



# PRELIMINARY SITE INVESTIGATION REPORT

**PROJECT:** 131 Wollombi Road, Farley, NSW 2320  
**CLIENT:** Bathla Group  
**DATE:** 22 August 2022  
**REPORT NO:** NE1372



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## EXECUTIVE SUMMARY

Geotesta was engaged by Bathla Group to conduct a Preliminary Site Investigation (PSI) on the site referred to as 131 Wollombi Road, Farley, NSW 2320.

The PSI was conducted in general accordance with “Managing Land Contamination Planning Guidelines SEPP 55” and this report compiled, taking into consideration the *NSW EPA Consultants reporting on Contaminated and Contaminated Land Guidelines update May 2020* and Site History, *Schedule B2 - Guideline on Site Characterisation (ASC NEPM)*.

The PSI contains an appraisal of the site’s history and a report based on a visual site inspection and assessment. All relevant information about the site was assessed to determine the potential for site contamination. As part of the PSI a limited soil sampling and analysis program was conducted to assist in assess the environmental risk profile of the site.

This report is based only on the information provided at the time of this report preparation and may not be valid if changes are made to the site conditions and/or soil and groundwater.

The objectives of this PSI are to:

- assess the past uses of the site and the potential environmental impacts that they may have had on the environmental condition of the site
- identify potential environmental risks associated with the site
- develop of conceptual model of the site and surrounding area
- assess the requirements for additional investigations (Detail Site Investigation)
- address the requirements of the planning authority.

The following scope of works was implemented to achieve the objectives of the PSI.

The scope of works included the following:

- A site inspection
- historical aerial photographs
- public record search, such as Council, OEH, EPA etc
- geological and hydrogeological review
- conduct a limited soil sampling and analysis program
- production of this report on the contamination status of the site.

From the review of the historical aerial photographs, it was observed that a residential dwelling had existed on the site since 1938 in the northwest section of the site, majority of the other adjacent sheds / structures were onsite since 1976. Signs of agricultural usage were



evident from 1954, the central and southern sections of the site areas were vacant, grass covered ground surfaces, with trees mainly located in the northern, south-western and along the eastern and southern boundaries. The dam located in the south-western section of the site had been constructed by latest 1938.

It is suspected that the site contains contamination from hazardous building materials, agricultural usage and possible imported fill and stockpiles.

The limited soil sampling and analysis program conducted as part of the PSI indicates that there is no widespread significant soil contamination across the site, as stated below:

- The laboratory analysis detected concentrations of Arsenic, Chromium, Copper, Lead, Mercury, Nickel, and Zinc within the soil samples recovered. All detected concentrations were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (SAC) – Health Investigation Levels (HIL A) and Ecological Investigation Levels (EIL). No concentrations of Cadmium were detected above the limit of reporting and were therefore below the adopted site assessment criteria (HIL A and EIL).
- No concentrations of OCP/OPP were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).
- All detected concentrations of PAH's were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (HIL A).
- All detected concentrations of TRH's were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (HSL, ESL and ML).
- No concentrations of BTEX were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HSL and ESL).
- No concentrations of Phenols were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).
- No concentrations of PCB were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).
- A total of eight (8) samples were analysed for Asbestos. No Asbestos was detected above the reporting limit of 0.001% w/w in the samples analysed and were therefore within the Site Assessment Criteria (SAC).

An intrusive groundwater assessment was not conducted as part of this PSI, as the risk of contamination from groundwater is considered negligible based on past uses and no identified sources of contamination that would impact groundwater.

Based on the assessment undertaken, the following conclusions and recommendations can be made:

- The limited soil sampling and analysis program conducted indicated a **low** risk of soil and groundwater contamination. It is the opinion of Geotesta Pty Ltd that the site is suitable for the proposed residential development pending on the results of an additional Data Gap Contamination Assessment.
- Due to the existence of a significant data-gap in this investigation, a further Data Gap Contamination Assessment post demolition of the existing structures/dwellings is required to address further potential areas of concern (main emphasis on the footprint of the structures/dwellings) identified in the AECs and to determine if any contamination hotspots exist around the existing dwelling. The Gap Assessment scope must also include the following:
  - Any stockpiles that were not assessed at the time of the PSI or are new to site, will require sampling as part of the Data Gap Assessment. Sampling of stockpiles must adhere to the *Victorian EPA, Industrial Waste Resource Guidelines, 2009*. Classification of stockpiles must be conducted as per *NSW EPA (2014), Waste Classification Guidelines, Part 1: Classifying Waste*.
  - In addition, a Dam Dewatering Report is required for the decommissioning of the dam onsite.

## 1. INTRODUCTION

Geotesta was engaged by Bathla Group to conduct a Site Contamination Investigation (PSI) on the site referred to as 131 Wollombi Road, Farley, NSW 2320.

The PSI was conducted in general accordance with *“Managing Land Contamination Planning Guidelines SEPP 55”* and this report compiled, taking into consideration the *NSW EPA Consultants Reporting on Contaminated Land Guidelines update May 2020*. The PSI contains an appraisal of the site’s history, a report based on a visual site inspection and an assessment of analytes for contamination. All relevant information about the site was assessed to determine the potential for site contamination. To support the outcomes of the PSI a limited sampling and analysis program was implemented.

This report is based only on the information provided at the time of this report preparation and may not be valid if changes are made to the site conditions and/or soil and groundwater.

## 2. PLANNING GUIDELINES

The proposed development of the land comprises of a residential subdivision with on-site roadways. The planning authority must consider the possibility that the previous land use has the potential to cause contamination of the site as well as the potential risk to health or the environment from that contamination. The PSI is the first stage to determine if there is a potential for land contamination that has a potential to impact the development application (DA).

The Guidelines recommend that re-zonings, development control plans and development applications (DAs) are backed up by information demonstrating that the land is suitable for the proposed use or can be made suitable, either by remediation or by the way the land is used.

### 3. OBJECTIVE

The objectives of this PSI are to:

- assess the past uses of the site and the potential environmental impacts that they may have had on the environmental condition of the site
- conduct a soil sampling and analysis program to assess the current environmental condition
- identify potential environmental risks associated with the site
- assess the requirements for additional investigations
- address the requirements of the planning authority

#### 4. SCOPE OF WORKS

The following scope of works was implemented to achieve the objectives of the PSI.

The PSI was conducted in general accordance with the 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*, the Australian Standard AS 4482.2-1999 *Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances*, the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 No1, and other relevant NSW guidelines and legislation, including the *NSW EPA Sampling Guidelines (1995)*.

The scope of works included the following:

- A site inspection
- historical aerial photographs
- public record search, such as Council, OEHL, EPA etc
- geological and hydrogeological review
- conduct a soil sampling and analysis program
- production of this report on the contamination status of the site.

Activities undertaken to achieve the above objectives are reported and discussed in the following sections.

## 5. SITE DESCRIPTION

### 5.1 Site Identification

The site under investigation is situated at 131 Wollombi Road, Farley, NSW 2320 in the north of Wollombi Road and is approximately 40 km (by road) northwest of Newcastle. The proposed development site has an area of approximately 1.64 ha and locates within Maitland City Council. The site location is shown in Figure 1.

The site identification detail is presented in Table 1.

**Table 1: Site Identification**

Site Details	Site Observations
Address	131 Wollombi Road, Farley, NSW 2320
Lot/Plan no:	Lot: 1/-/DP1049391
Local Government Area	Maitland City Council
Site Area (approx.)	~ 1.64 ha
Zoning	R1 - General Residential RU2 - Rural Landscape
Current Land Use	Residential, Agricultural



Figure 1. Site Location and Features

## 5.2 Proposed Development

It is understood that the site is proposed for residential subdivision with on-site roadways. The site lies within General Residential (R1) and Rural Landscape (RU2) planning zones. The planning zones in the vicinity of the site are General Residential (R1) and Rural Landscape (RU2).

## 5.3 Site Details, Geology and Topography

The subject site consisted of a single-storey dwelling, granny flat and garages / sheds all located in the north-western section of the site. The remainder of the site was vacant grass covered ground surfaces with a dam located in the south-western section of the site. Several stockpiles with broken vehicle parts, farming and household wastes were observed scattered on the site in the farming area. The site is sloping downward from north to south with slopes



< 10%. The site lies at an elevation of approximately 14 m above sea level (ASL) referenced to Australian Height Datum (AHD) (<http://en-au.topographic-map.com>). A photographic log provided in Appendix B.

The Hunter 1:100,000 Quaternary Geology Map indicates the site is situated in Dalwood Group (Pda) comprising of sandstone, lithic sandstone, conglomerate, siltstone, and basalt.

#### 5.4 Site Regional Meteorology and Hydrogeology

The following climate information from the Commonwealth Bureau of Meteorology website (<http://www.bom.gov.au/>) can be obtained:

- The highest monthly mean maximum temperature of 35.2°C recorded from 2016 to 2022 at Maitland Airport AWS, approximately 6.5 km away from the site.
- The lowest monthly mean temperature of 17.4°C recorded from 2016 to 2022 at Maitland Airport AWS, approximately 6.5 km away from the site.
- The highest annual rainfall of 986.2mm recorded from 2016 to 2022 at Maitland Airport AWS, approximately 6.5km away from the site.

#### 5.5 Registered Bore Search

A search of Department Primary Industries - Office of Water records identified two (2) existing groundwater wells located within an approximate distance of 500 metre from the site. Refer to Table 2.

Table 2: Boreholes within 500 m from site

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10103728	GW201357	Monitoring	Functional	03/12/2009	6.00		AHD				176m	East
10098876	GW201353	Monitoring	Functional	03/12/2009	6.20		AHD				214m	North East

#### 5.6 Acid Sulphate Soils

The Department for Infrastructure, Planning and Natural Resources (DIPNR) Acid Sulphate Soils Risk Mapping (1997) and the NSW Environmental Acid Sulphate Soil Risk Mapping eSPADE application indicates that the site is underlain by acid sulphate soils ('Class 2 and 5 Acid Sulfate Soils').

## **5.7 Summary of Site History**

### **5.7.1 Historical Background**

From the review of the historical aerial photographs, it was observed that a residential dwelling had existed on the site since 1938 in the northwest section of the site, majority of the other adjacent sheds / structures were onsite since 1976. Signs of agricultural usage were evident from 1954, the central and southern sections of the site areas were vacant, grass covered ground surfaces, with trees mainly located in the northern, south-western and along the eastern and southern boundaries. The dam located in the south-western section of the site had been constructed by latest 1938.

It is suspected that the site contains contamination from hazardous building materials, agricultural usage and possible imported fill and stockpiles

### **5.7.2 Aerial Photograph Review**

Aerial photograph searches were conducted on 8 August 2022. The historical aerial photos were viewed with observations presented in Table 2. Photographs sourced from the Lotsearch Report are presented in Appendix C.

**Table 2: Aerial Photography Review**

Year	Site Observations	Surrounding Area
1938	<ul style="list-style-type: none"> <li>• Black and white photograph (poor quality)</li> <li>• Suspected dwelling and shed / structures in north-western section of site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage</li> <li>• Dam located in south-western section of site</li> </ul>	<ul style="list-style-type: none"> <li>• Black and white photograph (poor quality)</li> <li>• Residential / agricultural properties</li> </ul>
1954	<ul style="list-style-type: none"> <li>• Black and white photograph (poor quality)</li> <li>• Suspected dwelling and shed / structures in north-western section of site</li> <li>• Agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage</li> <li>• Dam located in south-western section of site</li> </ul>	<ul style="list-style-type: none"> <li>• Black and white photograph (poor quality)</li> <li>• Residential / agricultural properties</li> </ul>
1966	<ul style="list-style-type: none"> <li>• Black and white photograph</li> <li>• Dwelling and shed / structures in north-western section of site</li> <li>• Agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage</li> <li>• Dam located in south-western section of site</li> </ul>	<ul style="list-style-type: none"> <li>• Black and white photograph</li> <li>• Residential / agricultural properties</li> </ul>
1976	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Dwelling and shed / structures in north-western section of site</li> <li>• Agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage.</li> <li>• Dam and several trees located in south-western section of site</li> </ul>	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Residential / agricultural properties</li> </ul>
1983	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Dwelling and shed / structures and several trees located in north-western section of site</li> <li>• Agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage.</li> <li>• Dam and several trees located in south-western section of site</li> </ul>	<ul style="list-style-type: none"> <li>• No change from previous photograph</li> </ul>
1993	<ul style="list-style-type: none"> <li>• Colour photograph</li> </ul>	<ul style="list-style-type: none"> <li>• No change from previous photograph</li> </ul>

	<ul style="list-style-type: none"> <li>• Dwelling and shed / structures and several trees located in north-western section of site</li> <li>• East - northern and southern boundary lined with trees</li> <li>• Agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage.</li> <li>• Dam and several trees located in south-western section of site</li> </ul>	
2001	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Dwelling and shed / structures and several trees located in north-western section of site</li> <li>• Eastern and southern boundary lined with trees</li> <li>• No signs of agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage.</li> <li>• Dam and several trees located in south-western section of site</li> </ul>	<ul style="list-style-type: none"> <li>• No change from previous photograph</li> </ul>
2007	<ul style="list-style-type: none"> <li>• No change from previous photograph</li> </ul>	<ul style="list-style-type: none"> <li>• No change from previous photograph</li> </ul>
2010	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Dwelling and shed / structures and several trees located in north-western section of site</li> <li>• Eastern and southern boundary lined with trees</li> <li>• No signs of agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage.</li> <li>• Dam (nearly dry) and several trees located in south-western section of site</li> </ul>	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Residential / agricultural properties</li> <li>• Increase in construction density</li> </ul>
2015	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Dwelling and shed / structures and several trees located in north-western section of site</li> <li>• Eastern and southern boundary lined with trees</li> <li>• No signs of agricultural use in the northern section of the site</li> <li>• Remaining site – vacant exposed ground surfaces, minimal tree coverage.</li> </ul>	<ul style="list-style-type: none"> <li>• No change from previous photograph</li> </ul>

	<ul style="list-style-type: none"> <li>• Dam (appears full) and several trees located in south-western section of site</li> </ul>	
2021	<ul style="list-style-type: none"> <li>• No change from previous photograph</li> </ul>	<ul style="list-style-type: none"> <li>• Colour photograph</li> <li>• Residential / agricultural properties</li> <li>• Increase in construction density</li> </ul>

## 5.8 Site Walkover

The results of the site walkover inspections carried out on 28 March and 4 August 2022 are presented below.

- The subject site consisted of a single-storey dwelling, granny flat and garages / sheds all located in the north-western section of the site.
- The remainder of the site (central and southern sections) were vacant grass covered ground surfaces with a dam located in the south-western section of the site.
- Several stockpiles with broken vehicle parts, farming and household wastes were observed scattered on the site in the farming area.
- The site is sloping downward from north to south with slopes < 10%.
- There were no signs of vegetation dieback, contamination, petrochemical odours or suspected asbestos containing materials (ACM)

## 5.9 NSW OEH/EPA Records

The site or nearby surrounding areas have no notice under the Environmentally Hazardous Chemicals Act (1985). The site has no notices under the List of NSW Contaminated Sites Notified to the EPA.

A site approximately 486m away from the investigated site was identified in the *List of NSW Contaminated Sites Notified to the EPA* as of 6<sup>th</sup> May 2022 (*Map ID 771, Former Ausgrid Depot*). *Map ID 771, Former Ausgrid Depot* has a notice under the Contaminated Land Management Act (1997) - Regulation under the CLM Act is not required. The EPA has completed an assessment of the contamination and decided that regulation under the *Contaminated Land Management Act 1997* is not required.

The same result was reported by the Lotsearch report as shown in Table 3 and Figure 2.

Table 3 List of NSW EPA Contaminated Sites Notified to EPA

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
771	Former Ausgrid Depot	Green Street	Telarah	Other Industry	Regulation under CLM Act not required	Current EPA List	Premise Match	486m	East
The values within the EPA site management class in the table above, are given more detailed explanations in the table below:									
EPA site management class		Explanation							
Contamination being managed via the planning process (EP&A Act)		The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.							
Contamination currently regulated under CLM Act		The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.							
Contamination currently regulated under POEO Act		The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.							
Contamination formerly regulated under the CLM Act		The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.							
Contamination formerly regulated under the POEO Act		The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).							
Contamination was addressed via the planning process (EP&A Act)		The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).							
Ongoing maintenance required to manage residual contamination (CLM Act)		The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.							
Regulation being finalised		The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.							
Regulation under the CLM Act not required		The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.							
Under assessment		The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.							

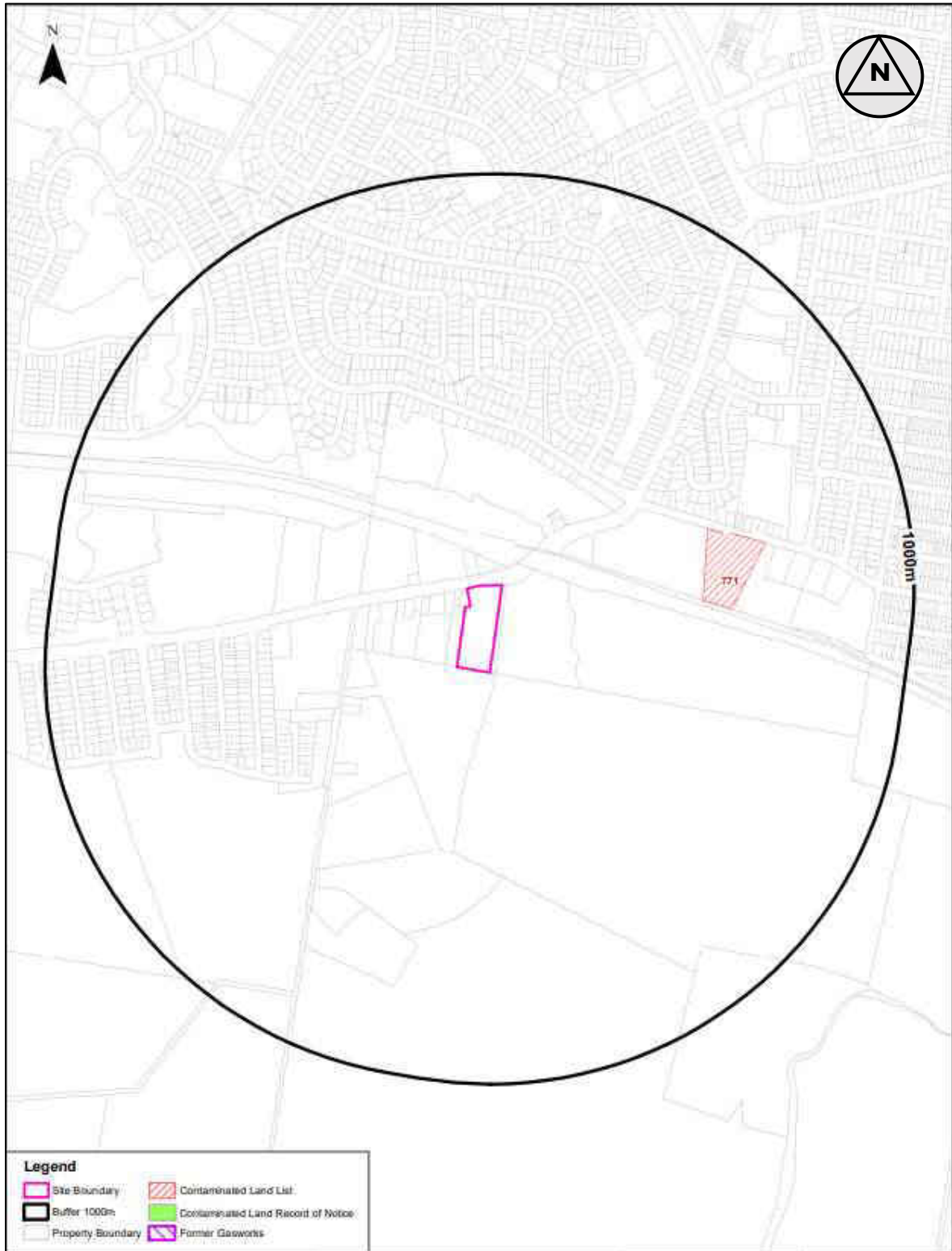


Figure 2. Contaminated land list



### 5.10 Salinity Mapping

The dryland salinity national assessment and salinity potential provided by the Lotsearch report indicated that the site is in a delineated risk area but no high hazard or risk rating (see Figure 3).

The following observations/inspections were noted onsite:

- ✓ Vegetation growth appeared healthy across the site
- ✓ No water marks or salt crystals observed on the ground surface

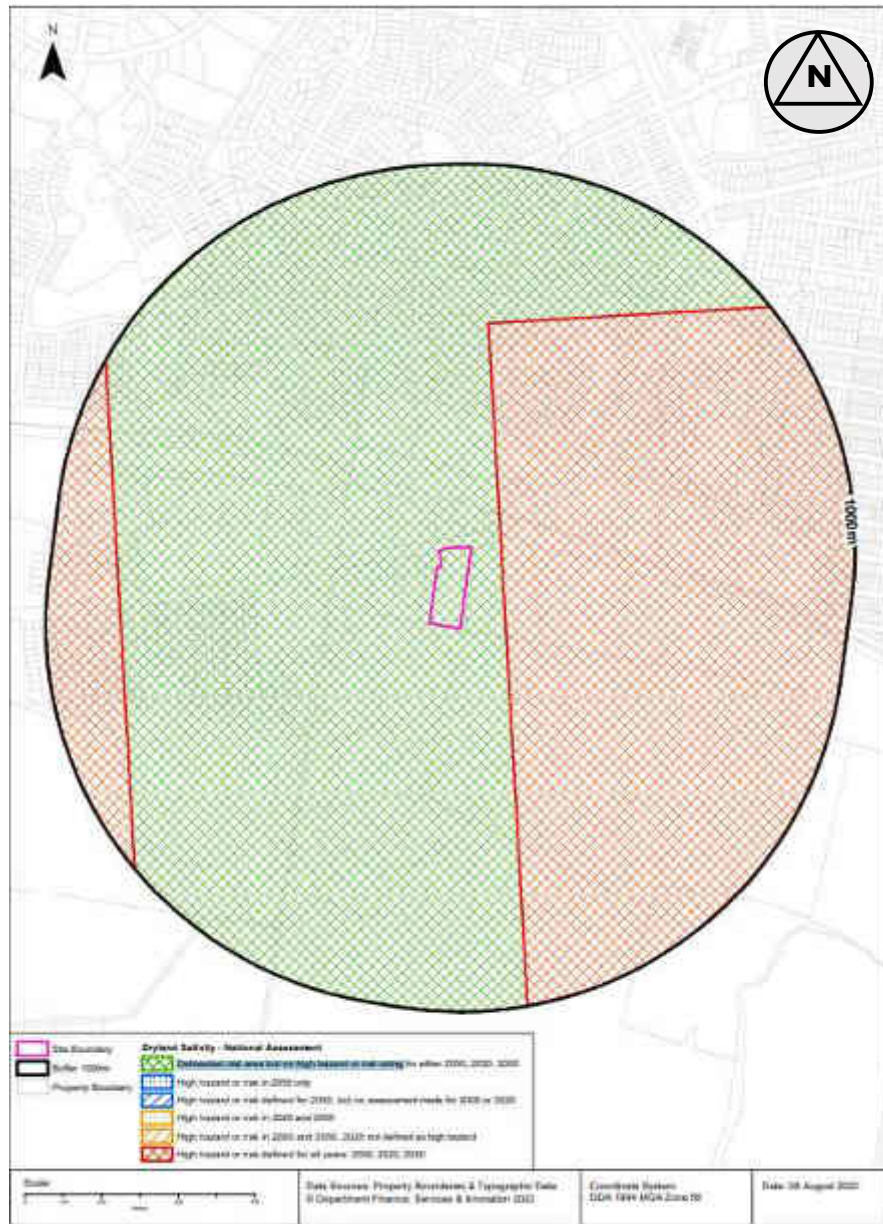


Figure 3. Salinity Potential Map



## 6. CONCEPTUAL SITE MODEL

### 6.1 Areas of Environmental Concern

Our assessment of site AECs and COPCs (Table 4) is made based on available site history, aerial photograph interpretation and site walkovers.

**Table 4: Areas of Environmental Concern (AECs) and Contaminants of Primary Concern (COPCs)**

AEC	Potential for Contamination	COPC	Contamination Likelihood
A – Areas of Dwelling/Sheds	Heavy metals may have been used underneath dwellings. Sheds or areas surrounding sheds may have been used as fuel storage, oil, or drums of unknown content; asbestos sheeting, may include lead-based paints.	HM, OCP/OPP, and Asbestos	Medium-High
B – Areas of light agricultural	Heavy metals and pesticides used for home-grown garden and agricultural zones may pose potential risk of contamination	HM, TRH and OCP/OPP	Medium-High
C – Stockpiles / Imported unknown fill	Contaminants from unknown contents and general refuse may have spilt or leaked onto underlying soil.  Fill materials of unknown origin with a potential to contain contaminants and asbestos.	HM, TRH, PAH, BTEX, Phenol, OCP/OPP and Asbestos	Medium to High
D – Parked Vehicle Zones	Contaminants from old vehicles and areas where vehicles have been parked for prolonged periods of time may contain refuse that may have spilled, leached or been distributed onto underlying soil.	HM, TRH, PAH and BTEX	Medium to High

### 6.2 Potential Receptors and Sensitive Environments

The residents and visitors/workers on site are identified as immediately sensitive environmental receptors. A summary of the identified potential receptors and sensitive environments is detailed below in Table 5.

**Table 5: Potential Receptors and Sensitive Environments**

Receptors/Environments	Potential Pathway
<b>Human Receptors:</b> <ul style="list-style-type: none"> <li>• Future site workers and visitors</li> <li>• Site labourers/workers</li> <li>• Residents of adjacent properties</li> <li>• Trespassers</li> </ul>	<ul style="list-style-type: none"> <li>• Direct skin contact</li> <li>• Ingestion of contaminated soil</li> <li>• Inhalation via airborne dust</li> </ul>
<b>Sensitive Environments:</b> <ul style="list-style-type: none"> <li>• Site fauna and flora</li> <li>• Stony Creek</li> </ul>	<ul style="list-style-type: none"> <li>• Migration via stormwater run-off or within groundwater</li> <li>• Migration into underlying soil</li> </ul>

### 6.3 Potential for migration and exposure of contamination

During site investigation, several potential receptors for off-site migration of potential contamination has been raised. Site history information and onsite inspection observations indicated a potential for contaminants to present a direct contact and inhalation exposure risk on site. Exposure routes of contaminants could potentially be through direct contact with exposed soils (Heavy Metals, TPH, PAHs, phenols, BTEX, OCP/OPP and PCB) or airborne dust (Asbestos). These exposure risks will “likely”, and potentially at its highest risk during any demolition, earthworks, or construction phases within the site.

There is a potential for these contaminants to be present within underlying soils and can migrate vertically (dispersed up into the atmosphere, or infiltrate down into the groundwater) and migrate horizontally (through stormwater runoff pathways) from the proposed development.

### 6.4 Assessment of Preliminary Site Investigation and Recommendations

The results of the site history indicated the site has been used for residential and cattle farming. During the site investigation, the residential dwelling appeared to be in good condition, but most sheds in the farming area appeared to be in deteriorating condition. Cars were noted parking onsite, as well as multiple zones of stockpiles. Several of these stockpiles were situated on grassy topsoil, which may pose environmental concern to the surrounding soil. Home-grown flowers and decorative plants were noted around the residential dwelling and in the swimming pool area.

Based on the site history and walkthrough, the site is considered to have the following environmental concerns of:

- Areas of dwellings/sheds may currently (of have previously) stored fuel, oils, pesticides, zinc treated (galvanised) metals, lead based paints and/or asbestos.
- Areas of agricultural zone and garden activity may have introduced heavy metals and/or pesticides to the soil.
- Contaminants from the contents of the stockpiles and parked vehicles may have leached, spilled, or been distributed onto the underlying soil.
- Open stormwater channels may cause environmental contamination to surrounding soil from upstream contaminants during heavy rainfall events.

To address identified AECs, intrusive soil/water sampling regime is recommended to determine what, if any, remediation is required to render the site fit for residential use. A soil sampling plan is to be developed based on a judgemental or systematic sampling pattern and risk-based assessment.

Assessment shall address each of the identified AECs and assess COPC identified for each AEC (Table 3). Results of the site testing shall be assessed against Site Acceptance Criteria (SAC) with reference to *ASC NEPM (1999, amended 2013)*.

## 7. SAMPLING AND ANALYSIS PROGRAM

A limited SAQP was developed to ensure that data collected for this PSI was representative and provided a robust basis for site assessment decisions considering the areas of environmental concerns identified in Section 6.

Preparation of the SAQP includes:

- Field Screening and Sampling Program
- Sampling QA/QC
- Sample Handling, Preservation and Storage Procedures
- Analytical Program and Site Investigation Data Assessment

### 7.1 Field Screening and Sampling Program

#### 7.1.1 Data Quality Plan

Investigations at the site included field works, lab analysis and assessment. The sampling regime for the investigation area of the site was in accordance with the requirements as outlined in the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites.

#### 7.1.2 Visual Inspection

During the sampling works for the site contamination investigation report, a visual inspection was conducted to ensure no suspected asbestos containing materials (ACM) was present. The inspections for ACM were undertaken in a systematic, back and forth fashion over the site to identify suspected ACM.

#### 7.1.3 Soil Sampling Techniques

All techniques used for soil sampling, are based on methods specified by the *National Environmental Protection (Assessment of Site Contamination) Measure (NEPM, 2013)*. Experienced personnel of Geotesta collected all the samples for delivery to NATA accredited laboratory of Eurofins MGT. Soil samples for chemical analysis were in a judgemental sampling pattern based on site history and AECs.

#### 7.1.4 Rationale for Sampling Program and Locations

The justification of the sampling point regime for the assessment was based on the investigator's knowledge, operational requirements, experience, and history of the Site (Judgement Sampling Pattern). All historical investigations and anecdotal evidence supported the sampling approach adopted and provided for samples to be collected in an unbiased manner. All the AECs including heavy metals, OCP/OPP, PCB, TRH, PAH, BTEX and asbestos concentrations have been targeted.

### 7.1.5 Sampling Program

Fieldworks for this investigation were carried out on 28 March and 4 August 2022 and included drilling sixteen (16) boreholes. Some boreholes were advanced by vehicle-mounted auger as part of a Geotechnical Site Investigation in conjunction with this preliminary site investigation, and others by hand auger. The sampling locations are shown in Figure 4. Standard procedures were used for sampling and soil sampling methodology was completed to meet data quality objectives.



Figure 4. Sampling location

### **7.1.6 Soil Logging**

Boreholes were logged by an experienced environmental/geotechnical engineer in accordance with Standard procedures. The borehole logs are presented in Appendix A.

## **7.2 Sampling Quality control (QC) / Quality Assurance (QA)**

### **7.2.1 Sampling Procedures**

General soil sampling procedures included wearing of plastic disposable gloves when handling sampling equipment and soil and changed between collections of samples. All sampling equipment was clean prior to commencement of sampling. Equipment for soil sampling included a vehicle-mounted auger, stainless steel sampling shovel and a 7mm sieve. All equipment was decontaminated between samplings. The following measures have been utilized during the sampling to achieve the sampling quality controls.

#### ***7.2.1.1 Sample Containers***

Soil samples collected during the investigation were placed immediately into laboratory prepared glass jars with Teflon lid. Standard identification labels were adhered to each individual container and labelled according to depth, date, sampling team and media collected.

#### ***7.2.1.2 Sample Tracking and Identification***

All samples were identified with a unique sample number and all sampling details were included on the sample label and were reproduced on the field sample log and chain of custody records.

#### ***7.2.1.3 Decontamination***

All equipment used in the sampling program, which includes a vehicle-mounted auger, stainless steel sampling shovel and a 7mm sieve were decontaminated prior to use and between samples to prevent cross contamination. Decontamination of equipment involved the following procedures:

- Cleaning equipment in potable water to remove gross contamination
- Cleaning in a solution of Decon-90TM
- Rinsing in clean demineralised water then wiping with clean lint free cloths

#### ***7.2.1.4 Sample Transport***

All samples were packed in ice from the time of collection and were transported under chain of custody from the site to NATA registered laboratory identified as Eurofins Environmental Testing in Girraween. Collected samples were placed into an ice chilled cooler-box. During the project, the laboratory reported that all the samples arrived intact, with appropriate preservation medium and were analysed within their relative holding times for the respective analytes.

#### ***7.2.1.5 Analytical QA/QC Procedures***

Quality control is achieved by utilising NATA accredited laboratories, using standard methods supported by internal duplicates, the checking of high, abnormal, or otherwise anomalous results against background and other chemical results for the sample concerned.

Quality assurance is achieved by confirming field or anticipated results based upon the comparison of field observations with laboratory results. One blind duplicate sample (BD1) were taken for one-day sampling and was duplicate sample of parent samples EBH3. Trip blank and trip spikes supplied by Eurofins were incorporated into the QA/QC procedure.

The laboratory undertakes additional duplicate analysis as part of their internal quality assurance program. Chain of Custody documentations were used to ensure that sample tracking and custody can be cross-checked at any point in the transfer of samples from the field to hand-over to the laboratory.

## 8. SAMPLING PROGRAM

### 8.1 Field Investigation

Fieldworks for this investigation were carried out on 5 August 2022 and included drilling eight (8) boreholes. Boreholes were advanced by both hand auger and a vehicle-mounted auger. During the sampling works a visual inspection was also conducted to ensure no suspected asbestos containing materials (ACM) were visible. The inspections for asbestos were undertaken in a systematic, back and forth fashion over the site to identify suspected ACM.

### 8.2 Analytical Program

Samples were to be analysed to provide information for the characterisation of the most likely contaminated soils. This allowed the assessment of soils samples against the Site Acceptance Criteria. All analyses were to be carried out by NATA certified laboratory Eurofins MGT in accordance with Chain of Custody (CoC) instructions supplied by Geotesta. The samples were checked for heavy metals, OCP/OPP, PAH, TRH, BTEX and Asbestos. Summary of the soil laboratory analyses is presented in Table 6. The details of sample types and depths are provided in Table 7.

**Table 6: Summary of soil laboratory program**

COC	Number of samples analysed
Suite B7A <sup>1</sup>	8
Suite B15 <sup>2</sup>	8
Asbestos	8

Notes:

<sup>1</sup>Suite B7A: TRH, BTEX, PAH, Phenols, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc, Mercury

<sup>2</sup>Suite B15: OCP, OPP, PCB



Table 7: Samples Depth and Requested Lab Tests

Sample ID (EBH)	Depth (m)	Sample Type	Suite B7A	Suite B15	Asbestos
EBH1	0.2	Topsoil / Fill	x	x	x
EBH2	0.2	Topsoil / Fill	x	x	x
EBH3	0.2	Topsoil / Fill	x	x	x
EBH4	0.3	Topsoil / Fill	x	x	x
EBH5	0.3	Topsoil / Fill	x	x	x
EBH6	0.3	Topsoil / Fill	x	x	x
EBH7	0.3	Topsoil / Fill	x	x	x
EBH8	0.3	Topsoil / Fill	x	x	x

<sup>1</sup>Suite B7A: TRH, BTEX, PAH, Phenols, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc, Mercury

<sup>2</sup>Suite B15: OCP, OPP, PCB

Heavy Metals such as arsenic, copper, lead, etc., Total Recoverable Hydrocarbons - 1999 NEPM Fractions, TRH: Total recoverable hydrocarbons, PAH: Polycyclic aromatic hydrocarbons, BTEX: Benzene, toluene, ethyl benzene, xylene, Polychlorinated Biphenyls (PCB), Spectated Phenols, Total Recoverable Hydrocarbons - 2013 NEPM Fractions, Chromium (hexavalent), Cyanide (total) and Fluoride

## 9. ASSESSMENT CRITERIA

### 9.1 Heavy metals, PAH, PCB, OCP/OPP, Phenols and Asbestos

Based on the proposed development, Health Investigation levels (HIL) of Residential A with soil access (*ASC NEPM 1999, amended 2013*) have been adopted as the Soil Assessment Criteria (SAC) for metals, OCP, OPP and PAH for this investigation.

The bonded asbestos Health Screening Levels (HSLs) in soils (*NEPM 2013*) were also adopted for the site. In addition to soil samples tested for asbestos, the 'presence/absence' of asbestos in soil material has been adopted as the SAC. Generic Ecological Investigation Levels (EILS) will also be used to assess the site to confirm suitability for the proposed residential land use.

Table 8 presents HILs for heavy metals, PAH, pesticides (OCP/OPP) and HSLs asbestos.

**Table 8: Site Assessment Criteria for Soils (mg/kg)**

Analytes	HILs-Residential A <sup>1</sup>	HSLs-Residential A <sup>1</sup>
Arsenic	100	--
Cadmium	20	--
Chromium (VI)	100	--
Copper	6000	--
Lead	300	--
Mercury (inorganic)	40	--
Nickel	400	--
Zinc	7400	--
Total PAHs	300	--
Benzo(a)pyrene TEQ	3	--
Phenols	3000	--
PCB	1	--
Pesticides: (Aldrin/Dieldrin), Chlordane	6 50	-- --
DDT+DDE+DDD	240	--
Chlorpyrifos	160	--
Asbestos: Bonded ACM <sup>2</sup> ,	--	0.01%
Friable Asbestos <sup>3</sup> (FA), Asbestos Fines <sup>4</sup> (AF),	--	0.001%
Surface Asbestos (0.1m)	--	No Visible

1- Criteria adopted for residential areas of the Site

2- Bonded ACM (bonded Asbestos) - asbestos-containing-material which is in sound condition and where the asbestos is bound in a matrix such as cement or resin (e.g. asbestos fencing and vinyl tiles). Bonded ACM refers to, in this instance, material that cannot pass a 7 mm x 7 mm sieve.

3- Fibrous Asbestos - friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This material is in a degraded condition such that it can be broken or crumbled by hand pressure.

- 4- Asbestos Fines - AF includes free fibres, small fibre bundles and small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

## 9.2 Total Recoverable Hydrocarbons (TRH) and Benzene Toluene Ethylbenzene Xylene (BTEX)

The NEPM (2013) provides Health Screening Levels (HSLs), Ecological Screening Levels (ESLs) and Management Limits (MLs) for TRH fractions in soil based on concerns regarding ecological impacts, inhalation of vapours and direct contact with contaminant sources. The Fraction Number (i.e., hydrocarbon compound range) is identified and compared against the prescribed HSL, ESL and ML values. HSLs, ESLs and MLs take into consideration the followings:

- ✓ Carbon number range, indicated by a Fraction Number (F1, F2, F3 or F4)
- ✓ Type of soil (sand, silt, or clay)
- ✓ Depth to the source of contamination
- ✓ Intended land-use

For this Site, the intended land use is HSL A – Residential with garden/accessible soil and the soil type was clay within a depth range of 0-1.0 m, 1.0 - < 2.0 m and 2.0 - < 4.0 m. The criteria are summarised in Tables 9 and 10 below. They are obtained from Table 1A(3) ( HSL A & HSL B), Table 1B(6) (fine soils) and Table 1B(7) (fine soils) in NEPM (2013).

**Table 9: NEPM 2013 BTEX and TRH Criteria – HSL Criteria for 0-1m, 1-<2m and 2-<4m**

Analytes	HSL-A(Clay) 0-<1m	HSL-A (Clay) 1-<2m	HSL-A (Clay) 2-<4m
<b>Benzene</b>	0.7	1.0	2.0
<b>Toluene</b>	480	NL	NL
<b>Ethylbenzene</b>	NL	NL	NL
<b>Xylene</b>	110	310	NL
<b>F1: C6-C10 minus BTEX</b>	50	90	150
<b>F2: C10-C16 minus Naphthalene</b>	280	NL	NL
<b>F3: C16-C34</b>	N/A	N/A	N/A
<b>F4: C34-C40</b>	N/A	N/A	N/A

NL = Not Limiting (i.e. the soil vapour concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario).

N/A = Not applicable as F3 and F4 are non-volatile and hence are not of concern for vapour intrusion.

\*'Fine' refers to the soil texture grading as per NEPM 1999.

1 NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion – 0-1.0m*

2 NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion – 1-<2.0m*

3 NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion – 2-<4.0m*

Table 10: NEPM 2013 BTEX and TRH Criteria, ESL and ML Criteria for 0-1m, 1-&lt;2m and 2-&lt;4m

Analytes	NEPM 2013 Amendment TRH Criteria (mg/kg dry wt.)	NEPM 2013 Amendment TRH Criteria (mg/kg dry wt.)
	ESL (Fine*)	ML (Fine*)
<b>Benzene</b>	65	
<b>Toluene</b>	105	
<b>Ethylbenzene</b>	125	
<b>Xylene</b>	45	
<b>F1: C6-C10</b>	180	800
<b>F2: C10-C16</b>	120	1000
<b>F3: C16-C34</b>	1300	3500
<b>F4: C34-C40</b>	5600	10000

'Fine' refers to the soil texture grading as per NEPM 1999.

1 NEPM 2013 Amendment Table 1B(6) – ESLs for TPH fractions, BTEX and benzo(a)pyrene in soil.

2 NEPM 2013 Amendment Table 1B(7) – Management Limits for TPH fractions F1-F4 in soil.

### 9.3 Ecological Investigation Levels

Ecological Investigation Levels (EILs) were also used to assess the site to confirm suitability for the proposed residential land use.

The current version of the NEPM (2013) specifies default EILs for arsenic, DDT, and naphthalene.

NEPM (2013) specifies a methodology for the derivation of site-specific EILs for nickel, chromium III, copper, lead, and zinc. The derivation process requires determination of ambient background concentrations (ABC) and added contaminant limits (ACLs) for these chemicals, and the EIL is then calculated as the ABC plus the ACL.

Sample# EBH4 soil properties were measured for the site-specific derivation of ACLs for Cr (III), Cu, Ni and Zn. Soil properties include:

- pH
- Cation Exchange Capacity (CEC)
- % Clay

Table 11 presents EILs derived from the measured soil properties in sample# EBH5 for aged soils in Urban Residential/Public Open Space and utilising ABC levels derived from sample# EIL.

**Table 11: NEPM (2013) EILs for Urban Residential and Public Open Spaces**

Analyte	pH	CEC <sup>^</sup>	Clay Content <sup>*</sup>	ABC	ACL	EIL
<b>Zinc</b>	5.8	2.5	-	8	230	238
<b>Copper</b>	5.8	2.5	-	-	143	143
<b>Chromium (III)</b>	-	-	6.3 %	12 <sup>2</sup>	320	332
<b>Nickel</b>	-	2.5	-	-	30	30
<b>Lead</b>	-	-	-	6	1,100	1,106
<b>Arsenic</b>	-	-	-	-	-	100
<b>DDT</b>	-	-	-	-	-	180
<b>Naphthalene</b>	-	-	-	-	-	170

Note(s):

1. ABC = ambient background concentrations, ACL = added contaminant limits, ESL = ecological screening levels, CEC = cation exchange capacity.
2. Total Chromium utilised

## **10. RESULTS**

### **10.1 Subsurface Conditions**

A summary of sub-surface soil conditions encountered in the site is presented below:

Based on the fieldwork results, a topsoil/fill layer to a maximum depth of 0.5m, comprising of Silty Clay material, was observed in boreholes.

The material below the topsoil/fill material was mostly Silty CLAY and Silty SAND. Shale was not encountered in all boreholes upto a maximum depth of 1.0 m, respectively.

Groundwater was not encountered in any of the boreholes.

### **10.2 Laboratory Analytical Results**

Selected soil samples were analysed for the COPCs. A summary of analytical results follows. The laboratory documentation is presented in Appendix D.

#### **10.2.1 Heavy Metals (HM)**

A total of eight (8) soil samples were analysed for heavy metals. The results of the laboratory results for the heavy metal components are presented in Table 12. The 95% UCL was calculated as a statistical analysis of the heavy metal detections including minimum, maximum, and average along with the adopted SAC, and is shown in Table 13.

Table 12: Heavy Metal Detections in soil samples (mg/kg)

Sample	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Zinc (Zn)
EBH1	3.7	<0.4	11	6.4	33	0.1	5.5	50
EBH2	13	<0.4	23	5.9	37	<0.1	8.1	45
EBH3 <sup>#</sup>	6.1	<0.4	14	8.0	35	<0.1	5.3	65
EBH4	3.2	<0.4	9.7	<5	13	<0.1	<5	18
EBH5	3.6	<0.4	11	<5	12	<0.1	<5	16
EBH6	2.9	<0.4	9.5	<5	7.0	<0.1	<5	13
EBH7	3.6	<0.4	13	<5	11	<0.1	5.2	19
EBH8	3.1	<0.4	10	<5	9.2	<0.1	<5	15

<sup>#</sup> Note: Highest result within Duplicate / Parent Sample# EBH3 pair utilized in results table

Table 13: Statistical analysis of Heavy Metal Detections in Soil samples (mg/kg)

	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
<b>Samples count</b>	8	8	8	8	8	8	8	8
<b>Minimum</b>	2.9	-	9.5	5.9	7.0	0.1	5.2	13
<b>Maximum</b>	13	-	23	8.0	37	0.1	8.1	65
<b>Average</b>	4.9	<sup>-1</sup>	12.7	4.1	19.7	<sup>-1</sup>	4.3	30.1
<b>Standard Deviation</b>	3.42	<sup>-1</sup>	4.47	2.28	12.88	<sup>-1</sup>	2.09	20.09
<b>Confidence Level (95%)</b>	2.86	<sup>-1</sup>	3.74	1.91	10.77	<sup>-1</sup>	1.75	16.79
<b>NEPM 2013 HIL A</b>	100	20	100*	6,000	300	40	400	7,400
<b>NEPM 2013 EIL</b>	100	--	332**	143	1,106	--	30	238
<b>No. of HIL Exceedance</b>	0	0	0	0	0	0	0	0

\* Note: Hexavalent Chromium

\*\* Note: Trivalent Chromium

<sup>1</sup> – Insufficient data points

The laboratory analysis detected concentrations of Arsenic, Chromium, Copper, Lead, Mercury, Nickel, and Zinc within the soil samples recovered. All detected concentrations were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (SAC) – Health Investigation Levels (HIL A) and Ecological Investigation Levels (EIL).

No concentrations of Cadmium were detected above the limit of reporting and were therefore below the adopted site assessment criteria (HIL A and EIL).

### 10.2.2 Organochlorine Pesticides / Organophosphorus Pesticides (OCP/OPP)

A total of eight (8) samples were analysed for a range of Organochlorine and Organophosphorus pesticides. Table 14 shows the OCP/OPP detections.

**Table 14: OCP/OPP (Pesticides) Detections in soil samples (mg/kg)**

	<b>DDT+DDE +DDD</b>	<b>Aldrin and Dieldrin</b>	<b>Endrin</b>	<b>Chlordanes Total</b>	<b>Toxaphene</b>	<b>Chlorpyrifos</b>
EBH1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH2	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH3	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH4	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH5	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH6	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH7	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH8	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
<b>NEPM 2013 HIL A</b>	<b>240</b>	<b>6</b>	<b>10</b>	<b>50</b>	<b>20</b>	<b>170</b>
<b>No. of HIL Exceedance</b>	0	0	0	0	0	0

No concentrations of OCP/OPP were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).



### 10.2.3 Polycyclic Aromatic Hydrocarbons (PAH)

A total of eight (8) samples were analysed for a range of PAH. Total PAH detections are shown in Table 15.

**Table 15: Total PAH Detections in soil samples (mg/kg)**

	Total PAH	Benzo(a) Pyrene TEQ (Upper Bound)	Naphthalene
EBH1	1.1	1.2	< 0.5
EBH2	1.0	1.2	< 0.5
EBH3	< 0.5	1.2	< 0.5
EBH4	< 0.5	1.2	< 0.5
EBH5	< 0.5	1.2	< 0.5
EBH6	< 0.5	1.2	< 0.5
EBH7	< 0.5	1.2	< 0.5
EBH8	< 0.5	1.2	< 0.5
<b>NEPM 2013 HIL A</b>	<b>300</b>	<b>3</b>	<b>170</b>
<b>No of NEPM Exceedance</b>	<b>0</b>	<b>0</b>	<b>0</b>

TEQ- Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P) adopted by CCME 2008 (refer Schedule B7). The B(a)P TEQ is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its B(a)P TEF. The TEQ is calculated by the laboratory and the upper bound is calculated assuming the concentrations of PAH are at laboratory reporting limits i.e., 0.5mg/kg

All detected concentrations of PAH's were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (HIL A).

#### 10.2.4 Total Recoverable Hydrocarbons (TRH) - 2013 NEPM Fractions

A total of eight (8) samples were analysed for TRH. TRH detections are presented in Table 16.

Table 16: Total TRH Detections in soil samples (mg/kg)

	F1: C6-C10	F2: C10-C16	F3: C16-C34	F4: C34-C40
EBH1	< 20	< 50	< 100	< 100
EBH2	< 20	< 50	< 100	< 100
EBH3	< 20	< 50	<b>110</b>	<b>110</b>
EBH4	< 20	< 50	< 100	< 100
EBH5	< 20	< 50	< 100	< 100
EBH6	< 20	< 50	< 100	< 100
EBH7	< 20	< 50	< 100	< 100
EBH8	< 20	< 50	< 100	< 100
<b>HSL</b>	<b>50</b>	<b>280</b>	<b>NL</b>	<b>NL</b>
<b>ESL</b>	<b>180</b>	<b>120</b>	<b>1300</b>	<b>5600</b>
<b>ML</b>	<b>800</b>	<b>1000</b>	<b>3500</b>	<b>10000</b>
<b>No of HSL/ESL/ML Exceedance</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

All detected concentrations of TRH's were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (HSL, ESL and ML).

### 10.2.5 Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) - 2013 NEPM Fractions

A total of eight (8) samples were analysed for BTEX. BTEX detections are presented in Table 17.

**Table 17: Total BTEX Detections in soil samples (mg/kg)**

	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>
EBH1	< 0.1	< 0.1	< 0.1	< 0.3
EBH2	< 0.1	< 0.1	< 0.1	< 0.3
EBH3	< 0.1	< 0.1	< 0.1	< 0.3
EBH4	< 0.1	< 0.1	< 0.1	< 0.3
EBH5	< 0.1	< 0.1	< 0.1	< 0.3
EBH6	< 0.1	< 0.1	< 0.1	< 0.3
EBH7	< 0.1	< 0.1	< 0.1	< 0.3
EBH8	< 0.1	< 0.1	< 0.1	< 0.3
<b>HSL</b>	<b>0.7</b>	<b>480</b>	<b>NL</b>	<b>110</b>
<b>ESL</b>	<b>65</b>	<b>105</b>	<b>125</b>	<b>45</b>
<b>No. of HSL/ESL Exceedance</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

No concentrations of BTEX were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HSL and ESL).

### 10.2.6 Phenols

A total of eight (8) samples were analysed for Phenols. Phenol detections are presented in Table 18.

**Table 18: Phenol Detections in soil samples (mg/kg)**

	Phenols	Pentachlorophenol	Cresols
EBH1	< 0.5	< 1	< 0.5
EBH2	< 0.5	< 1	< 0.5
EBH3	< 0.5	< 1	< 0.5
EBH4	< 0.5	< 1	< 0.5
EBH5	< 0.5	< 1	< 0.5
EBH6	< 0.5	< 1	< 0.5
EBH7	< 0.5	< 1	< 0.5
EBH8	< 0.5	< 1	< 0.5
<b>HIL A</b>	<b>3000</b>	<b>100</b>	<b>400</b>
<b>No. of HIL A Exceedance</b>	<b>0</b>	<b>0</b>	<b>0</b>

No concentrations of Phenols were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).

### 10.2.7 Other Organics – Polychlorinated Biphenyls (PCBs)

A total of eight (8) samples were analysed for PCBs. PCB detections are presented in Table 19.

Table 19: PCB Detections in soil samples (mg/kg)

	Total PCBs
EBH1	< 0.1
EBH2	< 0.1
EBH3	< 0.1
EBH4	< 0.1
EBH5	< 0.1
EBH6	< 0.1
EBH7	< 0.1
EBH8	< 0.1
<b>HIL A</b>	<b>1</b>
<b>No. of HSL/ESL Exceedance</b>	<b>0</b>

No concentrations of PCB were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).

### 10.2.8 Asbestos

A total of eight (8) samples were analysed for Asbestos. No Asbestos was detected above the reporting limit of 0.001% w/w in the samples analysed and were therefore within the Site Assessment Criteria (SAC).

### 10.3 Evaluation Analytical Quality Assurance

#### 10.3.1 Duplicate Sample

The laboratory quality control measures are assessed based on a duplicate sample which was collected during the field works. The Relative Percentage Difference (RPD) values between primary/parent sample EBH3 and the duplicate sample BD1 was calculated to assess the results. A zero RPD means perfect agreement of results between the primary and duplicate sample whilst an RPD above 200% indicates total disagreement in results. Any value >50% RPD will be noted and discussed, as per Standards Australia requirements, with respect to its acceptability for inclusion in the dataset.

An acceptable RPD of 30% was adopted for this assessment, however, in circumstances where one or both detected concentrations within the duplicate pair were within five (5) times the LOR, an RPD of 100% was considered acceptable.

The following Table 20 presents the RPD results for the duplicate collected and pairs of results obtained above the laboratory detection limits.

**Table 20: Relative Percentage Difference against EBH3 and BD1**

Chemical	LOR	EBH3	BD1	RPD%
Arsenic	2	3.3	6.1	59.6
Cadmium	0.4	< 0.4	< 0.4	-
Chromium	5	10	14	33.3
Copper	5	8.0	7.6	5.1
Lead	5	35	35	0.0
Mercury	0.1	< 0.1	< 0.1	-
Nickel	5	5.3	< 5	NA
Zinc	5	64	65	1.6

*Adapted from Eurofins Certificate of Analysis 912597-S (Appendix D)*

The RPD for the duplicate samples analysed by the primary laboratory (Eurofins MGT) were between 0.0 % and 59.6 %. RPD values could not be determined for Cadmium, Mercury and Nickel as at least one result was below the laboratory reporting limits. Based on the laboratory QA/QC and the duplicate results the data is considered suitable for use in this environmental assessment of the site.

### 10.3.2 Trip Spike

The trip spike sample assesses the loss of volatile compounds through field handling and transport procedures. The trip spike is a sand sample spiked with a known concentration of BTEX by the analytical laboratory. The sample is transported to and from the site with the primary samples and is analysed to determine the percentage of BTEX recovered.

Upon analysis, the recovery rates were between 92 % and 99 % of the known concentration (refer to Table 21). Therefore, the field and transport procedures were considered satisfactory for minimising the potential loss of volatile compounds from the primary samples.

**Table 21. Trip Spike Recovery (%)**

Sample	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p Xylene
Trip Spike	92	98	98	99	98
Assessment Criteria	70 – 130	70 – 130	70 – 130	70 – 130	70 – 130

*Adapted from Eurofins Certificate of Analysis 912597-S (Appendix D)*

### 10.3.3 Trip Blank

The trip blank sample assesses the potential for the primary sample to be affected by external and environmental factors during transport between the site and laboratory. The trip blank sample consists of blank sand which is transported to and from the site and laboratory with the primary samples.

Upon analysis, no concentrations of BTEX were detected (refer to Table 22). As such, there is a minimal potential for cross-contamination to have occurred during the field and trip handling procedures.

**Table 22. Trip Blank Sample Results (mg/kg)**

Analyte	TB
Benzene	<0.1
Toluene	<0.1
Ethylbenzene	<0.1
o-Xylene	<0.1
m+p Xylene	<0.2

*Adapted from Eurofins Certificate of Analysis 912597-S (Appendix D)*

## 11. DISCUSSION

From the review of the historical aerial photographs, it was observed that a residential dwelling had existed on the site since 1938 in the northwest section of the site, majority of the other adjacent sheds / structures were onsite since 1976. Signs of agricultural usage were evident from 1954, the central and southern sections of the site areas were vacant, grass covered ground surfaces, with trees mainly located in the northern, south-western and along the eastern and southern boundaries. The dam located in the south-western section of the site had been constructed by latest 1938. It is suspected that the site contains contamination from hazardous building materials, agricultural usage and possible imported fill and stockpiles

The limited soil sampling and analysis program conducted as part of the PSI indicated that there is no widespread significant soil contamination across the site. The analytical results for all chemicals assessed were below the adopted site assessment criteria (SAC) for the assessment.

A summary of the laboratory results is presented as the following:

- The laboratory analysis detected concentrations of Arsenic, Chromium, Copper, Lead, Mercury, Nickel, and Zinc within the soil samples recovered. All detected concentrations were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (SAC) – Health Investigation Levels (HIL A) and Ecological Investigation Levels (EIL). No concentrations of Cadmium were detected above the limit of reporting and were therefore below the adopted site assessment criteria (HIL A and EIL).
- No concentrations of OCP/OPP were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).
- All detected concentrations of PAH's were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (HIL A).
- All detected concentrations of TRH's were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (HSL, ESL and ML).
- No concentrations of BTEX were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HSL and ESL).
- No concentrations of Phenols were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).
- No concentrations of PCB were detected above the limit of reporting (LOR) and were therefore within the adopted Site Assessment Criteria (HIL A).



- A total of eight (8) samples were analysed for Asbestos. No Asbestos was detected above the reporting limit of 0.001% w/w in the samples analysed and were therefore within the Site Assessment Criteria (SAC).

## 12. CONCLUSIONS AND RECOMMENDATIONS

The PSI conducted at 131 Wollombi Road, Farley, NSW 2320 was undertaken by Geotesta to investigate the likelihood of the presence of contamination on the site.

Based on the assessment undertaken, the following conclusions and recommendations can be made:

- The limited soil sampling and analysis program conducted indicated a **low** risk of soil and groundwater contamination. It is the opinion of Geotesta Pty Ltd that the site is suitable for the proposed residential development pending on the results of an additional Data Gap Contamination Assessment.
- Due to the existence of a significant data-gap in this investigation, a further Data Gap Contamination Assessment post demolition of the existing structures/dwellings is required to address further potential areas of concern (main emphasis on the footprint of the structures/dwellings) identified in the AECs and to determine if any contamination hotspots exist around the existing dwelling. The Gap Assessment scope must also include the following:
  - Any stockpiles that were not assessed at the time of the PSI or are new to site, will require sampling as part of the Data Gap Assessment. Sampling of stockpiles must adhere to the *Victorian EPA, Industrial Waste Resource Guidelines, 2009*. Classification of stockpiles must be conducted as per *NSW EPA (2014), Waste Classification Guidelines, Part 1: Classifying Waste*.
  - In addition, a Dam Dewatering Report is required for the decommissioning of the dam onsite.

**DOCUMENT CONTROL**

<b>Date</b>	<b>Version</b>	<b>Report Prepared By:</b>	<b>Report Reviewed and Issued by:</b>
22 August 2022	Rev (0)	<b>Victor Kirpichnikov</b> MEnv Studies, BSc (Hons), WHS Cert IV  Senior Environmental Consultant	<b>Victor Kirpichnikov</b> MEnv Studies, BSc (Hons), WHS Cert IV  Senior Environmental Consultant

### 13. REFERENCES

- NSW Department of Mineral Resources, (1991) Penrith 1:100,000 Geological Sheet 9030.
- Bureau of Meteorology (2017), [www.bom.gov.au](http://www.bom.gov.au).
- EPA NSW, <http://www.epa.nsw.gov.au/prclmapp/aboutregister.aspx>.
- NEPC (1999, amended 2013) National Environmental Protection (Assessment of Site Contamination) Measure (ASC NEPM, 1999 amended 2013).
- NSW Department of Environment & Heritage (NSW soil and land information), [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au).
- NSW EPA (2014), Waste Classification Guidelines, Part 1: Classifying waste.
- NSW EPA (2020) Contaminated Land Guidelines: Consultants Reporting on Contaminated Land
- Standards Australia (2005) AS4482.1 2nd Edition: Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil – Part 1: Non-Volatile and Semi-Volatile Compounds.
- NSW EPA (2017) 3rd Ed. Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme
- WA DoH (2009) Guidelines for the Assessment, Remediation and Management of Asbestos-contaminated Sites in Western Australia.
- State Environmental Planning Policy No 55 (1979), Environmental Planning and Assessment Act 1979.
- Standards Australia, 2005. Guide to the sampling and Investigation of Potentially Contaminated Soil, Part 1: Non-volatile and Semi-volatile compounds. AS 4482.1
- Lotsearch, 131 Wollombi Road, Farley, NSW 2320, Ref# LS035099 EP, 08 August 2022
- Eurofins, 08 August 2022, Certificate of Analysis 912597-S, prepared for GEOTESTA
- Eurofins, 08 August 2022, Certificate of Analysis 912597-AID, prepared for GEOTESTA

### **Information about this report**

The report contains the results of a contamination investigation conducted for a specific purpose and client. The results should not be used by other parties, or for other purposes, as they may contain neither adequate nor appropriate information. In particular, the investigation does not cover contamination issues unless specifically required to do so by the client.

### **Test Hole Logging**

The information on the test hole logs (boreholes, test pits, exposures etc.) is based on a visual and tactile assessment, except at the discrete locations where test information is available (field and/or laboratory results). The test hole logs include both factual data and inferred information.

### **Groundwater**

Unless otherwise indicated, the water levels presented on the test hole logs are the levels of free water or seepage in the test hole recorded at the given time of measuring. The actual groundwater level may differ from this recorded level depending on material permeability (i.e. depending on response time of the measuring instrument). Further, variations of this level could occur with time due to such effects as seasonal, environmental and tidal fluctuations or construction activities. Confirmation of groundwater levels, phreatic surfaces or piezometric pressures can only be made by appropriate instrumentation techniques and monitoring programmes.

### **Interpretation of Results**

The discussion or recommendations contained within this report normally are based on a site evaluation from discrete test hole data. Generalized, idealized or inferred subsurface conditions (including any geotechnical cross-sections) have been assumed or prepared by interpolation and/or extrapolation of these data. As such these conditions are an interpretation and must be considered as a guide only.

### **Change in Conditions**

Local variations or anomalies in the generalized ground conditions do occur in the natural environment, particularly between discrete test hole locations. Additionally, certain design or construction procedures may have been assumed in assessing the soil-structure interaction behaviour of the site. Furthermore, conditions may change at the site from those encountered at the time of the geotechnical investigation through construction activities and constantly changing natural forces.

Any change in design, in construction methods, or in ground conditions as noted during construction, from those assumed or reported should be referred to GEOTESTA for appropriate assessment and comment.

### **Environmental Verification**

Verification of the environmental/contamination assumptions and/or model is an integral part of the design process-investigation, construction verification, and performance monitoring. Variability is a feature of the natural environment and, in many instances, verification of soil or rock quality, or foundation levels, is required. There may be a requirement to extend foundation depths, to modify a foundation system or to conduct monitoring as a result of this natural variability. Allowance for verification by geotechnical personnel accordingly should be recognized and programmed during construction.

### **Reproduction of Reports**

Where it is desired to reproduce, the information contained in our contamination report, or other technical information, for the inclusion in contract documents or engineering specification of the subject development, such reproductions should include at least all of the relevant test hole and test data, together with the appropriate standard description sheets and remarks made in the written report of a factual or descriptive nature. Reports are the subject of copyright and shall not be reproduced either totally or in part without the express permission of Geotesta.

# **Appendix A**

## **Borehole Logs**

**EBH1 - Log**

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.3		TOPSOIL/FILL: Clayey SAND, dark brown, trace of rootlets	Moist		EBH1 sample collected for analysis at 0.2 m
0.3 – 1.0		Silty SAND, medium grained, Brown	Moist		

Terminating depth 1.0 m

**EBH2 – Log**

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.3		TOPSOIL/FILL: Clayey SAND, dark brown, trace of rootlets	Moist		EBH2 sample collected for analysis at 0.2 m
0.3 – 1.0		Silty SAND, medium grained, Brown	Moist		

Terminating depth 1.0 m

**EBH3 - Log**

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.3		TOPSOIL/FILL: Silty SAND, dark brown, trace of gravel and rootlets	Moist		EBH3 sample collected for analysis at 0.2 m
0.3 – 0.8		Silty SAND, medium grained, Brown grey	Moist		
0.8 – 1.0		Silty CLAY: medium plasticity, brown	Moist		

Terminating depth 1.0 m

**EBH4 - Log**

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.4		TOPSOIL/FILL: Silty SAND, dark brown, trace of gravel and rootlets	Moist		EBH4 sample collected for analysis at 0.3 m
0.4 – 0.8		Silty SAND, medium grained, Brown grey	Moist		
0.8 – 1.0		Silty CLAY: medium plasticity, brown	Moist		

Terminating depth 1.0 m

**EBH5 - Log**

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.4		TOPSOIL/FILL: Silty SAND, dark brown, trace of gravel and rootlets	Moist		EBH5 sample collected for analysis at 0.3 m
0.4 – 0.8		Silty SAND, medium grained, Brown grey	Moist		
0.8 – 1.0		Silty CLAY: medium plasticity, brown	Moist		

Terminating depth 1.0 m



**EBH6 - Log**

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.4		TOPSOIL/FILL: Silty SAND, dark brown, trace of gravel and rootlets	Moist		EBH6 sample collected for analysis at 0.3 m
0.4 – 0.8		Silty SAND, medium grained, Brown grey	Moist		
0.8 – 1.0		Silty CLAY: medium plasticity, brown	Moist		

Terminating depth 1.0 m

**EBH7 - Log**

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.5		TOPSOIL/FILL: Silty SAND, dark brown, trace of gravel and sandstone fragments and rootlets	Moist		EBH7 sample collected for analysis at 0.3 m
0.5 – 1.0		Silty CLAY: medium plasticity, brown mottled grey, trace sandstone fragments	Moist		

Terminating depth 1.0 m

## EBH8 - Log

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.5		TOPSOIL/FILL: Silty SAND, dark brown, trace of gravel and sandstone fragments and rootlets	Moist		EBH8 sample collected for analysis at 0.3 m
0.5 – 1.0		Silty CLAY: medium plasticity, brown mottled grey, trace sandstone fragments	Moist		

Terminating depth 1.0 m

# **Appendix B**

## Photographic Log



**Photograph 1:** The residential dwelling viewed from the north.



**Photograph 2:** View of the central section of the site from the north.





**Photograph 3:** View of the southern section of the site.



**Photograph 4:** View of the central section of the site, viewed from the south.

## **Appendix C**

### **Lotsearch**



**LOTSEARCH**  
LOTSEARCH ENVIRO PROFESSIONAL

**Date: 08 Aug 2022 11:04:42**

**Reference: LS035099 EP**

**Address: 131 Wollombi Road, Farley, NSW 2320**

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.

You should obtain independent advice before you make any decision based on the information within the report.

The detailed terms applicable to use of this report are set out at the end of this report.

# Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	17/06/2022	17/06/2022	Quarterly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	25/06/2019	25/06/2019	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	01/08/2022	07/07/2022	Monthly	1000m	0	0	1
Contaminated Land Records of Notice	Environment Protection Authority	18/07/2022	18/07/2022	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	03/06/2022	14/07/2021	Quarterly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	26/05/2022	07/03/2017	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	23/06/2022	13/07/2012	Annually	1000m	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	01/08/2022	14/07/2021	Monthly	2000m	0	0	1
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	01/08/2022	01/08/2022	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	01/08/2022	01/08/2022	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	01/08/2022	01/08/2022	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	06/06/2022	06/06/2022	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	16/02/2022	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	18/07/2022	18/07/2022	Monthly	1000m	1	2	2
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	18/07/2022	18/07/2022	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	18/07/2022	18/07/2022	Monthly	1000m	4	6	7
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	10	10
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	0
Points of Interest	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	3
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	1	4
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	10/02/2022	31/12/2021	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	Annually	1000m	1	1	2
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	28/03/2022	23/02/2018	Annually	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	24/01/2022	24/01/2022	Annually	2000m	0	0	5




Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
NSW Seamless Geology Single Layer: Rock Units	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	1	3	8
NSW Seamless Geology – Single Layer: Trendlines	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	0
NSW Seamless Geology – Single Layer: Geological Boundaries and Faults	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	1	1	1
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	1	1	4
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	26/05/2022	06/05/2022	Monthly	500m	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	1	2	2
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	19/08/2021	05/08/2021	Quarterly	1000m	0	1	1
Current Mining Titles	NSW Department of Industry	01/08/2022	01/08/2022	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	01/08/2022	01/08/2022	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	01/08/2022	01/08/2022	Monthly	1000m	8	9	10
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	15/11/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	15/11/2021	05/11/2021	Monthly	1000m	2	4	22
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	03/06/2022	13/04/2022	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	03/06/2022	13/04/2022	Annually	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	19/08/2021	25/06/2021	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	26/05/2022	01/04/2022	Monthly	1000m	0	2	3
Bush Fire Prone Land	NSW Rural Fire Service	01/08/2022	08/12/2021	Weekly	1000m	2	2	4
Lower Hunter and Central Coast Regional Vegetation Survey	NSW Office of Environment & Heritage	28/02/2015	16/11/2009	As required	1000m	0	0	12
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	28/03/2022	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	0	0	3
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	0	0	8
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	01/08/2022	01/08/2022	Weekly	10000m	-	-	-

# Site Diagram

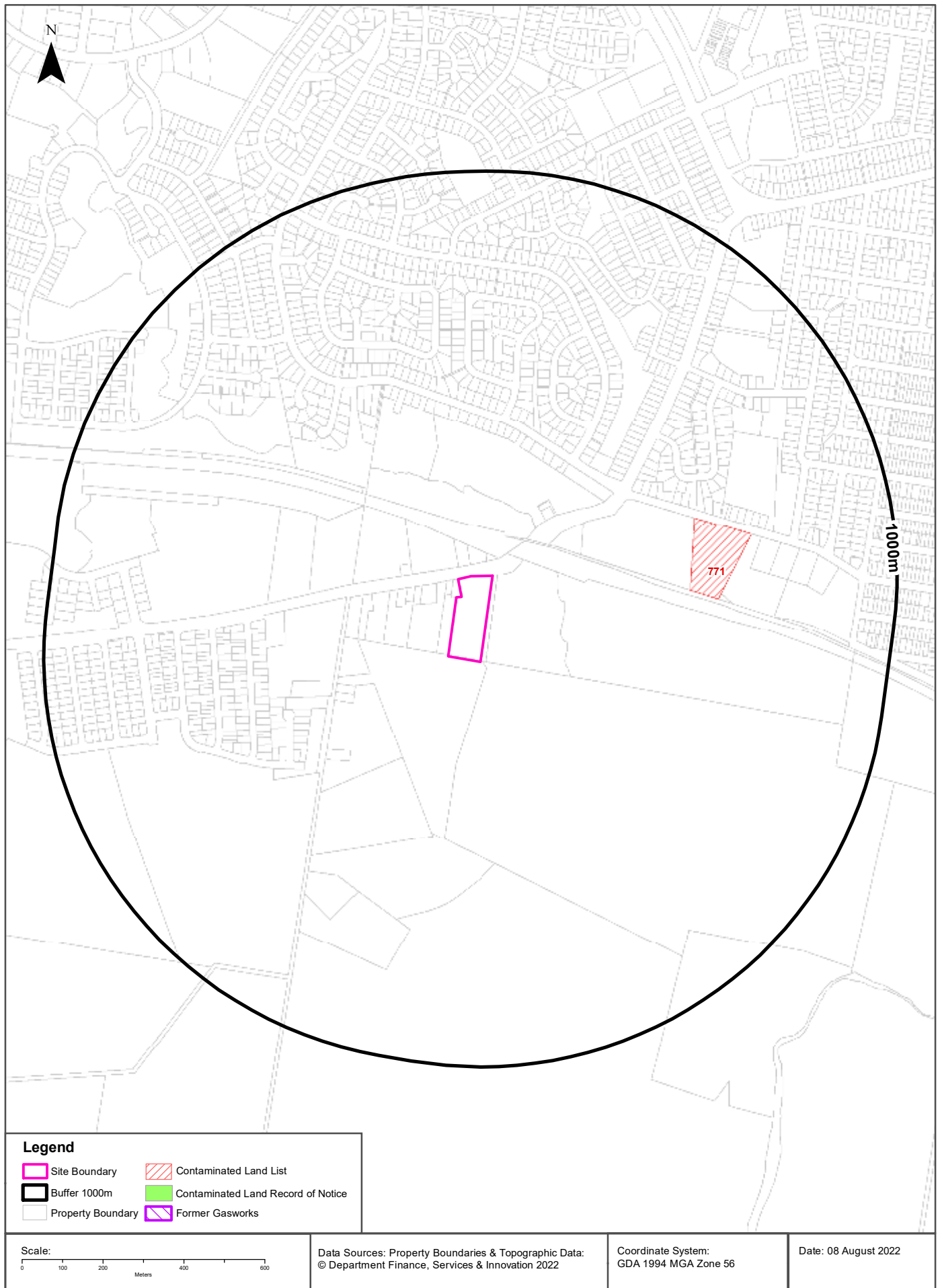
131 Wollombi Road, Farley, NSW 2320



<b>Legend</b>  Site Boundary  Internal Parcel Boundaries	<b>Total Area:</b> 16502m <sup>2</sup> <b>Total Perimeter:</b> 586m	<b>Scale:</b> 
	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.	Data Source Aerial Imagery: © Aerometrex Pty Ltd
		Date: 08 August 2022

# Contaminated Land

131 Wollombi Road, Farley, NSW 2320





# Contaminated Land

131 Wollombi Road, Farley, NSW 2320

## List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
771	Former Ausgrid Depot	Green Street	Telarah	Other Industry	Regulation under CLM Act not required	Current EPA List	Premise Match	486m	East

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority  
 © State of New South Wales through the Environment Protection Authority

## Contaminated Land

131 Wollombi Road, Farley, NSW 2320

### Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority  
Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit  
<http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm>

### Former Gasworks

Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority

# Waste Management & Liquid Fuel Facilities

131 Wollombi Road, Farley, NSW 2320

## 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	Direction
N/A	No records in buffer											

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

## National Liquid Fuel Facilities

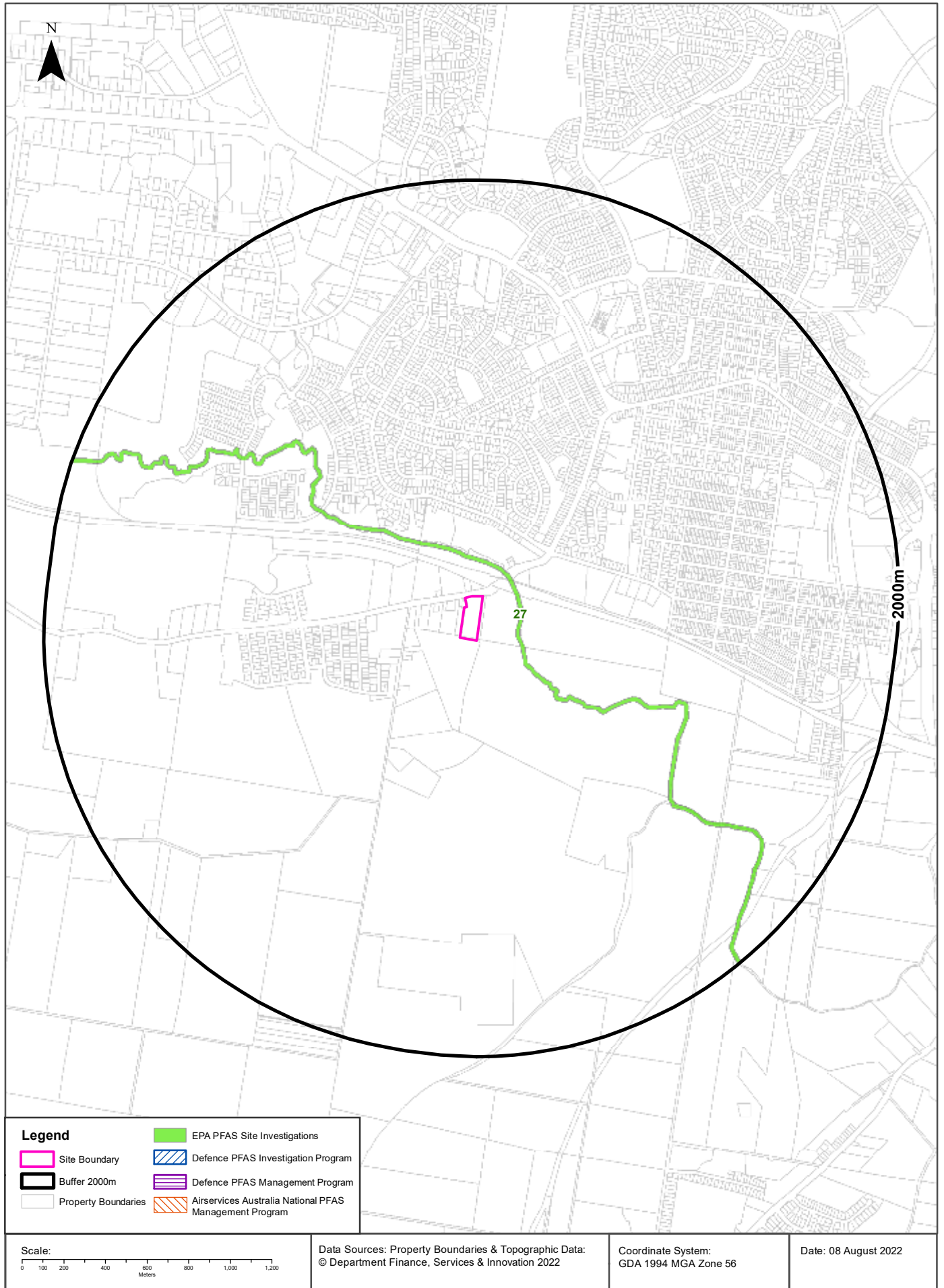
National Liquid Fuel Facilities within the dataset buffer:

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

National Liquid Fuel Facilities Data Source: Geoscience Australia  
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

# PFAS Investigation & Management Programs

131 Wollombi Road, Farley, NSW 2320



# PFAS Investigation & Management Programs

131 Wollombi Road, Farley, NSW 2320

## EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Map ID	Site	Address	Loc Conf	Dist	Dir
27	Rutherford, Truegain	62 Kyle St, Rutherford NSW 2320 + Stoney, Fishery & Wallis Creeks downstream	Network of Features	138m	East

EPA PFAS Investigation Program: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority

## Defence PFAS Investigation Program

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

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

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

## Defence PFAS Management Program

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

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS 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	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia



## Defence Sites

131 Wollombi Road, Farley, NSW 2320

### 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 Other Sites with Contamination Issues

131 Wollombi Road, Farley, NSW 2320

### EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasmenco Lead Abatement Strategy Area

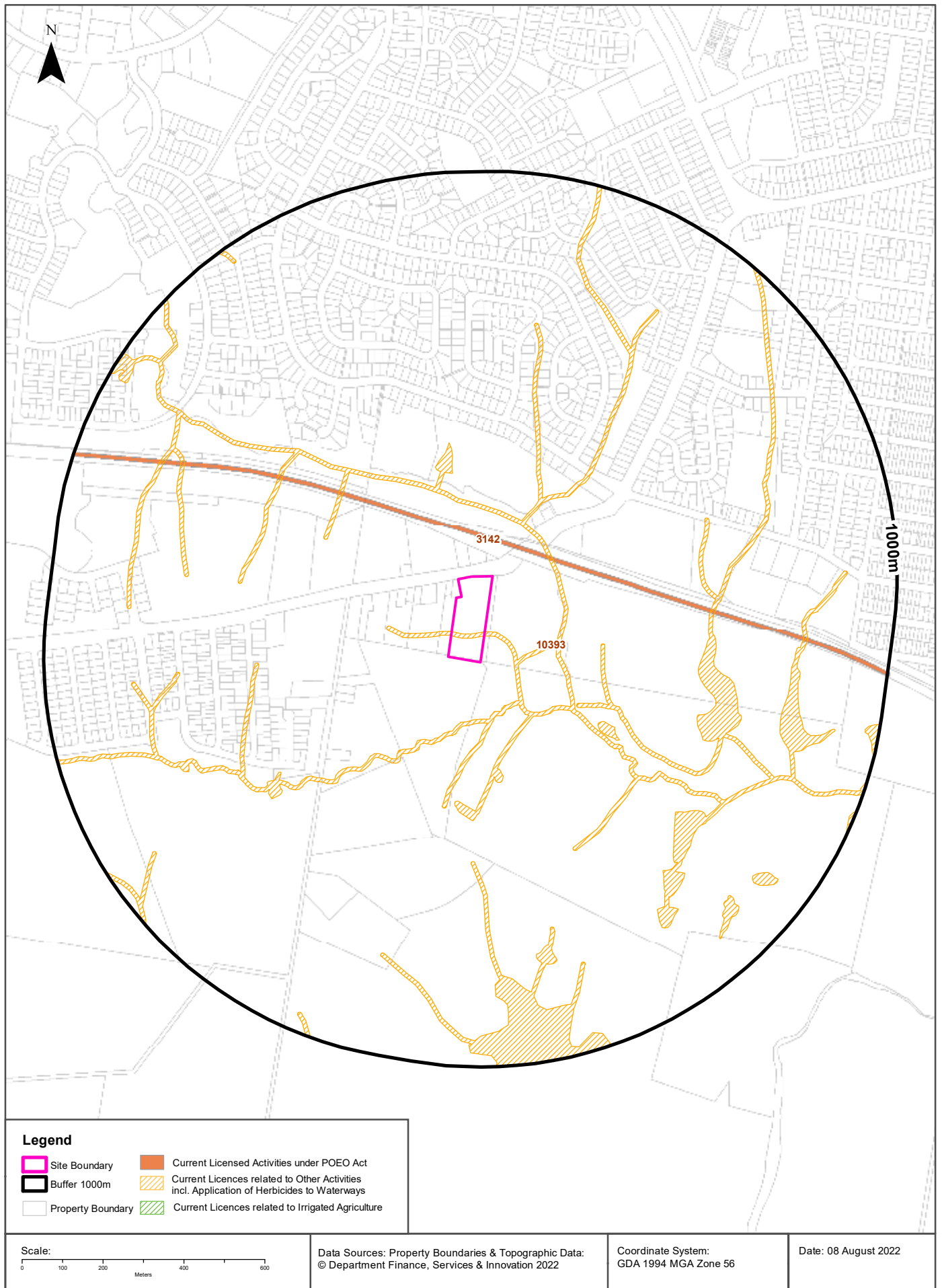
Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority

# Current EPA Licensed Activities

131 Wollombi Road, Farley, NSW 2320



## EPA Activities

131 Wollombi Road, Farley, NSW 2320

## Licensed Activities under the POEO Act 1997

Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

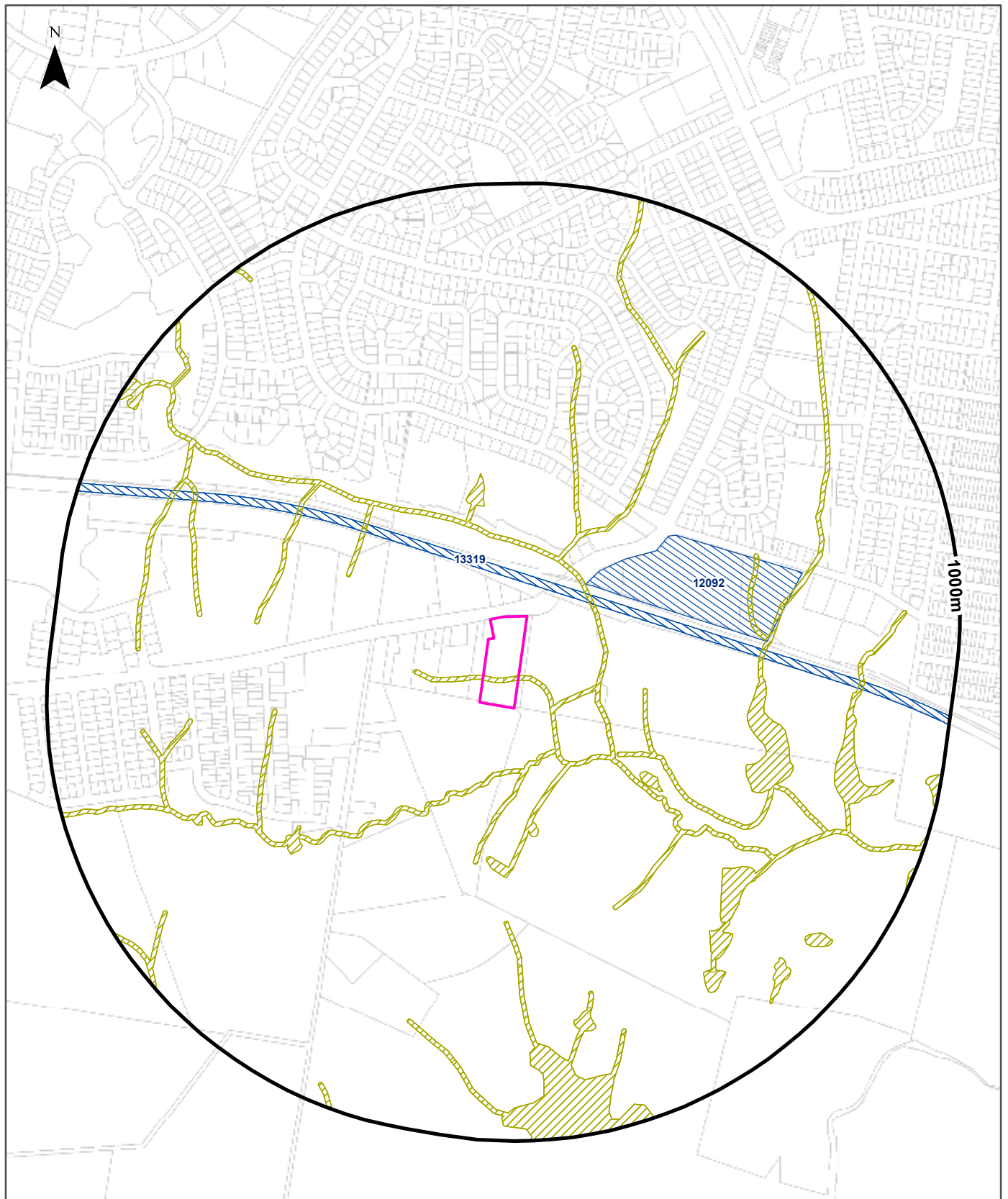
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
10393	MAITLAND CITY COUNCIL	ALL WATERBODIES IN THE MAITLAND LOCAL GOVERNMENT AREA	.	MAITLAND	Other activities	Network of Features	0m	On-site
3142	AUSTRALIAN RAIL TRACK CORPORATION LIMITED		AUSTRALIAN RAIL TRACK CORPORATION (ARTC) NETWORK, SYDNEY, NSW 2001		Railway systems activities	Network of Features	78m	North

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

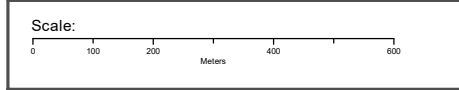
# Delicensed & Former Licensed EPA Activities

131 Wollombi Road, Farley, NSW 2320



**Legend**

- Site Boundary
- Buffer 1000m
- Property Boundary
- Delicensed Activities still Regulated by EPA
- Former Licensed/Regulated Activities (revoked or surrendered)
- Surrendered Licences related to Other Activities on Waterways incl. Application of Herbicides



Property Boundary Data Source:  
© Department Finance, Services & Innovation 2022

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 August 2022

## EPA Activities

131 Wollombi Road, Farley, NSW 2320

### Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

### Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

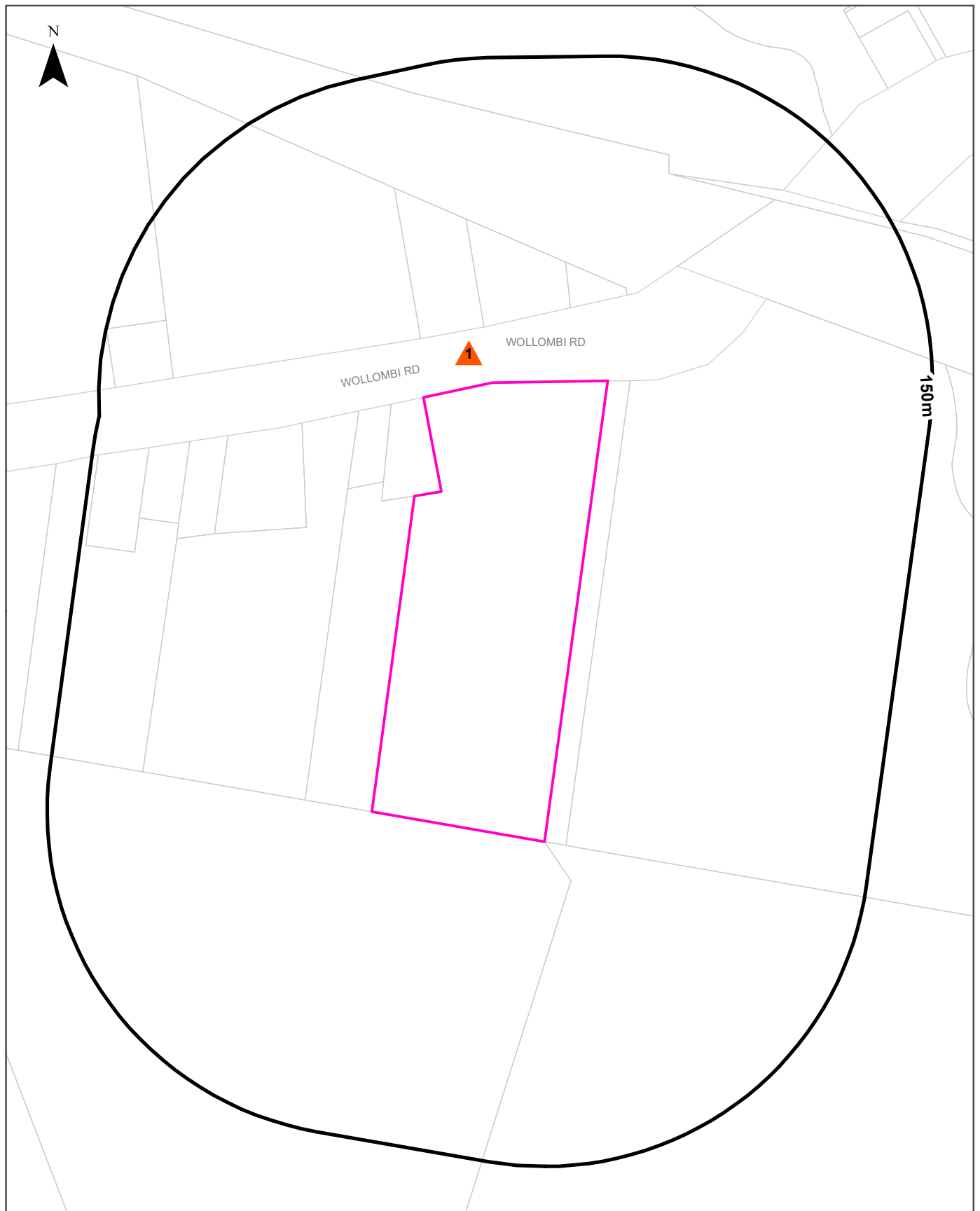
Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
12439	STATE OF NEW SOUTH WALES (Department of Primary Industries - Lands)	Soil Conservation Service, Waterways within the Hunter Valley Flood Mitigation Scheme, MAITLAND	Surrendered	13/02/2007	Other Activities - Application of Herbicides	Network of Features	0m	On-site
13319	AUSTRALIAN RAIL TRACK CORPORATION LIMITED	Maitland to Minimbah Third Track, Main Northern Railway, MAITLAND	Surrendered	16/11/2010	Crushing, grinding or separating; Extractive Activities	Network of Features	73m	North
13319	AUSTRALIAN RAIL TRACK CORPORATION LIMITED	Maitland to Minimbah Third Track, Main Northern Railway, MAITLAND	Surrendered	16/11/2010	Railway systems activities	Network of Features	73m	North
12092	AUSGRID OPERATOR PARTNERSHIP	AUSGRID Maitland Depot, 35 Green Street, RUTHERFORD	Surrendered	18/08/2004	Waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste	Premise Match	154m	East

Former Licensed Activities Data Source: Environment Protection Authority


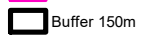





© State of New South Wales through the Environment Protection Authority

# Historical Business Directories

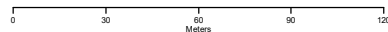
131 Wollombi Road, Farley, NSW 2320



## Legend

-  Site Boundary
-  Buffer 150m
-  Property Boundary
-  Business directory records mapped to a specific premise
-  Business directory records mapped to a road intersection
-  Business directory records mapped to a road corridor
-  Business directory records mapped to a general area

Scale:



Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 August 2022

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

## Historical Business Directories

131 Wollombi Road, Farley, NSW 2320

### Business Directory Records 1950-1991 Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, 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
N/A	No records in buffer						

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## Business Directory Records 1950-1991 Road or Area Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, 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
1	EARTH MOVING & ROAD MAKING CONTRACTORS	Lloyd, J. H., 27 Farley Rd., Rutherford	638394	1970	Road Match	0m
	EARTH MOVING MACHINERY HIRERS	Lloyd, J. H., 27 Farley Rd., Rutherford	638398	1970	Road Match	0m
	GRAVEL, SAND & SOIL SUPPLIES	Lloyd, J. H., 27 Farley Rd., Rutherford	638569	1970	Road Match	0m
	BUILDERS & CONTRACTORS	A. C. Parsons., 15 Farley Road., Rutherford	160657	1961	Road Match	0m
	BUILDERS & CONTRACTORS	Parsons, A. C., 15 Farley Rd., Rutherford	160656	1961	Road Match	0m
	ELECTRICAL CONTRACTORS &/OR ELECTRICIANS	James, E. R., Great Northern Rd., Rutherford	125607	1950	Road Match	0m
	FRUITERERS & GREENGROCERS-RETAIL	Richards, J. B., Great Northern Rd., Rutherford	125706	1950	Road Match	0m
	GROCERS & GENERAL STOREKEEPERS	Richards, Mrs. J. B., Great Northern Rd., Rutherford	125801	1950	Road Match	0m
	HABERDASHERY-RETAIL	Richards, Mrs. J. B., Great Northern Rd., Rutherford	125825	1950	Road Match	0m
	MILK BARS &/OR CONFECTIONERS	Richards, Mrs. J. B., Great Northern Rd., Rutherford	126027	1950	Road Match	0m

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## Historical Business Directories

131 Wollombi Road, Farley, NSW 2320

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

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

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

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

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

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



Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

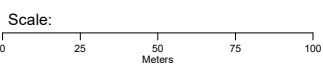
# Aerial Imagery 2021

131 Wollombi Road, Farley, NSW 2320



### Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:  
© Aerometrex Pty Ltd

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 August 2022





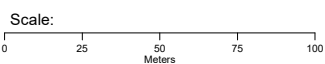
# Aerial Imagery 2015

131 Wollombi Road, Farley, NSW 2320



### Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:  
© Aerometrex Pty Ltd

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 August 2022





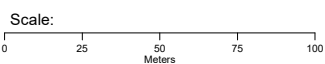
# Aerial Imagery 2010

131 Wollombi Road, Farley, NSW 2320



### Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:  
© Aerometrex Pty Ltd

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 August 2022

# Aerial Imagery 2007

131 Wollombi Road, Farley, NSW 2320





# Aerial Imagery 2001

131 Wollombi Road, Farley, NSW 2320





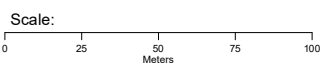
# Aerial Imagery 1993

131 Wollombi Road, Farley, NSW 2320



## Legend

- Site Boundary
- Buffer 150m



Data Source Aerial Imagery:  
© NSW Department of Customer Service

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 05 August 2022





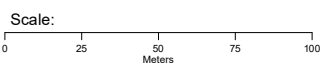
# Aerial Imagery 1983

131 Wollombi Road, Farley, NSW 2320



## Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:  
© NSW Department of Customer Service

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 05 August 2022





# Aerial Imagery 1976

131 Wollombi Road, Farley, NSW 2320



## Legend

-  Site Boundary
-  Buffer 150m

Scale:  
0 25 50 75 100  
Meters

Data Source Aerial Imagery:  
© NSW Department of Customer Service

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 05 August 2022

# Aerial Imagery 1966

131 Wollombi Road, Farley, NSW 2320





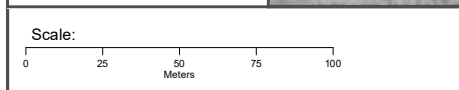
# Aerial Imagery 1954

131 Wollombi Road, Farley, NSW 2320



**Legend**

- Site Boundary
- Buffer 150m



Data Source Aerial Imagery:  
© NSW Department of Customer Service

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 05 August 2022

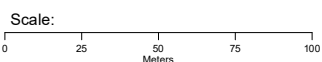
# Aerial Imagery 1938

131 Wollombi Road, Farley, NSW 2320



### Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery: ©2022 Geoscience Australia

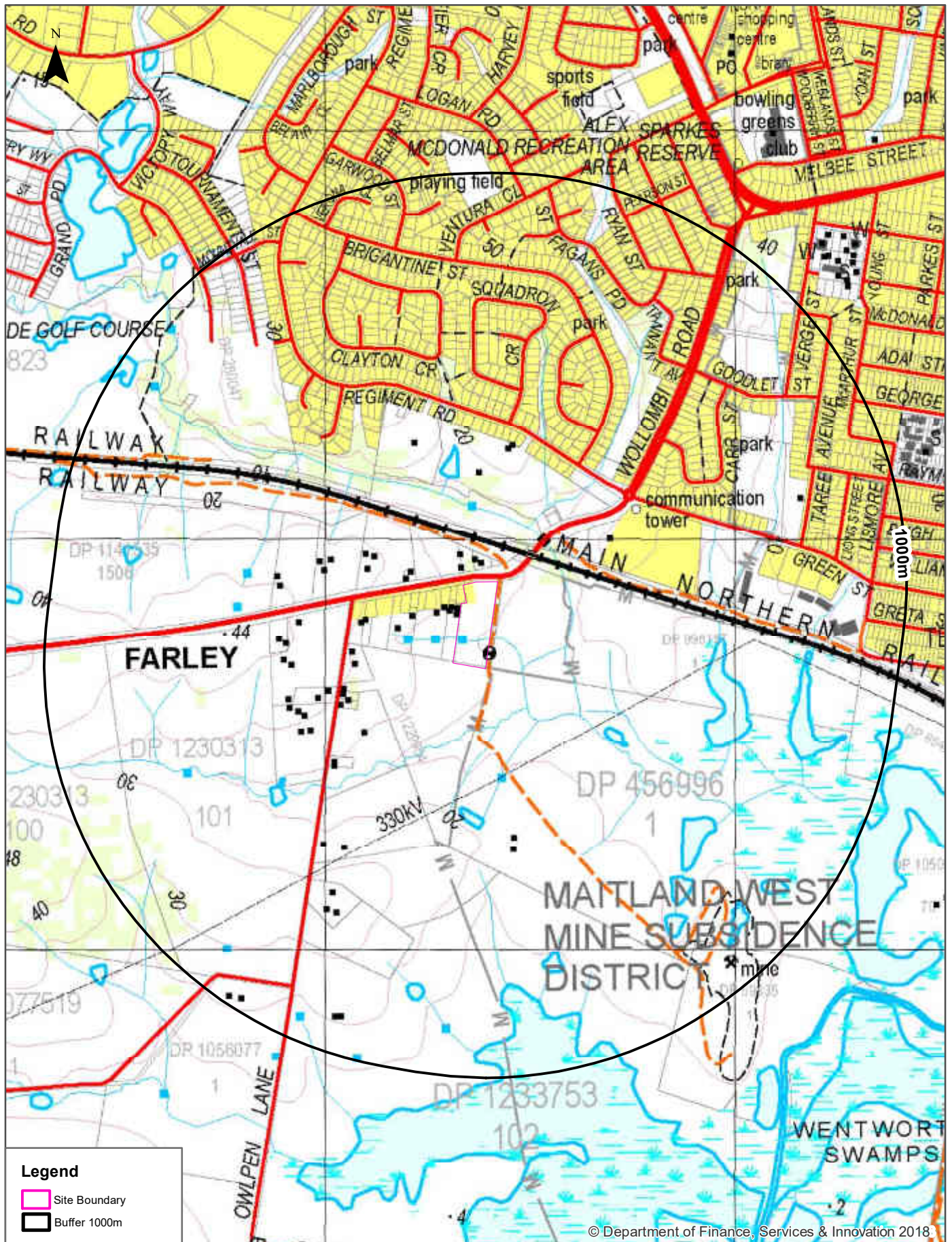
Coordinate System:  
GDA 1994 MGA Zone 56

Date: 05 August 2022



# Topographic Map 2015

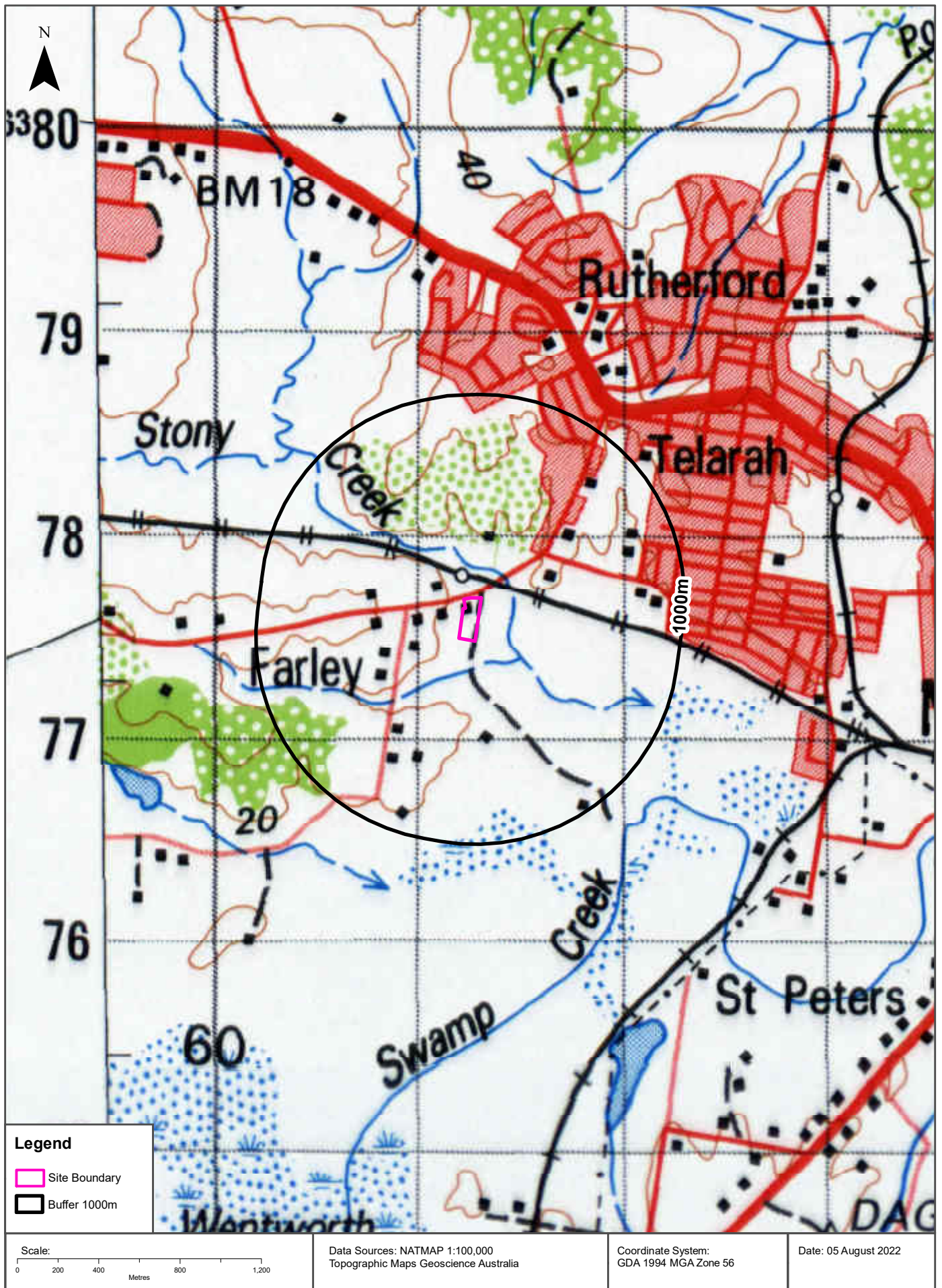
131 Wollombi Road, Farley, NSW 2320





# Historical Map 1981

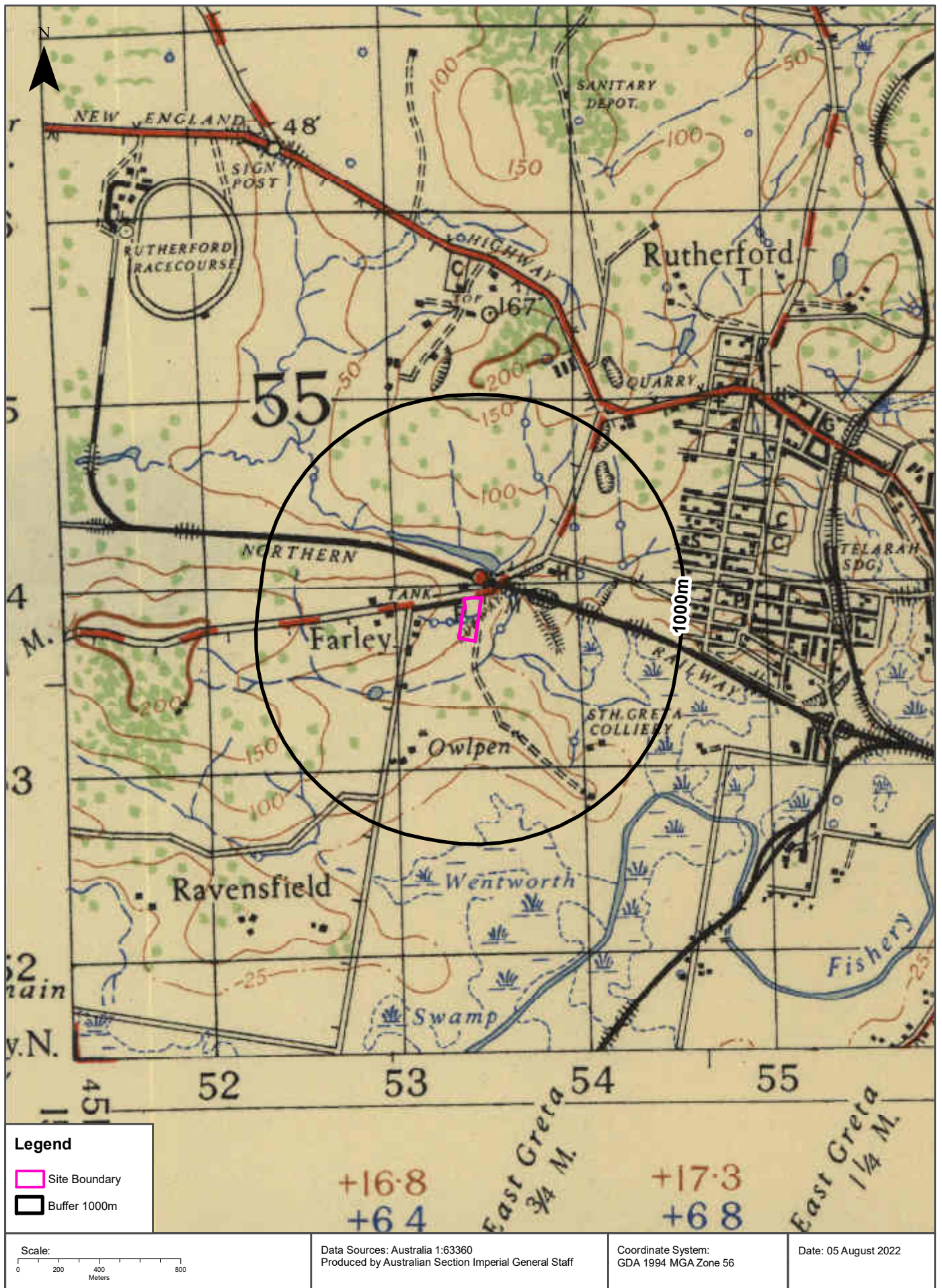
131 Wollombi Road, Farley, NSW 2320





# Historical Map c.1942

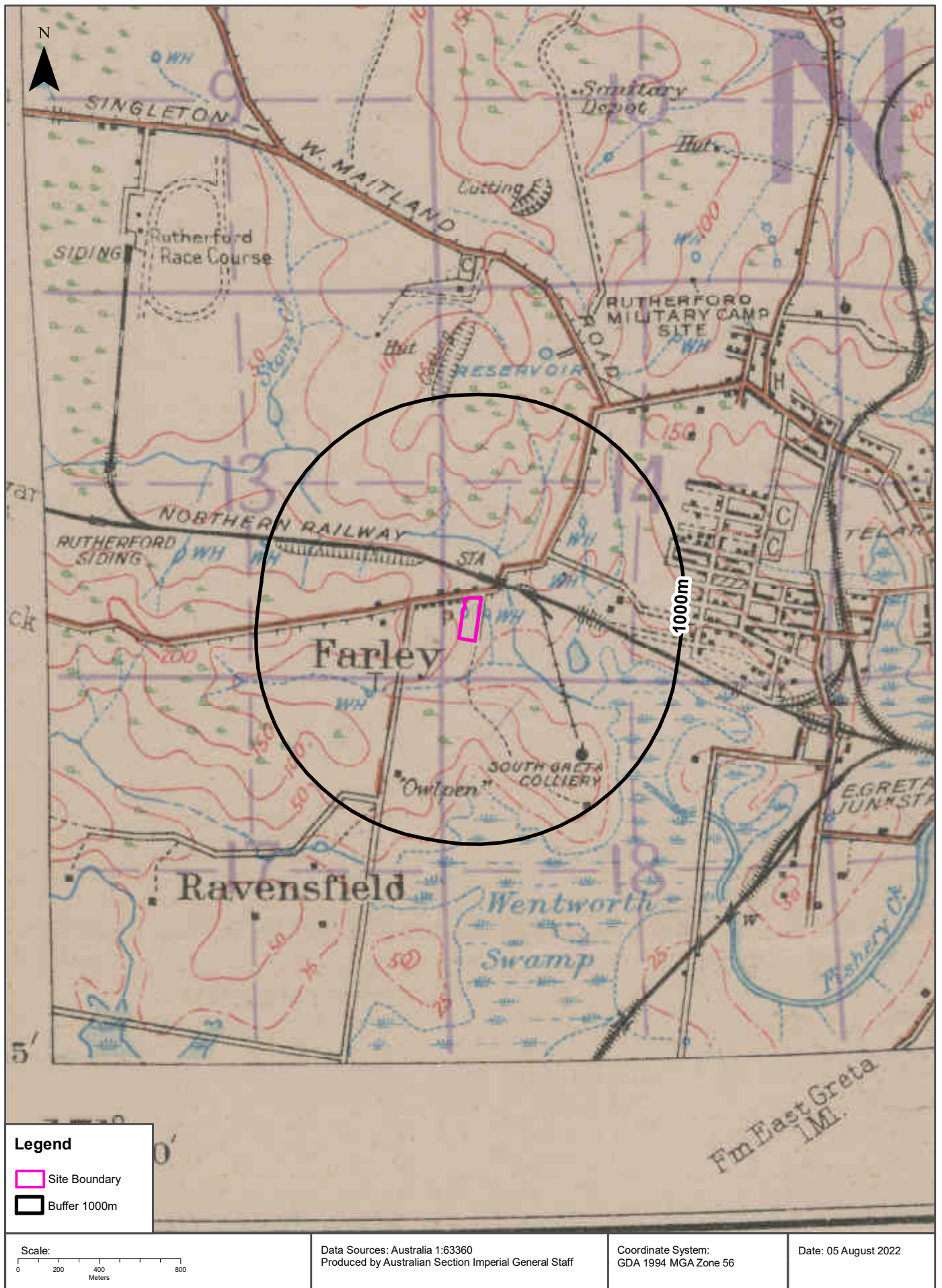
131 Wollombi Road, Farley, NSW 2320





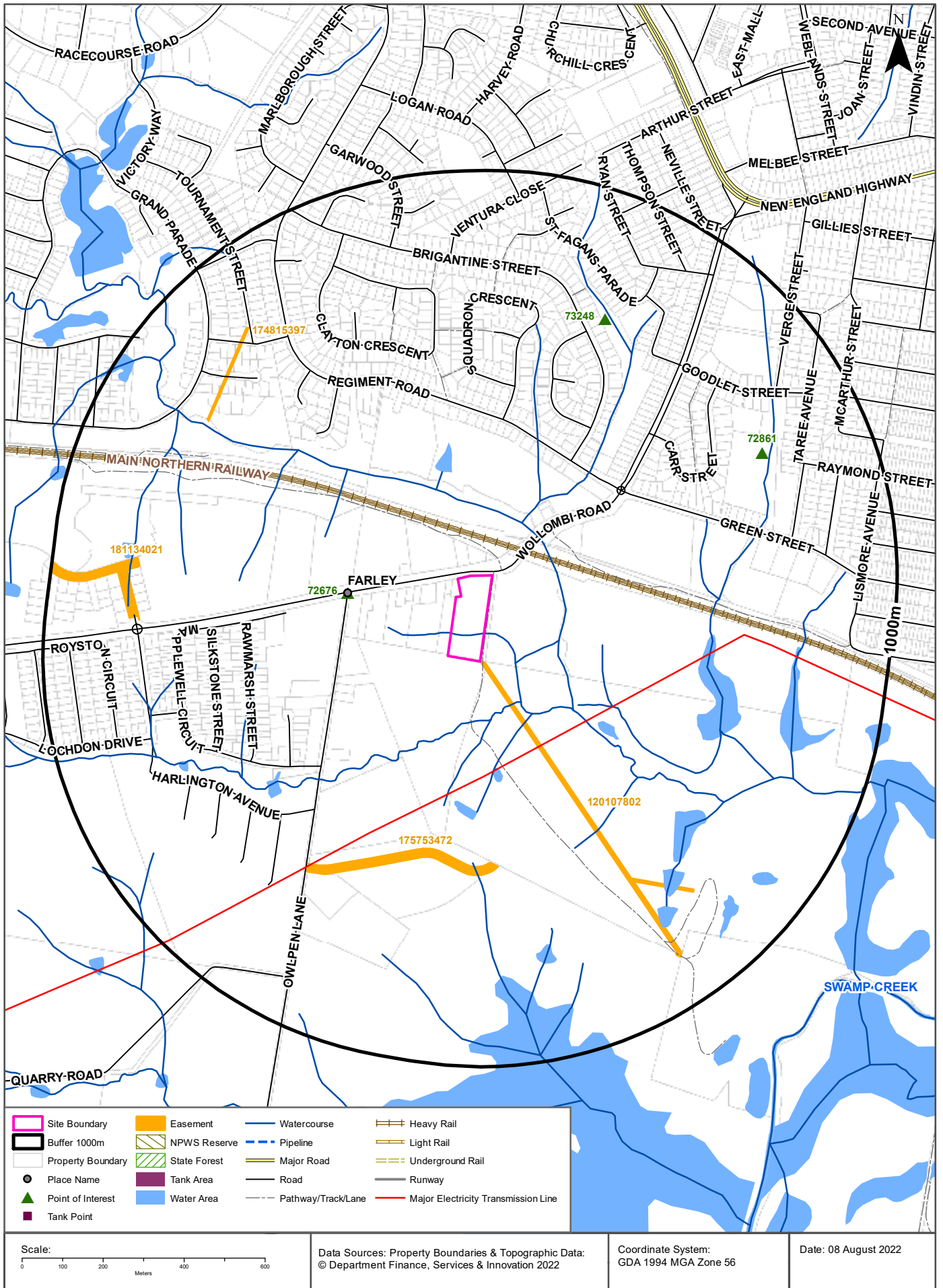
# Historical Map c.1925

131 Wollombi Road, Farley, NSW 2320



# Topographic Features

131 Wollombi Road, Farley, NSW 2320



# Topographic Features

131 Wollombi Road, Farley, NSW 2320

## Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
72676	Village	FARLEY	265m	West
73248	Park	Park	693m	North East
72861	Park	Park	733m	North East

Topographic Data Source: © Land and Property Information (2015)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>



# Topographic Features

131 Wollombi Road, Farley, NSW 2320

## Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

## Tanks (Points)

What are the Tank Points located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Tanks Data Source: © Land and Property Information (2015)

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## Major Easements

What Major Easements exist within the dataset buffer?

Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120107802	Primary	Undefined		0m	South East
175753472	Primary	Right of way	21m	476m	South
174815397	Primary	Right of way	6m	727m	North West
181134021	Primary	Right of way	Var	767m	West

Easements Data Source: © Land and Property Information (2015)

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# Topographic Features

131 Wollombi Road, Farley, NSW 2320

## State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)  
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

## National Parks and Wildlife Service Reserves

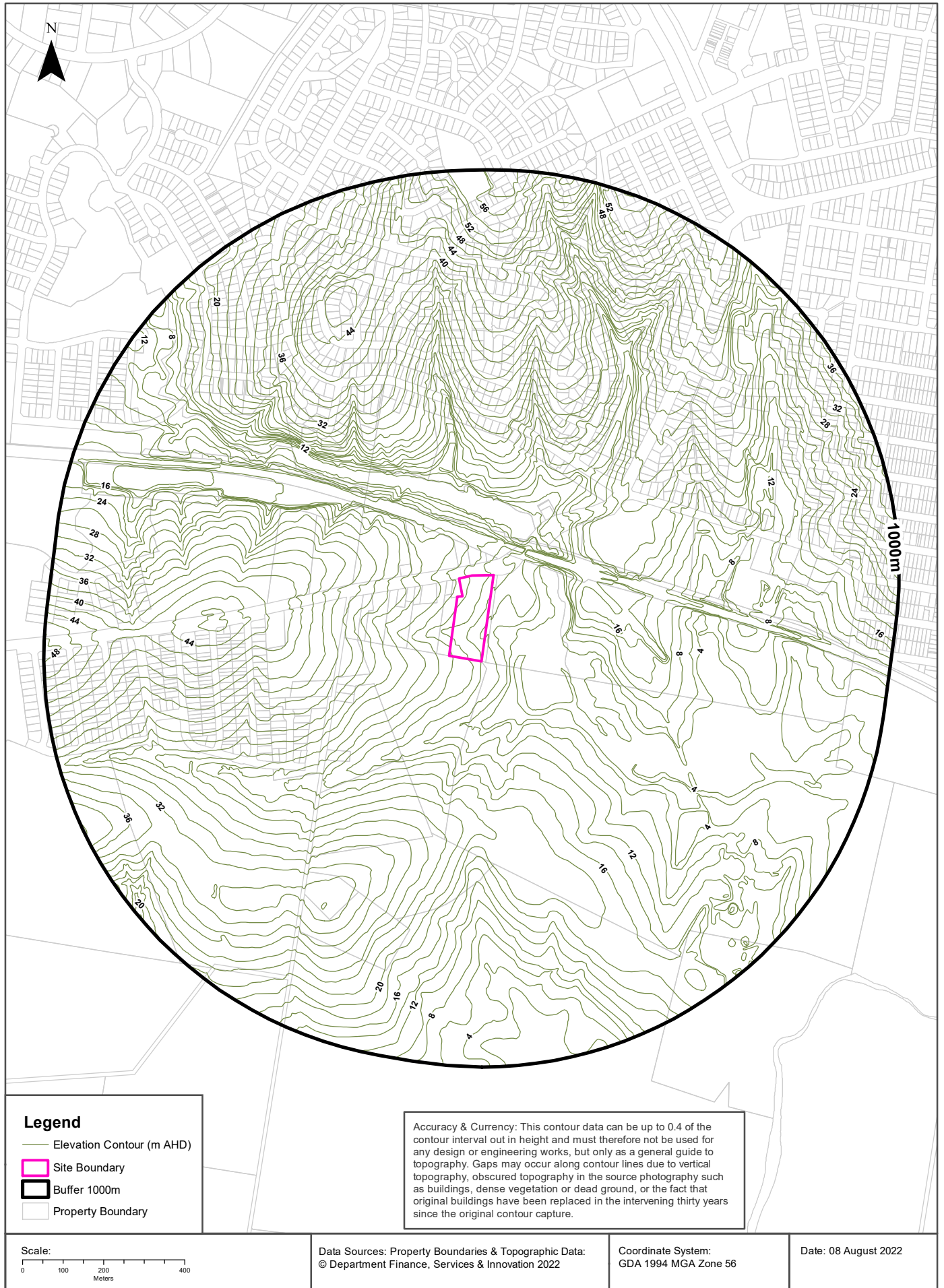
What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018)  
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# Elevation Contours (m AHD)

131 Wollombi Road, Farley, NSW 2320



# Hydrogeology & Groundwater

131 Wollombi Road, Farley, NSW 2320

## Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	On-site
Fractured or fissured, extensive aquifers of low to moderate productivity	176m	South West

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

## Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

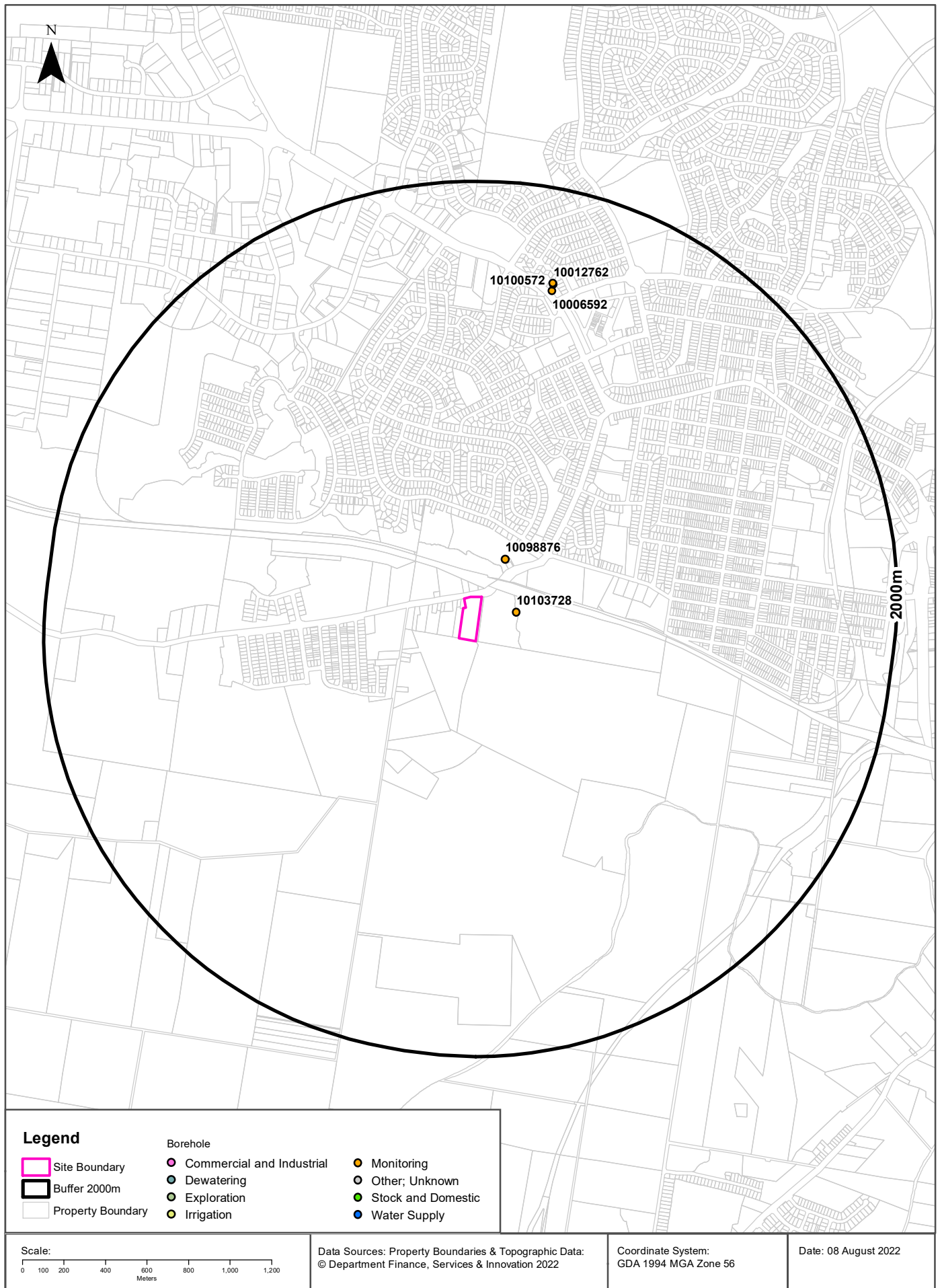
Prohibition Area No.	Prohibition	Distance	Direction
N/A	No records in buffer		

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018 Data Source : NSW Department of Primary Industries



# Groundwater Boreholes

131 Wollombi Road, Farley, NSW 2320



# Hydrogeology & Groundwater

131 Wollombi Road, Farley, NSW 2320

## Groundwater Boreholes

Boreholes within the dataset buffer:

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10103728	GW201357	Monitoring	Functional	03/12/2009	6.00		AHD				176m	East
10098876	GW201353	Monitoring	Functional	03/12/2009	6.20		AHD				214m	North East
10006592	GW202694	Monitoring	Functional	16/08/2011	7.45		AHD				1511m	North
10012762	GW202692	Monitoring	Functional	16/08/2011	9.00		AHD				1544m	North
10100572	GW202693	Monitoring	Functional	16/08/2011	7.50		AHD				1547m	North

Borehole Data Source: Bureau of Meteorology; Water NSW. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

# Hydrogeology & Groundwater

131 Wollombi Road, Farley, NSW 2320

## Driller's Logs

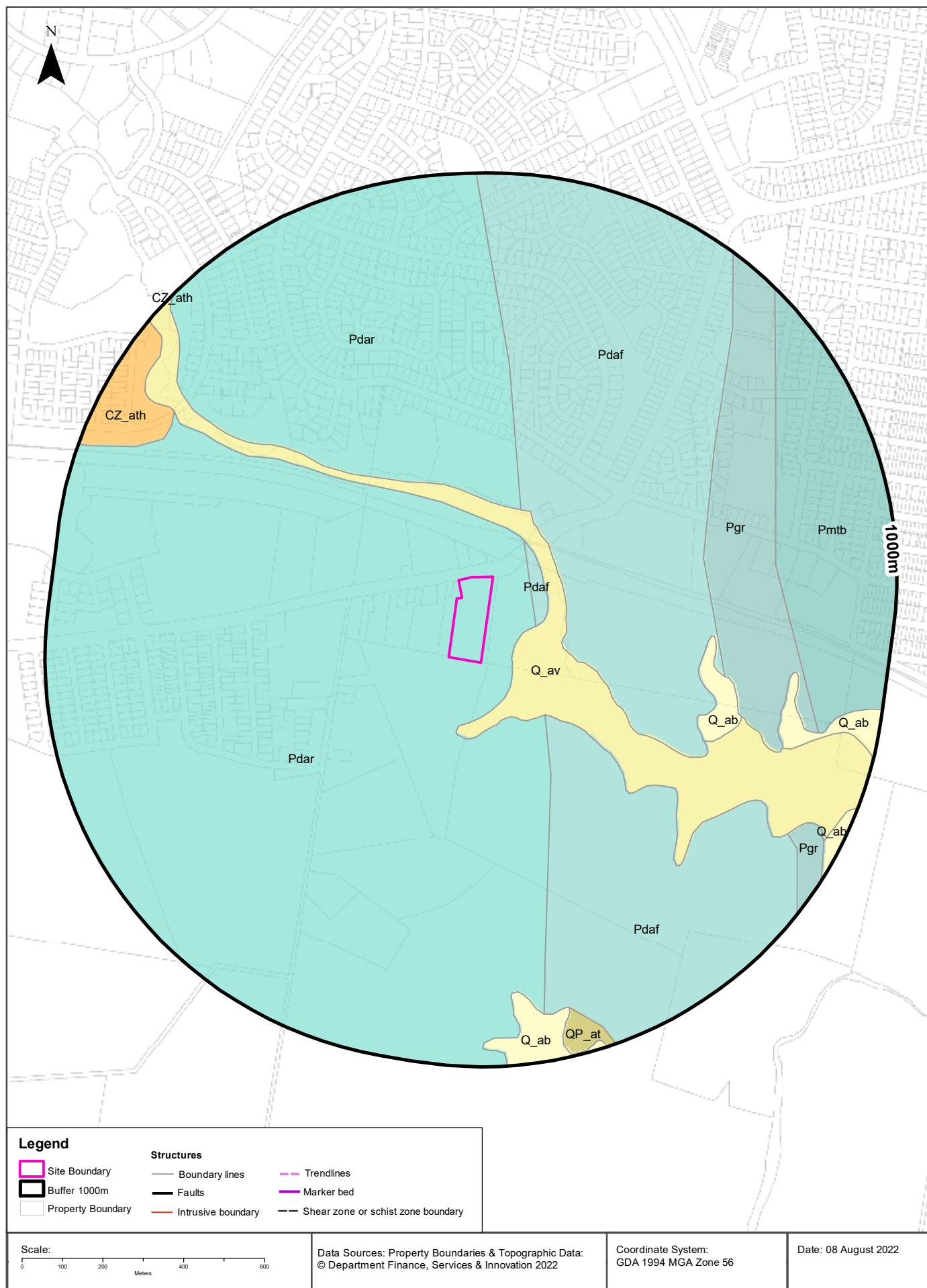
Drill log data relevant to the boreholes within the dataset buffer:

NGIS Bore ID	Drillers Log	Distance	Direction
10103728	0.00m-0.20m Clayey Sand, brown, fine-medium 0.20m-6.00m Sandy Clay, light brown-light grey, fine-medium	176m	East
10098876	0.00m-1.50m Sandy Clay, grey, fine 1.50m-6.20m Sandy Clay, grey yellow, fine	214m	North East
10006592	0.00m-0.50m Silty Clay; grey mottled red, dry, very high plasticity 0.50m-2.50m Silt, Sandy; trace sand, red, dry, low plasticity 2.50m-6.50m Silt, Clayey; red, dry, medium plasticity, @ 7m brown, @ 7.45m refusal	1511m	North
10012762	0.00m-0.50m Silty Clay; red, dry, low plasticity 0.50m-1.00m Silty Clay; brown, moist, very high plasticity 1.00m-2.00m Silty Clay; dark brown 2.00m-3.50m Silty Clay; light brown 3.50m-8.00m Silt, Clayey; red, dry, trace plasticity 8.00m-9.00m Silty Clay; grey, dry, high plasticity, @ 9m refusal	1544m	North
10100572	0.00m-1.00m Silt, Clayey; brown, dry, trace plasticity, @ 1m trace gravel 1.00m-7.50m Silty Clay; brown, dry, high plasticity, @ 3m brown-grey, @ 4.5m grey, mottled red, @ 5m grey, @ 6.5m brown, @ 7.5m refu	1547m	North

Drill Log Data Source: Bureau of Meteorology; Water NSW. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

# Geology

131 Wollombi Road, Farley, NSW 2320



# Geology

131 Wollombi Road, Farley, NSW 2320

## Geological Units

What are the Geological Units within the dataset buffer?

Unit Code	Unit Name	Description	Unit Stratigraphy	Age	Dominant Lithology	Distance
Pdar	Rutherford Formation	Siltstone, marl and minor sandstone.	/Dalwood Group//Rutherford Formation//	Permian (base) to Permian (top)	Siltstone	0m
Q_av	Alluvial valley deposits	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	//Alluvium//Alluvial valley deposits//	Quaternary (base) to Now (top)	Clastic sediment	73m
Pdaf	Farley Formation	Poorly sorted, light- and dark-grey, micaceous sandy siltstone, silty sandstone, mudstone and shale; sporadic thin limestone near Pokolbin; abundant marine fossils.	/Dalwood Group//Farley Formation//	Permian (base) to Lopingian (top)	Siltstone	88m
Pgr	Greta Coal Measures	Sandstone, siltstone, pellet claystone, coal, chert, sporadic conglomerate.	/Greta Coal Measures///	Permian (base) to Permian (top)	Sandstone	524m
Q_ab	Alluvial backswamp deposits	Organic-rich mud, peat, silt, clay.	//Alluvium//Alluvial backswamp deposits//	Quaternary (base) to Now (top)	Organic rich sediment	535m
Pmtb	Branxton Formation	Conglomerate, sandstone, siltstone.	//Maitland Group//Branxton Formation//	Roadian (base) to Roadian (top)	Conglomerate	701m
CZ_ath	Alluvial terrace deposits - high-stand facies	High-level terrace deposits of sand and gravel.	//Alluvium//Alluvial terrace deposits//Alluvial terrace deposits - high-stand facies//	Neogene (base) to Now (top)	Sand	806m
QP_at	Alluvial terrace deposits	Silt, clay, (fluvially-deposited) fine- to medium-grained quartz-lithic sand, polymictic gravel.	//Alluvium//Alluvial terrace deposits//	Quaternary (base) to Now (top)	Clastic sediment	879m

## Linear Geological Structures

What are the Dyke, Sill, Fracture, Lineament and Vein trendlines within the dataset buffer?

Map ID	Feature Description	Map Sheet Name	Distance
No Features			

What are the Faults, Shear zones or Schist zones, Intrusive boundaries & Marker beds within the dataset buffer?

Map ID	Boundary Type	Description	Map Sheet Name	Distance
No Features				

Geological Data Source: Statewide Seamless Geology v2.1, Department of Regional NSW  
 Creative Commons 4.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/4.0/au/deed.en>

# Naturally Occurring Asbestos Potential

131 Wollombi Road, Farley, NSW 2320

## Naturally Occurring Asbestos Potential

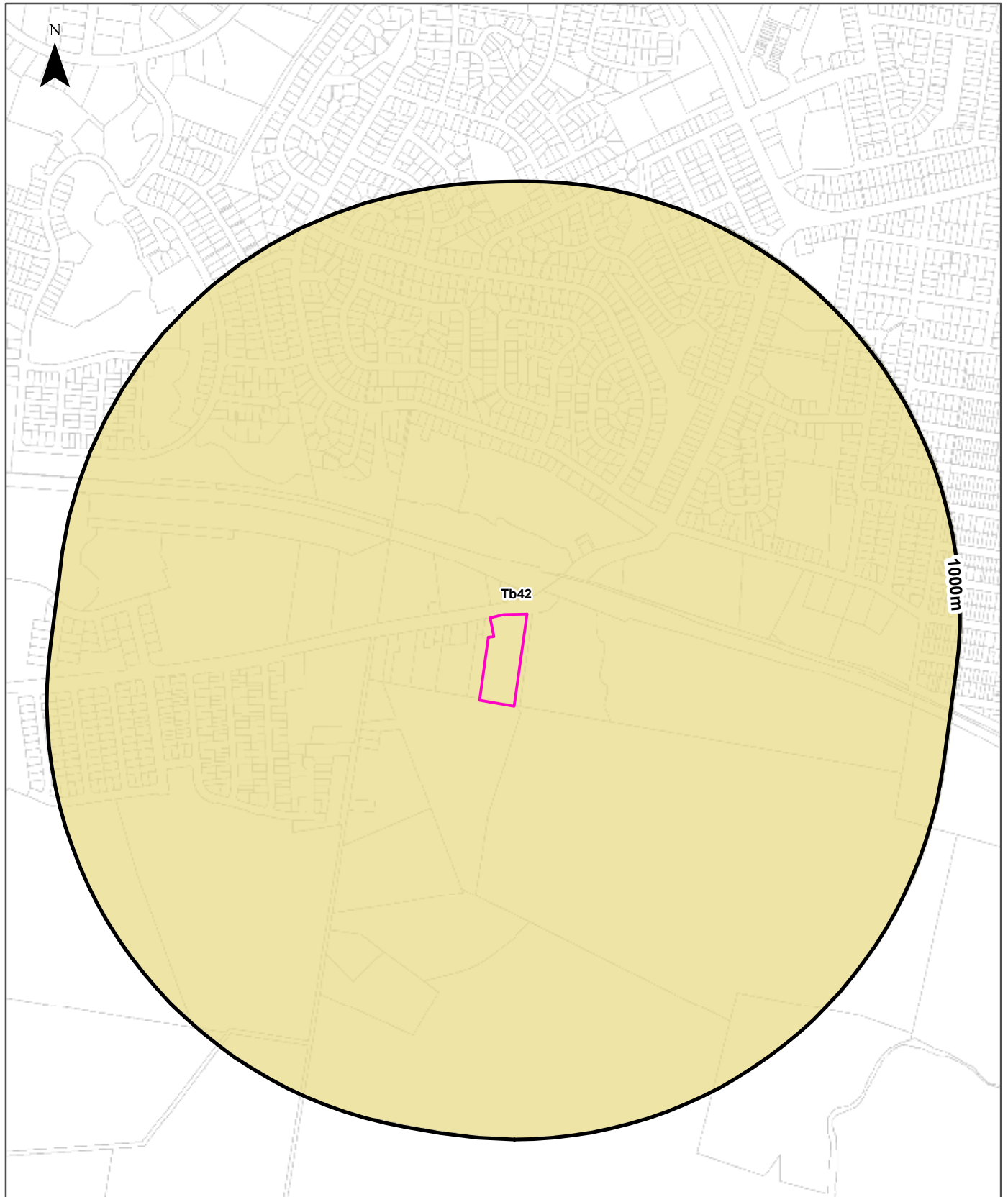
Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Naturally Occurring Asbestos Potential Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

# Atlas of Australian Soils

131 Wollombi Road, Farley, NSW 2320



<b>Legend</b> Site Boundary Buffer 1000m Property Boundary		<b>Australian Soil Classification Orders</b> <table border="0"> <tr> <td> Anthrosol</td> <td> Dermosol</td> <td> Kandosol</td> <td> Podosol</td> <td> Tenosol</td> <td> No Data</td> </tr> <tr> <td> Calcarosol</td> <td> Ferrosol</td> <td> Kurosol</td> <td> Rudosol</td> <td> Vertosol</td> <td></td> </tr> <tr> <td> Chromosol</td> <td> Hydrosol</td> <td> Organosol</td> <td> Sodosol</td> <td> Lake</td> <td></td> </tr> </table>						Anthrosol	Dermosol	Kandosol	Podosol	Tenosol	No Data	Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol		Chromosol	Hydrosol	Organosol	Sodosol	Lake	
Anthrosol	Dermosol	Kandosol	Podosol	Tenosol	No Data																				
Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol																					
Chromosol	Hydrosol	Organosol	Sodosol	Lake																					
<b>Scale:</b> 		Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2022		Coordinate System: GDA 1994 MGA Zone 56		Date: 08 August 2022																			



## Soils

131 Wollombi Road, Farley, NSW 2320

### Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Tb42	Kurosol	Undulating to hilly with a general ridge, slope, and valley sequence throughout; some outcropping sandstone or conglomerate on the ridges, occasionally some escarpments: chief soils are hard acidic yellow mottled soils (Dy3.41), possibly with (Dy3.42). Associated are: narrow ridges of shallow (Dy3.41) and (Dr3.41) soils, both often containing ironstone gravel; (Dr2.41) soils on broader ridges some broad sandy flats of (Dy5.81) soils containing ironstone gravels; dunes of (Uc1.2) soils on local sand deposits; and various undescribed soils along the streams where salinity is a common local feature.	0m	On-site

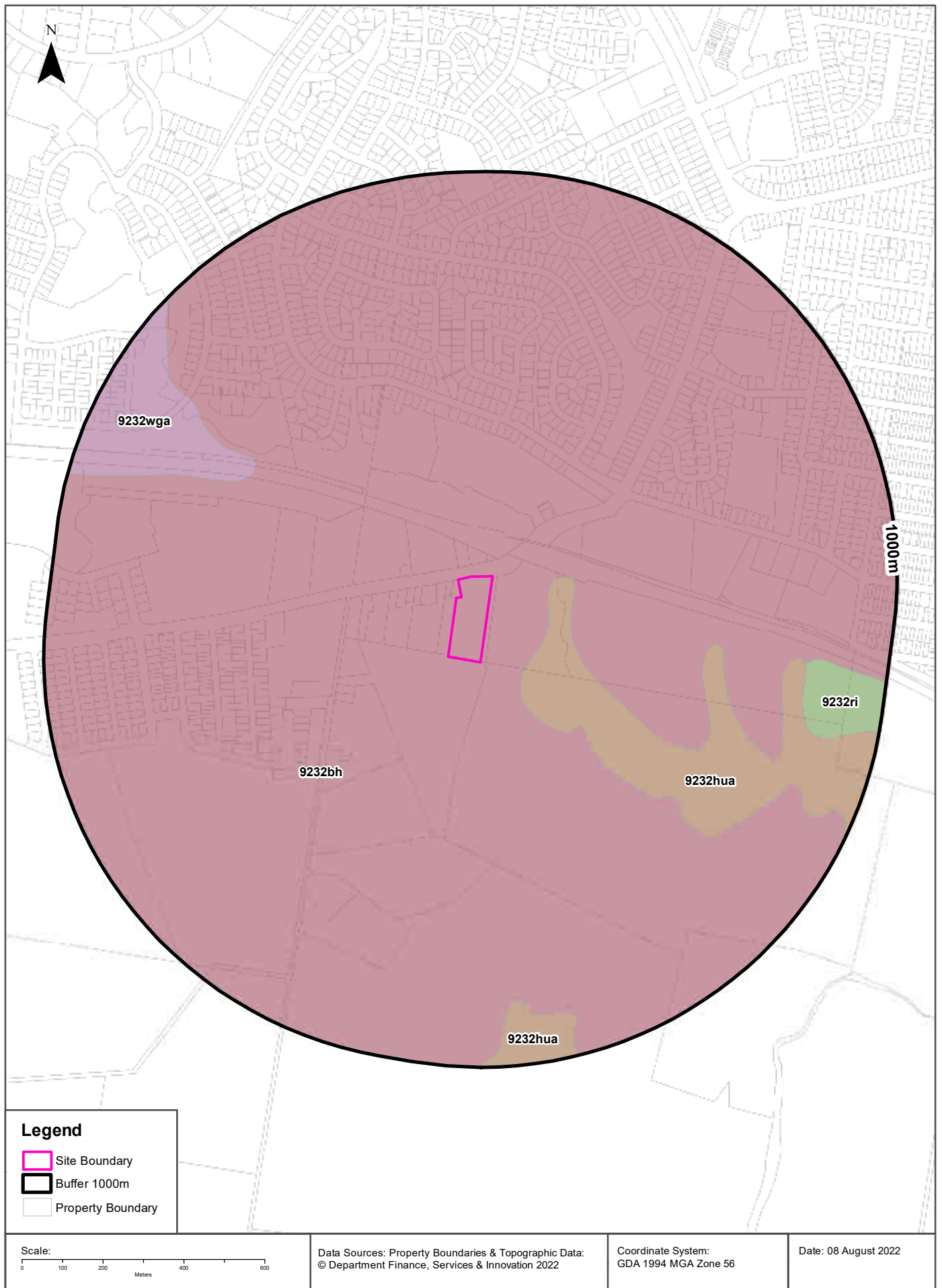
Atlas of Australian Soils Data Source: CSIRO

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# Soil Landscapes of Central and Eastern NSW

131 Wollombi Road, Farley, NSW 2320



## Soils

131 Wollombi Road, Farley, NSW 2320

### Soil Landscapes of Central and Eastern NSW

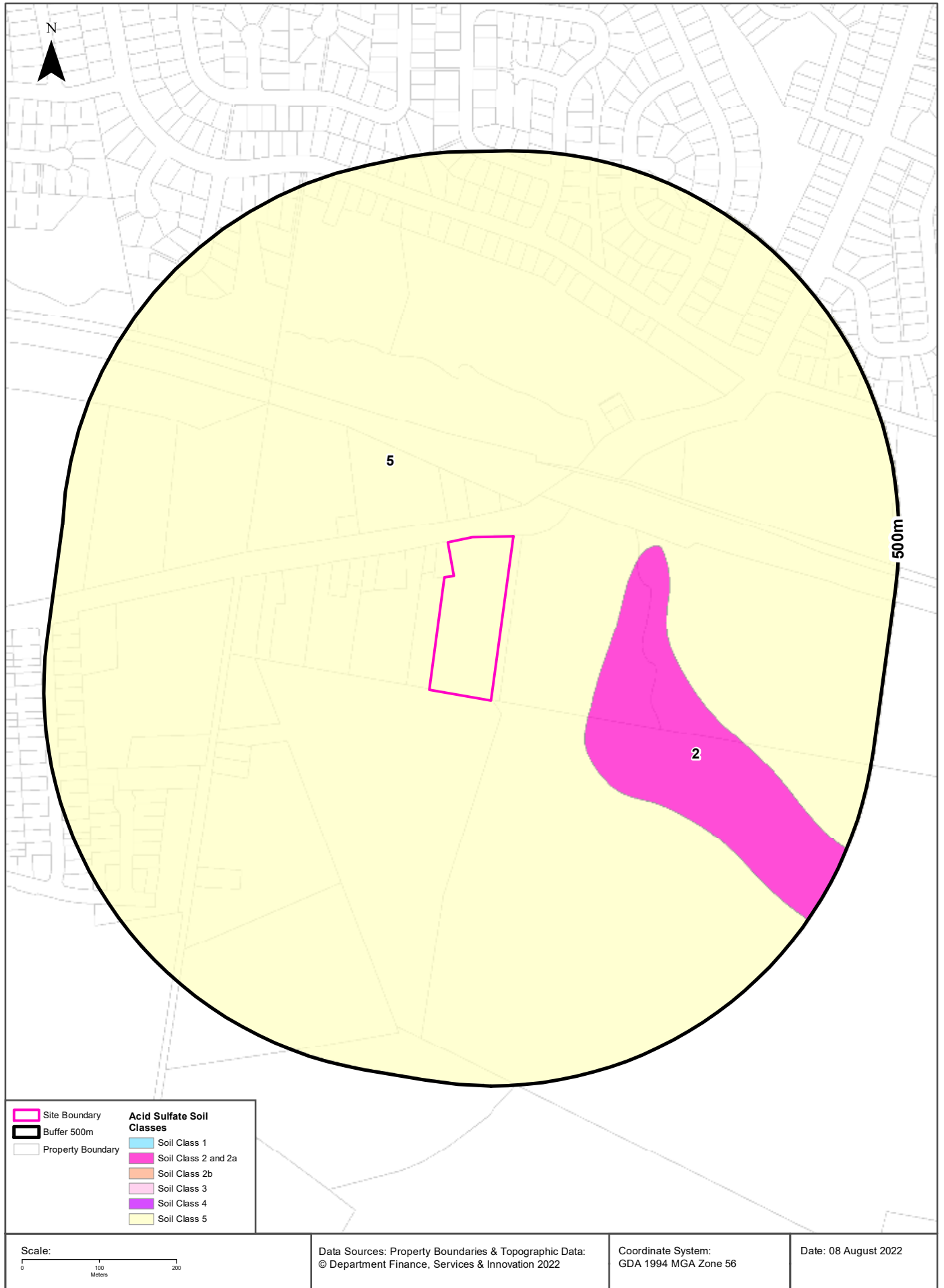
Soil Landscapes of Central and Eastern NSW within the dataset buffer:

Soil Code	Name	Distance	Direction
<a href="#">9232bh</a>	Bolwarra Heights	0m	On-site
<a href="#">9232hua</a>	Hunter variant a	105m	South East
<a href="#">9232wga</a>	Wallalong variant a	570m	North West
<a href="#">9232ri</a>	Rivermead	790m	East

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment  
Creative Commons 4.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/4.0/au/deed.en>

# Acid Sulfate Soils

131 Wollombi Road, Farley, NSW 2320



# Acid Sulfate Soils

131 Wollombi Road, Farley, NSW 2320

## Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	EPI Name
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Maitland Local Environmental Plan 2011

If the on-site Soil Class is 5, what other soil classes exist within 500m?

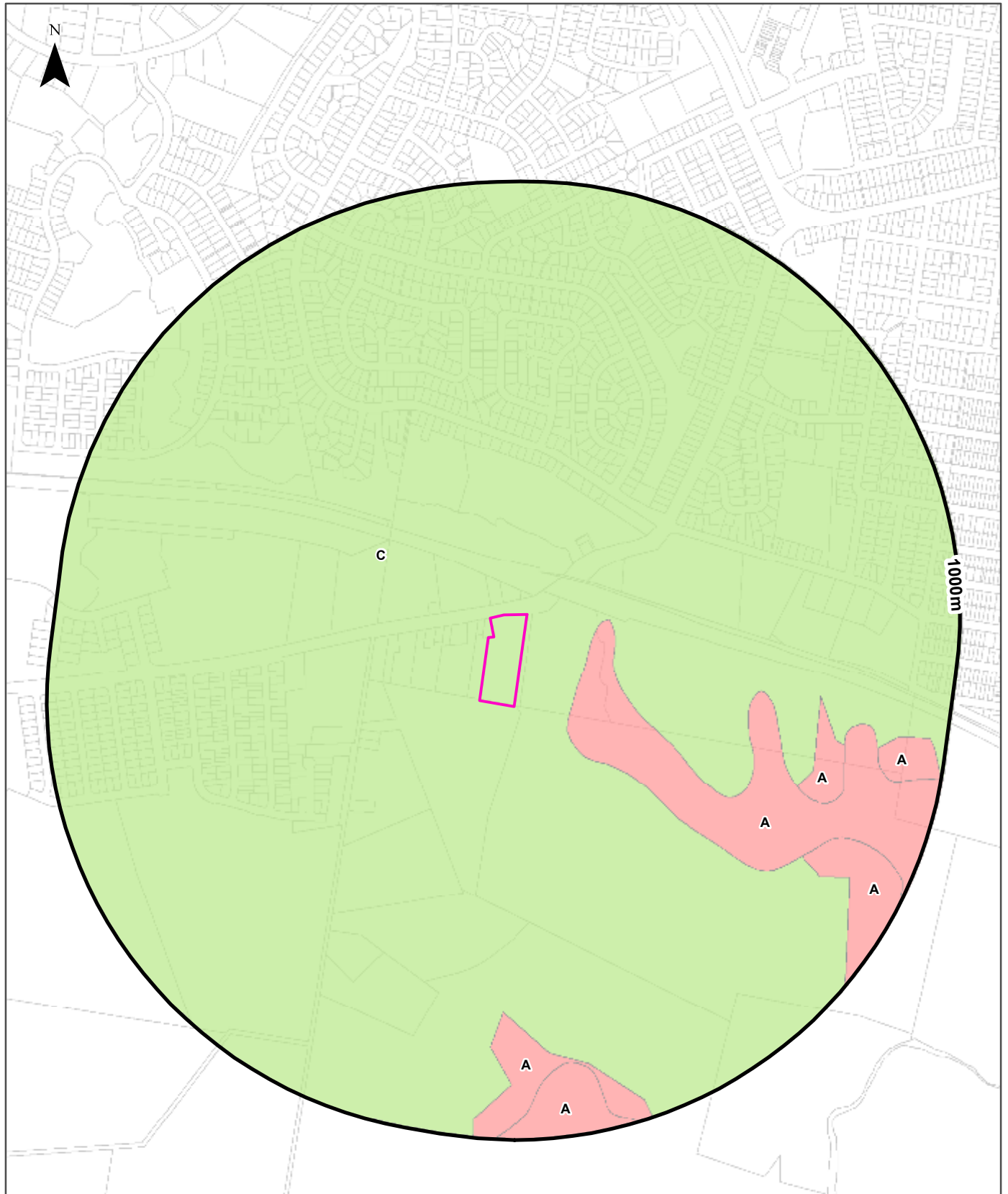
Soil Class	Description	EPI Name	Distance	Direction
2	Works below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered present an environmental risk	Maitland Local Environmental Plan 2011	126m	South East

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# Atlas of Australian Acid Sulfate Soils

131 Wollombi Road, Farley, NSW 2320



<b>Legend</b>		<b>Probability of occurrence of Acid Sulfate Soils</b>	
Site Boundary	A. High (>70%)	C. Extremely Low (1-5%)	No Data
Buffer 1000m	B. Low (6-70%)	D. No Chance (0%)	
Property Boundary			
<b>Scale:</b> 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2022	Coordinate System: GDA 1994 MGA Zone 56	Date: 08August 2022

## Acid Sulfate Soils

131 Wollombi Road, Farley, NSW 2320

### Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance	Direction
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m	On-site
A	High Probability of occurrence. >70% chance of occurrence.	675m	East

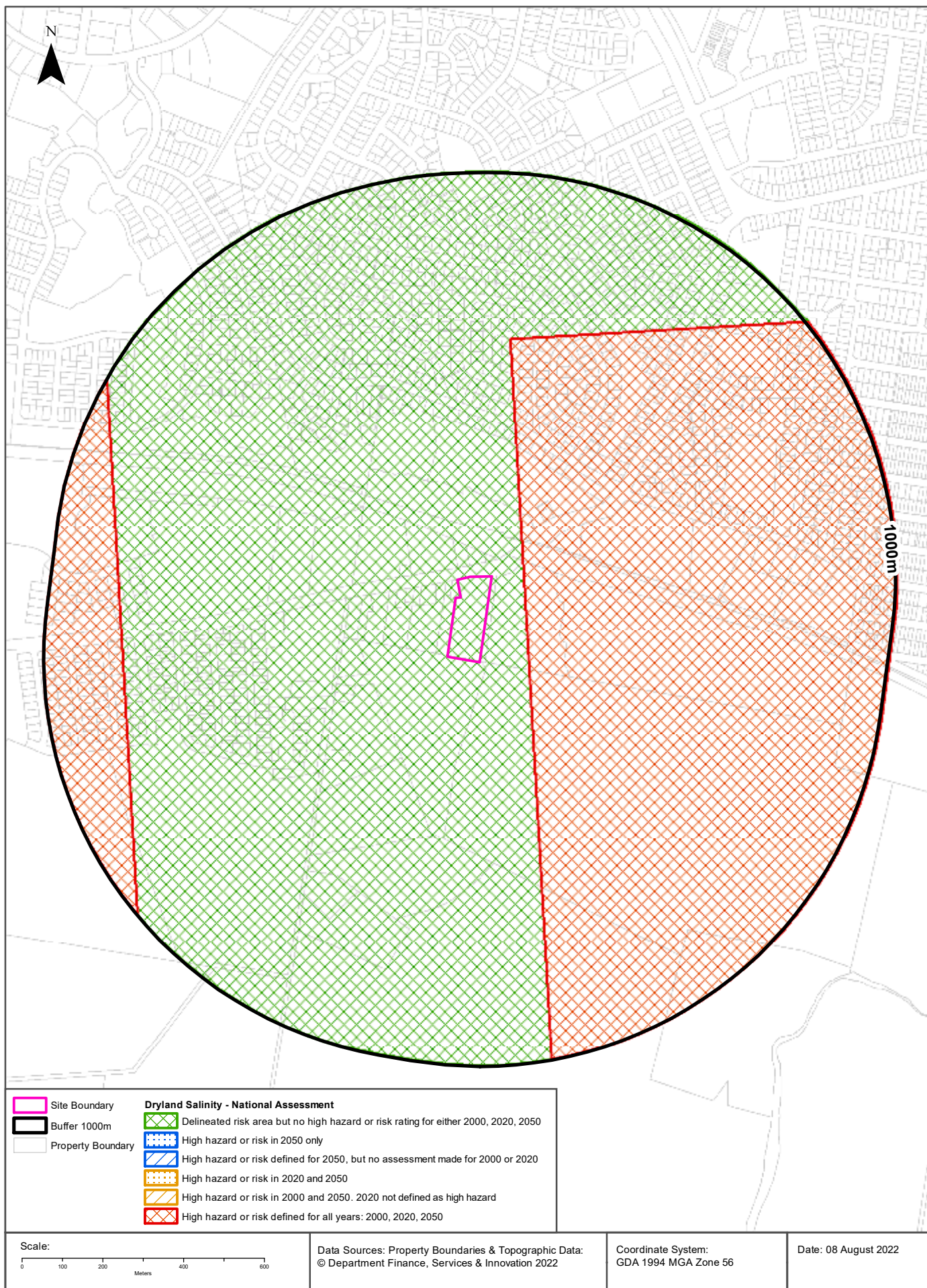
Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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# Dryland Salinity

131 Wollombi Road, Farley, NSW 2320





# Dryland Salinity

131 Wollombi Road, Farley, NSW 2320

## Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

**Yes**

Is there Dryland Salinity - National Assessment data within the dataset buffer?

**Yes**

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
Delineated risk area but no high hazard or risk rating	Delineated risk area but no high hazard or risk rating	Delineated risk area but no high hazard or risk rating	0m	On-site
High hazard or risk	High hazard or risk	High hazard or risk	77m	East

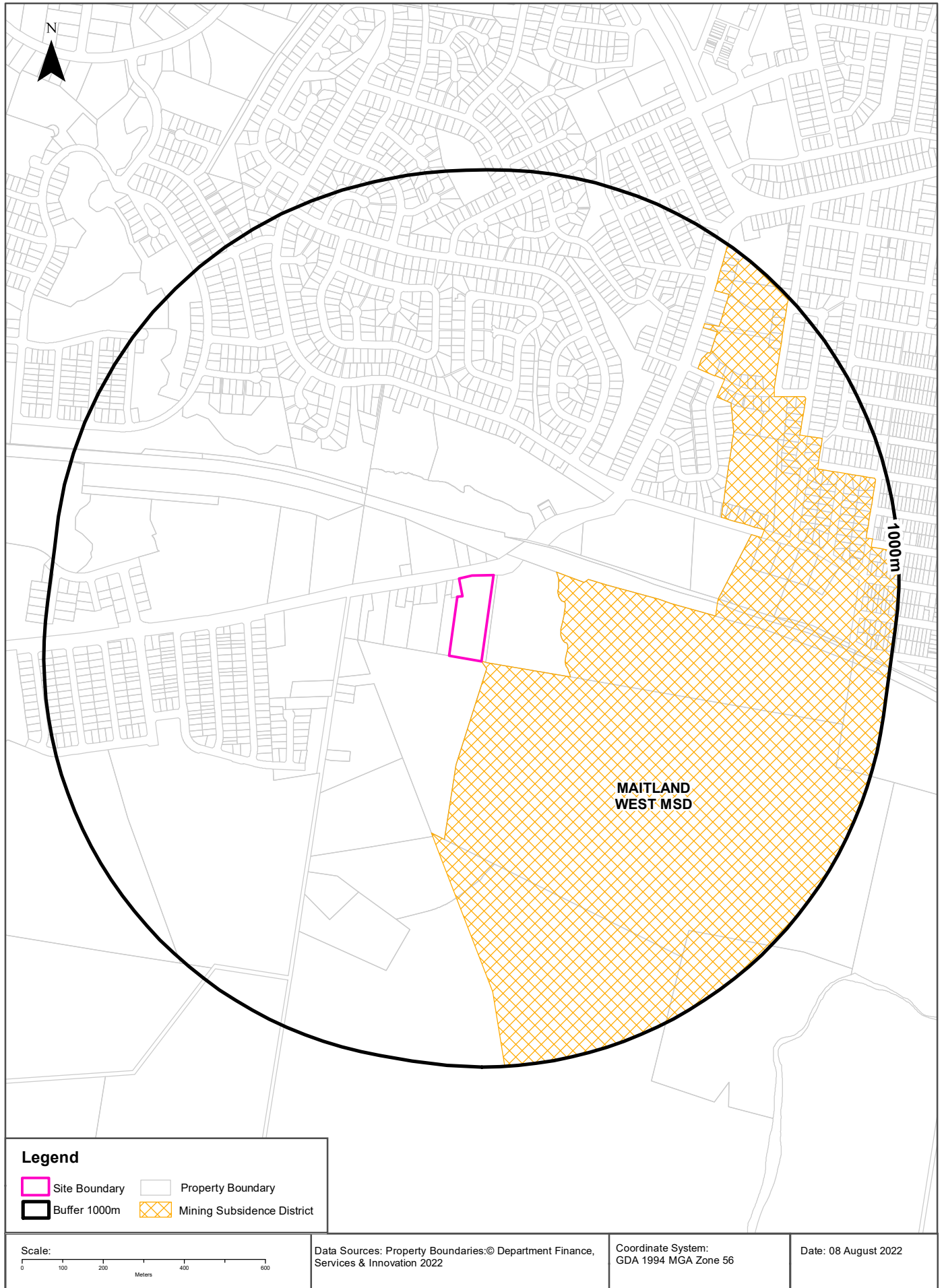
Dryland Salinity Data Source : National Land and Water Resources Audit

The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.

In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

# Mining Subsidence Districts

131 Wollombi Road, Farley, NSW 2320



# Mining

131 Wollombi Road, Farley, NSW 2320

## Mining Subsidence Districts

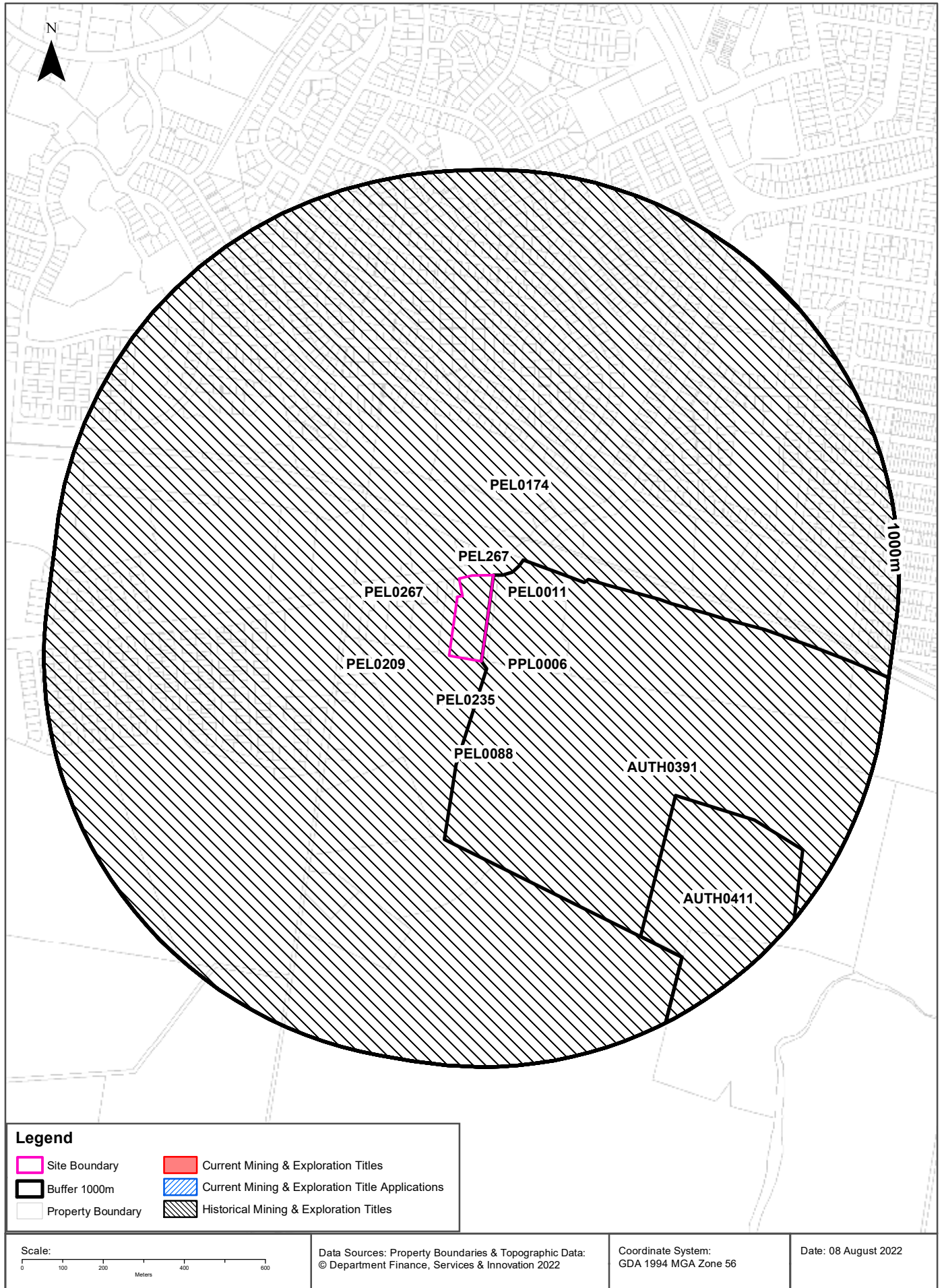
Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
MAITLAND WEST	0m	South East

Mining Subsidence District Data Source: © Land and Property Information (2016)  
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# Mining & Exploration Titles

131 Wollombi Road, Farley, NSW 2320



# Mining

131 Wollombi Road, Farley, NSW 2320

## Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Grant Date	Expiry Date	Last Renewed	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer								

Current Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

## Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

Application Ref	Applicant	Application Date	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer						

Current Mining & Exploration Title Applications Data Source: © State of New South Wales through NSW Department of Industry

# Mining

131 Wollombi Road, Farley, NSW 2320

## Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL0088	PLANET EXPLORATION COMPANY PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0209	EARTH RESOURCES AUSTRALIA PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL267	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	On-site
PEL0235	EASTMET LTD	17/04/1980		PETROLEUM	Petroleum	0m	On-site
PPL0006	PLANET EXPLORATION	15/05/1905		PETROLEUM	Petroleum	0m	On-site
PEL0174	NSW OIL AND GAS COMPANY NL			PETROLEUM	Petroleum	0m	On-site
PEL0011	PLANET EXPLORATION COMPANY PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0267	SYDNEY OIL CO (NSW) PTY LTD, MANVANE PTY LTD AUSTRALIA NL, BASE RESOURCES LTD, SEAHAWK OIL AUSTRALIA NL, READING & BATES	20/01/1984	6/07/2015	PETROLEUM	Petroleum	0m	On-site
AUTH0391	SOUTH MAITLAND COLLIERIES PTY LIMITED	29 Apr 1987	29 Apr 1991	COAL	Coal	0m	South East
AUTH0411	SOUTH MAITLAND COLLIERIES PTY LIMITED	19 Apr 1990	19910419	COAL	Coal	581m	South East

Historical Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry



# State Environmental Planning Policy

131 Wollombi Road, Farley, NSW 2320

## State Significant Precincts

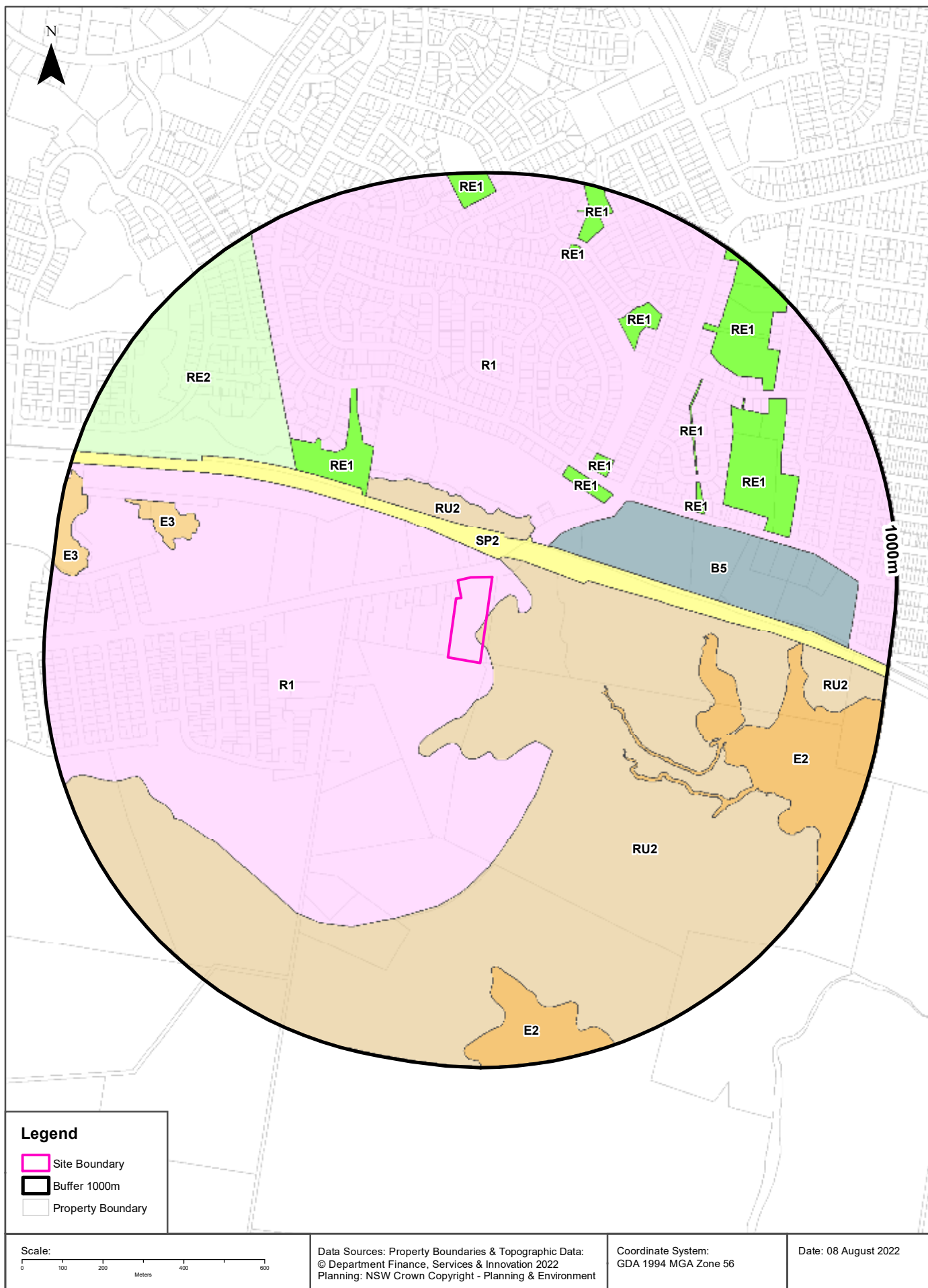
What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No records in buffer							

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment  
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# EPI Planning Zones

131 Wollombi Road, Farley, NSW 2320



# Environmental Planning Instrument

131 Wollombi Road, Farley, NSW 2320

## Land Zoning

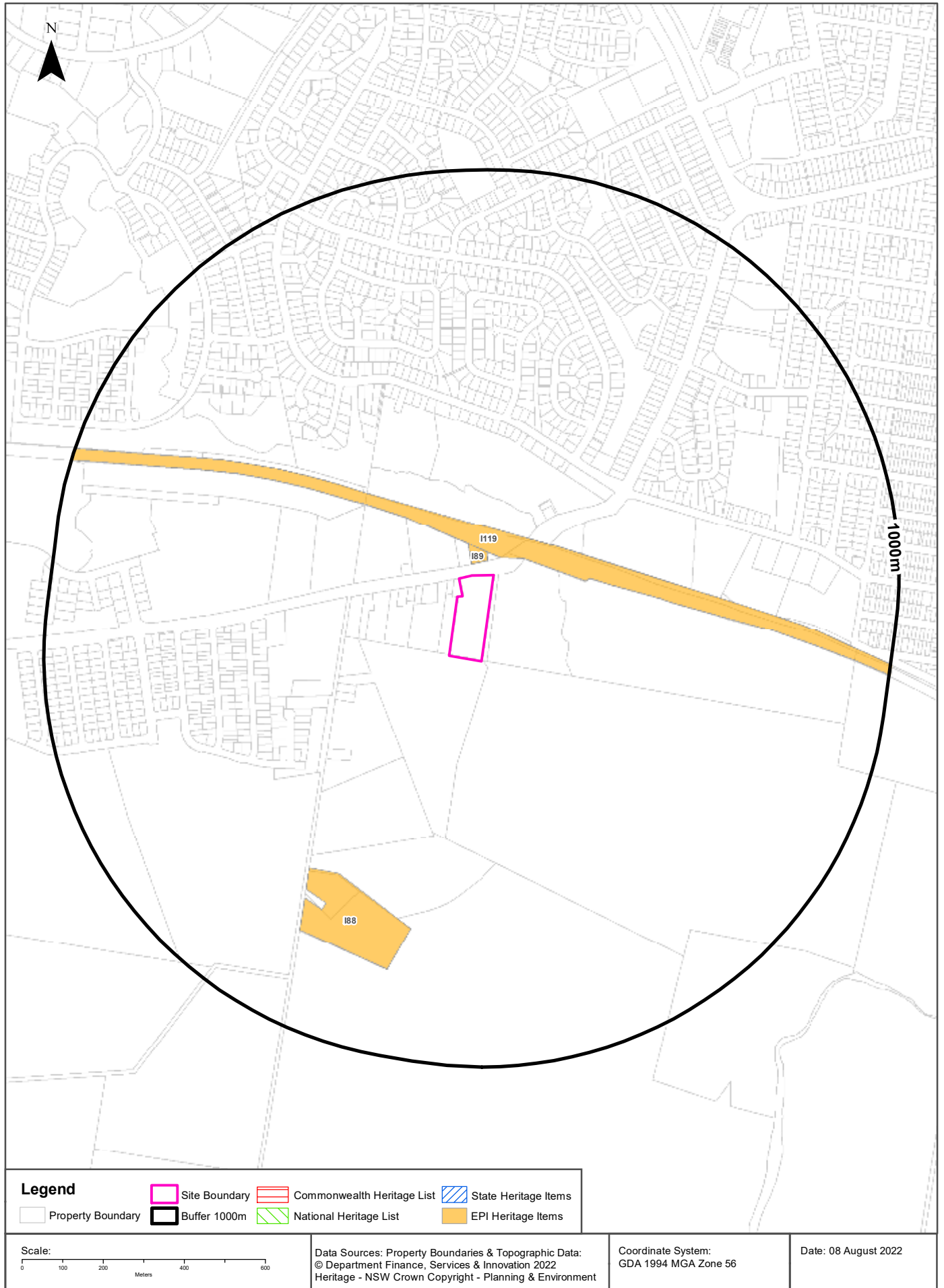
What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		0m	On-site
R1	General Residential		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	16/07/2021	Amendment No 1	0m	On-site
SP2	Infrastructure	Railway	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		44m	North
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		100m	North
R1	General Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		127m	North
B5	Business Development		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		154m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		302m	North East
E2	Environmental Conservation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		306m	South East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		309m	North West
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		358m	North East
RE2	Private Recreation		Maitland Local Environmental Plan 2011	25/08/2017	25/08/2017	16/07/2021	Amendment No 21	484m	North West
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		525m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		560m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		595m	North East
E3	Environmental Management		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	16/07/2021	Amendment No 1	653m	West
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		658m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		767m	North East
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		780m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		808m	North
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		856m	North
E3	Environmental Management		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	16/07/2021	Amendment No 1	913m	West
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		913m	North

Environmental Planning Instrument Data Source: NSW Crown Copyright - Planning & Environment  
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# Heritage Items

131 Wollombi Road, Farley, NSW 2320



## Heritage

131 Wollombi Road, Farley, NSW 2320

### Commonwealth Heritage List

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

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

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch  
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### National Heritage List

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

Note. Please click on Place Id to activate a hyperlink to online website.

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

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

### State Heritage Register - Curtilages

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage  
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### Environmental Planning Instrument - Heritage

What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I89	Government Railway (Station Masters House)	Item - General	Local	Maitland Local Environmental Plan 2011	14/01/2022	14/01/2022	14/01/2022	27m	North
I119	Government Railway	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	14/01/2022	44m	North East
I88	Owipen	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	14/01/2022	605m	South

Heritage Data Source: NSW Crown Copyright - Planning & Environment  
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# Natural Hazards - Bush Fire Prone Land

131 Wollombi Road, Farley, NSW 2320





## Natural Hazards

131 Wollombi Road, Farley, NSW 2320

### Bush Fire Prone Land

What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Category 3	0m	On-site
Vegetation Buffer	0m	On-site
Vegetation Category 1	688m	South West
Vegetation Category 2	787m	South West

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence

# Ecological Constraints - Vegetation & Ramsar Wetlands

131 Wollombi Road, Farley, NSW 2320



## Ecological Constraints

131 Wollombi Road, Farley, NSW 2320

### Lower Hunter and Central Coast Regional Vegetation Survey

What vegetation from the Lower Hunter and Central Coast Regional Survey exists within the dataset buffer?

Map Id	Unit Desc	Canopy Code	Canopy Cover	Species	Distance	Direction
17	Lower Hunter Spotted Gum - Ironbark Forest	W	Wetland	<i>C. maculata</i> / <i>E. fibrosa</i> / <i>E. punctata</i>	108m	North
17	Lower Hunter Spotted Gum - Ironbark Forest	OF	Mid Dense (Open Forest) 50- <100% cover	<i>C. maculata</i> / <i>E. fibrosa</i> / <i>E. punctata</i>	115m	North East
46	Freshwater Wetland Complex	OF	Mid Dense (Open Forest) 50- <100% cover	<i>Ludwigia peploides</i> subsp <i>montevidensis</i> / <i>Paspalum distichum</i> / <i>Eleocharis sphacelata</i> / <i>Juncus usitatus</i>	166m	South East
40	Swamp Oak Rushland Forest	OF	Mid Dense (Open Forest) 50- <100% cover	<i>C. glauca</i> / <i>Melaleuca ericifolia</i> / <i>Baumea juncea</i>	169m	East
19	Hunter Lowland Redgum Forest	W	Wetland	<i>E. tereticornis</i> / <i>E. punctata</i> / <i>E. crebra</i> / <i>A. floribunda</i> / <i>C. maculata</i>	172m	North West
19	Hunter Lowland Redgum Forest	OF	Mid Dense (Open Forest) 50- <100% cover	<i>E. tereticornis</i> / <i>E. punctata</i> / <i>E. crebra</i> / <i>A. floribunda</i> / <i>C. maculata</i>	179m	North East
19	Hunter Lowland Redgum Forest	WO	Sparse (Woodland) 20- <50% cover	<i>E. tereticornis</i> / <i>E. punctata</i> / <i>E. crebra</i> / <i>A. floribunda</i> / <i>C. maculata</i>	491m	South
40	Swamp Oak Rushland Forest	W	Wetland	<i>C. glauca</i> / <i>Melaleuca ericifolia</i> / <i>Baumea juncea</i>	546m	East
46	Freshwater Wetland Complex	W	Wetland	<i>Ludwigia peploides</i> subsp <i>montevidensis</i> / <i>Paspalum distichum</i> / <i>Eleocharis sphacelata</i> / <i>Juncus usitatus</i>	572m	South East
19	Hunter Lowland Redgum Forest	S	Scrub	<i>E. tereticornis</i> / <i>E. punctata</i> / <i>E. crebra</i> / <i>A. floribunda</i> / <i>C. maculata</i>	584m	West
17	Lower Hunter Spotted Gum - Ironbark Forest	S	Scrub	<i>C. maculata</i> / <i>E. fibrosa</i> / <i>E. punctata</i>	758m	West
5	Alluvial Tall Moist Forest	W	Wetland	<i>E. saligna</i> / <i>S. glomulifera</i> / <i>Glochidion ferdinandi</i>	779m	East

Lower Hunter and Central Coast Regional Vegetation Survey: NSW Office of Environment and Heritage

### Ramsar Wetlands

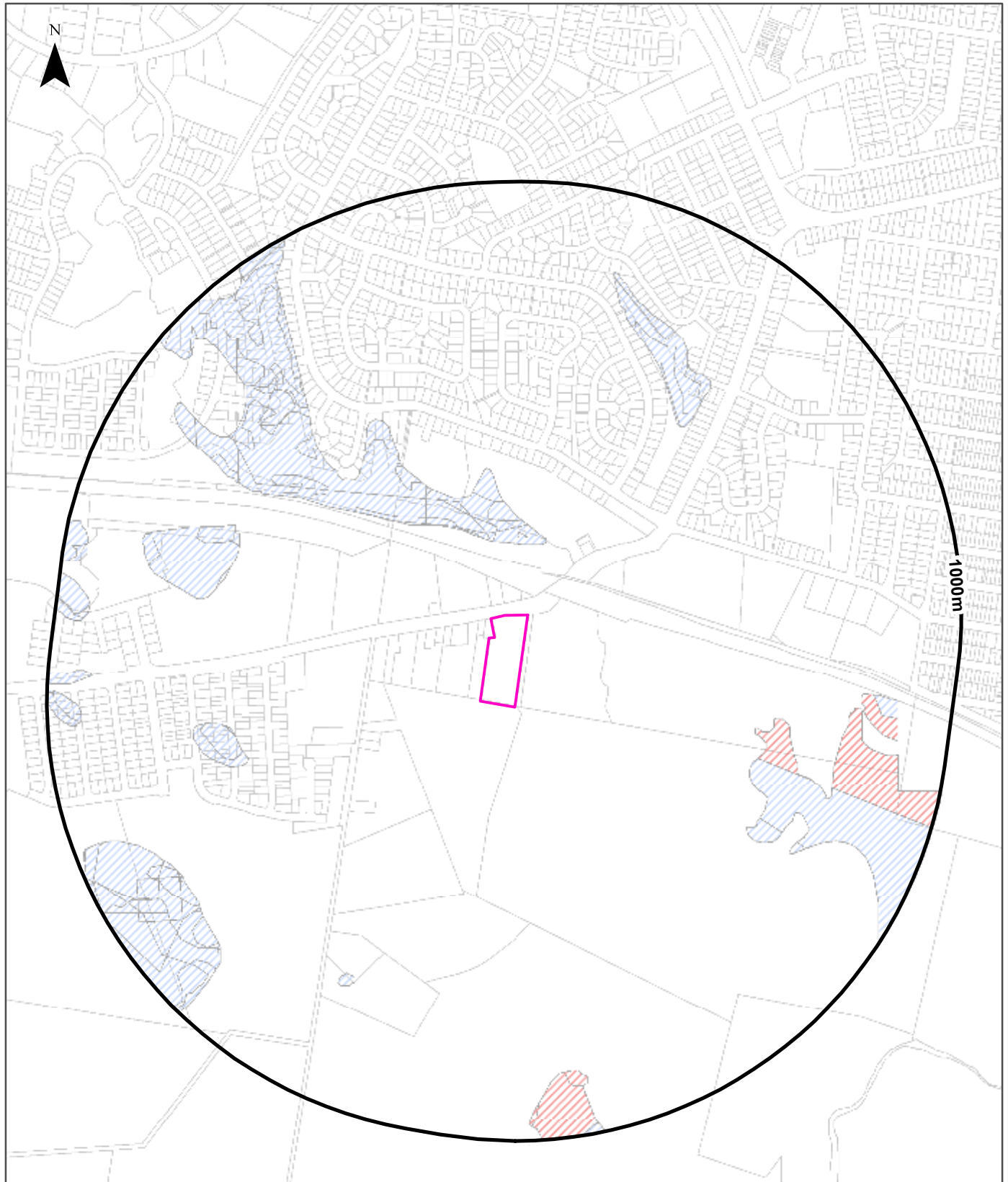
What Ramsar Wetland areas exist within the dataset buffer?

Map Id	Ramsar Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Agriculture, Water and the Environment

# Ecological Constraints - Groundwater Dependent Ecosystems Atlas

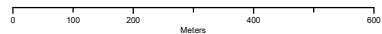
131 Wollombi Road, Farley, NSW 2320



## Legend

Site Boundary	High potential GDE - from national assessment	Low potential GDE - from national assessment
Buffer 1000m	High potential GDE - from regional studies	Low potential GDE - from regional studies
Property Boundaries	Moderate potential GDE - from national assessment	Known GDE - from regional studies
	Moderate potential GDE - from regional studies	Unclassified potential GDE - from national assessment
		Unclassified potential GDE - from regional studies

Scale:



Data Sources: Property Boundaries & Topographic Data:  
© Department Finance, Services & Innovation 2022

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 August 2022

# Ecological Constraints

131 Wollombi Road, Farley, NSW 2320

## Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	Low potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		162m	North West
Terrestrial	High potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		551m	East
Terrestrial	Low potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		584m	North East

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology  
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# Ecological Constraints - Inflow Dependent Ecosystems Likelihood

131 Wollombi Road, Farley, NSW 2320



## Ecological Constraints

131 Wollombi Road, Farley, NSW 2320

### Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	7	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		162m	North West
Terrestrial	10	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		173m	North West
Terrestrial	8	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		175m	West
Terrestrial	4	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		261m	West
Terrestrial	5	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		262m	West
Terrestrial	6	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		276m	North West
Terrestrial	2	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		551m	East
Terrestrial	8	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		584m	North East

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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# Ecological Constraints

131 Wollombi Road, Farley, NSW 2320

## NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria littlejohni	Littlejohn's Tree Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Anseranas semipalmata	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna pacifica	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris canutus	Red Knot	Not Listed	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Endangered	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Chlidonias leucopterus	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Cuculus optatus	Oriental Cuckoo	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Irediparra gallinacea	Comb-crested Jacana	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius minutus	Little Curlew	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Oxyura australis	Blue-billed Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pezoporus wallicus wallicus	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Thinornis cucullatus cucullatus	Eastern Hooded Dotterel	Critically Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	Tringa glareola	Wood Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	<i>Tringa stagnatilis</i>	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Mammalia	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Miniopterus australis</i>	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Myotis macropus</i>	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Petaurus norfolcensis</i>	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Phascolarctos cinereus</i>	Koala	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	<i>Pseudomys novaehollandiae</i>	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Vespadelus trougtoni</i>	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	<i>Caretta caretta</i>	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	<i>Chelonia mydas</i>	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Acacia bakeri</i>	Marblewood	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	<i>Acacia bynoeana</i>	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Callistemon linearifolius</i>	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	<i>Cymbidium canaliculatum</i>	Tiger Orchid	Endangered Population	Category 2	Not Listed	
Plantae	Flora	<i>Eucalyptus camaldulensis</i>	River Red Gum	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	<i>Eucalyptus glaucina</i>	Slaty Red Gum	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Persoonia pauciflora</i>	North Rothbury Persoonia	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	<i>Pterostylis chaetophora</i>		Vulnerable	Category 2	Not Listed	
Plantae	Flora	<i>Pterostylis gibbosa</i>	Illawarra Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered	Not Sensitive	Critically Endangered	
Plantae	Flora	<i>Rutidosis heterogama</i>	Heath Wrinklewort	Vulnerable	Not Sensitive	Vulnerable	



Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	

Data does not include NSW category 1 sensitive species.

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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
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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  - (k) the End User should undertake its own inspections of the Land or Property to satisfy itself that there are no defects or failures
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# Appendix D

## Laboratory Documentation





Geotesta Pty Ltd (NSW)  
Unit 6, 20/22 Foundry Road  
Seven Hills  
NSW 2147



NATA Accredited  
Accreditation Number 1261  
Site Number 18217

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: **Victor Kirpichnikov (GEOTESTA)**

Report **912597-S**  
Project name **131 WOLLAMBI ROAD FARLEY NSW**  
Project ID **NE1372**  
Received Date **Aug 08, 2022**

Client Sample ID			EBH1	EBH2	EBH3	EBH4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018807	S22- Au0018808	S22- Au0018809	S22- Au0018810
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons</b>						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	52	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	94	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	146	< 50
Naphthalene <sup>N02</sup>	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	110	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	110	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	220	< 100
<b>BTEX</b>						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	101	93	116	100
<b>Polycyclic Aromatic Hydrocarbons</b>						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			EBH1	EBH2	EBH3	EBH4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018807	S22- Au0018808	S22- Au0018809	S22- Au0018810
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Polycyclic Aromatic Hydrocarbons</b>						
Fluoranthene	0.5	mg/kg	0.5	0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	0.6	0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	1.1	1.0	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	144	105	104	104
p-Terphenyl-d14 (surr.)	1	%	149	113	110	106
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	140	106	111	121
Tetrachloro-m-xylene (surr.)	1	%	145	113	110	107
<b>Organophosphorus Pesticides</b>						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			EBH1	EBH2	EBH3	EBH4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018807	S22- Au0018808	S22- Au0018809	S22- Au0018810
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Organophosphorus Pesticides</b>						
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	135	103	110	104
<b>Polychlorinated Biphenyls</b>						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	140	106	111	121
Tetrachloro-m-xylene (surr.)	1	%	145	113	110	107
<b>Phenols (Halogenated)</b>						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1

Client Sample ID			EBH1	EBH2	EBH3	EBH4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018807	S22- Au0018808	S22- Au0018809	S22- Au0018810
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Phenols (non-Halogenated)</b>						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Nitrophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Total cresols*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	112	88	76	89
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
<b>Heavy Metals</b>						
Arsenic	2	mg/kg	3.7	13	3.3	3.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	23	10	9.7
Copper	5	mg/kg	6.4	5.9	8.0	< 5
Lead	5	mg/kg	33	37	35	13
Mercury	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.5	8.1	5.3	< 5
Zinc	5	mg/kg	50	45	64	18
<b>% Moisture</b>						
% Moisture	1	%	14	16	19	23
<b>% Clay</b>						
% Clay	1	%	-	-	-	6.3
<b>Conductivity (1:5 aqueous extract at 25 °C as rec.)</b>						
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	-	-	-	< 10
<b>pH (1:5 Aqueous extract at 25 °C as rec.)</b>						
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	-	-	-	5.8
<b>Cation Exchange Capacity</b>						
Cation Exchange Capacity	0.05	meq/100g	-	-	-	2.5

Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018811	S22- Au0018812	S22- Au0018813	S22- Au0018814
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons</b>						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
Naphthalene <sup>N02</sup>	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100



Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018811	S22- Au0018812	S22- Au0018813	S22- Au0018814
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons</b>						
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
<b>BTEX</b>						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	93	74	90	99
<b>Polycyclic Aromatic Hydrocarbons</b>						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	104	101	98	104
p-Terphenyl-d14 (surr.)	1	%	111	100	107	100
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018811	S22- Au0018812	S22- Au0018813	S22- Au0018814
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Organochlorine Pesticides</b>						
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	120	101	101	113
Tetrachloro-m-xylene (surr.)	1	%	109	102	109	103
<b>Organophosphorus Pesticides</b>						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	110	107	106	112

Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018811	S22- Au0018812	S22- Au0018813	S22- Au0018814
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>Polychlorinated Biphenyls</b>						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	120	101	101	113
Tetrachloro-m-xylene (surr.)	1	%	109	102	109	103
<b>Phenols (Halogenated)</b>						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
<b>Phenols (non-Halogenated)</b>						
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Nitrophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Total cresols*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	93	85	91	94
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
<b>Heavy Metals</b>						
Arsenic	2	mg/kg	3.6	2.9	3.6	3.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	9.5	13	10
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	12	7.0	11	9.2
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	5.2	< 5
Zinc	5	mg/kg	16	13	19	15
<b>% Moisture</b>						
% Moisture	1	%	18	20	22	20

Client Sample ID			<b>EIL BACKGROUND D</b>	<b>TRIP SPIKE</b>	<b>TRIP BLANK</b>	<b>BD1</b>
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- Au0018815	S22- Au0018816	S22- Au0018817	S22- Au0018819
Date Sampled			Aug 05, 2022	Aug 05, 2022	Aug 05, 2022	Aug 05, 2022
Test/Reference	LOR	Unit				
<b>BTEX</b>						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	96	-
<b>Heavy Metals</b>						
Arsenic	2	mg/kg	5.3	-	-	6.1
Cadmium	0.4	mg/kg	< 0.4	-	-	< 0.4
Chromium	5	mg/kg	12	-	-	14
Copper	5	mg/kg	< 5	-	-	7.6
Lead	5	mg/kg	6.4	-	-	35
Mercury	0.1	mg/kg	< 0.1	-	-	< 0.1
Nickel	5	mg/kg	< 5	-	-	< 5
Zinc	5	mg/kg	7.9	-	-	65
<b>% Moisture</b>						
% Moisture	1	%	15	-	-	19
<b>BTEX</b>						
Benzene	1	%	-	92	-	-
Ethylbenzene	1	%	-	98	-	-
m&p-Xylenes	1	%	-	98	-	-
o-Xylene	1	%	-	99	-	-
Toluene	1	%	-	98	-	-
Xylenes - Total	1	%	-	99	-	-
4-Bromofluorobenzene (surr.)	1	%	-	112	-	-

**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.

<b>Description</b>	<b>Testing Site</b>	<b>Extracted</b>	<b>Holding Time</b>
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Aug 10, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Aug 10, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Aug 10, 2022	14 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Aug 10, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Aug 10, 2022	14 Days
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Aug 10, 2022	14 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Aug 10, 2022	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Aug 10, 2022	28 Days
<b>Eurofins Suite B15</b>			
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Aug 10, 2022	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Aug 10, 2022	14 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Aug 10, 2022	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Aug 09, 2022	14 Days
% Clay - Method: LTM-GEN-7040	Brisbane	Aug 16, 2022	14 Days
pH (1:5 Aqueous extract at 25 °C as rec.) - Method: LTM-GEN-7090 pH by ISE	Sydney	Aug 10, 2022	7 Days
Conductivity (1:5 aqueous extract at 25 °C as rec.) - Method: LTM-INO-4030 Conductivity	Sydney	Aug 10, 2022	7 Days
Cation Exchange Capacity - Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage	Melbourne	Aug 15, 2022	28 Days



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**Company Name:** Geotesta Pty Ltd (NSW)  
**Address:** Unit 6, 20/22 Foundry Road  
 Seven Hills  
 NSW 2147

**Order No.:**  
**Report #:** 912597  
**Phone:** 1300852 216  
**Fax:**
**Received:** Aug 8, 2022 11:10 AM  
**Due:** Aug 15, 2022  
**Priority:** 5 Day  
**Contact Name:** Victor Kirpichnikov (GEOTESTA)

**Project Name:** 131 WOLLAMBI ROAD FARLEY NSW  
**Project ID:** NE1372

**Eurofins Analytical Services Manager : Asim Khan**

Sample Detail						% Clay	Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	BTEX	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
External Laboratory																
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	EBH1	Aug 05, 2022		Soil	S22-Au0018807		X				X	X		X		
2	EBH2	Aug 05, 2022		Soil	S22-Au0018808		X				X	X		X		
3	EBH3	Aug 05, 2022		Soil	S22-Au0018809		X				X	X		X		
4	EBH4	Aug 05, 2022		Soil	S22-Au0018810	X	X	X			X	X	X	X		
5	EBH5	Aug 05, 2022		Soil	S22-Au0018811		X				X	X		X		
6	EBH6	Aug 05, 2022		Soil	S22-Au0018812		X				X	X		X		
7	EBH7	Aug 05, 2022		Soil	S22-Au0018813		X				X	X		X		
8	EBH8	Aug 05, 2022		Soil	S22-Au0018814		X				X	X		X		
9	EIL BACKGROUN D	Aug 05, 2022		Soil	S22-Au0018815					X		X				
10	TRIP SPIKE	Aug 05, 2022		Soil	S22-Au0018816											X

<b>Company Name:</b>	Geotesta Pty Ltd (NSW)	<b>Order No.:</b>		<b>Received:</b>	Aug 8, 2022 11:10 AM
<b>Address:</b>	Unit 6, 20/22 Foundry Road Seven Hills NSW 2147	<b>Report #:</b>	912597	<b>Due:</b>	Aug 15, 2022
		<b>Phone:</b>	1300852 216	<b>Priority:</b>	5 Day
		<b>Fax:</b>		<b>Contact Name:</b>	Victor Kirpichnikov (GEOTESTA)
<b>Project Name:</b>	131 WOLLAMBI ROAD FARLEY NSW				
<b>Project ID:</b>	NE1372				

**Eurofins Analytical Services Manager : Asim Khan**

Sample Detail						% Clay	Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	BTEX	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEX
<b>Melbourne Laboratory - NATA # 1261 Site # 1254</b>														X		
<b>Sydney Laboratory - NATA # 1261 Site # 18217</b>							X	X	X	X	X	X	X	X	X	X
<b>Brisbane Laboratory - NATA # 1261 Site # 20794</b>						X										
11	TRIP BLANK	Aug 05, 2022		Soil	S22-Au0018817						X					
12	BD1	Aug 05, 2022		Soil	S22-Au0018819				X			X				
13	BH1	Aug 05, 2022		Soil	S22-Au0019494			X								
14	BH2	Aug 05, 2022		Soil	S22-Au0019495			X								
15	BH3	Aug 05, 2022		Soil	S22-Au0019496			X								
<b>Test Counts</b>						1	8	3	1	2	1	8	10	1	8	1

## Internal Quality Control Review and Glossary

### General

- 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.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

### Holding Times

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

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

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

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

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

### Units

<b>mg/kg:</b> milligrams per kilogram	<b>mg/L:</b> milligrams per litre	<b>µg/L:</b> micrograms per litre
<b>ppm:</b> parts per million	<b>ppb:</b> parts per billion	<b>%:</b> Percentage
<b>org/100 mL:</b> Organisms per 100 millilitres	<b>NTU:</b> Nephelometric Turbidity Units	<b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres

### Terms

<b>APHA</b>	American Public Health Association
<b>COC</b>	Chain of Custody
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>CRM</b>	Certified Reference Material (ISO17034) - reported as percent recovery.
<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>LOR</b>	Limit of Reporting.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>Method Blank</b>	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.
<b>NCP</b>	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.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>SRA</b>	Sample Receipt Advice
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>TBTO</b>	Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>TEQ</b>	Toxic Equivalency Quotient or Total Equivalence
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.4
<b>US EPA</b>	United States Environmental Protection Agency
<b>WA DWER</b>	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

### QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR: No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

### QC Data General Comments

- 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.
- 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.
- 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.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- 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
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons</b>							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
<b>Method Blank</b>							
<b>BTEX</b>							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
<b>Method Blank</b>							
<b>Polycyclic Aromatic Hydrocarbons</b>							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Total PAH*	mg/kg	-			0.5	N/A	
<b>Method Blank</b>							
<b>Organochlorine Pesticides</b>							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
<b>Method Blank</b>							
<b>Organophosphorus Pesticides</b>							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
<b>Method Blank</b>							
<b>Polychlorinated Biphenyls</b>							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Total PCB*	mg/kg	< 0.1		0.1	Pass	
<b>Method Blank</b>						
<b>Phenols (Halogenated)</b>						
2-Chlorophenol	mg/kg	< 0.5		0.5	Pass	
2,4-Dichlorophenol	mg/kg	< 0.5		0.5	Pass	
2,4,5-Trichlorophenol	mg/kg	< 1		1	Pass	
2,4,6-Trichlorophenol	mg/kg	< 1		1	Pass	
2,6-Dichlorophenol	mg/kg	< 0.5		0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1		1	Pass	
Pentachlorophenol	mg/kg	< 1		1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10		10	Pass	
<b>Method Blank</b>						
<b>Phenols (non-Halogenated)</b>						
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	< 20		20	Pass	
2-Methyl-4,6-dinitrophenol	mg/kg	< 5		5	Pass	
2-Nitrophenol	mg/kg	< 1		1	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5		0.5	Pass	
2,4-Dinitrophenol	mg/kg	< 5		5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2		0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4		0.4	Pass	
4-Nitrophenol	mg/kg	< 5		5	Pass	
Dinoseb	mg/kg	< 20		20	Pass	
Phenol	mg/kg	< 0.5		0.5	Pass	
<b>Method Blank</b>						
<b>Heavy Metals</b>						
Arsenic	mg/kg	< 2		2	Pass	
Cadmium	mg/kg	< 0.4		0.4	Pass	
Chromium	mg/kg	< 5		5	Pass	
Copper	mg/kg	< 5		5	Pass	
Lead	mg/kg	< 5		5	Pass	
Mercury	mg/kg	< 0.1		0.1	Pass	
Nickel	mg/kg	< 5		5	Pass	
Zinc	mg/kg	< 5		5	Pass	
<b>Method Blank</b>						
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10		10	Pass	
<b>Method Blank</b>						
<b>Cation Exchange Capacity</b>						
Cation Exchange Capacity	meq/100g	< 0.05		0.05	Pass	
<b>LCS - % Recovery</b>						
<b>Total Recoverable Hydrocarbons</b>						
TRH C6-C9	%	74		70-130	Pass	
TRH C10-C14	%	104		70-130	Pass	
Naphthalene	%	86		70-130	Pass	
TRH C6-C10	%	78		70-130	Pass	
TRH >C10-C16	%	105		70-130	Pass	
<b>LCS - % Recovery</b>						
<b>BTEX</b>						
Benzene	%	92		70-130	Pass	
Toluene	%	70		70-130	Pass	
Ethylbenzene	%	92		70-130	Pass	
m&p-Xylenes	%	95		70-130	Pass	
o-Xylene	%	90		70-130	Pass	
Xylenes - Total*	%	93		70-130	Pass	
<b>LCS - % Recovery</b>						



Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Organochlorine Pesticides</b>								
Endrin		%	120			70-130	Pass	
<b>LCS - % Recovery</b>								
<b>Polychlorinated Biphenyls</b>								
Aroclor-1016		%	98			70-130	Pass	
Aroclor-1260		%	89			70-130	Pass	
<b>LCS - % Recovery</b>								
<b>Phenols (Halogenated)</b>								
2-Chlorophenol		%	93			25-140	Pass	
2,4-Dichlorophenol		%	101			25-140	Pass	
2,4,5-Trichlorophenol		%	90			25-140	Pass	
2,4,6-Trichlorophenol		%	95			25-140	Pass	
2,6-Dichlorophenol		%	99			25-140	Pass	
4-Chloro-3-methylphenol		%	85			25-140	Pass	
Pentachlorophenol		%	84			25-140	Pass	
Tetrachlorophenols - Total		%	85			25-140	Pass	
<b>LCS - % Recovery</b>								
<b>Phenols (non-Halogenated)</b>								
2-Cyclohexyl-4,6-dinitrophenol		%	72			25-140	Pass	
2-Methyl-4,6-dinitrophenol		%	116			25-140	Pass	
2,4-Dimethylphenol		%	97			25-140	Pass	
2,4-Dinitrophenol		%	98			25-140	Pass	
2-Methylphenol (o-Cresol)		%	90			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)		%	92			25-140	Pass	
4-Nitrophenol		%	99			25-140	Pass	
Dinoseb		%	101			25-140	Pass	
Phenol		%	78			25-140	Pass	
<b>LCS - % Recovery</b>								
<b>Heavy Metals</b>								
Arsenic		%	111			80-120	Pass	
Cadmium		%	106			80-120	Pass	
Chromium		%	99			80-120	Pass	
Copper		%	97			80-120	Pass	
Lead		%	105			80-120	Pass	
Mercury		%	102			80-120	Pass	
Nickel		%	99			80-120	Pass	
Zinc		%	97			80-120	Pass	
<b>LCS - % Recovery</b>								
Conductivity (1:5 aqueous extract at 25 °C as rec.)		%	84			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
<b>Spike - % Recovery</b>								
<b>Total Recoverable Hydrocarbons</b>				Result 1				
TRH C6-C9	S22-Au0018789	NCP	%	74		70-130	Pass	
TRH C10-C14	S22-Au0023921	NCP	%	95		70-130	Pass	
Naphthalene	S22-Au0018789	NCP	%	89		70-130	Pass	
TRH C6-C10	S22-Au0018789	NCP	%	77		70-130	Pass	
TRH >C10-C16	S22-Au0023921	NCP	%	97		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>BTEX</b>				Result 1				
Benzene	S22-Au0018789	NCP	%	94		70-130	Pass	
Toluene	S22-Au0018789	NCP	%	72		70-130	Pass	
Ethylbenzene	S22-Au0018789	NCP	%	100		70-130	Pass	
m&p-Xylenes	S22-Au0018789	NCP	%	104		70-130	Pass	
o-Xylene	S22-Au0018789	NCP	%	98		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total*	S22-Au0018789	NCP	%	102		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Polycyclic Aromatic Hydrocarbons</b>				Result 1				
Acenaphthene	N22-Au0015916	NCP	%	103		70-130	Pass	
Acenaphthylene	N22-Au0015916	NCP	%	101		70-130	Pass	
Anthracene	N22-Au0015916	NCP	%	114		70-130	Pass	
Benz(a)anthracene	N22-Au0015916	NCP	%	124		70-130	Pass	
Benzo(a)pyrene	N22-Au0015916	NCP	%	114		70-130	Pass	
Benzo(b&i)fluoranthene	N22-Au0015916	NCP	%	108		70-130	Pass	
Benzo(g,h,i)perylene	N22-Au0015916	NCP	%	102		70-130	Pass	
Benzo(k)fluoranthene	N22-Au0015916	NCP	%	115		70-130	Pass	
Chrysene	N22-Au0015916	NCP	%	107		70-130	Pass	
Dibenz(a,h)anthracene	N22-Au0015916	NCP	%	124		70-130	Pass	
Fluoranthene	N22-Au0015916	NCP	%	123		70-130	Pass	
Fluorene	N22-Au0015916	NCP	%	107		70-130	Pass	
Indeno(1,2,3-cd)pyrene	N22-Au0015916	NCP	%	109		70-130	Pass	
Naphthalene	N22-Au0015916	NCP	%	105		70-130	Pass	
Phenanthrene	N22-Au0015916	NCP	%	121		70-130	Pass	
Pyrene	N22-Au0015916	NCP	%	118		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Organochlorine Pesticides</b>				Result 1				
Chlordanes - Total	N22-Au0015916	NCP	%	101		70-130	Pass	
4,4'-DDD	N22-Au0015916	NCP	%	110		70-130	Pass	
4,4'-DDE	N22-Au0015916	NCP	%	101		70-130	Pass	
4,4'-DDT	N22-Au0015916	NCP	%	90		70-130	Pass	
a-HCH	N22-Au0015916	NCP	%	93		70-130	Pass	
Aldrin	N22-Au0015916	NCP	%	90		70-130	Pass	
b-HCH	N22-Au0015916	NCP	%	92		70-130	Pass	
d-HCH	N22-Au0015916	NCP	%	90		70-130	Pass	
Dieldrin	N22-Au0015916	NCP	%	98		70-130	Pass	
Endosulfan I	N22-Au0015916	NCP	%	100		70-130	Pass	
Endosulfan II	N22-Au0015916	NCP	%	92		70-130	Pass	
Endosulfan sulphate	N22-Au0015916	NCP	%	80		70-130	Pass	
Endrin	N22-Au0015916	NCP	%	110		70-130	Pass	
Endrin aldehyde	N22-Au0015916	NCP	%	78		70-130	Pass	
Endrin ketone	N22-Au0015916	NCP	%	95		70-130	Pass	
g-HCH (Lindane)	N22-Au0015916	NCP	%	97		70-130	Pass	
Heptachlor	N22-Au0015916	NCP	%	98		70-130	Pass	
Heptachlor epoxide	N22-Au0015916	NCP	%	103		70-130	Pass	
Hexachlorobenzene	N22-Au0015916	NCP	%	97		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Organophosphorus Pesticides</b>				Result 1				
Diazinon	N22-Au0015916	NCP	%	91		70-130	Pass	
Dimethoate	N22-Au0015916	NCP	%	81		70-130	Pass	
Ethion	N22-Au0015916	NCP	%	119		70-130	Pass	
Fenitrothion	N22-Au0015916	NCP	%	127		70-130	Pass	
Mevinphos	N22-Au0015916	NCP	%	98		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Polychlorinated Biphenyls</b>				Result 1				
Aroclor-1016	N22-Au0015916	NCP	%	82		70-130	Pass	
<b>Spike - % Recovery</b>								
<b>Heavy Metals</b>				Result 1				
Arsenic	S22-Au0018811	CP	%	107		75-125	Pass	
Cadmium	S22-Au0018811	CP	%	100		75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium	S22-Au0018811	CP	%	97			75-125	Pass	
Copper	S22-Au0018811	CP	%	89			75-125	Pass	
Lead	S22-Au0018811	CP	%	107			75-125	Pass	
Mercury	S22-Au0018811	CP	%	96			75-125	Pass	
Nickel	S22-Au0018811	CP	%	90			75-125	Pass	
Zinc	S22-Au0018811	CP	%	95			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons</b>				Result 1	Result 2	RPD			
TRH C6-C9	N22-Au0019075	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Au0020648	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Au0020648	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-Au0020648	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	N22-Au0019075	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	N22-Au0019075	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-Au0020648	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Au0020648	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Au0020648	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
<b>Duplicate</b>									
<b>BTEX</b>				Result 1	Result 2	RPD			
Benzene	N22-Au0019075	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N22-Au0019075	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N22-Au0019075	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N22-Au0019075	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N22-Au0019075	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	N22-Au0019075	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
<b>Duplicate</b>									
<b>Polycyclic Aromatic Hydrocarbons</b>				Result 1	Result 2	RPD			
Acenaphthene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
<b>Duplicate</b>									
<b>Organochlorine Pesticides</b>				Result 1	Result 2	RPD			
Chlordanes - Total	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Dieldrin	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-HCH (Lindane)	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-Au0017405	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S22-Au0017405	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S22-Au0017405	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S22-Au0017405	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Duplicate								
<b>Polychlorinated Biphenyls</b>				Result 1	Result 2	RPD		
Aroclor-1016	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1248	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	S22-Au0017405	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
<b>Phenols (Halogenated)</b>				Result 1	Result 2	RPD		
2-Chlorophenol	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dichlorophenol	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-Trichlorophenol	S22-Au0017405	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2,4,6-Trichlorophenol	S22-Au0017405	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2,6-Dichlorophenol	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Chloro-3-methylphenol	S22-Au0017405	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Pentachlorophenol	S22-Au0017405	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Tetrachlorophenols - Total	S22-Au0017405	NCP	mg/kg	< 10	< 10	<1	30%	Pass
Duplicate								
<b>Phenols (non-Halogenated)</b>				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	S22-Au0017405	NCP	mg/kg	< 20	< 20	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	S22-Au0017405	NCP	mg/kg	< 5	< 5	<1	30%	Pass
2-Nitrophenol	S22-Au0017405	NCP	mg/kg	< 1	< 1	<1	30%	Pass
2,4-Dimethylphenol	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dinitrophenol	S22-Au0017405	NCP	mg/kg	< 5	< 5	<1	30%	Pass
2-Methylphenol (o-Cresol)	S22-Au0017405	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	S22-Au0017405	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
4-Nitrophenol	S22-Au0017405	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Dinoseb	S22-Au0017405	NCP	mg/kg	< 20	< 20	<1	30%	Pass
Phenol	S22-Au0017405	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S22-Au0016296	NCP	%	31	30	2.6	30%	Pass
Duplicate								
<b>Heavy Metals</b>				Result 1	Result 2	RPD		
Arsenic	S22-Au0018810	CP	mg/kg	3.2	2.9	8.4	30%	Pass
Cadmium	S22-Au0018810	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S22-Au0018810	CP	mg/kg	9.7	10	4.3	30%	Pass
Copper	S22-Au0018810	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	S22-Au0018810	CP	mg/kg	13	14	11	30%	Pass
Mercury	S22-Au0018810	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S22-Au0018810	CP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S22-Au0018810	CP	mg/kg	18	20	9.3	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Conductivity (1:5 aqueous extract at 25 °C as rec.)	N22-Au0021181	NCP	uS/cm	50	43	15	30%	Pass
pH (1:5 Aqueous extract at 25 °C as rec.)	N22-Au0021181	NCP	pH Units	6.4	6.5	<1	30%	Pass
Duplicate								
<b>Cation Exchange Capacity</b>				Result 1	Result 2	RPD		
Cation Exchange Capacity	S22-Au0020446	NCP	meq/100g	10	10	1.3	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Cadmium	S22-Au0018819	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S22-Au0018819	CP	mg/kg	14	13	7.1	30%	Pass
Copper	S22-Au0018819	CP	mg/kg	7.6	7.5	1.5	30%	Pass
Lead	S22-Au0018819	CP	mg/kg	35	31	10	30%	Pass
Mercury	S22-Au0018819	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass



**Comments**
**Sample Integrity**

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

**Qualifier Codes/Comments**

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

**Authorised by:**

Asim Khan	Analytical Services Manager
Dilani Samarakoon	Senior Analyst-Inorganic
Gabriele Cordero	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Ryan Phillips	Senior Analyst-Inorganic
Sayeed Abu	Senior Analyst-Asbestos



**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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**Geotesta Pty Ltd (NSW)**  
**Unit 6, 20/22 Foundry Road**  
**Seven Hills**  
**NSW 2147**



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

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:** Victor Kirpichnikov (GEOTESTA)  
**Report** 912597-AID  
**Project Name** 131 WOLLAMBI ROAD FARLEY NSW  
**Project ID** NE1372  
**Received Date** Aug 08, 2022  
**Date Reported** Aug 17, 2022

### Methodology:

Asbestos Fibre  
 Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.

*NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*

Unknown Mineral  
 Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

*NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*

Subsampling Soil  
 Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.

*NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*

Bonded asbestos-  
 containing material  
 (ACM)

The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

*NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).

The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).

*NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

**Project Name** 131 WOLLAMBI ROAD FARLEY NSW  
**Project ID** NE1372  
**Date Sampled** Aug 05, 2022  
**Report** 912597-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
EBH1	22-Au0018807	Aug 05, 2022	Approximate Sample 502g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH2	22-Au0018808	Aug 05, 2022	Approximate Sample 517g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH3	22-Au0018809	Aug 05, 2022	Approximate Sample 459g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH4	22-Au0018810	Aug 05, 2022	Approximate Sample 471g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH5	22-Au0018811	Aug 05, 2022	Approximate Sample 424g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH6	22-Au0018812	Aug 05, 2022	Approximate Sample 432g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH7	22-Au0018813	Aug 05, 2022	Approximate Sample 411g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH8	22-Au0018814	Aug 05, 2022	Approximate Sample 473g Sample consisted of: Dark brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

**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.

<b>Description</b>	<b>Testing Site</b>	<b>Extracted</b>	<b>Holding Time</b>
Asbestos - LTM-ASB-8020	Sydney	Aug 09, 2022	Indefinite

<b>Company Name:</b>	Geotesta Pty Ltd (NSW)	<b>Order No.:</b>		<b>Received:</b>	Aug 8, 2022 11:10 AM
<b>Address:</b>	Unit 6, 20/22 Foundry Road Seven Hills NSW 2147	<b>Report #:</b>	912597	<b>Due:</b>	Aug 15, 2022
		<b>Phone:</b>	1300852 216	<b>Priority:</b>	5 Day
		<b>Fax:</b>		<b>Contact Name:</b>	Victor Kirpichnikov (GEOTESTA)
<b>Project Name:</b>	131 WOLLAMBI ROAD FARLEY NSW				
<b>Project ID:</b>	NE1372				

**Eurofins Analytical Services Manager : Asim Khan**

Sample Detail						% Clay	Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	BTEX	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEX
<b>Melbourne Laboratory - NATA # 1261 Site # 1254</b>														X		
<b>Sydney Laboratory - NATA # 1261 Site # 18217</b>							X	X	X	X	X	X	X	X	X	X
<b>Brisbane Laboratory - NATA # 1261 Site # 20794</b>						X										
<b>External Laboratory</b>																
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	EBH1	Aug 05, 2022		Soil	S22-Au0018807		X				X	X		X		
2	EBH2	Aug 05, 2022		Soil	S22-Au0018808		X				X	X		X		
3	EBH3	Aug 05, 2022		Soil	S22-Au0018809		X				X	X		X		
4	EBH4	Aug 05, 2022		Soil	S22-Au0018810	X	X	X			X	X	X	X		
5	EBH5	Aug 05, 2022		Soil	S22-Au0018811		X				X	X		X		
6	EBH6	Aug 05, 2022		Soil	S22-Au0018812		X				X	X		X		
7	EBH7	Aug 05, 2022		Soil	S22-Au0018813		X				X	X		X		
8	EBH8	Aug 05, 2022		Soil	S22-Au0018814		X				X	X		X		
9	EIL BACKGROUND	Aug 05, 2022		Soil	S22-Au0018815					X		X				
10	TRIP SPIKE	Aug 05, 2022		Soil	S22-Au0018816											X

**Company Name:** Geotesta Pty Ltd (NSW)  
**Address:** Unit 6, 20/22 Foundry Road  
Seven Hills  
NSW 2147

**Project Name:** 131 WOLLAMBI ROAD FARLEY NSW  
**Project ID:** NE1372

**Order No.:**  
**Report #:** 912597  
**Phone:** 1300852 216  
**Fax:**

**Received:** Aug 8, 2022 11:10 AM  
**Due:** Aug 15, 2022  
**Priority:** 5 Day  
**Contact Name:** Victor Kirpichnikov (GEOTESTA)

**Eurofins Analytical Services Manager : Asim Khan**

Sample Detail						% Clay	Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Metals M8	BTEX	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEX
<b>Melbourne Laboratory - NATA # 1261 Site # 1254</b>														X		
<b>Sydney Laboratory - NATA # 1261 Site # 18217</b>							X	X	X	X	X	X	X	X	X	X
<b>Brisbane Laboratory - NATA # 1261 Site # 20794</b>						X										
11	TRIP BLANK	Aug 05, 2022		Soil	S22-Au0018817						X					
12	BD1	Aug 05, 2022		Soil	S22-Au0018819				X			X				
13	BH1	Aug 05, 2022		Soil	S22-Au0019494			X								
14	BH2	Aug 05, 2022		Soil	S22-Au0019495			X								
15	BH3	Aug 05, 2022		Soil	S22-Au0019496			X								
<b>Test Counts</b>						1	8	3	1	2	1	8	10	1	8	1



## Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

## Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).

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.

## Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples ( <b>% w/w</b> )
F/fld	Airborne fibre filter loading as Fibres ( <b>N</b> ) per Fields counted ( <b>n</b> )
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane ( <b>C</b> )
g, kg	Mass, e.g. of whole sample ( <b>M</b> ) or asbestos-containing find within the sample ( <b>m</b> )
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM ( <b>V = r x t</b> )
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane ( <b>r</b> )
min	Time ( <b>t</b> ), e.g. of air sample collection period

## Calculations

Airborne Fibre Concentration: 
$$C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right) \times \left(\frac{1}{r}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$$

Asbestos Content (as asbestos): 
$$\% w/w = \frac{(m \times P_A)}{M}$$

Weighted Average (of asbestos): 
$$\%_{WA} = \frac{\sum (m \times P_A) \times x}{x}$$

## Terms

<b>%asbestos</b>	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 <i>Appendix 2</i> , else assumed to be 15% in accordance with WA DOH <i>Appendix 2 (PA)</i> .
<b>ACM</b>	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
<b>AF</b>	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
<b>AFM</b>	Airborne Fibre Monitoring, e.g. by the MFM.
<b>Amosite</b>	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
<b>AS</b>	Australian Standard.
<b>Asbestos Content (as asbestos)</b>	Total % w/w asbestos content in asbestos-containing finds in a soil sample ( <b>% w/w</b> ).
<b>Chrysotile</b>	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
<b>COC</b>	Chain of Custody.
<b>Crocidolite</b>	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
<b>Dry</b>	Sample is dried by heating prior to analysis.
<b>DS</b>	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
<b>FA</b>	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
<b>Fibre Count</b>	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
<b>Fibre ID</b>	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
<b>Friable</b>	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
<b>HSG248</b>	UK HSE HSG248, <i>Asbestos: The Analysts Guide</i> , 2nd Edition (2021).
<b>HSG264</b>	UK HSE HSG264, <i>Asbestos: The Survey Guide</i> (2012).
<b>ISO (also ISO/IEC)</b>	International Organization for Standardization / International Electrotechnical Commission.
<b>K Factor</b>	Microscope constant ( <b>K</b> ) as derived from the effective filter area of the given AFM membrane used for collecting the sample ( <b>A</b> ) and the projected eyepiece graticule area of the specific microscope used for the analysis ( <b>a</b> ).
<b>LOR</b>	Limit of Reporting.
<b>MFM (also NOHSC:3003)</b>	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, <i>Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres</i> , 2nd Edition [NOHSC:3003(2005)].
<b>NEPM (also ASC NEPM)</b>	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
<b>Organic</b>	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
<b>PCM</b>	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
<b>PLM</b>	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
<b>SMF</b>	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
<b>SRA</b>	Sample Receipt Advice.
<b>Trace Analysis</b>	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
<b>UK HSE HSG</b>	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
<b>UMF</b>	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according to the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
<b>WA DOH</b>	Reference document for the NEPM. Government of Western Australia, <i>Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia</i> (updated 2021), including Appendix Four: <i>Laboratory analysis</i>
<b>Weighted Average</b>	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample ( <b>%<sub>WA</sub></b> ).

**Comments**

22-Au0018809 to 22-Au0018814: Samples received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

**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

**Asbestos Counter/Identifier:**

Laxman Dias                      Senior Analyst-Asbestos

**Authorised by:**

Sayed Abu                         Senior Analyst-Asbestos



**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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