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Preliminary Site Investigation

Part of 250 Drysdale Road, Little River

Document Information

Preliminary Site Investigation,
Part of 250 Drysdale Road, Little River

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Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to Elders past and present.

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Contents

List of Acronyms

Acronym	Definition
ABC	Ambient background concentration
ACM	Asbestos containing material
AS	Australian Standard
ANZECC	Australian and New Zealand Environment and Conservation Council
BH	Borehole
BPEM	Best Practice Environmental Management
COC	Chain of custody
CoPC	Contaminant of potential concern
CSM	Conceptual site model
DSE	Department of Sustainability and Environment
EC	Electrical conductivity
EIL	Ecologically based investigation level
EMP	Environmental Management Plan
EPA	Environment Protection Authority (Victoria)
ERS	Environmental Reference Standard
ESL	Ecological screening level

Acronym	Definition
HIL	Health-based investigation level
HSL	Health screening level
LOR	Limit of reporting
LTV	Long term trigger values
m bgl	Metres below ground level
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
PSI	Preliminary Site Investigation
PSR	Priority Sites Register
QA	Quality assurance
QC	Quality control
RPD	Relative percentage difference
TKN	Total kjeldahl nitrogen
µg/kg	Micrograms per kilogram

1.0 Introduction and Objectives

1.1 Background

Barro Group Pty Ltd (Barro Group) engaged Senversa Pty Ltd to conduct a Preliminary Site Investigation (PSI) with limited soil investigation at a portion of the property located at 250 Drysdale Road, Little River (the site). The site location and boundary are presented on **Figure 1.**

Barro Group purchased the site approximately 10 years ago. Prior to the purchase, the site the subject of the investigation was used by Pivot for fertiliser storage until approximately 2005. The exact use of the site by Pivot is unknown.

The site is approximately 100,000 m^2 and is located to the immediate east of the current Barro Group quarry.

1.2 Project Objectives

The objectives of the PSI with limited soil investigation were to:

- Investigate the site history to establish potential contaminating activities that may have occurred on the site.
- Assess the contamination status of site soils based on historical site use.
- Define the extent of contamination (if any).
- Recommend remediation methods (if required).
- Assess the potential for the duty to notify in accordance with the Environment Protection Act 2017.

1.3 Scope of Works

The following scope of works was completed:

- The commission and review of an Environmental and Planning report from Lotsearch® which included:
  - Planning zones and overlays
  - Environmental setting information including geological and hydrogeological information.
  - Historical aerial photography dating back to 1968.
  - Historical and current titles showing land holdings dating back to 1881.
  - Regulatory agent records including priority sites register (PSR) and nearby environmental audit sites.
- A site inspection to identify visible evidence of potential contamination sources, site surface coverage, surrounding land use and topography.
- An intrusive soil investigation, including drilling and sampling of 10 soil bores and five surface sample locations.
- Laboratory analysis of soil by laboratories accredited by the National Association of Testing Authorities (NATA) for the analytical methods used.
- Collation and interpretation of data including a quality assurance / quality control (QA/QC) data validation process.
- Preparation of this report detailing the findings of the assessment.

2.0 Site Description

2.1 Site Details

The following table summarises the relevant details that describes the site. Property planning information is provided in **Appendix A.**

Table 2-1: Site Description

Item	Relevant Site Information
Site Address	Part of 250 Drysdale Road, Little River.
Title Plan Identifier	Part of Lot 2 PS344713
Site Area	Approximately 100,000 m^2
Municipality	City of Greater Geelong
Current Zoning	Farming Zone (FZ) Current site overlays include Bushfire Management (BMO) and Significant Landscape (SLO). An area of aboriginal cultural heritage is located to the immediate south of the site.
Current Site Occupier and Use	The site is currently owned by Barro Group. The site is currently unused.
Surrounding Land Uses	North – Vacant bush land followed by SSAA Rifle Range and Paint Ball Park South – You Yangs Regional Park East – Vacant bush land followed by farming land West – Active quarry

2.2 Environmental Setting

Table 2.2 summarises the relevant environmental setting information for the site, sourced from the Lotsearch report (provided in **Appendix B**) and observations from Senversa's site inspection.

Table 2.2: Environmental Setting

Item	Details
Topography, Drainage and Surface Water Bodies.	The site is generally flat with a topographical elevation of 170 m Australian Height Datum (m AHD) according to the Lotsearch report (**Appendix B** - page 6). The site is surrounded by steep rocky outcrops with a maximum elevation of 250 m AHD. A dam is present in the western portion of the site. The You Yangs Regional Park is located to the immediate south of the site. Several small unnamed waterbodies are located within the Regional Park area.
Regional Geology	The regional geology reported by Lotsearch (**Appendix B** - page 44-45) shows that site is underlain by the Pleistocene to Holocene aged granite derived colluvium comprising of quartz and feldspar sand. The surrounding land to the north, east and south comprises the Late Devonian You Yangs Granite.
Regional Hydrogeology	The regional hydrogeology reported by Lotsearch (**Appendix B** – page 37-38) identified that the water table in the upper aquifer ranges from 20 to 50 m below ground level (bgl). The aquifer is described as having 'low to moderate productivity'. Based on topography, regional groundwater flow may be to the east towards Port Phillip Bay, approximately 16 km to the east of the site. Groundwater salinity is likely to range between 3,500 to 7,000 mg/L. This salinity would conservatively classify the groundwater as Segment 'C' as defined under the State Environment Protection Policy (Waters of Victoria), 2018 (SEPP Waters).
Groundwater Bore Search	The Lotsearch report (**Appendix B** – pages 39-40) included a search for registered groundwater bores within 2 km of the site boundary. No wells were identified within the site boundary; however several wells were located within the greater 250 Drysdale Road area including three monitoring wells, two registered for observation and the third registered for industrial purposes.

2.3 EPA Online Resources

2.3.1 Priority Sites Register Review

A review of the EPA Priority Sites Register (PSR) on 29 July 2021 by Lotsearch indicated no records of an active EPA priority site within 1 km of the site. The extract from the PSR search is provided in the Lotsearch report (**Appendix B** – page 7).

2.3.2 EPA Licensed Activities

The site is listed as a former EPA licenced activity (licence number SW4238#5) under Kalari Propriety Limited for extractive industry and mining. The extract from the register is provided in the Lotsearch report (**Appendix B** – page 13).

The historical land titles summarised below in **Section 3.1.1** confirms that the site was owned by Kalari Propriety Limited from 2007 to 2012, prior to Barro Group purchasing the site in 2012.

2.3.3 EPA Victoria Landfill Register

The site is listed on the EPA Victoria Landfill Register under 'The Phosphate Co-operative Company of Australia LTD, Pt C/A 14 Sec A And Pt C/A 7 Sec 11 Parish of Wurdi Youang, Woolatta'. The register states that the landfill was closed in 2003 and that the waste type comprised prescribed industrial waste (PIW) and chemical gypsum. The extract from the register is provided in the Lotsearch report (**Appendix B** – page 14 - 16).

The historical land titles summarised in **Section 3.1.1** confirms that the site was owned by The Phosphate Co-operative Company of Australia LTD, subsequently PIVOT Limited from 1980 to 2003.

2.3.4 Nearby Environmental Audits

EPA Victoria publishes a list of properties for which a certificate or statement of environmental audit has been issued under Part IXD of the *Environment Protection Act,* 1970. These reports can provide useful information on the condition of nearby sites and the potential for contamination at the subject site. A review of the list identified no records of statements or certificates of environmental audit within a 1 km radius of the site (**Appendix B**, page 10).

2.3.5 Groundwater Quality Restricted Zones

A review of EPA Victoria's published list of Groundwater Quality Restricted Use Zones (GQRUZ) on 13 July 2021 by Lotsearch indicated no records exist within the buffer range of the site (1 km) (**Appendix B** – page 11).

3.0 Site History Review

3.1 Previous Occupiers and Uses

3.1.1 Historical Land Titles

Historical titles were obtained for the site. The historical titles showed that the property was three different parcels until 1937 and owned by private landholders who used the land as either farming or grazing. In 1937, the site became one property and was owned by various proprietors as detailed in **Table 3-1** below. A copy of the titles is provided in **Appendix C**.

Table 3-1: Summary of Historical Titles

Site Address	Volume / Folio	Registered Proprietor	Date
250 Drysdale Street, Little River	Volume 1260 Folio 855 Volume 1223 Folio 513 Volume 1213 Folio 529	James Barnes Kershaw (Grazier)	18.05.1937 (1937 to 1971)
	Volume 1260 Folio 855 Volume 1223 Folio 513 Volume 1213 Folio 529	Laurence Geoffrey Jennings (Manufacturer) Betty Allison Jennings (Married Woman) (Executors of the Will of James Barnes Kershaw)	16.04.1971 (1971 to 1972)
	Volume 1260 Folio 855 Volume 1223 Folio 513 Volume 1213 Folio 529	Mitchell and English Sand Proprietary Limited	14.12.1972 (1972 to 1973)
	Volume 1260 Folio 855 Volume 1223 Folio 513 Volume 1213 Folio 529 Volume 9007 Folio 644	Trans-West Cement Haulage Proprietary Limited	18.12.1973 (1973 to 1980)
	Volume 1260 Folio 855 Volume 9391 Folio 123 Volume 1223 Folio 513 Volume 9391 Folio 122 Volume 9007 Folio 644 Now All Volume 10275 Folio 234	The Phosphate Co-Operative Company of Australia Limited Now Pivot Limited	13.05.1980 (1980 to 2003)
	Volume 10275 Folio 234	Transwest Haulage Pty Ltd	08.04.2003 (2003 to 2007)
	Volume 10275 Folio 234	Kalari Pty Limited	12.02.2007 (2007 to 2012)
	Volume 10275 Folio 234	# Barro Group Pty Ltd	03.07.2012 (2012 to Date)

3.1.2 Historical Directories Search

A review of the historical business directories (1905 – 1991) and historical street directories included in the Lotsearch (**Appendix B** – pages 18-20) did not identify any listed businesses on the site or within the buffer range of the site (1 km).

3.1.3 Historical Aerial Photographs

Historical photographs dating back to 1968 are provided on pages 22 – 31 in **Appendix B.**

Table 3-2: Historical Aerial Photograph Review

Photograph	Observations	
	On-Site	Surrounding Land
Year: 1968 **Black and White**	• The site appears to be largely vacant agricultural land. A small portion of the western site area has minor land disturbance likely associated with quarrying.	• The land to the west has been disturbed by possible quarrying
Year: 1972 - 1978 **Black and White**	• The site appears to be largely unchanged.	• The quarry to the west of the site has expanded. • Land disturbance approximately 200m to the north of the site, potentially to do with the rifle range.
Year: 1985 **Black and White**	• The site appears to be used as stockpile storage, likely associated with Pivot Fertiliser. • A dam is present in the western portion of the site.	• Surrounding land use remains unchanged from 1978.
Year: 1990 **Colour**	• The site appears to be unchanged from 1985. The colour photograph makes it possible to distinguish between water bodies and stockpiles.	• Surrounding land use remains unchanged from 1978.
Year: 2004 **Colour**	• Stockpiles have been removed from the site. The site appears largely unused. • The dam in the western portion of the site remains.	• Activity at the quarry to the west appears to have reduced.
Year: 2010 - 2021 **Colour**	• The site appears unused with grass now covering the historical stockpile storage area.	• Activity at the quarry resumes with the quarry land mass spreading further east in 2021.

In summary, the site appeared to be vacant with minor quarrying activities in the western portion until the early 1980s when the site was used by Pivot Fertiliser to store fertiliser products. By the early 2000's Pivot fertiliser no longer occupied the site and all stockpiles were removed. The site remained vacant from the early 2000s.

3.2 Database Searches

3.2.1 Existing Underground Services

DBYD plans are provided in **Appendix D**. The table below summarises the services identified in and around the site and whether they are expected to be present on site.

Table 3-3: Dial Before You Dig Review

Service Type	Service Provider	Expected present on site
Gas	Ausnet	No.
Sewer, Stormwater	City of Greater Geelong	No
Telecommunications	Telstra	No.
Power	Powercor	No.

3.2.2 Dangerous Goods Records

WorkSafe Victoria completed a search of their database for records held for the site. A search of the database did not identify any records of a notification of dangerous goods stored or handled at the site. A copy of the response from WorkSafe Victoria is provided in **Appendix E**.

3.2.3 Cathodic Protection Systems for Underground Storage Tanks

Energy Safe Victoria maintains a database of registered cathodic protection system, some of which are associated with underground storage tanks (USTs). A search of their online database indicated no assets were listed in relation to the site. Copies of the Energy Safe Victoria searches are included in **Appendix F**.

3.2.4 General Internet Search

A general internet search conducted on 3 August 2021 for the site did not return any relevant results which may indicate current or historic contaminating activities.

4.0 Site Inspection

The site was inspected by a Senversa representative on 10 August 2021 to identify and confirm potential sources of contamination. The inspection results are summarised in **Table 4-1** below. Site photographs are provided in **Appendix G**.

Table 4-1: Site Inspection Observations

Feature Identified (from AS4482-2005, S3.3)	Detail
Are there areas of discoloured soil, polluted water, affected plant growth and animal populations and significant odours?	There was no evidence of any discoloured soil on site. There was evidence of some surface water on site. There was no evidence of affected plant growth, affected animal populations or any significant odours.
Is there any stockpiled material, imported soil or fill material such as slag, ashes, potential asbestos containing materials, scrap and industrial or chemical waste, as well as any signs of settlement, subsidence and disturbed ground?	There was evidence of stockpiled material on site. However, there was no evidence of anthropogenic material within the stockpiles but rather of natural excavated material.
What is the direction of the flow of water run-off from the site and adjacent properties?	There was evidence of surface water on site. It is expected that surface runoff would run into the small settlement pond on site (**Appendix H – Photo 8**).
What is 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?	The depth of the standing water onsite was not measured. There was no evidence of any rivers, streams or canals that would be affected by any fluctuations on site.
Describe the location and condition of all visible features, including foundations, positions of former buildings, tanks, pits, wells, drains and bores.	There was no visual evidence of any former buildings or tanks on site, however, there was one groundwater monitoring well present on site (50 mm PVC pipe with no gatic cover). The main site feature included several drains on the site, draining towards the centre of the site and aggregate quarry. A dam was present towards the centre of the site. An aggregate quarry was located to the immediate west of the site (**Appendix H – Photo 1**).
Detail the condition and type of ground cover, e.g. bare ground, asphalt, concrete, gravel, etc.	The ground cover included an uncovered gravelly sand roadway, large protruding boulders and extended grass and plant cover (**Appendix H – Photo 2**).
Identify any chemical storage and transfer areas, including the presence of waste or chemical containers.	There was no evidence of any chemical storage or transfer on site.
Describe the apparent condition and use of adjacent properties.	The surrounding properties included the Wurdi Youyang Bushland Reserve and the SSAA Eagle Park Range. These were not considered a potential contamination concern.
Detail the location of settlement ponds.	There was evidence of settlement ponds on site (**Appendix H – Photo 8**).

5.0 Potential Sources of Contamination

Table 5-1 below provides a summary of potential contaminants and possible sources, as identified within available information for the site and surrounding area. For each of the potential contaminants, Senversa has assessed the potential risk from information available for the site and provided qualitative rating based on Table 1 of the Department of Sustainability and Environment (DSE) Publication *Potentially Contaminated Land Practice General Practice Note* (DSE 2005).

Table 5-1: Potential Contamination Sources

Identified Potential Contamination Source	Contaminants of Potential Concern	Risk Ranking and Summary
On-Site Current and Historical Activities		
Historical Fertiliser Storage	Boron, cadmium, copper, iron, manganese, molybdenum, zinc, sulfur, major cations, ammonia, nitrite, nitrate, total Kjeldahl nitrogen, total nitrogen, total and reactive phosphorus	**HIGH** Historical photographs demonstrate that the site was used to store fertiliser products for a period of 20 years. It is unknown how the stockpiles were stored and if any bunding was present. There is a high potential for contamination to be caused by this activity due to runoff from uncovered and unbunded stockpiles.
Historical Grazing and Agriculture	Hydrocarbons, herbicides, pesticides, metals	**LOW** The site was likely historically used for grazing land. No evidence of agricultural crops or market gardens were identified from the historical review.
Imported fill soil & wastes	Various depending on the material of origin. Commonly encountered CoPC include metals, petroleum hydrocarbons, coke, ash, asbestos containing material (ACM). Less commonly encountered include pesticides, herbicides, phenolic compounds, cyanide wastes, solvents, polychlorinated phenols, and nutrients.	**LOW** Imported fill soils were not evident (except for potential fertiliser stockpile remnants) on site.
Off-Site Current and Historical Activities		
Quarry	Hydrocarbons, per- and polyfluoroalkyl substances (PFAS), metals.	**LOW** Aerial photography suggests that the site is used as a sand quarry and grading area, with no evidence of sand washing on-site.
Grazing and Agriculture	Hydrocarbons, herbicides, pesticides, metals.	**LOW** The surrounding land was likely historically used for grazing land. No evidence of agricultural crops or market gardens were identified from the historical review.
Rifle Range	Lead, wadding.	**LOW** The rifle range is over 200m away from the site and separated from the site by a raised rocky outcrop.

6.0 Investigation Methodology

6.1 Relevant Standards and guidelines

The field investigations were undertaken in general accordance with relevant elements of the following guidelines and standards:

- National Environment Protection Council (NEPC) – *National Environment Protection (Assessment of Site Contamination) Amendment Measure* (No. 1) (NEPC, 2013).
- Standards Australia, Australian Standard (AS 4482.1) - *Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 2: Non-volatile and Semi-volatile compounds*, 2005.
- Standards Australia, Australian Standard (AS 4482.2) - *Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil, Part 1: Volatile Substances*, 1999.
- Environment Reference Standard. Victoria Government Gazette, No. S 245 (26 May 2021).

6.2 Investigation Rationale

The rationale for the field investigation was established based on a review of historical reports and the project objectives. The rationale for each area of the site is detailed in **Table 6-1** below with sample locations shown on **Figure 2**.

Table 6-1: Investigation Rationale

Matrix	Sample ID	Rationale
Soil	SB01 – SB10	These samples were a grid-based approach, aiming to conceptualise the soil profile and constituents, of the site as a whole.
	SS01 – SS05	This was identified as a target sample in areas of drainage and stockpiled material, due to this area historically being used as for fertiliser storage.

6.3 Fieldwork Methodology

The methodology adopted for the field investigation works in detailed in **Table 6-2** below.

Table 6-2: Fieldwork Methodology

Activity	Item	Description
Underground Service Clearance	Date	10 August 2021
	Subcontractor	Qest Infrastructure

Activity	Item	Description
	Method	Prior to soil investigation works, proposed investigation locations were cleared for the presence of underground services via the following methodology: • Review of available service plans from the dial-before-you-dig online database. • Inspection of the site and immediate off-site areas for surface evidence and signage indicating utility locations and to confirm the presence and alignment of nearby and on-site sewerage infrastructure and underground services. • Tracing of known and redundant (where possible) underground utilities by an experienced underground utility locator using radio detection equipment. Senversa supervised this activity and discussed the findings with the locator personnel. Completion of Senversa's Borehole / Excavation Underground and Overhead Clearance Protocol prior to intrusive investigation.
Soil Sampling	Date	10 August 2021
	Subcontractor	Qest Infrastructure
	Method	• 10 soil bore locations were advanced to a maximum depth of 2.0 metres below ground level (m bgl) using push tube methods (PT). Soil samples were collected from depths of 0.1 m, 0.5 m, 1.0 m and 2.0 m below ground level and where there was evidence of contamination, using a hand auger. • A further five surface sample locations were advanced to a maximum depth of 0.1 m below ground level (m bgl) using a hand trowel. • Disposable gloves were used and replaced between sampling locations to avoid cross contamination. Equipment was cleaned prior to sampling each soil bore location using a Decon 90 solution followed by a clean water rinse. The stratigraphy encountered at each location and the depth of contamination samples collected are detailed within **Appendix I**.
Avoidance of Cross Contamination	Procedure	Sampling procedures used to prevent cross contamination involved: • The use of new dedicated disposable gloves at each sample location. • Decontamination of sampling equipment was undertaken using a water and Decon 90 solution between each sampling location. A separate vessel of clean water was used for a final rinse.
Sampling Handling and Preservation	Procedure	Soil samples were placed immediately within laboratory-supplied containers and stored in a cooler box with ice prior to and during transit to the laboratory. Samples were transported to the laboratory with an accompanying chain of custody (COC) documentation and laboratory provided security seals. Details of the sample transportation and handling can be found on the COC and Sample Receipt Notification documentation provided with **Appendix J.**

6.4 Laboratory Analysis

The analytical schedule completed during the investigation is summarised in **Table 6-3** below. The primary laboratory used for the soil analysis was ALS Environmental and the secondary laboratory was Eurofins.

Table 6-3: Laboratory Analysis

Matrix	Analytes
Soil	• 36 Primary samples were analysed for metals (boron, cadmium, copper, iron, manganese, molybdenum, zinc), sulfur, major cations, ammonia, nitrite, nitrate, total Kjeldahl nitrogen, total nitrogen, total and reactive phosphorus, • 2 duplicate samples were analysed for metals, for quality assurance / quality control (QA/QC) purposes.

6.5 Regulatory Framework

The legislative framework for the protection of human health and the environment from pollution and waste is set out in the *Environment Protection Act 2017* (the Act), *Environment Protection Regulations 2021* (the Regulations) and the *Environment Reference Standard* (ERS), which took effect on 1 July 2021.

The Act establishes the following key duties:

- The ***general environmental duty*** (GED) – which requires a person engaging in an activity to minimise risks of harm to human health or the environment so far as reasonably practicable.
- The ***duty to manage*** contaminated land – which requires a person in management or control of land to minimise risks of harm to human health or the environment from the presence of existing contamination in land or groundwater.
- The ***duty to notify*** of contaminated land – which requires certain types of contamination to be reported to the Environment Protection Authority (EPA).

Of the above duties, the duty to manage contamination and duty to notify contamination are relevant to the assessment of existing (legacy) contamination, while the GED applies primarily to management of risks due to current activities/operations.

Land (including water and sediment) is defined as contaminated if a waste or substance is present (1) above the naturally occurring background level and (2) creates a risk of harm to human health or the environment.

The ERS is the primary tool used to assess impacts on human health and the environment from pollution or waste. The ERS identifies:

- **Environmental values**, which are the uses, attributes or functions of the environment that should be achieved and maintained.
- **Indicators**, which are the parameters or markers used to assess whether environmental values are being achieved or maintained.
- **Objectives**, which are the levels or concentrations of indicators used to assess whether an environmental value is being achieved or maintained.

Most of the objectives for land and waters are derived using a quantitative risk-based approach. Where pollutant or waste concentrations meet specified objectives, the risk of harm to human health or the environment is assessed as low/negligible for that environmental value[1].

The following sections set out the relevant environmental values, indicators and objectives used to assess the risk of harm to human health and the environment for this investigation, and therefore whether land or water is contaminated.

Relevant Land Use Category

As discussed in **Section 2.0**, the site is currently vacant with proposed quarry future use. This is considered as Commercial / Industrial land use as defined in the ERS.

The applicable environmental values associated with commercial / industrial land use are:

- Maintenance of highly modified ecosystems.
- Human health.
- Buildings and structures.
- Aesthetics.

Land Quality Objectives

Land environment quality objectives (also commonly referred to as investigation or screening levels) for the applicable environmental values of land were adopted in accordance with Table 4.3 of the ERS, as described in **Table 6-4** below. The following site-specific exceptions and qualifications are noted:

- In the absence of site-specific soil property data, Ecological Investigation Levels (EILs) for nickel, chromium III, copper and zinc were derived for aged soil contamination based on the following conservative screening assumptions regarding soil properties:
    - Ambient background concentrations (ABCs) were assumed to be those for aged soils in regions with low traffic.
    - Added contaminant limits (ACLs) were assumed to be the minimum (most conservative) values specified in Table 1B(1) to 1B(4) of the NEPM (ASC).

[1] It should be noted that meeting of objectives for environmental values relevant to a given land use scenario suggests that the risk of harm to health or the environment is low for the assessed scenario at a particular point in time. However, it doesn't necessarily confirm that contamination is not present. Further assessment and/or clean up may therefore still be indicated, e.g. where the land may in the future accommodate more sensitive uses or where impacts threaten the environmental values of adjacent land.

Table 6-4: Soil Quality Objectives

Environmental Value	Adopted Land Environment Quality Objectives / Investigation Levels
Land dependent ecosystems and species	Objectives are the ecological investigation or screening level (EILs/ESLs) presented in Schedule B1 of the National Environment Protection (Assessment of Site Contamination) Measure (NEPM (ASC)). For analytes with no EIL or ESL in the NEPM (ASC), risk-based values from other Australian and/or international sources have been adopted, as shown and referenced in the data summary tables. For other analytes with no published values, the objective is the naturally occurring background level, unless site-specific risk assessment is completed to derive an alternative value.
Human Health	Objectives are the health investigation levels or health screening levels (HILs/HSLs) presented in Schedule B1 of the NEPM (ASC). For analytes with no HIL or HSL in the NEPM (ASC), risk-based values from other Australian and/or international sources have been adopted, as shown and referenced in the data summary tables. The key alternative sources include: • United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs). • Canadian Council of Ministers for the Environment (CCME) soil quality guidelines. • CRC CARE Technical Report No. 10 HSLs for direct contact exposure pathways. For other analytes with no published values, the objective is the naturally occurring background level, unless site-specific risk assessment is completed to derive an alternative value. It is noted that HILs and HSLs should be applied to all sampled environmental media at the site, i.e.: • The HILs in Table 1A(1) of the NEPM (ASC) are relevant for assessing health risks due to direct contact with soil and are applied only to soil data. • The interim soil vapour HILS in Table 1A(2) of the NEMP (ASC) are relevant for assessing vapour intrusion risk and are applied only to soil vapour data.
Buildings and Structures	The objective is for land to be “not corrosive to or otherwise adversely affecting the integrity of structures or building material.” Relevant indicators stated in Table 4.3 of the ERS are “pH, sulphate, chloride, redox potential, salinity or any chemical substance or waste that may have a detrimental impact on the structural integrity of buildings or other structures.” Objectives for these key indicators have been sourced from Australian Standard 2159–2009 Piling Design and Installation. The potential for organic compounds (e.g. solvents or petroleum hydrocarbons) to corrode or adversely impact (e.g. permeate) non-metal underground services should also be considered, particularly where saturated concentrations or free phase product are in contact with buildings and/or structures.
Aesthetic	The ERS states the land should not be “offensive to the senses of human beings.” The aesthetic quality of soil is a subjective assessment and typically the land should not: • Appear stained or have starkly contrasting surface colours. • Be odorous (unnatural odour). • Have non-natural features that cause undue noise or sounds. With respect to asbestos containing materials (ACM), Senversa adopts a criterion of ‘no visible ACM’ in surface soils (upper 10 cm).

6.6 Quality Assurance / Quality Control

The data QA/QC procedures were adopted by Senversa to provide a consistent approach to evaluation of whether the data quality objectives of the project have been achieved. The process focused on assessment of the useability of the data in terms of accuracy and reliability in forming conclusions on the condition of the elements of the environment being investigated. The approach was generally based on guidance from the following sources:

- Australian Standard AS4482.1 - Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds (2005).
- NEPC, 2013. National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1): Schedule B3 Guideline on Laboratory Analysis of Potentially Contaminated Soils, Canberra: National Environment Protection Council.
- United States Environmental Protection Agency (USEPA) - Guidance on Systematic Planning Using the Data Quality Objectives Process EPA QA/G-4 (2006).
- USEPA - Guidance on Environmental Data Verification and Data Validation EPA QA/G-8 (2002).

Documentation of the data QA/QC assessment is presented within **Appendix H**. The majority of the results conformed to acceptance criteria and the data was considered to be representative of chemical concentrations in the environmental media sampled and therefore useable for their intended purpose of gaining an understanding of the contamination status of soil at the site.

7.0 Soil Contamination Assessment

7.1 Generalised Soil Profile

The soil profile encountered at the site is summarised in the table below. Borelogs are provided in **Appendix I** with site photographs in **Appendix G**.

Table 7-1: Lithology

Lithology	Approximate Depth Range (m bgl)	Soil Description
Fill	0 – 1.2	Silty Sand, Gravelly Silty sand and Gravel. Some fill soil present on site may potentially be reworked natural soil from the adjacent quarry.
Natural	0 – 1.5	Clayey Sand, Gravelly Sand, Sand and Sandy Clay.

The following observations were noted during the soil investigation works:

- A fine layer of black plastic was noted at the base of the fill soil at SB02, SB06, SB07 and SB10.
- Trace wood fragments were identified in fill soil at SB02 and SB06.
- No odours or staining were noted during the investigation.

7.2 Soil Analytical Results

The attached **Table 1** provides a summary of the soil laboratory results obtained by Senversa compared to the adopted environmental values for commercial and industrial land use. Laboratory analytical reports are provided in **Appendix J**. The location of soil bores (SB) and surface samples (SS) are presented on **Figure 2**.

All concentrations were below the adopted environmental values except for zinc at one investigation location (SB06). Zinc concentrations at SB06 ranged from 151 mg/kg at 0.5-0.6 m bgl to 190 mg/kg at 1.0 – 1.1 mg/kg exceeding the environmental value of 150 mg/kg.

Detectable concentrations below the adopted environmental values are summarised below:

- Measurable concentrations of total sulfur were detected in fill and natural soil across the site ranging from 0.01 % (SB01) to 8.26 % (SB02).
- Measurable concentrations of inorganics, for which there are no ERV in the NEMP, were detected in fill and natural soil across the site including:
  - Nitrate ranging from 0.1 to 1,860 mg/kg (SB06_1.0-1.1).
  - Total nitrogen ranging from 50 mg/kg to 19,300 mg/kg (SB06_1.0-1.1).
  - Phosphorus ranging from 72 mg/kg to 15,200 mg/kg (SB05_0.1 – 0.2)
- Measurable concentrations of major ions including calcium, magnesium, potassium and sodium.
- Measurable concentrations of metals including cadmium, copper and manganese.

The elevated concentrations of zinc and measurable concentrations of metals, major ions and inorganics (forms of nitrogen and phosphorous) and considered to be associated with the historical use of the site by Pivot Fertiliser.

7.3 Preliminary Waste Classification

The attached **Table 2** provides a summary of the soil laboratory results obtained by Senversa compared to Waste Disposal Categories – Characteristic Thresholds.

Based on the analytical results, the fill soil at the site would be provisionally categorised as Category D Contaminated Soil due to elevated concentrations of cadmium in fill soil at SB02 and SB05. Impacts to Environmental Values of Land

As discussed in **Section 7.3** above, all concentrations of chemical analytes in analysed soil samples were below the adopted ecological and human health assessment criteria with the exception of zinc at one investigation location.

Table 7-2 below summarises the potential risk posed by identified soil contamination to the protected environmental values of land under the current (commercial / industrial) land use

Table 7-2: Risks to Protected Environmental Values for Land

Environmental Value	Environmental Value Potentially Precluded (Y/N)	Analytes Exceeding Objectives	Potential Unacceptable Risk for ongoing Commercial/Industrial use?
Maintenance of Ecosystems (Highly modified)	Yes	Zinc	No In the context of the l**ocalised** zinc concentration, the future use of the site (quarry) the highly modified nature of the site, surface and shallow fill soils are not considered to pose an unacceptable risk.
Human Health	No	-	No No exceedances of human health screening levels were recorded for soils at the site.
Buildings & Structures	-	-	No pH and sulfate were not analysed as part of this scope of works therefor the assessment against buildings and structures cannot be completed. However, the known geology in the area is not known to be corrosive, nor are the inorganics assessed. Therefore, the risk is considered low.
Aesthetics	No	-	No Although fill soil is present at the site, only minor anthropogenic material (trace plastic and wood) was identified with no odours or staining.

7.4 Duty to Notify

As detailed in **Section 6.5** above, the ***duty to notify*** of contaminated land came into effect on 1 July 2021 which requires certain types of contamination to be reported to the EPA. Although elevated concentrations of zinc were identified above the adopted environmental values, the contamination is considered exempt from notification as the concentrations are below the human health values for the current and proposed future land use as detailed in Section 3 of EPA Publication 2008.1. Further, the elevated inorganic indicators (forms of nitrogen and phosphorous) are not listed in Schedule B1 of the NEMP and therefore are not considered in the regulations as prescribed notifiable contamination.

8.0 Conclusions and Recommendations

The key findings of the PSI with limited soil investigation are as follows:

- The site was used by Pivot Fertiliser from the early 1980s to the early 2000s. It is unknown exactly how Pivot used the site however evidence of fertiliser product stockpiling was identified from historical photographs.
- The desktop review and site inspection did not identify any other significant potential sources of contamination other than the use of the site by Pivot Fertiliser.
- Fill soil across the site ranged from 0.0 m to 1.2 m thick and comprised Silty Sand, Gravelly Silty Sand, and Gravel. A black plastic lining was identified below the fill soil at SB02, SB06, SB07 and SB10.
- Soil analytical results identified all concentrations were below the adopted environmental values except for zinc at one investigation location (SB06). Zinc concentrations at SB06 ranged from 151 mg/kg at 0.5-0.6 m bgl to 190 mg/kg at 1.0 – 1.1 mg/kg exceeding the environmental value of 150 mg/kg.
- Measurable concentrations of inorganics, major ions and metals were identified in fill and natural soil across the site below the adopted environmental values. All measurable concentrations are likely associated with the storage of fertiliser at the site. The presence of elevated nitrogen and phosphorous in soil represents a risk to surface waters at the site and further investigation should be considered to assess the potential for site and downstream impact in surface waters.
- Fill soil at the site would be provisionally categorised as Category D Contaminated Soil for off-site disposal due to elevated concentrations of cadmium.
- The identified soil contamination does not meet the threshold triggers of prescribed notifiable contamination.
- It is recommended that a Soil Management Plan (SMP) be developed to manage the impacted material identified on-site that will become surplus during future quarry extension works. This should include development of a suitable on-site management strategy. This would likely comprise segregation and stockpiling of the impacted soil within the site boundary and capping of the stockpile with a clay-rich soil cover and vegetation cover system to minimise rainwater infiltration.

9.0 Principles and Limitations of Investigation

The investigation works herein are intended to develop and present sound, scientifically valid data concerning actual site conditions. Senversa does not seek or purport to provide legal or business advice.

The following principles are an integral part of site contamination assessment practices and are intended to be referred to in resolving any ambiguity or exercising such discretion as is accorded the user or site assessor.

Table 9-1: Summary of General Principles and Limitations

Area	Field Observations and Analytical Results
Elimination of Uncertainty	Some uncertainty is inherent in all site investigations. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population or area. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty.
Failure to Detect	Even when site investigation work is executed competently and in accordance with the appropriate Australian guidance, such as the National Environmental Protection (Assessment of Site Contamination) Amendment Measure ('the NEPM'), it must be recognised that certain conditions present especially difficult target analyte detection problems. Such conditions may include, but are not limited to, complex geological settings, unusual or generally poorly understood behaviour and fate characteristics of certain substances, complex, discontinuous, random, or heterogeneous distributions of existing target analytes, physical impediments to investigation imposed by the location of services, structures and other man-made objects, and the inherent limitations of assessment technologies.
Limitations of Information	The effectiveness of any site investigation may be compromised by limitations or defects in the information used to define the objectives and scope of the investigation, including inability to obtain information concerning historic site uses or prior site assessment activities despite the efforts of the user and assessor to obtain such information.
Chemical Analysis Error	Chemical testing methods have inherent uncertainties and limitations. Senversa routinely seeks to require the laboratory to report any potential or actual problems experienced, or non-routine events which may have occurred during the testing, so that such problems can be considered in evaluating the data.
Level of Assessment	The investigation herein should not be considered to be an exhaustive assessment of environmental conditions on a property. There is a point at which the effort of information obtained and the time required to obtain it outweigh the benefit of the information gained and, in the context of private transactions and contractual responsibilities, may become a material detriment to the orderly conduct of business. If the presence of target analytes is confirmed on a property, the extent of further assessment is a function of the degree of confidence required and the degree of uncertainty acceptable in relation to the objectives of the assessment.
Comparison with Subsequent Inquiry	The justification and adequacy of the investigation findings in light of the findings of a subsequent inquiry should be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made.
Data Useability	Investigation data generally only represent the site conditions at the time the data were generated. Therefore, the usability of data collected as part of this investigation may have a finite lifetime depending on the application and use being made of the data. In all respects, a future reader of this report should evaluate whether previously generated data are appropriate for any subsequent use beyond the original purpose for which they were collected or are otherwise subject to lifetime limits imposed by other laws, regulations or regulatory policies.

Area	Field Observations and Analytical Results

Nature of Advice The investigation works herein are intended to develop and present sound, scientifically valid data concerning actual site conditions. Senversa does not seek or purport to provide legal or business advice.

Specific uncertainties and limitations noted for this investigation are as follows:

- The scope of work performed as part of this assessment may not be appropriate to satisfy the needs of any other person. Any other person's use of, or reliance on, the findings, conclusions, recommendations or any other material presented herein, is at that person's sole risk.
- The conclusions drawn in this assessment are based on current legislation, regulations and guidelines. Specific management strategies developed may require regulatory approvals prior to the commencement of works.

10.0 References

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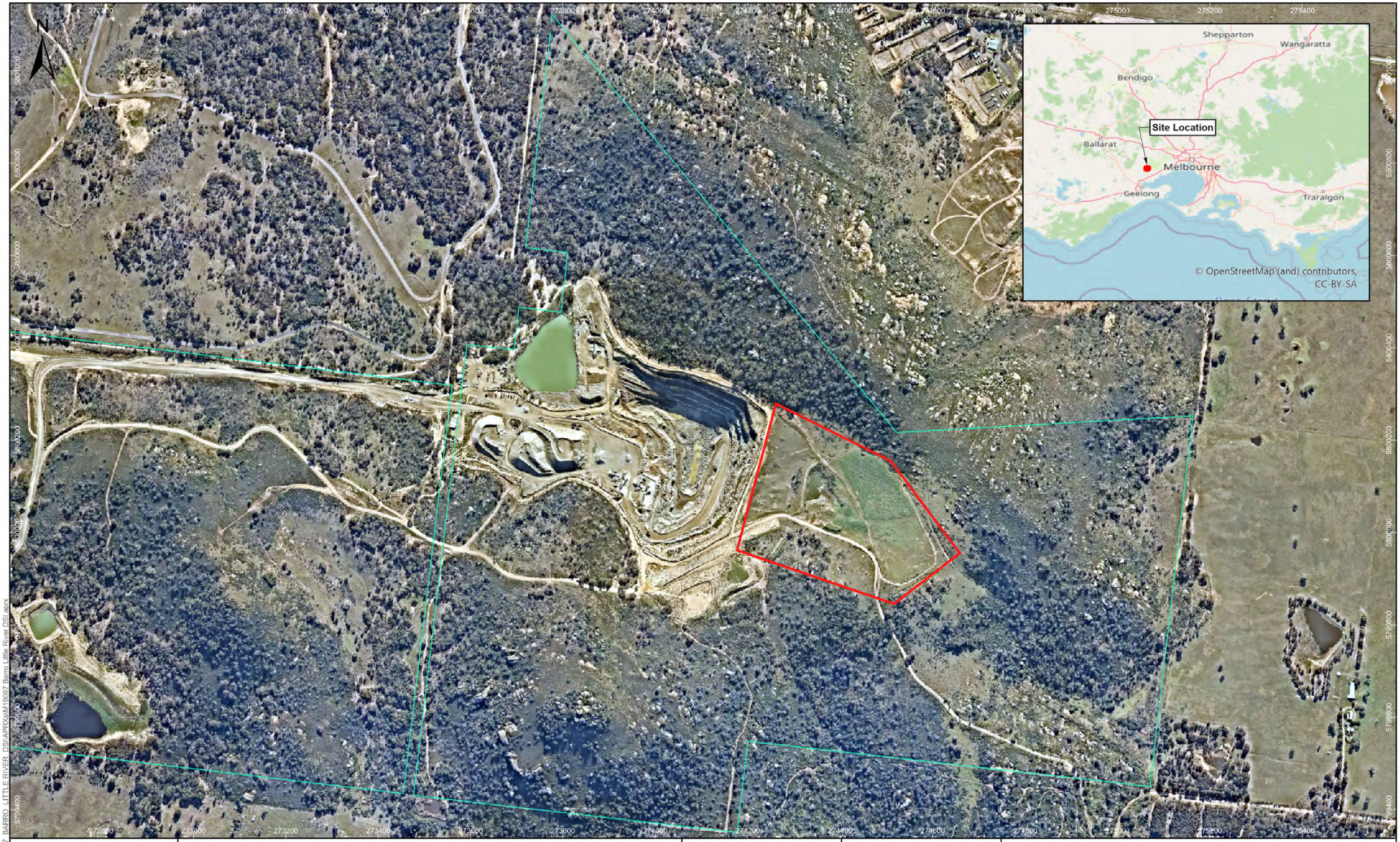
Figures



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Legend

- Site Boundary
- Property Boundary

Notes:
Aerial Imagery (21/05/2021) © Nearmap

Created:	J. Prasad	Date:	5/08/2021
Reviewed:	L. Trickey	Revision:	0
Approved:	XXX	Scale:	1:7,500 (A3)
File:	M119067_002_F001_Site Location		

0 50 100 200 300 400 Metres

Coordinate System: GDA 1994 MGA Zone 55

Figure No: 1

Title: Site Location

Project: Preliminary Site Investigation

Location: 250 Drysdale Road, Little River VIC, Australia

Client: Barro Group Pty Ltd

Legend

- Site Boundary
- Property Boundary
- Sample Location
- Historical Sample Location

Notes:
Aerial Imagery (21/05/2021) © Nearmap

Created:	J. Prasad	Date:	26/08/2021
Reviewed:	L. Trickey	Revision:	0
Approved:	XXX	Scale:	1:2,000 (A3)
File:	M119067_002_F002_Sample Locations		

0 10 20 40 60 80 100 Metres

Coordinate System: GDA 1994 MGA Zone 55

Figure No: 2

Title: Sample Location Plan

Project: Preliminary Site Investigation

Location: 250 Drysdale Road, Little River VIC, Australia

Client: Barro Group Pty Ltd

Path: S:\01_Jobs\3.VIC_Jobs\M119067_BARRO_LITTLE RIVER_DSI\APRX\M119067 Barro Little River DSI.aprx

Tables

Table 1: Soil Analytical Results vs Adopted Environmental Values
M19067
Preliminary Site Investigation
Part of 250 Drysdale Road, Little River

				Location Code	SB01				SB02				SB03				SB04			
				Field ID	SB01_0.1-0.2	SB01_0.5-0.6	SB01_0.9-1.0	SB01_1.1-1.2	SB02_0.1-0.2	SB02_0.5-0.6	SB02_0.9-1.0	SB02_1.9-2.0	SB03_0.1-0.2	SB03_0.5-0.6	SB03_0.9-1.0	SB03_1.4-2.0	SB04_0.1-0.2	QC01	QC02	SB04_0.5-0.6
				Date	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021
				Sample Type	Fill	Fill	Fill	Fill	Normal	Fill	Fill	Natural	Fill	Fill	Natural	Natural	Fill	Field_D	Interlab_D	Natural
				Lab Report No.	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	816742	EM2115737
	Unit	EQL	NEPC 2013 - Human Health Setting 'D' - Commercial / Industrial	NEPC 2013 - Maintenance of Ecosystems - Commercial /																
NA																				
Sulfur - Total as S (LECO)	%	0.01			0.01	0.03	<0.01	0.03	0.16	8.26	0.03	0.01	0.03	0.32	0.08	0.03	0.01	0.02	-	0.02
Physical Parameters																				
Moisture Content	%	1			10.3	13.4	2.9	1.8	8.7	15.2	3.8	3.0	5.7	15.7	8.4	7.0	3.6	4.6	4.2	9.5
Inorganics																				
Ammonia (as N)	mg/kg	5			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	5.9	<20
Nitrate (as N)	mg/kg	0.1	1,900,000[#1]		0.8	0.3	0.4	0.2	<0.1	3.0	17.4	1.0	12.2	389	64.9	15.1	0.3	0.3	<5	14.7
Nitrite (as N)	mg/kg	0.1	120,000[#1]		0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<5	2.3
Total Oxidised Nitrogen (as N)	mg/kg	0.1			1.2	0.3	0.4	0.2	<0.1	3.0	17.4	1.2	12.3	389	64.9	15.1	0.3	0.3	-	17.0
Total Kjeldahl Nitrogen	mg/kg	10			150	160	50	60	10,200	330	220	60	410	480	240	40	140	480	150	240
Total Nitrogen (as N)	mg/kg	20			150	160	50	60	10,200	330	240	60	420	870	300	60	140	480	-	260
Phosphorus (as P)	mg/kg	2			72	91	96	105	3,930	3,830	128	92	166	109	126	207	194	116	45	108
Ortho-phosphate (as P)	mg/kg	0.1			0.9	0.2	0.2	<0.1	4.6	0.2	1.8	0.4	16.8	3.5	2.4	0.1	0.1	<0.1	<10	8.6
Sulfur (as S)	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	-
Major Ions																				
Calcium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	620	-
Calcium (filtered)	mg/kg	5			50	<10	<10	<10	3,480	3,500	70	20	20	3,660	320	30	30	110	-	110
Magnesium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,600	-
Magnesium (filtered)	mg/kg	5			30	40	40	20	100	230	50	50	10	690	240	50	10	20	-	160
Potassium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,200	-
Potassium (filtered)	mg/kg	5			20	20	<10	10	600	1,730	210	30	160	2,330	980	130	20	30	-	80
Sodium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	-
Sodium (filtered)	mg/kg	5			70	490	140	130	230	500	180	210	110	930	560	310	30	40	-	250
Metals																				
Boron	mg/kg	10	300,000[#2]		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<10	<50
Cadmium	mg/kg	0.4	900[#2]		<1	<1	<1	<1	2	8	<1	<1	<1	1	<1	<1	<1	<1	<0.4	<1
Copper	mg/kg	5	240,000[#2]	95[#3]	<5	<5	<5	5	14	6	<5	6	<5	19	14	19	6	5	10	<5
Manganese	mg/kg	5	60,000[#2]		19	69	233	313	228	193	22	259	110	146	172	412	149	174	200	64
Molybdenum	mg/kg	2	5,800[#1]		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2
Zinc	mg/kg	5	400,000[#2]	150[#3]	<5	15	38	49	108	54	<5	41	8	122	32	65	19	19	30	11

Comments
#1 USEPA RSLs (May 2020 Update) - Industrial.
#2 NEPC (2013) - HIL 'D'.
#3 NEPC (2013) EIL - Commercial and Industrial. Initial screening value applicable to all aged soils (see text). Derive site-specific value if contamination is fresh (<2 years) or if EILs are exceeded.

Table 1: Soil Analytical Results vs Adopted Environmental Values
M19067
Preliminary Site Investigation
Part of 250 Drysdale Road, Little River

				Location Code	SB05			SB06			SB07						SB08				SB09
				Field ID	SB05_0.1-0.2	SB05_0.5-0.6	SB05_1.1-1.2	SB06_0.1-0.2	SB06_0.5-0.6	SB06_1.0-1.1	SB07_0.1-0.2	SB07_0.5-0.6	QC03	QC04	SB07_0.9-1.0	SB07_1.5-1.5	SB08_0.1-0.2	SB08_0.5-0.6	SB08_1.0-1.1	SB09_0.0-0.1
				Date	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021
				Sample Type	Fill	Fill	Natural	Fill	Fill	Natural	Fill	Fill	Field_D	Interlab_D	Natural	Natural	Fill	Natural	Natural	Fill
				Lab Report No.	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	816742	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737
	Unit	EQL	NEPC 2013 - Human Health Setting 'D' - Commercial / Industrial	NEPC 2013 - Maintenance of Ecosystems - Commercial /																
NA																				
Sulfur - Total as S (LECO)	%	0.01			1.20	5.13	0.03	0.04	0.30	0.93	3.36	4.11	0.86	-	0.26	0.03	0.04	0.02	0.01	1.08
Physical Parameters																				
Moisture Content	%	1			14.0	17.1	7.4	8.8	15.8	35.5	16.8	8.8	8.1	9.9	14.2	7.2	4.8	3.8	2.6	13.7
Inorganics																				
Ammonia (as N)	mg/kg	5			<20	<20	<20	<20	20	240	<20	<20	<20	<5	<20	<20	<20	<20	<20	<20
Nitrate (as N)	mg/kg	0.1	1,900,000[#1]		23.8	<0.1	1.7	9.8	467	1,860	5.0	0.1	0.1	<5	0.4	0.2	2.9	0.8	0.3	0.1
Nitrite (as N)	mg/kg	0.1	120,000[#1]		18.9	0.2	<0.1	0.4	3.2	0.3	0.2	<0.1	<0.1	<5	0.2	<0.1	0.1	0.4	<0.1	<0.1
Total Oxidised Nitrogen (as N)	mg/kg	0.1			42.7	0.2	1.7	10.2	470	1,860	5.2	0.1	0.1	-	0.6	0.2	3.0	1.2	0.3	0.1
Total Kjeldahl Nitrogen	mg/kg	10			1,350	180	110	1,160	15,500	17,400	220	260	220	880	180	150	290	150	100	540
Total Nitrogen (as N)	mg/kg	20			1,390	180	110	1,170	16,000	19,300	220	260	220	-	180	150	290	150	100	540
Phosphorus (as P)	mg/kg	2			15,200	9,180	1,520	2,200	3,280	3,510	2,630	3,850	2,240	4,200	785	400	504	168	297	8,570
Ortho-phosphate (as P)	mg/kg	0.1			4.4	7.1	54.0	18.8	9.3	74.7	16.2	50.8	66.9	39	41.9	0.2	1.2	1.1	0.5	274
Sulfur (as S)	mg/kg	5			-	-	-	-	-	-	-	-	-	39,000	-	-	-	-	-	-
Major Ions																				
Calcium	mg/kg	5			-	-	-	-	-	-	-	-	-	63,000	-	-	-	-	-	-
Calcium (filtered)	mg/kg	5			3,930	3,910	40	160	3,360	5,950	3,970	3,720	3,570	-	60	20	130	30	<10	4,060
Magnesium	mg/kg	5			-	-	-	-	-	-	-	-	-	800	-	-	-	-	-	-
Magnesium (filtered)	mg/kg	5			180	340	50	20	540	1,940	170	60	90	-	20	<10	20	20	<10	20
Potassium	mg/kg	5			-	-	-	-	-	-	-	-	-	1,500	-	-	-	-	-	-
Potassium (filtered)	mg/kg	5			530	1,220	330	160	1,280	6,820	230	220	310	-	210	100	60	30	10	80
Sodium	mg/kg	5			-	-	-	-	-	-	-	-	-	390	-	-	-	-	-	-
Sodium (filtered)	mg/kg	5			150	850	300	60	440	2,390	70	70	110	-	80	80	30	30	10	80
Metals																				
Boron	mg/kg	10	300,000[#2]		<50	<50	<50	<50	<50	<50	<50	<50	<50	<10	<50	<50	<50	<50	<50	<50
Cadmium	mg/kg	0.4	900[#2]		5	4	<1	<1	<1	<1	<1	2	<1	1.8	<1	<1	<1	<1	<1	2
Copper	mg/kg	5	240,000[#2]	95[#3]	29	<5	<5	<5	24	79	<5	<5	<5	<5	9	23	9	8	8	<5
Manganese	mg/kg	5	60,000[#2]		278	108	19	174	233	178	207	96	65	71	302	334	404	267	306	72
Molybdenum	mg/kg	2	5,800[#1]		<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2	<2
Zinc	mg/kg	5	400,000[#2]	150[#3]	44	25	9	22	151	190	17	19	7	15	40	51	44	34	42	13

Comments
#1 USEPA RSLs (May 2020 Update) - Industrial.
#2 NEPC (2013) - HIL 'D'.
#3 NEPC (2013) EIL - Commercial and Industrial. Initial screening value applicable to all aged soils (se

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M19067
Preliminary Site Investigation
Part of 250 Drysdale Road, Little River

				Location Code	SB10			SS01	SS02	SS03	SS04	SS05
				Field ID	SB10_0.1-0.2	SB10_0.5-0.6	SB10_0.9-1.0	SS01	SS02	SS03	SS04	SS05
				Date	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021
				Sample Type	Fill	Natural	Natural	Natural	Fill	Fill	Fill	Fill
				Lab Report No.	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737
	Unit	EQL	NEPC 2013 - Human Health Setting 'D' - Commercial / Industrial	NEPC 2013 - Maintenance of Ecosystems - Commercial /								
NA												
Sulfur - Total as S (LECO)	%	0.01			3.12	0.07	0.27	0.01	0.04	0.01	0.02	<0.01
Physical Parameters												
Moisture Content	%	1			20.3	7.9	7.3	<1.0	18.4	5.4	2.5	2.6
Inorganics												
Ammonia (as N)	mg/kg	5			<20	<20	<20	<20	<20	<20	<20	<20
Nitrate (as N)	mg/kg	0.1	1,900,000[#1]		<0.1	0.1	0.3	10.6	0.8	2.2	0.2	0.1
Nitrite (as N)	mg/kg	0.1	120,000[#1]		<0.1	<0.1	<0.1	0.5	0.2	0.7	<0.1	<0.1
Total Oxidised Nitrogen (as N)	mg/kg	0.1			<0.1	0.1	0.3	11.1	1.0	2.9	0.2	0.1
Total Kjeldahl Nitrogen	mg/kg	10			340	180	340	340	990	90	420	<20
Total Nitrogen (as N)	mg/kg	20			340	180	340	350	990	90	420	<20
Phosphorus (as P)	mg/kg	2			8,460	408	216	109	199	113	168	69
Ortho-phosphate (as P)	mg/kg	0.1			145	18.9	8.6	0.6	2.4	1.1	5.0	0.1
Sulfur (as S)	mg/kg	5			-	-	-	-	-	-	-	-
Major Ions												
Calcium	mg/kg	5			-	-	-	-	-	-	-	-
Calcium (filtered)	mg/kg	5			4,180	200	40	10	30	20	40	<10
Magnesium	mg/kg	5			-	-	-	-	-	-	-	-
Magnesium (filtered)	mg/kg	5			60	40	10	<10	20	60	<10	<10
Potassium	mg/kg	5			-	-	-	-	-	-	-	-
Potassium (filtered)	mg/kg	5			310	220	240	20	50	30	20	<10
Sodium	mg/kg	5			-	-	-	-	-	-	-	-
Sodium (filtered)	mg/kg	5			110	60	90	20	50	90	10	20
Metals												
Boron	mg/kg	10	300,000[#2]		<50	<50	<50	<50	<50	<50	<50	<50
Cadmium	mg/kg	0.4	900[#2]		3	<1	<1	<1	<1	<1	<1	<1
Copper	mg/kg	5	240,000[#2]	95[#3]	5	<5	<5	<5	<5	<5	<5	<5
Manganese	mg/kg	5	60,000[#2]		90	66	67	108	48	56	40	19
Molybdenum	mg/kg	2	5,800[#1]		<2	<2	<2	<2	<2	<2	<2	<2
Zinc	mg/kg	5	400,000[#2]	150[#3]	24	5	7	9	6	8	<5	<5

Comments
#1 USEPA RSLs (May 2020 Update) - Industrial.
#2 NEPC (2013) - HIL 'D'.
#3 NEPC (2013) EIL - Commercial and Industrial. Initial screening value applicable to all aged soils (s

Table 2: Soil Analytical Results vs Waste Disposal Categories - Characteristic Thresholds
M19067
Preliminary Site Investigation
Part of 250 Drysdale Road, Little River

						Location Code	SB01_0.1-0.2	SB01_0.5-0.6	SB01_0.9-1.0	SB01_1.1-1.2	SB02_0.1-0.2	SB02_0.5-0.6	SB02_0.9-1.0	SB02_1.9-2.0	SB03_0.1-0.2	SB03_0.5-0.6	SB03_0.9-1.0	SB03_1.4-2.0
						Field ID	SB01_0.1-0.2	SB01_0.5-0.6	SB01_0.9-1.0	SB01_1.1-1.2	SB02_0.1-0.2	SB02_0.5-0.6	SB02_0.9-1.0	SB02_1.9-2.0	SB03_0.1-0.2	SB03_0.5-0.6	SB03_0.9-1.0	SB03_1.4-2.0
						Date	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021
						Sample Type	Fill	Fill	Fill	Fill	Normal	Fill	Fill	Natural	Fill	Fill	Natural	Natural
						Lab Report No.	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737
	Unit	EQL	Fill material upper limit (TC)	Waste disposal category D upper limit (TC)	Waste disposal category C upper limit (TC)	Waste disposal category B upper limit (TC)													
NA																			
Sulfur - Total as S (LECO)	%	0.01					0.01	0.03	<0.01	0.03	0.16	8.26	0.03	0.01	0.03	0.32	0.08	0.03
Physical Parameters																			
Moisture Content	%	1					10.3	13.4	2.9	1.8	8.7	15.2	3.8	3.0	5.7	15.7	8.4	7.0
Inorganics																			
Ammonia (as N)	mg/kg	5					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Nitrate (as N)	mg/kg	0.1					0.8	0.3	0.4	0.2	<0.1	3.0	17.4	1.0	12.2	389	64.9	15.1
Nitrite (as N)	mg/kg	0.1					0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	0.3	<0.1	<0.1
Total Oxidised Nitrogen (as N)	mg/kg	0.1					1.2	0.3	0.4	0.2	<0.1	3.0	17.4	1.2	12.3	389	64.9	15.1
Total Kjeldahl Nitrogen	mg/kg	10					150	160	50	60	10,200	330	220	60	410	480	240	40
Total Nitrogen (as N)	mg/kg	20					150	160	50	60	10,200	330	240	60	420	870	300	60
Phosphorus (as P)	mg/kg	2					72	91	96	105	3,930	3,830	128	92	166	109	126	207
Ortho-phosphate (as P)	mg/kg	0.1					0.9	0.2	0.2	<0.1	4.6	0.2	1.8	0.4	16.8	3.5	2.4	0.1
Sulfur (as S)	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Major Ions																			
Calcium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Calcium (filtered)	mg/kg	5					50	<10	<10	<10	3,480	3,500	70	20	20	3,660	320	30
Magnesium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (filtered)	mg/kg	5					30	40	40	20	100	230	50	50	10	690	240	50
Potassium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Potassium (filtered)	mg/kg	5					20	20	<10	10	600	1,730	210	30	160	2,330	980	130
Sodium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Sodium (filtered)	mg/kg	5					70	490	140	130	230	500	180	210	110	930	560	310
Metals																			
Boron	mg/kg	10		15,000	15,000	60,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cadmium	mg/kg	0.4	3	100	100	400	<1	<1	<1	<1	2	8	<1	<1	<1	1	<1	<1
Copper	mg/kg	5	100	5,000	5,000	20,000	<5	<5	<5	5	14	6	<5	6	<5	19	14	19
Manganese	mg/kg	5					19	69	233	313	228	193	22	259	110	146	172	412
Molybdenum	mg/kg	2	40	1,000	1,000	4,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc	mg/kg	5	200	35,000	35,000	140,000	<5	15	38	49	108	54	<5	41	8	122	32	65

Table 2: Soil Analytical Results vs Waste Disposal Categories - Characteristic Thresholds
M19067
Preliminary Site Investigation
Part of 250 Drysdale Road, Little River

Location Code							SB04_0.1-0.2			SB04_0.5-0.6	SB05_0.1-0.2	SB05_0.5-0.6	SB05_1.1-1.2	SB06_0.1-0.2	SB06_0.5-0.6	SB06_1.0-1.1	SB07_0.1-0.2	SB07_0.5-0.6			SB07_0.9-1.0	SB07_1.5-1.5
Field ID							SB04_0.1-0.2	QC01	QC02	SB04_0.5-0.6	SB05_0.1-0.2	SB05_0.5-0.6	SB05_1.1-1.2	SB06_0.1-0.2	SB06_0.5-0.6	SB06_1.0-1.1	SB07_0.1-0.2	SB07_0.5-0.6	QC03	QC04	SB07_0.9-1.0	SB07_1.5-1.5
Date							10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021
Sample Type							Fill	Field_D	Interlab_D	Natural	Fill	Fill	Natural	Fill	Fill	Natural	Fill	Fill	Field_D	Interlab_D	Natural	Natural
Lab Report No.							EM2115737	EM2115737	816742	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	816742	EM2115737	EM2115737
	Unit	EQL	Fill material upper limit (TC)	Waste disposal category D upper limit (TC)	Waste disposal category C upper limit (TC)	Waste disposal category B upper limit (TC)																
NA																						
Sulfur - Total as S (LECO)	%	0.01					0.01	0.02	-	0.02	1.20	5.13	0.03	0.04	0.30	0.93	3.36	4.11	0.86	-	0.26	0.03
Physical Parameters																						
Moisture Content	%	1					3.6	4.6	4.2	9.5	14.0	17.1	7.4	8.8	15.8	35.5	16.8	8.8	8.1	9.9	14.2	7.2
Inorganics																						
Ammonia (as N)	mg/kg	5					<20	<20	5.9	<20	<20	<20	<20	<20	20	240	<20	<20	<20	<5	<20	<20
Nitrate (as N)	mg/kg	0.1					0.3	0.3	<5	14.7	23.8	<0.1	1.7	9.8	467	1,860	5.0	0.1	0.1	<5	0.4	0.2
Nitrite (as N)	mg/kg	0.1					<0.1	<0.1	<5	2.3	18.9	0.2	<0.1	0.4	3.2	0.3	0.2	<0.1	<0.1	<5	0.2	<0.1
Total Oxidised Nitrogen (as N)	mg/kg	0.1					0.3	0.3	-	17.0	42.7	0.2	1.7	10.2	470	1,860	5.2	0.1	0.1	-	0.6	0.2
Total Kjeldahl Nitrogen	mg/kg	10					140	480	150	240	1,350	180	110	1,160	15,500	17,400	220	260	220	880	180	150
Total Nitrogen (as N)	mg/kg	20					140	480	-	260	1,390	180	110	1,170	16,000	19,300	220	260	220	-	180	150
Phosphorus (as P)	mg/kg	2					194	116	45	108	15,200	9,180	1,520	2,200	3,280	3,510	2,630	3,850	2,240	4,200	785	400
Ortho-phosphate (as P)	mg/kg	0.1					0.1	<0.1	<10	8.6	4.4	7.1	54.0	18.8	9.3	74.7	16.2	50.8	66.9	39	41.9	0.2
Sulfur (as S)	mg/kg	5					-	-	28	-	-	-	-	-	-	-	-	-	-	39,000	-	-
Major Ions																						
Calcium	mg/kg	5					-	-	620	-	-	-	-	-	-	-	-	-	-	63,000	-	-
Calcium (filtered)	mg/kg	5					30	110	-	110	3,930	3,910	40	160	3,360	5,950	3,970	3,720	3,570	-	60	20
Magnesium	mg/kg	5					-	-	4,600	-	-	-	-	-	-	-	-	-	-	800	-	-
Magnesium (filtered)	mg/kg	5					10	20	-	160	180	340	50	20	540	1,940	170	60	90	-	20	<10
Potassium	mg/kg	5					-	-	4,200	-	-	-	-	-	-	-	-	-	-	1,500	-	-
Potassium (filtered)	mg/kg	5					20	30	-	80	530	1,220	330	160	1,280	6,820	230	220	310	-	210	100
Sodium	mg/kg	5					-	-	120	-	-	-	-	-	-	-	-	-	-	390	-	-
Sodium (filtered)	mg/kg	5					30	40	-	250	150	850	300	60	440	2,390	70	70	110	-	80	80
Metals																						
Boron	mg/kg	10		15,000	15,000	60,000	<50	<50	<10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<10	<50	<50
Cadmium	mg/kg	0.4	3	100	100	400	<1	<1	<0.4	<1	5	4	<1	<1	<1	<1	<1	2	<1	1.8	<1	<1
Copper	mg/kg	5	100	5,000	5,000	20,000	6	5	10	<5	29	<5	<5	<5	24	79	<5	<5	<5	<5	9	23
Manganese	mg/kg	5					149	174	200	64	278	108	19	174	233	178	207	96	65	71	302	334
Molybdenum	mg/kg	2	40	1,000	1,000	4,000	<2	<2	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2
Zinc	mg/kg	5	200	35,000	35,000	140,000	19	19	30	11	44	25	9	22	151	190	17	19	7	15	40	51

Table 2: Soil Analytical Results vs Waste Disposal Categories - Characteristic Thresholds
M19067
Preliminary Site Investigation
Part of 250 Drysdale Road, Little River

						Location Code	SB08_0.1-0.2	SB08_0.5-0.6	SB08_1.0-1.1	SB09_0.0-0.1	SB10_0.1-0.2	SB10_0.5-0.6	SB10_0.9-1.0	SS01	SS02	SS03	SS04	SS05
						Field ID	SB08_0.1-0.2	SB08_0.5-0.6	SB08_1.0-1.1	SB09_0.0-0.1	SB10_0.1-0.2	SB10_0.5-0.6	SB10_0.9-1.0	SS01	SS02	SS03	SS04	SS05
						Date	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021
						Sample Type	Fill	Natural	Natural	Fill	Fill	Natural	Natural	Natural	Fill	Fill	Fill	Fill
						Lab Report No.	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737	EM2115737
	Unit	EQL	Fill material upper limit (TC)	Waste disposal category D upper limit (TC)	Waste disposal category C upper limit (TC)	Waste disposal category B upper limit (TC)												
NA																		
Sulfur - Total as S (LECO)	%	0.01					0.04	0.02	0.01	1.08	3.12	0.07	0.27	0.01	0.04	0.01	0.02	<0.01
Physical Parameters																		
Moisture Content	%	1					4.8	3.8	2.6	13.7	20.3	7.9	7.3	<1.0	18.4	5.4	2.5	2.6
Inorganics																		
Ammonia (as N)	mg/kg	5					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Nitrate (as N)	mg/kg	0.1					2.9	0.8	0.3	0.1	<0.1	0.1	0.3	10.6	0.8	2.2	0.2	0.1
Nitrite (as N)	mg/kg	0.1					0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	0.2	0.7	<0.1	<0.1
Total Oxidised Nitrogen (as N)	mg/kg	0.1					3.0	1.2	0.3	0.1	<0.1	0.1	0.3	11.1	1.0	2.9	0.2	0.1
Total Kjeldahl Nitrogen	mg/kg	10					290	150	100	540	340	180	340	340	990	90	420	<20
Total Nitrogen (as N)	mg/kg	20					290	150	100	540	340	180	340	350	990	90	420	<20
Phosphorus (as P)	mg/kg	2					504	168	297	8,570	8,460	408	216	109	199	113	168	69
Ortho-phosphate (as P)	mg/kg	0.1					1.2	1.1	0.5	274	145	18.9	8.6	0.6	2.4	1.1	5.0	0.1
Sulfur (as S)	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Major Ions																		
Calcium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Calcium (filtered)	mg/kg	5					130	30	<10	4,060	4,180	200	40	10	30	20	40	<10
Magnesium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (filtered)	mg/kg	5					20	20	<10	20	60	40	10	<10	20	60	<10	<10
Potassium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Potassium (filtered)	mg/kg	5					60	30	10	80	310	220	240	20	50	30	20	<10
Sodium	mg/kg	5					-	-	-	-	-	-	-	-	-	-	-	-
Sodium (filtered)	mg/kg	5					30	30	10	80	110	60	90	20	50	90	10	20
Metals																		
Boron	mg/kg	10		15,000	15,000	60,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cadmium	mg/kg	0.4	3	100	100	400	<1	<1	<1	2	3	<1	<1	<1	<1	<1	<1	<1
Copper	mg/kg	5	100	5,000	5,000	20,000	9	8	8	<5	5	<5	<5	<5	<5	<5	<5	<5
Manganese	mg/kg	5					404	267	306	72	90	66	67	108	48	56	40	19
Molybdenum	mg/kg	2	40	1,000	1,000	4,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc	mg/kg	5	200	35,000	35,000	140,000	44	34	42	13	24	5	7	9	6	8	<5	<5

Appendix A: Property Planning Report

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

From www.planning.vic.gov.au at 26 July 2021 02:36 PM

PROPERTY DETAILS

Lot and Plan Number:	**Lot 2 PS344713**
Address:	**250 DRYSDALE ROAD LITTLE RIVER 3211**
Standard Parcel Identifier (SPI):	**2\PS344713**
Local Government Area (Council):	**GREATER GEELONG** www.geelongaustralia.com.au
Council Property Number:	**301655 (Part)**
Planning Scheme:	**Greater Geelong** Planning Scheme - Greater Geelong
Directory Reference:	**Vicroads 77 J8**

This parcel is one of 2 parcels comprising the property. For full parcel details get the free Property report at Property Reports

UTILITIES

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

STATE ELECTORATES

Legislative Council:	**WESTERN VICTORIA**
Legislative Assembly:	**LARA**

OTHER

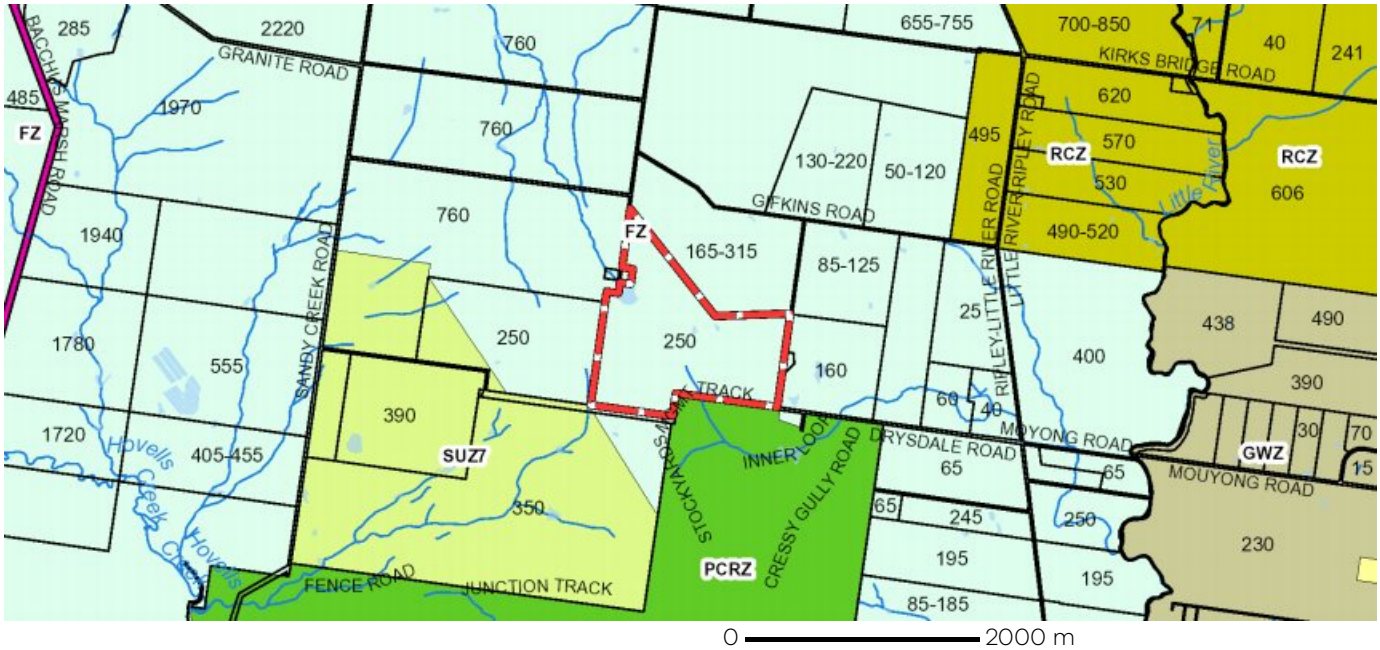
Registered Aboriginal Party:	**Wadawurrung Traditional Owners Aboriginal Corporation**

View location in VicPlan

Planning Zones

FARMING ZONE (FZ)

SCHEDULE TO THE FARMING ZONE (FZ)



FZ - Farming	GWZ - Green Wedge	PCRZ - Public Conservation and Resource
PUZ1 - Public Use-Service and Utility	RCZ - Rural Conservation	RDZ1 - Road-Category 1
SUZ - Special Use	Water area	Water course

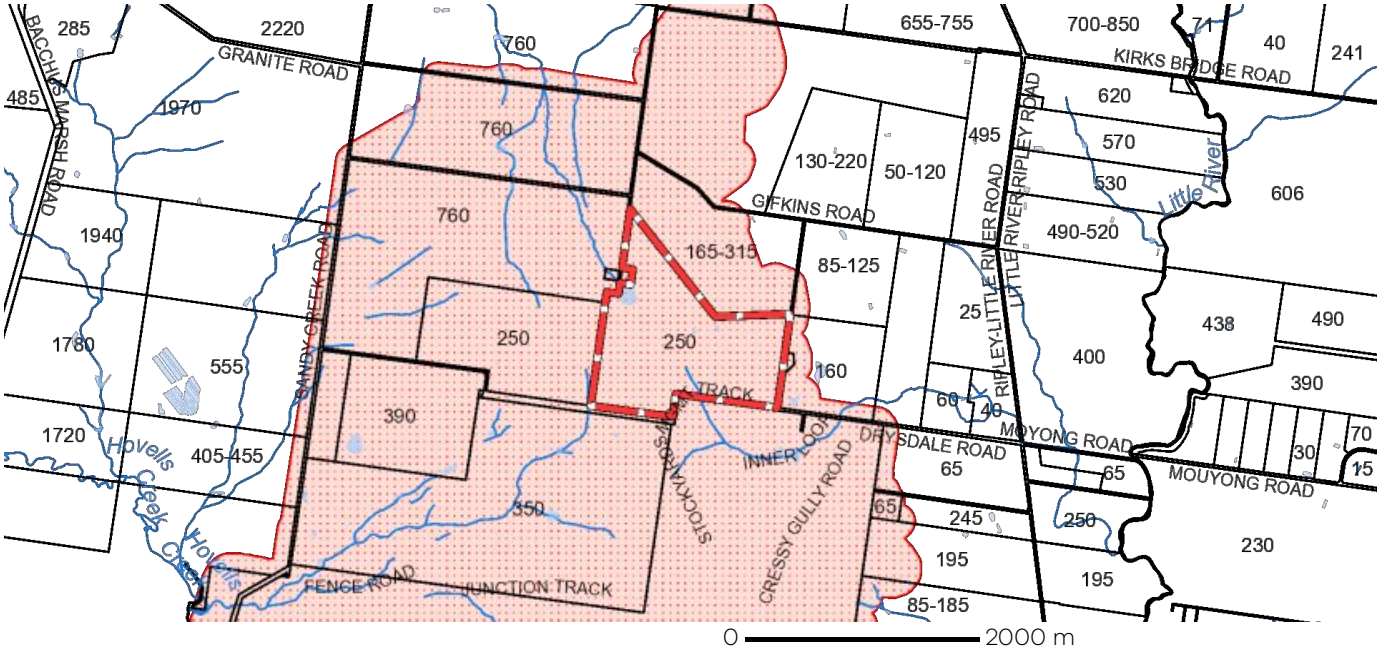
Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Planning Overlays

BUSHFIRE MANAGEMENT OVERLAY (BMO)

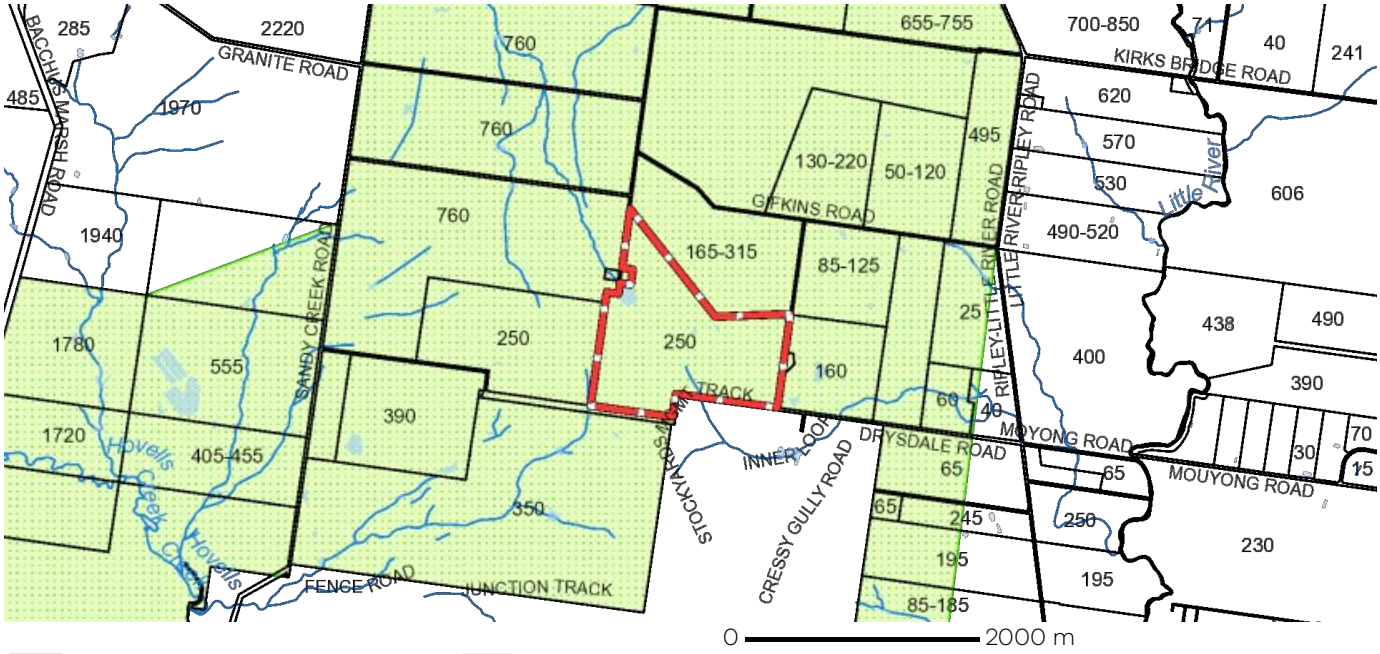


BMO - Bushfire Management **Water area** **Water course**

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

SIGNIFICANT LANDSCAPE OVERLAY (SLO)

SIGNIFICANT LANDSCAPE OVERLAY - SCHEDULE 1 (SLO1)



SLO - Significant Landscape **Water area** **Water course**

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

PLANNING PROPERTY REPORT

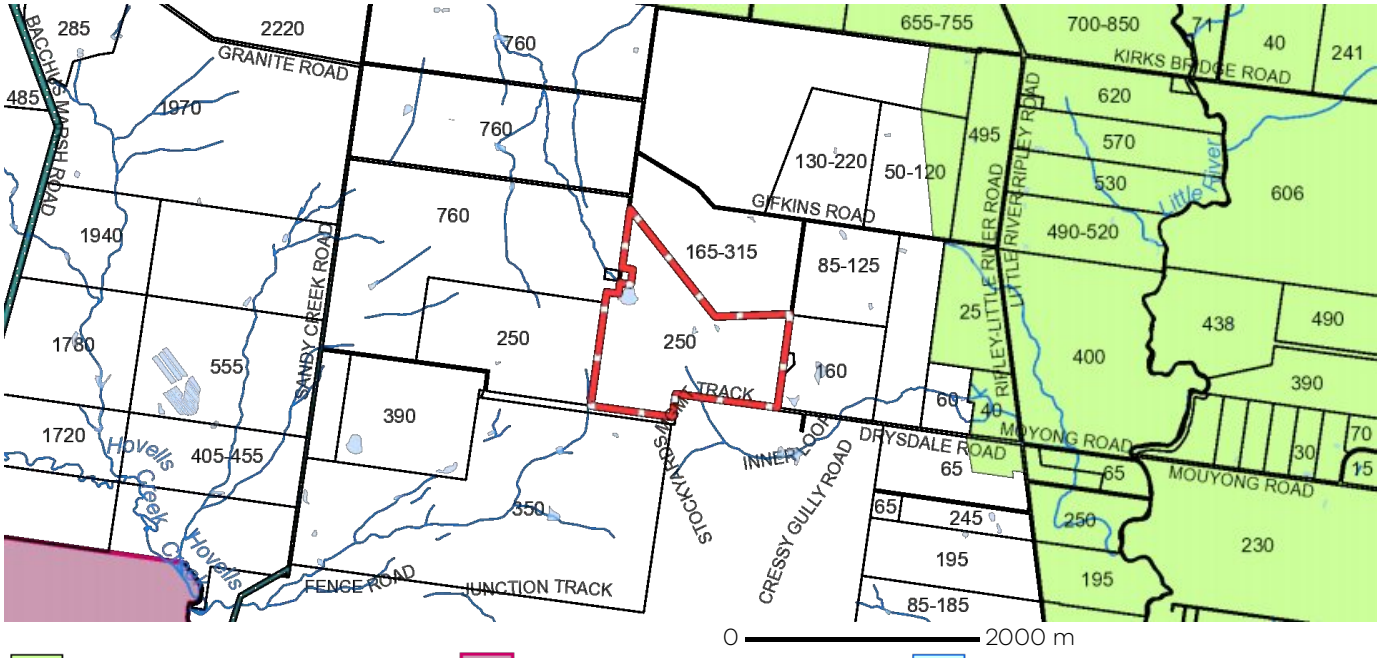
Environment, Land, Water and Planning

Planning Overlays

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
HERITAGE OVERLAY (HO)
LAND SUBJECT TO INUNDATION OVERLAY (LSIO)
PUBLIC ACQUISITION OVERLAY (PAO)
VEGETATION PROTECTION OVERLAY (VPO)



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 parcel 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.

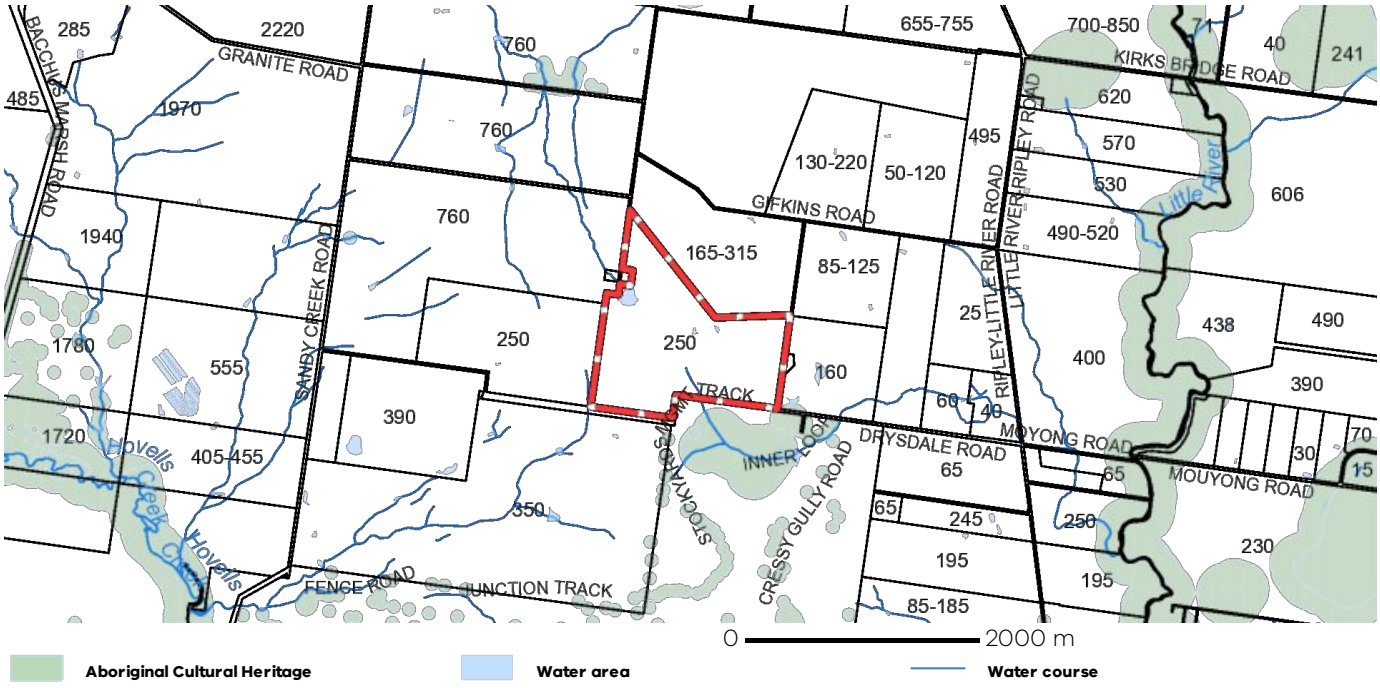
Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

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

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



PLANNING PROPERTY REPORT

Further Planning Information

Planning scheme data last updated on 21 July 2021.

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

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

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

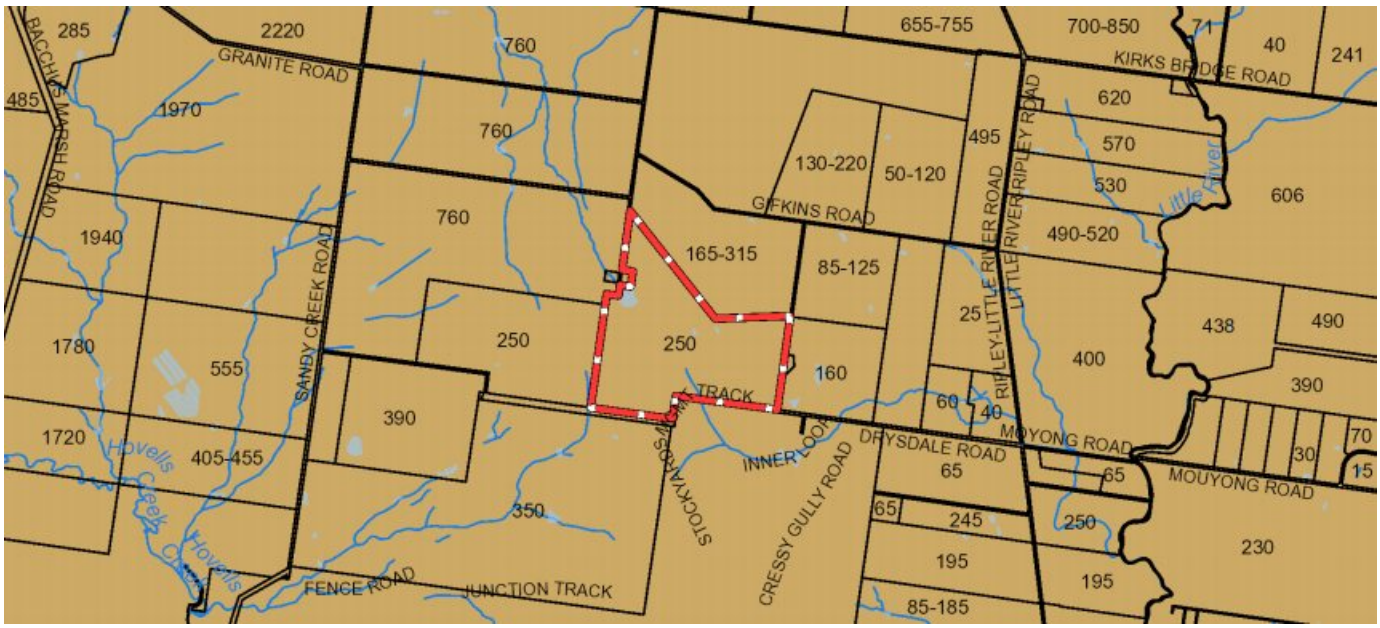
To view planning zones, overlay and heritage information in an interactive format visit https://mapshare.maps.vic.gov.au/vicplan

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

PLANNING PROPERTY REPORT

Designated Bushfire Prone Areas

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



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

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

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

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

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

Native Vegetation

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

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

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

Appendix B: Lotsearch Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: 250 Drysdale Road, Little River, VIC 3211

Date: 29 Jul 2021 08:03:39

Reference: LS022747 EP

Dataset Listing

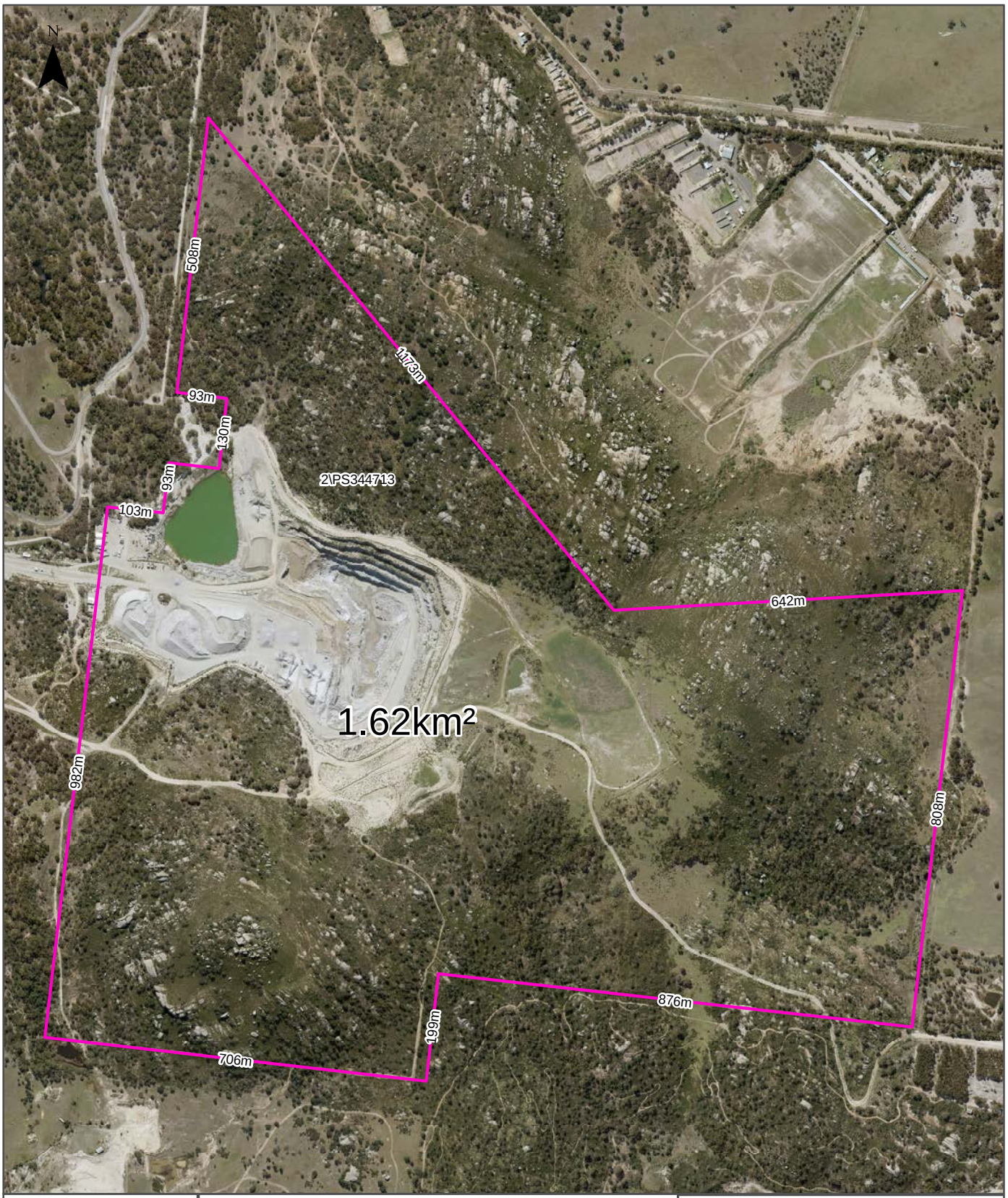
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	19/07/2021	19/07/2021	Monthly	-	-	-	-
Current EPA Priority Sites	Environment Protection Authority (Vic)	01/07/2021	31/05/2021	Monthly	1000	0	0	0
Former EPA Priority Sites & other Remedial Notices	Environment Protection Authority (Vic)	25/01/2021	25/01/2021	Monthly	1000	0	0	0
EPA PFAS Site Investigations	Environment Protection Authority (Vic)	01/07/2021	18/09/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	01/07/2021	01/07/2021	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	01/07/2021	01/07/2021	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	07/07/2021	07/07/2021	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	11/05/2021	11/05/2021	Quarterly	2000	0	0	0
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	22/07/2021	22/07/2021	Monthly	1000	0	0	0
EPA Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	12/07/2021	12/07/2021	Monthly	1000	0	0	0
Current EPA Licensed Activities	Environment Protection Authority (Vic)	22/07/2021	22/07/2021	Monthly	1000	0	0	0
Former EPA Licensed Activities	Environment Protection Authority (Vic)	22/07/2021	22/07/2021	Monthly	1000	1	1	1
EPA Works Approvals	Environment Protection Authority (Vic)	01/07/2021	01/07/2021	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000	0	0	0
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	1000	0	0	0
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	12/08/2020	12/08/2020	Quarterly	1000	0	0	0
EPA Victorian Landfill Register	Environment Protection Authority (Vic)	22/04/2021	25/08/2020	Quarterly	1000	1	1	1
Former Gasworks	Various historical sources collated by Lotsearch	15/08/2017	15/08/2017	Not required	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	15/03/2012	Annually	1000	0	0	0
Historical Business Directories (Premise & Intersection Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	150	0	0	0
Historical Business Directories (Road & Area Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	150	-	0	0
Historical Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	500	0	0	0
Historical Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	500	-	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	31/05/2021	31/05/2021	Quarterly	1000	1	3	28
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	5	-	-

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	16/02/2021	16/02/2021	Quarterly	2000	3	3	9
Groundwater Boreholes Earth Resources Database	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	20/05/2021	17/02/2010	Annually	2000	2	2	9
Groundwater Boreholes Fed Uni	Federation University Australia	21/12/2017	07/01/2014	As required	2000	2	2	8
Historical Mining Activity - Shafts	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	11/05/2021	11/05/2021	Annually	1000	0	0	0
Geological Units 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	3	-	4
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	ABARES	19/05/2017	17/02/2011	As required	1000	1	1	1
Victorian Soil Type Mapping	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	24/08/2017	21/03/2016	Unknown	1000	2	2	4
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Coastal Acid Sulfate Soils	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	28/03/2017	30/03/2011	None planned	1000	0	0	0
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	06/07/2021	30/06/2021	Monthly	1000	1	3	3
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	06/07/2021	30/06/2021	Monthly	1000	2	2	2
Commonwealth Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000	0	0	0
National Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000	0	0	0
Victorian Heritage Register	State Government Victoria - Department of Environment, Land, Water & Planning	03/05/2021	03/05/2021	Quarterly	1000	0	0	0
Cultural Heritage Sensitivity	State Government Victoria - Department of Premier and Cabinet	31/05/2021	31/05/2021	Quarterly	1000	0	2	15
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	03/05/2021	03/05/2021	Quarterly	1000	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	12/07/2021	30/12/2020	Quarterly	1000	1	1	2
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	11/05/2021	05/02/2018	Quarterly	1000	0	0	0
Victorian Coastal Inundation Sea Level Rise	State Government Victoria - Department of Environment, Land, Water & Planning	10/04/2018	24/10/2017	Unknown	1000	0	0	0
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	1000	2	2	5
Ramsar Wetland Areas in Victoria	State Government Victoria - Department of Environment, Land, Water & Planning	25/02/2021	13/03/2019	Annually	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	2	2	5
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	4	4	7

Site Diagram

250 Drysdale Road, Little River, VIC 3211



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 1.62km²

Total Perimeter: 6405m

Scale: 0 50 100 200 300 400 500 Meters

Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

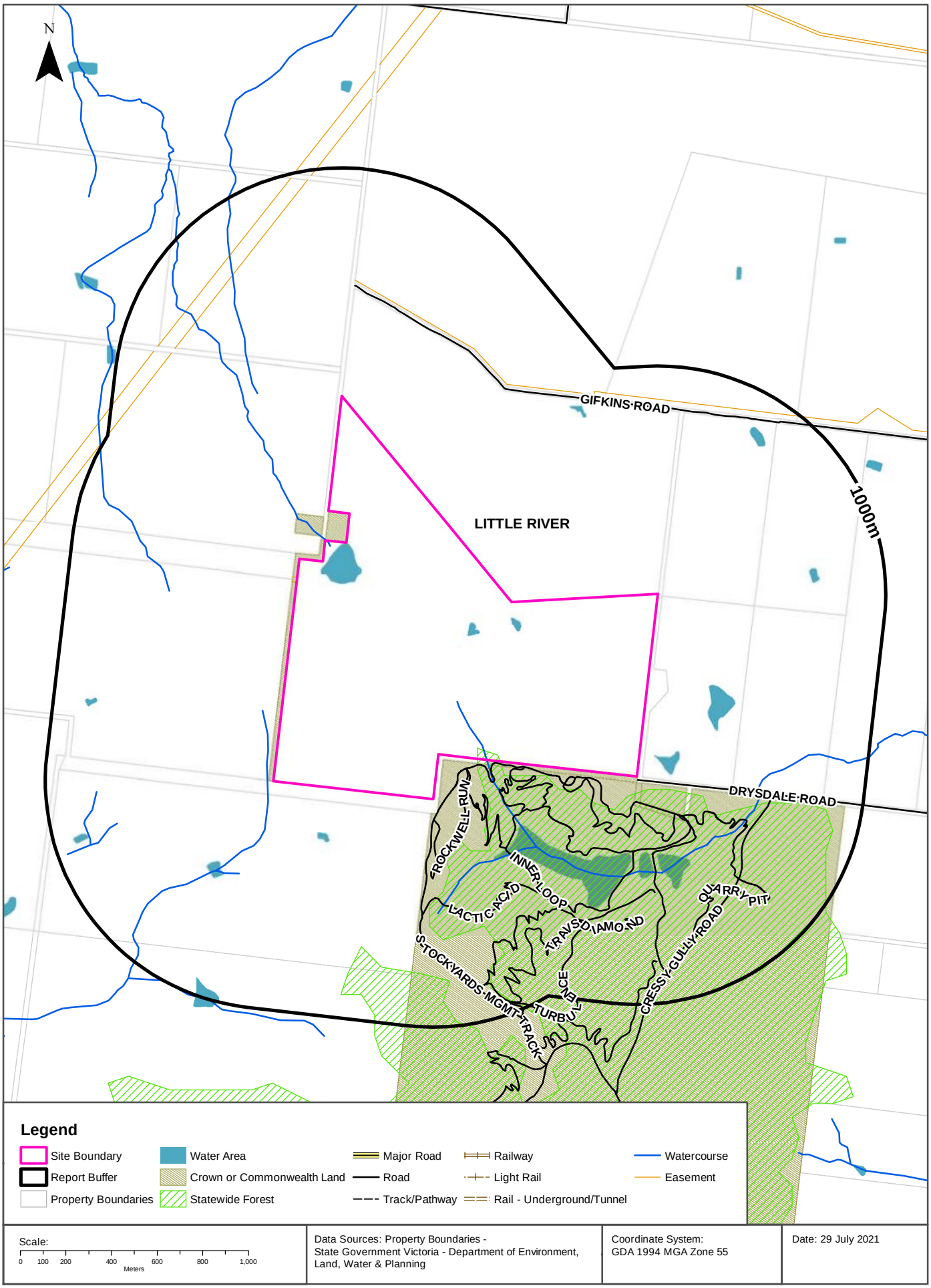
Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System: GDA 1994 MGA Zone 55

Date: 29 July 2021

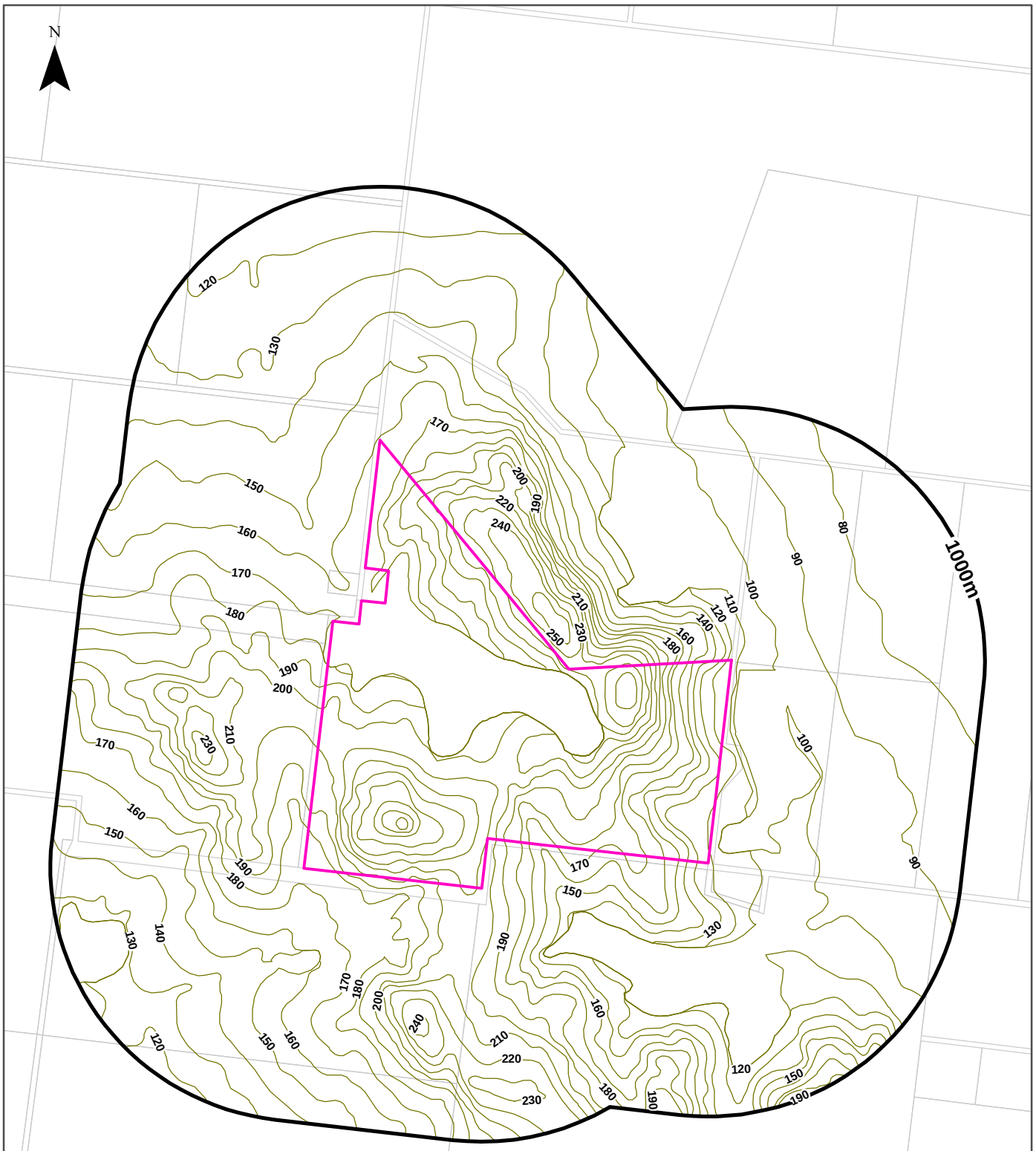
Topographic Data

250 Drysdale Road, Little River, VIC 3211



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

250 Drysdale Road, Little River, VIC 3211



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 1,000 Meters	Data Sources: Property Boundaries - State Government Victoria - Department of Environment, Land, Water & Planning	Coordinate System: GDA 1994 MGA Zone 55	Date: 29 July 2021

EPA Priority Sites & Pollution Notices

250 Drysdale Road, Little River, VIC 3211

Current EPA Priority Sites Register

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

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

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

Former EPA Priority Sites & Other Pollution Notices

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

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

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

PFAS Investigation & Management Programs

250 Drysdale Road, Little River, VIC 3211

EPA PFAS Site Investigations

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

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

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

Defence PFAS Investigation & Management Program Investigation Sites

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

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

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

Defence PFAS Investigation & Management Program Management Sites

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

250 Drysdale Road, Little River, VIC 3211

Defence 3 Year Regional Contamination Investigation Program

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

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

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

EPA Records

250 Drysdale Road, Little River, VIC 3211

EPA Environmental Audits

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

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

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

EPA Records

250 Drysdale Road, Little River, VIC 3211

EPA Groundwater Zones with Restricted Uses

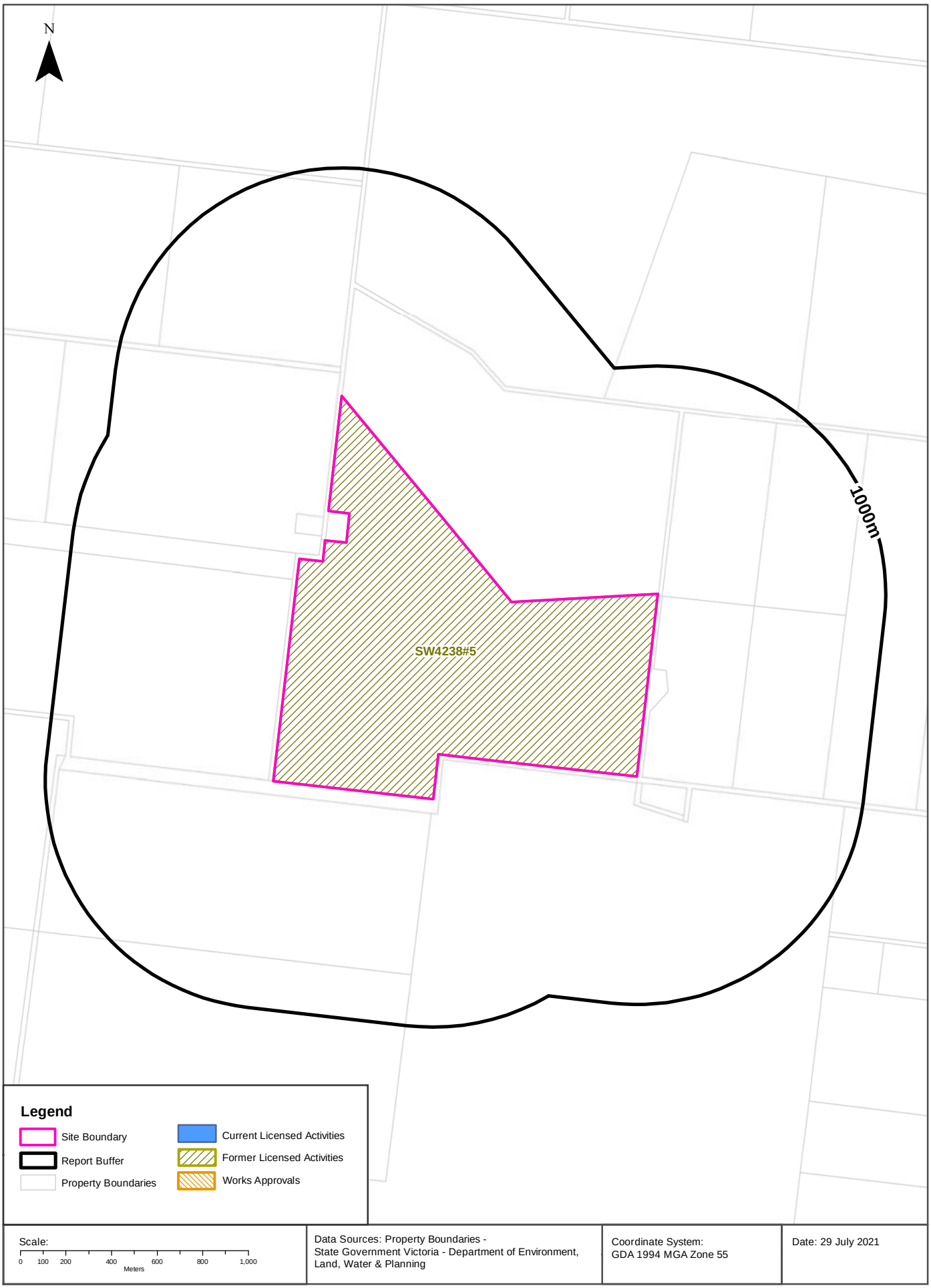
EPA GQRUZ records that exist within the dataset buffer:
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

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

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

EPA Records - Licensed Activities & Works Approvals

250 Drysdale Road, Little River, VIC 3211



EPA Activities

250 Drysdale Road, Little River, VIC 3211

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
SW4238#5	KALARI PROPRIETARY LIMITED	250 Drysdales Rd	LITTLE RIVER VIC 3211	C01 Extractive Industry and Mining	Premise Match	0m	Onsite

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

EPA Works Approvals

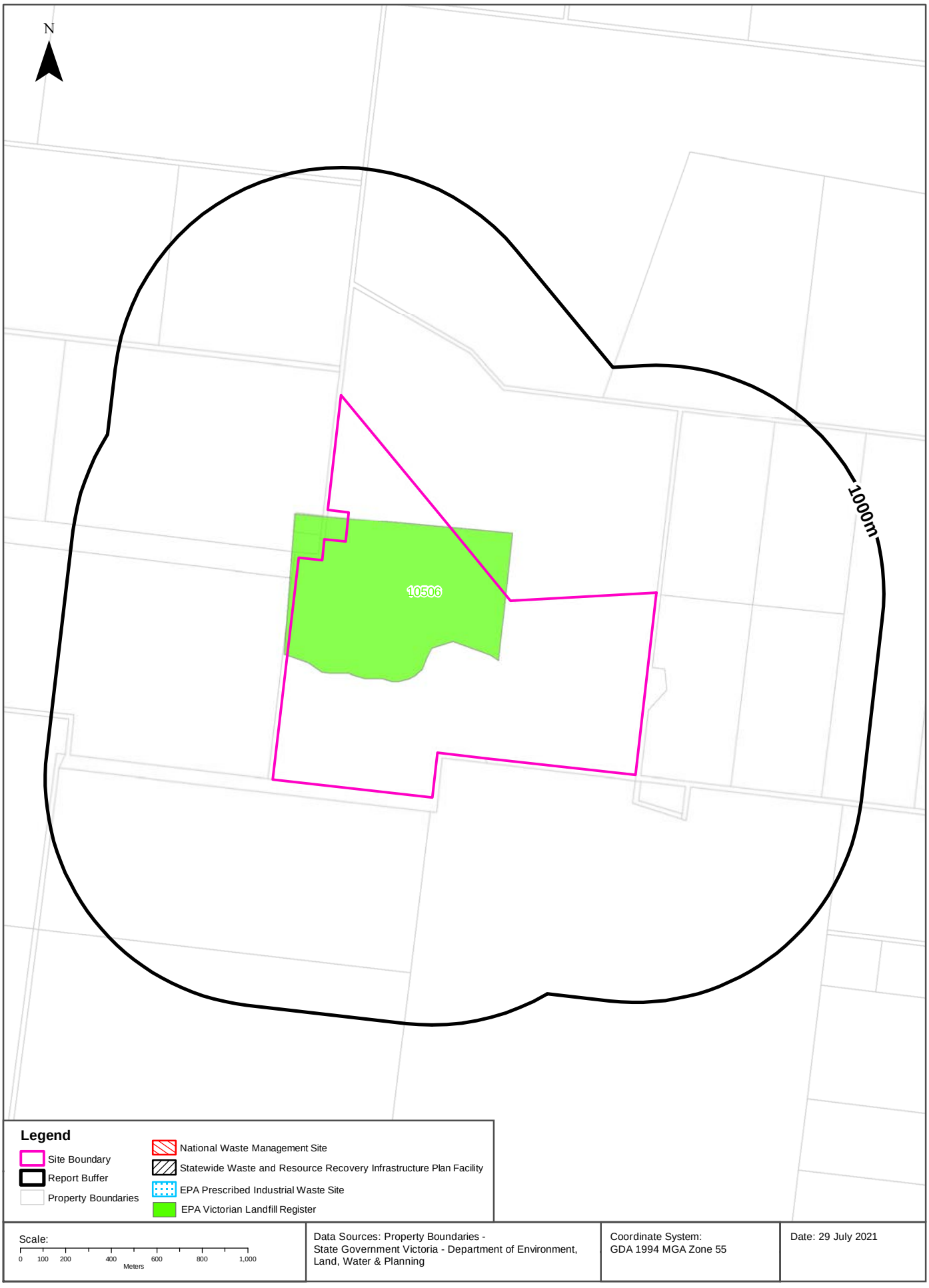
EPA works approvals that exist within the dataset buffer:

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

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

Waste Management Facilities & Landfills

250 Drysdale Road, Little River, VIC 3211



Waste Management Facilities & Landfills

250 Drysdale Road, Little River, VIC 3211

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)

Waste Management Facilities & Landfills

250 Drysdale Road, Little River, VIC 3211

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
10506	The Phosphate Co-operative Company of Australia LTD, Pt C/A 14 Sec A And Pt C/A 7 Sec 11 Parish Of Wurdi Youang, Woolatta	Sandy Creek Road, Little River, VIC 3211	Closed	2003	PIW, Chemical gypsum	As Supplied	0m	Onsite

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

Former Gasworks and Liquid Fuel Facilities

250 Drysdale Road, Little River, VIC 3211

Former Gasworks

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

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

Former Gasworks Data Source: Collated from various historical sources

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

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

National Liquid Fuel Facilities Data Source: Geoscience Australia

Historical Business Directories

250 Drysdale Road, Little River, VIC 3211

Business Directory Records 1905-1991
Premise or Road Intersection Matches

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

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

Business Directory Records 1905-1991
Road or Area Matches

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

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

Historical Business Directories

250 Drysdale Road, Little River, VIC 3211

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

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

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

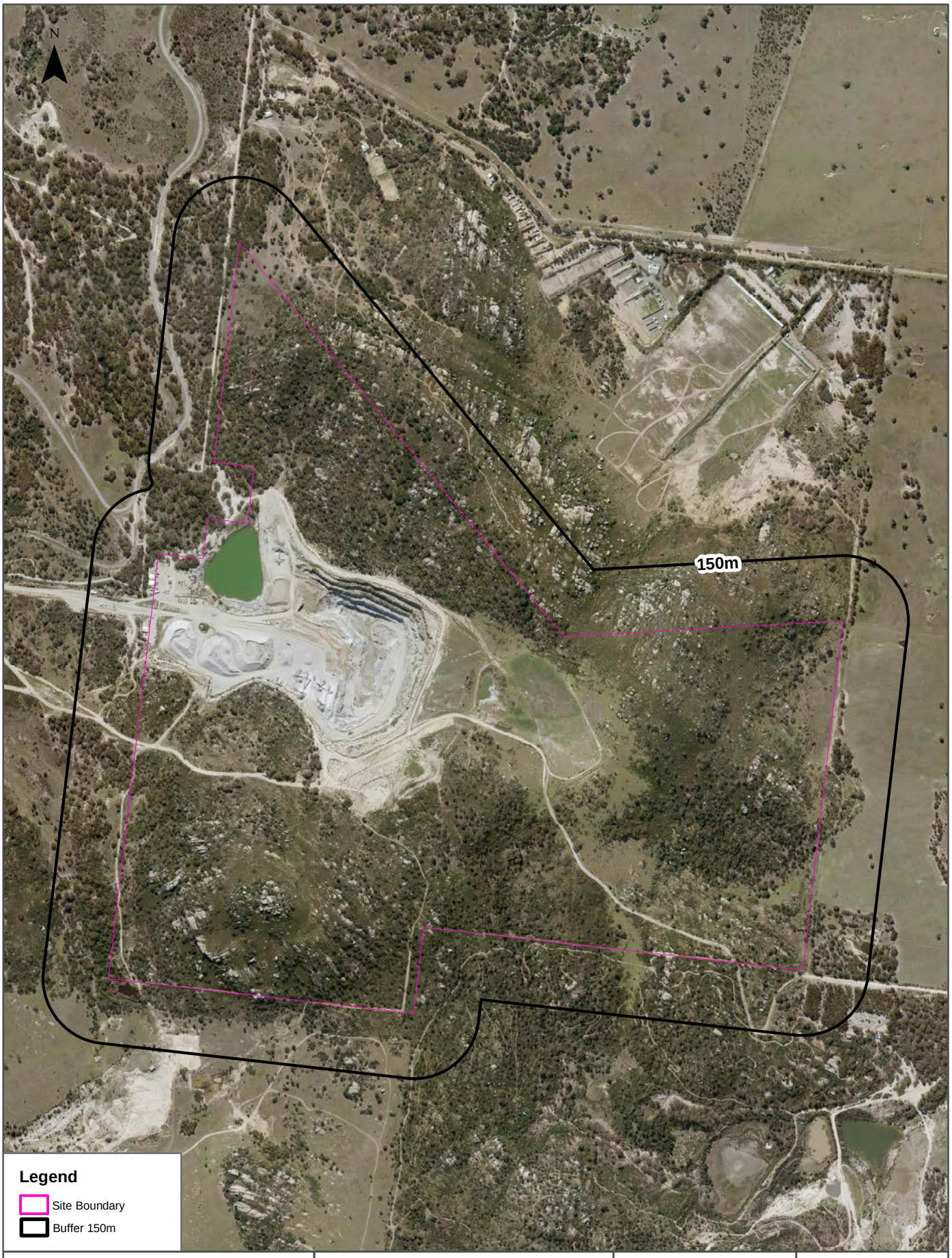
Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

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

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

Aerial Imagery 2021

250 Drysdale Road, Little River, VIC 3211

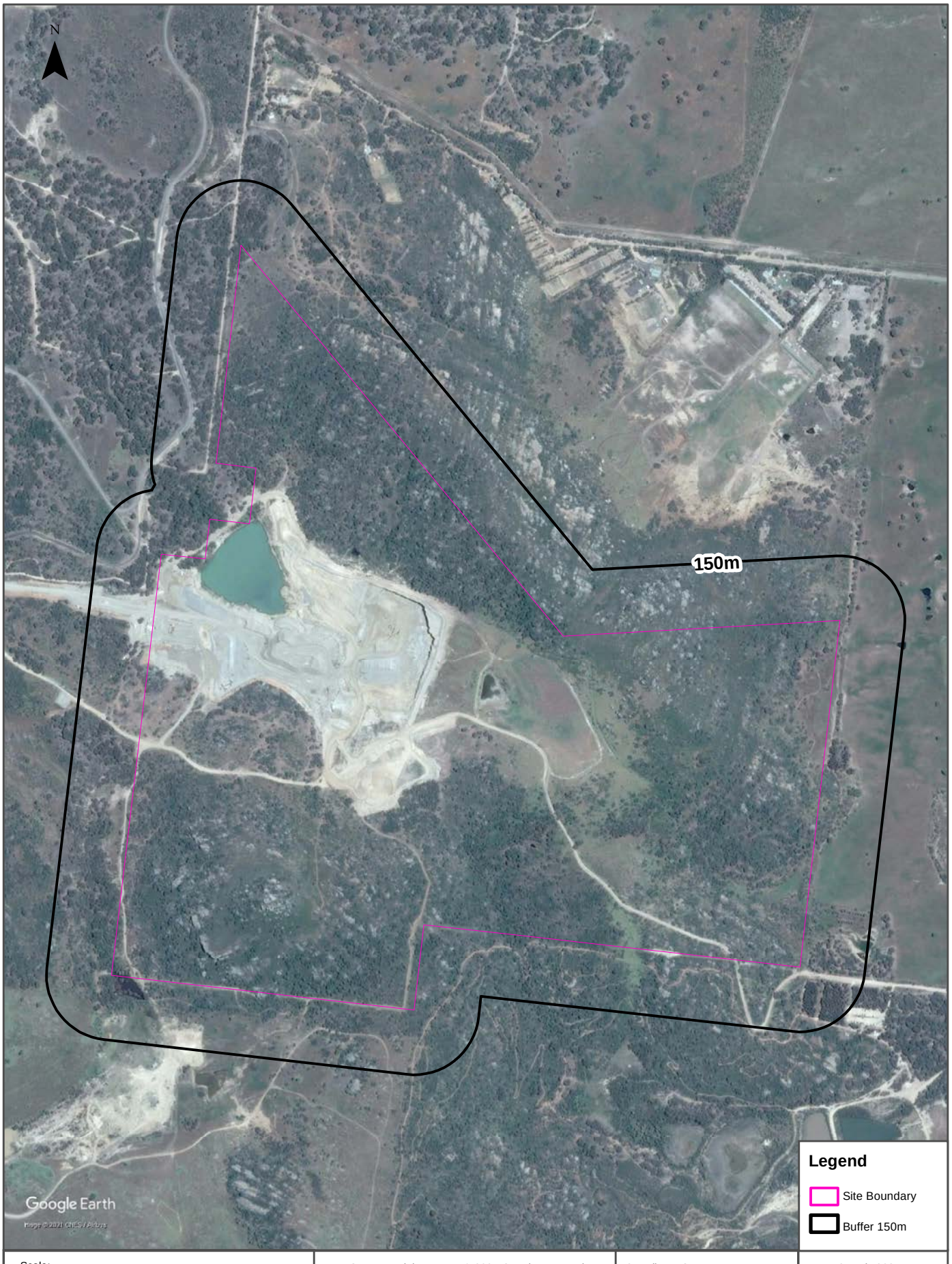


Scale:	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 55	Date: 29 July 2021

0 140 280 420 560
Meters

Aerial Imagery 2016

250 Drysdale Road, Little River, VIC 3211



Scale:
0 140 280 420 560
Meters

Data Source Aerial Imagery: © 2021 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 27 July 2021

Aerial Imagery 2010

250 Drysdale Road, Little River, VIC 3211

Scale:
0 140 280 420 560
Meters

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Coordinate System:
GDA 1994 MGA Zone 55

Date: 27 July 2021

Aerial Imagery 2004

250 Drysdale Road, Little River, VIC 3211

Scale:
0 140 280 420 560
Meters

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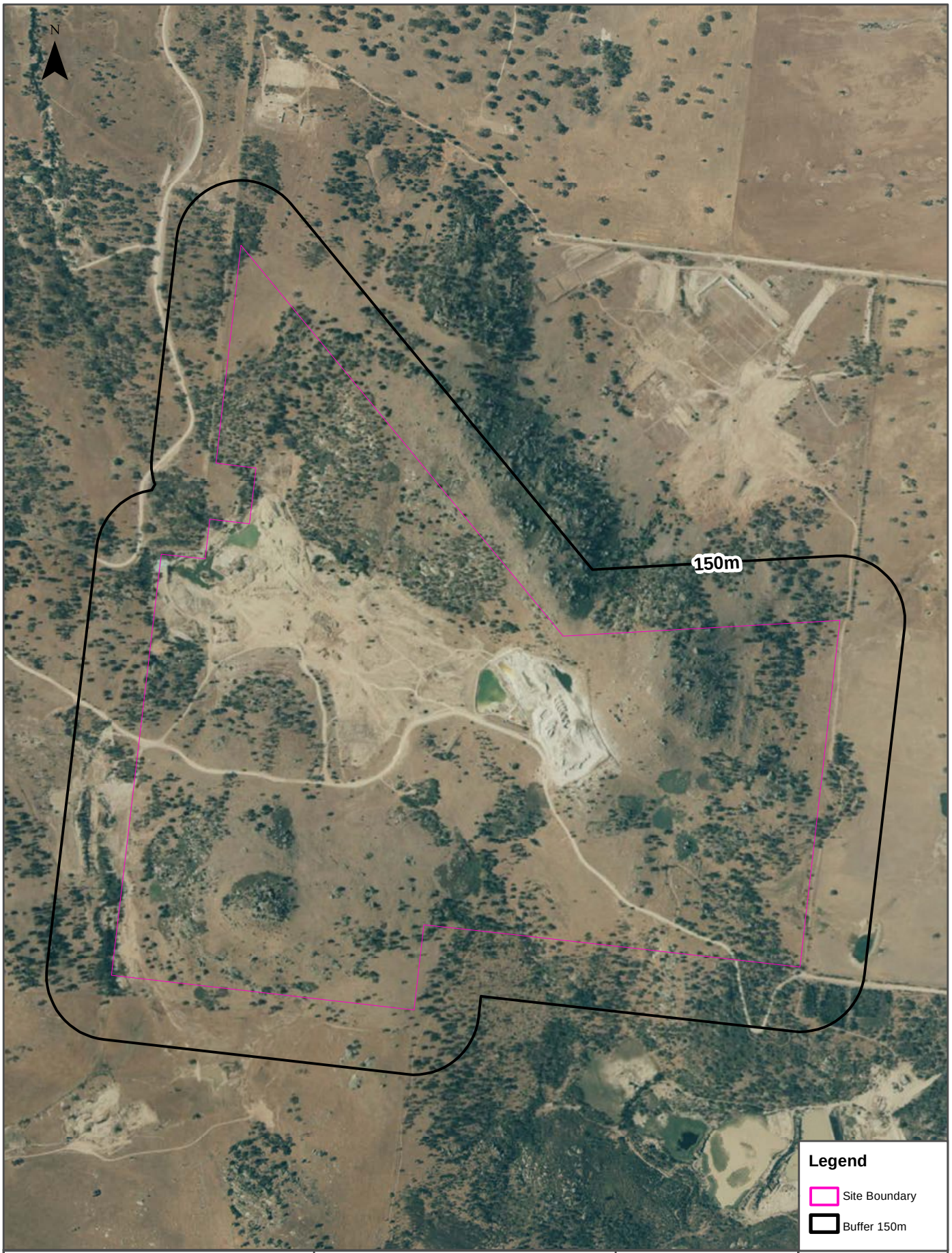
Coordinate System:
GDA 1994 MGA Zone 55

Date: 27 July 2021

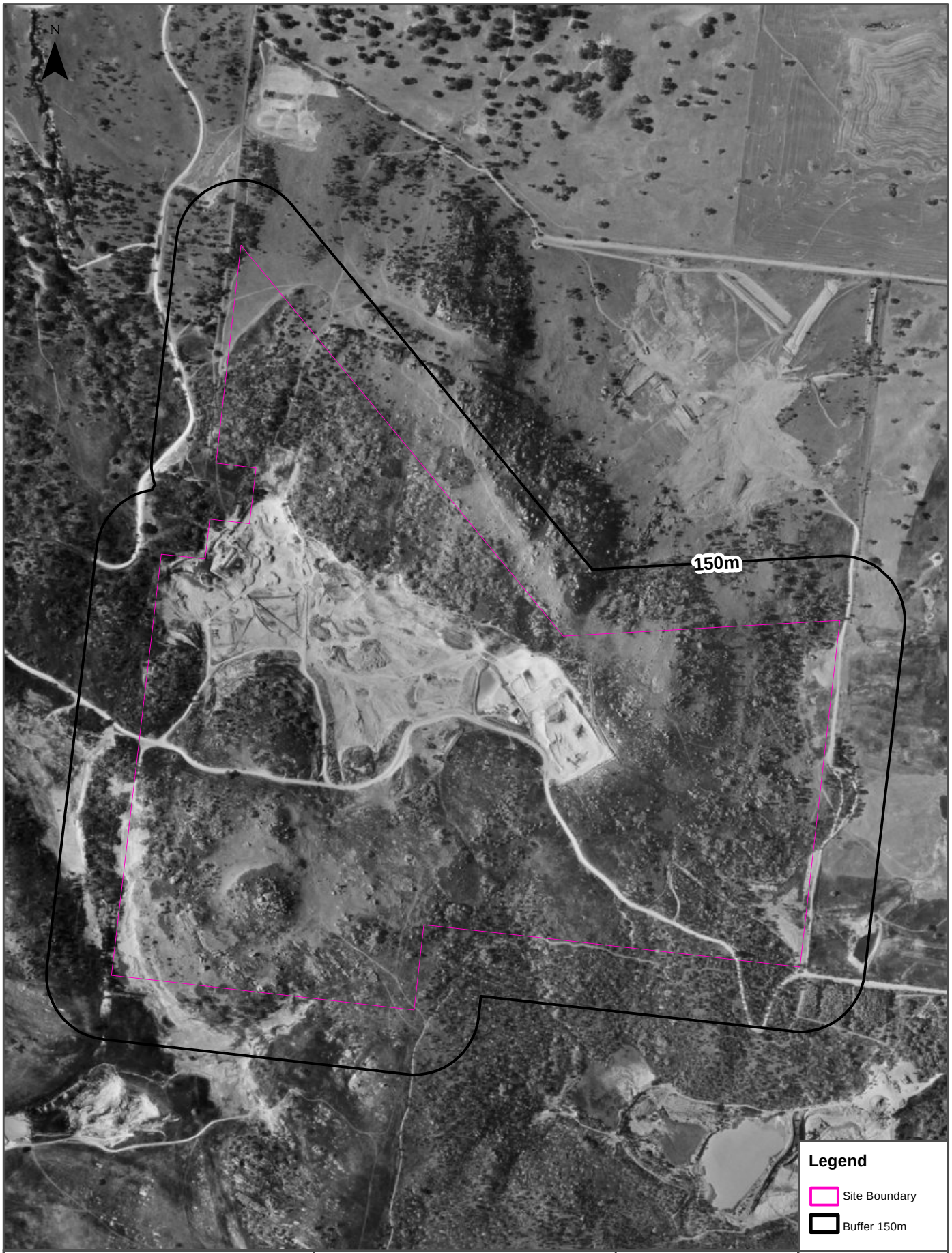
Aerial Imagery 1990

250 Drysdale Road, Little River, VIC 3211



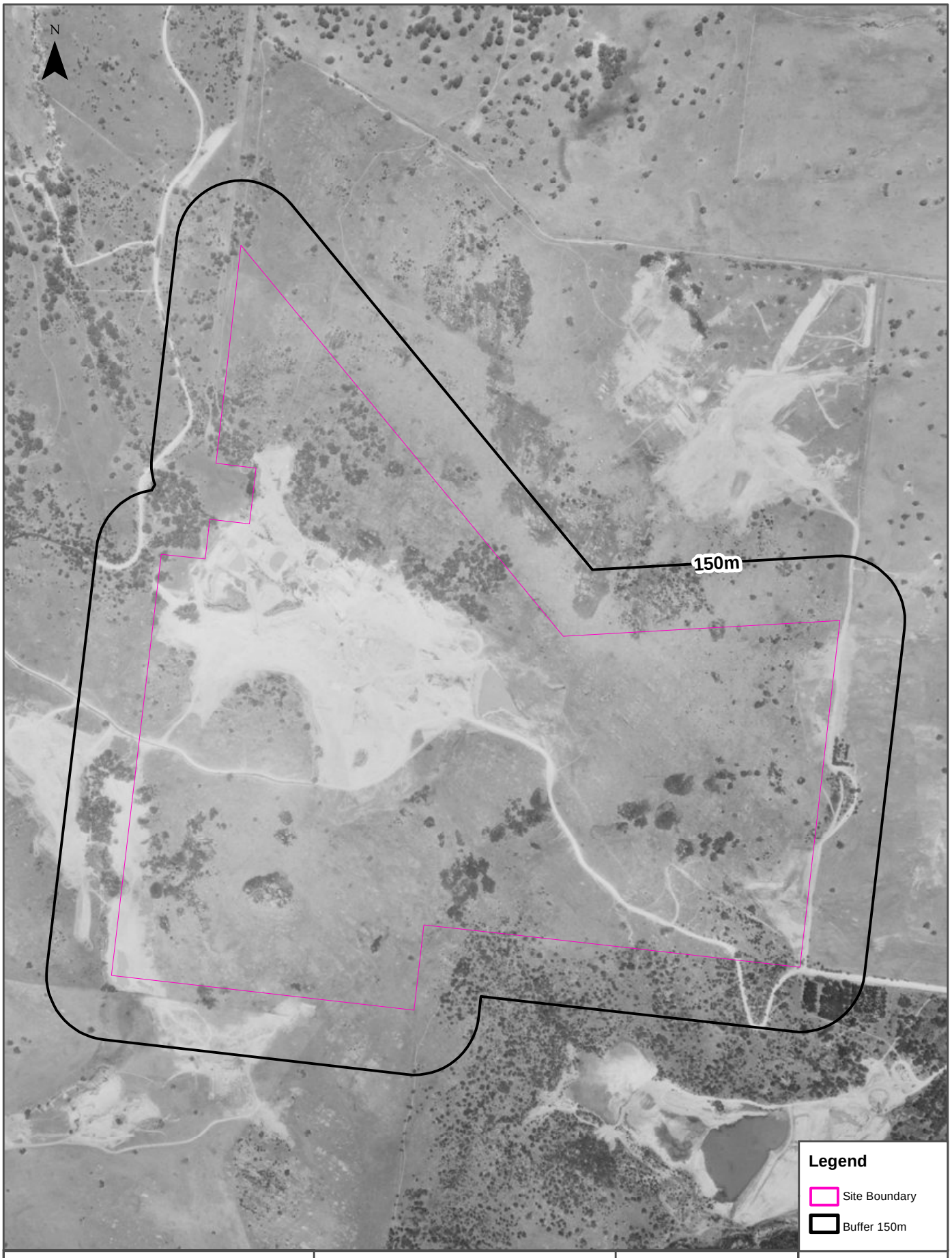
Aerial Imagery 1985

250 Drysdale Road, Little River, VIC 3211



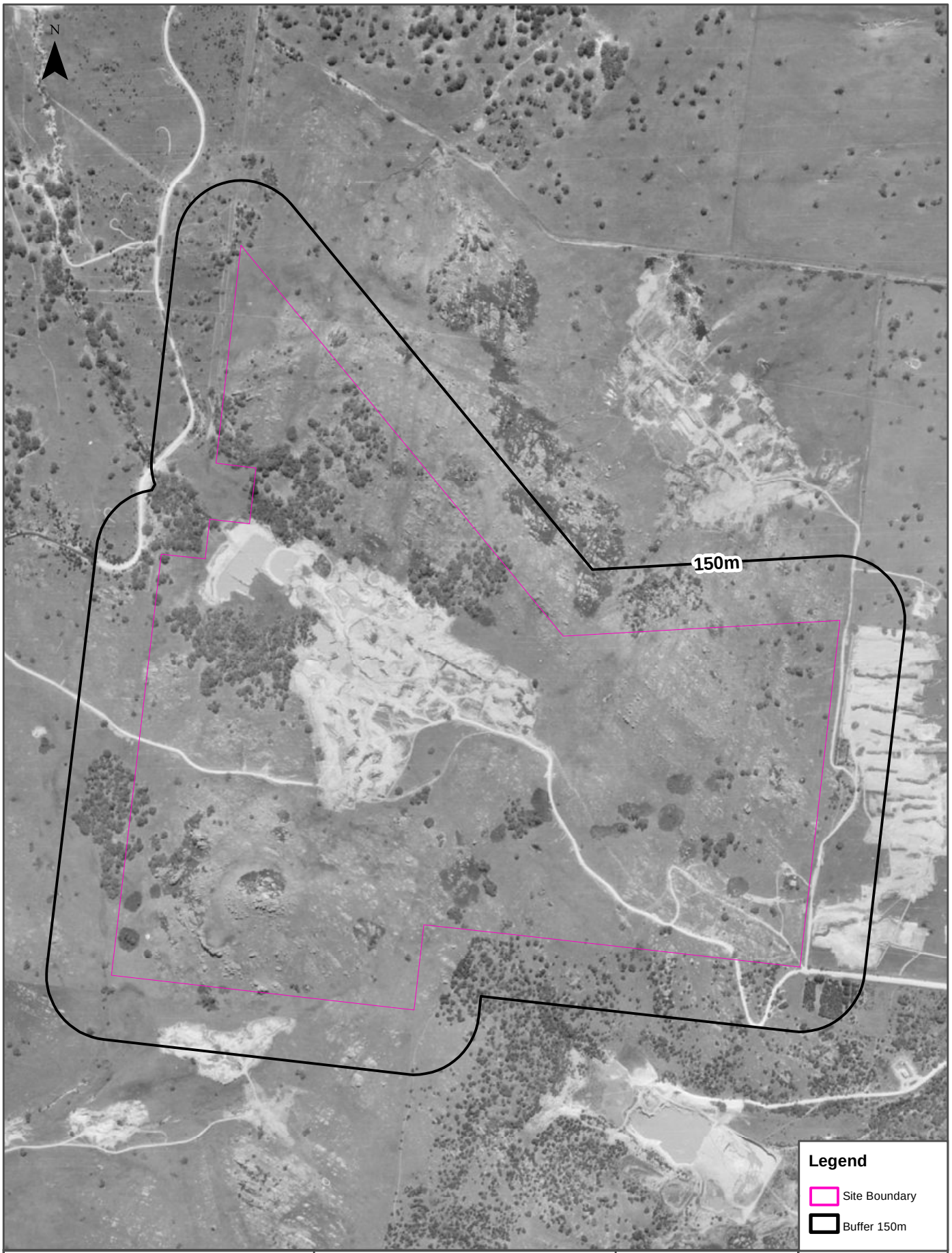
Aerial Imagery 1978

250 Drysdale Road, Little River, VIC 3211



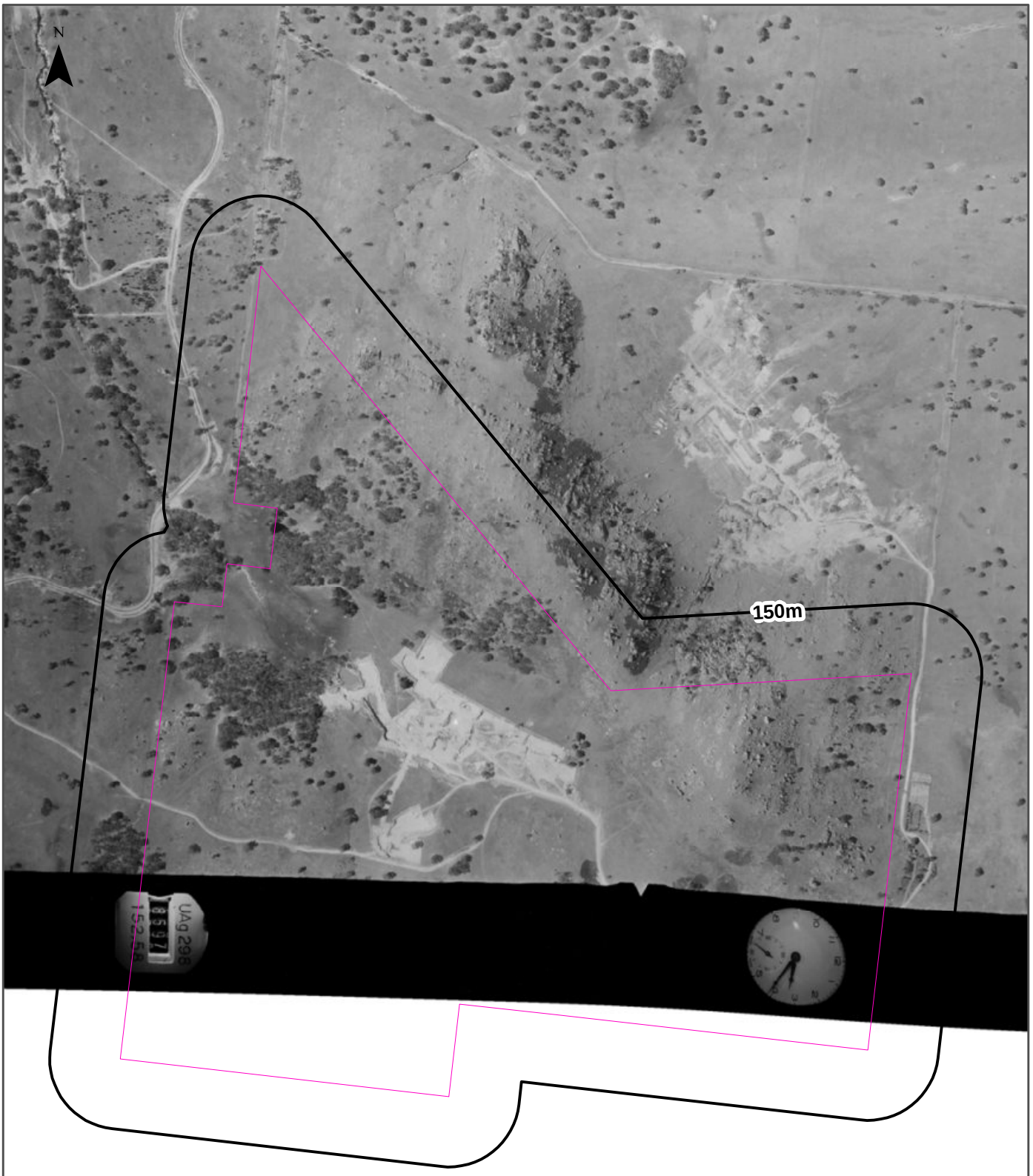
Aerial Imagery 1972

250 Drysdale Road, Little River, VIC 3211



Aerial Imagery 1968

250 Drysdale Road, Little River, VIC 3211



Legend

Site Boundary

Buffer 150m

Scale:
0 140 280 420 560
Meters

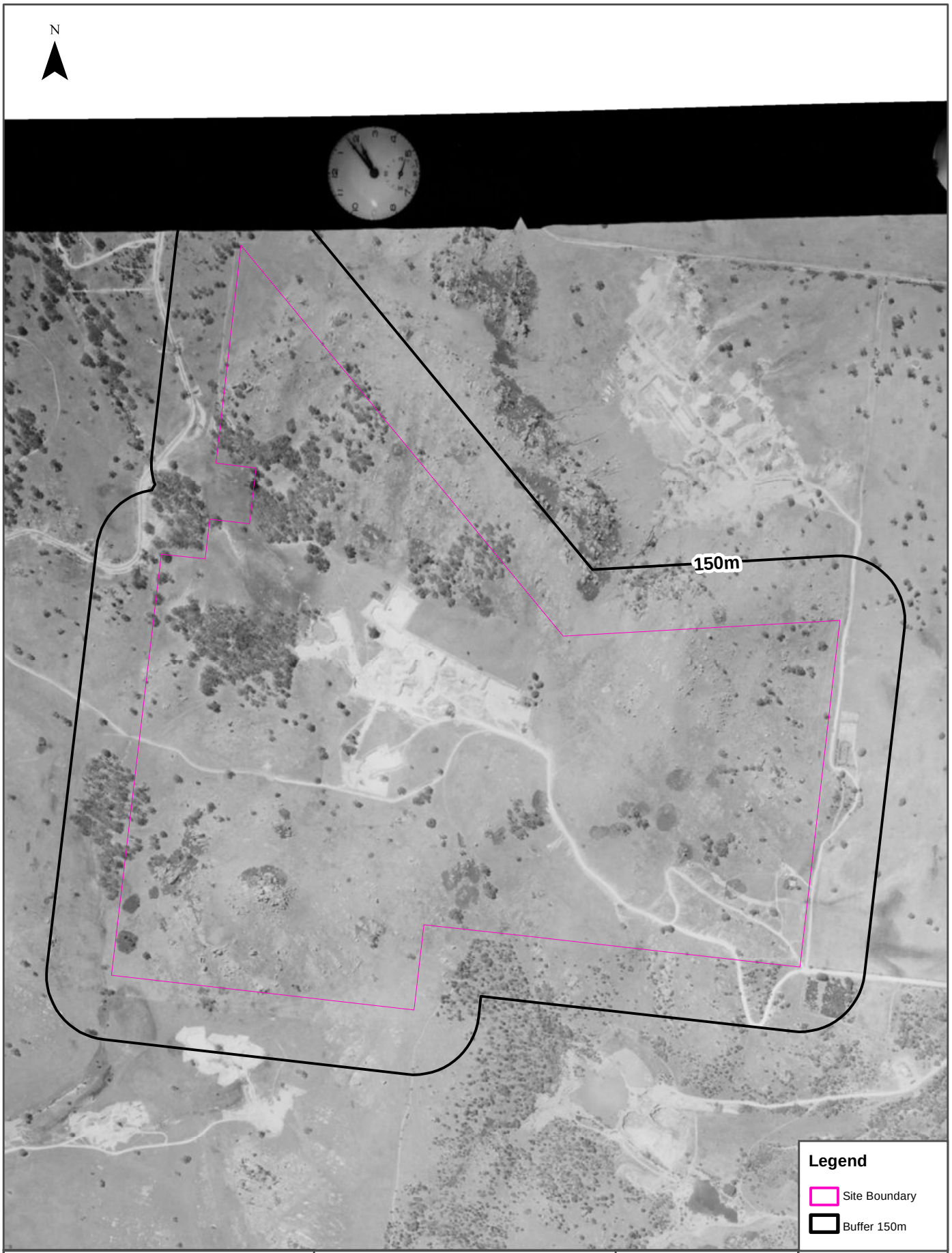
Data Source Aerial Imagery:
© Department of Environment, Land, Water and Planning
(Vicmap Topographic Mapping Program)

Coordinate System:
GDA 1994 MGA Zone 55

Date: 27 July 2021

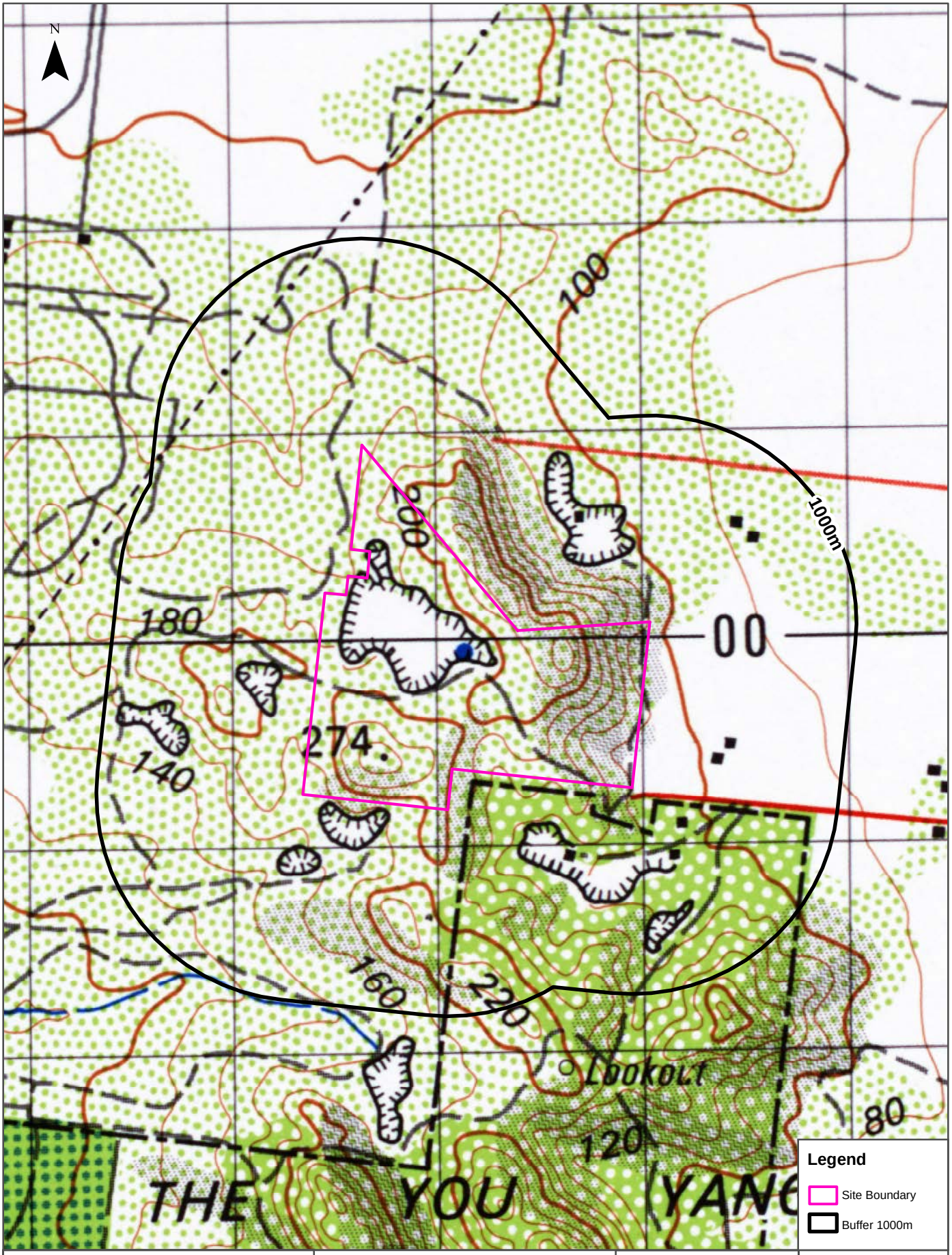
Aerial Imagery 1968

250 Drysdale Road, Little River, VIC 3211



Historical Map 1981

250 Drysdale Road, Little River, VIC 3211



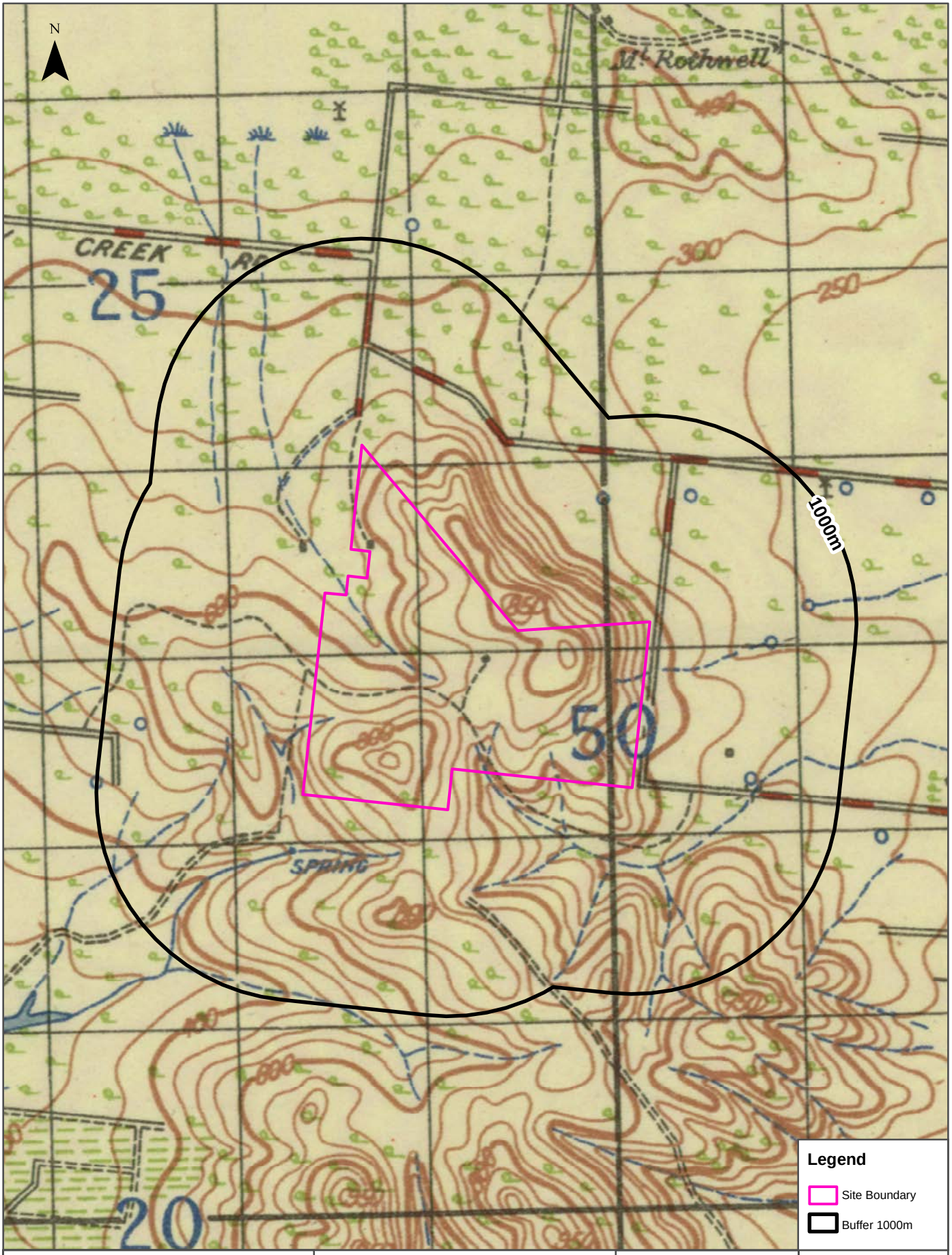
Data Sources: NATMAP 1:100,000 Topographic Maps
Geoscience Australia

Coordinate System:
GDA 1994 MGA Zone 55

Date: 29 July 2021

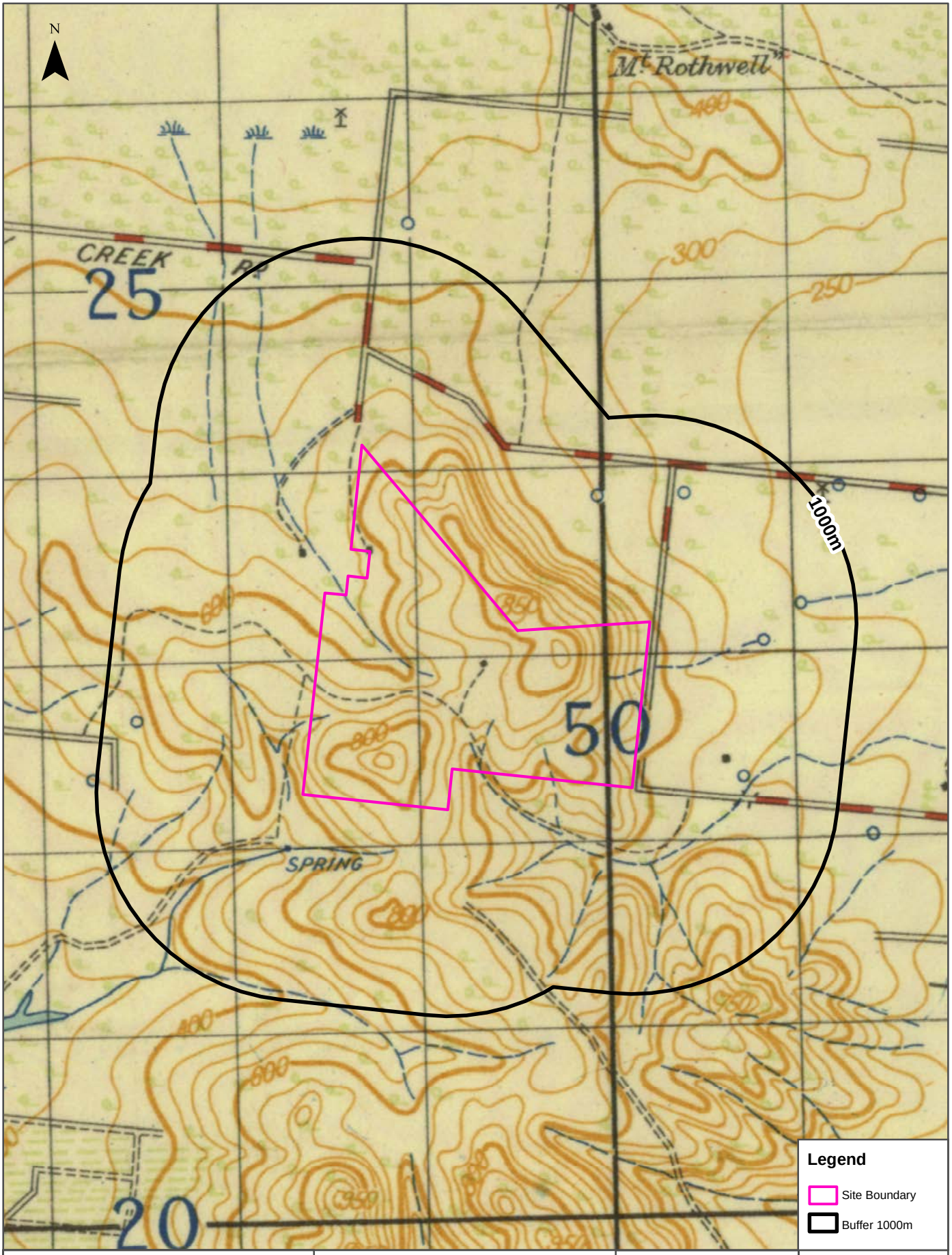
Historical Map c.1953

250 Drysdale Road, Little River, VIC 3211



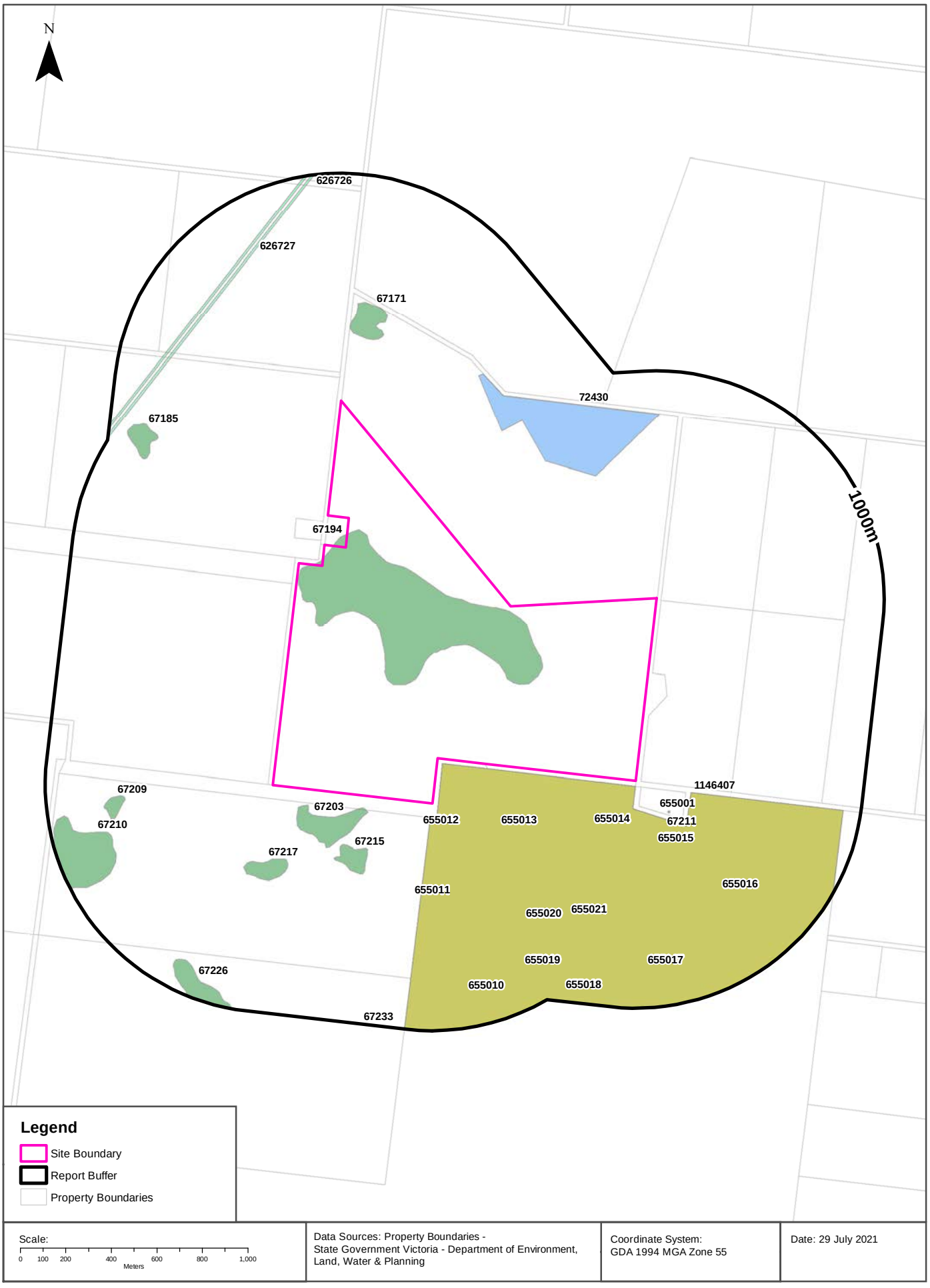
Historical Map c.1936

250 Drysdale Road, Little River, VIC 3211



Features of Interest

250 Drysdale Road, Little River, VIC 3211



Features of Interest

250 Drysdale Road, Little River, VIC 3211

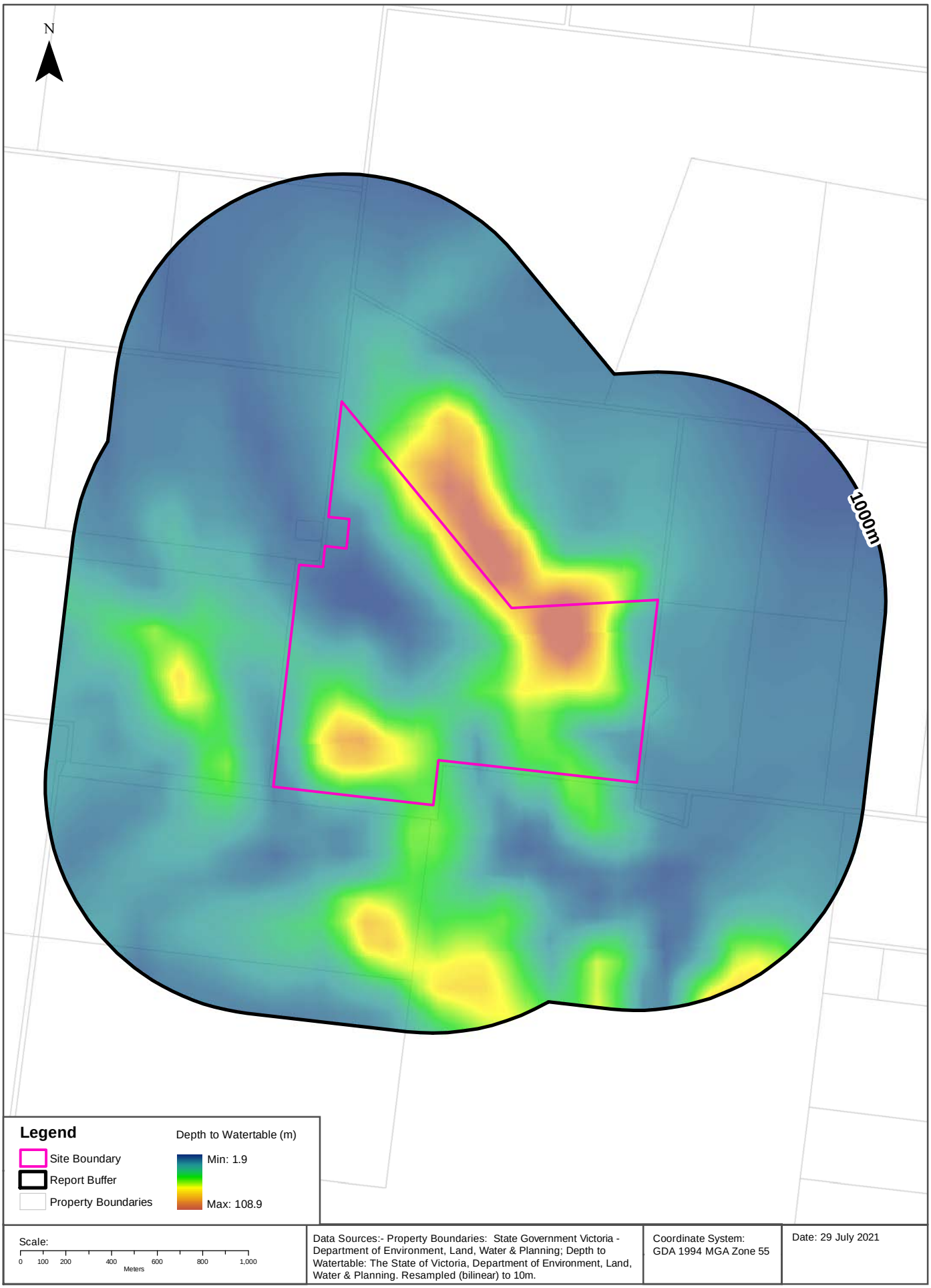
Features of Interest

Features of Interest within the dataset buffer:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
67194	excavation site	quarry		0m	Onsite
1146407	reserve	conservation park	You Yangs R.P.	21m	South
67203	excavation site	quarry		55m	South West
655012	sign	emergency marker	YYR505	105m	South
655001	sign	emergency marker	YYR106	194m	South East
655014	sign	emergency marker	YYR507	215m	South East
67215	excavation site	quarry		225m	South West
655015	sign	emergency marker	YYR508	242m	South East
67211	excavation site	quarry		245m	South East
655013	sign	emergency marker	YYR506	266m	South
67171	excavation site	quarry		293m	North
67217	excavation site	quarry		317m	South West
655011	sign	emergency marker	YYR504	416m	South
72430	sport facility	target range	Ssaa Rifle Range And Paint Ball Complex	458m	North East
655021	sign	emergency marker	YYR514	623m	South East
655016	sign	emergency marker	YYR509	642m	South East
67209	excavation site	quarry		653m	South West
655020	sign	emergency marker	YYR513	663m	South
626726	power line	power transmission	Keilor-Geelong 1st	707m	North East
626727	power line	power transmission	Keilor-Geelong 2nd	728m	North East
67210	excavation site	quarry		744m	South West
67185	excavation site	quarry		782m	North West
655017	sign	emergency marker	YYR510	825m	South East
655019	sign	emergency marker	YYR512	846m	South
655010	sign	emergency marker	YYR503	855m	South
67226	excavation site	quarry		861m	South West
655018	sign	emergency marker	YYR511	918m	South
67233	excavation site	quarry		997m	South

Depth to Watertable

250 Drysdale Road, Little River, VIC 3211



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: 29 July 2021

Hydrogeology & Groundwater

250 Drysdale Road, Little River, VIC 3211

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Fractured or fissured, extensive aquifers of low to moderate productivity	0m	Onsite

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
20 to 50 metres	52
Greater than 50 metres	21
10 to 20 metres	17
5 to 10 metres	5
Less than 5 metres	3

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
110 AHDm to 261 AHDm

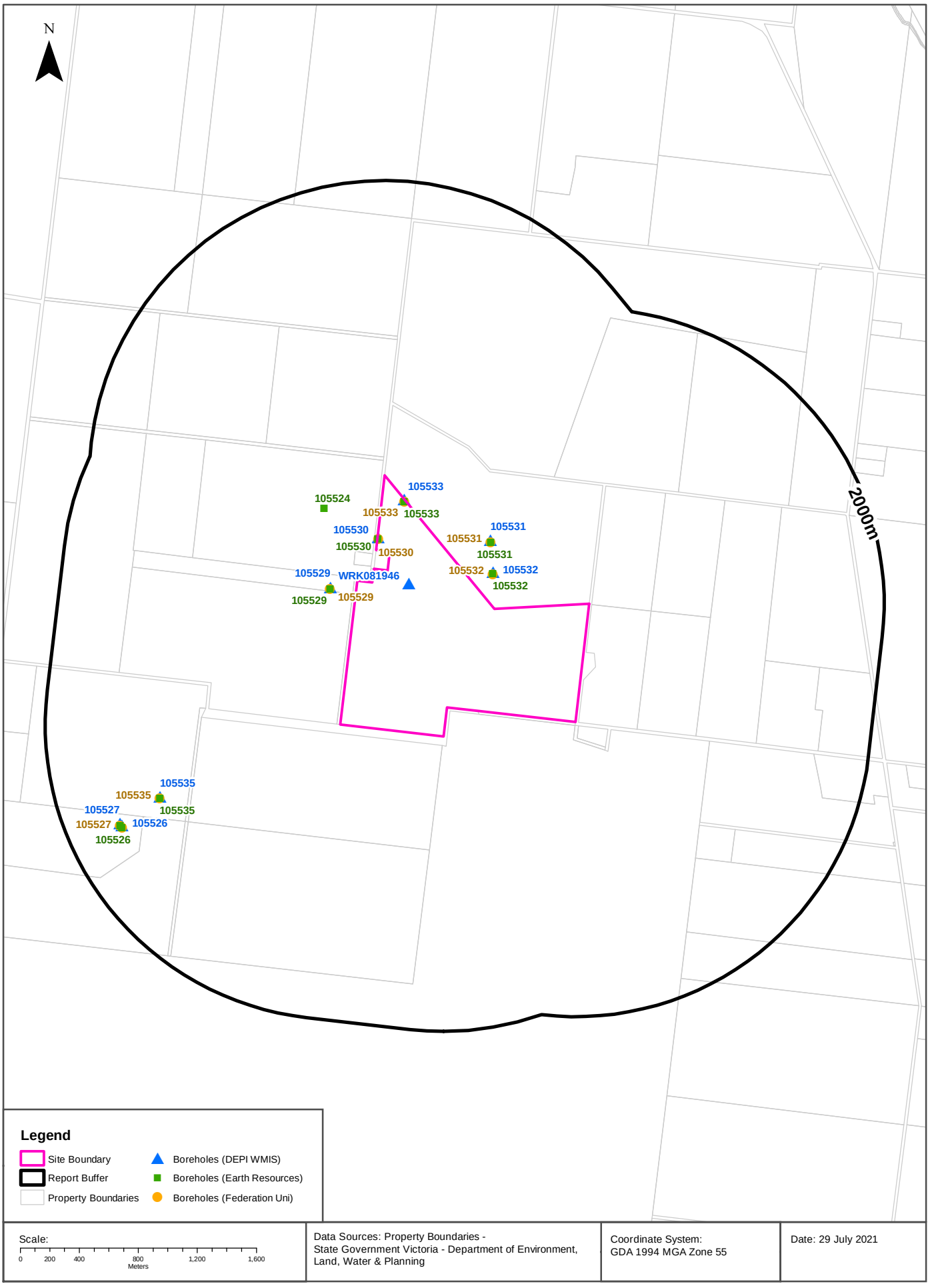
Basement Elevation

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
98 AHDm to 261 AHDm

Groundwater Boreholes

250 Drysdale Road, Little River, VIC 3211



Groundwater Boreholes

250 Drysdale Road, Little River, VIC 3211

Boreholes (DELWP WMIS)

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

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
WRK081946	Industrial		0.00m-0.00m OUTER LINING - GRAVEL = Not Known			2014-09-20	0	Onsite
105530	Observation	0.00m-0.60m TOP SOIL 0.60m-5.70m GREY CLAY AND SAND 5.70m-7.90m BROWN GRANITE 7.90m-12.80m SPECKLED GRANITE 12.80m-17.00m GREY GRANITE 17.00m-35.00m LIGHT GREY GRANITE	0.00m-0.80m INNER LINING - CASING = Pvc 0.80m-8.96m INNER LINING - SCREEN = Pvc 8.96m-9.56m INNER LINING - CASING = Pvc 9.56m-35.00m INNER LINING - SCREEN = Pvc		0.80m-8.96m Granite 9.56m-35.00m Granite	1979-11-08	0	Onsite
105533	Observation	0.00m-0.60m TOP SOIL 0.60m-1.50m GREY SANDY CLAY 1.50m-2.40m BROWN SANDY CLAY 2.40m-3.60m GREY SANDY CLAY 3.60m-7.80m BROWN SANDY CLAY 7.80m-9.40m YELLOW CLAY 9.40m-14.70m CLAY AND GRAVEL 14.70m-15.70m YELLOW CLAY 15.70m-32.30m GREY GRANITE 32.30m-35.00m DECOMPOSED GRANITE	0.00m-0.80m INNER LINING - CASING = Pvc 0.80m-15.70m INNER LINING - SCREEN = Pvc 15.70m-16.30m INNER LINING - CASING = Pvc 16.30m-35.00m INNER LINING - SCREEN = Pvc		0.80m-15.70m Granite 16.30m-35.00m Granite	1979-11-08	0	Onsite
105532	Observation	0.00m-2.40m CLAY AND GRANITE SAND 2.40m-3.90m GRANITE BOULDERS 3.90m-4.80m DECOMPOSED GRANITE 4.80m-17.00m GREY GRANITE 17.00m-17.90m GRANITE AND QUARTZ 17.90m-29.20m GREY GRANITE 29.20m-31.70m GRANITE AND QUARTZ 31.70m-35.00m GREY GRANITE	0.00m-5.56m INNER LINING - CASING = Pvc 0.80m-4.96m INNER LINING - SCREEN = Pvc 4.96m-35.00m INNER LINING - SCREEN = Slotted Pvc		0.80m-4.96m Granite 4.96m-35.00m Granite	1979-11-08	149	North East
105529	Domestic, Stock	0.00m-0.30m TOP SOIL 0.30m-1.50m BROWN CLAY 1.50m-3.30m YELLOW CLAY 3.30m-6.40m BROWN CLAY 6.40m-7.30m SHALE 7.30m-12.50m CLAY AND SHALE 12.50m-13.40m BASALT 13.40m-24.70m CLAY AND SHALE 24.70m-31.10m SANDY CLAY 31.10m-37.50m BASALT	0.00m-32.30m INNER LINING - CASING = Steel 32.30m-37.50m INNER LINING - SCREEN = Steel 31.50m-0.00m OUTER LINING - GRAVEL = Seal		32.30m-37.50m Basalt	1979-06-16	176	North West
105531	Observation	0.00m-0.60m CLAY AND SAND 0.60m-3.90m CLAY AND GRAVEL 3.90m-4.80m DECOMPOSED GRANITE 4.80m-23.70m GREY GRANITE 23.70m-35.00m DARK GREY GRANITE	0.00m-5.59m INNER LINING - CASING = Pvc 0.80m-4.99m INNER LINING - SCREEN = Pvc 4.99m-35.00m INNER LINING - SCREEN = Slotted Pvc		0.80m-4.99m Clay 4.99m-35.00m Granite	1979-11-08	275	North
105535	Domestic, Stock	0.00m-6.20m GRAVEL IN CREAM CLAY AND BLACK SILT 6.20m-16.00m WEATHERED FRACTURED ROCK 16.00m-25.20m GRANITE (FRACT.)	0.00m-12.00m INNER LINING - CASING = Pvc 16.00m-25.20m INNER LINING - SCREEN = Pvc			1981-02-04	1316	South West
105526	Not Known	0.00m-1.00m TOP SOIL 1.00m-18.28m CEMENTED SAND AND GRAVEL				1975-08-20	1629	South West
105527	Not Known	0.00m-1.00m TOP SOIL 1.00m-18.00m CEMENTED SAND AND GRAVEL				1975-08-22	1636	South West

Groundwater Boreholes

250 Drysdale Road, Little River, VIC 3211

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
105530		Private Individual/Corporation	Groundwater Observation	Rotary (diamond/drag bit)		08/11/1979	35.00	180.00	300	0	Onsite
105533		Private Individual/Corporation	Groundwater Observation	Rotary (diamond/drag bit)		08/11/1979	35.00	170.00	300	0	Onsite
105532		Private Individual/Corporation	Groundwater Observation	Rotary (diamond/drag bit)		08/11/1979	35.00	200.00	300	139	North East
105529		Private Individual/Corporation	Domestic & Stock water supply	Air Percussion/Air Rotary		16/06/1979	37.50	120.00	10	177	North West
105531		Private Individual/Corporation	Groundwater Observation	Rotary (diamond/drag bit)		08/11/1979	35.00	190.00	300	264	North
105524		Private Individual/Corporation	Stock/Poultry water supply			10/02/1975	27.42	75.00	10	381	North West
105535		Private Individual/Corporation	Domestic & Stock water supply	Rotary (diamond/drag bit)		04/02/1981	25.20	80.00	10	1322	South West
105526		Private Individual/Corporation	Irrigation		Abandoned	21/08/1975	18.29	80.00	300	1637	South West
105527		Private Individual/Corporation	Irrigation		Abandoned	24/08/1975	18.28	80.00	300	1643	South 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
105530		Groundwater	Observation		D: 0.000m-0.600m Top Soil D: 0.600m-5.700m Grey Clay And Sand D: 5.700m-7.900m Brown Granite D: 7.900m-12.800m Speckled Granite D: 12.800m-17.000m Grey Granite D: 17.000m-35.000m Light Grey Granite	0	Onsite
105533		Groundwater	Observation		D: 0.000m-0.600m Top Soil D: 0.600m-1.500m Grey Sandy Clay D: 1.500m-2.400m Brown Sandy Clay D: 2.400m-3.600m Grey Sandy Clay D: 3.600m-7.800m Brown Sandy Clay D: 7.800m-9.400m Yellow Clay D: 9.400m-14.700m Clay And Gravel D: 14.700m-15.700m Yellow Clay D: 15.700m-32.300m Grey Granite D: 32.300m-35.000m Decomposed Granite	0	Onsite

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
105532		Groundwater	Observation		D: 0.000m-2.400m Clay And Granite Sand D: 2.400m-3.900m Granite Boulders D: 3.900m-4.800m Decomposed Granite D: 4.800m-17.000m Grey Granite D: 17.000m-17.900m Granite And Quartz D: 17.900m-29.200m Grey Granite D: 29.200m-31.700m Granite And Quartz D: 31.700m-35.000m Grey Granite	139	North East
105529		Groundwater	Domestic Stock		D: 0.000m-0.300m Top Soil D: 0.300m-1.500m Brown Clay D: 1.500m-3.300m Yellow Clay D: 3.300m-6.400m Brown Clay D: 6.400m-7.300m Shale D: 7.300m-12.500m Clay And Shale D: 12.500m-13.400m Basalt D: 13.400m-24.700m Clay And Shale D: 24.700m-31.100m Sandy Clay D: 31.100m-37.500m Basalt	176	North West
105531		Groundwater	Observation		D: 0.000m-0.600m Clay And Sand D: 0.600m-3.900m Clay And Gravel D: 3.900m-4.800m Decomposed Granite D: 4.800m-23.700m Grey Granite D: 23.700m-35.000m Dark Grey Granite	265	North
105535	Private Landholders Bore	Groundwater	Domestic Stock	10000.00	D: 0.000m-6.200m Gravel In Cream Clay And Black Silt D: 6.200m-16.000m Weathered Fractured Rock D: 16.000m-25.200m Granite (Fract.)	1322	South West
105526	Private Landholders Bore	Groundwater			D: 0.000m-1.000m Top Soil D: 1.000m-18.280m Cemented Sand And Gravel	1636	South West
105527	Private Landholders Bore	Groundwater			D: 0.000m-1.000m Top Soil D: 1.000m-18.000m Cemented Sand And Gravel	1643	South West

Historical Mining Activity - Shafts

250 Drysdale Road, Little River, VIC 3211

Historical Mining Activity - Shafts

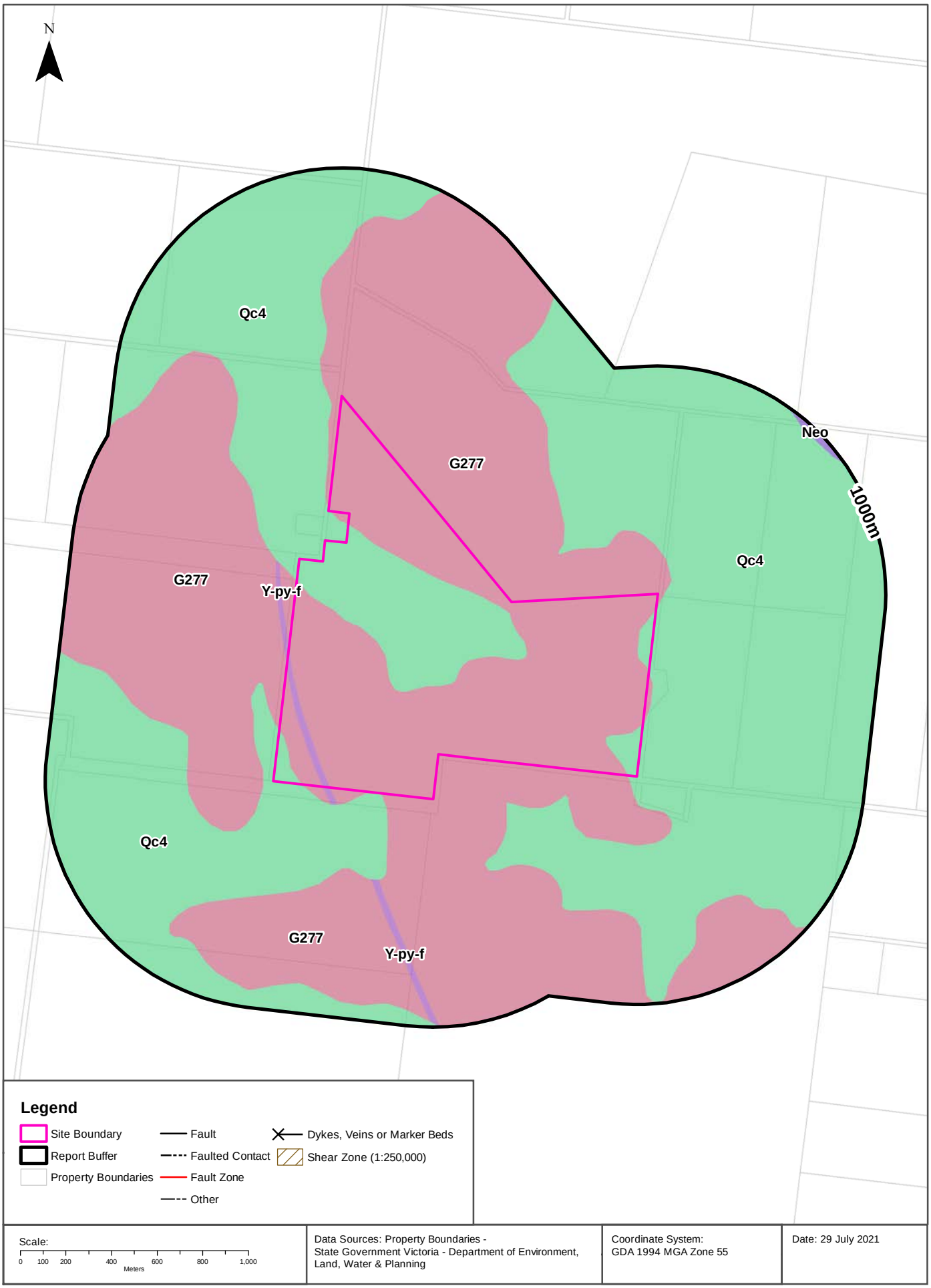
Mine Shaft Locations were collected by a variety of methods from 1869 in some areas of the state, mainly concentrating in Ballarat and Bendigo. In places a shaft may be recorded multiple times with a different source. In cases where several shaft locations are shown close together (generally with separations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

250 Drysdale Road, Little River, VIC 3211



Geology

250 Drysdale Road, Little River, VIC 3211

Geological Units

What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
G277	You Yangs Granite (G277): generic	Hornblende granite: coarse grained, K-feldspar phyric; I-type.	Late Devonian to Late Devonian	granite (all)	1:50,000
Qc4	granite-derived colluvium (Qc4): generic	Quartz and feldspar sand: well sorted, fine to medium grained; derived from granite	Pleistocene to Holocene	sand (all)	1:50,000
Y-py-f	dyke, feldspar porphyry (Y-py-f): generic	Feldspar porphyry dyke	Paleozoic to Mesozoic	plutonic rock (all)	1:50,000

What are the Geological Units within the dataset buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
G277	You Yangs Granite (G277): generic	Hornblende granite: coarse grained, K-feldspar phyric; I-type.	Late Devonian to Late Devonian	granite (all)	1:50,000
Neo	Newer Volcanic Group - basalt flows (Neo): generic	Olivine tholeiite, quartz tholeiite, basanite, basaltic icelandite, hawaiite, mugearite, minor scoria and ash, fluvial sediments: tholeiitic to alkaline; includes sheet flows and valley flows and intercalated gravel, sand, clay	Miocene to Holocene	alkali basalt (major proportion); tholeiitic basalt (major proportion); alluvium (minor proportion); tuff (minor proportion)	1:50,000
Qc4	granite-derived colluvium (Qc4): generic	Quartz and feldspar sand: well sorted, fine to medium grained; derived from granite	Pleistocene to Holocene	sand (all)	1:50,000
Y-py-f	dyke, feldspar porphyry (Y-py-f): generic	Feldspar porphyry dyke	Paleozoic to Mesozoic	plutonic rock (all)	1:50,000

Geology

250 Drysdale Road, Little River, VIC 3211

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?

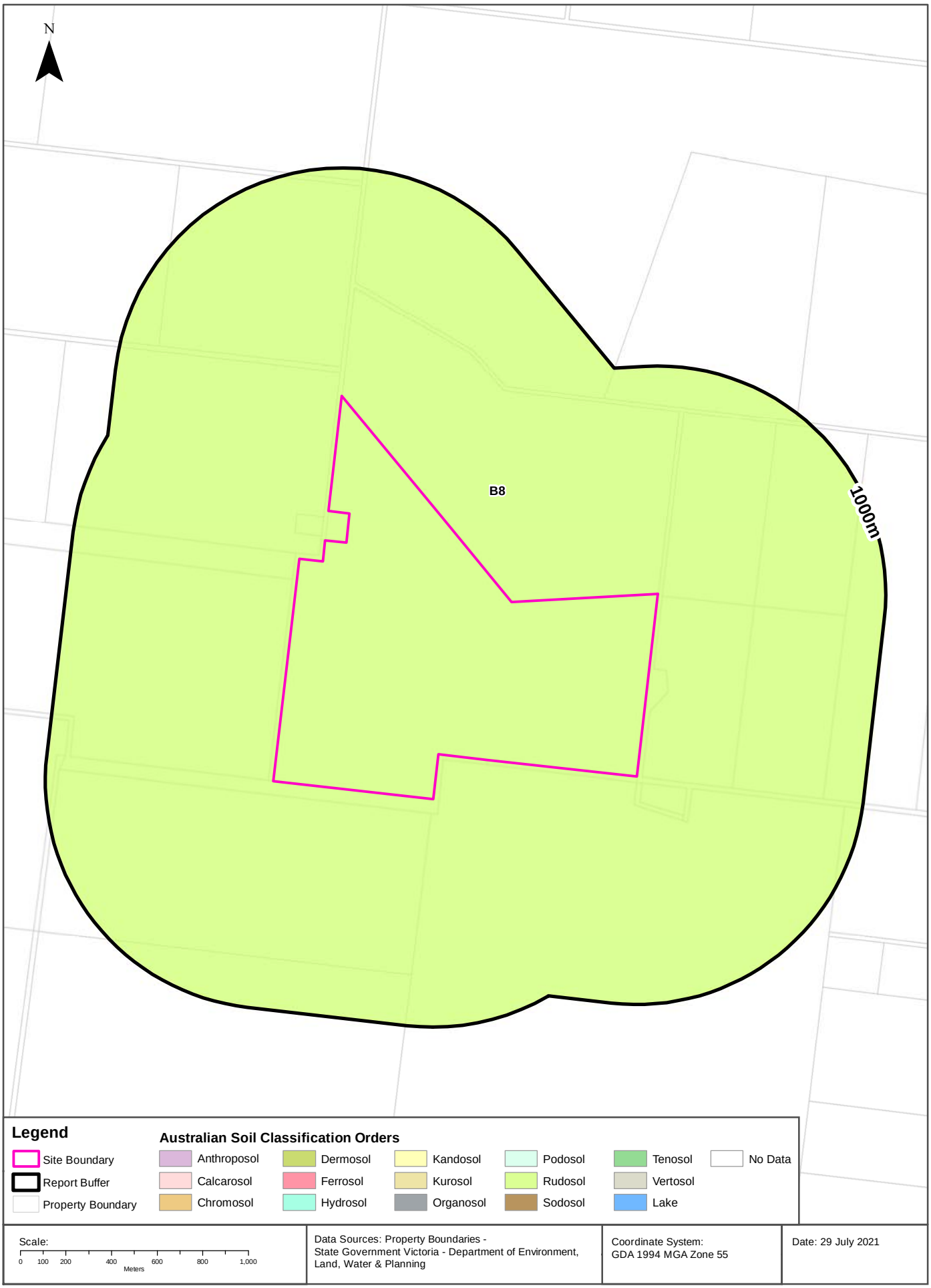
Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

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

250 Drysdale Road, Little River, VIC 3211



Soil Landscapes

250 Drysdale Road, Little River, VIC 3211

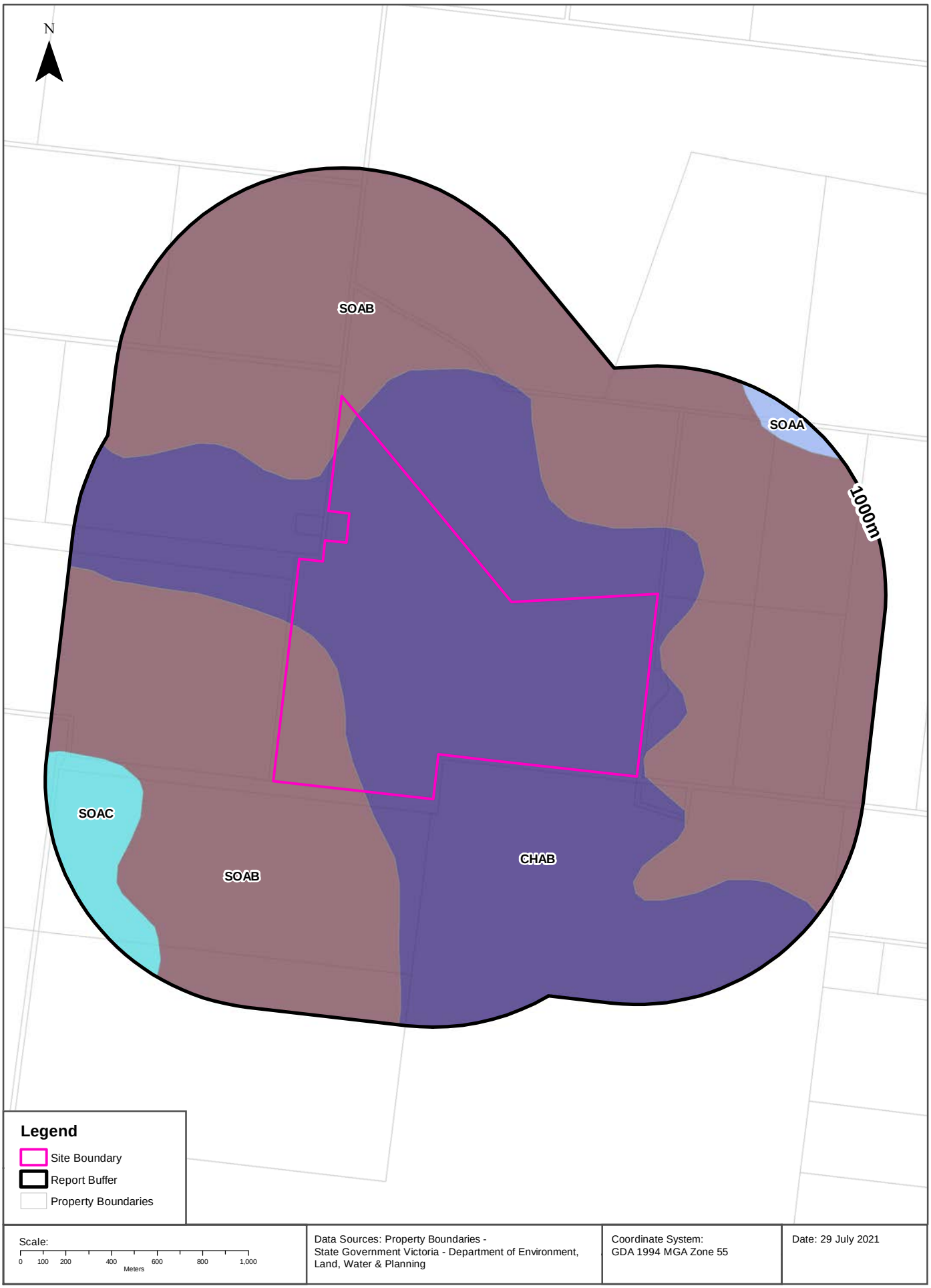
Atlas of Australian Soils

Australian soil types within the dataset buffer:

Symbol	Soil Order	Map Unit Description	Distance
B8	Rudosol	Hilly: steep hills of siliceous sands (Uc1.2) with many rock outcrops, and between the hills low ridges of hard yellow mottled soils (Dy3.4) with some rock outcrops, with hard alkaline yellow mottled soils (Dy3.43) on the colluvial apron flanking the whole urea.	0m

Victorian Soil Type Mapping

250 Drysdale Road, Little River, VIC 3211



Soils Landscapes

250 Drysdale Road, Little River, VIC 3211

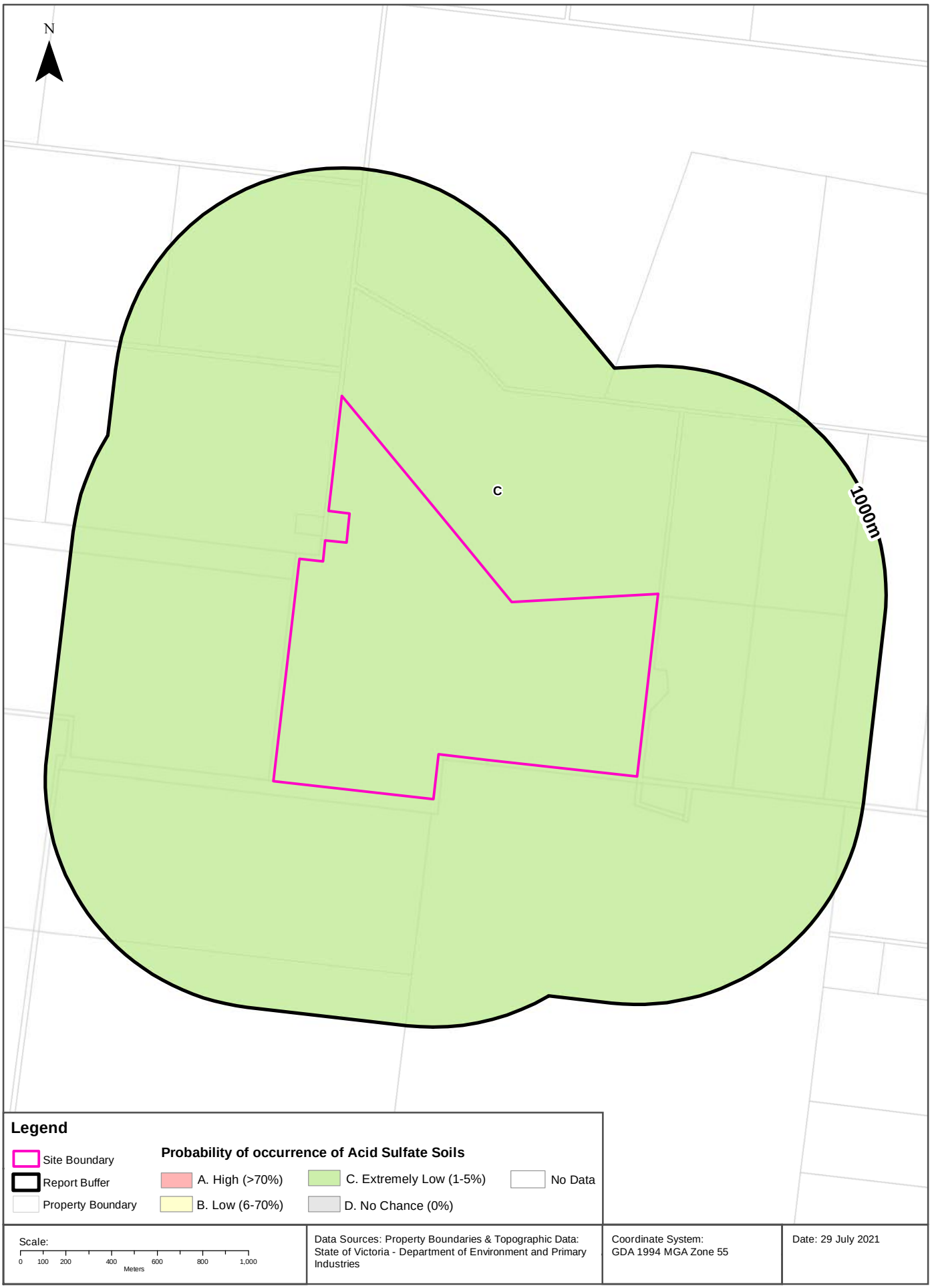
Victorian Soil Type Mapping

Victorian Soil Types within the dataset buffer:

Symbol	Description	Distance
CHAB	Brown Chromosols	0m
SOAB	Brown Sodosols	0m
SOAC	Yellow Sodosols	572m
SOAA	Red Sodosols	859m

Atlas of Australian Acid Sulfate Soils

250 Drysdale Road, Little River, VIC 3211



Acid Sulfate Soils

250 Drysdale Road, Little River, VIC 3211

Atlas of Australian Acid Sulfate Soils

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

PROBCLASS	Description	Distance
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m

Acid Sulfate Soils

250 Drysdale Road, Little River, VIC 3211

Coastal Acid Sulfate Soils

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

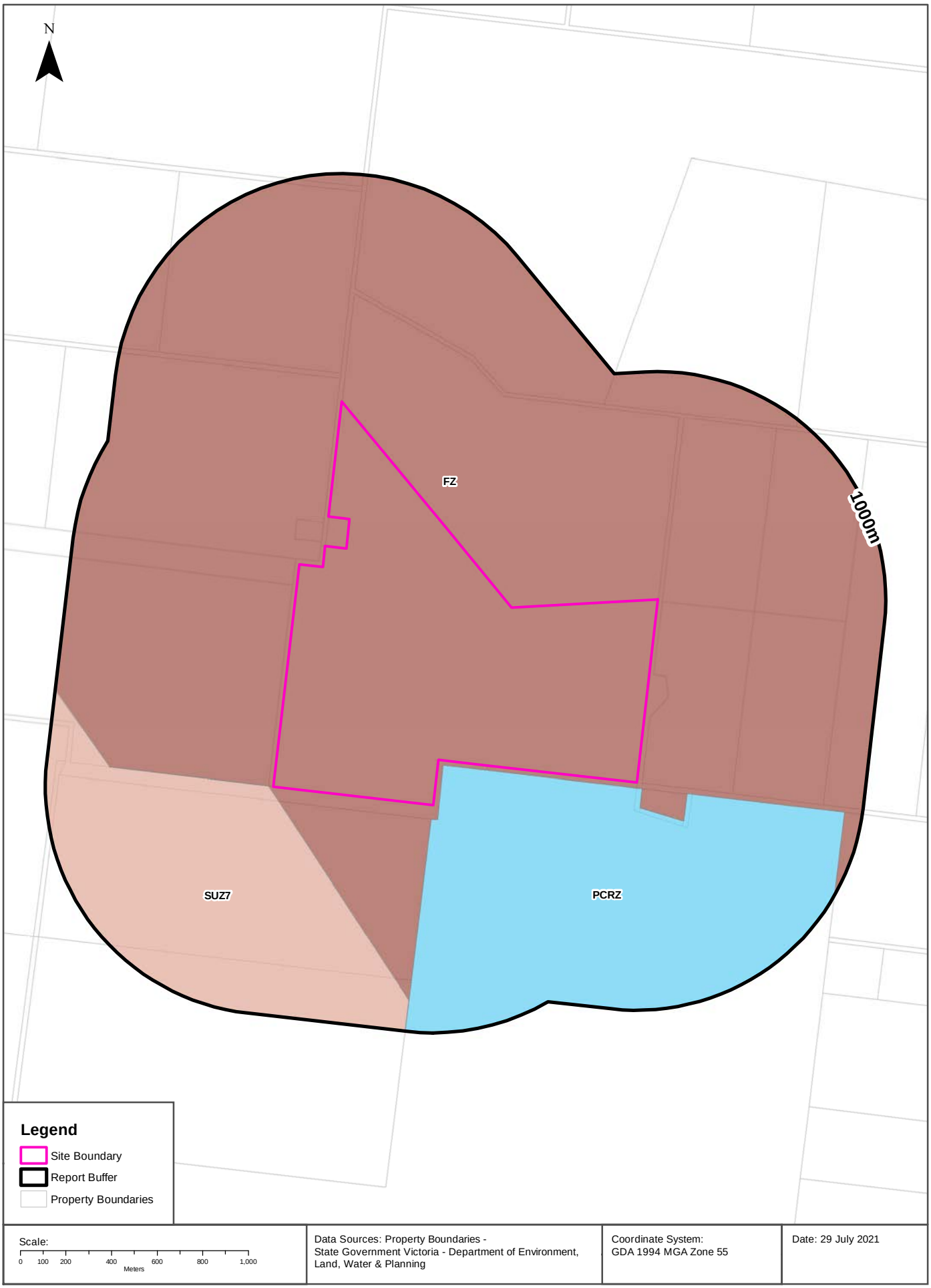
Coastal Acid Sulfate Soil Types
There are no Acid Sulfate areas onsite

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

250 Drysdale Road, Little River, VIC 3211



Planning

250 Drysdale Road, Little River, VIC 3211

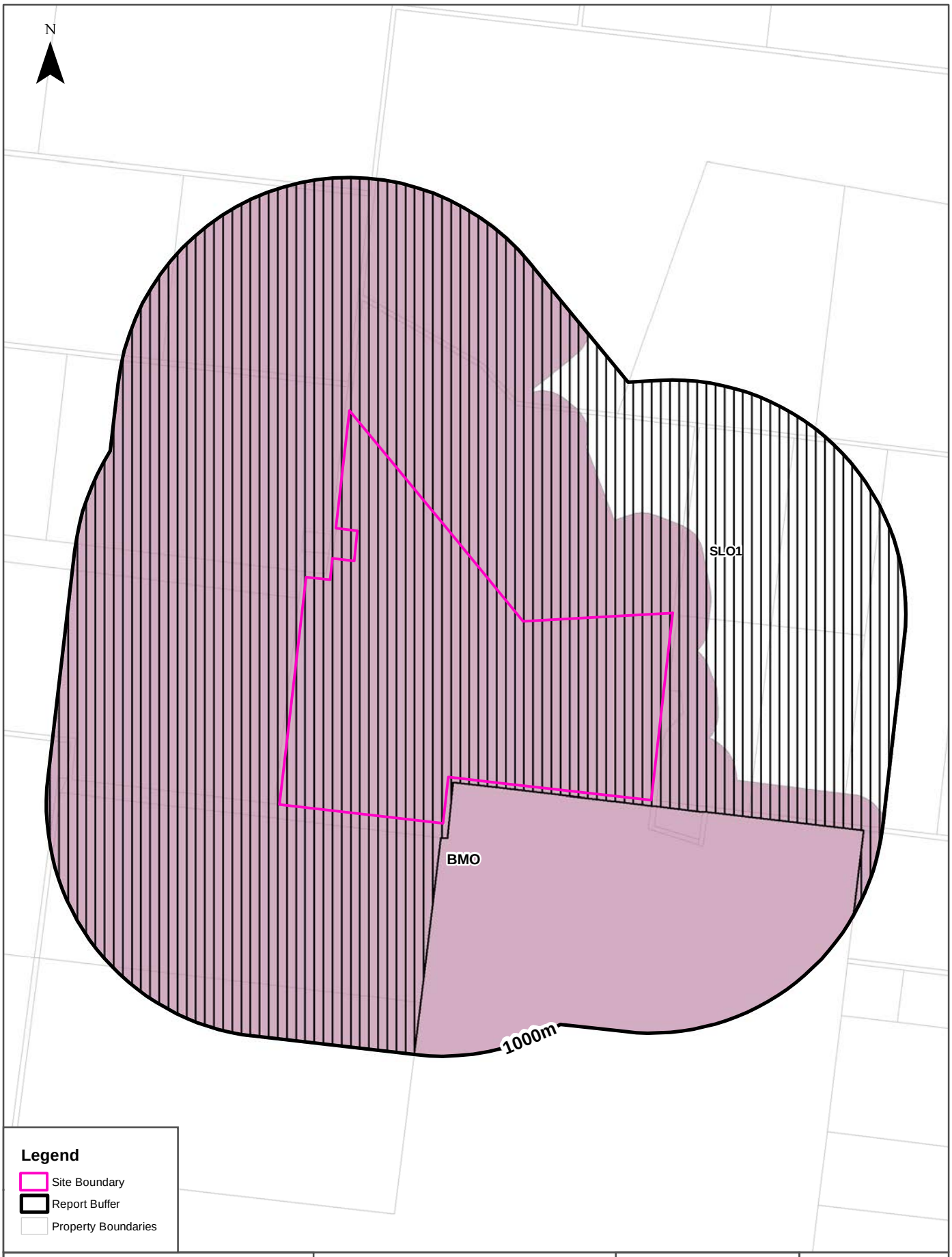
Planning Zones

Planning zones within the dataset buffer:

Zone Code	Description	Distance	Direction
FZ	FARMING ZONE	0m	Onsite
SUZ7	SPECIAL USE ZONE - SCHEDULE 7	17m	South West
PCRZ	PUBLIC CONSERVATION AND RESOURCE ZONE	21m	South

Planning Overlays

250 Drysdale Road, Little River, VIC 3211



Planning

250 Drysdale Road, Little River, VIC 3211

Planning Overlays

Planning overlays within the dataset buffer:

Zone Code	Description	Distance	Direction
BMO	BUSHFIRE MANAGEMENT OVERLAY	0m	Onsite
SLO1	SIGNIFICANT LANDSCAPE OVERLAY - SCHEDULE 1	0m	Onsite

Heritage

250 Drysdale Road, Little River, VIC 3211

Commonwealth Heritage List

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

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

National Heritage List

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

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

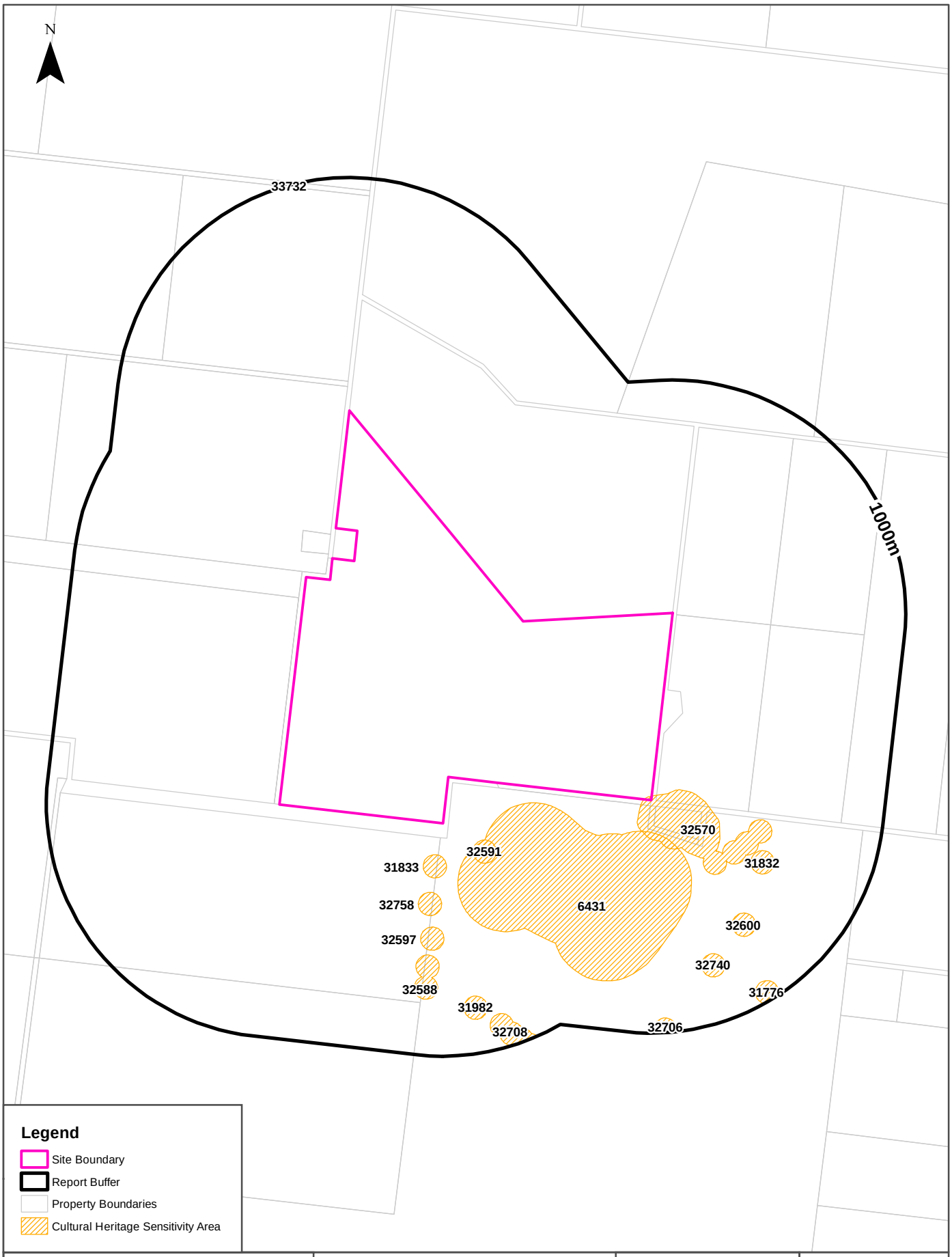
Victorian Heritage Register

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

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

Cultural Heritage Sensitivity

250 Drysdale Road, Little River, VIC 3211



Heritage

250 Drysdale Road, Little River, VIC 3211

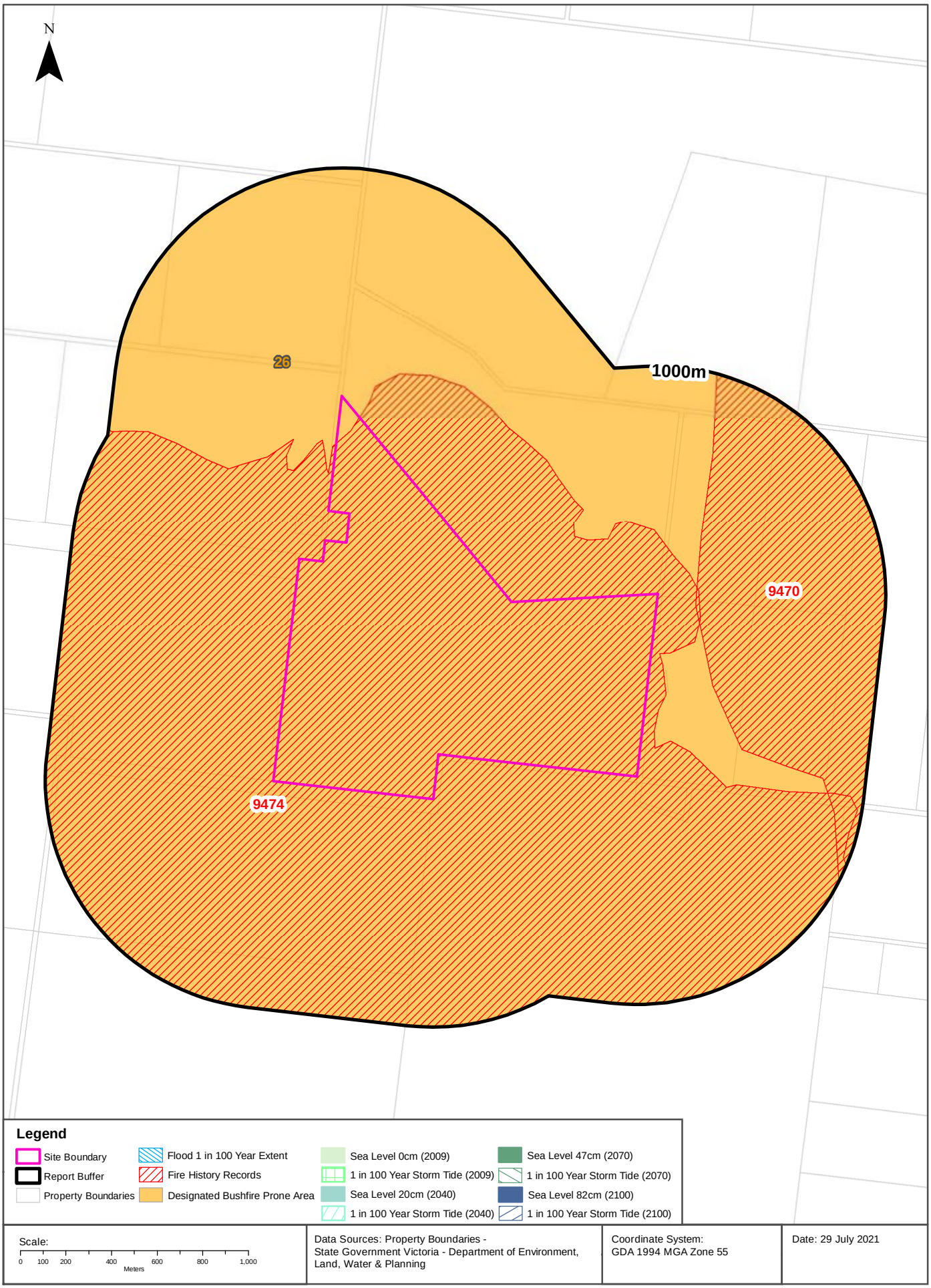
Cultural Heritage Sensitivity

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

Map Id	Distance	Direction
32570	0m	South East
6431	66m	South East
31833	137m	South
32591	167m	South
32758	301m	South
32597	448m	South
31832	498m	South East
32588	569m	South
32600	617m	South East
32740	708m	South East
31982	754m	South
32708	853m	South
31776	913m	South East
32706	937m	South East
33732	996m	North

Natural Hazards

250 Drysdale Road, Little River, VIC 3211



Natural Hazards

250 Drysdale Road, Little River, VIC 3211

Bushfire Prone Areas

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

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
26	Designated Bushfire Prone Area	LEGL./20-480	GREATER GEELONG	01/02/2021	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
9474	BUSHFIRE	W198599999	1985	999	Anakie	FIRE			0m	Onsite
9470	BUSHFIRE	W197799999	1977	999		FIRE			165m	East

Flood - 1 in 100 year modelled flood extent

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

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

Natural Hazards

250 Drysdale Road, Little River, VIC 3211

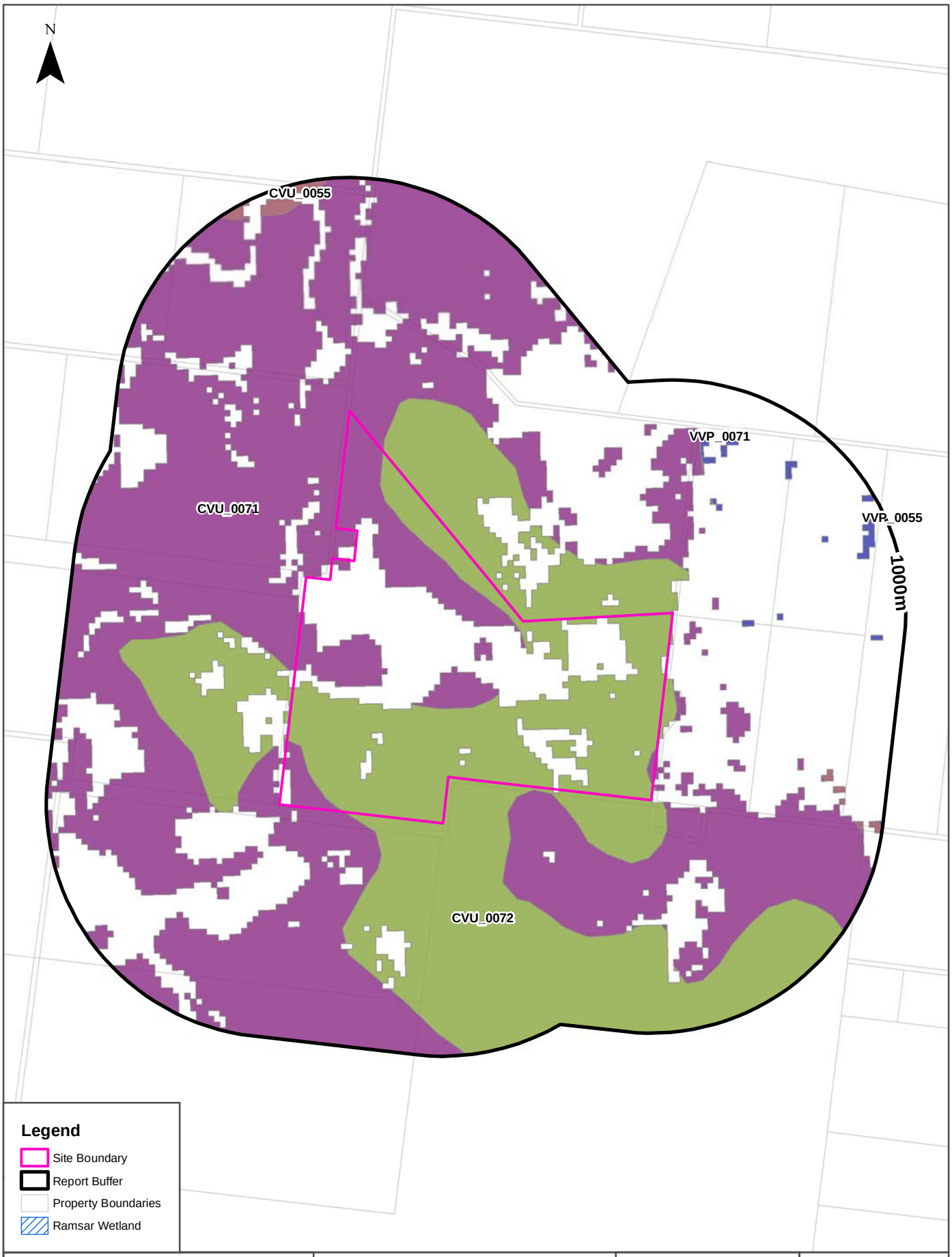
Victorian Coastal Inundation Sea Level Rise

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

Description	Distance	Direction
No records within buffer		

Ecological Constraints - Native Vegetation 2005 & Ramsar Wetlands

250 Drysdale Road, Little River, VIC 3211



Ecological Constraints

250 Drysdale Road, Little River, VIC 3211

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
CVU_0071	Hills Herb-rich Woodland	0071	Lower Slopes or Hills Woodlands	Herb-rich	Central Victorian Uplands	Vulnerable	Common	0m
CVU_0072	Granitic Hills Woodland	0072	Box Ironbark Forests or dry/lower fertility Woodlands		Central Victorian Uplands	Depleted	Common	0m
VVP_0055	Plains Grassy Woodland	0055	Plains Woodlands or Forests	Freely-draining	Victorian Volcanic Plain	Endangered	Common	297m
CVU_0055	Plains Grassy Woodland	0055	Plains Woodlands or Forests	Freely-draining	Central Victorian Uplands	Endangered	Common	299m
VVP_0071	Hills Herb-rich Woodland	0071	Lower Slopes or Hills Woodlands	Herb-rich	Victorian Volcanic Plain	Vulnerable	Naturally Restricted	687m

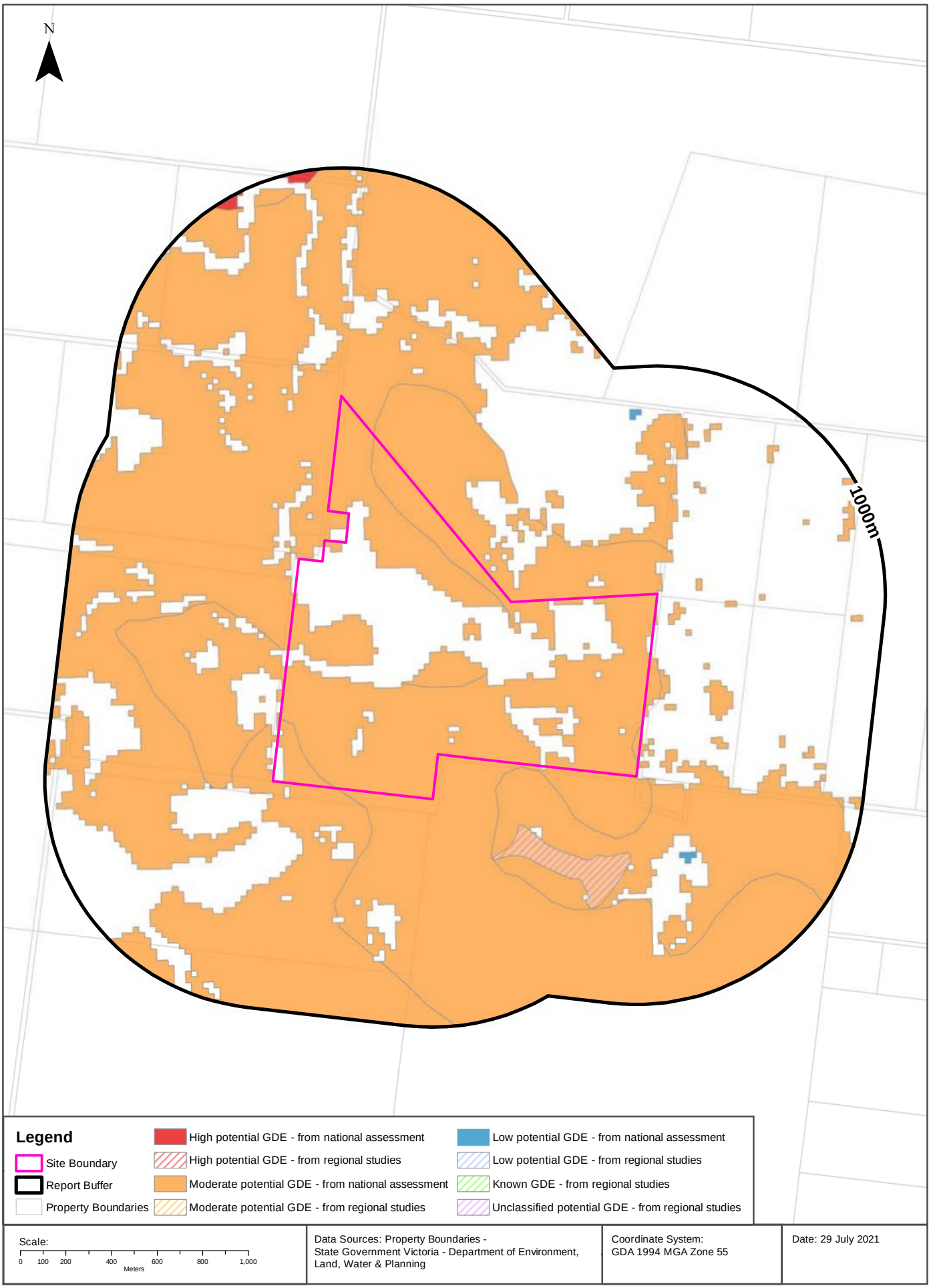
Ramsar Wetlands

What Ramsar wetland areas exist within the dataset buffer?

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

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

250 Drysdale Road, Little River, VIC 3211



Ecological Constraints

250 Drysdale Road, Little River, VIC 3211

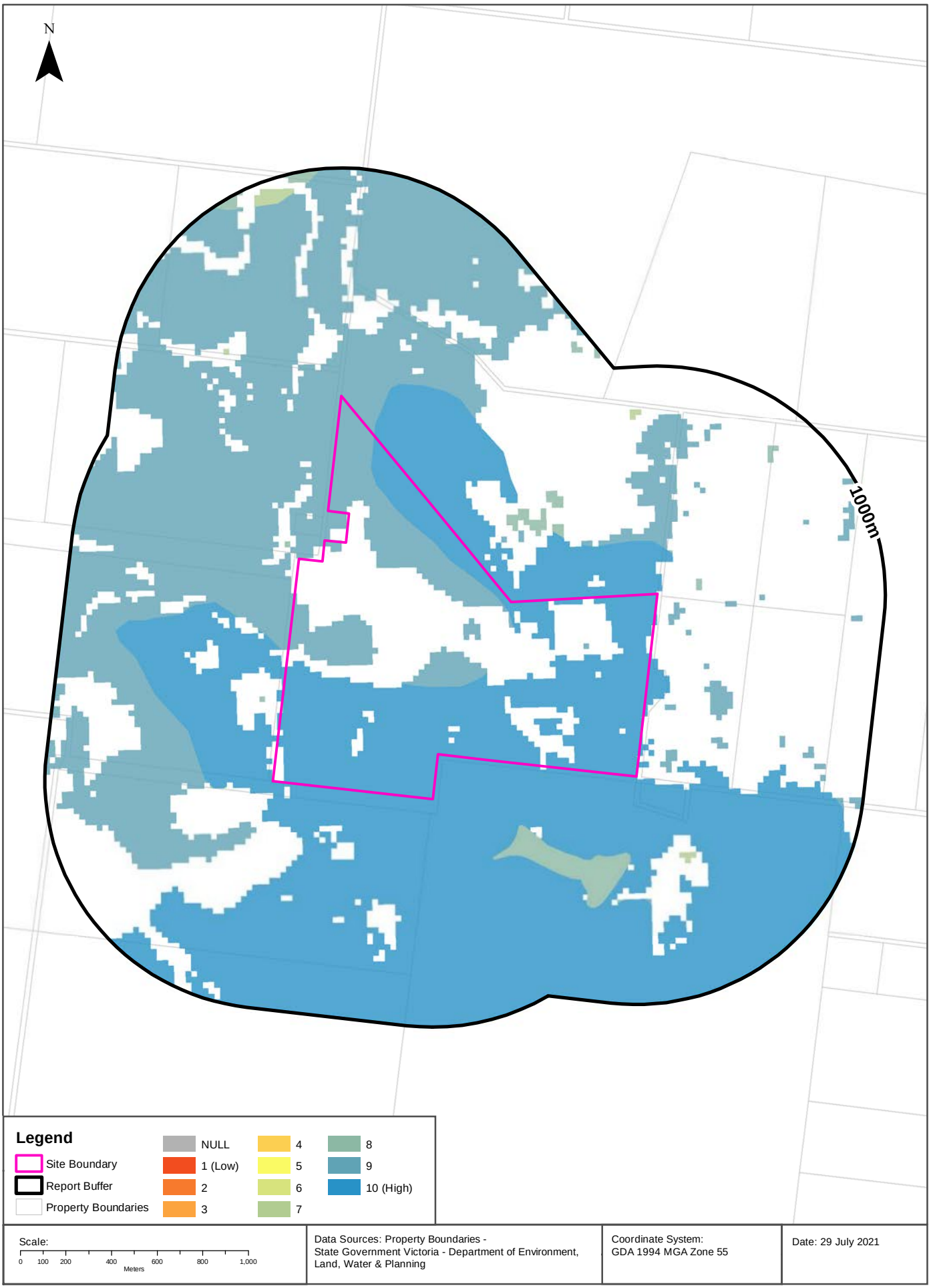
Groundwater Dependent Ecosystems Atlas

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	Fractured rock	0m
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	Fractured rock	153m
Aquatic		Unclassified potential GDE - from regional studies	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Wetland		265m
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	929m

Inflow Dependent Ecosystems Likelihood

250 Drysdale Road, Little River, VIC 3211



Ecological Constraints

250 Drysdale Road, Little River, VIC 3211

Inflow Dependent Ecosystems Likelihood

What IDEs exist within the dataset buffer?

GDE Type	Name	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial		8	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Fractured rock	0m
Terrestrial		9	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Fractured rock	0m
Terrestrial		10	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Fractured rock	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	Fractured rock	153m
Terrestrial		6	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	201m
Aquatic		8	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Wetland		265m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Location Confidences

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

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

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12. These Terms are subject to New South Wales law.

Appendix C: Historical Titles

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

Address: 250 Drysdale Road, Little River, VIC 3211

Description: - Lot 2 P.S. 344713

As regards to the part numbered 1 on attached LASSI Diagram Extract: -

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
07.04.1881 (1881 to 1916)	Patrick Curren (Or Patrick Curran)	Volume 1260 Folio 855 (First Title)
15.08.1916 (1916 to 1928)	Catherine Wilson (Married Woman) Johanna Watson (Married Woman) (Executors of the Will of Patrick Curran)	Volume 1260 Folio 855
01.08.1928 (1928 to 1937)	Catherine Wilson (Married Woman) (Surviving Proprietor)	Volume 1260 Folio 855
01.08.1928 (1928 to 1937)	Hugo Herman Schlapp, the Younger (Grazier)	Volume 1260 Folio 855

As regards to the part numbered 2 on attached LASSI Diagram Extract: -

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
29.09.1880 (1880 to 1929)	Angus McIntosh	Volume 1223 Folio 513 (First Title)
13.08.1929 (1929 to 1929)	James McIntosh (Farmer) (Executor of the Estate of Angus McIntosh)	Volume 1223 Folio 513
13.08.1929 (1929 to 1937)	Hugo Herman Schlapp, the Younger (Grazier)	Volume 1223 Folio 513

As regards to the part numbered 3 on attached LASSI Diagram Extract: -

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
09.09.1880 (1880 to 1895)	Duncan McIntosh	Volume 1213 Folio 529 (First Title)
10.04.1895 (1895 to 1922)	James McIntosh (Farmer) (Executor of the Estate of Duncan McIntosh)	Volume 1213 Folio 529
23.06.1922 (1922 to 1929)	Minnie Gertrude McNaughton (Married Woman)	Volume 1213 Folio 529
07.02.1929 (1929 to 1937)	Hugo Herman Schlapp, the Younger (Grazier)	Volume 1213 Folio 529

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Continued as to the whole of the land: -

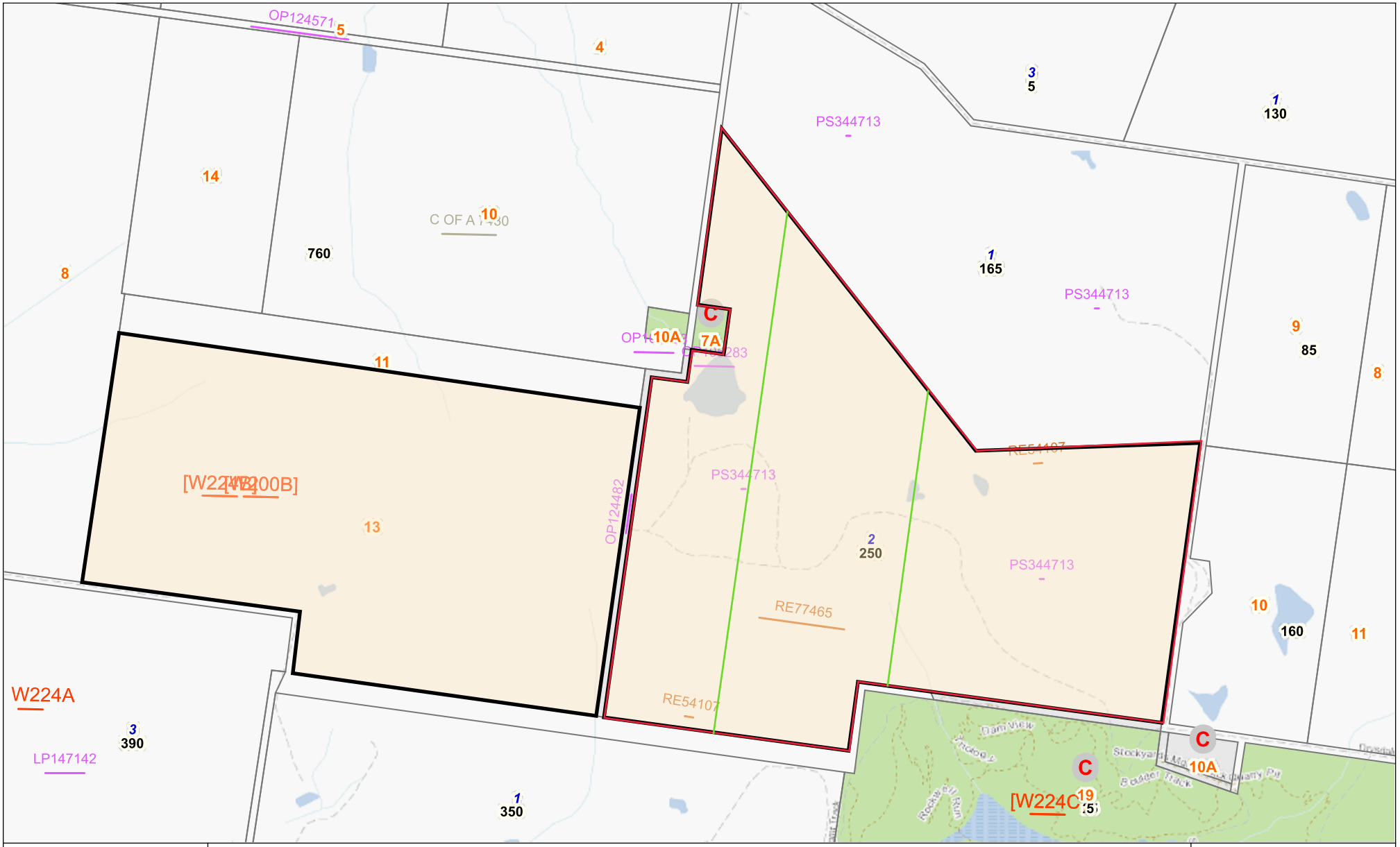
Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
18.05.1937 (1937 to 1971)	James Barnes Kershaw (Grazier)	Volume 1260 Folio 855 **Also** Volume 1223 Folio 513 **Also** Volume 1213 Folio 529
16.04.1971 (1971 to 1972)	Laurence Geoffrey Jennings (Manufacturer) Betty Allison Jennings (Married Woman) (Executors of the Will of James Barnes Kershaw)	Volume 1260 Folio 855 **Also** Volume 1223 Folio 513 **Also** Volume 1213 Folio 529
14.12.1972 (1972 to 1973)	Mitchell and English Sand Proprietary Limited	Volume 1260 Folio 855 **Also** Volume 1223 Folio 513 **Also** Volume 1213 Folio 529
18.12.1973 (1973 to 1980)	Trans-West Cement Haulage Proprietary Limited	Volume 1260 Folio 855 **Also** Volume 1223 Folio 513 **Also** Volume 1213 Folio 529 Now Volume 9007 Folio 644
13.05.1980 (1980 to 2003)	The Phosphate Co-Operative Company of Australia Limited Now Pivot Limited	Volume 1260 Folio 855 Now Volume 9391 Folio 123 **Also** Volume 1223 Folio 513 Now Volume 9391 Folio 122 **Also** Volume 9007 Folio 644 Now All Volume 10275 Folio 234
08.04.2003 (2003 to 2007)	Transwest Haulage Pty Ltd	Volume 10275 Folio 234
12.02.2007 (2007 to 2012)	Kalari Pty Limited	Volume 10275 Folio 234
03.07.2012 (2012 to Date)	# Barro Group Pty Ltd	Volume 10275 Folio 234

 # Denotes current registered proprietor

Leases: - NIL

Easements: -NIL

Yours Sincerely
Taylor Wilson
3rd August 2021



Co-ordinates of Plot Corners		Data Source: Vicmap Property		Co-ordinates of Plot Corners	
NW	271718,5801434	0 100 200 300 400 500 600 700 800 1000m	MGA Zone 55	NE	275692,5801520
SW	271770,5799037	Scale of Metres (1:15,000)	Vicroads- 444 F3 (ed.8)	SE	275744,5799123
MGA Zone 55			Created 02:09 PM on Aug 2, 2021	MGA Zone 55	

PLAN OF SUBDIVISION

STAGE NO. —

LTO use only **EDITION 2**

Plan Number **PS 344713R**

Location of Land

Parish: WURDI YOUANG

Township: -

Section: A , 11

Crown Allotment: 12 & 14 , 7

Crown Portion: -

LTO Base Record: LITHO (3910)

Title Reference: V.9391 F.122, V.9391 F.123, V.9007 F.644

Last Plan Reference: -

Postal Address: 165 GIFKINS ROAD, LITTLE RIVER, 3211
(at time of subdivision)

AMG Co-ordinates (of approx. centre of land in plan) E 274400 N 5800400 Zone: 55

Council Certificate and Endorsement

Council Name: CITY OF GREATER GEELONG Ref:

~~1. This plan is certified under section 6 of the Subdivision Act 1988.~~

2. This plan is certified under section 11(7) of the Subdivision Act 1988.
Date of original certification under section 6 14 / 8 / 95

3. This is a statement of compliance issued under section 21 of the Subdivision Act 1988.

OPEN SPACE

(i) A requirement for public open space under section 18 of the Subdivision Act 1988 ~~has~~/has not been made.

~~(ii) The requirement has been satisfied.~~

~~(iii) The requirement is to be satisfied in Stage ....~~

Council delegate
~~Council seal~~

Date 3 / 1 / 96

Re-certified under section 11(7) of the Subdivision Act 1988

Council Delegate
Council Seal

Date / /

Vesting of Roads and/or Reserves

Identifier	Council/Body/Person
NIL	NIL

Notations

Staging This ~~is~~/is not a staged subdivision
Planning Permit No.

Depth Limitation DOES NOT APPLY.

LOTS 1 AND 2 ARE THE SUBJECT OF THIS SURVEY EXCEPT THOSE DIMENSIONS OF LOT 2 WHICH ARE UNDERLINED.

Survey This plan is/~~is not~~ based on survey

This survey has been connected to permanent marks no(s) 13

In Proclaimed Survey Area No. —

Easement Information

Legend: E - Encumbering Easement or Condition in Crown Grant in the Nature of an Easement
A - Appurtenant Easement R - Encumbering Easement (Road)

Easement Reference	Purpose	Width (Metres)	Origin	Land Benefited/In Favour Of
NIL	NIL	NIL	NIL	NIL

LTO use only

Statement of Compliance/ Exemption Statement

Received ☑

Date 9 / 6 / 95

LTO use only

PLAN REGISTERED

TIME 1-05PM

DATE 20 / 3 / 96

....
Assistant Registrar of Titles

Sheet 1 of 2 Sheets

THOMS & PARTNERS PTY. LIMITED
SURVEYORS ENGINEERS LAND DEVELOPMENT CONSULTANTS
115 YARRA STREET, GEELONG, VIC., 3220
Telephone (052) 29 9147 Fax (052) 22 1891

LICENSED SURVEYOR (PRINT) RAYMOND JAMES DUNN

SIGNATURE.................................... DATE 22 / 12 / 95

REF 94-189 VERSION 3

DATE 3 / 1 / 96

COUNCIL DELEGATE SIGNATURE

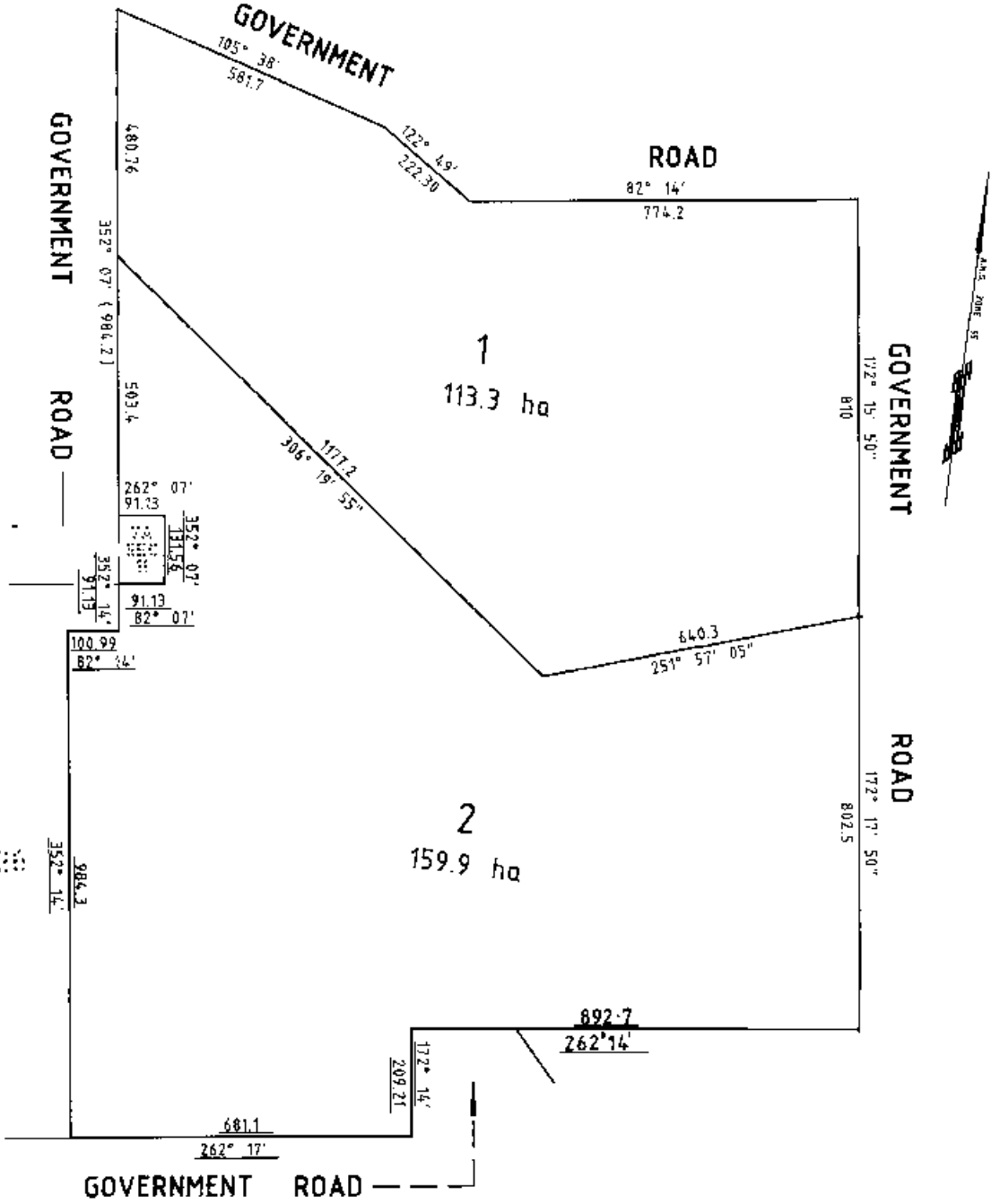
Original sheet size A3

T.0.1

PLAN OF SUBDIVISION

Stage No. /

Plan Number
PS 344713 R



THOMS & PARTNERS PTY. LIMITED
SURVEYORS : ENGINEERS : LAND DEVELOPMENT CONSULTANTS
ACN 008 188 811
113 YARRA STREET, GEELONG VIC., 3220
Telephone: (052) 22 3147. Fax: (052) 22 1991

Sheet 2 of 2 Sheets

ORIGINAL

SCALE	SHEET SIZE
1:8000	A3

SCALE
80 0 100 200 300 400
LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) RAYMOND JAMES DUNN
SIGNATURE ..... DATE / /
REF 94-189 VERSION 3

DATE 3 / 1 / 96
COUNCIL DELEGATE'S SIGNATURE

Original sheet size A3

T.O.2

MODIFICATION TABLE

RECORD OF ALL ADDITIONS OR CHANGES TO THE PLAN

PLAN NUMBER

PS344713R

WARNING: THE IMAGE OF THIS DOCUMENT OF THE REGISTER HAS BEEN DIGITALLY AMENDED. NO FURTHER AMENDMENTS ARE TO BE MADE TO THE ORIGINAL DOCUMENT OF THE REGISTER.

AFFECTED LAND/PARCEL	LAND/PARCEL IDENTIFIER CREATED	MODIFICATION	DEALING NUMBER	DATE	EDITION NUMBER	ASSISTANT REGISTRAR OF TITLES
-	-	ROAD ABUTTAL AMENDMENT	AS127107V	1/05/19	2	SN

PARCELLED

3910
WURDI-YOUANG
PARISH SERIES 1979

PARISH OF WURDI-YOUANG
COUNTY OF GRANT
SCALE 1:16,000

METRES 0 500 1000 1500 2000 2500 3000 METRES

AUSTRALIAN MAP GRID ZONE 55 - GRID INTERVAL 1,000 METRES
1:100,000 MAP SHEET 7722
REFERENCE CO-ORDINATES 740 000

269000 270000 271000 272000 273000 274000 275000 276000 277000 278000 279000 280000

5807000 5806000 5805000 5804000 5803000 5802000 5801000 5800000 5799000 5798000 5797000 5796000 5795000 5794000 5793000 5792000 5791000

BALLIANG

LITTLE RIVER

BALLIANG CREEK

NO SEC

Roads Opened & Closed by Shire GAZ.1875-1206

S.E.C. EASEMENT

A

WATER RESERVE

10A STATE SCHOOL RESERVE

Road Closed GAZ.1930-1812

ROAD CLOSED R11744 GAZ.1982-3765

BULBAN

MOYONG PRE-EMPTIVE RIGHT

LARA

STATION PEAK PRE-EMPTIVE RIGHT A

Road Closed GL/16479 Gaz. 1930-3810 LI- 3383

Road Closed LI-635 Gaz. 1984-2226

12A of 11

15 OF

16 OF 11

17 OF 11

18 OF 11

19 OF 11

~~RESERVED FOREST~~ REVOKED GAZ.1992-2212

F.A. 1958.6254

YOU YANGS REGIONAL PARK
1960 ha
74/636
GAZ 1992-2212

CROWN LAND FORMING BED OF CREEK AND 30.18 METRES FROM EACH BANK PERMANENTLY RESERVED FOR PUBLIC PURPOSES GAZ. 1881 - 1389

HOVELL CREEK

CROWN LAND FORMING BED OF RIVER AND 30.18 METRES FROM EACH BANK PERMANENTLY RESERVED FOR PUBLIC PURPOSES GAZ 1881 - 1389

LITTLE RIVER

15A

13 OF NO SEC.

1A OF NO SEC

2 OF NO SEC

NO SEC

9 OF C

MORANGHURK

WOORNYALOOK

MURTCAIM

TO MELBOURNE

GEELONG AND MELBOURNE RAILWAY

D OF 5

TO GEELONG

LEGEND

CROWN ALLOTMENT NUMBERS	12F
SECTION NUMBERS	D
SECTION BOUNDARY	
TOWNSHIP BOUNDARY	
PARISH BOUNDARY	
COUNTY BOUNDARY	
STATE BOUNDARY	
RESERVED FOREST BOUNDARY	
FREEHOLD ALLOTMENTS	12F

NOTES

ROADS ARE 20·12 METRES WIDE UNLESS OTHERWISE STATED

FOR CROWN GRANT DETAILS OF ALLOTMENTS SEE SEPARATE SCHEDULES

APPLICATIONS MAY BE MADE TO CENTRAL PLAN OFFICE FOR DIMENSIONS OF ALLOTMENTS

THIS SHEET COMPRISES PART OF SHIRE OF CORIO

TRUE NORTH
GRID NORTH
CONVERGENCE 1°35'

COMPARED WITH PREVIOUS RECORD PLAN
S. BLASCHKE 6-8-80

WURDI-YOUANG
PARISH SERIES 1979
3910
PARCELLED

Historical Search

The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 02/08/2021 02:14 PM

Volume 1260 Folio 855
Folio Creation: Details Unknown

STATEMENT END

Delivered from the LANDATA® System by InfoTrack Pty Ltd.

VOL 1260 FOL 855

CANCELLED

Registrar of Titles.

30 MAY 2000

11177
20 Dec 1869

Victoria 1260/855

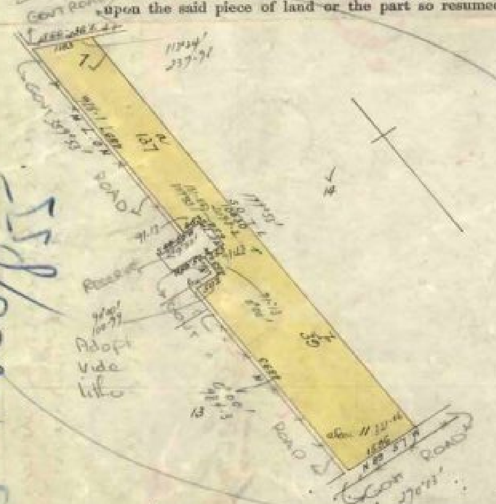
by the Grace of God of the United Kingdom of Great Britain and Ireland Queen Defender of the Faith to all to whom these presents shall come Greeting

Whereas in conformity with the laws relating to the sale and occupation of Crown Lands in our Colony of Victoria the person hereinafter named has in consideration of the sum of *One hundred and thirty eight pounds* which sum has been duly paid to us become entitled to a grant in fee-simple of the land hereinafter described **Now know ye** that in consideration of the sum so paid and in pursuance of *The Land Act 1869* WE DO HEREBY GRANT unto *Patrick Curran of Little River* his heirs and assigns **All that piece of Land** in the said Colony containing *One hundred and thirty seven acres one rood and thirty nine perches more or less being allotment seven of Section eleven in the parish of Wurdiboluc County of Grant* delineated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein colored yellow **To hold** unto the said *Patrick Curran* his heirs and assigns for ever Excepting however unto us our heirs and successors all gold and auriferous earth or stone and all mines containing gold within the boundaries of the said land And also reserving to us our heirs and successors free liberty and authority for us our heirs and successors and our and their agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold and to extract and remove therefrom any gold and any auriferous earth or stone and for the purposes aforesaid to sink shafts erect machinery carry on any works and do any other things which may be necessary or usual in mining Provided always that it shall be lawful for us our heirs and successors at any time on paying full compensation to the said *Patrick Curran* his heirs executors administrators or assigns for the full value other than auriferous of the said piece of land or so much thereof as may be resumed as hereinafter mentioned and of the improvements upon the said piece of land or the part so resumed such value in case of disagreement to be ascertained by arbitration to resume the said piece of land or any part thereof for mining purposes And that the terms conditions and events upon which such land may be resumed and the manner in which such arbitration may be conducted may be determined by regulations in such manner as the Governor in Council may from time to time direct or if at any time no such regulations shall be in force then by the regulations concerning the resumption of land for mining purposes in force at the date of this Grant unless Parliament shall otherwise determine

In testimony whereof we have caused this our Grant to be sealed with the Seal of the said Colony **Witness** our trusty and well-beloved the Most Honorable George Augustus Constantine Marquis of Normanby Earl of Mulgrave Viscount Normanby and Baron Mulgrave of Mulgrave all in the County of York in the Peerage of the United Kingdom and Baron Mulgrave of New Ross in the County of Wexford in the Peerage of Ireland a Member of Her Majesty's Most Honorable Privy Council Knight Grand Cross of our Most Distinguished Order of Saint Michael and Saint George Governor and Commander-in-Chief of the said Colony of Victoria and its Dependencies and Vice-Admiral of the same at Melbourne this *Seventh* day of *April* in the *forty fourth* year of our Reign and in the year of our Lord One thousand eight hundred and eighty *one*

Normanby

ORIGINAL CROWN GRANT
NOT TO BE DEALT WITH OUTSIDE THE TITLES OFFICE



NOTE.—*The bearings and measurements are approximately given in this plan. The measurements are in links.*

1260/855

H979604
2nd Cert

224/21

T01260-855-1-5

MEMORIALS OF INSTRUMENTS.

Nature of Instrument.	Time of its Production for Registration.	Names of the Parties to it.	Number or Symbol thereon.

The day of 18 , at o'clock in the noon.

Red Ink No. 1788963

Patrick Curran hereon called Patrick Curren died the 31st March 16 Probate of his will has been granted to Catherine Wilson and Johanna Watson both of Little River Married Woman

Dated the 15th day of August 1916

10.10.16.

Assistant Registrar of Titles.

Red Ink No. 2943200

Catherine Wilson the survivor of the proprietors named herein, is, by direction of The Commissioner of Titles, now registered as Sole proprietor of the land now comprised herein.

DATED 1st August 1928

Assistant Registrar of Titles.

S.O.

Hugo Herman Schlapp the Younger of 360 Collins Street Melbourne Grazier is now the proprietor of the within described estate by transfer registered on 1st August 1928 and numbered 1326534

Assistant Registrar of Titles

MORTGAGE to The Presbyterian Church of Victoria Trusts Corporation registered on 1st August 1929 numbered 626859

Assistant Registrar of Titles

James Barnes Kershaw of Oxford Chambers 473 Bourke Street Melbourne Grazier is now the proprietor of the within described estate by transfer registered on 18th May 1937 and numbered 1648228

Assistant Registrar of Titles

MORTGAGE to The Presbyterian Church of Victoria Trusts Corporation registered 18th May 1937 numbered 738335

Assistant Registrar of Titles

CAVEAT No. D902230 LODGED 2/12/70

CAVEAT LAPSED 17 JAN 1973

JAMES BARNES KERSHAW died on 6th December 1970 Probate of his Will has been granted to LAURENCE GEOFFREY JENNINGS Manufacturer and BETTY ALLISON JENNINGS Married Woman both of 72 Oak Street Beaumaris Registered 16th April 1971 No.E15863

MITCHELL AND ENGLISH SAND AND GRAVEL PROPRIETARY LIMITED of 5 Balmoral Crescent North Geelong is now the proprietor Registered 14th December 1972 No.E638866

MORTGAGE to AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED Registered 14th December 1972 No.E638867

DISCHARGED

TRANS-WEST CEMENT HAULAGE PROPRIETARY LIMITED of 16 Aberdeen Street Geelong is now the proprietor Registered 18th December 1973 No.F137959

MORTGAGE to MITCHELL AND ENGLISH SAND AND GRAVEL PROPRIETARY LIMITED Registered 18th December 1973 No.F137960

DISCHARGED

MORTGAGE to BANK OF NEW SOUTH WALES Registered 8th February 1974 No.F203703

DISCHARGED 15 MAR 1980

For Continuation of Endorsement see annexed sheet Dated

This is the Sheet marked A *referred to in the Certificate of Title entered in the Register Book Vol.* 1260 *Fol.* 955

ORIGINAL

W.M.S. *Assistant Registrar of Titles.*

CAVEAT No. H902092 LODGED 13-3-80

CAVEAT WITHDRAWN BEFORE ENTRY 23 JUL 1980

CAVEAT No. J84286 LODGED 25-7-80

Caveat transferred to new C/T

TRANSFER No. H979604 registered 13th May 1980

CANCELLED See Vol. 9391 Fol. 123

CANCELLED

T01260-855-2-3

Historical Search

The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 02/08/2021 01:52 PM

Volume 9391 Folio 123
Folio Creation: Created as paper folio continued as computer folio
Parent title Volume 01260 Folio 855

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details
01/01/1700	20/03/1996	PS344713R	Y	Cancelled by PS344713R

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged

STATEMENT END

Delivered from the LANDATA® System by InfoTrack Pty Ltd.

H979604 2nd Cert.

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

VICTORIA

CANCELLED

REGISTER BOOK VOL. 9391 FOL. 123

Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

FOL.

VOL.

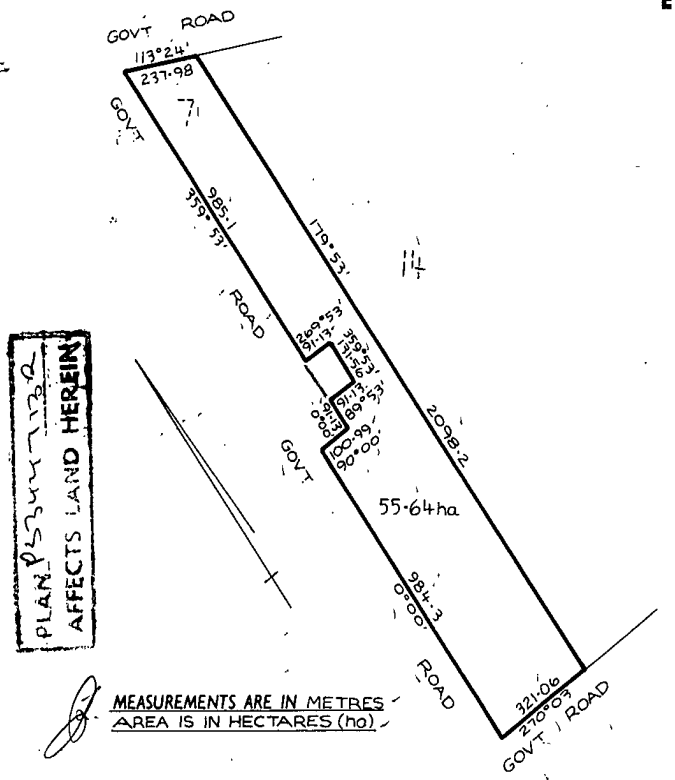
THE PHOSPHATE CO-OPERATIVE COMPANY OF AUSTRALIA LIMITED of 550 Bourke Street Melbourne is the proprietor of an estate in fee simple subject to the encumbrances notified hereunder in all that piece of land in the Parish of Wurdi Youang County of Grant being Crown Allotment 7 Section Eleven which land is shown enclosed by continuous lines on the map hereon

DATED the 13th day of May 1980

Assistant Registrar of Titles

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO



PLAN P133477Q AFFECTS LAND HEREIN

T09391-123-1-4

Derived from Vol.1260 Fol.855
H979604

VOL. 9391 FOL. 123 INSTRUMENT APPLICATION 10322/79—PL—6

CAVEAT No. 364286 LODGED 25-6-80

CAVEAT WITHDRAWN 15/7/80

OFFICE OF TITLES A.R.B. VICTORIA

OFFICE OF TITLES R.G.

CANCELLED

NO. PS344713R

OFFICE OF TITLES A.J.C.

F. D. Atkinson, Government Printer, Melbourne

Historical Search

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HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 02/08/2021 02:14 PM

Volume 1223 Folio 513
Folio Creation: Created as paper folio continued as computer folio

STATEMENT END

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VOL 1223 FOL 513

1223/244513

omit GON 15/9/80

Entered in the Reg. Vol. 1223 Folio 513

Registrar of

CANCELLED

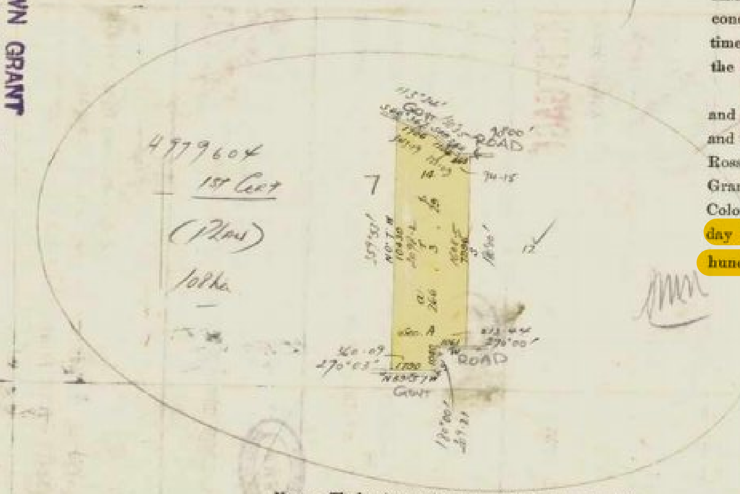
Victoria

by the Grace of God of the United Kingdom of Great Britain and Ireland QUEEN Defender of the Faith to all to whom these presents shall come Greeting: **Whereas** in conformity with the laws relating to the sale and occupation of Crown Lands in our Colony of Victoria the person hereinafter named has in consideration of the sum of *Two hundred and sixty seven pounds* which sum has been duly paid to us become entitled to a grant in fee-simple of the land hereinafter described **Now know ye** that in consideration of the sum so paid and in pursuance of *The Land Act 1869* WE DO HEREBY GRANT unto *Angus McIntosh* of *Little River* VOL: 1223 - 513 *his* heirs and assigns **All** THAT PIECE OF LAND in the said Colony containing *two hundred and sixty six acres three roods and twenty nine perches more or less being Allotment fourteen of Section A in the Parish of Wurdiyouang County of Grant*

delineated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein colored yellow **To hold** unto the said *Angus McIntosh*

his heirs and assigns for ever EXCEPTING however unto us our heirs and successors all gold and auriferous earth or stone and all mines containing gold within the boundaries of the said land AND ALSO reserving to us our heirs and successors free liberty and authority for us our heirs and successors and our and their agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold and to extract and remove therefrom any gold and any auriferous earth or stone and for the purposes aforesaid to sink shafts erect machinery carry on any works and do any other things which may be necessary or usual in mining PROVIDED ALWAYS that it shall be lawful for us our heirs and successors at any time on paying full compensation to the said *Angus McIntosh* *his* heirs executors administrators or assigns for the full value other than auriferous of the said piece of land or so much thereof as may be resumed as hereinafter mentioned and of the improvements upon the said piece of land or the part so resumed such value in case of disagreement to be ascertained by arbitration to resume the said piece of land or any part thereof for mining purposes AND THAT the terms conditions and events upon which such land may be resumed and the manner in which such arbitration may be conducted may be determined by regulations in such manner as the Governor in Council may from time to time direct or if at any time no such regulations shall be in force then by the regulations concerning the resumption of land for mining purposes in force at the date of this Grant unless Parliament shall otherwise determine

In testimony whereof we have caused this our Grant to be sealed with the Seal of the said Colony **Witness** our trusty and well-beloved the Most Honorable George Augustus Constantine Marquis of Normanby Earl of Mulgrave Viscount Normanby and Baron Mulgrave of Mulgrave all in the County of York in the Peerage of the United Kingdom and Baron Mulgrave of New Ross in the County of Wexford in the Peerage of Ireland a Member of Her Majesty's Most Honorable Privy Council Knight Grand Cross of our Most Distinguished Order of Saint Michael and Saint George Governor and Commander-in-Chief of the said Colony of Victoria and its Dependencies and Vice-Admiral of the same at Melbourne this *twenty ninth* day of *September* in the *forty fourth* year of our Reign and in the year of our Lord One thousand eight hundred and eighty



NOTE.—*The bearings and measurements are approximately given in this plan. The measurements are in links.*

W. 224

Normanby

T01223-513-1-2

MEMORIALS OF INSTRUMENTS.

Nature of Instrument.	Time of its Production for Registration.	Names of the Parties to it.	Number or Symbol thereon.
CAVEAT Nº 76891 LODGED 7th August 1928		MITCHELL AND ENGLISH SAND AND GRAVEL PROPRIETARY LIMITED of 5 Balmoral Crescent North Geelong is now the proprietor Registered 14th December 1972 No.Eb38866	W.M.S.
CAVEAT Nº 76891 LAPSED 13th August 1929		MORTGAGE to AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED Registered 14th December 1972 No.E355687	W.M.S.
Red Ink No. 3037/19 Angus McIntosh died on 13th August 1923 Letters of Administration have been granted to James McIntosh of You Yangs Little River Farmer DATED 13th August 1929		TRANS-WEST CEMENT HAULAGE PROPRIETARY LIMITED of 16 Aberdeen Street Geelong is now the proprietor Registered 18th December 1973 No.F137959	A.R.
To Herman Schlapp the Younger of Collins Street Melbourne Grazier is now the proprietor of the within described estate by transfer registered on 13th August 1929 and numbered 1425595		MORTGAGE to MITCHELL AND ENGLISH SAND AND GRAVEL PROPRIETARY LIMITED Registered 18th December 1973 No.F137960	A.R.
MORTGAGE to The Presbyterian Church of Victoria Trusts Corporation registered on 1929 numbered 626859		MORTGAGE to BANK OF NEW SOUTH WALES Registered 20th February 1974 No.F207 DISCHARGED 5 MAR 1980	R.L.
is Barnes Kershaw of Oxford Chambers Bourke Street Melbourne Grazier the proprietor of the within described estate by transfer registered on 18th May 1937 and numbered 1648228		CAVEAT No. M902092 LODGED 13-3-80 CAVEAT WITHDRAWN BEFORE ENTRY 23 JUL 1980	W.M.S.
MORTGAGE to The Presbyterian Church of Victoria Trusts Corporation registered on 18 May 1937 numbered 738335 DISCHARGED		CAVEAT No. J84276 LODGED 25-7-80 Caveat transferred to new C/T	
CAVEAT No D902230 LODGED 2 DEC 1970 CAVEAT LAPSED 17 JAN 1973		TRANSFER No. H979604 registered 13th May 1980 CANCELLED See Vol. 9391 Fol. 122	A.W.R. I.S.
S.O. James BARNES KERSHAW died on 6th December 1970 Probate of his Will has been granted to LAURENCE GEOFFREY JENNINGS Manufacturer and BETTY ALLISON JENNINGS Married Woman both of 72 Oak Street Beaumaris Registered 16th April 1971 No.E15863		CANCELLED	A.W.R.

Assistant Registrar of Titles

Historical Search

The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 02/08/2021 01:53 PM

Volume 9391 Folio 122
Folio Creation: Created as paper folio continued as computer folio
Parent title Volume 01223 Folio 513

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details
01/01/1700	20/03/1996	PS344713R	Y	Cancelled by PS344713R

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged

STATEMENT END

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H979604 1st Cert.

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

VICTORIA

CANCELLED

REGISTER BOOK

VOL. 9391 FOL. 122

Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

THE PHOSPHATE CO-OPERATIVE COMPANY OF AUSTRALIA LIMITED of 550 Bourke Street Melbourne is the proprietor of an estate in fee simple subject to the encumbrances notified hereunder in all that piece of land in the Parish of Wurdi Youang County of Grant being Crown Allotment 14 Section A which land is shown enclosed by continuous lines on the map hereon

FOL.

VOL.

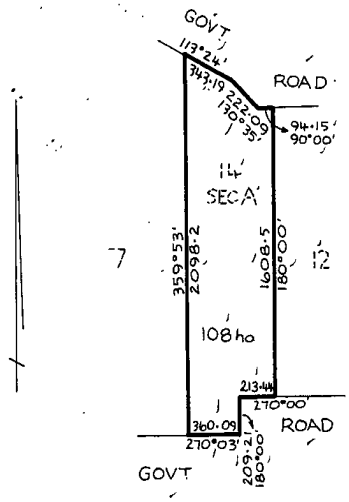
DATED the 13th day of May 1980

PLAN PS344132Z AFFECTS LAND HEREIN

Assistant Registrar of Titles

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO



MEASUREMENTS ARE IN METRES
AREA IS IN HECTARES (ha)

T09391-122-1-8

Derived from Vol.1223 Fol.513
H979604

VOL 9391 FOL 122 INSTRUMENT APPLICATION 10322/79—PL—6

CAVEAT No. S884286 LODGED 26 - 80

CAVEAT WITHDRAWN 15/7/84

OFFICE OF TITLES A.R.B. VICTORIA

OFFICE OF TITLES R.C. VICTORIA

CANCELLED

NO. PS 344713R

OFFICE OF TITLES A.J.C. VICTORIA

F. D. Atkinson, Government Printer, Melbourne

Historical Search

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HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 02/08/2021 02:14 PM

Volume 1213 Folio 529
Folio Creation: Details Unknown

STATEMENT END

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3950
20 Dec 1869

CANCELLED

Entered in the Register Book
Vol. 1213 Folio 242529

Assistant Registrar of Titles.

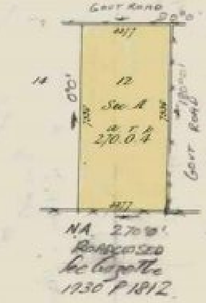
Victoria

by the Grace of God of the United Kingdom of Great Britain and Ireland QUEEN Defender of the Faith to all to whom these presents shall come GREETING

Whereas in conformity with the laws relating to the sale and occupation of Crown Lands in our Colony of Victoria the person hereinafter named has in consideration of the sum of *Two hundred and seventy one pounds* which sum has been duly paid to us become entitled to a grant in fee-simple of the land hereinafter described **Now know ye** that in consideration of the sum so paid and in pursuance of *The Land Act 1869* WE DO HEREBY GRANT unto *Duncan McIntosh* of *Little River* his heirs and assigns ALL THAT PIECE OF LAND in the said Colony containing *two hundred and seventy acres and four perches more or less being Allotment twelve of Section A in the Parish of Wurdiyouang County of Grant*

WURDI YOUANG

delineated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein colored yellow **To hold** unto the said *Duncan McIntosh* his heirs and assigns for ever EXCEPTING however unto us our heirs and successors all gold and auriferous earth or stone and all mines containing gold within the boundaries of the said land AND ALSO reserving to us our heirs and successors free liberty and authority for us our heirs and successors and our and their agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold and to extract and remove therefrom any gold and any auriferous earth or stone and for the purposes aforesaid to sink shafts erect machinery carry on any works and do any other things which may be necessary or usual in mining PROVIDED ALWAYS that it shall be lawful for us our heirs and successors at any time on paying full compensation to the said *Duncan McIntosh* his heirs executors administrators or assigns for the full value other than auriferous of the said piece of land or so much thereof as may be resumed as hereinafter mentioned and of the improvements upon the said piece of land or the part so resumed such value in case of disagreement to be ascertained by arbitration to resume the said piece of land or any part thereof for mining purposes AND THAT the terms conditions and events upon which such land may be resumed and the manner in which such arbitration may be conducted may be determined by regulations in such manner as the Governor in Council may from time to time direct or if at any time no such regulations shall be in force then by the regulations concerning the resumption of land for mining purposes in force at the date of this Grant unless Parliament shall otherwise determine



In testimony whereof we have caused this our Grant to be sealed with the Seal of the said Colony **Witness** our trusty and well-beloved the Most Honorable George Augustus Constantine Marquis of Normanby Earl of Mulgrave Viscount Normanby and Baron Mulgrave of Mulgrave all in the County of York in the Peerage of the United Kingdom and Baron Mulgrave of New Ross in the County of Wexford in the Peerage of Ireland a Member of Her Majesty's Most Honorable Privy Council Knight Grand Cross of our Most Distinguished Order of Saint Michael and Saint George Governor and Commander-in-Chief of the said Colony of Victoria and its Dependencies and Vice-Admiral of the same at Melbourne this *ninth* day of *September* in the *forty fourth* year of our Reign and in the year of our Lord One thousand eight hundred and eighty

Normanby

T01213-529-1-9

W 224

NOTE.—*The bearings and measurements are approximately given in this plan.*
The measurements are in links.

MEMORIALS OF INSTRUMENTS.

Nature of Instrument.	Time of its Production for Registration.	Names of the Parties to it.	Number or Symbol thereon.

James McIntosh of Little River Grazier is now the Proprietor of the within-described Estate and Land, by Transfer from the withinnamed Duncan McIntosh registered on the 10 day of April 1895, at 3 o'clock in the afternoon, and Numbered 357220

A. McFarland
Assistant-Registrar of Titles.

20.4.95

Nature of Instrument	Time of its Production for Registration	To whom given	Number or Symbol thereon
Mortgage (DISCHARGED 23rd June 1922)	The 2nd April 1917	To The Bank of Victoria Limited	368748

Alfw. Comport
Assistant Registrar of Titles

Minnie Gertrude McNaughton of Little River Married Woman is now the proprietor of the within described estate by transfer from James McIntosh registered on 23rd June 1922 and numbered 1051436

Assistant Registrar of Titles.

Mortgage to Elspit Gove registered on 23rd June 1922 and numbered 446277 (DISCHARGED 24th September 1928)

Assistant Registrar of Titles.

CAVEAT No 77047 LODGED 29 August 1928

CAVEAT No 77047 LAPSED 7th February 1929

Hugo Herman Schlapp the Younger of 360 Collins Street Melbourne Grazier is now the proprietor of the within described estate by transfer registered on 7th February 1929 and numbered 1400971

B. Murphy
Assistant Registrar of Titles

MORTGAGE to The Presbyterian Church of Victoria Trusts Corporation registered on 22nd August 1929 numbered 626859

J. Drewin
Assistant Registrar of Titles

Does not affect ... 18th May 1937

James Barnes Kershaw of Oxford Chambers 473 Bourke Street Melbourne is now the proprietor of the within described estate by transfer registered on 18th May 1937 and numbered 1648228

Assistant Registrar of Titles

MORTGAGE to The Presbyterian Church of Victoria Trusts Corporation registered on 18th May 1937 numbered 738335 (DISCHARGED 2 JUN 1965)

Assistant Registrar of Titles

CAVEAT No D902250 LODGED 2/12/70

CAVEAT LAPSED 17 JAN 1973

S.O.

JAMES BARNES KERSHAW died on 6th December 1970 Probate of his Will has been granted to LAURENCE GEOFFREY JENNINGS Manufacturer and BETTY ALLISON JENNINGS Married Woman both of 72 Oak Street Beaumaris
Registered 16th April 1971
No.E15863

MITCHELL AND ENGLISH SAND AND GRAVEL PROPRIETARY LIMITED of 5 Balmoral Crescent North Geelong is now the proprietor
Registered 14th December 1972
No.E638866

MORTGAGE (DISCHARGED) to AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED
Registered 14th Dec
No.E638867

CANCELLED

TRANSFER No. F131959 registered 18th Dec 1973

CANCELLED See Vol. 9007 Fol. 644

Historical Search

The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 02/08/2021 01:53 PM

Volume 9007 Folio 644
Folio Creation: Created as paper folio continued as computer folio
Parent title Volume 01213 Folio 529

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details
01/01/1700	20/03/1996	PS344713R	Y	Cancelled by PS344713R

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged

STATEMENT END

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ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

CANCELLED

REGISTER BOOK VOL. 9007 FOL. 644

VICTORIA

Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

VOL 9007 FOL. 644

TRANS-WEST CEMENT HAULAGE PROPRIETARY LIMITED of 16 Aberdeen Street - Geelong 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 hereon being Crown Allotment 12 Section A Parish of Wurdi Youang County of Grant - - - - - - - - - -

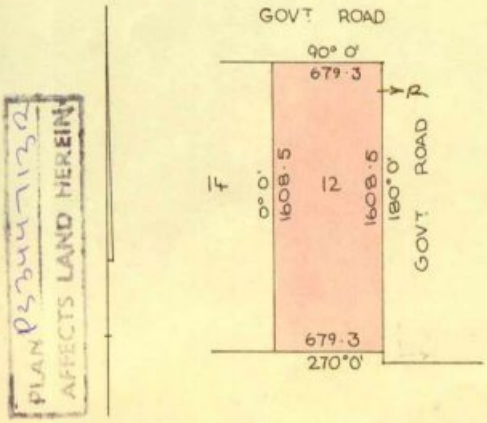
DATED the 18th day of December 1973

L. R. Stall

Assistant Registrar of Titles

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO



MEASUREMENTS ARE IN METRES

Delivered on-line by LANDATA®

WARNING

This document provides an image of a cancelled folio of the Register. It is not a statement from the register of subsisting information in relation to the land to which it refers.

MORTGAGE to MITCHELL AND ENGLISH SAND AND GRAVEL PROPRIETARY LIMITED
Registered 18th December 1973
No.F157969

DISCHARGED APRIL

OFFICE OF TITLES R.T. VICTORIA

OFFICE OF TITLES A.B. VICTORIA

MORTGAGE to BANK OF NEW SOUTH WALES
Registered 20th February 1974
No.F287483

DISCHARGED - 5 MAR 1980

OFFICE OF TITLES M.T.R. VICTORIA

OFFICE OF TITLES K.L. VICTORIA

CAVEAT No. H902092 LODGED 13-3-80

CAVEAT WITHDRAWN BEFORE ENTRY
23 JUL 1980

OFFICE OF TITLES W.M.S. VICTORIA

CAVEAT No. J84286 LODGED 25-7-80
CAVEAT WITHDRAWN 18th July 1984

OFFICE OF TITLES R.G. VICTORIA

ENDORSEMENT MADE 18 AUG 1987

OFFICE OF TITLES W.M.S. VICTORIA

THE PHOSPHATE CO-OPERATIVE COMPANY OF AUSTRALIA LIMITED of 550 Bourke Street Melbourne is now the proprietor
Registered 13th May 1980
No.H979604

OFFICE OF TITLES G.R.B. VICTORIA

CANCELLED
NO. PS344713R

OFFICE OF TITLES A.J.C. VICTORIA

T09007-644-1-9

V.9007 F.644

Historical Search

The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 02/08/2021 01:52 PM

Volume 10275 Folio 234
Folio Creation: Created as a computer folio

Parent titles :
Volume 09007 Folio 644
Volume 09391 Folio 122 to Volume 09391 Folio 123

RECORD OF HISTORICAL DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details
31/10/2001	07/12/2001	X850847X	Y	MORTGAGE SANDHURST TRUSTEES LIMITED

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged
08/04/2003	08/04/2003	AB993949G	Y

DISCHARGE OF MORTGAGE
MORTGAGE(S) REMOVED
X850847X

08/04/2003	08/04/2003	AB993951V	Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
PIVOT LIMITED
TO:
TRANSWEST HAULAGE PTY LTD

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
TRANSWEST HAULAGE PTY LTD of 202 STATION ST
AB993951V 08/04/2003

12/02/2007 23/03/2007 AE891489H Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
TRANSWEST HAULAGE PTY LTD
TO:
KALARI PTY LIMITED

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
KALARI PTY LIMITED of 183 FITZGERALD ROAD LAVERTON NORTH VIC 3026
AE891489H 12/02/2007

03/07/2012 03/07/2012 AJ772096A (O) Y

TRANSFER OF LAND BY ENDORSEMENT
FROM:
KALARI PTY LTD
TO:
BARRO GROUP PTY LTD 005105724

RESULTING PROPRIETORSHIP:
Estate Fee Simple
Sole Proprietor
BARRO GROUP PTY LTD of 191 DRUMMOND STREET CARLTON VICTORIA 3053
AJ772096A 03/07/2012

STATEMENT END

HISTORICAL REPRINT(S)

Volume 10275 Folio 234

70732484622Q Page 1
Produced 20/03/1996 01:18 pm

LAND

LOT 2 on Plan of Subdivision 344713R.
PARENT TITLE(s):
Volume 09007 Folio 644 Volume 09391 Folio 122 Volume 09391 Folio 123
Created by instrument PS344713R 20/03/1996

REGISTERED PROPRIETOR

ESTATE FEE SIMPLE
SOLE PROPRIETOR
PIVOT LIMITED; 160 QUEEN STREET MELBOURNE 3000

Registered PS344713R 20/03/1996

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988.
Any other encumbrances shown or entered on the plan.

SEE PS344713R FOR FURTHER DETAILS AND BOUNDARIES

END OF CERTIFICATE

Volume 10275 Folio 234

123410607677H Page 1
Produced 07/12/2001 09:39 am

LAND

LOT 2 on Plan of Subdivision 344713R.
PARENT TITLE(s):
Volume 09007 Folio 644 Volume 09391 Folio 122 Volume 09391 Folio 123
Created by instrument PS344713R 20/03/1996

REGISTERED PROPRIETOR

ESTATE FEE SIMPLE
SOLE PROPRIETOR
PIVOT LIMITED; 160 QUEEN STREET MELBOURNE 3000
PS344713R 20/03/1996

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGES AND CHARGES IN PRIORITY RANKING
1 X850847X 31/10/2001 MORTGAGE
SANDHURST TRUSTEES LTD

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 PS344713R FOR FURTHER DETAILS AND BOUNDARIES

END OF CERTIFICATE

VOTS Snapshot

Volume 10275 Folio 234
124005431856M
Produced 08/04/2003 10:30 am

LAND DESCRIPTION

Lot 2 on Plan of Subdivision 344713R.
PARENT TITLES :
Volume 09007 Folio 644
Volume 09391 Folio 122 to Volume 09391 Folio 123
Created by instrument PS344713R 20/03/1996

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
    PIVOT LIMITED of 160 QUEEN STREET MELBOURNE 3000
    PS344713R 20/03/1996

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE X850847X 31/10/2001
    SANDHURST TRUSTEES LTD

    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 PS344713R FOR FURTHER DETAILS AND BOUNDARIES

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The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

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

VOLUME 10275 FOLIO 234 Security no : 124091561962G
Produced 02/08/2021 01:49 PM

LAND DESCRIPTION

Lot 2 on Plan of Subdivision 344713R.
PARENT TITLES :
Volume 09007 Folio 644
Volume 09391 Folio 122 to Volume 09391 Folio 123
Created by instrument PS344713R 20/03/1996

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
BARRO GROUP PTY LTD of 191 DRUMMOND STREET CARLTON VICTORIA 3053
AJ772096A 03/07/2012

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 PS344713R 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: 250 DRYSDALE ROAD LITTLE RIVER VIC 3211

DOCUMENT END

Delivered from the LANDATA® System by InfoTrack Pty Ltd.

Appendix D: Dial Before you Dig Plans

Dial Before You Dig (DBYD)
Electrical Asset Location Information

CitiPower/Powercor
Locked Bag 14090, Melbourne VIC 8001
General Enquiries Telephone: 132 206

To: ('Enquirer')
Lucinda Trickey
Level 6,15 William Street
Melbourne VIC 3000

Enquiry Details	
Utility ID	50022
Sequence Number	201094608
Enquiry Date	27/07/2021 11:13
Response	**ALL CLEAR**
Address	250 Drysdale Road Little River
Location in Road	
Activity	Vertical Boring

Enquirer Details			
Customer ID	3027123		
Contact	Lucinda Trickey		
Company			
Email	lucinda.trickey@senversa.com.au		
Phone	+61424172065	**Mobile**	

Enquirer Responsibilities

This notification is valid for 28 days from the issue date. CitiPower/Powercor assets are critical infrastructure and great care must be taken to avoid asset damage and risk to public safety. The information supplied in the DBYD Response is intended to be indicative only. External parties should make their own enquiries to ensure the accuracy of the information, including but not limited to:

- Check that the location of the dig site indicated is correct, if not you must submit a new enquiry.
- Should your scope of works change or the plan validity dates expire, you must submit a new enquiry.
- If you do not understand the plans provided please contact CitiPower/Powercor prior to works commencing.
- Always perform an onsite inspection to establish the presence of assets.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.

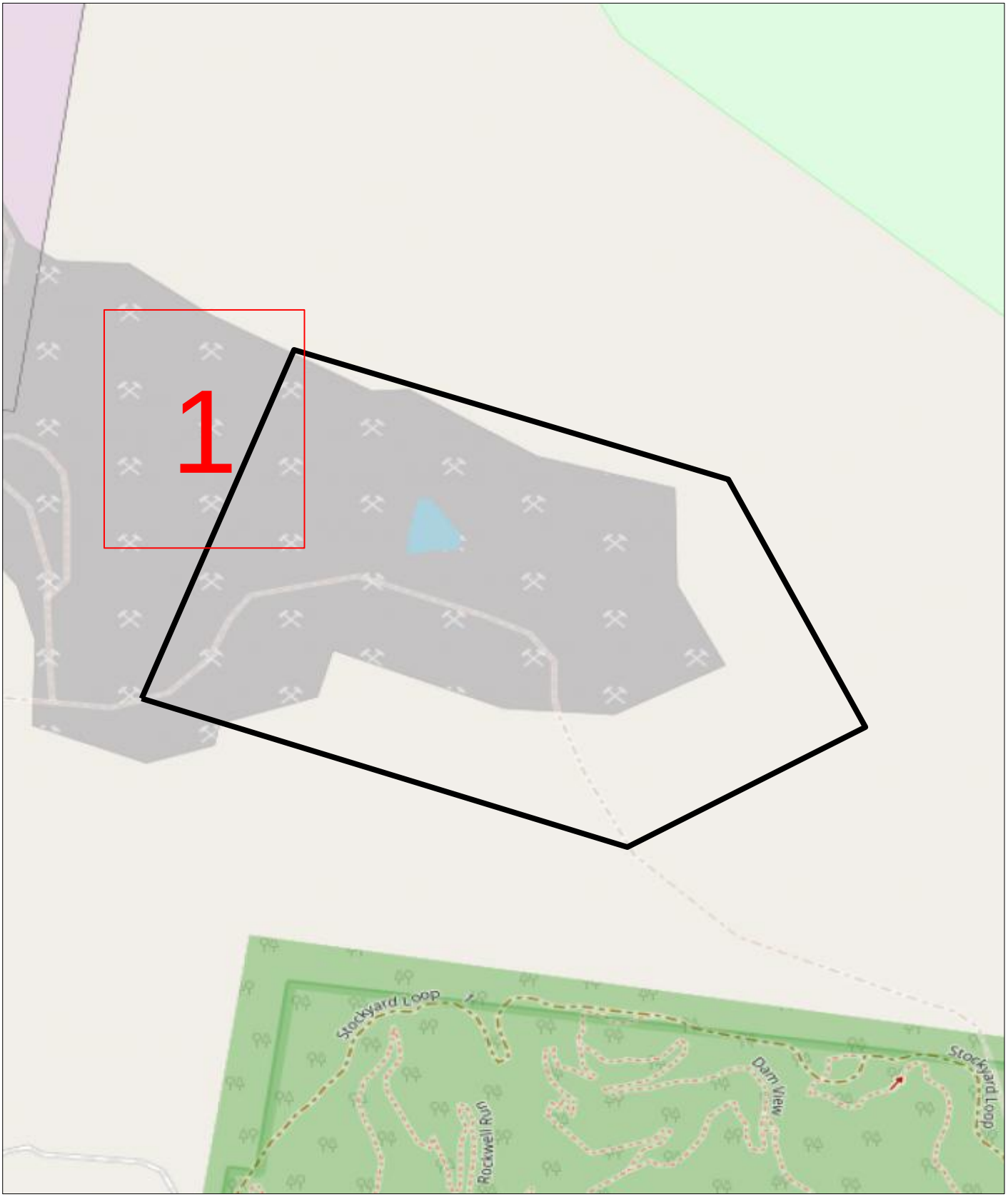
Report any asset damage immediately on 132 206. Note: CitiPower/Powercor reserves the right to recover compensation for damages.

Locality Map

Sequence No: 201094608

250 Drysdale Road Little River

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS



LEGEND:

DBYD Work Area | SWER Substation | High Voltage Cable | Communication Cable

Zone Substation | Distribution Substation | Low Voltage Cable | Earth Cable

This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.06km

N

Imagery sourced from Open StreetMaps

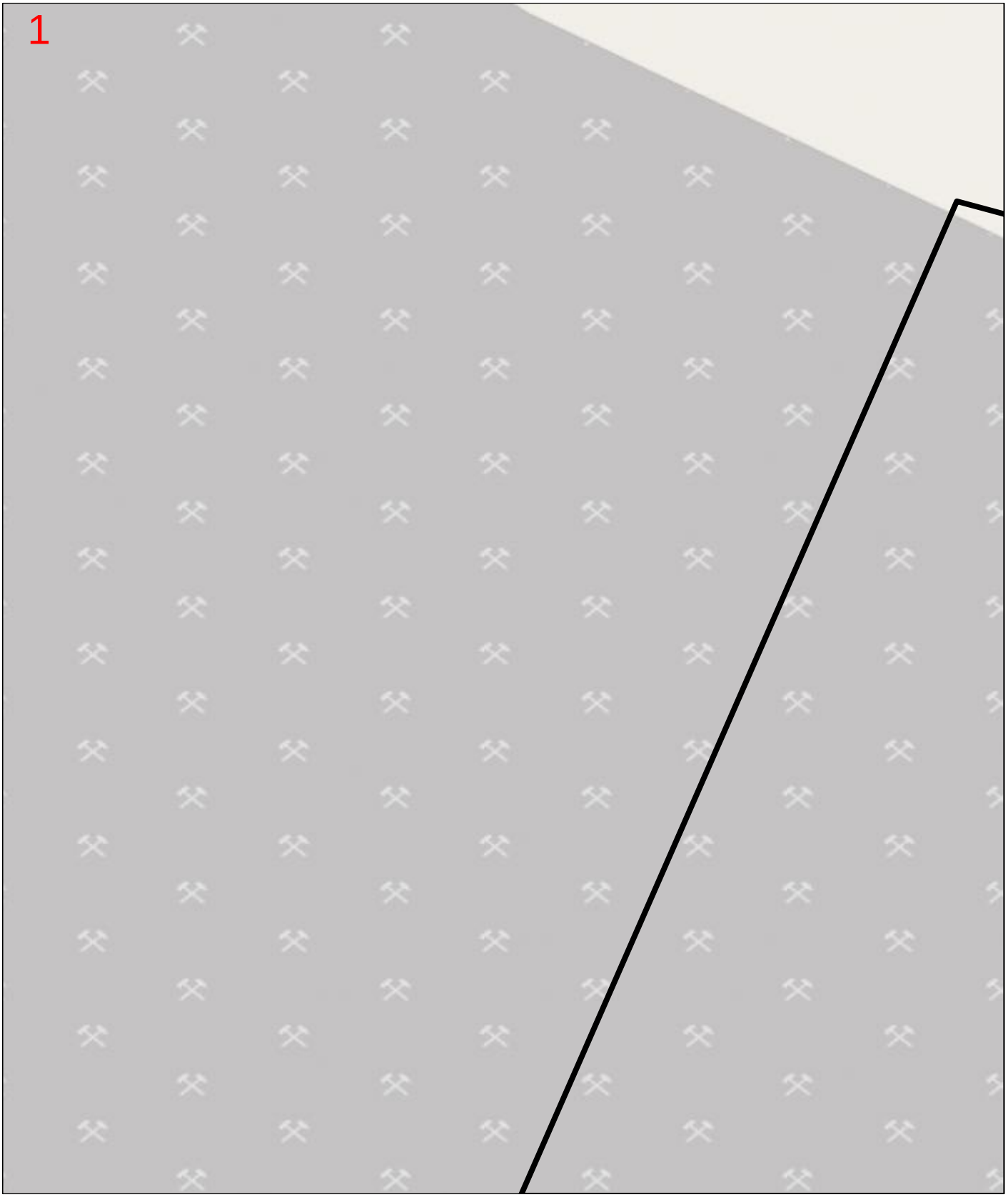
Powered by dbyd

CITIPOWER Powercor AUSTRALIA

Map 1

Sequence No: 201094608

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS



LEGEND:

- DBYD Work Area
- SWER Substation
- High Voltage Cable
- Communication Cable
- Pole (Subtransmission)
- Pole (LV)
- Zone Substation
- Distribution Substation
- Low Voltage Cable
- Earth Cable
- Pole (HV)
- Property Boundary

This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.01km

N

Imagery sourced from Open StreetMaps

Powered by dbyd

UNDERGROUND ELECTRICITY HAZARD AWARENESS INSTRUCTIONS

For CitiPower & Powercor Dial Before You Dig customers

Always complete a **Dial Before You Dig** request before you proceed with any work plans

If there are Underground Electricity assets identified within your work area please ensure that you carefully evaluate all of the information provided

If any part of your proposed works impacts on the **EXCLUSION ZONES** shown on the next page then before proceeding you must contact CitiPower/Powercor to determine if a **PERMIT TO WORK** is required and to organise a **SITE VISIT**

Site Visit/Permit To Work applications may be lodged at:

https://www.citipower.com.au/working-with-us/suppliers/online-permit-applications/site-visit/

If you need assistance to determine if you need a Site Visit please call:

CitiPower on **1300 301 101** **Powercor** on **132 206**

Underground Electricity Asset Location Details Accuracy:

The Underground Electricity asset location details provided with this response are based on the best information available at the time

All reasonable care has been taken to ensure the accuracy of the information provided but complete accuracy cannot be guaranteed

Please be aware that the Underground Electricity Asset depths shown on the attached plans are accurate at the time of recording, however, due to works undertaken over the years by parties other than CitiPower/Powercor the Underground Electricity Asset depths may differ to those shown on the plans

Contact with Underground Electricity Cables can cause serious injury or death

If you observe any Underground Electricity Assets that do not appear on the records provided

Stop Work Immediately

and contact CitiPower/Powercor on the above numbers

This DBYD response has been Automatically Generated

UNDERGROUND ELECTRICITY HAZARD AWARENESS INSTRUCTIONS

For CitiPower & Powercor Dial Before You Dig customers

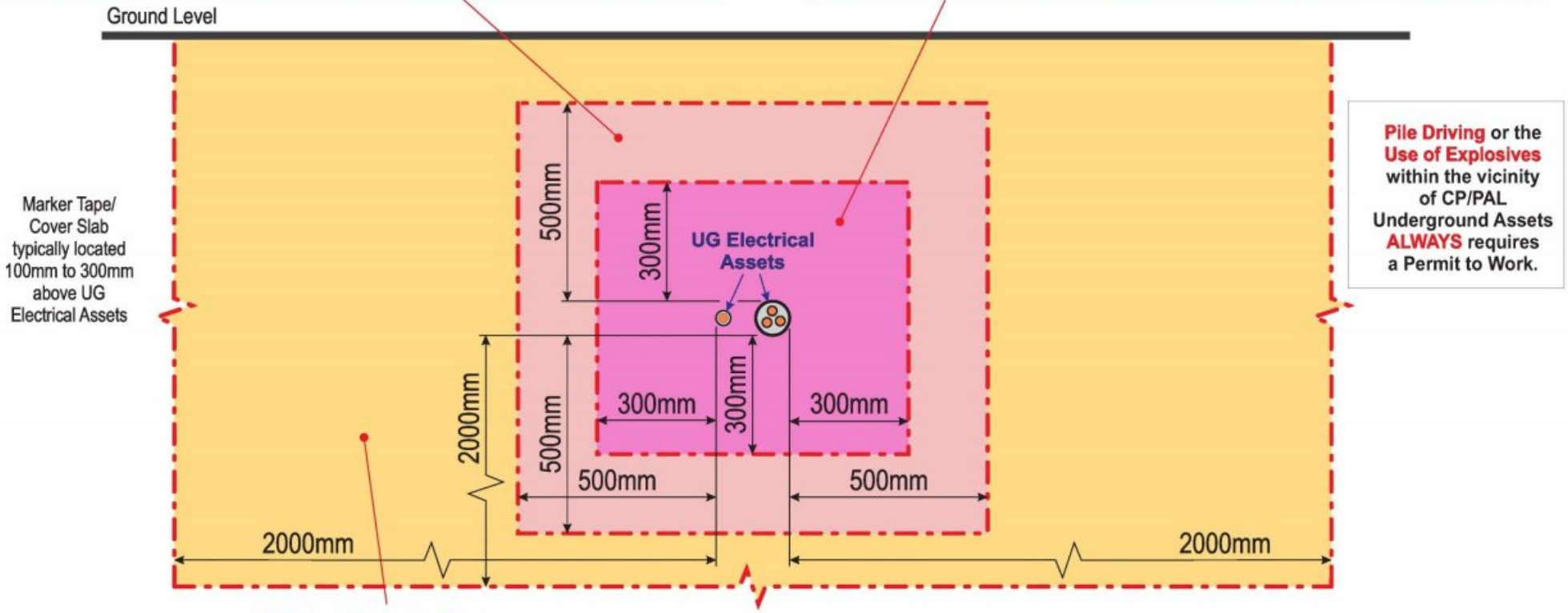
EXCLUSION ZONES

500mm Exclusion Zone
Heavy Machinery & Mechanical Excavation

Heavy (Crawler Type) Machinery operation and Mechanical Excavation within a 500mm distance of Underground Electricity Assets requires a Permit to Work

300mm Exclusion Zone
Hand Tools Only

All Excavation within a 300mm distance of Underground Electricity Assets requires a Permit to Work and must only be performed with Hand Tools



Pile Driving or the **Use of Explosives** within the vicinity of CP/PAL Underground Assets **ALWAYS** requires a Permit to Work.

2000mm Exclusion Zone
Works within this area that require a Site Technical Assessment and may require a Permit to Work includes:

Pot Hole Boring Machine (Vertical Boring), Directional Boring Machine,
Excavations Parallel to Underground Electricity Assets, Excavations Across Underground Electricity Assets

For Underground Electricity Asset location purposes:

Careful Excavation by hand may be performed under a Permit to Work above energised Underground Electricity Assets within the Exclusion Zone
Excavation must cease once either Marker Tape, Cover Slab or top of asset is located. All excavation must be performed BY HAND using only non-powered tools
No disturbance of the Marker Tape, the Protective Cover or the Asset is allowed. Any disturbance must be reported immediately to CitiPower/Powercor

Excavation Below Underground Electricity Assets:

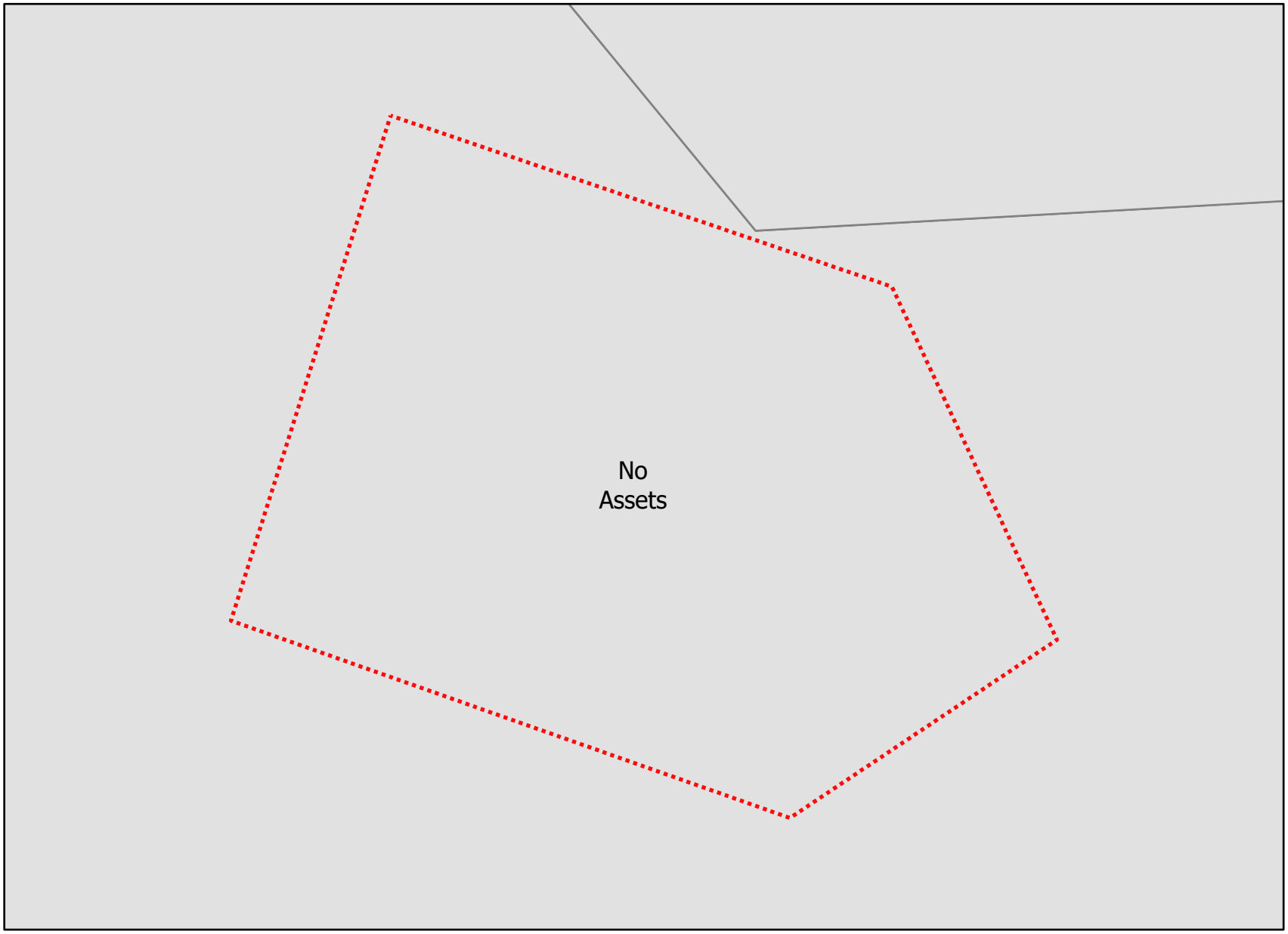
All excavation BELOW Underground Electricity Assets outside of the Exclusion Zone must ensure that there is no disturbance to the asset and that the area is restored to full pre-excavation integrity upon reinstatement

CITY OF GREATER GEELONG

Job # 30189745
Seq # 201094610

Provided by City of Greater Geelong

DIAL BEFORE YOU DIG www.1100.com.au



Legend

DBYD Enquiry

In an emergency contact City of Greater Geelong on 03 5272 5272

Index Sheet

0 55 110 220 m

N

Scale 1:5,000

Plans generated by SmarterWX™ Automate

DBYD Response from AusNet Gas Services Pty Ltd.

Job Number: 30189745

Sequence Number: 201094611

Enquiry Date: 27/07/2021

Enquiry Location: 250 Drysdale Road Little River, VIC

Thank you for using the Dial Before You Dig (DBYD) service before engaging in work at the above location.

AusNet Gas Services Pty Ltd – No Gas Assets Present

There are no SP AusNet gas underground assets present within the vicinity of your enquiry.

** Please note this information is only valid for 28 Days from date of issue.*

Do not rely solely on these Dial Before You Dig plans for underground asset location. The exact location of existing underground assets should be established on site prior to commencement of work.

For Your Safety

In case of emergency, gas escapes, hit or damaged gas pipelines call **136707.**

Where proposed work is in close proximity to a gas pipe, the exact location of the pipe must first be determined by careful hand excavation.

Gas Service Lines on Private Property

Supplied plans do not show gas service lines on private property and do not show any gas assets of authorities other than AusNet Gas Services Pty Ltd, which may exist on site.

If you require assistance to locate gas services please contact **Downer Group** at the following locations.

Melb Metro	(03) 7379 8800	Ballarat	(03) 5342 6400	Warrnambool	(03) 5561 9614
Geelong	(03) 5223 9400	Bendigo	(03) 5442 4855		

AusNet Services – DBYD Support

Appendix E: Dangerous Goods Search

Lucinda Trickey

From: DG Notifications (WorkSafe) <DG_Notifications@worksafe.vic.gov.au>
Sent: Wednesday, 4 August 2021 12:12 PM
To: Lucinda Trickey
Subject: RE: 19067 - Dangerous Goods Search

Good Afternoon Lucinda

A search of our database has been completed for the records at 250 Drysdale Road, Little River.

I can confirm that WorkSafe Victoria has not found any records of a notification of dangerous goods stored or handled at that premises.

Kind regards

Marina Matijevic
Operations & Emergency Management
marina_matijevic@worksafe.vic.gov.au
Tel/ 4243 7555
Mb/ 0408 531 513
1 Malop Street
GEELONG VIC 3220
www.worksafe.vic.gov.au

From: Lucinda Trickey <Lucinda.Trickey@senversa.com.au>
Sent: Tuesday, 3 August 2021 10:02 AM
To: DG Notifications (WorkSafe) <DG_Notifications@worksafe.vic.gov.au>; Dangerous Goods Unit (WorkSafe) <dangerousgoodsunit@worksafe.vic.gov.au>
Subject: 19067 - Dangerous Goods Search

Hi,

Could you please disclose any available information of current or historical chemical/fuel storage and dangerous goods registered for the property identified as:

- 250 Drysdale Road, Little River (Lot 2 PS344713)

This query is for the purpose of completing a Baseline Environmental Site Assessment into potential contamination at the property.
Permission from the site owner is provided in the attached email.

If you hold no records for the property could you please respond in writing indicating that to be the case.

Kind Regards,

Lucinda Trickey
Associate Environmental Engineer

M: **+61 424 172 065**
E: **Lucinda.Trickey@senversa.com.au**
Lucinda Trickey is on Teams

www.senversa.com.au
Level 6, 15 William St
Melbourne, VIC, 3000, Australia
+61 3 9606 0070

Appendix F: Cathodic Protection Search

CATHODIC PROTECTION SYSTEM DATABASE SEARCH

Primary Search criteria: Suburb contains "Little River"
Secondary Search criteria: Address contains "Drysdale"

CPS Reg Number	Address	Suburb	Structure Protected	Owner	Approved current output	Status	Type of system

No record found

Disclaimer

Energy Safe Victoria provides Cathodic Protection system information in good faith, but cannot guarantee the completeness or accuracy of 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 2019. 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, the CP was installed after 26 November 2019 after which galvanic anodes under 250mA were no longer required to be registered; or the CP system has been de-commissioned. If you believe underground tanks may be present and not shown on ESV's CP database you should conduct your own tests and investigations. ESV accepts no responsibility or liability for or arising from your use of, or reliance on, information obtained from the CPS database.

**** If a drawing of the CPS system is required, please contact the CPS Owner**

Energy Safe Victoria
ABN 27 462 247 657

Level 5 Building 2
4 Riverside Quay
Southbank VIC 3006

PO Box 262
Collins St West VIC 8007
DX 212569 Melbourne VIC

T (03) 9203 9700
F (03) 9686 2197
www.esv.vic.gov.au

CATHODIC PROTECTION SYSTEM DATABASE SEARCH

Primary Search criteria: Suburb contains "Little River"
Secondary Search criteria: Address contains "Stockyards"

CPS Reg Number	Address	Suburb	Structure Protected	Owner	Approved current output	Status	Type of system

No record found

Disclaimer

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PO Box 262
Collins St West VIC 8007
DX 212569 Melbourne VIC

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F (03) 9686 2197
www.esv.vic.gov.au

CATHODIC PROTECTION SYSTEM DATABASE SEARCH

Primary Search criteria: Suburb contains "Little River"
Secondary Search criteria: Address contains "Cressy Gully"

CPS Reg Number	Address	Suburb	Structure Protected	Owner	Approved current output	Status	Type of system

No record found

Disclaimer

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4 Riverside Quay
Southbank VIC 3006

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Collins St West VIC 8007
DX 212569 Melbourne VIC

T (03) 9203 9700
F (03) 9686 2197
www.esv.vic.gov.au

CATHODIC PROTECTION SYSTEM DATABASE SEARCH

Primary Search criteria: Suburb contains "Little River"
Secondary Search criteria: Address contains "Sandy Creek"

CPS Reg Number	Address	Suburb	Structure Protected	Owner	Approved current output	Status	Type of system

No record found

Disclaimer

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Southbank VIC 3006

PO Box 262
Collins St West VIC 8007
DX 212569 Melbourne VIC

T (03) 9203 9700
F (03) 9686 2197
www.esv.vic.gov.au

CATHODIC PROTECTION SYSTEM DATABASE SEARCH

Primary Search criteria: Suburb contains "Little River"
Secondary Search criteria: Address contains "Gifkins"

CPS Reg Number	Address	Suburb	Structure Protected	Owner	Approved current output	Status	Type of system

No record found

Disclaimer

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Southbank VIC 3006

PO Box 262
Collins St West VIC 8007
DX 212569 Melbourne VIC

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F (03) 9686 2197
www.esv.vic.gov.au

Appendix G: Site Photographs

Photo 1. The aggregate quarry to the west of the site, facing north-west

Photo 2. The possible area of quarry extension and area of concern for the investigation, facing north

Photo 3. An example of the geology at SB05, showing sand, gravel and clay material

Photo 4. An example of the geology at SB06, showing sand, gravel and clay material

Photo 5. An example of the geology at SB02, showing sand, gravel and clay material

Photo 6. An example of the geology at SB03, showing sand, gravel and clay material. Also showing the gravel layer In the middle of the push tube where a plastic layer was also present

Photo 7. An example of the rocky outcrop of the area, facing south

Photo 8. An example of the grassed surface and surface water on site, facing east

Appendix H: Data Validation

Appendix H: Quality Assurance / Quality Control

The data quality assurance and control (QA/QC) procedures adopted by Senversa provide a consistent approach to evaluation of whether the data quality objectives (DQO's) required by the project have been achieved. The process focuses on assessment of the useability of the data in terms of accuracy and reliability in forming conclusions on the condition of the element of the environment being investigated. The approach is generally based on guidance from the following sources:

- Australian Standard (AS) 4482.1-2005: Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds.
- National Environment Protection Council (NEPC), National Environment Protection (Assessment of Site Contamination) Amendment Measure No. 1 2013 (NEPM), Schedule B2: Guideline on Site Characterisation.
- NEPC – National Environment Protection (Assessment of Site Contamination) Amendment Measure No. 1 2013 (NEPM), Schedule B3: Guideline on Laboratory Analysis of Potentially Contaminated Soils.
- United States Environmental Protection Agency (USEPA) – Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4).
- USEPA – Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).

Quality Assurance Procedure

The following data quality objectives, measures and acceptance criteria were adopted to verify compliance with the planned QA procedures:

Quality Assurance Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Standard Procedures	Comparability, Reproducibility, Representativeness	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used
Equipment Calibration	Accuracy	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications
Testing Method Accreditation	Accuracy and Comparability	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined
Quality Control Sampling Frequency	Precision and Repeatability	Field QC sampling frequency in accordance with AS4482.1-2005	Field Duplicates – ≥ 1 in 20 primary samples Secondary Duplicates – ≥ 1 in 20 primary samples Rinsate Blanks – ≥ 1 per day, per matrix per equipment Trip Blanks – ≥ 1 per esky containing samples for volatile analyses
	Accuracy, Precision and Comparability	Laboratory QC analysis frequency in accordance with NEPC (2013), Schedule B3	Laboratory Duplicates – at least 1 in 10 analyses or one per process batch

Quality Assurance Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
			Method Blanks – at least 1 per process batch Surrogate Recoveries – all samples spiked where appropriate (e.g. chromatographic analysis of organics) Laboratory Control Samples – at least 1 per process batch Matrix Spikes – at least 1 per matrix type per process batch
Sample Preservation, Handling and Holding Times	Accuracy	Samples appropriately preserved upon collection , stored and transported, and analysed within holding times	Sample containers, holding times and preservation in accordance laboratory specific method requirements.
Data Management	Accuracy	No errors in data transcription	Entry of field data verified by peer.
Data Useability	Completeness	Limits of reporting less than adopted beneficial use investigation levels. Sample volumes and analytical methods selected to enable required limits of reporting to be achieved	Limits of reporting less than investigation levels.

Quality Control Sampling and Analysis

The following data quality objectives, measures and acceptance criteria were adopted to evaluate the validity of the analytical data produced.

Quality Control Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Field Duplicate Sampling and Analysis	Precision and Field Repeatability	Field duplicate samples used assess the variability in analyte concentration between samples collected from the sample location and the reproducibility of the laboratory analysis. Where required, resubmission of previously analysed samples for chemicals within their holding times may be undertaken to further assess level of precision.	Analysed for same chemicals as primary sample RPD1 <30% of mean concentration where both concentrations >20 x limit of reporting RPD <50% of mean concentration where higher concentration 10 – 20 x limit of reporting RPD - No limit where both concentrations < 10 x limit of reporting

[1] Relative Percent Difference (%): Calculated as: (Result No.1 – Result No. 2/Mean Result)*100

Quality Control Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Secondary Duplicate Sampling and Analysis	Accuracy	Results are accurate and free from laboratory error. Secondary duplicate samples sent to a secondary laboratory to assess the accuracy of the analyte concentrations reported by the primary laboratory	Analysed for same chemicals as primary sample RPD <30% of mean concentration where both concentrations >20 x limit of reporting RPD <50% of mean concentration where higher concentration 10 – 20 x limit of reporting RPD - No limit where both concentrations < 10 x limit of reporting
Field Rinsate Blank Preparation and Analysis	Accuracy and Representativeness	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment. Rinsate blank samples prepared for each sampling procedure. Where possible the rinsate blanks are prepared immediately after sampling locations known to contain concentrations of the chemicals of concern above the limit of quantification and / or before sampling locations where the chemicals being targeted in the laboratory analysis are to be compared to investigation levels near the limit of quantification of the chemical.	Analyte concentrations below limits of reporting
Trip Blank Sampling and Analysis	Accuracy and Representativeness	Cross contamination between samples does not occur in transit or as an artefact of the sample handling procedure. Trip blank samples prepared by the laboratory which accompany the empty sampling containers from the laboratory to the sampling site, and return with the samples to the laboratory to assess whether cross contamination occurs between samples or as an artefact of the sampling procedure.	Analyte concentrations below limits of reporting
Laboratory QC Analysis	Laboratory Precision and Accuracy	Laboratory duplicates	As specified by the laboratory.
		Laboratory control spike	Dynamic recovery limits as specified by the laboratory.
		Certified reference material	As specified by the laboratory (generally dynamic recovery limits).
		Surrogate recovery	Dynamic recovery limits as specified by the laboratory.

Quality Control Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
		Matrix spike recovery	Recovery 70% – 130% or dynamic recovery limits specified by laboratory. However note that recovery of phenols is generally significantly lower and a recovery in the range 20% to 130% is considered acceptable by most laboratories.
		Matrix spike recovery duplicate	RPD < 30%, or as specified by the laboratory.

Data Verification and Validation

The data validation process involved the checking of analytical procedure compliance with acceptance criteria and an assessment of the accuracy and precision of analytical data from the range of quality control indicators generated from both the sampling and analytical programmes.

The checks undertaken are summarised in the attached data validation checklist tables (one table per sample batch/delivery group). Field replicate analytical results relevant to the project are summarised in Table H-1

Instances where the data quality acceptance criteria were not achieved are discussed below:

Laboratory Quality Control

The vast majority of laboratory quality control samples met the required rate of frequency for analysis. The exceptions to this included:

- Laboratory Duplicates – RPD exists for cadmium where the RPD exceeds the LOR base limit.
- Matrix Spikes – Recovery was not determined for total phosphorus as the background level was greater than or equal to 4x the spile level.

Field Duplicate RPDs

The following RPDs were determined to be outside of Senversa's adopted acceptance criteria for sample analysis reproducibility:

- SB04_0.1-0.2 and QC01 for TKN and calcium, and QC02 for phosphorus.
- SB07_0.5-0.6 and QC03 for sulfur, phosphorus, and potassium, and QC04 for TKN.

These non-conformances are likely due to the inherent heterogeneity of the fill soils sampled.

Data Suitability

While a small number of QC results were outside specified acceptance criteria, these were not considered to significantly impact on the quality or representativeness of the data, and majority of results indicated that the precision and accuracy of the data was within acceptable limits. The results are therefore considered to be representative of chemical concentrations in the environmental media sampled at the time of sampling, and to be suitable to be used for their intended purpose in forming conclusions relating to the contamination status of soil at the site.

Data Validation Checklist

Job Number:	M19067
Report Title:	Preliminary Site Investigation
Client:	Barro Group
Completed By:	Lucinda Trickey
Date:	25-Aug-21
Verified By:	
Date:	

NOTE: Copy these columns to right if you have multiple sample batches

SAMPLE DELIVERY GROUP (SDG):	**EM2115737**	**SAMPLE DELIVERY GROUP (SDG):**	**816742-S**
Laboratory:	ALS Environmental	**Laboratory:**	Eurofins
Sample Dates:	10-Aug-21	**Sample Dates:**	10-Aug-21
Sample Media:	Soil	**Sample Media:**	Soil

Quality Assurance Process	**Objectives & Measure**	**Acceptance Criteria**	**Source of Information**	**Acceptance Criteria Met?**	**Notes/Details of Nonconformance**	**Acceptance Criteria Met?**	**Notes/Details of Nonconformance**
Standard Procedures	Standard field sampling procedures and forms used	No deviation from standard procedure and forms used.	Borelogs, field sheets, COCs, data tables	Yes		Yes	
Equipment Calibration	All equipment calibrated in accordance with manufacturers specifications	All equipment calibrated in accordance with manufacturers specifications.	Calibration Certificates / Records	N/A	No equiptment requiring calibration was used.	N/A	
Testing Method Accreditation	NATA accredited methods used for all analyses determined	Primary and secondary laboratories to use NATA accredited methods for all analytes determined.	Laboratory Report	Yes		Yes	
Quality Control Sampling Frequency	Field QC sampling frequency in accordance with AS4482.1-2005	Field (Intra-laboratory) Duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	Yes		N/A	
		Secondary (inter-laboratory) duplicates - ≥ 1 in 20 primary samples. (note that PFAS NEMP recommends 1 in 10 for PFAS investigations)	QA/QC register (within field book)	N/A		Yes	
		Rinsate Blanks - ≥ 1 per day, per matrix per equipment.	QA/QC register (within field book)	No	Rinsate blanks were not analysed as no equiptment requiring decontamination was used.	N/A	
		Trip Blanks - ≥ 1 per esky containing samples for volatiles.	QA/QC register (within field book)	No	No trip blank was analysed as volatile contaminates were not of concern.	N/A	
	Laboratory QC analysis frequency in accordance with NEPC 2013	Laboratory Duplicates - at least 1 in 10 analyses or 1 per process batch.	Laboratory Reports	Yes		Yes	
		Method Blanks - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Surrogate Recoveries - all samples spiked where appropriate (e.g. chromatographic analysis of organics).	Laboratory Reports	Yes		Yes	
		Laboratory Control Samples - at least 1 per process batch.	Laboratory Reports	Yes		Yes	
		Matrix Spikes - at least 1 per matrix type per process batch.	Laboratory Reports	Yes		Yes	
Sample Preservation, Handling and Holding Times	Samples appropriately preserved upon collection, stored and transported, and analysed within holding times	In accordance with laboratory specific method requirements. Unless specific method indicates otherwise, soil and water samples should be stored, transported and received by the laboratory at < 6°C.	Laboratory Reports	Yes		Yes	
Data Management	No errors in data transcription	Entry of field data verified by peer.	10% check of electronically imported data (e.g. ESDAT). 100% check of manually entered data (e.g. field parameters, gauging data).	Yes		Yes	
Data Useability	Limits of reporting less than investigation levels	Limits of reporting less than relevant investigation levels.	Results Tables	Yes		Yes	

Quality Control Process	**Objectives & Measure**	**Acceptance Criteria**	**How? (i.e. ESDAT output, review lab reports, review data etc)**				
Field (Intra-laboratory) Duplicate Sampling and Analysis	Field Duplicate samples used assess the variability in analyte concentration between samples collected from the sample location and the reproducibility of the laboratory analysis. Where required, resubmission of previously analysed samples for chemicals within their holding times may be undertaken to further assess precision level of precision.	Analysed for same chemicals as primary sample. RPD <30% of mean conc. where both conc. >20 x LOR RPD <50% of mean conc. where both conc. 10-20 x LOR RPD No limit where both conc. < 10 x LOR	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	No	As shown in attached Table H-1. Elevated RPDs exist between the primary sample SB04_0.1-0.2 and the duplicate sample QC01 for TKN and calcium and between SB07_0.5-0.6 and duplicate sample QC03 for sulfur, phosphorus and potassium.	N/A	
Secondary Inter-laborator) Duplicate Sampling and Analysis	Results are accurate and free from laboratory error. Secondary duplicate samples sent to a secondary laboratory to assess the accuracy of the analyte concentrations reported by the primary laboratory.	Analysed for same chemicals as primary sample. RPD <30% of mean conc. where both conc. >20 x LOR. RPD <50% of mean conc. where both conc. 10-20 x LOR. RPD no limit where both conc. < 10 x LOR.	ESDAT generated summary of relative percent difference (RPD) results for field duplicate samples.	N/A		No	As shown in attached Table H-1. Elevated RPDs exist between the primary sample SB04_0.1-0.2 and the duplicate sample QC02 for phosphorus and between the SB07_0.5-0.6 and duplicate sample QC04 for TKN
Field Rinsate Blank Preparation & Analysis	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A		N/A	
Trip Blank Sampling and Analysis	Cross contamination between samples does not occur in transit or as an artefact of the sampling handling procedure.	Analyte concentrations below LORs.	ESDAT generated summary of field blank analytical results.	N/A		N/A	
Laboratory Duplicates	Laboratory duplicates are used to test the precision of the laboratory measurements.	As specified by laboratory.	Laboratory reports	No	Laboratory duplicate RPD exists for cadmium where the RPD exceeds the LOR based limit.	Yes	
Laboratory Control Samples	Laboratory control samples (LCS) are used to assess overall method performance. In general these samples are similar in composition to environmental samples, and contain known amounts of the analytes of interest.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Certified Reference Material	CRM samples are used to monitor the accuracy of analyses performed by the laboratory.	As specified by laboratory (generally dynamic recovery limits). Usually not performed and assessed based on LCS results.	Laboratory reports	Yes		Yes	
Surrogate Recovery	Surrogates are organic compounds that are similar in chemical composition to analytes of interest and are spiked into environmental samples prior to sample preparation and analysis. Surrogate recoveries are used to evaluate matrix interference on a sample-specific basis.	Dynamic recovery limits as specified by laboratory.	Laboratory reports	Yes		Yes	
Matrix Spike Recovery	A matrix spike is an aliquot of a sample spiked with a known concentration of target analyte(s). Spiking occurs prior to sample preparation and analysis, and the results are used to assess the bias of a method in a given sample matrix.	Recovery 70 - 130% or dynamic limits if specified by laboratory.	Laboratory reports	No	MS recovery was not determined for total phosphorus as the background level was greater than or equal to 4x the spike level.	Yes	
Laboratory Method Blanks	Method blanks are prepared to represent the sample matrix as closely as possible and prepared/extracted/digested and analysed exactly like field samples. These blanks are used by the laboratory to assess contamination introduced during sample preparation activities.	Analyte concentrations below LORs.	Laboratory reports	Yes		Yes	
Potentially Anomalous Data	No discrepancies between field, laboratory and/or expected results are identified	Analytical results are internally consistent, consistent with field measurements, and consistent with expected and/or historical results based on CSM	Multiple sources	Yes		Yes	

Table H-1: Soil RPD Results
M19067
Detailed Site Investigation
Part of 250 Drysdale Road, Little River

Location Code			SB04_0.1-0.2			SB04_0.1-0.2			SB07_0.5-0.6			SB07_0.5-0.6		
Field ID			SB04_0.1-0.2	QC01		SB04_0.1-0.2	QC02		SB07_0.5-0.6	QC03		SB07_0.5-0.6	QC04	
Date			10/08/2021	10/08/2021		10/08/2021	10/08/2021		10/08/2021	10/08/2021		10/08/2021	10/08/2021	
Sample Type			Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D	
Lab Report Number			EM2115737	EM2115737	RPD	EM2115737	816742	RPD	EM2115737	EM2115737	RPD	EM2115737	816742	RPD
	Unit	EQL												
NA														
Sulfur - Total as S (LECO)	%	0.01	0.01	0.02	67	0.01	-	-	4.11	0.86	**131**	4.11	-	-
Physical Parameters														
Moisture Content	%	1	3.6	4.6	24	3.6	4.2	15	8.8	8.1	8	8.8	9.9	12
Inorganics														
Ammonia (as N)	mg/kg	5	<20	<20	0	<20	5.9	0	<20	<20	0	<20	<5	0
Nitrate (as N)	mg/kg	0.1	0.3	0.3	0	0.3	<5	0	0.1	0.1	0	0.1	<5	0
Nitrite (as N)	mg/kg	0.1	<0.1	<0.1	0	<0.1	<5	0	<0.1	<0.1	0	<0.1	<5	0
Total Oxidised Nitrogen (as N)	mg/kg	0.1	0.3	0.3	0	0.3	-	-	0.1	0.1	0	0.1	-	-
Total Kjeldahl Nitrogen	mg/kg	10	140	480	**110**	140	150	7	260	220	17	260	880	**109**
Total Nitrogen (as N)	mg/kg	20	140	480	**110**	140	-	-	260	220	17	260	-	-
Phosphorus (as P)	mg/kg	2	194	116	**50**	194	45	**125**	3,850	2,240	**53**	3,850	4,200	9
Ortho-phosphate (as P)	mg/kg	0.1	0.1	<0.1	0	0.1	<10	0	50.8	66.9	27	50.8	39	26
Sulfur (as S)	mg/kg	5	-	-	-	-	28	-	-	-	-	-	39,000	-
Major Ions														
Calcium	mg/kg	5	-	-	-	-	620	-	-	-	-	-	63,000	-
Calcium (filtered)	mg/kg	5	30	110	**114**	30	-	-	3,720	3,570	4	3,720	-	-
Magnesium	mg/kg	5	-	-	-	-	4,600	-	-	-	-	-	800	-
Magnesium (filtered)	mg/kg	5	10	20	67	10	-	-	60	90	40	60	-	-
Potassium	mg/kg	5	-	-	-	-	4,200	-	-	-	-	-	1,500	-
Potassium (filtered)	mg/kg	5	20	30	40	20	-	-	220	310	**34**	220	-	-
Sodium	mg/kg	5	-	-	-	-	120	-	-	-	-	-	390	-
Sodium (filtered)	mg/kg	5	30	40	29	30	-	-	70	110	44	70	-	-
Metals														
Boron	mg/kg	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Cadmium	mg/kg	0.4	<1	<1	0	<1	<0.4	0	2	<1	67	2	1.8	11
Copper	mg/kg	5	6	5	18	6	10	50	<5	<5	0	<5	<5	0
Manganese	mg/kg	5	149	174	15	149	200	29	96	65	39	96	71	30
Molybdenum	mg/kg	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Zinc	mg/kg	5	19	19	0	19	30	45	19	7	92	19	15	24

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 1000 (1 - 10 x EQL); 50 (10 - 20 x EQL); 30 (> 20 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**

Appendix I: Borelogs

BOREHOLE NUMBER SB01

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** KC **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274313 5800157 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING		
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)		Sample ID & Interval (QA/QC)
PT						FILL	FILL: Clayey SAND, medium to coarse, poorly graded, sub-angular sand, medium plasticity clay, trace gravel, pale brown, loose, moist.				SB01_0.10 - 0.20
				0.5		FILL	FILL: Sandy CLAY, medium plasticity, fine to medium, poorly graded, sub-angular to angular sand, trace gravel, pale brown, firm to stiff, moist, dry of plastic limit.				SB01_0.50 - 0.60
				1.0		FILL	FILL: Gravelly SAND, medium to coarse, poorly graded, sub-rounded to sub-angular sand, fine to medium, sub-rounded to sub-angular gravel, pale grey, loose, dry.				SB01_0.90 - 1.00
											SB01_1.10 - 1.20
							SB01 terminated at 1.20 m bgl Equipment refusal on inferred natural rock				
				1.5							
				2.0							
				2.5							
				3.0							

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SB02

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** KC **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274386 5800158 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
PT						FILL	FILL: Sandy SILT, non-plastic silt, fine, poorly graded, sub-rounded to sub-angular sand, trace organic material (grass), brown, soft, dry.			SB02_0.10 - 0.20
				0.5		FILL	FILL: SILT, non-plastic, white, soft, dry.			SB02_0.50 - 0.60
				1.0		FILL	Anthropogenic material including a thin layer of clear plastic.			SB02_0.90 - 1.00
						CI	Sandy CLAY: Medium plasticity, medium to coarse, poorly graded, sub-rounded to sub-angular sand, trace gravel, pale grey-brown, firm to stiff, moist, dry of plastic limit.			SB02_1.90 - 2.00
				1.5						
				2.0						
				2.5						SB02_2.90 - 3.00
				3.0			SB02 terminated at 3.00 m bgl Target depth achieved			

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SB03

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274471 5800134 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
PT				0		FILL	FILL: Silty SAND, fine to medium, poorly graded, sub-angular to angular sand, non-plastic silt, trace gravel, pale brown, loose, dry, anthropogenic material including trace wood fragments.			SB03_0.10 - 0.20
				0.5						SB03_0.50 - 0.60
						CI	Gravelly CLAY: Medium plasticity clay, fine, poorly graded, sub-angular gravel, trace sand, pale grey, stiff, moist, near plastic limit.			SB03_0.90 - 1.00
				1.0						
				1.5		GP	Sandy GRAVEL: Fine, poorly graded, sub-rounded gravel, fine to medium, poorly graded, sub-rounded to sub-angular sand, pale grey mottled yellow, medium dense, dry.			SB03_1.40 - 1.50
							SB03 terminated at 1.50 m bgl Equipment refusal on inferred natural rock			
				2.0						
				2.5						
				3.0						

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SB04

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274279 5710000 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING		
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)		Sample ID & Interval (QA/QC)
PT						FILL	FILL: Sandy Gravelly CLAY, low plasticity clay, medium to coarse, poorly graded, sub-rounded to sub-angular sand, fine to medium, poorly graded, sub-rounded to sub-angular gravel, brown, firm, moist, dry of plastic limit.				SB04_0.10 - 0.20 (QC01 & QC02)
				0.5		CI	Gravelly CLAY: Medium plasticity clay, fine to medium, poorly graded, sub-rounded to sub-angular gravel, orange-white mottled brown, stiff, moist, dry of plastic limit.				SB04_0.50 - 0.60
							SB04 terminated at 0.60 m bgl Equipment refusal on inferred rock				
				1.0							
				1.5							
				2.0							
				2.5							
				3.0							

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SB05

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274401 5800038 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING		
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)		Sample ID & Interval (QA/QC)
PT						FILL	FILL: Gravelly Silty SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, fine grained, sub-rounded to sub-angular gravel, non-plastic silt, light brown, loose, dry.				
						FILL	FILL: Sandy Gravelly CLAY, low plasticity clay, medium to coarse, poorly graded, sub-rounded to sub-angular sand, fine to medium, poorly graded, sub-rounded to sub-angular gravel, brown, firm, moist, dry of plastic limit.				SB05_0.10 - 0.20
						FILL	FILL: SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, trace gravel, pale brown, medium dense, dry.				
				0.5							SB05_0.50 - 0.60
				1.0		SP	Gravelly SAND: Fine to medium, poorly graded, sub-rounded to sub-angular sand, fine, poorly graded, sub-rounded to sub-angular gravel, pale brown, dense, dry.				SB05_1.10 - 1.20
							SB05 terminated at 1.20 m bgl Equipment refusal on inferred rock				
				1.5							
				2.0							
				2.5							
				3.0							

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SB06

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274468 5800040 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING		
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)		Sample ID & Interval (QA/QC)
PT				0		FILL	FILL: Gravelly Silty SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, fine, poorly graded, sub-rounded to sub-angular gravel, non-plastic silt, light brown, loose, dry.				SB06_0.10 - 0.20
				0.5							SB06_0.50 - 0.60
						FILL	FILL: Sandy SILT, non plastic, fine, poorly graded, sub-rounded to sub-angular sand, non-plastic silt, dark brown, soft, moist, anthropogenic material including trace wood fragments and plastic layer.				
				1.0		SP	SAND: Coarse, poorly graded, sub-angular sand, pale grey, dense, dry.				SB06_1.00 - 1.10
							SB06 terminated at 1.10 m bgl Equipment refusal on inferred rock				
				1.5							
				2.0							
				2.5							
				3.0							

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SB07

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274469 5800043 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
PT						FILL	FILL: Silty SAND, medium to coarse, poorly graded, sub-angular sand, non-plastic silt, trace gravel, pale grey-brown, medium dense, moist.			SB07_0.10 - 0.20
						FILL	FILL: Gravelly Silty SAND, medium to coarse, poorly graded, sub-angular sand, fine, poorly graded, sub-angular gravel, non-plastic silt, pale grey-brown, loose, dry.			
				0.5		FILL	FILL: GRAVEL, fine, poorly graded, sub-rounded gravel, pale brown, loose, dry, anthropogenic material including a trace layer of plastic.			SB07_0.50 - 0.60 (QC03 & QC04)
						SP	Gravelly Clayey SAND: Medium to coarse, poorly graded, sub-rounded to sub-angular sand, fine, poorly graded, sub-rounded to sub-angular gravel, low plasticity clay, brown, loose, moist.			SB07_0.90 - 1.00
				1.0			Pale grey.			
				1.5						SB07_1.40 - 1.50
							SB07 terminated at 1.50 m bgl Equipment refusal on inferred natural rock			
				2.0						
				2.5						
				3.0						

BOREHOLE NUMBER SB08

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274418 5799959 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
PT						FILL	FILL: Gravelly Silty SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, fine, poorly graded, sub-rounded to sub-angular gravel, non-plastic silt, light brown, loose, dry.			SB08_0.10 - 0.20
						CI	Gravelly Sandy CLAY: Medium plasticity, medium, poorly graded, sub-rounded to sub-angular gravel, fine to medium, poorly graded, sub-rounded to sub-angular sand, orange mottled pale brown, firm, moist, dry of plastic limit.			
				0.5						SB08_0.50 - 0.60
				1.0			Stiff.			SB08_1.00 - 1.10
							Very stiff.			
				1.5						SB08_1.40 - 1.50
							SB08 terminated at 1.50 m bgl Equipment refusal on inferred natural rock			
				2.0						
				2.5						
				3.0						

BOREHOLE NUMBER SB09

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274502 5799956 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
PT						GP	Sandy GRAVEL: Fine to medium, poorly graded, sub-rounded to sub-angular gravel, medium to coarse, poorly graded, sub-rounded to sub-angular sand, pale brown, medium dense, dry.			SB09_0.00 - 0.10
				0.5			SB09 terminated at 0.15 m bgl Equipment refusal on inferred rock			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

BOREHOLE NUMBER SB10

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** JH **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274595 5799958 55H

EQUIPMENT Push Tube - Geoprobe **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION				SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)		Sample ID & Interval (QA/QC)
PT						FILL	FILL: Silty SAND, medium to coarse, poorly graded, sub-angular sand, non-plastic silt, trace gravel, pale grey-brown, medium dense, moist.				SB10_0.10 - 0.20
						FILL	FILL: Gravelly Silty SAND, medium to coarse, poorly graded, sub-angular sand, fine, poorly graded, sub-angular gravel, non-plastic silt, pale grey-brown, loose, dry.				
						FILL	FILL: GRAVEL, fine, poorly graded, sub-rounded gravel, pale brown, loose, dry, anthropogenic material including trace plastic layer.				
				0.5		SP	Gravelly SAND: Medium to coarse, poorly graded, sub-rounded to sub-angular sand, fine, poorly graded, sub-rounded to sub-angular gravel, trace clay, brown, loose, moist.				SB10_0.50 - 0.60
				1.0			Pale grey.				SB10_0.90 - 1.00
											SB10_1.20 - 1.30
				1.5			SB10 terminated at 1.30 m bgl Equipment refusal on inferred natural rock				
				2.0							
				2.5							
				3.0							

BOREHOLE NUMBER SS01

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** KC **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274405 5800006 55H

EQUIPMENT Trowel **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
HE						CI	Gravelly Sandy CLAY: Medium plasticity, fine to medium, poorly graded, sub-rounded to sub-angular gravel, fine to medium, poorly graded, sub-rounded to sub-angular sand, orange mottled brown, firm, moist, dry of plastic limit.			SS01_0.00 - 0.10
							SS01 terminated at 0.10 m bgl Target depth achieved			

BOREHOLE NUMBER SS02

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** KC **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274257 5800156 55H

EQUIPMENT Trowel **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
HE						FILL	FILL: Gravelly SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, fine to medium, poorly graded, sub-rounded to sub-angular gravel, pale brown, loose, dry.			SS02_0.00 - 0.10
							SS02 terminated at 0.10 m bgl Target depth achieved			

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SS03

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** KC **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274235 5800164 55H

EQUIPMENT Trowel **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
HE						FILL	FILL: Gravelly SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, fine to medium, poorly graded, sub-rounded to sub-angular gravel, pale brown, loose, dry.			SS03_0.00 - 0.10
							SS03 terminated at 0.10 m bgl Target depth achieved			

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SS04

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** KC **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274341 5800146 55H

EQUIPMENT Trowel **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING		
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)		Sample ID & Interval (QA/QC)
HE						FILL	FILL: Gravelly SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, fine to medium, poorly graded, sub-rounded to sub-angular gravel, pale brown, loose, dry.				SS04_0.00 - 0.10
							SS04 terminated at 0.10 m bgl Target depth achieved				

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

BOREHOLE NUMBER SS05

senversa

PROJECT NAME Little River Preliminary Site Investigation

PROJECT NUMBER M19067 **PROJECT LOCATION** 250 Drysdale Road, Little River

DATE STARTED 10/8/21 **COMPLETED** 10/8/21 **LOGGED BY** KC **CHECKED BY** VR

CONTRACTOR Qest Infrastructure **LOCATION (Easting, Northing, Zone)** 274208 5800032 55H

EQUIPMENT Trowel **DIMENSIONS** 50 mm diameter **INCLINATION** Vertical

GROUNDWATER NOTES Not encountered during drilling **CASING LEVEL** - **SURFACE LEVEL** -

GENERAL NOTES

DRILLING						FIELD MATERIAL DESCRIPTION			SAMPLING	
Method	Core Recovery (%)	Water	Well Details	Depth (m)	Graphic Log	Classification Symbol	Material Description	Additional Observations	PID (ppm)	Sample ID & Interval (QA/QC)
HE						FILL	FILL: Gravelly SAND, fine to medium, poorly graded, sub-rounded to sub-angular sand, fine to medium, poorly graded, sub-rounded to sub-angular gravel, pale brown, loose, dry.			SS05_0.00 - 0.10
							SS05 terminated at 0.10 m bgl Target depth achieved			

1. SENVERSA STANDARD M19067_BORELOGS.GPJ SENVERSA_GINT.GDT 1/9/21

Appendix J: Laboratory Analytical Reports

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Received: 10/8 16:50 Carrier: courier
Chnote:
Temp: 7.5°C Seal: Y / N
Icebricks / NA

ALS

Laboratory: mgt/Eurofins VIC
Address:
Contact: Sample Receipt
Phone:

Chain of Custody Documentation

Environmental Division
Melbourne
Work Order Reference
EM2115737

Telephone: +61-3-8549 9600

Job Number:	M19067	Purchase Order:	
Project Name:	Preliminary Site Investigation - Little River	Quote No:	
Sampled By:	Kelley Cheney/James Horne	Turn Around Time:	Standard
Project Manager:	Lucinda Trickey	Page:	1 of 3
Email Report To:	lucinda.trickey@senversa.com.au	Phone/Mobile:	0424 172 065

Analysis Required

Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc

Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	HOLD	Comments
	SB01_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB01_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1		
	SB01_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1		
	SB01_1.1-1.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB02_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB02_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1		
	SB02_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1		
	SB02_1.9-2.0	Soil	10/08/2021	AM	Glass Jar	1		
	SB02_2.9-3.0	Soil	10/08/2021	AM	Glass Jar	1		
	SB03_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB03_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1		
	SB03_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1		
	SB03_1.4-1.5	Soil	10/08/2021	AM	Glass Jar	1		
	SB04_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB04_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1		
	SB05_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB05_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1		
	SB05_1.1-1.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB06_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1		
	SB06_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1		
Total						20		

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: Signature: Date:

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's Iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by:
Checked by:

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: mgt/Eurofins VIC
Address:
Contact: Sample Receipt
Phone:

Job Number:	M19067	Purchase Order:	
Project Name:	Preliminary Site Investigation - Little River	Quote No:	
Sampled By:	Kelley Cheney/James Horne	Turn Around Time:	Standard
Project Manager:	Lucinda Trickey	Page:	2 of 3
Email Report To:	lucinda.trickey@senversa.com.au	Phone/Mobile:	0424 172 065

Analysis Required: HOLD

Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.

Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles
	SB06_1.0-1.1	Soil	10/08/2021	AM	Glass Jar	1
	SB07_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1
	SB07_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1
	SB07_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1
	SB07_1.5-1.5	Soil	10/08/2021	AM	Glass Jar	1
	SB08_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1
	SB08_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1
	SB08_1.0-1.1	Soil	10/08/2021	AM	Glass Jar	1
	SB08_1.4-1.5	Soil	10/08/2021	AM	Glass Jar	1
	SB09_0.0-0.1	Soil	10/08/2021	AM	Glass Jar	1
	SB10_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1
	SB10_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1
	SB10_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1
	SB10_1.2-1.3	Soil	10/08/2021	AM	Glass Jar	1
	SS01	Soil	10/08/2021	AM	Glass Jar	1
	SS02	Soil	10/08/2021	AM	Glass Jar	1
	SS03	Soil	10/08/2021	AM	Glass Jar	1
	SS04	Soil	10/08/2021	AM	Glass Jar	1
	SS05	Soil	10/08/2021	AM	Glass Jar	1
	QC01	Soil	10/08/2021	AM	Glass Jar	1
Total:						20

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples: Sampler Name: Signature: Date:

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; ST = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Via Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L = Lugol's iodine preserved white plastic bottle; SW = sulfuric acid preserved wide mouth glass jar

Completed by: ________
Checked by: ________

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: mgt/Eurofins VIC
Address:
Contact: Sample Receipt
Phone:

Job Number:	M19067	Purchase Order:	
Project Name:	Preliminary Site Investigation - Little River	Quote No:	
Sampled By:	Kelley Cheney/James Horne	Turn Around Time:	Standard
Project Manager:	Lucinda Trickey	Page:	3 of 3
Email Report To:	lucinda.trickey@senversa.com.au	Phone/Mobile:	0424 172 065

Sample Information					Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles											HOLD	Comments e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
	QC02	Soil	10/08/2021	AM	Glass Jar	1												
	QC03	Soil	10/08/2021	AM	Glass Jar	1												
	QC04	Soil	10/08/2021	AM	Glass Jar	1												
	QC05	Soil	10/08/2021	AM	Metals Water Jar	2												
Total						5												

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	Sampler Name:	Signature:	Date:

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by:
Checked by: __

Ranil Weerakkody

From: Lucinda Trickey <Lucinda.Trickey@senversa.com.au>
Sent: Wednesday, 11 August 2021 11:11 AM
To: Peter Ravlic
Cc: Kelley Cheney
Subject: [EXTERNAL] - RE: Sample COC Senversa (10/8)
Attachments: M19067_COC_Senversa.pdf

Hi Peter,
Please find attached the COC for samples sent to the lab yesterday

Cheers
Lucy

Lucinda Trickey
Associate Environmental Engineer
M: **+61 424 172 065**
Lucinda Trickey is on Teams
www.senversa.com.au
Level 6, 15 William St, Melbourne, VIC, 3000, Australia

From: Kelley Cheney <kelley.cheney@senversa.com.au>
Sent: Tuesday, 10 August 2021 4:56 PM
To: Peter Ravlic <peter.ravlic@alsglobal.com>
Cc: Lucinda Trickey <Lucinda.Trickey@senversa.com.au>
Subject: Sample COC Senversa (10/8)

Hey Peter,

Just sending through a prelim COC for the samples picked up today. A more detailed COC will be sent tomorrow morning

Kind regards,

Kelley Cheney
Graduate Environmental Engineer
M: **+61 401 539 712**
E: **kelley.cheney@senversa.com.au**

Level 6, 15 William St,
Melbourne VIC 6000
www.senversa.com.au

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 360

Laboratory: ALS VIC
Address:
Contact:
Phone:
Sample Receip:

Job Number:	M19067	**Purchase Order:**	
Project Name:	Preliminary Site Investigation - Little River	**Quote No:**	Senversa
Sampled By:	Kelsey Chenay/James Horne	**Turn Around Time:**	Standard
Project Manager:	Lucinda Trickey	**Page:**	1 of 3
Email Report To:	lucinda.trickey@senversa.com.au	**Phone/Mobile:**	0424 172 065

Sample Information					Container Information		Analysis Required											
Lab ID	**Sample ID**	**Matrix ***	**Date**	**Time**	**Type / Code**	**Total Bottles**	Boron, Cadmium, Copper, Manganese, Molybdenum, Zinc	Sulfur	Major Cations	Ammonia, nitrite, nitrate, total kjeldahl nitrogen, total and reactive phosphorus							HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc
1	SB01_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
2	SB01_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
3	SB01_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
4	SB01_1.1-1.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
5	SB02_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
6	SB02_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
7	SB02_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
8	SB02_1.9-2.0	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
9	SB02_2.9-3.0	Soil	10/08/2021	AM	Glass Jar	1												
10	SB03_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
11	SB03_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
12	SB03_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
13	SB03_1.4-1.5	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
14	SB04_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
15	SB04_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
16	SB05_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
17	SB05_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
18	SB05_1.1-1.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
19	SB06_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
20	SB06_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
Total						20												

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:**	**Signature:**	**Date:**

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide ($NaOH$)/Cadmium (Cd) Preservative; S = Sodium Hydroxide Preserved Plastic; STU = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by _____

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 360

Laboratory: mgt/Eurofins VIC
Address:
Contact: Sample Receipt
Phone:

Job Number:	M19067	**Purchase Order:**	
Project Name:	Preliminary Site Investigation - Little River	**Quote No:**	
Sampled By:	Kelley Cheney/James Horne	**Turn Around Time:**	Standard
Project Manager:	Lucinda Trickey	**Page:**	2 of 3
Email Report To:	lucinda.trickey@senversa.com.au	**Phone/Mobile:**	0424 172 085

Sample Information					Container Information		Analysis Required											
Lab ID	**Sample ID**	**Matrix ***	**Date**	**Time**	**Type / Code**	**Total Bottles**	Boron, Cadmium, Copper, Manganese, Molybdenum, Zinc	Sulfur	Major Cations	Ammonia, nitrite, nitrate, total kjeldahl nitrogen, total and reactive phosphorus						HOLD	Comments: e.g. Highly contaminated sample, hazardous materials present; trace LORs etc
21	SB08_1.0-1.1	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
22	SB07_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
23	SB07_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
24	SB07_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
25	SB07_1.5-1.5	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
26	SB08_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
27	SB08_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
28	SB08_1.0-1.1	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
29	SB08_1.4-1.5	Soil	10/08/2021	AM	Glass Jar	1										X	
30	SB09_0.0-0.1	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
31	SB10_0.1-0.2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
32	SB10_0.5-0.6	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
33	SB10_0.9-1.0	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
34	SB10_1.2-1.3	Soil	10/08/2021	AM	Glass Jar	1										X	
35	SSC1	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
36	SSC2	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
37	SSC3	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
38	SSC4	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
39	SSC5	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
40	QC01	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
Total						20											

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:**	**Signature:**	**Date:**

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ing/Eurofins VIC
Address:
Contact: Samp e Receipt
Phone:

Job Number:	M19067	**Purchase Order:**	
Project Name:	Preliminary Site Investigation - Little River	**Quote No:**	
Sampled By:	Kelley Cheney/James Horne	**Turn Around Time:**	Standard
Project Manager:	Lucinda Trickey	**Page:**	3 of 3
Email Report To:	lucinda.trickey@senversa.com.au	**Phone/Mobile:**	0424 172 065

Sample Information					Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	Boron, Cadmium, Copper, Manganese, Molybdenum, Zinc	Sulfur	Major Cations	Ammonia, nitrate, total kjeldahl nitrogen, total and reactive phosphorus						HOLD	Comments, e.g. Highly contaminated sample; hazardous materials present, trace LORs etc
→	QC02	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							Forward to Eurofins
41	QC03	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							
→	QC04	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X							Forward to Eurofins
42	QC05	Soil	10/08/2021	AM	Metals Water Jar	2											
Total						6											

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name:

Signature:

Date:

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time	Date/Time:	Of:	Time:
Name/Signature:	Date	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; LeLugol's lodine preserved white plastic bottle; SW = sulfuric acid preserved wide mouth glass ja

Completed by: _____
Checked by: _____

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2115737**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LUCINDA TRICKEY	Contact	: Peter Ravlic
Address	: Level 6, 15 William St Melbourne VICTORIA, AUSTRALIA 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: lucinda.trickey@senversa.com.au	E-mail	: peter.ravlic@alsglobal.com
Telephone	: +61 03 9606 0070	Telephone	: +6138549 9645
Facsimile	: +61 03 9606 0074	Facsimile	: +61-3-8549 9626
Project	: M19067	Page	: 1 of 3
Order number	: ----	Quote number	: EM2020SENVER0016 (EN/103/20 (primary work only))
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: James Horne, Kelley Cheney		

Dates

Date Samples Received	: 10-Aug-2021 16:50	Issue Date	: 12-Aug-2021
Client Requested Due Date	: 24-Aug-2021	Scheduled Reporting Date	: **18-Aug-2021**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 7.5°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 42 / 38

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale and ALS Brisbane.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Preliminary results will be available on the scheduled reporting date listed in this report. However the final report with total sulfur analysis will be complete on 24/08/2021.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - ED042T Sulfur - Total as S (high temperature furnace	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-8AS NH3, NO2, NO3, NOX, TKN, TN, TP, RP
EM2115737-001	10-Aug-2021 00:00	SB01_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-002	10-Aug-2021 00:00	SB01_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-003	10-Aug-2021 00:00	SB01_0.9-1.0		✓	✓	✓	✓	✓
EM2115737-004	10-Aug-2021 00:00	SB01_1.1-1.2		✓	✓	✓	✓	✓
EM2115737-005	10-Aug-2021 00:00	SB02_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-006	10-Aug-2021 00:00	SB02_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-007	10-Aug-2021 00:00	SB02_0.9-1.0		✓	✓	✓	✓	✓
EM2115737-008	10-Aug-2021 00:00	SB02_1.9-2.0		✓	✓	✓	✓	✓
EM2115737-009	10-Aug-2021 00:00	SB02_2.9-3.0	✓					
EM2115737-010	10-Aug-2021 00:00	SB03_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-011	10-Aug-2021 00:00	SB03_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-012	10-Aug-2021 00:00	SB03_0.9-1.0		✓	✓	✓	✓	✓
EM2115737-013	10-Aug-2021 00:00	SB03_1.4-2.0		✓	✓	✓	✓	✓
EM2115737-014	10-Aug-2021 00:00	SB04_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-015	10-Aug-2021 00:00	SB04_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-016	10-Aug-2021 00:00	SB05_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-017	10-Aug-2021 00:00	SB05_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-018	10-Aug-2021 00:00	SB05_1.1-1.2		✓	✓	✓	✓	✓
EM2115737-019	10-Aug-2021 00:00	SB06_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-020	10-Aug-2021 00:00	SB06_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-021	10-Aug-2021 00:00	SB06_1.0-1.1		✓	✓	✓	✓	✓
EM2115737-022	10-Aug-2021 00:00	SB07_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-023	10-Aug-2021 00:00	SB07_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-024	10-Aug-2021 00:00	SB07_0.9-1.0		✓	✓	✓	✓	✓
EM2115737-025	10-Aug-2021 00:00	SB07_1.5-1.5		✓	✓	✓	✓	✓
EM2115737-026	10-Aug-2021 00:00	SB08_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-027	10-Aug-2021 00:00	SB08_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-028	10-Aug-2021 00:00	SB08_1.0-1.1		✓	✓	✓	✓	✓
EM2115737-029	10-Aug-2021 00:00	SB08_1.4-1.5	✓					
EM2115737-030	10-Aug-2021 00:00	SB09_0.0-0.1		✓	✓	✓	✓	✓
EM2115737-031	10-Aug-2021 00:00	SB10_0.1-0.2		✓	✓	✓	✓	✓
EM2115737-032	10-Aug-2021 00:00	SB10_0.5-0.6		✓	✓	✓	✓	✓
EM2115737-033	10-Aug-2021 00:00	SB10_0.9-1.0		✓	✓	✓	✓	✓
EM2115737-034	10-Aug-2021 00:00	SB10_1.2-1.3	✓					
EM2115737-035	10-Aug-2021 00:00	SS01		✓	✓	✓	✓	✓

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - ED042T Sulfur - Total as S (high temperature furnace	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - NT-1S Major Cations (Ca, Mg, Na, K)	SOIL - NT-8AS NH3, NO2, NO3, NOX, TKN, TN, TP, RP
EM2115737-036	10-Aug-2021 00:00	SS02		✓	✓	✓	✓	✓
EM2115737-037	10-Aug-2021 00:00	SS03		✓	✓	✓	✓	✓
EM2115737-038	10-Aug-2021 00:00	SS04		✓	✓	✓	✓	✓
EM2115737-039	10-Aug-2021 00:00	SS05		✓	✓	✓	✓	✓
EM2115737-040	10-Aug-2021 00:00	QC01		✓	✓	✓	✓	✓
EM2115737-041	10-Aug-2021 00:00	QC03		✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) WATER No analysis requested
EM2115737-042	10-Aug-2021 00:00	QC05	✓

Proactive Holding Time Report

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

Requested Deliverables

LUCINDA TRICKEY

- *AU Certificate of Analysis - NATA (COA)	Email	lucinda.trickey@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	lucinda.trickey@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	lucinda.trickey@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	lucinda.trickey@senversa.com.au
- A4 - AU Tax Invoice (INV)	Email	lucinda.trickey@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	lucinda.trickey@senversa.com.au
- EDI Format - ENMRG (ENMRG)	Email	lucinda.trickey@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	lucinda.trickey@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2115737**	Page	: 1 of 11
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LUCINDA TRICKEY	Contact	: Peter Ravlic
Address	: Level 6, 15 William St Melbourne VICTORIA, AUSTRALIA 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9606 0070	Telephone	: +6138549 9645
Project	: M19067	Date Samples Received	: 10-Aug-2021 16:50
Order number	: ----	Date Analysis Commenced	: 13-Aug-2021
C-O-C number	: ----	Issue Date	: 24-Aug-2021 09:51
Sampler	: James Horne, Kelley Cheney		
Site	: ----		
Quote number	: EN/103/20 (primary work only)		
No. of samples received	: 42		
No. of samples analysed	: 38		

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

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
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ED093S: EM2115737 #32, Poor duplicate precision for Calcium due to sample heterogeneity. Confirmed by re-extraction and re-analysis.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB01_0.1-0.2	SB01_0.5-0.6	SB01_0.9-1.0	SB01_1.1-1.2	SB02_0.1-0.2
			Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00
Compound	CAS Number	LOR	Unit	EM2115737-001	EM2115737-002	EM2115737-003	EM2115737-004	EM2115737-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.3	13.4	2.9	1.8	8.7
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.01	0.03	<0.01	0.03	0.16
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	50	<10	<10	<10	3480
Magnesium	7439-95-4	10	mg/kg	30	40	40	20	100
Sodium	7440-23-5	10	mg/kg	70	490	140	130	230
Potassium	7440-09-7	10	mg/kg	20	20	<10	10	600
EG005(ED093)T: Total Metals by ICP-AES								
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	5	14
Manganese	7439-96-5	5	mg/kg	19	69	233	313	228
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	<5	15	38	49	108
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	0.8	0.3	0.4	0.2	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.2	0.3	0.4	0.2	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	150	160	50	60	10200
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	150	160	50	60	10200
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	72	91	96	105	3930
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	0.9	0.2	0.2	<0.1	4.6

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	SB02_0.5-0.6	SB02_0.9-1.0	SB02_1.9-2.0	SB03_0.1-0.2	SB03_0.5-0.6
				Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00
					EM2115737-006	EM2115737-007	EM2115737-008	EM2115737-010	EM2115737-011
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**15.2**	**3.8**	**3.0**	**5.7**	**15.7**
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		**8.26**	**0.03**	**0.01**	**0.03**	**0.32**
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		**3500**	**70**	**20**	**20**	**3660**
Magnesium	7439-95-4	10	mg/kg		**230**	**50**	**50**	**10**	**690**
Sodium	7440-23-5	10	mg/kg		**500**	**180**	**210**	**110**	**930**
Potassium	7440-09-7	10	mg/kg		**1730**	**210**	**30**	**160**	**2330**
EG005(ED093)T: Total Metals by ICP-AES									
Boron	7440-42-8	50	mg/kg		<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg		**8**	<1	<1	<1	**1**
Copper	7440-50-8	5	mg/kg		**6**	<5	**6**	<5	**19**
Manganese	7439-96-5	5	mg/kg		**193**	**22**	**259**	**110**	**146**
Molybdenum	7439-98-7	2	mg/kg		<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		**54**	<5	**41**	**8**	**122**
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	**0.2**	**0.1**	**0.3**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		**3.0**	**17.4**	**1.0**	**12.2**	**389**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		**3.0**	**17.4**	**1.2**	**12.3**	**389**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**330**	**220**	**60**	**410**	**480**
EK062: Total Nitrogen as N (TKN + NOx)									
^ **Total Nitrogen as N**	----	20	mg/kg		**330**	**240**	**60**	**420**	**870**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**3830**	**128**	**92**	**166**	**109**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg		**0.2**	**1.8**	**0.4**	**16.8**	**3.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB03_0.9-1.0	SB03_1.4-2.0	SB04_0.1-0.2	SB04_0.5-0.6	SB05_0.1-0.2
			Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00
Compound	CAS Number	LOR	Unit	EM2115737-012	EM2115737-013	EM2115737-014	EM2115737-015	EM2115737-016
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.4	7.0	3.6	9.5	14.0
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.08	0.03	0.01	0.02	1.20
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	320	30	30	110	3930
Magnesium	7439-95-4	10	mg/kg	240	50	10	160	180
Sodium	7440-23-5	10	mg/kg	560	310	30	250	150
Potassium	7440-09-7	10	mg/kg	980	130	20	80	530
EG005(ED093)T: Total Metals by ICP-AES								
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	5
Copper	7440-50-8	5	mg/kg	14	19	6	<5	29
Manganese	7439-96-5	5	mg/kg	172	412	149	64	278
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	32	65	19	11	44
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	<0.1	2.3	18.9
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	64.9	15.1	0.3	14.7	23.8
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	64.9	15.1	0.3	17.0	42.7
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	240	40	140	240	1350
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	300	60	140	260	1390
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	126	207	194	108	15200
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	2.4	0.1	0.1	8.6	4.4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB05_0.5-0.6	SB05_1.1-1.2	SB06_0.1-0.2	SB06_0.5-0.6	SB06_1.0-1.1
			Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00
Compound	CAS Number	LOR	Unit	EM2115737-017	EM2115737-018	EM2115737-019	EM2115737-020	EM2115737-021
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	17.1	7.4	8.8	15.8	35.5
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	5.13	0.03	0.04	0.30	0.93
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	3910	40	160	3360	5950
Magnesium	7439-95-4	10	mg/kg	340	50	20	540	1940
Sodium	7440-23-5	10	mg/kg	850	300	60	440	2390
Potassium	7440-09-7	10	mg/kg	1220	330	160	1280	6820
EG005(ED093)T: Total Metals by ICP-AES								
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	4	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	<5	24	79
Manganese	7439-96-5	5	mg/kg	108	19	174	233	178
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	25	9	22	151	190
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	20	240
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	0.2	<0.1	0.4	3.2	0.3
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	<0.1	1.7	9.8	467	1860
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.2	1.7	10.2	470	1860
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	180	110	1160	15500	17400
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	180	110	1170	16000	19300
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	9180	1520	2200	3280	3510
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	7.1	54.0	18.8	9.3	74.7

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	SB07_0.1-0.2	SB07_0.5-0.6	SB07_0.9-1.0	SB07_1.5-1.5	SB08_0.1-0.2
				Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00
					EM2115737-022	EM2115737-023	EM2115737-024	EM2115737-025	EM2115737-026
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**16.8**	**8.8**	**14.2**	**7.2**	**4.8**
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		**3.36**	**4.11**	**0.26**	**0.03**	**0.04**
ED093S: Soluble Major Cations									
Calcium	7440-70-2	10	mg/kg		**3970**	**3720**	**60**	**20**	**130**
Magnesium	7439-95-4	10	mg/kg		**170**	**60**	**20**	<10	**20**
Sodium	7440-23-5	10	mg/kg		**70**	**70**	**80**	**80**	**30**
Potassium	7440-09-7	10	mg/kg		**230**	**220**	**210**	**100**	**60**
EG005(ED093)T: Total Metals by ICP-AES									
Boron	7440-42-8	50	mg/kg		<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg		<1	**2**	<1	<1	<1
Copper	7440-50-8	5	mg/kg		<5	<5	**9**	**23**	**9**
Manganese	7439-96-5	5	mg/kg		**207**	**96**	**302**	**334**	**404**
Molybdenum	7439-98-7	2	mg/kg		<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg		**17**	**19**	**40**	**51**	**44**
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		**0.2**	<0.1	**0.2**	<0.1	**0.1**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		**5.0**	**0.1**	**0.4**	**0.2**	**2.9**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		**5.2**	**0.1**	**0.6**	**0.2**	**3.0**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**220**	**260**	**180**	**150**	**290**
EK062: Total Nitrogen as N (TKN + NOx)									
^ **Total Nitrogen as N**	----	20	mg/kg		**220**	**260**	**180**	**150**	**290**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**2630**	**3850**	**785**	**400**	**504**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg		**16.2**	**50.8**	**41.9**	**0.2**	**1.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB08_0.5-0.6	SB08_1.0-1.1	SB09_0.0-0.1	SB10_0.1-0.2	SB10_0.5-0.6
			Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00
Compound	CAS Number	LOR	Unit	EM2115737-027	EM2115737-028	EM2115737-030	EM2115737-031	EM2115737-032
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	3.8	2.6	13.7	20.3	7.9
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.01	1.08	3.12	0.07
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	30	<10	4060	4180	200
Magnesium	7439-95-4	10	mg/kg	20	<10	20	60	40
Sodium	7440-23-5	10	mg/kg	30	10	80	110	60
Potassium	7440-09-7	10	mg/kg	30	10	80	310	220
EG005(ED093)T: Total Metals by ICP-AES								
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	2	3	<1
Copper	7440-50-8	5	mg/kg	8	8	<5	5	<5
Manganese	7439-96-5	5	mg/kg	267	306	72	90	66
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	34	42	13	24	5
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	0.8	0.3	0.1	<0.1	0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.2	0.3	0.1	<0.1	0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	150	100	540	340	180
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	150	100	540	340	180
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	168	297	8570	8460	408
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	1.1	0.5	274	145	18.9

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SB10_0.9-1.0	SS01	SS02	SS03	SS04
			Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00
Compound	CAS Number	LOR	Unit	EM2115737-033	EM2115737-035	EM2115737-036	EM2115737-037	EM2115737-038
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.3	<1.0	18.4	5.4	2.5
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.27	0.01	0.04	0.01	0.02
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	40	10	30	20	40
Magnesium	7439-95-4	10	mg/kg	10	<10	20	60	<10
Sodium	7440-23-5	10	mg/kg	90	20	50	90	10
Potassium	7440-09-7	10	mg/kg	240	20	50	30	20
EG005(ED093)T: Total Metals by ICP-AES								
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Manganese	7439-96-5	5	mg/kg	67	108	48	56	40
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Zinc	7440-66-6	5	mg/kg	7	9	6	8	<5
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	0.5	0.2	0.7	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	0.3	10.6	0.8	2.2	0.2
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.3	11.1	1.0	2.9	0.2
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	340	340	990	90	420
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	340	350	990	90	420
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	216	109	199	113	168
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	8.6	0.6	2.4	1.1	5.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SS05	QC01	QC03	----	----
			Sampling date / time	10-Aug-2021 00:00	10-Aug-2021 00:00	10-Aug-2021 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2115737-039	EM2115737-040	EM2115737-041	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**2.6**	**4.6**	**8.1**	**----**	**----**
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	**0.02**	**0.86**	**----**	**----**
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	<10	**110**	**3570**	**----**	**----**
Magnesium	7439-95-4	10	mg/kg	<10	**20**	**90**	**----**	**----**
Sodium	7440-23-5	10	mg/kg	**20**	**40**	**110**	**----**	**----**
Potassium	7440-09-7	10	mg/kg	<10	**30**	**310**	**----**	**----**
EG005(ED093)T: Total Metals by ICP-AES								
Boron	7440-42-8	50	mg/kg	<50	<50	<50	**----**	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	**----**	**----**
Copper	7440-50-8	5	mg/kg	<5	**5**	<5	**----**	**----**
Manganese	7439-96-5	5	mg/kg	**19**	**174**	**65**	**----**	**----**
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	**----**	**----**
Zinc	7440-66-6	5	mg/kg	<5	**19**	**7**	**----**	**----**
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	**----**	**----**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	<0.1	**----**	**----**
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	**0.1**	**0.3**	**0.1**	**----**	**----**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**0.1**	**0.3**	**0.1**	**----**	**----**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	**480**	**220**	**----**	**----**
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	<20	**480**	**220**	**----**	**----**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**69**	**116**	**2240**	**----**	**----**
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	**0.1**	<0.1	**66.9**	**----**	**----**

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) ED042T: Total Sulfur by LECO

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2115737**	Page	: 1 of 7
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LUCINDA TRICKEY	Contact	: Peter Ravlic
Address	: Level 6, 15 William St Melbourne VICTORIA, AUSTRALIA 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9606 0070	Telephone	: +6138549 9645
Project	: M19067	Date Samples Received	: 10-Aug-2021
Order number	: ----	Date Analysis Commenced	: 13-Aug-2021
C-O-C number	: ----	Issue Date	: 24-Aug-2021
Sampler	: James Horne, Kelley Cheney		
Site	: ----		
Quote number	: EN/103/20 (primary work only)		
No. of samples received	: 42		
No. of samples analysed	: 38		

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*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

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: 3844096)									
EM2115737-001	SB01_0.1-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	19	22	13.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2115737-011	SB03_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	1	1	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	22	14.9	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	146	153	4.7	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	122	128	4.9	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3844097)									
EM2115737-022	SB07_0.1-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	207	243	15.7	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	17	18	8.8	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EM2115737-032	SB10_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	66	69	3.3	0% - 50%
		EG005T: Zinc	7440-66-6	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: 3844097) - continued									
EM2115737-032	SB10_0.5-0.6	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3844213)									
EM2115737-001	SB01_0.1-0.2	EA055: Moisture Content	----	0.1	%	10.3	11.4	10.0	0% - 50%
EM2115737-012	SB03_0.9-1.0	EA055: Moisture Content	----	0.1	%	8.4	5.8	36.4	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3844214)									
EM2115737-022	SB07_0.1-0.2	EA055: Moisture Content	----	0.1	%	16.8	12.6	27.9	0% - 50%
EM2115737-033	SB10_0.9-1.0	EA055: Moisture Content	----	0.1	%	7.3	7.0	4.1	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 3860127)									
EM2115737-001	SB01_0.1-0.2	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.01	0.01	0.0	No Limit
EM2115737-012	SB03_0.9-1.0	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.08	0.08	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 3860128)									
EM2115737-022	SB07_0.1-0.2	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	3.36	3.44	2.5	0% - 20%
EM2115737-033	SB10_0.9-1.0	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.27	0.26	5.5	0% - 20%
ED093S: Soluble Major Cations (QC Lot: 3846225)									
EM2115737-001	SB01_0.1-0.2	ED093S: Calcium	7440-70-2	10	mg/kg	50	50	0.0	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	30	30	0.0	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	70	70	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	20	10	0.0	No Limit
EM2115737-011	SB03_0.5-0.6	ED093S: Calcium	7440-70-2	10	mg/kg	3660	3740	2.2	0% - 20%
		ED093S: Magnesium	7439-95-4	10	mg/kg	690	710	2.1	0% - 20%
		ED093S: Sodium	7440-23-5	10	mg/kg	930	950	2.1	0% - 20%
		ED093S: Potassium	7440-09-7	10	mg/kg	2330	2380	2.0	0% - 20%
ED093S: Soluble Major Cations (QC Lot: 3846229)									
EM2115737-032	SB10_0.5-0.6	ED093S: Calcium	7440-70-2	10	mg/kg	200	# 110	59.5	0% - 20%
EM2115737-022	SB07_0.1-0.2	ED093S: Calcium	7440-70-2	10	mg/kg	3970	3880	2.3	0% - 20%
		ED093S: Magnesium	7439-95-4	10	mg/kg	170	130	27.8	0% - 50%
		ED093S: Sodium	7440-23-5	10	mg/kg	70	70	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	230	210	9.7	0% - 20%
EM2115737-032	SB10_0.5-0.6	ED093S: Magnesium	7439-95-4	10	mg/kg	40	30	33.1	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	60	60	0.0	No Limit
		ED093S: Potassium	7440-09-7	10	mg/kg	220	190	14.2	0% - 20%
EK055: Ammonia as N (QC Lot: 3843984)									
EM2115737-001	SB01_0.1-0.2	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EM2115737-012	SB03_0.9-1.0	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK055: Ammonia as N (QC Lot: 3843985)									
EM2115737-022	SB07_0.1-0.2	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EM2115737-033	SB10_0.9-1.0	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 3846222)									

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 (%)*
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 3846222) - continued									
EM2115737-001	SB01_0.1-0.2	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	0.4	0.4	0.0	No Limit
EM2115737-011	SB03_0.5-0.6	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	0.3	0.3	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 3846226)									
EM2115737-022	SB07_0.1-0.2	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	0.2	0.2	0.0	No Limit
EM2115737-032	SB10_0.5-0.6	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 3846223)									
EM2115737-001	SB01_0.1-0.2	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.2	1.5	24.4	0% - 50%
EM2115737-011	SB03_0.5-0.6	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	389	403	3.6	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 3846227)									
EM2115737-022	SB07_0.1-0.2	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	5.2	4.7	10.1	0% - 20%
EM2115737-032	SB10_0.5-0.6	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.1	<0.1	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 3843336)									
EM2115737-001	SB01_0.1-0.2	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	150	180	22.0	No Limit
EM2115737-011	SB03_0.5-0.6	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	480	410	14.5	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 3843338)									
EM2115737-022	SB07_0.1-0.2	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	220	180	21.4	0% - 50%
EM2115737-032	SB10_0.5-0.6	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	180	210	13.6	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 3843337)									
EM2115737-001	SB01_0.1-0.2	EK067G: Total Phosphorus as P	----	2	mg/kg	72	72	0.0	0% - 20%
EM2115737-011	SB03_0.5-0.6	EK067G: Total Phosphorus as P	----	2	mg/kg	109	111	2.1	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 3843339)									
EM2115737-022	SB07_0.1-0.2	EK067G: Total Phosphorus as P	----	2	mg/kg	2630	2160	19.6	0% - 20%
EM2115737-032	SB10_0.5-0.6	EK067G: Total Phosphorus as P	----	2	mg/kg	408	408	0.0	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 3848078)									
EM2115737-001	SB01_0.1-0.2	EK067G: Total Phosphorus as P	----	2	mg/kg	72	73	1.7	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 3846224)									
EM2115737-001	SB01_0.1-0.2	EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	0.9	1.3	33.2	0% - 50%
EM2115737-011	SB03_0.5-0.6	EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	3.5	3.5	0.0	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 3846228)									
EM2115737-022	SB07_0.1-0.2	EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	16.2	15.2	6.2	0% - 20%
EM2115737-032	SB10_0.5-0.6	EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	18.9	18.4	2.7	0% - 20%

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: 3844096)								
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	57.0	50.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	85.8	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	92.4	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	77.3	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	71.8	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3844097)								
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	55.4	50.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	85.9	70.0	130
EG005T: Manganese	7439-96-5	5	mg/kg	<5	590 mg/kg	92.0	70.0	130
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.19 mg/kg	74.0	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	71.2	70.0	130
ED042T: Total Sulfur by LECO (QCLot: 3860127)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	0.16 %	102	70.0	130
ED042T: Total Sulfur by LECO (QCLot: 3860128)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	4.59 %	97.9	70.0	130
ED093S: Soluble Major Cations (QCLot: 3846225)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	25 mg/kg	109	91.0	118
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	25 mg/kg	108	85.9	116
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	107	85.9	117
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	101	84.6	116
ED093S: Soluble Major Cations (QCLot: 3846229)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	25 mg/kg	108	91.0	118
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	25 mg/kg	106	85.9	116
ED093S: Sodium	7440-23-5	10	mg/kg	<10	250 mg/kg	105	85.9	117
ED093S: Potassium	7440-09-7	10	mg/kg	<10	250 mg/kg	100.0	84.6	116
EK055: Ammonia as N (QCLot: 3843984)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	25 mg/kg	97.9	83.0	109
EK055: Ammonia as N (QCLot: 3843985)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	25 mg/kg	98.4	83.0	109
EK057G: Nitrite as N by Discrete Analyser (QCLot: 3846222)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	106	88.9	113

Sub-Matrix: **SOIL**

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
EK057G: Nitrite as N by Discrete Analyser (QCLot: 3846226)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	107	88.9	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 3846223)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	106	89.5	119
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 3846227)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	107	89.5	119
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 3843336)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	500 mg/kg	98.9	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 3843338)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	500 mg/kg	98.0	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 3843337)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	221 mg/kg	94.9	78.3	127
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 3843339)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	221 mg/kg	126	78.3	127
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 3848078)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	221 mg/kg	101	78.3	127
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 3846224)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	<0.1	2.5 mg/kg	104	84.0	116
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 3846228)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	<0.1	2.5 mg/kg	105	84.0	116

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
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3844096)							
EM2115737-002	SB01_0.5-0.6	EG005T: Cadmium	7440-43-9	50 mg/kg	97.7	79.7	116
		EG005T: Copper	7440-50-8	250 mg/kg	95.9	80.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.7	80.0	120
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3844097)							
EM2115737-023	SB07_0.5-0.6	EG005T: Cadmium	7440-43-9	50 mg/kg	92.1	79.7	116
		EG005T: Copper	7440-50-8	250 mg/kg	100	80.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	90.9	80.0	120
EK055: Ammonia as N (QCLot: 3843984)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055: Ammonia as N (QCLot: 3843984) - continued							
EM2115737-002	SB01_0.5-0.6	EK055: Ammonia as N	7664-41-7	50 mg/kg	96.6	80.0	110
EK055: Ammonia as N (QCLot: 3843985)							
EM2115737-023	SB07_0.5-0.6	EK055: Ammonia as N	7664-41-7	50 mg/kg	99.4	80.0	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 3846222)							
EM2115737-002	SB01_0.5-0.6	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	87.1	84.0	128
EK057G: Nitrite as N by Discrete Analyser (QCLot: 3846226)							
EM2115737-023	SB07_0.5-0.6	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	103	84.0	128
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 3846223)							
EM2115737-002	SB01_0.5-0.6	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	93.4	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 3846227)							
EM2115737-023	SB07_0.5-0.6	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	97.0	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 3843336)							
EM2115737-002	SB01_0.5-0.6	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	74.3	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 3843338)							
EM2115737-023	SB07_0.5-0.6	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	96.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 3843337)							
EM2115737-002	SB01_0.5-0.6	EK067G: Total Phosphorus as P	----	100 mg/kg	93.2	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 3843339)							
EM2115737-023	SB07_0.5-0.6	EK067G: Total Phosphorus as P	----	100 mg/kg	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 3848078)							
EM2115737-022	SB07_0.1-0.2	EK067G: Total Phosphorus as P	----	100 mg/kg	# Not Determined	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 3846224)							
EM2115737-002	SB01_0.5-0.6	EK071G: Reactive Phosphorus as P	14265-44-2	2.5 mg/kg	99.1	73.0	133
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 3846228)							
EM2115737-023	SB07_0.5-0.6	EK071G: Reactive Phosphorus as P	14265-44-2	2.5 mg/kg	# Not Determined	73.0	133

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2115737**	Page	: 1 of 11
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LUCINDA TRICKEY	Telephone	: +6138549 9645
Project	: M19067	Date Samples Received	: 10-Aug-2021
Site	: ----	Issue Date	: 24-Aug-2021
Sampler	: James Horne, Kelley Cheney	No. of samples received	: 42
Order number	: ----	No. of samples analysed	: 38

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

- **NO Quality Control Sample Frequency Outliers exist.**

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							
ED093S: Soluble Major Cations	EM2115737--032	SB10_0.5-0.6	**Calcium**	7440-70-2	59.5 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EK067G: Total Phosphorus as P by Discrete Analyser	EM2115737--022	SB07_0.1-0.2	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	EM2115737--023	SB07_0.5-0.6	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK071G: Reactive Phosphorus as P by discrete analyse	EM2115737--023	SB07_0.5-0.6	**Reactive Phosphorus as P**	14265-44-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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)							

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) - Continued								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**----**	----	----	**13-Aug-2021**	24-Aug-2021	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							
ED042T: Total Sulfur by LECO								
Pulp Bag (ED042T)								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**23-Aug-2021**	06-Feb-2022	✓	**23-Aug-2021**	06-Feb-2022	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							

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
ED093S: Soluble Major Cations								
Soil Glass Jar - Unpreserved (ED093S)								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**16-Aug-2021**	06-Feb-2022	✓	**17-Aug-2021**	06-Feb-2022	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**13-Aug-2021**	06-Feb-2022	✓	**13-Aug-2021**	06-Feb-2022	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							

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
EK055: Ammonia as N								
Soil Glass Jar - Unpreserved (EK055)								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**----**	----	----	**13-Aug-2021**	07-Sep-2021	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G)								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**16-Aug-2021**	17-Aug-2021	✓	**17-Aug-2021**	18-Aug-2021	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							

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
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G)							
SB01_0.1-0.2, SB01_0.5-0.6, SB01_0.9-1.0, SB01_1.1-1.2, SB02_0.1-0.2, SB02_0.5-0.6, SB02_0.9-1.0, SB02_1.9-2.0, SB03_0.1-0.2, SB03_0.5-0.6, SB03_0.9-1.0, SB03_1.4-2.0, SB04_0.1-0.2, SB04_0.5-0.6, SB05_0.1-0.2, SB05_0.5-0.6, SB05_1.1-1.2, SB06_0.1-0.2, SB06_0.5-0.6, SB06_1.0-1.1, SB07_0.1-0.2, SB07_0.5-0.6, SB07_0.9-1.0, SB07_1.5-1.5, SB08_0.1-0.2, SB08_0.5-0.6, SB08_1.0-1.1, SB09_0.0-0.1, SB10_0.1-0.2, SB10_0.5-0.6, SB10_0.9-1.0, SS01, SS02, SS03, SS04, SS05, QC01, QC03	**10-Aug-2021**	**16-Aug-2021**	07-Sep-2021	✓	**17-Aug-2021**	18-Aug-2021	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Soil Glass Jar - Unpreserved (EK061G)							
SB01_0.1-0.2, SB01_0.5-0.6, SB01_0.9-1.0, SB01_1.1-1.2, SB02_0.1-0.2, SB02_0.5-0.6, SB02_0.9-1.0, SB02_1.9-2.0, SB03_0.1-0.2, SB03_0.5-0.6, SB03_0.9-1.0, SB03_1.4-2.0, SB04_0.1-0.2, SB04_0.5-0.6, SB05_0.1-0.2, SB05_0.5-0.6, SB05_1.1-1.2, SB06_0.1-0.2, SB06_0.5-0.6, SB06_1.0-1.1, SB07_0.1-0.2, SB07_0.5-0.6, SB07_0.9-1.0, SB07_1.5-1.5, SB08_0.1-0.2, SB08_0.5-0.6, SB08_1.0-1.1, SB09_0.0-0.1, SB10_0.1-0.2, SB10_0.5-0.6, SB10_0.9-1.0, SS01, SS02, SS03, SS04, SS05, QC01, QC03	**10-Aug-2021**	**13-Aug-2021**	07-Sep-2021	✓	**13-Aug-2021**	10-Sep-2021	✓

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
EK067G: Total Phosphorus as P by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK067G)								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**13-Aug-2021**	07-Sep-2021	✓	**13-Aug-2021**	10-Sep-2021	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							
EK071G: Reactive Phosphorus as P by discrete analyser								
Soil Glass Jar - Unpreserved (EK071G)								
SB01_0.1-0.2,	SB01_0.5-0.6,	**10-Aug-2021**	**16-Aug-2021**	17-Aug-2021	✓	**17-Aug-2021**	18-Aug-2021	✓
SB01_0.9-1.0,	SB01_1.1-1.2,							
SB02_0.1-0.2,	SB02_0.5-0.6,							
SB02_0.9-1.0,	SB02_1.9-2.0,							
SB03_0.1-0.2,	SB03_0.5-0.6,							
SB03_0.9-1.0,	SB03_1.4-2.0,							
SB04_0.1-0.2,	SB04_0.5-0.6,							
SB05_0.1-0.2,	SB05_0.5-0.6,							
SB05_1.1-1.2,	SB06_0.1-0.2,							
SB06_0.5-0.6,	SB06_1.0-1.1,							
SB07_0.1-0.2,	SB07_0.5-0.6,							
SB07_0.9-1.0,	SB07_1.5-1.5,							
SB08_0.1-0.2,	SB08_0.5-0.6,							
SB08_1.0-1.1,	SB09_0.0-0.1,							
SB10_0.1-0.2,	SB10_0.5-0.6,							
SB10_0.9-1.0,	SS01,							
SS02,	SS03,							
SS04,	SS05,							
QC01,	QC03							

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)							
Buchi Ammonia	EK055	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cations - soluble by ICP-AES	ED093S	5	40	**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
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfur - Total as S (LECO)	ED042T	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosporus By Discrete Analyser	EK067G	5	39	**12.82**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cations - soluble by ICP-AES	ED093S	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfur - Total as S (LECO)	ED042T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosporus By Discrete Analyser	EK067G	3	39	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Buchi Ammonia	EK055	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Cations - soluble by ICP-AES	ED093S	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfur - Total as S (LECO)	ED042T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosporus By Discrete Analyser	EK067G	3	39	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Buchi Ammonia	EK055	2	38	**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*	
Matrix Spikes (MS) - Continued							
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosporus By Discrete Analyser	EK067G	3	39	**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
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).
Sulfur - Total as S (LECO)	ED042T	SOIL	In house: Dried and pulverised sample is combusted in a high temperature furnace in the presence of strong oxidants / catalysts. The evolved S (as SO2) is measured by infra-red detector
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3).
Total 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)
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NOx) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N.
Total Phosporus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	SOIL	In house: Referenced to APHA 4500 P-F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.

Preparation Methods	Method	Matrix	Method Descriptions
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.
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).
Dry and Pulverise (up to 100g)	GEO30	SOIL	#

senversa

Chain of Custody Documentation

G

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ngt/Eurofins VIC
Address:
Contact: Sample Receipt
Phone:

Job Number:	M19007	Purchase Order:	
Project Name:	Preliminary Site Investigation - Little River	Quote No:	
Sampled By:	Kelley Cheney/James Horne	Turn Around Time:	Standard
Project Manager:	Lucinda Trickey	Page:	3 of 3
Email Report To:	lucinda.trickey@senversa.com.au	Phone/Mobile:	0424 172 065

Sample Information					Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	Boron, Cadmium, Copper, Manganese, Molybdenum, Zinc	Sulfur	Major Cations	Ammonia, nitrite, nitrate, total kjeldahl nitrogen, total and reactive phosphorus							HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc
→	QC02	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								Forward to Eurofins
41	QC03	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								
→	QC04	Soil	10/08/2021	AM	Glass Jar	1	X	X	X	X								Forward to Eurofins
42	QC05	Soil	10/08/2021	AM	Metals Water Jar	2												
Total						5												

13/8 7.30

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: | Signature: | Date:

Relinquished By: Milika		Method of Shipment (if applicable):	Received by:		
Name/Signature:	Date: 12/8/21	Carrier / Reference #:	Name/Signature: Scott	Date:	10/8/21
Of: ALS	Time:	Date/Time:	Of: ALS	Time:	1650
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:	
Of:	Time:	Date/Time:	Of:	Time:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:	
Of:	Time:	Date/Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic
V = VOA Vial Hydrochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L = Lugol's iodine preserved white plastic bottle; SW = sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

Analysis recd by ALS 11/8/21, 11.11. SM 11/8.

916742

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Phone : +64 9 526 45 51
IANZ # 1327

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

Sample Receipt Advice

Company name:	Senversa Pty Ltd VIC
Contact name:	Lucinda Trickey
Project name:	PREMILINARY SITE INVESTIGATION - LITTLE RIVER
Project ID:	M19067
Turnaround time:	5 Day
Date/Time received	Aug 13, 2021 7:30 AM
Eurofins reference	816742

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 3.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

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

Harry Bacalis on phone : or by email: HarryBacalis@eurofins.com

Results will be delivered electronically via email to Lucinda Trickey - Lucinda.Trickey@senversa.com.au.

Note: A copy of these results will also be delivered to the general Senversa Pty Ltd VIC email address.

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IANZ # 1290

Company Name: Senversa Pty Ltd VIC
Address: Level 6, 15 William St
Melbourne
VIC 3000

Order No.:
Report #: 816742
Phone: 9606 0070
Fax:

Received: Aug 13, 2021 7:30 AM
Due: Aug 20, 2021
Priority: 5 Day
Contact Name: Lucinda Trickey

Project Name: PREMILINARY SITE INVESTIGATION - LITTLE RIVER
Project ID: M19067

Eurofins Analytical Services Manager : Harry Bacalis

Sample Detail						Ammonia (as N)	Boron	Cadmium	Copper	Manganese	Molybdenum	Nitrate (as N)	Nitrite (as N)	Phosphorus	Phosphorus reactive (as P)	Sulphur	Total Kjeldahl Nitrogen (as N)	Zinc	Alkali Metals	Moisture Set
Melbourne Laboratory - NATA Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																				
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
Mayfield Laboratory - NATA Site # 25079																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	QC02	Aug 10, 2021		Soil	M21-Au23633	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	QC04	Aug 10, 2021		Soil	M21-Au23634	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Senversa Pty Ltd VIC
Level 6, 15 William St
Melbourne
VIC 3000

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: **Lucinda Trickey**

Report **816742-S**
Project name PREMILINARY SITE INVESTIGATION - LITTLE RIVER
Project ID M19067
Received Date Aug 13, 2021

Client Sample ID			**QC02**	**QC04**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M21-Au23633**	**M21-Au23634**
Date Sampled			**Aug 10, 2021**	**Aug 10, 2021**
Test/Reference	LOR	Unit		
Ammonia (as N)	5	mg/kg	5.9	< 5
Nitrate (as N)	5	mg/kg	< 5	< 5
Nitrite (as N)	5	mg/kg	< 5	< 5
Phosphorus reactive (as P)	10	mg/kg	< 10	39
Total Kjeldahl Nitrogen (as N)	10	mg/kg	150	880
Phosphorus	5	mg/kg	45	4200
Sulphur	5	mg/kg	28	39000
% Moisture	1	%	4.2	9.9
Heavy Metals				
Boron	10	mg/kg	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	1.8
Copper	5	mg/kg	10	< 5
Manganese	5	mg/kg	200	71
Molybdenum	5	mg/kg	< 5	< 5
Zinc	5	mg/kg	30	15
Alkali Metals				
Calcium	5	mg/kg	620	63000
Magnesium	5	mg/kg	4600	800
Potassium	5	mg/kg	4200	1500
Sodium	5	mg/kg	120	390

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
Ammonia (as N)	Melbourne	Aug 13, 2021	28 Days
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate (as N)	Melbourne	Aug 13, 2021	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	Aug 13, 2021	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Phosphorus reactive (as P)	Melbourne	Aug 13, 2021	28 Days
- Method: APHA 4500-P			
Total Kjeldahl Nitrogen (as N)	Melbourne	Aug 13, 2021	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Phosphorus	Melbourne	Aug 13, 2021	180 Days
- Method: LTM-MET-3010 Alkali Metals Sulfur Silicon and Phosphorus by ICP-AES			
Sulphur	Melbourne	Aug 13, 2021	7 Days
- Method: LTM-MET-3010 Alkali Metals Sulfur Silicon and Phosphorus by ICP-AES			
Heavy Metals	Melbourne	Aug 13, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Alkali Metals	Melbourne	Aug 13, 2021	180 Days
- Method: LTM-MET-3010 Alkali Metals Sulfur Silicon Phosphorus by ICP-AES			
% Moisture	Melbourne	Aug 13, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

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IANZ # 1290

Company Name: Senversa Pty Ltd VIC
Address: Level 6, 15 William St
Melbourne
VIC 3000

Order No.:
Report #: 816742
Phone: 9606 0070
Fax:

Received: Aug 13, 2021 7:30 AM
Due: Aug 20, 2021
Priority: 5 Day
Contact Name: Lucinda Trickey

Project Name: PREMILINARY SITE INVESTIGATION - LITTLE RIVER
Project ID: M19067

Eurofins Analytical Services Manager : Harry Bacalis

Sample Detail						Ammonia (as N)	Boron	Cadmium	Copper	Manganese	Molybdenum	Nitrate (as N)	Nitrite (as N)	Phosphorus	Phosphorus reactive (as P)	Sulphur	Total Kjeldahl Nitrogen (as N)	Zinc	Alkali Metals	Moisture Set
Melbourne Laboratory - NATA Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																				
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
Mayfield Laboratory - NATA Site # 25079																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	QC02	Aug 10, 2021		Soil	M21-Au23633	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	QC04	Aug 10, 2021		Soil	M21-Au23634	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
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 20-130% Phenols & 50-150% PFASs

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Phosphorus reactive (as P)	mg/kg	< 10			10	Pass	
Method Blank							
Heavy Metals							
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Copper	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Heavy Metals							
Boron	%	111			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Copper	%	111			80-120	Pass	
Manganese	%	111			80-120	Pass	
Molybdenum	%	110			80-120	Pass	
Zinc	%	113			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Boron	M21-Au25922	NCP	%	79			75-125	Pass	
Cadmium	M21-Au25922	NCP	%	101			75-125	Pass	
Copper	M21-Au25922	NCP	%	87			75-125	Pass	
Manganese	M21-Au25922	NCP	%	114			75-125	Pass	
Molybdenum	M21-Au25922	NCP	%	90			75-125	Pass	
Zinc	M21-Au25922	NCP	%	77			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M21-Au23129	NCP	mg/kg	13	14	10	30%	Pass	
Nitrate (as N)	M21-Au23129	NCP	mg/kg	5.9	6.1	4.0	30%	Pass	
Nitrite (as N)	M21-Au23129	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M21-Au22583	NCP	mg/kg	78	62	23	30%	Pass	
% Moisture	M21-Au23710	NCP	%	15	17	15	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Boron	M21-Au25922	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M21-Au25922	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Copper	M21-Au25922	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Manganese	M21-Au25922	NCP	mg/kg	94	76	21	30%	Pass	
Molybdenum	M21-Au25922	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M21-Au25922	NCP	mg/kg	9.5	15	47	30%	Fail	Q15
Duplicate									
				Result 1	Result 2	RPD			
Phosphorus	M21-Au22562	NCP	mg/kg	78	71	8.0	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
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Harry Bacalis	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Scott Beddoes	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.

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