



# Preliminary Site Investigation

Bolgers Pit –  
809 Oakey Creek Road,  
Piallaway NSW 2342

Report prepared for – Gunnedah Shire Council

1 December 2022  
BPE22110-R01



## Quality information

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| Date               | 10 November 2022                                                                       |
| Report Authors     | Joel Parkin & Andrew Ballard                                                           |
| Technical Reviewer | Andrew Ballard –<br>Principal Environmental Scientist<br>CEnvP                         |



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1 December 2022

Our ref: BPE22110-R01

Gunnedah Shire Council  
63 Elgin Street,  
Gunnedah NSW 2380



Attention: Grant Roberts – Manager Engineering Services

Dear Grant,

**RE: Preliminary Site Investigation – Bolgers Pit, 809 Oakey Creek Road, Piallaway NSW**

Ballpark Environmental Pty Ltd is pleased to present the Preliminary Site Investigation (PSI) prepared for the proposed quarry expansion on part of Lot 139 DP751012, 809 Oakey Creek Road, Piallaway NSW 2342, the site.

This report details the findings from the PSI, including a site history review and site walkover of the existing Bolgers Pit and the proposed expansion area to the north of the pit.

I trust that this report meets with your requirements. If you require further information or assistance, please do not hesitate to contact us on (02) 6658 0585.

For and on behalf of Ballpark Environmental Pty Ltd

**Andrew Ballard**  
Principal Environmental Scientist  
Certified Environmental Practitioner

**Joel Parkin**  
Associate Environmental Engineer



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## Executive Summary

Gunnedah Shire Council is seeking approval for an expansion of the quarry operations to extract and process up to 40,000 tonnes per annum of quarry material from Bolgers Pit.

Ballpark Environmental Pty Ltd was engaged to undertake a preliminary site investigation (PSI) for potential site contamination associated with quarrying at this site located on part of Lot 139 DP751012, 809 Oakey Creek Road, Piallaway NSW 2342, the site, see Figure 1.

The objective of the PSI was to identify past or present potentially contaminating activities performed at this site, provide a preliminary assessment of site contamination and, if required, provide a basis for a more Detailed Site Investigation (DSI).

Based on the site history information and site walkover observations we conclude that:

- Site disturbance from current quarry activities is visible in the 2002 aerial photograph. Prior to this date the historical aerial photographs show areas of minor ground disturbance has been present since 1974.
- No buildings or structures were constructed on this site and therefore it is unlikely that waste building materials, including asbestos, are present on this site.
- Observations made during the site walkover found that previous poor waste disposal practices have resulted in the partial burial of inert waste, including scrap metal on the southern margins of the quarry pit.
- A review of the initial Conceptual Site Model (CSM) prepared for this PSI found no areas of environmental concern have been identified on this site.

Therefore, it is recommended:

1. **Inert waste** – waste materials are collected and removed from this site for recycling (e.g., scrap metal) or to an appropriate NSW EPA licensed waste facility which can accept this waste.
2. **Unexpected Finds Protocol** – An unexpected finds protocol should be included as part of the quarry Environment Management Plan or as a stand-alone document in the event that potentially contaminated material or buried unexpected finds, are encountered during future quarry expansion earthworks on this site.

In consideration of the results from this PSI we conclude that this site on part of Lot 139 DP751012, 809 Oakey Creek Road, Piallaway, has an acceptable low level of risk for site contamination and is suitable for its proposed ongoing industrial use as a quarry.

The site is assessed to be suitable for its ongoing industrial use, in accordance with Chapter 4 of the Resilience and Hazards SEPP (2021).

## 1. Introduction

Ballpark Environmental Pty Ltd was engaged by Gunnedah Shire Council (Council) to undertake a preliminary site investigation (PSI) for the proposed increase in the size and extraction area of the existing quarry known as Bolgers Pit located on part of Lot 139 DP751012, 809 Oakey Creek Road, Piallaway NSW 2342, the site.

We understand that Council is currently seeking approval for an expansion of the quarry operation to extract and process up to 40,000 tonnes per annum of quarry material from this site. The proposed quarry expansion is a designated development under s.4.10 of the *Environmental Planning and Assessment Act 1979* and shall require the preparation of an Environmental Impact Statement (EIS).

This PSI has been undertaken to assess potential contamination issues present at this site and its findings will inform the preparation of the EIS to be prepared for this project.

The PSI was undertaken in general accordance with the proposal prepared by Ballpark Environmental (Ref: BPE22110-P02, dated 21 September 2022).

## 2. Objective and Scope of Works

The objective of the PSI was to identify past or present potentially contaminating activities performed at this site, provide a preliminary assessment of site contamination and, if required, provide a basis for a more Detailed Site Investigation (DSI).

The scope of works carried out to meet the above objective is summarised below.

- Desktop site history review was undertaken to establish the history of past uses on the site, including what buildings or potentially contaminating activities may have been present and which included:
  - o Review of local geology, hydrogeology, topography, and acid sulfate soil risk maps.
  - o Review of historical aerial imagery to assess changes in land use or activities on the site over time.
  - o Review of registered groundwater bore information held in public registers.
  - o Review of contaminated land records held by the NSW Environment Protection Authority.
- A site visit and walkover were undertaken to collect background information on past activities and previous use of the site.
- Preparation of the PSI report to assess potential risk to human health or the environment and if soil contamination was likely to be present and if a more detailed site investigation was recommended for this site.

The following sections of this PSI report presents the information collected and findings for the site.

### 3. Site Identification

#### 3.1. Site Details

The site location and site layout are shown on Figure 1. The site identification details are summarised in Table 1.

**Table 1:** Summary of Site Details

| Detail                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site Address</b>         | 809 Oakey Creek Road, Piallaway NSW 2342, (see Figure 1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Lot / DP</b>             | Lot 139 DP751012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Easting / Northing</b>   | 56 J 266714 m E 6553706 m S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Size (Ha)</b>            | ~3.9 ha (see Figure 1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Zoning</b>               | <p>RU1 – Primary Production, objectives of RU1 zone are:</p> <ul style="list-style-type: none"> <li>• To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.</li> <li>• To encourage diversity in primary industry enterprises and systems appropriate for the area.</li> <li>• To minimise the fragmentation and alienation of resource lands.</li> <li>• To minimise conflict between land uses within this zone and land uses within adjoining zones.</li> <li>• To provide for a range of ecologically sustainable agricultural and rural land uses and development on broad acre rural lands.</li> <li>• To protect significant agricultural resources (soil, water, and vegetation) in recognition of their value to Gunnedah's longer term economic sustainability.</li> <li>• To conserve and enhance the quality of valuable environmental assets, including waterways, riparian land, wetlands and other surface and groundwater resources, remnant native vegetation and fauna movement corridors as part of all new development and land use.</li> </ul> <p>Source: Gunnedah LEP 2012</p> |
| <b>Site Land Use</b>        | The majority of the site has an existing quarry pit which is currently in production. The remaining areas of Lot 31 were a mix of farm/ agriculture and bushland.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Surrounding Land Use</b> | <p><b>North</b>, semi dense bushland and rural cropping/ grazing land.</p> <p><b>East</b>, mix of semi dense bushland and rural grazing land within the remaining areas of Lot 139.</p> <p><b>South</b>, mix of rural grazing and cropping. A farm residence is located to the southwest of the site.</p> <p><b>West</b>, mix of rural grazing/ cropping land.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Sensitive Receptors</b>  | Figtree Creek is located ~580m to the north of the quarry.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## 4. Environmental Settings

### 4.1. Topography & Hydrology

Topographically the site is in an area of undulating to rolling hills and mountain side slopes with extremely complex geology and soils. The site itself is located on the southwest mid to lower slopes of a hill.

Bolgers Pit has had earthworks undertaken to construct surface water divergent earthen bunds on the upgradient northern and eastern sides of both the site boundary and quarry pit, see photographs 4 & 7.

All runoff within the pit was directed to the south into the lowest point, which acts as a sump collecting and storing runoff, see photograph 5. At the time of our walkover there was minor surface water observed flowing into the southern portion of the pit.

Figtree Creek is the closest permanent waterway and is located upgradient to the north (~ 580m) of the pit. Drainage within the quarry pit was directed to the lowest point in the southwest. Drainage of other areas within the site outside of the existing quarry pit followed the constructed earthen bunds to the south towards the low-lying areas of the remaining Lot 139.

Site topography is depicted on map 1.5, refer to Appendix A.

### 4.2. Geology

The site geology is extremely complex with various formations mapped overlapping including Merlewood formations, Werrie Basalt, and colluvial and residual deposits. No mapped occurrences of acid sulfate soils (ASS) are within the site and ASS are very unlikely to be present on the site.

Geology mapping is presented in map 1.5, refer to Appendix A.

### 4.3. Hydrogeology and Groundwater Use

The hydrogeologic unit for the site consisted of Paleozoic and Pre-Cambrian fractured rock aquifers (low permeability). The hydrogeology within the site comprises of fractured or fissured aquifer systems with low to moderate productivity.

A search of the NSW Department of Primary Industries – Office of State Water records identified 5 licensed groundwater bore within 1km of the site. Details for these groundwater bores are presented below in Table 2 and the location of these bores, relative to the site, is presented as map 2.1 Appendix A.

**Table 2:** Licensed Groundwater Bores

| Bore ID  | Authorised purpose | Distance (m) | Direction | Drilled Depth (m) | SWL (m bgs) |
|----------|--------------------|--------------|-----------|-------------------|-------------|
| GW029958 | Household          | 67.9         | SW        | 56.4              | -           |
| GW064563 | Household          | 495          | N         | 46.9              | 8.9         |
| GW023731 | Household          | 543.7        | N         | 17.7              | 12.2        |

| Bore ID  | Authorised purpose | Distance (m) | Direction | Drilled Depth (m) | SWL (m bgs) |
|----------|--------------------|--------------|-----------|-------------------|-------------|
| GW054789 | Unknown            | 627.3        | SW        | 54.9              | -           |
| GW010465 | Household          | 674.7        | N         | 35.1              | 19.2        |

**Notes:**

SW - southwest

N - north

SWL – standing water level

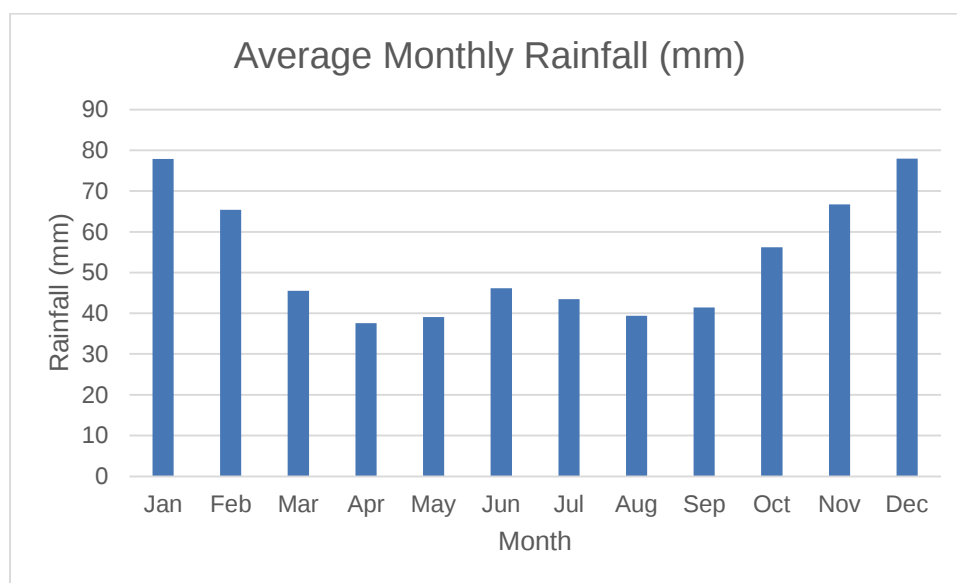
m - metres

bgs – below ground surface

#### 4.4. Climate and Rainfall

The Bolgers Pit site is located on the northwest tableland's region in the Gunnedah local government area, approximately 400km northwest of Sydney. A review of available Bureau of Meteorology (BoM) data shows that the site location is in temperate zone characterised by warm summers and cool dry winters.

The local daily rainfall data records for the site were based on the nearby (~4km) BoM station at Breeza (Station 055065), with the long-term average rainfall data tabulating shown below in Plot 1. Breeza has an annual average rainfall of ~640mm.



**Plot 1.** Summary of the long-term average rainfall at Breeza (BOM Station #055065)

## 5. Site History

### 5.1. NSW EPA Notices

A review of the NSW EPA Contaminated Land Record database revealed that no notices had been issued for the site under the *Environmentally Hazardous Chemicals Act (1985)* or the *Contaminated Land Management Act (1997)* (CLM).

A search of the public register under section 308 of the *Protection of the Environment Operations Act (1997)* (POEO) found no licences, applications or notices for this area.

A review of the licences, approvals and assessments identified no notices for the site or within the 1km buffer area of the site.

Search records are provided in sections 3.1 and 3.2 of the environ-screen report provided in Appendix A.

## 5.2. Aerial photography

Selected publicly available historical aerial photography dating back to 1976 was reviewed for this site, see Appendix A. A summary of the aerial photography review is provided in Table 3.

All historical aerial images are presented in Appendix A with the findings of the review summarised in Table 3 below.

**Table 3:** Summary of available Aerial Photographs

| Year of Photo | Site                                                                                                                                                                                                                                                                                                                                 | Surrounding Area                                                                                                                                                                                                                    |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1976          | <p>No structures visible within the site. There appears to have been minor quarrying in the central portion of the site, with ground disturbance visible in the photograph.</p> <p>The remaining areas of the site appear to be predominately cleared grazing land with scattered trees most dense in the northeast of the site.</p> | <p>Cleared grazing land surrounds the site, with patches of trees and semi dense bushland to the northeast of the site.</p> <p>There is a residence and associated farm sheds beyond grazing land to the southwest of the site.</p> |
| 1984          | <p>No significant changes from the 1976 imagery.</p>                                                                                                                                                                                                                                                                                 | <p>Grazing land to the far south, west and north appears to be rural cropping.</p> <p>No other significant changes to surrounding landuse from the 1976 imagery.</p>                                                                |
| 1989          | <p>The area of previous minor quarrying in the central portion of the site appears to have ceased.</p> <p>The tree cover along the eastern boundary of the site is denser in cover.</p>                                                                                                                                              | <p>The bushland to the northeast and east bordering the site appears denser in cover.</p> <p>No other significant changes to surrounding landuse from the 1984 imagery.</p>                                                         |

| Year of Photo | Site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Surrounding Area                                                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1998          | No significant changes from the 1989 imagery.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The adjoining property to the west appears to have rural cropping in the paddocks. The bushland bordering the site to the northeast, east and southeast is denser in cover.</p> <p>No significant changes to surrounding landuse from the 1989 imagery.</p> |
| 2002          | <p>The quarry pit has resumed operations and has extended south and north from the smaller central area visible in the earlier photographs. A battered quarry face is visible in the southeast portion of the pit.</p> <p>Minor clearing of bushland in the south of the site for quarry expansion. There is a defined access track to the quarry pit along the western boundary of the site.</p>                                                                                                                                                                                                       | <p>A new access road to the quarry is visible from Oakey Creek Road to the northwest and into the quarry.</p> <p>No other significant changes to surrounding landuse from the 1998 imagery.</p>                                                                |
| 2014          | The quarry pit has increased significantly in size extending to the east and north from the 2002 aerial imagery. A defined vertical quarry face is visible along the eastern side of the pit. No visible built structures are present within the site.                                                                                                                                                                                                                                                                                                                                                  | No significant changes to surrounding landuse from the 2002 imagery.                                                                                                                                                                                           |
| 2022          | <p>The quarry pit has increased marginally in size to the north from the 2014 aerial imagery. The pit appears to have increased significantly in depth; through the northern portion of the pit. The vertical pit face is well defined along the eastern boundary of the site.</p> <p>There has been grubbing earthworks to the north and east of the pit to construct earthen surface water divergent bunds on both the site boundary and eastern and northern edges of the quarry pit.</p> <p>An additional access track into the quarry has been constructed in the northwest corner of the pit.</p> | No significant changes to surrounding landuse from the 2014 imagery.                                                                                                                                                                                           |

### 5.3. Interviews

During our site visit there were no quarrying operations underway at this site and no long-term or previous employees with knowledge of past operations at Bolgers Pit available for interview.

## 6. Site Walkover Observations

A site walkover was completed by Andrew Ballard & Joel Parkin, Ballpark Environmental, on the afternoon of Tuesday 29 November 2022, see Table 4 for site walkover photographs.

The site was observed to include the following features:

- No buildings or other structures were present within the site, see photograph 1.
- No quarrying activities were underway at the time of the site walkover and no machinery was present onsite. A stockpile of processed gravel material was present in the southern portion of the pit, see photograph 3.
- An earth bund has been constructed to the east above the pit and directs surface runoff away from the pit to the south, see photograph 4. Drainage within the quarry pit appears to be directed towards the southwest and a small sump, see photograph 5.
- Beyond the quarry pit to the southwest there are several farm buildings and a residence beyond, see photograph 6.
- Vegetation clearing has occurred to the north and northeast of the quarry, see photograph 7.
- Inert waste (lid of plastic drum) was visible on the ground surface near the northwest entry to the quarry, see photograph 8. Inert waste (scrap metal) was observed partially buried in an earthen bund to the south of the quarry pit, see photograph 9. No visible signs or indicators of contamination, such as oil staining, were observed during the walkover.

**Table 4:** Site Walkover Photographs

Site Photographs



**Photograph 1**, shows the existing Bolgers Pit and the extraction area in the north of the pit, left side of photograph, and current stockpile of crushed gravel material on southern base of the pit.

## Site Photographs



**Photograph 2**, shows the view of the quarry from the entrance gate adjacent to Oakey Creek Road, viewed towards the east.



**Photograph 3**, shows view inside the quarry pit, viewed towards the north.

## Site Photographs



**Photograph 4**, shows the cleared eastern side of the quarry viewed towards the north. An earthen bund wall has been constructed to divert runoff water away from the quarry pit to the south.



**Photograph 5**, shows small diversion sump which has been excavated in the southwest corner of the quarry, viewed towards the south.

## Site Photographs



**Photograph 6**, shows the quarry pit and proximity to the nearest farm sheds and residence in the background that are about 400m to the southwest.



**Photograph 7**, shows the cleared northern side of the quarry and two earthen bund walls, viewed towards the west.

## Site Photographs



**Photograph 8**, shows inert waste (plastic drum top) observed near the northwest entry to the quarry pit.



**Photograph 9**, shows inert waste (scrap metal) partially buried on earthen bund to south of the quarry.

## 7. Integrity assessment of site history data

The following sources of data were relied upon for this assessment:

- Public registers maintained by the NSW EPA and NSW Department of Planning & Environment;
- Publicly available aerial photography imagery;
- Groundwater bore information maintained by Water NSW;
- Geological and topographical mappings provided by various government departments; and
- Observations made during site walkover.

The historical data assessed was found to be generally adequate, reliable, and suitable, with regard to the PSI assessment objective.

## 8. Conceptual Site Model

A conceptual site model (CSM) is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors and is based on each of the elements defined in the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended April 2013)*, ASC NEPM (NEPC 2013).

Based on the findings of the site history review the known or suspected potential sources of soil contamination on this site include:

- Contamination from historical activities associated with the development and operation of the quarry pit, including the servicing and maintenance of machinery and equipment, collection and disposal of waste oils, spills and poor handling of waste products which may contribute to soil contamination.
- Contamination from poor waste disposal practices, including on site disposal of inert waste, i.e., lid of plastic drum and scrap metal.

Each of the above is identified as a potential Areas of Environmental Concern (AEC) and Table 5 discusses the plausible pollutant linkages identified between the AEC and any nearby sensitive receptors.

**Table 5:** Preliminary Conceptual Site Model

| Source                                                                                                 | Contaminant of Potential Concern & Known Location                                                                                         | Potential Transport Mechanisms                                                                                                                         | Exposure Pathway                                                             | Receptors                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contamination from previous quarry operations, servicing and maintenance of plant and equipment</b> | Metals, petroleum hydrocarbons (TRH/BTEXN), and PAH.<br><br>Affected Media – site soils, potentially groundwater (petroleum hydrocarbons) | Disturbance during future excavations and quarry expansion works<br><br>Dispersion via wind<br><br>Surface water runoff<br><br>Leaching to groundwater | Dermal contact with soil<br><br>Inhalation of dust<br><br>Ingestion of soils | Primary human receptors of concern are future quarry workers during the expansion and operation of the existing quarry pit.<br><br>Other human receptors include future contractors and visitors to the site. |
| <b>Contamination from poor waste disposal practices</b>                                                | Inert waste, including disposal of scrap metal and part of plastic drum.<br><br>Affected Media – site soils                               | Disturbance during future excavations and quarry expansion works<br><br>Surface water runoff<br><br>Leaching to groundwater                            | Dermal contact with soil<br><br>Inhalation of dust<br><br>Ingestion of soils | Primary human receptors of concern are future quarry workers during the expansion and operation of the existing quarry pit.<br><br>Other human receptors include future contractors and visitors to the site. |

**Notes:**

CoPC: Contaminants of Potential Concern include metals, including arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc; and petroleum hydrocarbons (total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN) compounds) and polycyclic aromatic hydrocarbons (PAH).

## 9. Site Characterisation

Ballpark Environmental have assumed that the proposed quarry expansion for Bolgers Pit will likely involve bulk earthworks to extend the existing pit in a northerly direction and into the recently cleared areas observed during the site walkover. The quarry plan will likely involve several progressive excavations to create a series of benches and open rock faces of ~10m in height as the quarry operations move progressively to the north and northeast.

Some inert waste materials were observed during the site walkover including scrap metal to the south of the quarry pit and part of a plastic drum near the northwest entry to the quarry. It is recommended that these inert waste materials are collected and removed from this site for recycling (e.g., scrap metal) or to an appropriate NSW EPA licensed waste facility which can accept this waste.

No evidence of buried asbestos containing materials (ACM), or oil staining were observed on this site. Based on the recent development of this quarry operation in the period since circa 2002 and that no buildings or structures have been constructed on this site it is unlikely that ACM are present.

The quarry operation on this site will have low ecological values and most of the proposed northern expansion area has been cleared of vegetation. We have assumed that the quarry will involve construction of extensive hardstand surfaces and roadways suitable for trucks to enter the quarry and then remove excavated materials. Materials excavated and produced from the quarry may also be stored in a series of temporary stockpiles. Based on this assumption ecological values are not considered relevant for this site.

A review of the initial Conceptual Site Model (CSM) prepared for the PSI identified following potential risks.

- AEC 1 – potential for soil and groundwater contamination from historical activities associated with the quarrying operations, including the servicing and maintenance of machinery and equipment, collection and disposal of waste oils, spills and poor handling of waste products which may contribute to soil contamination.

The proposed quarry operations at this site are not a permanent operation with plant and equipment being mobilised to site by Council as needed on a campaign basis. This will also minimise the need for servicing of plant on site due to a lack of suitable workshop facilities. Refuelling of plant and equipment will be undertaken using modern mobile fuel handling equipment. This will avoid the use of metal fuel drums and the requirement to store bulk fuel and oils on this site and minimise potential for spills.

- AEC 2 – Presence of inert waste from historical poor waste disposal practices, including scrap metal observed on the earthen bund to the south of the quarry pit. It is recommended that these inert waste materials are collected and removed from this site for recycling (e.g., scrap metal) or to an appropriate NSW EPA licensed waste facility which can accept this waste.

It is also noted that if the quarrying expansion is approved the environment protection license to be issued for extractive activities will include enforceable conditions prohibiting the disposal of any waste generated by the quarry operations on this site.

The initial Conceptual Site Model (CSM) prepared for this PSI identified a potential risk from the presence of inert waste materials on this site. Based on the assessment of risk provided above the CSM has been refined and there is an acceptable level of risk for the use of this site for ongoing quarrying purposes.

## 10. Conclusions & Recommendations

This PSI was undertaken to provide a preliminary assessment of site contamination, and, if necessary, to provide a basis for a more Detailed Site Investigation (DSI) associated with quarrying operations at Bolgers Pit located on part of Lot 139 DP751012, 809 Oakey Creek Road, Piallaway NSW 2342, the site, see Figure 1.

In summary, the site history investigation and site walkover operations completed for this PSI shows that potential sources of site contamination associated with past use include:

- Site disturbance from current quarry activities is visible in the 2002 aerial photograph. Prior to this date the historical aerial photographs show areas of minor ground disturbance has been present since 1974.
- No buildings or structures were constructed on this site and therefore it is unlikely that waste building materials, including asbestos, are present on this site.
- Observations made during the site walkover found that previous poor waste disposal practices have resulted in the partial burial of inert waste, including scrap metal on the southern margins of the quarry pit.
- A review of the initial Conceptual Site Model (CSM) prepared for this PSI found no areas of environmental concern have been identified on this site.

Therefore, it is recommended:

1. **Inert waste** – waste materials are collected and removed from this site for recycling (e.g., scrap metal) or to an appropriate NSW EPA licensed waste facility which can accept this waste.
2. **Unexpected Finds Protocol** – An unexpected finds protocol should be included as part of the quarry Environment Management Plan or as a stand-alone document in the event that potentially contaminated material or buried unexpected finds, are encountered during future quarry expansion earthworks on this site.

In consideration of the results from this PSI we conclude that this site on part of Lot 139 DP751012, 809 Oakey Creek Road, Piallaway, has an acceptable low level of risk for site contamination and is suitable for its proposed ongoing industrial use as a quarry.

The site is assessed to be suitable for its ongoing industrial use, in accordance with Chapter 4 of the Resilience and Hazards SEPP (2021).

## 11. References

Australian Standard (2005). *Guide to the Sampling and Investigation of Sites with Potentially Contaminated Soil. Part 1: Non volatile and Semi volatile Compounds.* AS4482.1-2005.

Gunnedah Shire Council (2012). *Gunnedah Local Environmental Plan 2012.* Gunnedah Shire Council, Gunnedah

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NSW EPA (2020). *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.* Environmental Protection Authority NSW, Sydney  
*State Environmental Planning Policy (Resilience and Hazards) 2021*

## 12. Limitations

Preliminary information is not readily available on the early history of the site and therefore, some site activities may not have been identified. We cannot preclude that potentially contaminating activities took place during these periods. Allowances for uncertainties and potential unexpected finds should be made during planning and development phases.

It is the nature of contaminated site investigations that the degree of variability in site conditions cannot be known completely, and no sampling and analysis program can eliminate all uncertainty concerning the condition of the site. Professional judgement must be exercised in the collection and interpretation of the data.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. This work has been conducted in good faith in accordance with Ballpark Environmental understanding of the client's brief and general accepted practice for environmental consulting.

The PSI report was prepared for Gunnedah Shire Council with the objectives to identify past or present potentially contaminating activities performed at this site, provide a preliminary assessment of site contamination and, if required, provide a basis for a more Detailed Site Investigation (DSI). The site for the PSI was part of Lot 139 DP51012, 809 Oakey Creek Road, Piallaway NSW 2342, see Figure 1.

No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone relying on this document with reference to a particular development concept does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation.

## Figure



|             |                                                                                        |            |           |                |                                  |
|-------------|----------------------------------------------------------------------------------------|------------|-----------|----------------|----------------------------------|
| Client:     | Gunnedah Shire Council                                                                 |            | Drawn:    | JP             | <b>BALLPARK</b><br>ENVIRONMENTAL |
| Project:    | Preliminary Site Investigation – Bolgers Pit, 809 Oakey Creek Road, Piallaway NSW 2342 |            | Approved: | AB             |                                  |
| Title:      | Site Locality Plan                                                                     |            | Date:     | 1 Dec 2022     |                                  |
| project no: | BPE22110-R01                                                                           | Figure no: | Figure 1  | Scale:         | NTS                              |
|             |                                                                                        |            |           | Original Size: | A4                               |

# Appendix A

## Site History

# Enviro-Screen Report

809 Oakey Creek Road  
Piallaway, NSW

25 October 2022

Report n°:  
LI-3010 ESR



# Understanding your report

---

Your Report has been produced by Land Insight and Resources (Land Insight).

Your Report is based on information available from public databases and sources at the date of reporting. The information gathered relates to land that is within a 200 to 2000m radius (buffer zone) from the boundaries of the Property. A smaller or larger radius may be applied for certain records (as listed under records and as shown in report maps).

While every effort is made to ensure the details in your Report are correct, Land Insight cannot guarantee the accuracy or completeness of the information or data provided.

**The report provided by Land Insight includes**

data listed on page 4 (table of contents). All sources of data and definitions are provided in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact [info@landinsight.co](mailto:info@landinsight.co)

**The report does not include** title searches; dangerous good searches or; property certificates (unless requested); or information derived from a physical inspection, such as hazardous building materials, areas of infilling or dumping/spilling of potentially contaminated materials. It is important to note that these documents and an inspection can contain information relevant to contamination that may not be identified by this Report.

Due to the ongoing nature of database development and frequency of updates provided by various state government regulators the data displayed within this report is only current from date of production.

**This Report, and your use of it, is regulated by Land Insight's Terms and Conditions (See Land Insight's Product Guide).**

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#### ATTACHMENTS

Attachment A - Report Maps

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Land Insight Product Guide and Terms and Conditions

# SUMMARY

|                                                                                                                                                                                             |                  |                                                       |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------|-------------------|
|                                                                                                                                                                                             | <b>Section 1</b> | <b>PROPERTY SETTING</b>                               | <b>Identified</b> |
| Sensitive Receptors<br>Planning Control<br>Heritage<br>Soil and Land Information<br>Geology and Topography                                                                                  |                  |                                                       |                   |
|                                                                                                                                                                                             | <b>Section 2</b> | <b>HYDROGEOLOGY</b>                                   | <b>Identified</b> |
| Aquifer<br>Groundwater Bores and Other Borehole investigations<br>Groundwater Dependent Ecosystems (GDE)<br>Hydrogeology Units<br>Wetlands                                                  |                  |                                                       |                   |
|                                                                                                                                                                                             | <b>Section 3</b> | <b>ENVIRONMENTAL REGISTERS LICENCES AND INCIDENTS</b> | <b>Identified</b> |
| Contaminated Land Public Register<br>Sites Regulate by Other Jurisdictional Body (Former Gaswork sites / PFAS sites)<br>Licensing and Regulated Sites<br>National Pollutant Inventory (NPI) |                  |                                                       |                   |
|                                                                                                                                                                                             | <b>Section 4</b> | <b>POTENTIALLY CONTAMINATED AREAS</b>                 | <b>Identified</b> |
| Former Potentially Contaminated Land<br>Current and Historical Potentially Contaminating activities (PCA)                                                                                   |                  |                                                       |                   |
|                                                                                                                                                                                             | <b>Section 5</b> | <b>NATURAL HAZARDS</b>                                | <b>Identified</b> |
| Erosion risk<br>Bushfire prone land<br>Fire history<br>Flood hazards                                                                                                                        |                  |                                                       |                   |



## Section 1 Property Setting



### 1.1 SENSITIVE RECEPTORS

Map 1.1 (200m Buffer)

| Sensitive receptor | Category | Distance (m) | Direction |
|--------------------|----------|--------------|-----------|
| Not identified     | -        | -            | -         |

### 1.2 PLANNING CONTROLS

Map 1.2 (onsite)

#### Zoning

| Code | Zoning             | Details                                |
|------|--------------------|----------------------------------------|
| RU1  | Primary Production | Gunnedah Local Environmental Plan 2012 |

#### Environmental Planning Instruments

| Type           | Category | Details |
|----------------|----------|---------|
| Not identified | -        | -       |

#### Other Planning Information

| Type           | Category | Details |
|----------------|----------|---------|
| Not identified | -        | -       |

## 1.3 HERITAGE

## Map 1.3 (200m Buffer)

### State and Local Heritage

| Site ID        | Site Name | Type | Details | Distance (m) | Direction |
|----------------|-----------|------|---------|--------------|-----------|
| Not identified | -         | -    | -       | -            | -         |

### Australian Heritage Database

| Site ID        | Site Name | Type | Details | Distance (m) | Direction |
|----------------|-----------|------|---------|--------------|-----------|
| Not identified | -         | -    | -       | -            | -         |

Commonwealth Heritage List, National Heritage List and World Heritage Area.

## 1.4 SOIL AND LAND USE INFORMATION

## Map 1.4a/1.4b (onsite)

### Soil Landscape

| Soil Landscape | ERmr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Melville | Soil Group | Erosional |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|-----------|
| Description    | <p>Landscape— 146.4 km<sup>2</sup> undulating to rolling hills and mountain sideslopes with extremely complex geology and soils flanking the spine of the Melville Ranges. Local relief 300 m; slopes 3 – 20 %; elevation 320 – 750 m. Predominantly benched to hummocky waning hillslopes characterised by rapid changes in geology. Special site investigation is necessary if soil information is needed for specific development proposals. Woodland and open-woodland, &gt;85% cleared for grazing with some areas of cultivation on lower slopes. Landscape Variant mrt— transferral variant of alluvial fans and drainage plains that drain some areas of mr. Slopes 2 – 12%. Soils are extremely variable from site to site, but more reliably homogenous with individual sites. Special soil or geotechnical site investigation is necessary if soil information is needed for specific development proposals.</p> <p>Soils— soil variation is too great to represent at this scale of mapping and is related to extremely complex geology. Soils are extremely diverse and variable over tens of metres. Soil type and position in landscape cannot be predicted except on a site-by-site basis due to the high variability of parent materials. Due to high diversity and the unpredictability of soil type, no soil material information or distribution information has been provided for this landscape. Soil types found within this landscape included Black, Grey, Red and Brown Vertosols; Red, Brown and Black Dermosols; Red, Brown and Yellow Kurosols; Red, Brown and Black Chromosols; and sandy Tenosols, Rudosols, Calcarosols, Red Ferrosols and Red, Yellow and Brown Sodosols. Qualities and Limitations— Complex terrain; complex soils; localised poor drainage; localised "</p> |          |            |           |

### Salinity

| Salinity Hazard | Not identified | - |
|-----------------|----------------|---|
|-----------------|----------------|---|

### Radon

| Radon Level | Bq/m <sup>3</sup> | 9 |
|-------------|-------------------|---|
|-------------|-------------------|---|

Typical radon levels in Australia are low and the values shown are the average values for each census district. For specific location, factors such as the local geology and house type could lead to different values. (ARPANSA).

## Acid Sulfate Soil

| ASS Risk Map<br>(Table 1.4.1) | On the Property? | Within Buffer? |
|-------------------------------|------------------|----------------|
| Class                         | Not identified   | Not identified |

## National Acid Sulfate Soils Atlas

|                                          |        |                   |                           |                                         |
|------------------------------------------|--------|-------------------|---------------------------|-----------------------------------------|
| Atlas of Australian ASS<br>(Table 1.4.2) | Cn(p4) | sulfidic material | Probability of Occurrence | Extremely low probability of occurrence |
|------------------------------------------|--------|-------------------|---------------------------|-----------------------------------------|

**Table 1.4.1. Classification scheme in the ASS Planning Maps**

| Class of Land as shown on ASS Planning Maps |                                                                                                                                                                                                                                                     |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                    | Any works.                                                                                                                                                                                                                                          |
| <b>2a</b>                                   | Works below the natural ground surface.<br>Works by which the watertable is likely to be lowered.                                                                                                                                                   |
| <b>2b</b>                                   | Works other than ploughing below the natural ground surface.<br>Works by which the watertable is likely to be lowered.                                                                                                                              |
| <b>3</b>                                    | Works more than 1 metre below the natural ground surface.<br>Works by which the watertable is likely to be lowered more than 1 metre below the natural ground surface.                                                                              |
| <b>4</b>                                    | Works more than 2 metres below the natural ground surface.<br>Works by which the watertable is likely to be lowered more than 2 metres below the natural ground surface.                                                                            |
| <b>5</b>                                    | Works within 500 metres of adjacent Class 1, 2a, 2b, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2a, 2b, 3 or 4 land. |

For each class of land, the maps identify the type of works likely to present an environmental risk if undertaken in the particular class of land. If these types of works are proposed, further investigation is required to determine if ASS are actually present and whether they are present in such concentrations as to pose a risk to the environment.

**Table 1.4.2. Atlas of Australian Acid Sulfate Soils<sup>1</sup> (ASRIS) (CSIRO/NatCASS)**

| Probability of Occurrence of ASS <sup>1</sup> |                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>A</b>                                      | <b>High Probability of occurrence</b> - (>70% chance of occurrence in mapping unit)                     |
| <b>B</b>                                      | <b>Low Probability of occurrence</b> - (6-70% chance of occurrence in mapping unit)                     |
| <b>C</b>                                      | <b>Extremely low probability of occurrence</b> - (1-5% chance of occurrence in mapping unit)            |
| <b>D</b>                                      | <b>No probability of occurrence</b> - (<1% chance of occurrence in mapping unit)                        |
| <b>x</b>                                      | <b>Disturbed ASS<sup>1</sup> terrain</b> - (ASS <sup>1</sup> material present below urban development). |
| <b>u</b>                                      | <b>Unclassified</b> - (Insufficient information to classify map unit)                                   |
| <b>Zones</b>                                  |                                                                                                         |
| <b>a</b>                                      | Potential acid sulfate soil material and/or Monosulfidic Black Ooze (MBO).                              |
| <b>b, c</b>                                   | Potential acid sulfate soil generally within upper 1 m.                                                 |
| <b>c, d, e</b>                                | ASS <sup>1</sup> generally within upper 1 m.                                                            |
| <b>f</b>                                      | ASS <sup>1</sup> generally below 1 m from the surface                                                   |
| <b>g</b>                                      | ASS <sup>1</sup> , generally below 3 m from the surface.                                                |
| <b>h</b>                                      | ASS <sup>1</sup> generally within 1 m of the surface.                                                   |
| <b>i, j</b>                                   | ASS <sup>1</sup> generally below 1 m of the surface.                                                    |
| <b>k</b>                                      | ASS <sup>1</sup> material and/or Monosulfidic Black Ooze (MBO).                                         |
| <b>l, m, n, o, p, q</b>                       | ASS <sup>1</sup> generally within upper 1 m in wet / riparian areas.                                    |
| <b>Subscripts to codes</b>                    |                                                                                                         |
| <b>(a)</b>                                    | Actual acid sulfate soil (AASS) = sulfuric material.                                                    |
| <b>(p)</b>                                    | Potential acid sulfate soil (PASS) = sulfidic material.                                                 |
| <b>(q)</b>                                    | Monosulfidic Black Ooze (MBO) is organic ooze enriched by iron monosulfides.                            |

**Table 1.4.2. Atlas of Australian Acid Sulfate Soils<sup>1</sup> (ASRIS) (CSIRO/NatCASS)**

| Confidence levels |                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| (1)               | All necessary analytical and morphological data are available                                                                               |
| (2)               | Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence                               |
| (3)               | No necessary analytical data are available, but confidence is fair, based on a knowledge of similar soils in similar environments           |
| (4)               | No necessary analytical data are available, and classifier has little knowledge or experience with ASS, hence classification is provisional |

<sup>1</sup>Acid Sulfate Soils (ASS) are all those soils in which sulfuric acid may be produced, is being produced, or has been produced in amounts that have a lasting effect on main soil characteristics (Pons 1973). Acid sulfate soil (ASS) may include PASS or AASS + PASS. Potential acid sulfate soil (PASS) = sulfidic material. Actual acid sulfate soil (AASS) = sulfuric material.

## 1.5 GEOLOGY AND TOPOGRAPHY

## Map 1.5 (onsite)

### Geology

| Map Sheet                                            | Code  | Formation                       | Age                  | Group                         | Dominant Lithology | Description                                                                                                               |
|------------------------------------------------------|-------|---------------------------------|----------------------|-------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Tamworth<br/>1:250,000<br/>Geological<br/>Map</b> | Cutmp | Merlewood Formation             | Middle Mississippian | Ungrouped Tamworth Belt units | Andesite           | Pyroxene andesite.                                                                                                        |
|                                                      | Cutm  | Merlewood Formation             | Middle Mississippian | Ungrouped Tamworth Belt units | Sandstone          | Coarse cross-bedded feldspathic and lithic sandstone, minor conglomerate, mudstone and limestone.                         |
|                                                      | Pute  | Werrie Basalt                   | Cisuralian           | Ungrouped Permian units       | Basalt             | Basalt, some alkaline (emplaced as a lava), tuffs, autochthonous and cataclastic sedimentary rocks, and local thin coals. |
|                                                      | Q_cr  | Colluvial and residual deposits | Quaternary           | Colluvium                     | Clastic sediment   | Undifferentiated colluvial and residual deposits.                                                                         |

### Naturally Occurring Asbestos Potential (NOA)

| Category       | On the Property? | Within Buffer? |
|----------------|------------------|----------------|
| Not identified | -                | -              |

### Topography

|            |                |
|------------|----------------|
| Topography | 330 - 350 mAHD |
|------------|----------------|



## Section 2 Hydrogeology



### 2.1 HYDROGEOLOGY AND GROUNDWATER BORES

Map 2.1 (2000m Buffer)

|                                     | On the Property?                                                          | Within Buffer?                                                            |
|-------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Aquifer Type                        | Fractured or fissured, extensive aquifers of low to moderate productivity | Fractured or fissured, extensive aquifers of low to moderate productivity |
| Drinking Water Catchments           | Not identified                                                            | Not identified                                                            |
| Protected Riparian Corridor         | Not identified                                                            | Not identified                                                            |
| UPSS Environmentally Sensitive Zone | Namoi River                                                               | Namoi River                                                               |
| Wetlands                            | Not identified                                                            | Not identified                                                            |

#### Groundwater Bores

| Map ID | Groundwater Bore ID | Authorised Purpose    | Completion Date | Drilled Depth (m) | Final Depth (m) | SWL (m) | Salinity (mg/l) | Yield (L/s) | Distance (m) | Direction  |
|--------|---------------------|-----------------------|-----------------|-------------------|-----------------|---------|-----------------|-------------|--------------|------------|
| 5      | GW029958            | Irrigated agriculture | 1/06/1966       | 56.4              | 56.4            | <Null>  | Good            | 1.895       | 67.9         | South-west |
| 6      | GW064563            | Household             | 1/02/1988       | 46.9              | 46.9            | 8.9     | <Null>          | 0.2         | 495.0        | North      |
| 4      | GW023731            | Household             | 1/03/1966       | 17.7              | 17.7            | 12.2    | Good            | 0.758       | 543.7        | North      |
| 12     | GW054789            | Unknown               | <Null>          | <Null>            | 54.9            | <Null>  | <Null>          | <Null>      | 627.3        | South-west |
| 2      | GW010465            | Household             | 1/09/1952       | 35.1              | 35.1            | 19.2    | 501-1000 ppm    | 0.758       | 674.7        | North      |
| 8      | GW054788            | Unknown               | <Null>          | <Null>            | 54.9            | <Null>  | <Null>          | <Null>      | 1165.0       | West       |
| 7      | GW967973            | Household             | 8/01/2007       | 61.0              | 61.0            | 26.2    | <Null>          | 1.26        | 1178.4       | North      |

| Map ID | Groundwater Bore ID | Authorised Purpose         | Completion Date | Drilled Depth (m) | Final Depth (m) | SWL (m) | Salinity (mg/l) | Yield (L/s) | Distance (m) | Direction  |
|--------|---------------------|----------------------------|-----------------|-------------------|-----------------|---------|-----------------|-------------|--------------|------------|
| 13     | GW902103            | Household                  | 13/04/1991      | <Null>            | 66.0            | <Null>  | <Null>          | <Null>      | 1179.1       | South-west |
| 3      | GW005245            | Unknown                    | 1/10/2014       | 38.1              | 38.1            | 19.5    | Good            | 0.505       | 1462.2       | East       |
| 1      | GW015251            | Irrigated agriculture      | 1/10/1958       | 40.8              | 33.4            | 21.3    | <Null>          | 2.526       | 1623.2       | North-west |
| 9      | GW052595            | Unknown                    | <Null>          | <Null>            | 61.0            | <Null>  | <Null>          | <Null>      | 1733.2       | North      |
| 11     | GW048808            | Water supply for livestock | <Null>          | <Null>            | 36.6            | <Null>  | <Null>          | <Null>      | 1765.5       | South      |
| 10     | GW901106            | Household                  | <Null>          | <Null>            | 37.0            | <Null>  | <Null>          | <Null>      | 1948.6       | South-east |

### Groundwater Bores Driller Lithology Details

| Groundwater Bore ID | From Depth – To Depth (m)                                                                                                                                                                                                                                                                                                                                                            | Lithology | Distance (m) | Direction  |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|------------|
| GW029958            | 0m-9.75m Soil clay<br>9.75m-29.26m Clay<br>29.26m-29.87m Basalt seam<br>29.87m-40.23m Clay gravel<br>40.23m-51.82m Conglomerate gravel<br>40.23m-51.82m Some clay<br>51.82m-56.39m Sandstone clay bands water supply                                                                                                                                                                 |           | 67.9         | South-west |
| GW064563            | 0m-3.7m Earth red boulder<br>3.7m-12.8m Conglomerate water supply<br>12.8m-13.3m Quartzite bands water supply<br>13.3m-46.9m Conglomerate water supply                                                                                                                                                                                                                               |           | 495.0        | North      |
| GW023731            | 0m-0.3m Loam<br>0.3m-4.57m Boulders<br>4.57m-17.68m Ironstone                                                                                                                                                                                                                                                                                                                        |           | 543.7        | North      |
| GW054789            | #N/A                                                                                                                                                                                                                                                                                                                                                                                 |           | 627.3        | South-west |
| GW010465            | 0m-1.22m Clay<br>1.22m-35.05m Rock water supply                                                                                                                                                                                                                                                                                                                                      |           | 674.7        | North      |
| GW054788            | #N/A                                                                                                                                                                                                                                                                                                                                                                                 |           | 1165.0       | West       |
| GW967973            | 0m-0.6m Topsoil<br>0.6m-51.8m Shale, brown<br>51.8m-52.4m Shale, water bearing<br>52.4m-53.9m Shale, brown<br>53.9m-54.9m Shale, water bearing<br>54.9m-57m Shale, brown<br>57m-57.6m Shale, water bearing<br>57.6m-61m Shale, brown                                                                                                                                                 |           | 1178.4       | North      |
| GW902103            | #N/A                                                                                                                                                                                                                                                                                                                                                                                 |           | 1179.1       | South-west |
| GW005245            | 0m-3.05m Driller<br>3.05m-3.06m Rock soft<br>3.06m-38.1m Rock multicoloured some very hard water supply                                                                                                                                                                                                                                                                              |           | 1462.2       | East       |
| GW015251            | 0m-0.91m Topsoil<br>0.91m-1.83m Clay sandy<br>1.83m-7.62m Clay<br>7.62m-10.67m Conglomerate<br>10.67m-16.76m Clay<br>16.76m-19.51m Gravel clay<br>19.51m-21.95m Conglomerate<br>21.95m-24.69m Clay fine gravel<br>24.69m-26.82m Clay<br>26.82m-29.57m Clay clay<br>29.57m-32.31m Clay sandy water supply<br>32.31m-32.92m Clay fine gravel water supply<br>32.92m-40.84m Clay gravel |           | 1623.2       | North-west |
| GW052595            | #N/A                                                                                                                                                                                                                                                                                                                                                                                 |           | 1733.2       | North      |

| Groundwater Bore ID | From Depth – To Depth (m) | Lithology | Distance (m) | Direction  |
|---------------------|---------------------------|-----------|--------------|------------|
| GW048808            | #N/A                      |           | 1765.5       | South      |
| GW901106            | #N/A                      |           | 1948.6       | South-east |

## 2.2 HYDROGEOLOGY AND OTHER BOREHOLES

### Map 2.2 (500m Buffer)

|                                            | On the Property?                                                       | Within Buffer?                                                         |
|--------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|
| Groundwater Vulnerability                  | Not identified                                                         | Not identified                                                         |
| Groundwater Exclusion Zones <sup>1,2</sup> | Not identified                                                         | Not identified                                                         |
| Hydrogeologic Unit                         | Palaeozoic and Pre-Cambrian Fractured Rock Aquifers (low permeability) | Palaeozoic and Pre-Cambrian Fractured Rock Aquifers (low permeability) |

<sup>1</sup> - Botany Groundwater Management Zones (BGMZ): Zone 1 – the use of groundwater remains banned; Zones 2 to 4 – domestic groundwater use is banned, especially for drinking water, watering gardens, washing windows and cars, bathing, or to fill swimming pools.

<sup>2</sup> - Williamstown Groundwater Management Zones (WGMZ): Primary Management Zone – this area has significantly higher levels of PFAS detected and therefore, the strongest advice applies. Secondary Management Zone – this area has some detected levels of PFAS; Broader Management Zone – the topography and hydrology of the area means PFAS detections could occur now and into the future.

### Groundwater Dependent Ecosystems (GDE)

|             | On the Property?                               | Within Buffer?                                                                              |
|-------------|------------------------------------------------|---------------------------------------------------------------------------------------------|
| Aquatic     | Not identified                                 | Not identified                                                                              |
| Terrestrial | Moderate potential GDE - from regional studies | Moderate potential GDE - from regional studies<br>Low potential GDE - from regional studies |

Aquatic - Ecosystems that rely on the Surface expression of groundwater.

Terrestrial - Ecosystems that rely on the Subsurface expression of groundwater.

### Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes)

| Borehole ID    | Purpose | Project | Client/<br>Licence | Date<br>Drilled | Depth<br>(m) | Distance<br>(m) | Direction |
|----------------|---------|---------|--------------------|-----------------|--------------|-----------------|-----------|
| Not identified | -       | -       | -                  | -               | -            | -               | -         |



## Section 3 Environmental Registers, Licences and Incidents



### 3.1 CONTAMINATED LAND PUBLIC REGISTER

Map 3.1 (1000m Buffer)

#### Sites Notified as Contaminated to the EPA

| Site Name      | Address | Activity that caused Contamination | EPA Site Management Class (Table 3.1.1) | Distance (m) | Direction |
|----------------|---------|------------------------------------|-----------------------------------------|--------------|-----------|
| Not identified | -       | -                                  | -                                       | -            | -         |

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

#### Contaminated Land Record of Notices

| Site Name      | Area n° | Address | Notices | Distance (m) | Direction |
|----------------|---------|---------|---------|--------------|-----------|
| Not identified | -       | -       | -       | -            | -         |

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

**Table 3.1.1 EPA Site Management Class Explanation**

| EPA Site Management Class                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Under Assessment</b>                          | 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. |
| <b>Regulation under the CLM Act not required</b> | The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.                                                                                                                                                                                                                                                                                                                              |
| <b>Regulation being finalised</b>                | 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.                                                                                                                                                                                                                                                 |

**Table 3.1.1 EPA Site Management Class Explanation**

|                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contamination currently regulated under the CLM Act</b>                     | 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.                                                                                                                                                |
| <b>Contamination currently regulated under the POEO Act</b>                    | 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.                                                                                                                                                    |
| <b>Contamination being managed via the planning process (EP&amp;A Act)</b>     | 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. |
| <b>Contamination formerly regulated under the CLM Act</b>                      | 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.                                                                                                                                                                                                                                                                                           |
| <b>Contamination formerly regulated under the POEO Act</b>                     | 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).                                                                                                                                                                                                                                     |
| <b>Contamination was addressed via the planning process (EP&amp;A Act)</b>     | 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).                                                                                                                                                                                                                                     |
| <b>Ongoing maintenance required to manage residual contamination (CLM Act)</b> | 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.                                                                                                                                                                                                                                              |

The EPA maintains a record of sites that have been notified to the EPA by owners or occupiers as contaminated land. The sites notified to the EPA are recorded on the register at various stages of the assessment and/or remediation process.

## 3.2 LICENCES, APPROVALS & ASSESSMENTS

### Map 3.2 (1000m Buffer)

#### Licences

| Licence N°     | Licence holder | Location Name | Premise Address | Fee Based Activity | Distance (m)* | Direction |
|----------------|----------------|---------------|-----------------|--------------------|---------------|-----------|
| Not identified | -              | -             | -               | -                  | -             | -         |

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

#### Other Licences still Regulated by EPA

| Licence N° | Licence holder                          | Location Name                                                                                    | Premise Address                                                                                                        | Fee Based Activity | Status             | Distance (m)* | Direction  |
|------------|-----------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|---------------|------------|
| 12981      | Forestry Corporation Of New South Wales | IFOA Area "the Brigalow-Nandewar Region"                                                         | Brigalow and Nandewar Community Conservation Area, Dubbo, NSW 2830                                                     | Logging operations | No longer in force | Not mapped    | Not mapped |
| 3957       | Forestry Corporation Of New South Wales | Lower North East Region (L.N.E.R) Means State Forests And Crown - Timber Lands (ex. Plantations) | Within The L.N.E.R. Shown On Map 1 To The Nsw L.N.E.R. Forest Agreement Granted On The 5 March 1999, Kempsey, NSW 2440 | Logging operations | No longer in force | Not mapped    | Not mapped |

| Licence N° | Licence holder                          | Location Name                                                                                    | Premise Address                                                                                                              | Fee Based Activity | Status             | Distance (m)* | Direction  |
|------------|-----------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|---------------|------------|
| 4017       | Forestry Corporation Of New South Wales | Upper North East Region (L.N.E.R) Means State Forests And Crown - Timber Lands (ex. Plantations) | Ithin The U.N.E.R. Shown On Map 1 To The Nsw U.N.E.R. Forest Agreement Granted On The 5 March 1999., Coffs Harbour, NSW 2450 | Logging operations | No longer in force | Not mapped    | Not mapped |

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

### Clean Up and Penalty Notices

| Location ID    | Notice Type | Notice N° | Licence holder | Location Name | Premise Address | Distance (m)* | Direction |
|----------------|-------------|-----------|----------------|---------------|-----------------|---------------|-----------|
| Not identified | -           | -         | -              | -             | -               | -             | -         |

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

## 3.3 SITES REGULATED BY OTHER JURISDICTIONAL BODY

### Map 3.3 (2000m Buffer)

#### Defence, Military Sites and UXO Areas

| Site name      | Type* | Description | Distance (m) | Direction |
|----------------|-------|-------------|--------------|-----------|
| Not identified | -     | -           | -            | -         |

\*RCIP (Regional Contamination Investigation Program). UXO (Unexploded Ordnance Areas)

#### Former Gasworks Sites

| Site name      | Description | Distance (m) | Direction |
|----------------|-------------|--------------|-----------|
| Not identified | -           | -            | -         |

#### PFAS Sites

| Site name      | Description | Source | Distance (m) * | Direction |
|----------------|-------------|--------|----------------|-----------|
| Not identified | -           | -      | -              | -         |

#### National Pollutant Inventory (NPI)

| Facility name  | Address | Primary ANZSIC Class | Latest report | Distance (m) | Direction |
|----------------|---------|----------------------|---------------|--------------|-----------|
| Not identified | -       | -                    | -             | -            | -         |



## Section 4 Potentially Contaminated Areas



### 4.1 POTENTIALLY CONTAMINATING ACTIVITIES

Map 4.1 (200m Buffer)

#### Liquid Fuel Facilities

| Site name      | Category | Location | Status* | Distance (m) | Direction |
|----------------|----------|----------|---------|--------------|-----------|
| Not identified | -        | -        | -       | -            | -         |

#### Waste Management Facilities & Recycling Centres

| Site name      | Category | Location | Status* | Distance (m) | Direction |
|----------------|----------|----------|---------|--------------|-----------|
| Not identified | -        | -        | -       | -            | -         |

*\*Status: Data is current as when this report was created.*

*The operational status of the business is determined using the available data sources and does not indicate real-time conditions at the site.*

*Current: business is operating on the day this report was issued.*

*Former: business that have been closed or discontinued within 2 years from the date of this report.*

Liquid Fuel Facilities Datasets, representing the spatial locations of liquid fuel depots, refineries, terminals and petrol stations present in the Australian Government National Liquid Fuel Facilities Dataset and Petrol stations identified by Land Insights. Waste Management Facilities, representing the spatial locations of reprocessing facilities, transfer stations and landfills present in the Australian Government National Waste Management Facilities Dataset and Waste/Recycling facilities identified by Land Insights.

A more comprehensive list of all Potentially Contaminating Activities is available in the Due Diligence Insight report.

## 4.2 HISTORICAL BUSINESS DIRECTORIES

(not mapped)

### 1930 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 1940 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 1950 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 1965 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 1970 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 1980 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 1990 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 2005 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

### 2010 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

## 2015 Historical Business Data

| Activity       | Name | Address | Positional accuracy <sup>1</sup> | Distance (m) | Direction |
|----------------|------|---------|----------------------------------|--------------|-----------|
| Not identified | -    | -       | -                                | -            | -         |

Land Insight uses a number of address geocoding techniques and has characterised them based on completeness (match rates) and positional accuracy. When a historical street address is incomplete or a match is not found, a record identified as being in the surrounding area will be included for reference and the accuracy of the data is approximate only. An explanation of the positional accuracy records is defined in the table below.

| Historical data positional accuracy and georeferencing results explanation |                                               |                                                                                                                            |
|----------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Positional accuracy                                                        | Georeferenced                                 | Description                                                                                                                |
| Address                                                                    | Located to the address level                  | <i>When street address and names fully match.</i>                                                                          |
| Street                                                                     | Located to the street centroid                | <i>When street names match but no exact address was found. Location is approximate.</i>                                    |
| Place                                                                      | Located to the structure, building or complex | <i>When building, residential complex or structure name match but no exact address was found. Location is approximate.</i> |
| Suburb                                                                     | Located to the suburb area                    | <i>When suburb name match but no exact address was found. Location is approximate.</i>                                     |

The data used in this section was extracted from range of historical commercial trade directories and business listings. The business addresses were geocoded using historical information and the accuracy of the data may vary due to changes to the physical address at a given locality over time or the quality of the original records. From 2005, the historical business records in this section are considered more accurate as information was extracted from digital directories with geographic coordinate location information available. On this basis, reliance on the historic listing data should be considered when assessing the risk of contamination from an activity at the site. The presence of a business listing does not definitively confirm the actual activity that has occurred at the site. For more information on how these records were geocoded and the methodology used by Land Insight, contact us at [info@landinsight.co](mailto:info@landinsight.co).

Historical business directory listings have been filtered to match activities and industries considered to have a likelihood of causing contamination. These activities have been identified through published state and national guidelines and regulations. Please note that any record not identified within this section (due to error or unforeseen omission) does not necessarily mean that the screened area is not potentially contaminated or free of any risks.



## Section 5 Natural Hazards



### 5.1 Natural Hazards

#### Map 5.1 (500m Buffer)

#### Fire Hazard

| Category             | Type                  | Details               | Distance (m) | Direction  |
|----------------------|-----------------------|-----------------------|--------------|------------|
| Bush Fire Prone Area | Vegetation Buffer     | Potential Impact Area | 0.0          | Onsite     |
|                      | Vegetation Category 1 | High Risk Area        | 57.6         | East       |
|                      | Vegetation Category 1 | High Risk Area        | 101.8        | East       |
|                      | Vegetation Category 1 | High Risk Area        | 204.2        | South-east |
|                      | Vegetation Category 1 | High Risk Area        | 226.8        | North-east |
|                      | Vegetation Category 1 | High Risk Area        | 443.9        | East       |
|                      | Vegetation Category 1 | High Risk Area        | 472.2        | East       |

#### Fire History

| Type | Season | Details | Distance (m) | Direction |
|------|--------|---------|--------------|-----------|
| -    | -      | -       | -            | -         |

Erosion Hazard

| Category              | Type     | Details                               | Distance (m) | Direction  |
|-----------------------|----------|---------------------------------------|--------------|------------|
| Landslip Erosion Risk | Very Low | Very slight to negligible limitations | 0.0          | Onsite     |
|                       | Very Low | Very slight to negligible limitations | 0.0          | Onsite     |
|                       | Very Low | Very slight to negligible limitations | 148.0        | South-west |
|                       | Very Low | Very slight to negligible limitations | 148.0        | South-west |
| Water Erosion Risk    | Moderate | Moderate limitations                  | 0.0          | Onsite     |
|                       | Moderate | Moderate limitations                  | 0.0          | Onsite     |
|                       | Very Low | Very slight to negligible limitations | 148.0        | South-west |
|                       | Very Low | Very slight to negligible limitations | 148.0        | South-west |
| Wind Erosion Risk     | Very Low | Very slight to negligible limitations | 0.0          | Onsite     |
|                       | Very Low | Very slight to negligible limitations | 0.0          | Onsite     |
|                       | Very Low | Very slight to negligible limitations | 148.0        | South-west |
|                       | Very Low | Very slight to negligible limitations | 148.0        | South-west |

Flood Hazard

| Category | Type | Details | Distance (m) | Direction |
|----------|------|---------|--------------|-----------|
| -        | -    | -       | -            | -         |



The Commons  
388 George Street  
Sydney NSW 2000 Australia  
[info@landinsight.co](mailto:info@landinsight.co)  
[www.landinsight.co](http://www.landinsight.co)



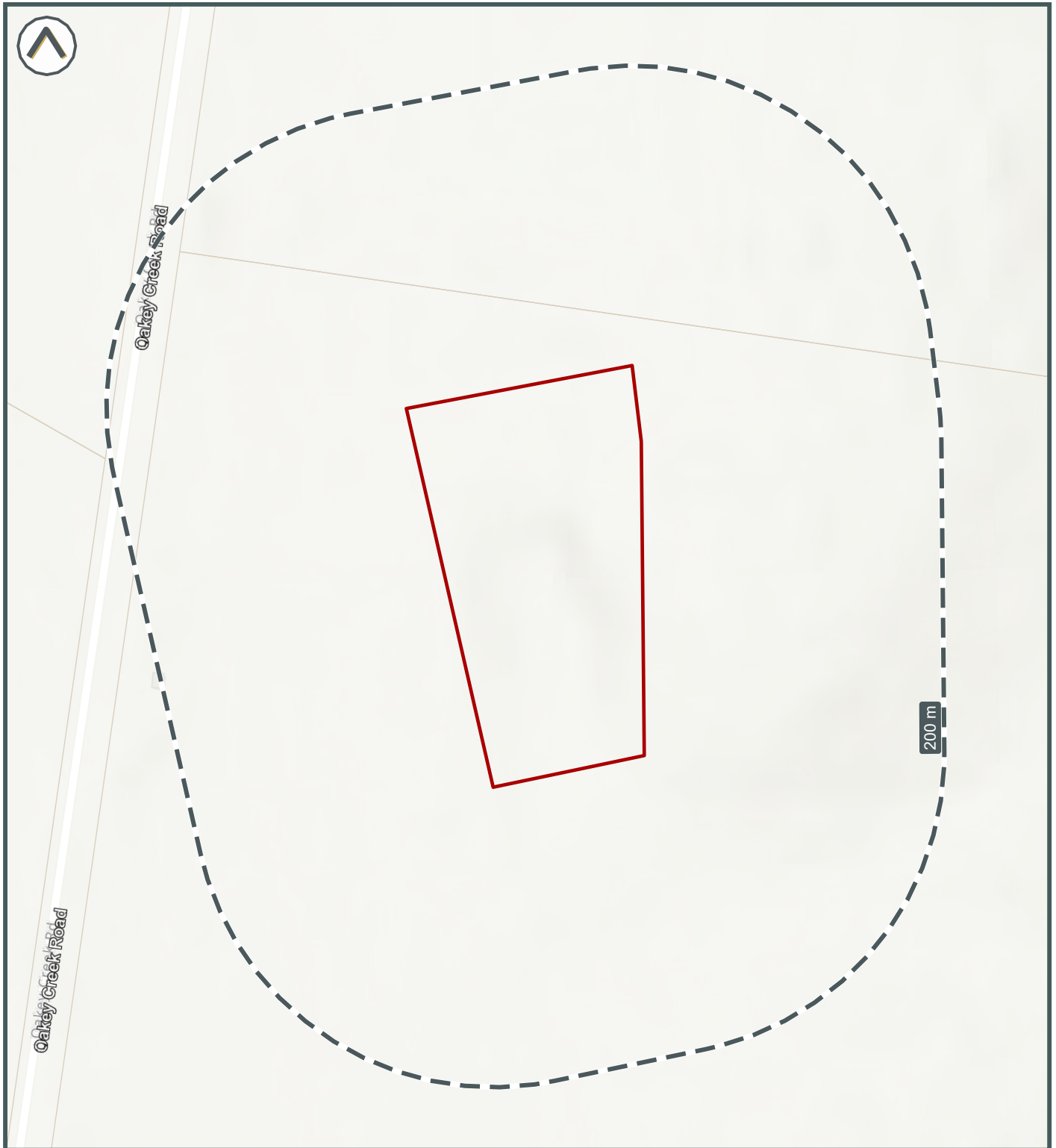
# Appendix A

## REPORT MAPS

809 Oakey Creek Road  
Piallaway, NSW



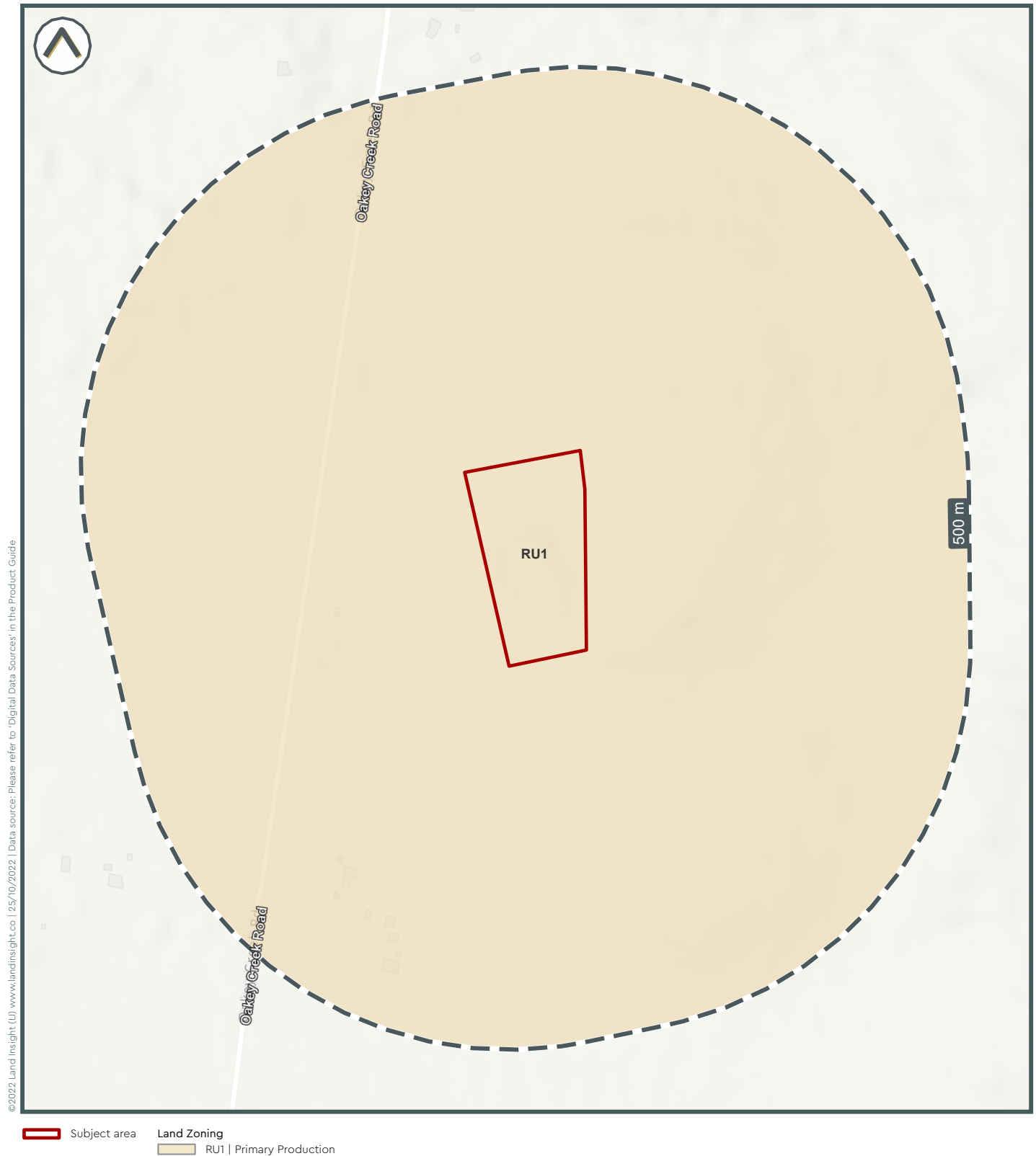
**Subject Area and Sensitive Receptors**



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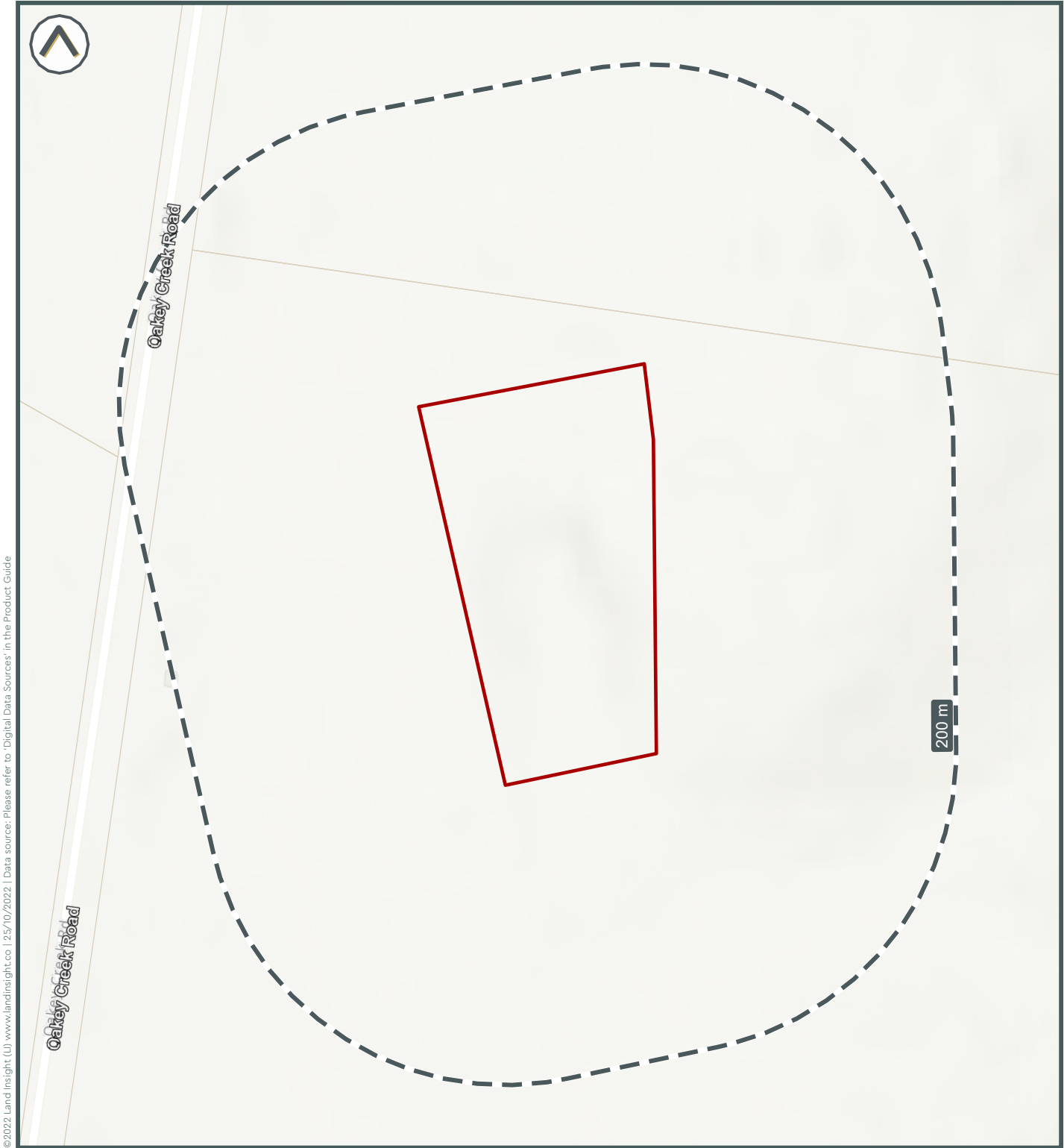
 Subject area







Heritage



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- Subject area
- State Heritage Register (SHR)
- Commonwealth Heritage List (CHL)
- World Heritage Area (WHA)
- Heritage (LEP)
- National Heritage List (NHL)



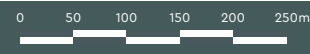


Soil Landscape and Salinity



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- Subject area
- Radon Level (Bq/m<sup>3</sup>)  
5-19
- Soil Landscape  
ALdh, Alluvial  
ERmr, Erosional



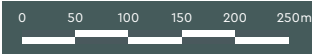


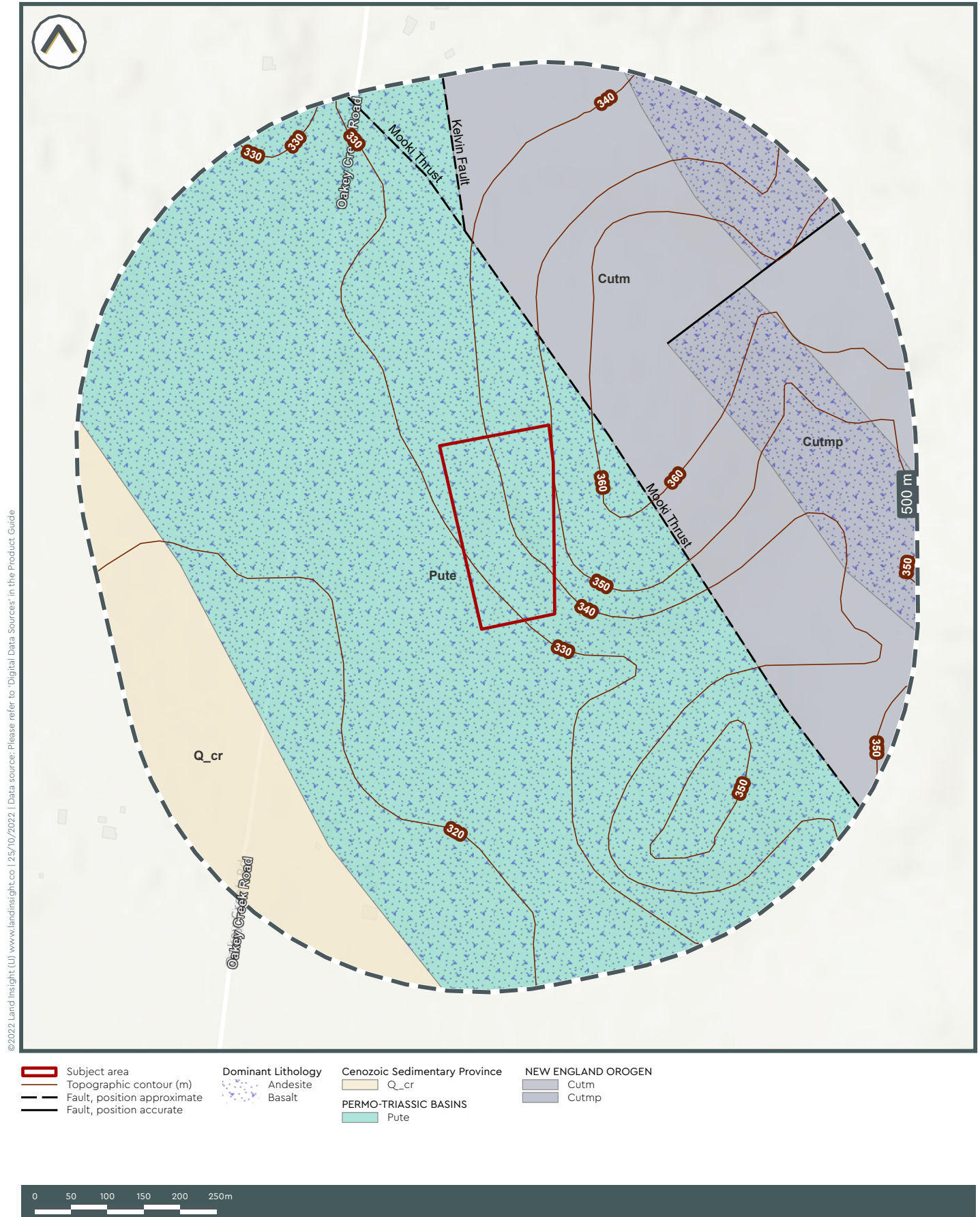
Acid Sulfate Soils



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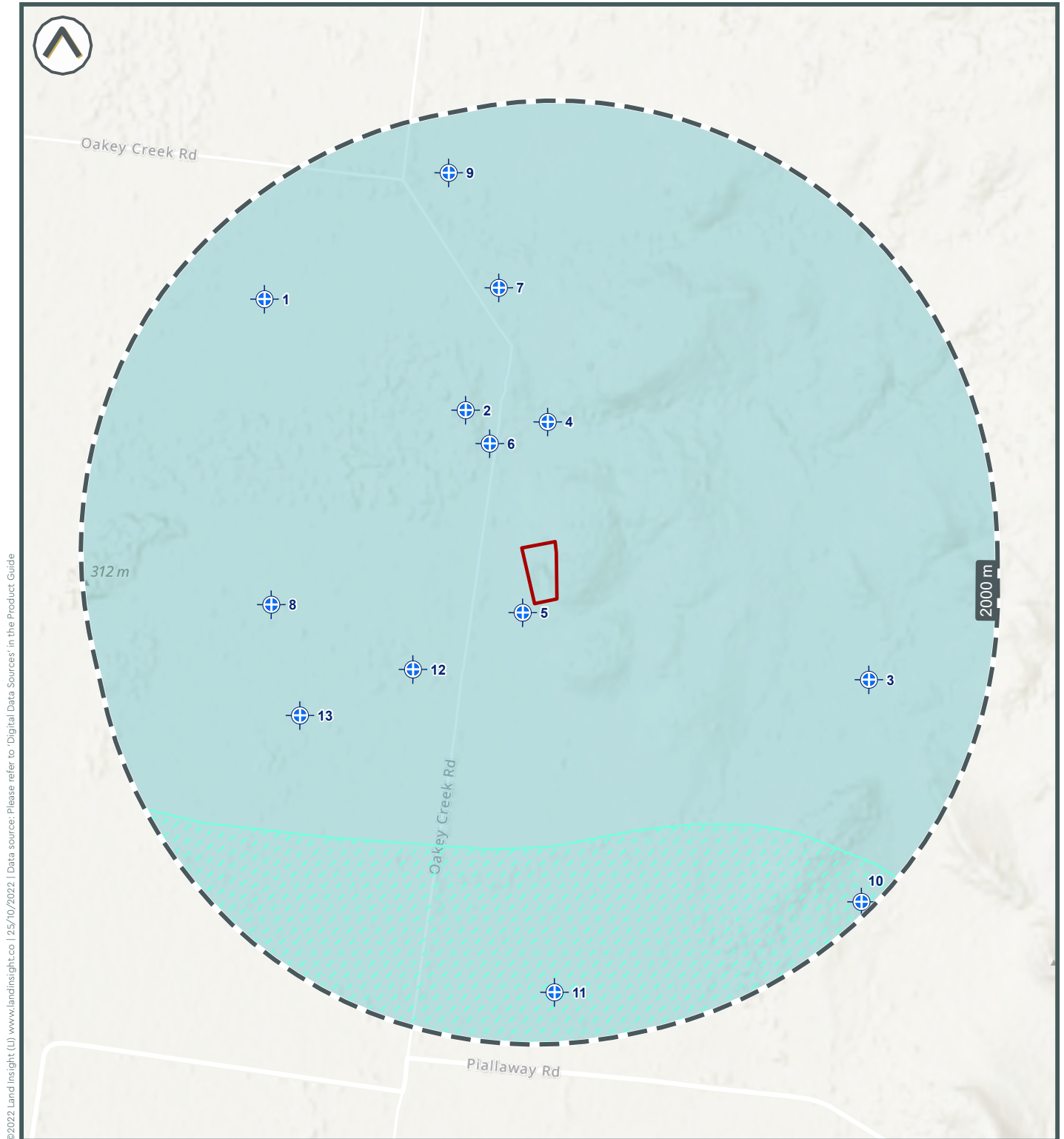
-  Subject area
-  ASRIS Atlas of Australian Sulfate Soils
-  Cn(p4) ASS in inland lakes, waterways, wetlands and riparian zones



**Geology and Topography**



**Hydrogeology and Groundwater Boreholes**

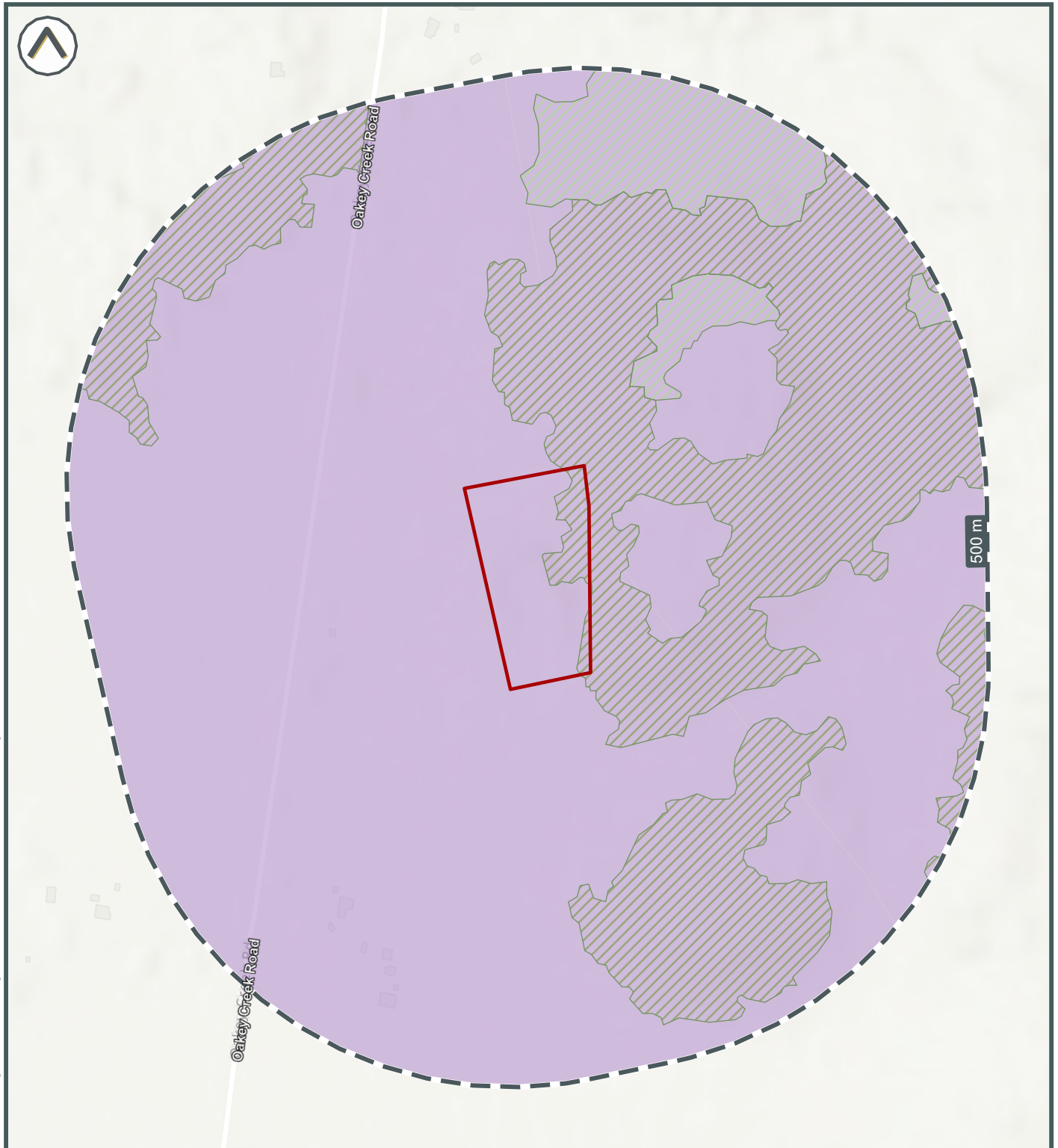


- Subject area
- Groundwater bores
- UPSS Environmentally Sensitive Zone
- Aquifer type**
  - Fractured or fissured, extensive aquifers of low to moderate productivity



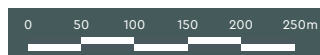


**Hydrogeology and Other Boreholes**



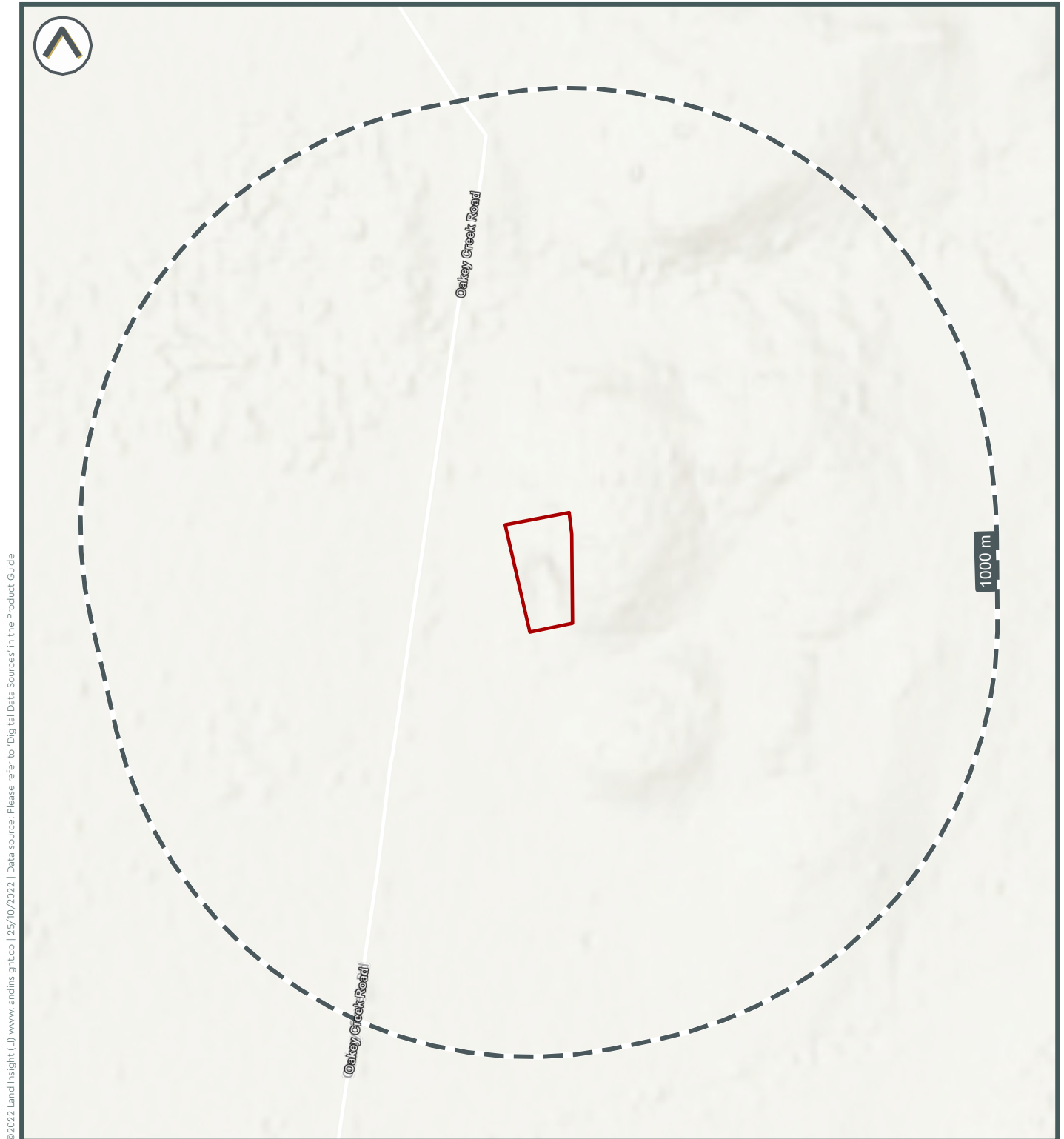
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- Subject area
- Other borehole/monitoring well location
- Ecosystems that rely on Subsurface presence of Groundwater
- Moderate potential GDE - from regional studies
- Low potential GDE - from regional studies
- Hydrogeologic Unit**
- Palaeozoic and Pre-Cambrian Fractured Rock Aquifers (low permeability)



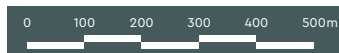


**Contaminated Land Public Register**



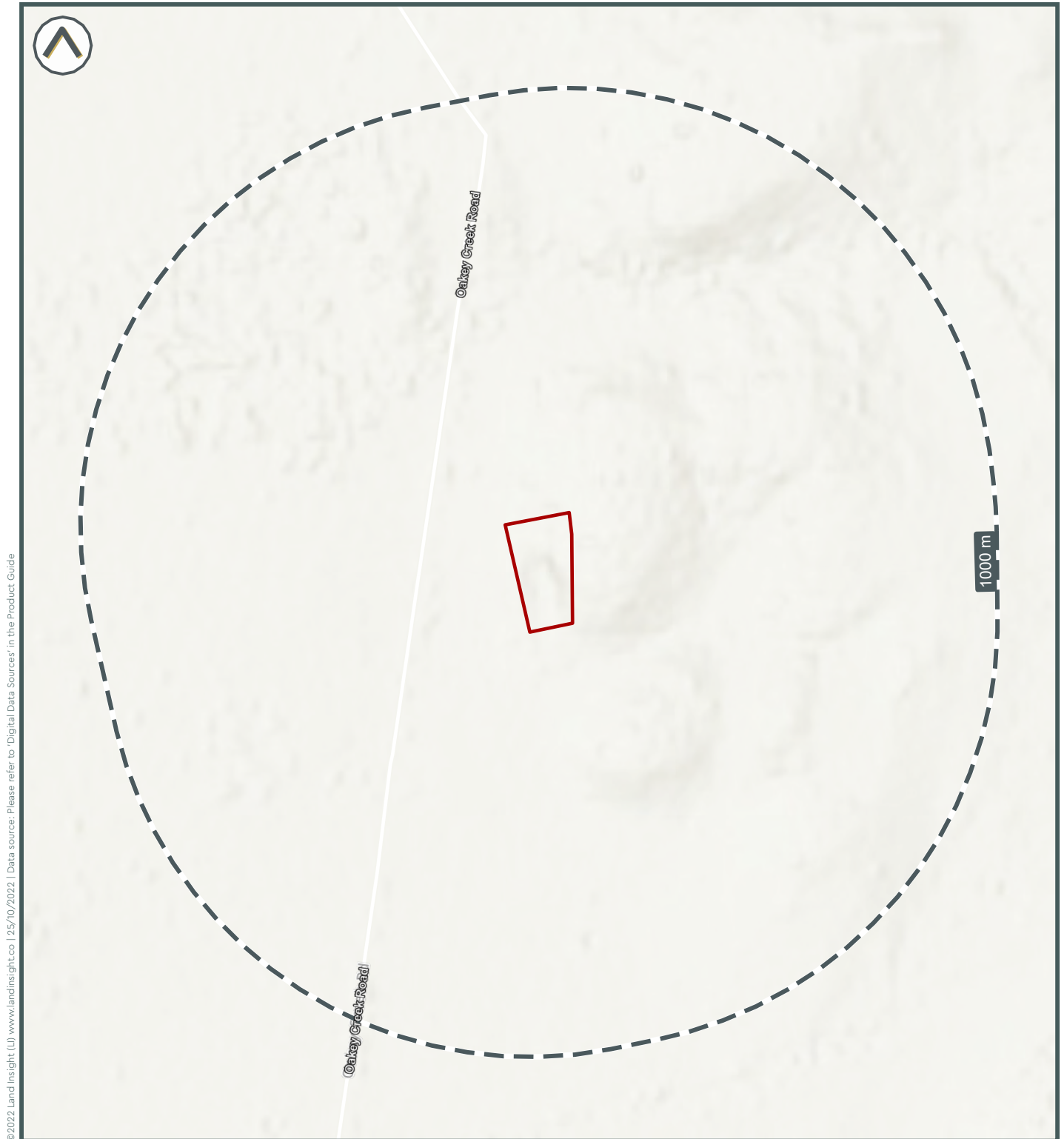
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- Subject area
- Contaminated Land Public Register (EPA)
- EPA Notified Contaminated Sites
- EPA Record of Notices



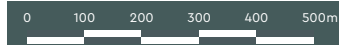


**Licences, Approvals & Assessments**



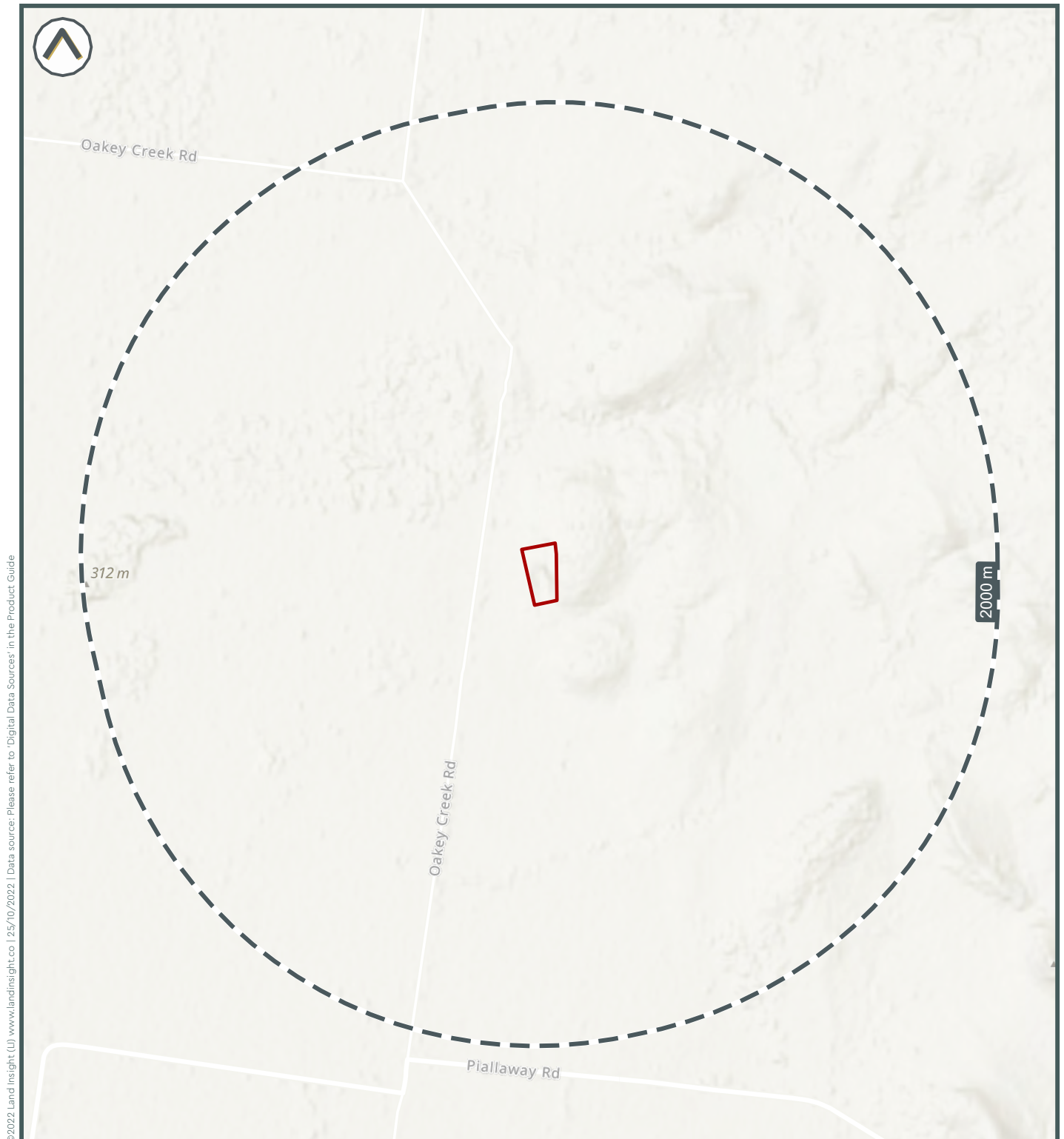
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- |                                                                                                  |                                                                                                                     |                                                                                                                  |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
|  Subject area | <b>POEO Licences</b>                                                                                                |  Clean Up and Penalty Notices |
|                                                                                                  |  Issued                          |                                                                                                                  |
|                                                                                                  |  Suspended / Revoked             |                                                                                                                  |
|                                                                                                  |  Delicensed / No longer in force |                                                                                                                  |
|                                                                                                  |  Surrendered                     |                                                                                                                  |





**Sites Regulated by Other Jurisdictional Body**



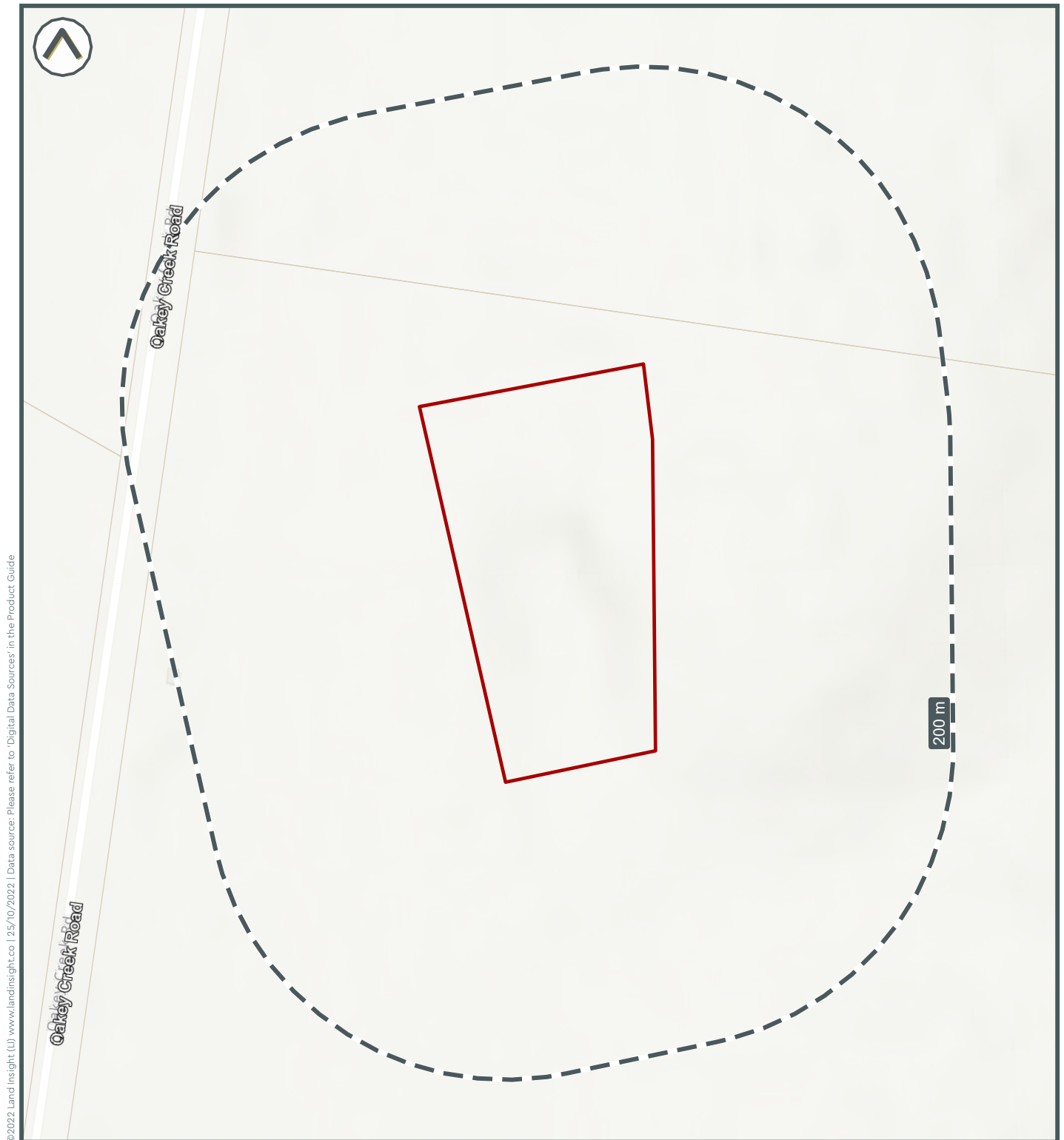
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- |                               |            |                                                               |       |
|-------------------------------|------------|---------------------------------------------------------------|-------|
| Subject area                  | PFAS sites | Unexploded Ordnance (UXO) Areas                               | Other |
| NPI Facilities                |            | Substantial Potential                                         |       |
| Former Gasworks               |            | Slight potential                                              |       |
| Defence Area / Military Sites |            | Sea Dumping of Depth Charges                                  |       |
| Defence Controlled Area       |            | Sea Dumping of Depth Charges (Chemical munitions sea dumping) |       |
|                               |            | Other Sea Dumping Sites                                       |       |





**Potentially Contaminating Activities (PCAs)**



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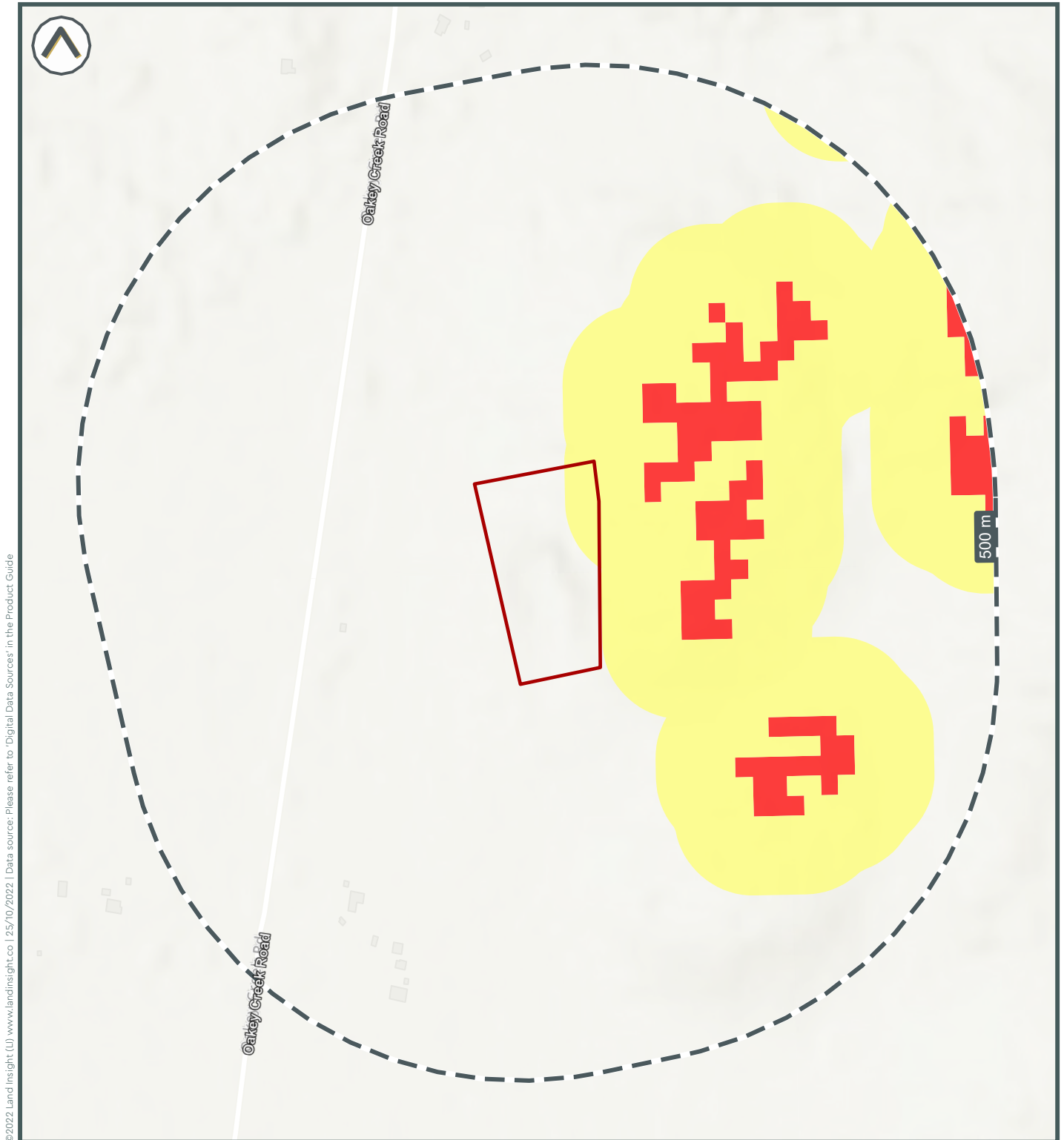
- |                                                                                                  |                                                                                                             |                                                                                                                    |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
|  Subject area |  Fuel Terminals & Depots |  Waste and Recycling Facilities |
|                                                                                                  |  Petrol Stations         |                                                                                                                    |

Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.





Fire Hazards

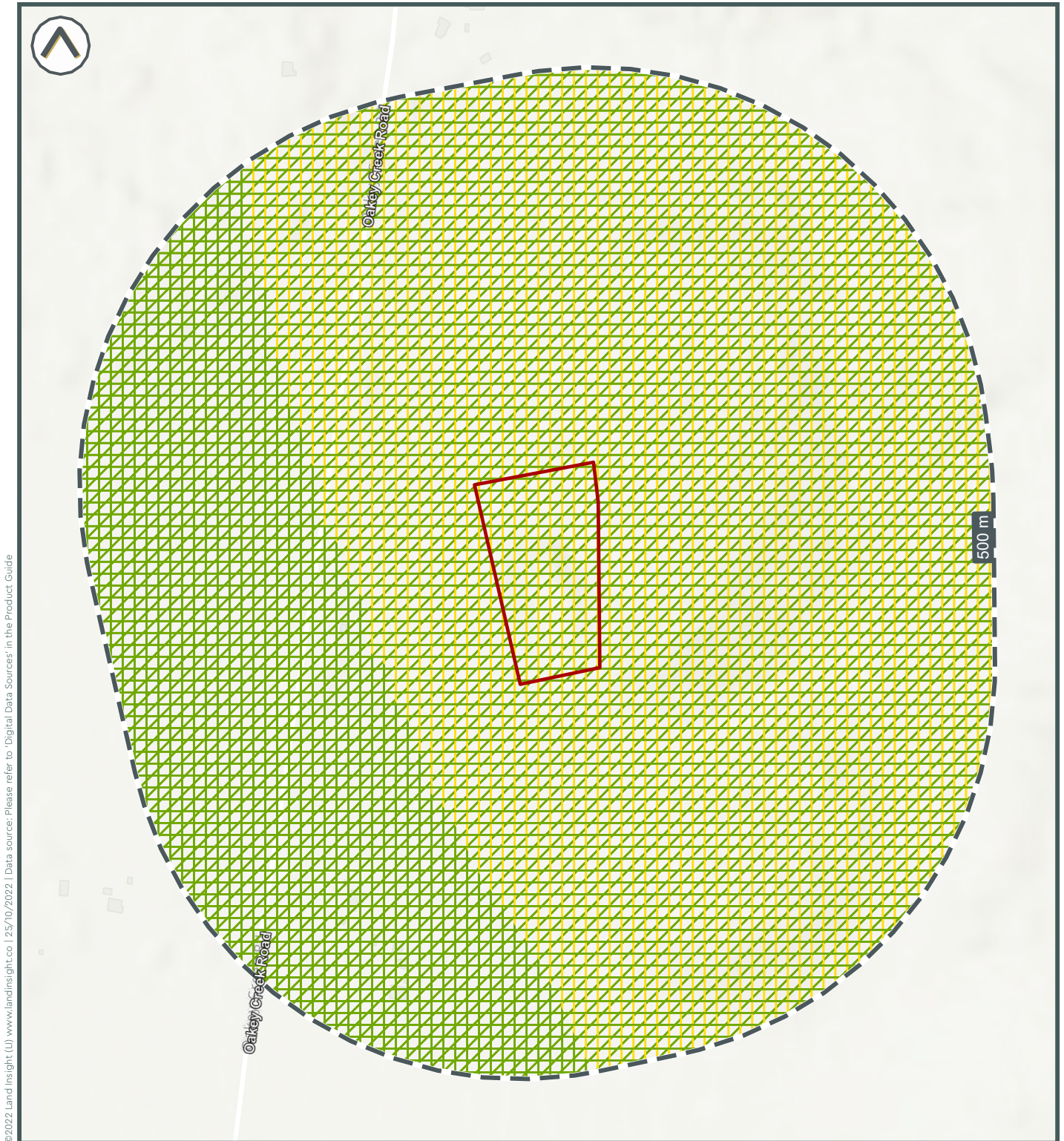


- Subject area
- Vegetation Buffer
- Bushfire Prone Area**
- Vegetation Category 1





**Flood and Erosion Hazards**



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Subject area

Wind Erosion Risk

Very Low

Water Erosion Risk

Moderate

Very Low

Landslip Erosion Risk

Very Low





An aerial photograph of a vibrant turquoise river winding through a rugged landscape. The river is flanked by steep, rocky banks covered in dense, dry vegetation with yellowish-brown foliage. Large, dark grey boulders are scattered along the riverbanks and in the water. The sky is not visible, as the landscape fills the frame.

# Appendix B

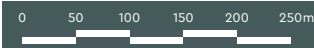
HISTORIC IMAGERY

809 Oakey Creek Road  
Piallaway, NSW

Historic Aerial Photograph - 1976



Subject area



Historic Aerial Photograph - 1984



Subject area



Historic Aerial Photograph - 1989



Subject area



Historic Aerial Photograph - 1998



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Subject area



Historic Aerial Photograph - 2002



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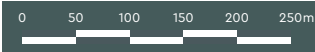
 Subject area



Historic Aerial Photograph - 2014



 Subject area



**Historic Aerial Photograph - 2021**

Subject area

0 50 100 150 200 250m

## Historic Aerial Photograph - 2022





# Product Guide

NEW SOUTH WALES

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# About this Report

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### ***Other Data – if applicable***

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Parramatta River Catchment Land Use Areas - Compiled by LI Resources, derived from Parramatta River Estuary Processes Study (2010).

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### **Historical Commercial & Trade Directory Data –**

#### ***Sydney***

1932-1933 John Sands Sydney Trades Directory – Copyright Expired

1940 & 1950 Commonwealth of Australia Telephone Directory Sydney – Copyright Expired

1960-1961 Telecom Australia Pink Pages Sydney – Permission for use Sensis, 2017.

1970-1971 United Business Directories Sydney – Licenced under Hardie Grant, 2017.

1974-1975 NSW Post Office Yellow Pages Sydney Buying Guide and Commercial/Industrial Directories – Permission for use Sensis, 2017.

1980-1981 & 1990-1991 Telecom Australia Yellow Pages Sydney – Permission for use Sensis, 2017.

2005 - 2015 Datajet.com.au - Permission for Use, 2022.

#### ***Regional NSW***

1971, 1981 & 1991 Telecom Australia Yellow Pages Country NSW Directories – Permission for use Sensis, 2017.

While every effort is made to ensure the details in your Report are correct, LI Resources cannot guarantee the accuracy or completeness of the information or data provided or obtained from the data sources.

**For more detailed information regarding data source and update frequency, please contact LI Resources at [info@landinsight.co](mailto:info@landinsight.co)**

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## Glossary

### **AVIATION RESCUE FIRE FIGHTING FACILITIES (ARFF); LIQUID FUEL & AVIATION FUEL DEPOTS/TERMINALS; POWER STATIONS; TELEPHONE EXCHANGES & WASTEWATER TREATMENT FACILITIES**

These facilities may be associated with the use, storage, treatment and disposal of a range of chemicals and products such as PFAS (Per- and poly-fluoroalkyl substances), solvents, petroleum products, asbestos, PCBs (polychlorinated biphenyls) and others.

### **BUSHFIRE PRONE LAND**

This data may assist environmental consultants, developers and others understand whether any bushfire risk is present in the area that may require specific management and/or restrict site investigations and development works.

### **COAL SEAM GAS, PETROLEUM WELLS AND BOREHOLES**

This data may assist environmental consultants during investigations as to previous resource exploration with an area, resources present (i.e. coal, gas and petroleum), lithological data and potential for environmental contamination.

### **DEPARTMENT OF DEFENCE UNEXPLODED ORDNANCE (UXO) SITES**

UXO is any sort of military ammunition or explosive ordnance which has failed to function as intended. It includes a range of ammunition used by the Navy, Army and Air Force; and many other types of ammunition and explosives including training munitions. UXO contamination has arisen mainly as a result of military training activities, since European settlement. In the past large numbers of ranges and training areas were approved for use in many areas of Australia. As a result, there are now a number of sites around Australia which are affected by UXO. For more information see [www.defence.gov.au/UXO](http://www.defence.gov.au/UXO)

### **DERELICT MINES AND QUARRIES**

Outstanding legacy issues surrounding derelict mines and quarries have the potential to cause safety and environmental impacts and may also be an indicator of the presence of unregulated landfill.

### **DRY CLEANERS (CURRENT)**

Dry cleaners often use or have used hazardous and flammable chemicals in their operations. Incorrect storage and disposal of these chemicals may result in fire/explosion risks or contamination of soil and groundwater or result in human health risks.

### **GROUNDWATER EXCLUSION ZONES**

Groundwater exclusion zones are present in certain areas where aquifers are known to be contaminated or where past activities may have affected groundwater quality. Restrictions on the use of groundwater in those areas are in place and differ between the various management/exclusion zones.

### **HERITAGE – FEDERAL, STATE AND LOCAL**

This data may assist environmental consultants, developers and others understand whether any heritage items are present on the site that may require specific management and/or restrict site investigations and development works.

### **HISTORICAL COMMERCIAL & TRADE DIRECTORY DATABASE (1932, 1940, 1950, 1960, 1970; 1974, 1980 and 1990)**

An LI Resources proprietary database of historical potentially contaminating activities previously listed as having been undertaken on the property or surrounding area. Activities have been catalogued based on 'low to high risk activities' either known to cause potential contamination risk (based on Managing Land Contamination Planning Guidelines, SEPP 55 remediation of land, 1998) or to assist in guidance for sampling and remediation programs by environmental consultants.

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## **HISTORICAL (LEGACY) LANDFILLS**

An LI Resources proprietary dataset containing the location of former legacy landfills. Legacy landfills are widely present across the country, with many locations unknown. Most of these landfills were created prior to current environmental guidelines (i.e. remain unlined and uncapped) resulting in the potential for leaching of hazardous substances into waterways, production of odours, migration of landfill gas and stability issues.

## **HYDROGEOLOGY**

This data includes information for environmental consultants on aquifer properties, the presence of wetlands and groundwater monitoring bores. This information can assist in the understanding of contaminant pathways and receptors.

Groundwater monitoring bores are primarily needed to assess changes to water table levels, groundwater quality and to assess groundwater flow direction. Impacts on groundwater result from contaminated water movement, leaching of surface pollutants caused by rainfall or irrigation water percolation, leakage of stored matter or the disposal of wastes. The presence of a monitoring bore may indicate that a site has been or is being investigated.

## **LICENSING UNDER THE POEO ACT 1997**

The POEO public register includes a range of specified information on environment protection licences issued under the POEO Act to regulate air, noise, water and waste pollution and impacts. The licences and notices provide information on the type of industrial activities undertaken in an area and if any clean-up and preventative action notices have been issued under that licence.

## **MILITARY FACILITIES**

Military practices at certain facilities may cause potential contamination through the use of chemicals ranging from cleaning solvents and paints to ammunition, explosives and firefighting foam. These chemicals can cause human and ecological health risks.

## **NATURALLY OCCURRING ASBESTOS**

Asbestos is found as a naturally occurring mineral in many areas of regional NSW and may occur in veins within rock formations. Naturally occurring asbestos is generally found when building roads, working on construction sites and undertaking excavation activities. This data provides information on the areas identified with a low to high probability of naturally occurring.

## **NPI INDUSTRIAL FACILITIES**

Industrial facilities that trigger a defined threshold(s) for the emission of pollutants identified in the National Pollution Inventory (NPI), must estimate and report their emissions. The pollutants identified under the NPI are those that are known to have possible effects on human health and the environment.

## **NSW EPA CONTAMINATED LAND RECORD OF NOTICES ISSUED UNDER THE CLM Act 1997**

The EPA is required by law to maintain a record of notices relating to contaminated land, including notices declaring land to be 'Significantly Contaminated Land' under the Contaminated Land Management Act 1997. The EPA record of notices provides information on all sites that have been declared significantly contaminated.

## **NSW EPA FORMER GASWORKS SITES**

Former gasworks often leave a legacy of soil and groundwater contamination. The major contaminants in these instances include tars, oils, hydrocarbon sludges, spent oxide wastes, ash and ammoniacal recovery wastes. Some of these contaminants are carcinogenic to humans and toxic to aquatic ecosystems and therefore may pose a risk to human health and the environment.

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## **NSW EPA FORMER URANIUM PROCESSING SITE AT HUNTERS HILL**

In 2008 a Parliamentary Inquiry held into the former uranium processing site at Hunters Hill, Sydney, found radiation levels were too low to require site remediation. During the investigation it became evident that there were two separate causes of gamma radiation in the vicinity of Nelson Parade (7-9 Nelson Parade – former uranium processing plant and Kelly's Bush – former tin smelter). The investigations found that levels of radiation on properties surrounding 7-9 Nelson Parade, at Kelly's Bush and in nearby areas of Hunters Hill were below relevant national and international guidelines for the protection of health and therefore remediation was not warranted. Further information can be found at [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)

## **NSW EPA JAMES HARDIE ASBESTOS WASTE CONTAMINATION LEGACY**

During the 1960s and 70s, bulk asbestos waste associated with manufacturing and waste disposal by the former James Hardie Industries was delivered as fill to areas targeted because of their low-lying geography. Between December 2007 and February 2008, the Department of Environment Climate Change and Water conducted site inspections of those disposal sites. None of the inspected sites were found to be a significant risk to human health or the environment, provided the sites remained sealed or undisturbed. Further information can be found at [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)

## **NSW EPA SITES NOTIFIED AS CONTAMINATED TO THE NSW EPA**

The EPA maintains a record of all sites notified to it by owners or occupiers of sites believed to be significantly contaminated.

## **NSW EPA PFAS INVESTIGATION PROGRAM**

The NSW EPA is investigating particular sites to better understand the extent of PFAS use and contamination in NSW. PFAS are a group of chemicals that include perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

They have many specialty applications and are widely used in a range of products in Australia and internationally. PFAS are an emerging contaminant, which means that their ecological and/or human health effects are unclear. Further information can be found at [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)

## **OTHER POTENTIALLY CONTAMINATED SITES**

An LI Resources proprietary database of recent potentially contaminating activities previously listed as having been undertaken on the property or surrounding area. Activities have been catalogued based on 'moderate to high risk activities' either known to cause potential contamination risk or to assist in guidance for sampling and remediation programs by environmental consultants. Please note this database is not exhaustive and may not list all activities in the area.

## **PARRAMATTA RIVER CATCHMENT LAND USE AREAS**

An LI Resources proprietary dataset containing land use changes around the Parramatta River catchment area. Details include land reclamation areas, loss of foreshore and major land use changes (i.e. industrial to residential land). These changes may indicate presence of unregulated landfill and potential contamination associated with former industrial land use.

## **PUBLIC REGISTER OF PROPERTIES AFFECTED BY LOOSE-FILL ASBESTOS INSULATION**

The NSW Government is required to maintain a register of residential properties that contain loose-fill asbestos insulation. This assists members of the wider community to be informed about any risks associated with a specific property and to take any appropriate safety measures. For more information see [www.fairtrading.nsw.gov.au](http://www.fairtrading.nsw.gov.au)

## **SENSITIVE RECEPTORS**

This data may assist environmental consultants during investigations as to the location and proximity of any sensitive receptors in the area, such as aged care, child care, community and religious facilities; sports grounds; national and state parks etc.

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## **COASTAL MANAGEMENT (STATE ENVIRONMENTAL PLANNING POLICY)**

The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by

- (a) managing development in the coastal zone and protecting the environmental assets of the coast, and
- (b) establishing a framework for land use planning to guide decision-making in the coastal zone, and
- (c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016.

## **SOIL LANDSCAPE AND GEOLOGY**

This data may assist environmental consultants during investigations as to the physical site properties that could govern potential contaminant retention or migration.

## **SERVICE STATIONS (CURRENT)**

Service stations may contain leaking tanks which can result in petroleum products migrating into, and contaminating, the soil or groundwater or other pathways to human and biological contact.

## **UNDERGROUND PETROLEUM STORAGE SYSTEMS (UPSS) ENVIRONMENTALLY SENSITIVE ZONES**

UPSS environmentally sensitive zones represent a conservative assessment of areas likely to be vulnerable to contamination from leaking UPSS. This information can assist environmental consultants on the risk a UPSS site poses to a recognised environmentally sensitive receptor.

## **WASTE MANAGEMENT FACILITIES**

A waste facility is a premises used for the storage, treatment, processing, sorting or disposal of waste. These include landfills, waste transfer stations and waste reprocessing facilities. Waste facilities emit regulated substances to air and water, such as methane gas, and can produce odours, dust and noise.

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## Terms and Conditions

### Terms and Conditions

1. Land Insight and Resources (LI Resources) will perform the Services in accordance with these terms and conditions
2. By submitting the Application Form, the User acknowledges that it has read and understood these terms and conditions and agrees to be bound by them.
3. LI Resources reserves the right to change these terms and conditions. Any change shall be effective upon notice, which may be given by LI Resources posting such change on the Website, or by direct communication with the User.

### Services

4. LI Resources agrees to undertake the Services using due skill, care and diligence.
5. The User assumes the sole risk of making use of, and/or relying on, the Report and the Services. LI Resources makes no representations about the suitability, completeness, timeliness, reliability, legality, or accuracy of the Services.
6. Unless LI Resources agrees expressly otherwise:
  - (A) The Services are solely for the use and benefit of the User; and
  - (B) LI Resources does not accept any liability, whether directly or indirectly, for any liability or loss suffered or incurred by any third party placing any reliance on the performance of the Services or any Documents or material arising from or in connection with the Services.
7. The User warrants to LI Resources that it will not use the Services for any purpose that is unlawful or is otherwise inconsistent with these terms and conditions.
8. The User will not alter in any way or provide a copy of the Report or any Document prepared by LI Resources to any other person without LI Resources's prior written consent.

### Payment Terms

9. The Fee will be payable at the time of submitting the Application Form unless invoicing payment terms have been negotiated prior to purchase with LI Resources.
10. The User and LI Resources may agree in writing to vary the Services. The fee for each variation shall be agreed between LI Resources and the User.
11. The User agrees to pay LI Resources the Fee, including the fee for any variation requested in accordance with clause 12.
12. If the User's rights are terminated and the User has made an advance payment, LI Resources will refund the User a reasonable proportion of the balance as determined by LI Resources in relation to the value of Services already provided.
13. GST at the prevailing rate is payable in addition to the Fee. The User agrees to pay any other applicable taxes, duties or government imposed fees related to the User's use of the Services.

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## Intellectual Property

14. LI Resources owns all intellectual property in the Report and arising from or in connection with the Services.
15. LI Resources grants the User a royalty free licence to use LI Resources's intellectual property for that User's personal assessment of its Property(s) only.

## Privacy Policy

16. Upon submitting the Application Form the User consents to LI Resources's use of the personal data provided by the User for the purposes of providing the Services.
17. The Reliance on the Report, the use of the Services and the use of LI Resources's Website is at the User's own risk. The User accepts that LI Resources does not guarantee the confidentiality of any communication or information transmitted through the use of the Website.
18. LI Resources will not provide to any third party any personal data provided by a User without the User's permission.
19. The User acknowledges that any feedback provided to LI Resources over the Website is not confidential and that LI Resources has the right to publish, reproduce, disseminate, transmit, distribute and copy (in whole or in part) any such feedback without the approval of the User.
20. LI Resources assumes no responsibility or liability for any content, communications or feedback submitted by a User over the Website. If a User has submitted objectionable content, communications or Feedback, LI Resources may, in its sole discretion, terminate that User's account, take legal action, or notify the appropriate authorities or parties, without prior notice.

## Third Party Services

21. The User accepts that, although the Website may contain or provide information regarding applications, products and/or services provided or offered by third parties, LI Resources does not recommend or endorse any such third party applications, products and/or services.
22. The report contains content provided to LI Resources by other parties (Third Party Content). LI Resources is not responsible for, does not endorse and makes no representations either expressly or impliedly concerning the accuracy or completeness of any Third Party Content. You rely on the Third Party Content completely at your own risk.

## Limit and Extent of Liability

23. LI Resources's liability is limited to the amount of the Fee. Liability arising in the provision of the Services is reduced to the extent that it arises out of or in connection with any negligent act or omission by the User.
24. Neither party is liable to the other for loss of actual or anticipated revenue or profits, increased capital or financing costs, increased operational or borrowing costs, pure economic loss, exemplary or punitive damages or indirect or consequential damages or loss.
25. In no event shall LI Resources or any directors, officers, employees or agents be liable for any indirect, punitive, incidental, special, or consequential damages arising out of or in any way connected with the use of the Website, any delay or inability to use the Website, any information available on the Website, or otherwise arising out of the utilisation of the Website, whether based in contract, tort, strict liability, or otherwise, even if LI Resources has been advised of the possibility of such damages. The negation of damages set forth herein is a fundamental element of the basis of the bargain between LI Resources and the User. The Services would not be provided without such limitations.

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## Property Verification

26. The User accepts that the Services provided do not take into account any information relating to the actual state or condition of the Property.
27. The User acknowledges that the Services are not to be interpreted as commenting on the physical characteristics or condition of the Property, any particular purpose or use of that Property or the saleability or value of the Property.

## Termination and Modification

28. LI Resources reserves the right in its sole discretion to terminate, block or restrict the User's use of the Services or any portion thereof, for any reason, and without notice. In addition, LI Resources reserves the right in its sole discretion to terminate or modify any part of the Website without notice, for any reason.

## Anti-Hacking

29. The User agrees not to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content.
30. The User agrees not to allow, aid or abet third parties to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content, or obtain access to any information regarding any User or any other Report issued to a User.

## Complaints

31. Any complaints in relation to the Services should, in the first instance, be in writing and addressed to LI Resources Customer Service at: [info@liresources.com.au](mailto:info@liresources.com.au). LI Resources will respond to any such complaints in writing as soon as practicably possible.

## General Matters

32. These terms and conditions are governed by and will be construed and enforced in accordance with the laws of the State of New South Wales, Australia. If any dispute, controversy or claim arises out of or relating to these terms and conditions, whether sounding in contract, tort or otherwise, it shall be resolved by use of an alternative dispute resolution procedure acceptable to both parties with the assistance of a mediator. If the dispute has not been resolved to the satisfaction of either party within 60 days of initiation of the procedure or if either party fails or refuses to participate in or withdraws from participating in the procedure, then either party may refer the dispute to the court.
33. These terms and conditions apply to all Services provided by LI Resources.
34. If there is any inconsistency between these terms and conditions and any other document or agreement between the parties, these terms and conditions will prevail.
35. These terms and conditions represent the entire agreement between the parties.
36. The User authorises LI Resources to destroy Documents which LI Resources has prepared or holds in connection with the Services 7 years after the last date on which the Services were provided.
37. If any of the terms of the Application Form or the terms and conditions are invalid, unenforceable or void, the relevant term must be read down to the maximum extent possible or severed from the rest of the Application Form or these terms and conditions.

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38. These terms and conditions can only be amended or varied by a written document signed by both parties.
39. Neither party may assign or transfer any rights or obligations arising in the provision of the Services or these terms and conditions without the other party's written consent.

## **Defined Terms**

|                         |                                                                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application Form</b> | Means the form and accompanying information provided on the Website, completed and submitted by the User to request the Services.                             |
| <b>Document</b>         | Includes a report, and any other written or electronic document.                                                                                              |
| <b>Fee</b>              | Means the amount set out in the Application Form or confirmed via an invoice.                                                                                 |
| <b>Property</b>         | Means the property to which the Services and the Report relate.                                                                                               |
| <b>Report</b>           | Means the Document prepared by LI Resources and provided to the User which contains the environmental and development data which is relevant to the Property. |
| <b>Services</b>         | Means the review of data and information on which the Report is based, and the preparation and provision to the User of the Report.                           |
| <b>Website</b>          | Means LI Resources's online site, that is: <a href="http://www.liresources.com.au">www.liresources.com.au</a>                                                 |
| <b>User</b>             | Means the person(s) set out in the Application Form including that person's permitted successors.                                                             |

