2213717-160	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2213760-006	QC01	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

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 (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4471603) - continued									
EM2213760-006	QC01	EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4471601)									
EM2213717-160	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM2213760-006	QC01	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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 Hydrocarbons (QC Lot: 4471594)									
EM2213760-005	TP05/0-0.15	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2213782-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4471602)									
EM2213717-160	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EM2213760-006	QC01	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4471594)									
EM2213760-005	TP05/0-0.15	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2213782-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4471602)									
EM2213717-160	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EM2213760-006	QC01	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 4471594)									
EM2213760-005	TP05/0-0.15	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2213782-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 4472153)									
EM2213717-048	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.13	0.13	0.0	No Limit
EM2213806-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.061	0.060	2.4	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.011	0.010	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.110	0.108	1.9	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4473570)									
EM2213751-010	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM2213775-060	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4469304)									
EM2213657-083	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EM2213752-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4469304)									
EM2213657-083	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EM2213752-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 4469304)									
EM2213657-083	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 4469304) - continued									
EM2213657-083	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EM2213752-006	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	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) Report	Laboratory Control Spike (LCS) 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: 4472880)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	86.5	70.0	130
EG005T: Barium	7440-39-3	10	mg/kg	<10	99.3 mg/kg	94.4	70.0	130
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.67 mg/kg	81.5	70.0	130
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	58.1	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	95.5	70.0	130
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	11.2 mg/kg	87.2	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	84.9	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	102	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	81.4	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	85.8	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	93.2	70.0	130
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	61.3 mg/kg	92.6	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	77.2	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4475784)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	99.5	98.8	101
				----	7 pH Unit	99.4	99.3	101
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 4475777)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	33 meq/100g	70.9	66.6	101
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	32 meq/100g	71.6	66.9	120
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	2.2 meq/100g	82.4	72.8	119
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	5.6 meq/100g	80.2	67.5	112
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	----	----	----	----
ED006: Exchangeable Calcium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Magnesium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Potassium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Exchangeable Sodium Percent	----	0.2	%	<0.2	----	----	----	----
ED006: Calcium/Magnesium Ratio	----	0.1	-	<0.1	----	----	----	----
ED006: Magnesium/Potassium Ratio	----	0.1	-	<0.1	----	----	----	----
ED008: Exchangeable Cations (QCLot: 4479098)								
ED008: Exchangeable Calcium	----	0.1	meq/100g	<0.1	24.44 meq/100g	87.6	70.0	130
ED008: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.65 meq/100g	89.6	70.0	130
ED008: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.83 meq/100g	106	83.4	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED008: Exchangeable Cations (QCLot: 4479098) - continued								
ED008: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.31 meq/100g	130	85.2	130
ED008: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 4473385)								
ED040N: Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	3000 mg/kg	103	86.1	116
ED045G: Chloride by Discrete Analyser (QCLot: 4471674)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	90.5	85.5	120
				<10	5000 mg/kg	99.9	85.5	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4472881)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	93.0	70.0	130
EP004: Organic Matter (QCLot: 4472796)								
EP004: Organic Matter	----	0.5	%	<0.5	77 %	80.2	70.0	130
EP004: Total Organic Carbon	----	0.5	%	<0.5	43.5 %	82.3	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4471603)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	119	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	117	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	118	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	118	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	117	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	115	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	118	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	118	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	116	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	122	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	120	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	112	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	120	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	111	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	122	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	119	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	100.0	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	96.7	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	95.8	55.5	132
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4471601)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	93.1	85.7	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	105	81.0	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	96.1	83.6	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4471601) - continued								
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	85.5	81.3	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	98.2	79.4	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	96.8	81.7	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	92.1	78.3	124
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	93.6	79.9	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	88.6	76.9	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	88.8	80.9	130
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	114	70.0	121
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	119	80.4	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	114	70.2	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	104	67.9	122
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	106	65.8	123
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	108	65.8	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4471594)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	94.6	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4471602)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	670 mg/kg	93.5	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2860 mg/kg	104	82.0	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1490 mg/kg	101	82.4	121
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	5020 mg/kg	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4471594)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	91.6	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4471602)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1000 mg/kg	100	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3770 mg/kg	109	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	250 mg/kg	79.8	73.3	137
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	5020 mg/kg	105	70.0	130
EP080: BTEXN (QCLot: 4471594)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	98.8	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	99.3	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	95.6	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	99.9	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	103	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	83.4	61.8	123

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EG020T: Total Metals by ICP-MS (QCLot: 4472153)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	112	89.2	115
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	110	86.0	115
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	111	87.2	117
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	111	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	110	86.9	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	106	87.7	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	108	86.9	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	109	88.3	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	110	88.7	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	108	87.9	113
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	112	84.8	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	112	87.1	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	105	86.7	117
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	110	89.3	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4473570)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	106	73.4	119
EP068A: Organochlorine Pesticides (OC) (QCLot: 4468995)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	2.5 µg/L	98.6	50.6	119
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	2.5 µg/L	98.8	44.2	117
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	2.5 µg/L	103	53.7	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	2.5 µg/L	99.6	47.7	117
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	2.5 µg/L	101	52.5	117
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	2.5 µg/L	101	46.9	118
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	2.5 µg/L	99.2	48.0	115
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	2.5 µg/L	104	51.1	119
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	2.5 µg/L	104	48.4	120
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	2.5 µg/L	104	50.1	122
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	2.5 µg/L	105	51.0	118
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	2.5 µg/L	103	48.4	116
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	2.5 µg/L	101	49.3	116
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	2.5 µg/L	101	47.1	130
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	2.5 µg/L	98.3	51.6	118
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	2.5 µg/L	103	48.6	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	2.5 µg/L	114	49.4	128
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	2.5 µg/L	102	49.1	123
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	2.5 µg/L	110	45.6	126
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	2.5 µg/L	103	52.8	117
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	2.5 µg/L	110	47.1	126
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4468995)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4468995) - continued								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	2.5 µg/L	92.0	47.4	133
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	2.5 µg/L	104	46.4	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	2.5 µg/L	16.0	10.0	42.9
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	2.5 µg/L	103	41.7	131
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	2.5 µg/L	102	50.5	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	2.5 µg/L	106	52.4	123
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	2.5 µg/L	123	52.0	132
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	2.5 µg/L	111	51.8	133
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	2.5 µg/L	104	52.3	123
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	2.5 µg/L	104	48.7	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	2.5 µg/L	119	49.5	136
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	2.5 µg/L	105	50.4	123
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	2.5 µg/L	101	50.9	131
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	2.5 µg/L	105	47.5	126
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	2.5 µg/L	105	46.5	138
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	2.5 µg/L	105	49.2	119
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	2.5 µg/L	105	50.0	126
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	2.5 µg/L	108	50.0	131
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	2.5 µg/L	118	41.7	147
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4469304)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	83.6	66.2	134
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4469304)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	81.0	66.2	132
EP080: BTEXN (QCLot: 4469304)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	91.1	68.8	127
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	90.0	72.9	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	89.1	71.7	130
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	89.7	72.3	136
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	93.7	75.9	134
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	94.0	68.3	131

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**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4472880)							
EM2213751-014	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	101	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.7	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	98.3	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	99.3	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	99.1	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	99.7	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	105	80.0	120
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM) (QCLot: 4473385)							
EM2213552-006	Anonymous	ED040N: Sulfate as SO4 2-	14808-79-8	3000 mg/kg	93.3	84.0	116
ED045G: Chloride by Discrete Analyser (QCLot: 4471674)							
EM2213552-006	Anonymous	ED045G: Chloride	16887-00-6	10000 mg/kg	107	93.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4472881)							
EM2213751-014	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	104	76.0	116
EP004: Organic Matter (QCLot: 4472796)							
EM2213760-003	EIL/0.5-0.65	EP004: Organic Matter	----	1.93 %	77.8	70.0	120
		EP004: Total Organic Carbon	----	1.12 %	77.8	70.0	120
EP068A: Organochlorine Pesticides (OC) (QCLot: 4471603)							
EM2213717-180	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	86.3	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	87.4	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	89.4	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	89.1	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	86.2	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	91.6	20.0	133
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4471601)							
EM2213717-163	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	114	77.2	116
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	119	65.5	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4471594)							
EM2213760-006	QC01	EP080: C6 - C9 Fraction	----	28 mg/kg	79.8	33.4	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4471602)							
EM2213717-169	Anonymous	EP071: C10 - C14 Fraction	----	670 mg/kg	102	71.2	125
		EP071: C15 - C28 Fraction	----	2860 mg/kg	112	75.6	122
		EP071: C29 - C36 Fraction	----	1490 mg/kg	109	78.0	120
		EP071: C10 - C36 Fraction (sum)	----	5020 mg/kg	110	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4471594)							
EM2213760-006	QC01	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	74.7	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4471602)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4471602) - continued							
EM2213717-169	Anonymous	EP071: >C10 - C16 Fraction	----	1000 mg/kg	108	72.2	128
		EP071: >C16 - C34 Fraction	----	3770 mg/kg	117	76.5	119
		EP071: >C34 - C40 Fraction	----	250 mg/kg	87.6	66.8	138
		EP071: >C10 - C40 Fraction (sum)	----	5020 mg/kg	115	70.0	130
EP080: BTEXN (QCLot: 4471594)							
EM2213760-006	QC01	EP080: Benzene	71-43-2	2 mg/kg	102	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	106	57.1	131

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 4472153)							
EM2213717-048	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	107	82.0	123
		EG020A-T: Beryllium	7440-41-7	1 mg/L	100	79.0	126
		EG020A-T: Barium	7440-39-3	1 mg/L	111	80.0	120
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	114	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	114	78.9	119
		EG020A-T: Cobalt	7440-48-4	1 mg/L	104	80.7	121
		EG020A-T: Copper	7440-50-8	1 mg/L	111	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	108	80.5	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	116	73.0	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	80.0	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	110	81.0	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	74.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4473570)							
EM2213752-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	95.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4469304)							
EM2213657-085	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	57.1	33.9	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4469304)							
EM2213657-085	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	57.5	34.0	122
EP080: BTEXN (QCLot: 4469304)							
EM2213657-085	Anonymous	EP080: Benzene	71-43-2	20 µg/L	79.2	56.3	133
		EP080: Toluene	108-88-3	20 µg/L	77.7	60.4	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2213760**	Page	: 1 of 10
Client	: **ENVIRONMENTAL SITE ASSESSMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: SETON LILLAS	Telephone	: +61-3-8549 9600
Project	: 91-125 Coriyule Road	Date Samples Received	: 19-Jul-2022
Site	: ----	Issue Date	: 26-Jul-2022
Sampler	: SETON LILLAS	No. of samples received	: 13
Order number	: ----	No. of samples analysed	: 13

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

This report highlights outliers flagged in the Quality Control (QC) Report.

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

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002-AD: pH (Soils) dried at 40°C						
Soil Glass Jar - Unpreserved						
EIL/0.5-0.65, EIL/1.5-1.65	----	----	----	25-Jul-2022	22-Jul-2022	**3**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Pesticides by GCMS	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

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.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
EIL/0.5-0.65, EIL/1.5-1.65, TP06/0-0.15	**19-Jul-2022**	**25-Jul-2022**	26-Jul-2022	✓	**25-Jul-2022**	25-Jul-2022	✓
EA002-AD: pH (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved (EA002-AD)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**22-Jul-2022**	26-Jul-2022	✓	**25-Jul-2022**	22-Jul-2022	×
EA010-AD: Conductivity (Soils) dried at 40°C							
Soil Glass Jar - Unpreserved (EA010-AD)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**22-Jul-2022**	26-Jul-2022	✓	**25-Jul-2022**	19-Aug-2022	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
EIL/0.5-0.65, EIL/1.5-1.65, TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**----**	----	----	**21-Jul-2022**	02-Aug-2022	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**----**	----	----	**26-Jul-2022**	15-Jan-2023	✓
EA152: Soil Particle Density							
Snap Lock Bag (EA152)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**----**	----	----	**26-Jul-2022**	15-Jan-2023	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**22-Jul-2022**	16-Aug-2022	✓	**25-Jul-2022**	16-Aug-2022	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**25-Jul-2022**	16-Aug-2022	✓	**25-Jul-2022**	16-Aug-2022	✓
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**25-Jul-2022**	16-Aug-2022	✓	**25-Jul-2022**	16-Aug-2022	✓
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)							
Soil Glass Jar - Unpreserved (ED040N)							
EIL/1.5-1.65, TP06/0-0.15	**19-Jul-2022**	**22-Jul-2022**	15-Jan-2023	✓	**22-Jul-2022**	15-Jan-2023	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
EIL/1.5-1.65, TP06/0-0.15	**19-Jul-2022**	**21-Jul-2022**	16-Aug-2022	✓	**22-Jul-2022**	18-Aug-2022	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
EIL/0.5-0.65, EIL/1.5-1.65, TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**22-Jul-2022**	15-Jan-2023	✓	**22-Jul-2022**	15-Jan-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**22-Jul-2022**	16-Aug-2022	✓	**23-Jul-2022**	16-Aug-2022	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004)							
EIL/0.5-0.65, EIL/1.5-1.65	**19-Jul-2022**	**22-Jul-2022**	16-Aug-2022	✓	**22-Jul-2022**	16-Aug-2022	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**21-Jul-2022**	02-Aug-2022	✓	**21-Jul-2022**	30-Aug-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**21-Jul-2022**	02-Aug-2022	✓	**21-Jul-2022**	30-Aug-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**21-Jul-2022**	02-Aug-2022	✓	**21-Jul-2022**	02-Aug-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**21-Jul-2022**	02-Aug-2022	✓	**21-Jul-2022**	02-Aug-2022	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
TP05/0-0.15, QC01, TP05/2.35-2.5, TP06/0-0.15, TP06/2.45-2.6, TP07/0-0.15, TP07/1.95-2.1, TP08/0-0.15, TP08/1.95-2.1	**19-Jul-2022**	**21-Jul-2022**	02-Aug-2022	✓	**21-Jul-2022**	02-Aug-2022	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
FB01	**19-Jul-2022**	**21-Jul-2022**	15-Jan-2023	✓	**21-Jul-2022**	15-Jan-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
FB01	**19-Jul-2022**	**----**	----	----	**21-Jul-2022**	16-Aug-2022	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068)							
FB01	**19-Jul-2022**	**20-Jul-2022**	26-Jul-2022	✓	**20-Jul-2022**	29-Aug-2022	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
FB01	**19-Jul-2022**	**20-Jul-2022**	26-Jul-2022	✓	**20-Jul-2022**	29-Aug-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB01	**19-Jul-2022**	**20-Jul-2022**	02-Aug-2022	✓	**20-Jul-2022**	02-Aug-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB01	**19-Jul-2022**	**20-Jul-2022**	02-Aug-2022	✓	**20-Jul-2022**	02-Aug-2022	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB01	**19-Jul-2022**	**20-Jul-2022**	02-Aug-2022	✓	**20-Jul-2022**	02-Aug-2022	✓

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**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride Soluble By Discrete Analyser	ED045G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations with pre-treatment	ED008	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations with pre-treatment	ED008	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations with pre-treatment	ED008	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate - Calcium Phosphate Soluble	ED040N	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Pesticides by GCMS	EP068	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Pesticides by GCMS	EP068	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**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
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
pH (1:5) on 40°C dried soil	EA002-AD	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on 40°C dried soil after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3)
Electrical Conductivity (1:5) on 40°C dried soil	EA010-AD	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples dried at 40°C using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Sulfate - Calcium Phosphate Soluble	ED040N	SOIL	In house: The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulfate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
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)

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to 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)
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique 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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The 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).
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS 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	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method (Alkaline Soils)	ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Calcium Phosphate Extraction for Sulphate as SO4 2-	ED040NPR	SOIL	The sample is extracted with a calcium phosphate solution. The phosphate ion displaces the adsorbed sulphate while calcium ions depress the extraction of interfering S from soil organic matter. SO4 in the extract is determined by ICPAES and reported as dry weight in the original soil. This method is compliant with NEPM Schedule B(3).
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
1:5 solid / water leach following drying at 40°C	EN34-AD	SOIL	10 g of 40°C dried soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
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).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. 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.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

CHAIN OF CUSTODY RECORD

Eurofins Environment Testing ABN 50 005 085 521

- ☐ Sydney Laboratory — Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066 — 02 9900 8400 — EnviroSampleNSW@eurofins.com
- ☐ Brisbane Laboratory — Unit 1 21 Smallwood Place Murarrie QLD 4172 — 07 3902 4600 — EnviroSampleQLD@eurofins.com
- ☐ Perth Laboratory — Unit 2 91 Leach Highway Kewdale WA 6105 — 08 9251 9600 — EnviroSampleWA@eurofins.com
- ☒ Melbourne Laboratory — 6 Monterey Road Dandenong South VIC 3175 — 03 8564 5000 — EnviroSampleVic@eurofins.com

Company	Environmental Site Assessments	Project Name	91-125 Coriyule Rd	Project Manager	Seton Lillas
Address	Unit 4, 6-10 Apparel Close Breakwater VIC 3219			EDD Format	Esdat
Contact Name	Seton Lillas			Sampler(s)	Seton Lillas
Phone №	0433747187			Handed over by	Courier
Special Directions				Email for Invoice	accounts@esagroup.com.au
Purchase Order				Email for Results	office@esagroup.com.au
Quote ID №	191029ESAV				

Analyses: PAHs, 15 Metals, OCPs; TRHs

No	Client Sample ID	Sampled Date/Time	Matrix	PAHs, 15 Metals, OCPs	TRHs	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	QC02	19/7/22 8:54	S	X	X									
2														
3														
4														
5														
6														
7														
8														
9														
10														
	Total Counts			1	1									

Required Turnaround Time (TAT) — Default will be 5 days if not ticked. ♦Surcharge will apply

- ☐ Overnight (reporting by 9am)♦
- ☐ Same day♦
- ☐ 1 day♦
- ☐ 2 days♦
- ☐ 3 days♦
- ☒ 5 days (Standard)
- ☐ Other( )

20/7/22 9:20AM 0 4.1 4 TY Courier

Method of Shipment	☒ Courier (#) ☐ Hand Delivered ☐ Postal	Name	S. Lillas	Signature	[signature]	Date 19/7/22	Time 12.00 pm
Laboratory Use Only — Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time	Temperature
Laboratory Use Only — Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time	Report №

907169 Jake

Environmental Site Assessments P/L
2 Homestead Crt
Highton
VIC 3216

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **- All Reports/SRA's (Seton)**

Report **907169-S**
Project name 91-125 CORIYULE RD
Received Date Jul 20, 2022

Client Sample ID			**QC02**
Sample Matrix			**Soil**
Eurofins Sample No.			**M22-JI0039663**
Date Sampled			**Jul 19, 2022**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	77
p-Terphenyl-d14 (surr.)	1	%	67

Client Sample ID			QC02
Sample Matrix			**Soil**
Eurofins Sample No.			**M22-JI0039663**
Date Sampled			**Jul 19, 2022**
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-HCH	0.05	mg/kg	< 0.05
d-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	0.5	mg/kg	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	52
Tetrachloro-m-xylene (surr.)	1	%	115
Chromium (hexavalent)	1	mg/kg	< 1
Chromium (trivalent)	5	mg/kg	17
% Moisture	1	%	16
Heavy Metals			
Arsenic	2	mg/kg	7.9
Barium	10	mg/kg	75
Beryllium	2	mg/kg	< 2
Boron	10	mg/kg	17
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	17
Cobalt	5	mg/kg	< 5
Copper	5	mg/kg	11
Lead	5	mg/kg	19
Manganese	5	mg/kg	210
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	7.5
Vanadium	10	mg/kg	21
Zinc	5	mg/kg	57

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jul 20, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 20, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 20, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jul 20, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Jul 20, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Chromium (hexavalent)	Melbourne	Jul 20, 2022	28 Days
- Method: LTM-INO-4100 Hexavalent Chromium by Spectrometric detection			
Heavy Metals	Melbourne	Jul 20, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Jul 20, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Tel: +61 2 4968 8448
NATA# 1261 Site# 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

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

Company Name: Environmental Site Assessments P/L
Address: 2 Homestead Crt
Highton
VIC 3216

Project Name: 91-125 CORIYULE RD

Order No.:
Report #: 907169
Phone:
Fax:

Received: Jul 20, 2022 9:20 AM
Due: Jul 27, 2022
Priority: 5 Day
Contact Name: - All Reports/SRA's (Seton)

Eurofins Analytical Services Manager : Michael Morrison

Sample Detail						Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	NEPM 1999 Metals : Metals M15	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC02	Jul 19, 2022	8:54AM	Soil	M22-Jl0039663	X	X	X	X	X
Test Counts						1	1	1	1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR: No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	126			70-130	Pass	
Naphthalene	%	81			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	126			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	98			70-130	Pass	
Acenaphthylene	%	100			70-130	Pass	
Anthracene	%	112			70-130	Pass	
Benz(a)anthracene	%	82			70-130	Pass	
Benzo(a)pyrene	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	%	110			70-130	Pass	
Benzo(g.h.i)perylene	%	112			70-130	Pass	
Benzo(k)fluoranthene	%	86			70-130	Pass	
Chrysene	%	100			70-130	Pass	
Dibenz(a.h)anthracene	%	86			70-130	Pass	
Fluoranthene	%	72			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	86			70-130	Pass	
Naphthalene	%	97			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	%	74			70-130	Pass	
Pyrene	%	85			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	105			70-130	Pass	
4.4'-DDD	%	109			70-130	Pass	
4.4'-DDE	%	115			70-130	Pass	
4.4'-DDT	%	102			70-130	Pass	
a-HCH	%	103			70-130	Pass	
Aldrin	%	110			70-130	Pass	
b-HCH	%	115			70-130	Pass	
d-HCH	%	107			70-130	Pass	
Dieldrin	%	103			70-130	Pass	
Endosulfan I	%	114			70-130	Pass	
Endosulfan II	%	106			70-130	Pass	
Endosulfan sulphate	%	95			70-130	Pass	
Endrin	%	114			70-130	Pass	
Endrin aldehyde	%	111			70-130	Pass	
Endrin ketone	%	111			70-130	Pass	
g-HCH (Lindane)	%	106			70-130	Pass	
Heptachlor	%	119			70-130	Pass	
Heptachlor epoxide	%	107			70-130	Pass	
Hexachlorobenzene	%	105			70-130	Pass	
Methoxychlor	%	104			70-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	102			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	106			80-120	Pass	
Barium	%	109			80-120	Pass	
Beryllium	%	97			80-120	Pass	
Boron	%	103			80-120	Pass	
Cadmium	%	108			80-120	Pass	
Chromium	%	112			80-120	Pass	
Cobalt	%	114			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	110			80-120	Pass	
Manganese	%	111			80-120	Pass	
Mercury	%	118			80-120	Pass	
Nickel	%	99			80-120	Pass	
Vanadium	%	108			80-120	Pass	
Zinc	%	109			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	L22-JI0033111	NCP	%	103			70-130	Pass	
TRH C10-C14	M22-JI0034465	NCP	%	107			70-130	Pass	
Naphthalene	L22-JI0033111	NCP	%	90			70-130	Pass	
TRH C6-C10	L22-JI0033111	NCP	%	100			70-130	Pass	
TRH >C10-C16	M22-JI0034465	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M22-JI0037470	NCP	%	104			70-130	Pass	
Acenaphthylene	M22-JI0037470	NCP	%	105			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Anthracene	M22-JI0037470	NCP	%	85			70-130	Pass	
Benz(a)anthracene	M22-JI0037470	NCP	%	78			70-130	Pass	
Benzo(a)pyrene	M22-JI0037470	NCP	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	M22-JI0037470	NCP	%	72			70-130	Pass	
Benzo(g.h.i)perylene	M22-JI0037470	NCP	%	122			70-130	Pass	
Benzo(k)fluoranthene	M22-JI0037470	NCP	%	97			70-130	Pass	
Chrysene	M22-JI0037470	NCP	%	110			70-130	Pass	
Dibenz(a.h)anthracene	M22-JI0037470	NCP	%	89			70-130	Pass	
Fluoranthene	M22-JI0037470	NCP	%	75			70-130	Pass	
Fluorene	M22-JI0037470	NCP	%	95			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M22-JI0037470	NCP	%	89			70-130	Pass	
Naphthalene	M22-JI0037470	NCP	%	102			70-130	Pass	
Phenanthrene	M22-JI0037470	NCP	%	112			70-130	Pass	
Pyrene	M22-JI0037470	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M22-JI0035541	NCP	%	109			70-130	Pass	
4.4'-DDD	M22-JI0035541	NCP	%	112			70-130	Pass	
4.4'-DDE	M22-JI0035541	NCP	%	121			70-130	Pass	
4.4'-DDT	M22-JI0035541	NCP	%	88			70-130	Pass	
a-HCH	M22-JI0035541	NCP	%	105			70-130	Pass	
Aldrin	M22-JI0035541	NCP	%	109			70-130	Pass	
b-HCH	M22-JI0035541	NCP	%	75			70-130	Pass	
d-HCH	M22-JI0035541	NCP	%	97			70-130	Pass	
Dieldrin	M22-JI0035541	NCP	%	114			70-130	Pass	
Endosulfan I	M22-JI0035541	NCP	%	111			70-130	Pass	
Endosulfan II	M22-JI0035541	NCP	%	109			70-130	Pass	
Endosulfan sulphate	M22-JI0035541	NCP	%	100			70-130	Pass	
Endrin	M22-JI0035541	NCP	%	105			70-130	Pass	
Endrin aldehyde	M22-JI0035541	NCP	%	104			70-130	Pass	
Endrin ketone	M22-JI0035541	NCP	%	112			70-130	Pass	
g-HCH (Lindane)	M22-JI0035541	NCP	%	126			70-130	Pass	
Heptachlor	M22-JI0035541	NCP	%	114			70-130	Pass	
Heptachlor epoxide	M22-JI0035541	NCP	%	112			70-130	Pass	
Hexachlorobenzene	M22-JI0035541	NCP	%	105			70-130	Pass	
Methoxychlor	M22-JI0035541	NCP	%	93			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M22-JI0036898	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	B22-JI0032272	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	B22-JI0032272	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	B22-JI0032272	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	M22-JI0036898	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M22-JI0036898	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	B22-JI0032272	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	B22-JI0032272	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	B22-JI0032272	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M22-JI0035535	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M22-JI0035535	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M22-JI0035535	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	N22-JI0036439	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
% Moisture	M22-JI0039597	NCP	%	21	20	5.3	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Barium	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Beryllium	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Boron	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Cadmium	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Chromium	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Cobalt	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Copper	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Lead	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Manganese	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Mercury	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Nickel	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Vanadium	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	
Zinc	N22-JI0036436	NCP	mg/kg	rerun	rerun	rerun	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

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

Authorised by:

Michael Morrison	Analytical Services Manager
Scott Beddoes	Senior Analyst-Metal
Linda Chouman	Senior Analyst-Sample Properties
Edward Lee	Senior Analyst-Organic
Harry Bacalis	Senior Analyst-Volatile
Scott Beddoes	Senior Analyst-Inorganic

[redacted]

General Manager

Final Report – this report replaces any previously Issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.