



Preliminary Site Investigation

St James Primary School (St Nicholas EEC) – 30 Vista Parade, Kotara

Ref: P1677-R-003-PSI-Rev0

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Project Details

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Project Type:	Preliminary Site Investigation	
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Report Register

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Rev0	JD	MA	19/2/2020

We confirm that the following report has been produced for Catholic Diocese of Maitland-Newcastle, based on the described methods and conditions within.

For and on behalf of **Valley Civilab Pty Ltd**,



Malcolm Adrien

Environmental Services Manager

Executive Summary

Valley Civilab Pty Ltd (Valley Civilab) was engaged by Catholic Diocese of Maitland-Newcastle to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at St James Primary School (St Nicholas EEC) – 30 Vista Parade, Kotara NSW (herein referred to as the site).

The section of the site undergoing assessment currently consists of a gravel carpark, surrounded by grassed areas and pre-existing G Block Hall belonging to St James Primary School. The client has provided plans for the intended development of three new proposed buildings (Blocks A1, A2 and B), a new carpark and circulation road and a new footpath and forecourt across the entire site.

This PSI includes the following elements:

- Review of historical aerial images of the site and surrounding area;
- Compilation of a historical title summary;
- Review of a Section 10.7 Planning Certificate;
- Review of publicly available environmental databases and legislative instruments;
- Site inspection and interview with knowledgeable site representative (if available);
- A preliminary Conceptual Site Model (CSM) with assessment of source-pathway-receptor linkages; and
- Recommendations for further investigation, any management requirements and/or any ongoing management, monitoring or remedial works that may be required.

With use of a VC supplied drill rig, a total of thirteen (13) soil samples (including one (1) duplicate sample for QA/QC purposes) were collected from six (6) boreholes drilled to a maximum depth of approximately 2.0m and sent to external laboratory SGS to be chemically analysed for a range of contaminants to determine site suitability in comparison to guidelines relevant with the proposed land use.

Results of the laboratory analysis indicate the material meets the most sensitive land use criteria presented in the NEPM for HIL-A/HSL-A Residential land use which is applicable to this re-development of a Primary School. No visual sources or signs of gross contamination were identified during site inspection or intrusive investigation and as such, no further investigation or sampling is considered necessary.

Desktop review of available information and site inspection including a limited soil investigation have allowed assessment of potential health and environmental issues relating to the site. Key findings were:

- 1) Potential contamination sources at the site are limited based on area land use;
- 2) Visible signs of gross contamination were not observed during site inspection and intrusive works;
- 3) Contamination in shallow soils was not identified at any of the sampling locations;
- 4) Contamination in deep soils was not identified at any of the sampling locations.

In summary, based on the desktop study and limited intrusive sampling conducted on the Site, no indication of gross contamination has been identified which would constrain the expansive development of the Site under its current residential A land use criterion as a primary school and proposed use as an early education centre.

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1 Introduction

1.1 Background

Valley Civilab Pty Ltd (Valley Civilab) was engaged by Catholic Diocese of Maitland-Newcastle to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at St James Primary School (St Nicholas EEC) – 30 Vista Parade, Kotara, NSW (herein referred to as the site).

The section of the site undergoing assessment currently consists of a gravel carpark, surrounded by grassed areas and pre-existing G Block Hall belonging to St James Primary School. The client has provided plans for the intended development of three new proposed buildings (Blocks A1, A2 and B), a new carpark and circulation road and a new footpath and forecourt across the entire site. The Preliminary Site Investigation is required for due diligence purposes as part of the development application.

A Site Features Plan is presented as *Figure 1 of Annex A*.

1.2 Objectives

The objectives of this PSI were to investigate potential contaminant sources, pathways and receptors in relation to the site as well as inform preliminary consideration of potential risks to human health and/or the environment within the context of the most sensitive land use. The Site is intended to have a dual Commercial/Residential Land Use. For the purpose of the investigation, HIL A criteria has been adopted as the most sensitive land use.

This report has been prepared in general accordance with provisions for a PSI as defined within the *National Environment Protection Measure* (NEPC 2013), *AS 4482.1-1997 Guide to the sampling and Investigation of potentially contaminated soil* and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA 1997).

All information collected informed the development of the preliminary conceptual site model which provides a representation of potential contamination sources, receptors and exposure pathways between these sources and receptors.

1.3 Scope of Works

1.3.1 Preliminary Site Investigation

This PSI includes the following elements:

- Review of historical aerial images of the site and surrounding area;
- Compilation of a historical title summary;
- Review of a Section 10.7 Planning Certificate;
- Review of publicly available environmental databases and legislative instruments;
- Site inspection and interview with knowledgeable site representative (if available);
- A preliminary Conceptual Site Model (CSM) with assessment of source-pathway-receptor linkages; and

- Recommendations for further investigation, any management requirements and/or any ongoing management, monitoring or remedial works that may be required

1.3.2 Limited Sampling

Limited Sampling consisted of the collection of a total of thirteen (13) soil samples (including one duplicate sample for QA/QC purposes) from six (6) boreholes, drilled to a maximum depth of approximately 2.0m BGL using a VC supplied drill rig to determine site suitability for the proposed land use. Samples were analysed for the presence of the following analytes:

- Benzene, Toluene, Ethyl Benzene & Xylene (BTEX);
- Total Recoverable Hydrocarbons (TRH);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg);
- Organochlorine Pesticides (OCP) & Organophosphorus Pesticides (OPP); and
- Polychlorinated Biphenyls (PCB).

Quality Assurance comprised of the following;

- Collection of a duplicate sample at a rate of 1 per 20 samples.
- One rinsate solution per day.

2 Site Description

2.1 Site and Lot identification

The site is located at St James Primary School (St Nicholas EEC) – 30 Vista Parade, Kotara NSW, legally identified as Lot 12 DP 560852 and Lot 131 DP 262057. The site forms a rectangular shaped block of approximately 29,080m², adjacent to Vista Parade along the South Western boundary (SIX Maps, 2019).

A summary of site information is provided in **Table 1** below.

Table 1 - Site Identification

Item	Description
Current Site Owner	Trustees of the Roman Catholic Church for the Diocese of Maitland
Site Address	St James Primary School (St Nicholas EEC) – 30 Vista Parade, Kotara
Current Zoning	Zone R2 Low Density Residential
Legal Description	Lot 12 DP 560852 Lot 131 DP 262057
Local Government Authority	Newcastle City Council
Site Area	Approximately 29,080 m ²
Elevation	33m Above Sea Level (ASL)
Geographical Location (GDA94-MGA56)	151°42'4.12"E 32°56'52.47"S

Review of The Newcastle Local Environmental Plan (LEP) 2012 together with the Planning Certificate under Section 10.7 Part 2 and 5 of the Environmental Planning and Assessment Act 1979 (attached as *Annex B*) provides the following information:

- 1) The site is not affected by heritage items;
- 2) The site and/or adjacent lots are not affected by land reserved for acquisition;
- 3) The site is not affected by environmentally sensitive land or critical habitat;
- 4) The site and/or adjacent lots are/contain flood prone land. Section 4.01 Flood Management of Newcastle Development Control Plan (DCP) 2012 provides guidelines with respect to all development on flood prone land.
- 5) There are no prescribed matters under section 59(2) of the Contaminated Land Management Act 1997 to be disclosed.

Review of the CSIRO Acid Sulfate Resource Information Service (ASRIS, 2008) identifies the site as being within an unassessed area of Acid Sulfate Soils.

2.2 Surrounding Land Use

The site is located predominantly within a residential area of Kotara. Review of satellite imagery identified surrounding land uses as summarised in **Table 2** below.

Table 2 - Summary of surrounding land uses

Direction	Land Use	Distance
North	Residential dwellings	Adjacent
East	Residential dwellings	Adjacent
South	Residential	Adjacent
West	Residential	Adjacent

3 Background Data Review and Database Searches

3.1 Summary of ownership and site use

Historical title searches completed for the site provide a summary of ownership as described in **Table 3** below.

Table 3 - Summary of site ownership

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
14.08.1929 (1929 to 1956)	The Scottish Australian Mining Company Limited	Vol 4312 Fol 88 Now Vol 6102 Fol 167
09.07.1956 (1956 to 1964)	Hunter District Industries Pty Limited	Vol 6102 Fol 167 Now Vol 9881 Fol 9
14.10.1964 (1964 to 1967)	Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 9881 Fol 9 Now Vol 10684 Fol 82
23.11.1967 (1967 to 1970)	William Henry Hudson (Master Builder)	Vol 10684 Fol 82
02.03.1970 (1970 to 1973)	W.H. Hudson Developments Pty Limited	Vol 10684 Fol 82 Now Vol 12313 Fol 173
20.11.1973 (1973 to date)	# Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 12313 Fol 173 Now 12/560852

Historical title documents sourced as part of this assessment are presented as *Annex C*.

3.2 Historical Photographs

Historical aerals and satellite images dating 1954 – 2019 provide a summary of development at the site and within the surrounding area. Historical images are presented as part of *Annex D* and a summary of review in **Table 4** below.

Table 4 - Historical Aerial Review

Date	Summary
1954	The image dated 1954 is an excerpt from a low resolution black and white aerial photograph depicting the site and surrounding area. At this time, the site is vegetated vacant land with some minor commercial development to the south-western region of the area surrounding the site.
1965	The image dated 1965 is an excerpt from a high resolution black and white aerial photograph depicting the site and surrounding area. The site remains undeveloped as per the 1954 image, major residential development is seen to the immediate west of the site.
1976	The image dated 1976 is an excerpt from a high resolution colour aerial photograph depicting the site and surrounding area. The site remains undeveloped as per the 1954 and 1965 images, with some clearing of vegetation to the south of the site. Major residential development is seen to the immediate east of the site and development of St Phillips Church to the south of Vista Parade.
1983	The image dated 1983 is a low-resolution colour aerial image depicting the site and surrounding area. At this time, the development of St James PS can be depicted at the site. Surrounding residential areas remain consistent to the 1976 image.
1993	The image dated 1993 remains consistent with the 1983 image.
2007	The image dated 2007 is a high-resolution colour satellite image depicting the site and surrounding area. The site remains consistent to previous images with the addition of the netball/basketball courts to the south of the St James PS school buildings. Surrounding residential areas remain consistent to the 1983-1994 images.
2014	The image dated 2014 is a high-resolution colour satellite image depicting the site and surrounding area. Major development is apparent at the site, with the addition of a cola, covering the netball/basketball courts, additional coverage across the site and the development of the hall, parking area and connecting road to the existing St James PS buildings to the north.

Date	Summary
2018	The image dated 2018 is a low-resolution colour satellite image depicting the site and surrounding area. Some minor development within the site is apparent. Surrounding areas appear consistent to previous images.
2019	The image dated 2019 is a high-resolution colour satellite image depicting the site and surrounding area. Site and surrounding areas appear consistent to the 2018 image.

3.3 Site Setting

3.4 Topography and hydrology

Reference to the Newcastle Soil Landscape Map indicates that the site is located within the Cockle Creek Landscape. The landscape is characterized by narrow floodplains, alluvial fan deposits and broad delta deposits in the Awaba Hills. Review of Google Earth Pro (2019) indicates the site slightly slopes from 41 Above Sea Level (ASL) in the Eastern corner of the lot, to 32m ASL in the eastern corner. The closest surface water body identified is Styx Creek which runs adjacent to Grayson Avenue on the North-Western boundary of the site.

3.4.1 Lithology and Geology

Reference to the Newcastle Soil Landscape Map indicates that the site is located within the Cockle Creek Landscape. The landscape is characterized by narrow floodplains, alluvial fan deposits and broad delta deposits in the Awaba Hills.

Review of the NSW Department of Industry, Resources & Energy database; Newcastle 1: 250,000 Geological Sheet indicates that the site lies on the Newcastle Coal Measures. Typical lithology includes Conglomerate, Sandstone, tuff, shale and coal.

3.4.2 Hydrogeology

Review of the NSW Department of Primary Industries – Office of Water / Water Administration Ministerial Corporation database identified two registered bores within 1.5km of the site. Bore details are presented in **Table 5** below.

Table 5 - Groundwater Bore Details

Bore ID	Construction Date	Location	Depth (mbgl)	Purpose
GW057772	01/02/1981	597m North	24.00	Recreation (groundwater)
GW061223	01/06/1985	1501m North East	36.50	Domestic

Groundwater data for the identified bores were not available for review at the time of this report.

3.5 Chemical storage and waste production/disposal

The results of the SafeWork Dangerous Goods Search were not included as part of this report due to the historical and ongoing land use of the Site.

3.6 Environmental incident history/register

Sources to inform consideration of potential environment incidents at the site were not identified as part of this investigation.

3.7 Online Database Searches

3.7.1 Current and Former Environmental Protection Licenses

A review of the licenced activities under the Protection of the Environment Operations act 1997 was completed on the 11th February 2020.

A number of NSW EPA licensed activities have been conducted within proximity to the Site. The tables below list both former and current licensed activities and the type of licensed activity conducted.

Table 6 - Current Licensed EPA Activities

EPL	Organisation	Activity	Approximate Distance from Site
4965	SYDNEY WATER CORPORATION	Other activities	3m West
6332	LAKE MACQUARIE CITY COUNCIL	Other activities	246m South West
12208	SYDNEY TRAINS	Railway systems activities	North West

Table 7 - Former Licensed EPA Activities

License Number	Organisation	Activity	Approximate Distance from Site
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	Other Activities / Non Scheduled Activity - Application of Herbicides	On-site
4838	Robert Orchard	Other Activities / Non Scheduled Activity - Application of Herbicides	On-Site
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	Other Activities / Non Scheduled Activity - Application of Herbicides	On-Site



3.7.2 Heritage

Review of the Heritage Data Source - Planning & Environment, indicates the site is not affected by heritage items. The closest registered heritage item is an EPI Heritage item; 'Raspberry Gully Line Railway' situated 229m south-west of the Site. Registered heritage items within the area are described in **Table 8** below.

Table 8 - Heritage Item Summary

Heritage Item Number	Description	Approximate Distance from Site
-	Raspberry Gully Line Railway	229m South West
-	South Waratah Colliery	737m South West

A figure detailing locations of heritage items listed above is presented within Lotsearch Report in *Annex D*.

3.7.3 Contaminated Land Records

A review of the NSW EPA Contaminated Land Record of Notices was completed on 11th February 2020. This review identified that the site is not subject to regulation by the NSW EPA under Section 60 of the *Contaminated Land Management (CLM) Act 1997* and similarly that there are no sites within the surrounding area subject to regulation under the *CLM Act 1997*.

A review of the NSW EPA List of Contaminated Sites was completed 11th February 2020. This review identified that the site has not been notified to the EPA as a contaminated site and similarly that there are no sites within the surrounding area that have been notified. The findings of these reviews indicate that the site is unlikely to be impacted by contamination known to the EPA.

3.7.4 Naturally Occurring Asbestos

NSW Department of Industry, Resources & Energy (2016) identifies that the site does not fall in an area known to contain naturally occurring asbestos.

4 Site Inspection

Two Valley Civilab environmental scientists experienced in contaminated site assessments visited the Site 7th February 2019. Site inspection identified a sampling area consisting of a gravel carpark surrounded by grassed fields and a driveway adjacent to pre-existing G Block Hall connecting to Vista Parade at the southern boundary of the site. No obvious signs of contamination were visually identified during the site inspection or field investigation.

5 Soil Investigation

As stated in Section 1.3, a soil investigation was conducted for contaminants of concern. The sampling density and analytical schedule generated as part of this intrusive investigation is only intended to supplement findings from the desktop review of information and is not intended to meet the minimum requirements of a Detailed Site Investigation (DSI) as outlined within the *NSW Office of Environment and Heritage: Guidelines for Consultants Reporting on Contaminated Sites (2011)*.

All works were conducted in accordance with Valley Civilab's relevant Standard Operating Procedures (SOPs). Methodologies are outlined in the following sub-sections. Borelogs are presented in *Annex E*, Soil Investigation locations are presented in *Figure 1 of Annex A*.

5.1 Soil sampling

Limited Sampling consisted of the collection of a total of thirteen (13) soil samples (including one duplicate sample for QA/QC purposes) from six (6) boreholes, drilled to a maximum depth of approximately 2.0m BGL using a VC supplied drill rig to determine site suitability for the proposed land use. Samples were analysed for the presence of the following analytes:

- Benzene, Toluene, Ethyl Benzene & Xylene (BTEX);
- Total Recoverable Hydrocarbons (TRH);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg);
- Organochlorine Pesticides (OCP) & Organophosphorus Pesticides (OPP); and
- Polychlorinated Biphenyls (PCB).

Quality Assurance comprised of the following;

- Collection of a duplicate sample at a rate of 1 per 20 samples.
- One rinsate solution per day.

5.2 Assessment Criteria

Analytical data was screened against relevant Tier 1 Trigger Values as defined or referenced within the NEPM 2013 Schedule B1 for Residential A land use. Specifically:

- 1) Health Investigation Levels for Residential A land use (HIL-A) for heavy metals, PAHs, OCP, OPP and PCBs were derived from *Table 1A (1)*;
- 2) Health Screening Levels were derived from *CRC Care Technical Report 10 – Health screening levels for petroleum hydrocarbons in soil and groundwater – Summary* (Friebel and Nadebaum 2011) for sand-based soils in Residential land use (HSL-A) for TRH, BTEX and Naphthalene. These include criteria for considering potential vapour intrusion defined in *Table B3* and criteria for direct contact defined in *Table B4*;
- 3) Management Limits from *Table 1B (7)* for TPH fractions F1-F4 in soil for Residential land use;
- 4) Ecological investigation levels (EILs) for inorganics to assess risks to ecological receptors from *Table 1B(4 and 5)*; and
- 5) Ecological screening levels (ESLs) for TPH fractions F1-F4, BTEX and Benzo(a)Pyrene in coarse soil for Residential A land use from *Table 1B(6)*.

HIL and HSL assessment criteria address potential health risks to receptors associated with potential contamination.

As the proposed development consists of the expansion of the primary school, the most sensitive land use criteria provided in the NEPM has been adopted.

5.3 Analytical Results

A tabulated assessment of analytical results against assessment criteria is presented in Tables 1 - 2 within **Annex F** with laboratory reports presented in **Annex G**.

- Results of the laboratory analysis returned concentrations below the Limit of Reporting (LOR) for BTEX, OCP, OPP and PCB.
- All heavy metal results were below HIL-A criteria.
- Concentrations above the LOR for F2 and F3 total recoverable hydrocarbons (TRH) were reported for Samples BH9_0.7-0.8 and BH10_0.8-1.0, however these values still were below HIL-A Criteria. All remaining samples were reported below the LOR for TRH.
- Concentrations above the LOR were reported in five samples for Total PAH and in Benzo(a)pyrene for sample BH12_0.15-0.25, however these values were all below HIL-A Criteria. All remaining samples were reported below the LOR for PAH.

The results of the analysis indicate the soils sampled for the targeted assessment area meet the HIL-A criteria for residential A in which is the most sensitive land use criteria provided in the NEPM.

6 Analytical Data Quality Assessment

The quality of analytical data presented within this report has been assessed with reference to the following issues:

- 1) Sampling technique;
- 2) Preservation and storage of samples upon collection and transport to the laboratory;
- 3) Sample holding times;
- 4) Analytical procedures;
- 5) Laboratory limit of reporting (LOR);
- 6) Laboratory quality assurance (QA) procedures; and
- 7) The occurrence of apparently unusual or anomalous results.

A review of these items was conducted to assess data in terms of completeness, representativeness, comparability, accuracy and precision. A discussion of the data quality assessment related to the items listed above is provided in the subsections that follow.

6.1 Sample Collection, Storage, Transport and Analysis

6.1.1 General

Samples were collected, stored and transported to the laboratory in accordance with Valley Civilab's standard operating procedures which are consistent with guidelines provided in the ASC NEPM (2013). All samples were collected in appropriate containers provided by the laboratory.

6.1.2 Holding Times

Laboratory analysis was undertaken within specified holding times in accordance with Schedule B3 of the ASC NEPM (2013) and using NATA accepted analytical procedures.

6.1.3 Sample Transport and Storage temperature

In accordance with Schedule B3 of the ASC NEPM (2013), all samples were chilled during transport to the laboratory and evidence of chilling was recorded on the sample receipt documentation for the laboratory.

6.2 Field Intra-Laboratory Duplicate Assessment

Relative Percentage Differences (RPDs) were calculated between the primary sample concentration and its corresponding intra-laboratory duplicate. As stipulated by the NEPM, the RPD acceptance criteria is 30% however it is noted that higher variations can be expected for organic analysis, samples with low analyte concentrations or non-homogenous samples (NEPC, 2013). As such, the primary laboratory RPD acceptance criteria were used and are as follows:

- 1) Results <10 times the LOR: No Limit;
- 2) Results between 10-20 times the LOR: RPD must lie between 0-50%; and
- 3) Results >20 times the LOR: RPD must lie between 0-30%

The results of the Rinsate sample analysis were all found to be below the laboratory Limit of Reporting for all analytes, indicating field decontamination procedures were adequate.

Results of the RPD analysis between primary and duplicate samples were all within allowable limits.

The analytical data is considered sufficiently complete, representative, comparable, accurate and precise to serve as an adequate basis for interpretation for the purposes of this project.

6.3 Laboratory Quality Assurance and Quality Control

Laboratory QA/QC procedures and results are detailed in the certified laboratory results contained in *Annex H*. The analytical methods implemented by the laboratories were reported to be consistent with the scope of their NATA accreditation and consistent with Schedule B3 of the ASC NEPM (2013). The laboratory generally reported an adequate range and frequency of data quality information (including laboratory duplicates and control samples).

The reported laboratory data quality was considered acceptable to meet the objectives of this assessment.

6.4 Data Quality Summary

Overall, the data from this investigation is considered to be of sufficient quality to serve as a basis for interpretation as part of this assessment.

7 Preliminary Conceptual Site Model

A CSM is a representation of site related information regarding contaminant sources, exposure pathways and receptors. A CSM facilitates consideration of risks to human health and the environment associated with site contamination through assessment of source – pathway – receptor linkages. A preliminary CSM based on the understanding of site history and environmental setting is presented in the following sections.

7.1 Potential Sources and Associated Contaminants of Concern

Analytical results from the intrusive investigation did not indicate any Contaminants of Potential Concern (CoPC).

Off-site sources of contamination with the potential to affect the site were considered unlikely taking into consideration information discussed in Section 2.2 of this report.

7.2 Potential Receptors and Pathways

The following receptors have been identified based on current site setting and proposed future development:

- 1) Construction workers associated with the proposed development;
- 2) Current and future site users (including secondary students and workers);
- 3) Future on-site intrusive maintenance workers; and
- 4) Terrestrial flora and fauna.

Pathways by which the contamination may affect the receptors presented above includes:

- 1) Direct contact (dermal contact, incidental ingestion and dust inhalation);
- 2) Ecological uptake.

7.3 SPR Linkage Assessment

A source-pathway-receptor (SPR) linkage is present when a pathway links a source with a receptor. These linkages are considered complete where a risk to the identified receptors may exist, now or in the future. Given that soil analytical results were reported below the adopted screening criteria (HIL/HSL A) for the identified receptors via the relevant pathway (direct contact), this SPR linkage is incomplete. Therefore, a potential exposure risk is considered unlikely.

8 Conclusions

Valley Civilab Pty Ltd (Valley Civilab) was engaged by Catholic Diocese of Maitland-Newcastle to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at St James Primary School (St Nicholas EEC) – 30 Vista Parade, Kotara NSW (herein referred to as the site). Analysis was conducted for contaminants of concern to identify any potential contamination issues that would constrain the site use for its proposed expanding development.

The detailed desktop review of available information and thorough site inspection including shallow soil investigation have enabled the development of a preliminary conceptual site model allowing assessment of potential health and environmental issues relating to the site. Key findings were:

- 1) Potential contamination sources at the site are limited based on area land use;
- 2) Visible signs of gross contamination were not observed during site inspection and intrusive works;
- 3) Contamination in shallow soils was not identified at any of the sampling locations;
- 4) Contamination in deeper soils was not identified at any of the sampling locations.

In summary, based on the desktop study and limited intrusive sampling conducted on the Site, no indication of gross contamination has been identified which would constrain the expansive development of the Site under its current residential A land use criterion as a primary school and proposed use as an early education centre.

If you have any further questions about this report, please contact the undersigned.

For and on behalf of

Valley Civilab Pty Ltd



Jake Duck

Environmental Scientist.



Malcolm Adrien

Environmental Services Manager

References:

Australian Standard AS 4482.1-2005 (2005) *Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 1 – Non-volatile and Semi-Volatile Compounds.*

National Environment Protection Council (NEPC), (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999, NEPM, Canberra. Schedule B2: Guideline On-site Characterisation.*

NSW EPA (1997) *Guidelines for Consultants Reporting on Contaminated Sites.*

NSW EPA (1997). *Contaminated Land Management Act 1997.*

NSW EPA (2017) *Naturally Occurring Asbestos in NSW*

<https://trade.maps.arcgis.com/apps/PublicInformation/index.html?appid=87434b6ec7dd4aba8cb664d8e646fb06> accessed 23/01/20.

Lotsearch (2019) Enviro Professional, Reference: LS011100 EP 11 - Feb 2020 12:43:12

LIMITATIONS

This report was prepared in accordance with the scope of work outlined within this report and subject to the applicable cost, time and other constraints. Valley Civilab performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental profession. Valley Civilab makes no warranty concerning the suitability of the site for any purpose or the possibility of any use, development or re-development of the site. Except as otherwise stated, Valley Civilab's assessment is limited strictly to identifying specified environmental conditions associated with the subject site and does not evaluate structural conditions of any buildings on the subject site. Lack of identification in the report of any hazardous or toxic materials on the subject site should not be interpreted as a guarantee that such materials do not exist on the site.

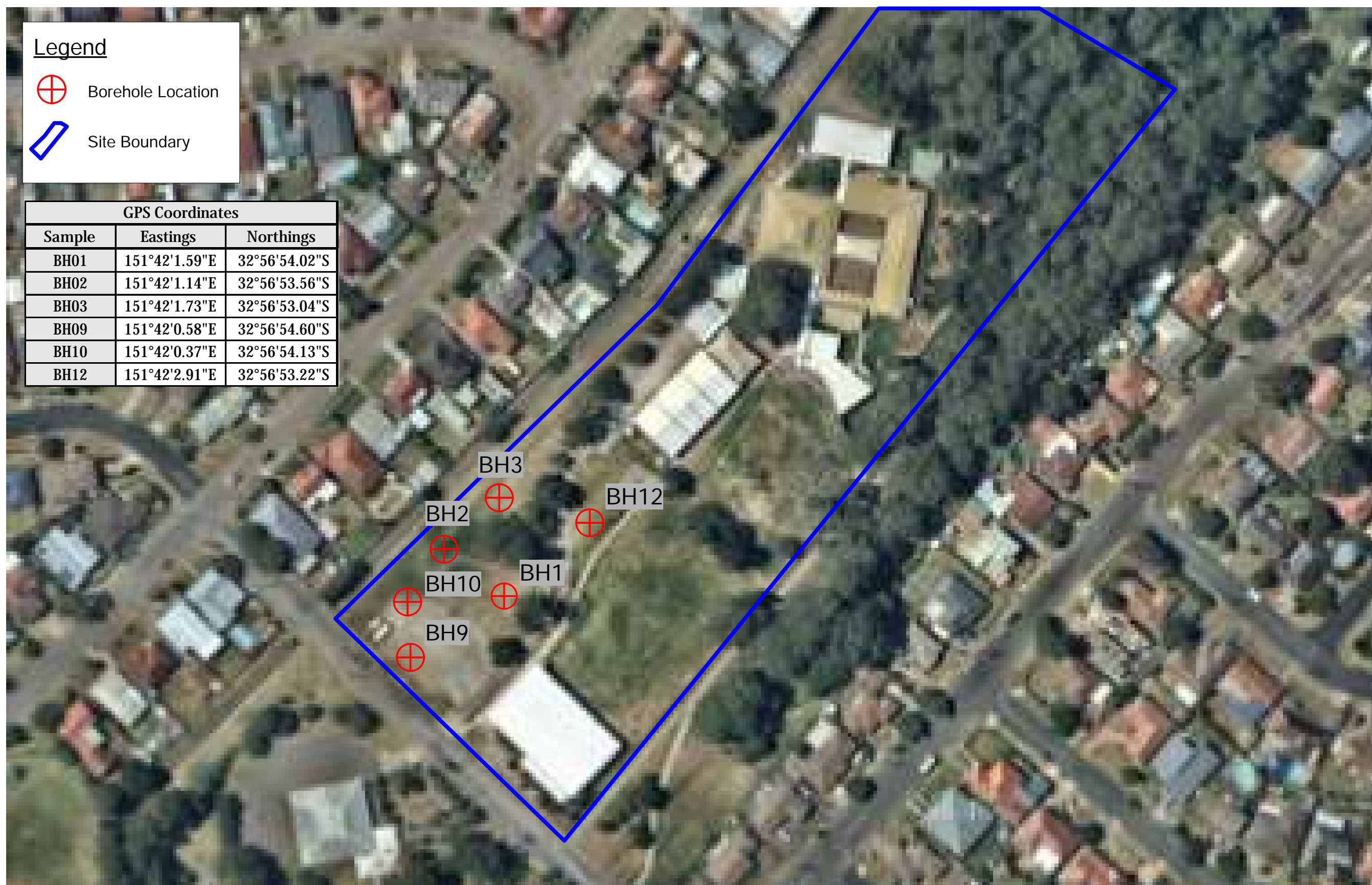
This assessment is based on site inspection conducted by Valley Civilab personnel, sampling and analysis described in the report, and information provided by Catholic Diocese of Maitland-Newcastle or other people with knowledge of the site conditions. All conclusions and recommendations made in the report are the professional opinions of the Valley Civilab personnel involved with the project and, while normal checking of the accuracy of data has been conducted, Valley Civilab assumes no responsibility or liability for errors in data obtained from such sources, regulatory agencies or any other external sources, nor from occurrences outside the scope of this project.

Valley Civilab is not engaged in environmental consulting and reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity or investment purposes.

VALLEY CIVILAB PREPARED THIS REPORT FOR THE SOLE AND EXCLUSIVE BENEFIT AND USE OF Catholic Diocese of Maitland-Newcastle. NOTWITHSTANDING DELIVERY OF THIS REPORT BY VALLEY CIVILAB OR Catholic Diocese of Maitland-Newcastle TO ANY THIRD PARTY, UNLESS OTHERWISE EXPRESSLY AGREED, ANY COPY OF THIS REPORT PROVIDED TO A THIRD PARTY IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY, WITHOUT THE RIGHT TO RELY AND VALLEY CIVILAB DISCLAIMS ALL LIABILITY TO SUCH THIRD PARTY TO THE EXTENT PERMITTED BY LAW. ANY USE OF THIS REPORT BY A THIRD PARTY IS DEEMED TO CONSTITUTE ACCEPTANCE OF THIS LIMITATION.



Annex A

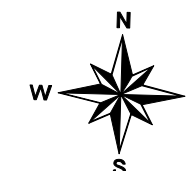
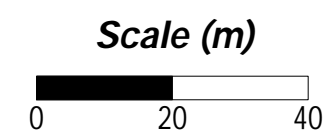


Notes:

(1) The scale bar is approximate.

(2) Base layer sourced from NearMap (2019).

Figure 1 - Borehole Plan





Annex B



City of
Newcastle

Planning Certificate

Section 10.7, Environmental Planning and Assessment Act 1979

To: Lotsearch Pty Ltd
Level 3, 68 Alfred Street
MILSONS POINT NSW 2061

Certificate No: PL2020/00661
Fees: \$133.00
Receipt No(s): D001449713

Your Reference: LS011100

Date of Issue: 11/02/2020

The Land: Lot 12 DP 560852 30 Vista Parade Kotara NSW 2289
--

Advice provided on this Certificate:

Advice under section 10.7(2): see items 1 – 21
Additional advice under section 10.7(5): see Items 22 – 30

IMPORTANT: Please read this certificate carefully

This certificate contains important information about the land.

Please check for any item which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, phone our **Customer Contact Centre** on (02) 4974 2000, or come in and see us.

The information provided in this certificate relates only to the land described above. If you need information about adjoining or nearby land, or about the City of Newcastle (CN) development policies for the general area, contact our **Customer Contact Centre**.

All information provided is correct as at 11/02/2020. However, it's possible for changes to occur within a short time. We recommend that you only rely upon a very recent certificate.

City of Newcastle

PO Box 489
NEWCASTLE 2300

Phone: (02) 4974 2000
Facsimile: (02) 4974 2222

Customer Contact Centre

Ground floor,
12 Stewart Avenue
Newcastle West NSW 2300

Office hours:

Mondays to Fridays 8.30 am to 5.00 pm

Part 1:

Advice provided under section 10.7(2)

ATTENTION: The explanatory notes appearing in italic print within Part 1 are provided to assist understanding, but do not form part of the advice provided under section 10.7(2). These notes shall be taken as being advice provided under section 10.7(5).

1. Names of relevant planning instruments and DCPs

The following environmental planning instruments, proposed environmental planning instruments and development control plans apply to the land, either in full or in part.

State Environmental Planning Policy No. 1 - Development Standards

State Environmental Planning Policy No. 21 - Caravan Parks

State Environmental Planning Policy No. 33 - Hazardous and Offensive Development

State Environmental Planning Policy No. 36 - Manufactured Home Estates

State Environmental Planning Policy No. 44 - Koala Habitat Protection

State Environmental Planning Policy No. 50 - Canal Estate Development

State Environmental Planning Policy No. 55 - Remediation of Land

State Environmental Planning Policy No. 64 - Advertising and Signage

State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development

State Environmental Planning Policy No. 70 - Affordable Housing (Revised Schemes)

State Environmental Planning Policy (Housing For Seniors or People with a Disability) 2004

State Environmental Planning Policy (Building Sustainability Index:BASIX) 2004

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Affordable Rental Housing) 2009

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Concurrences) 2018

State Environmental Planning Policy (Primary Production and Rural Development) 2019

Newcastle Local Environmental Plan 2012

Newcastle Development Control Plan 2012

2. Zoning and land use under relevant LEPs

Newcastle Local Environmental Plan 2012

Zoning: The Newcastle Local Environmental Plan 2012 identifies the land as being within the following zone(s):

Zone R2 Low Density Residential

Note: Refer to www.newcastle.nsw.gov.au or www.legislation.nsw.gov.au web site for LEP instrument and zoning maps.

The following is an extract from the zoning provisions contained in Newcastle Local Environmental Plan 2012:

Zone R2 Low Density Residential

- **Objectives of zone**

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To accommodate a diversity of housing forms that respects the amenity, heritage and character of surrounding development and the quality of the environment.

- **Permitted without consent**

Environmental protection works; Home occupations

- **Permitted with consent**

Boarding houses; Child care centres; Community facilities; Dwelling houses; Educational establishments; Emergency services facilities; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Hospitals; Neighbourhood shops; Recreation areas; Residential accommodation; Respite day care centres; Roads; Tourist and visitor accommodation

- **Prohibited**

Backpackers' accommodation; Hostels; Rural workers' dwellings; Serviced apartments; Any other development not specified in, permitted without consent or permitted with consent

Minimum land dimensions for erection of a dwelling-house: The Newcastle Local Environmental Plan 2012 contains development standards relating to minimum land dimensions for the erection of a dwelling house. Refer to clause 4.1 Minimum subdivision lot size and Part 4 Principle development standards of the Newcastle LEP 2012 for provisions relating to minimum lot sizes for residential development.

Critical habitat: The Newcastle Local Environmental Plan 2012 does not identify the land as including or comprising critical habitat.

Heritage conservation area: The land is not within a heritage conservation area under the Newcastle Local Environmental Plan 2012.

Heritage items: There are no heritage items listed in the Newcastle Local Environmental Plan 2012 situated on the land.

3. Complying development

Note Other requirements: *The advice below for all Complying Development Codes, is limited to identifying whether or not the **land**, the subject of the certificate, is land on which complying development may be carried out because of Clauses 1.17A(1)(c) to (e), (2), (3) & (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP).*

To ascertain the extent to which the complying development may or may not be carried out on the land, maps are available on City of Newcastle (CN) web pages.

General Housing Code

Complying development under the General Housing Code MAY be carried out on this land.

Rural Housing Code

Complying development under the Rural Housing Code MAY be carried out on this land.

Housing Alterations Code

Complying development under the Housing Alterations Code MAY be carried out on this land.

General Development Code

Complying development under the General Development Code MAY be carried out on this land.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code MAY be carried out on this land.

Commercial and Industrial (New Buildings and Additions) Code

Complying development under the Commercial and Industrial (New Buildings and Additions) Code MAY be carried out on this land.

Subdivision Code

Complying development under the Subdivision Code MAY be carried out on this land.

Demolition Code

Complying development under the Demolition Code MAY be carried out on this land.

Fire Safety Code

Complying development under the Fire Safety Code MAY be carried out on this land.

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The land IS NOT subject to an agreement for annual charges under section 496B of the Local Government Act 1993 for coastal protection services (within the meaning of section 553B of that Act).

5. Mine Subsidence Compensation Act 1961

The land IS WITHIN a declared Mine Subsidence District under section 20 of the Coal Mine Subsidence Compensation Act 2017. Development in a Mine Subsidence District requires approval from Subsidence Advisory NSW. Subsidence Advisory NSW provides compensation to property owners for mine subsidence damage. To be eligible for compensation, development must be constructed in accordance with Subsidence Advisory NSW approval. Subsidence Advisory NSW has set surface development guidelines for properties in Mine Subsidence Districts that specify building requirements to help prevent potential damage from coal mine subsidence.

NOTE: The above advice is provided to the extent that City of Newcastle (CN) has been notified by Subsidence Advisory NSW.

6. Road widening or realignment

NOTE: The Roads and Maritime Services (RMS) may have proposals that are not referred to in this item. For advice about affectation by RMS proposals, contact the Roads and Maritime Services, Locked Mail Bag 30 Newcastle 2300. Ph: 131 782.

The land IS NOT AFFECTED by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993.

The land IS NOT AFFECTED by any road widening or road realignment under an environmental planning instrument.

The land IS NOT AFFECTED by road widening or road realignment under a resolution of the Council.

7. Policies on hazard risk restrictions

Except as stated below, the land is not affected by a policy referred to in Item 7 of Schedule 4 of the Environmental Planning and Assessment Regulation 2000 that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Potential acid sulfate soils: Works carried out on the land must be undertaken in accordance with Clause 6.1 Acid sulfate soils of the Newcastle Local Environmental Plan 2012.

Land Contamination: Council has adopted a policy of restricting development or imposing conditions on properties affected by Land Contamination. Refer to the Newcastle Development Control Plan 2012, which may be inspected or purchased at our Customer Contact Centre.

Bush fire: Under clause 5.11 Bush fire hazard reduction of the Newcastle LEP 2012, bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent.

NOTE: The Rural Fires Act 1997 also makes provision relating to the carrying out of development on bush fire prone land.

NOTE: The absence of a policy to restrict development of the land because of the likelihood of a particular risk does not imply that the land is free from that risk. City of Newcastle (CN) considers the likelihood of natural and man-made risks when determining development applications under section 4.15 of the Environmental Planning and Assessment Act 1979. Detailed investigation carried out in conjunction with the preparation or assessment of a development application may result in CN either refusing development consent or imposing conditions of consent on the basis of risks that are not identified above.

7A. Flood related development controls information

Our information currently indicates that the property is, or contains, flood prone land as defined in the Floodplain Development Manual: the management of flood liable land, April 2005 published by the NSW Government.

Section 4.01 Flood Management of Newcastle Development Control Plan (DCP) 2012 provides guidelines with respect to all development of flood prone land. This includes development for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings. The DCP may be viewed on our website, inspected or purchased at our Customer Contact Centre.

NOTE: More detailed flood information specific to the property is available on separate flooding certificate application through our Customer Contact Centre on (02) 4974 2000

8. Land reserved for acquisition

The land is not identified for acquisition by a public authority (as referred to in section 3.15 of the Act) by any environmental planning instrument or proposed environmental planning instrument applying to the land.

9. Contributions plans

The following contribution plan/s apply to the land.

Section 7.12 Newcastle Local Infrastructure Contributions Plan 2019:

The Plan specifies section 7.12 contributions that may be imposed as a condition of development consent.

NOTE: Contributions plans are available on our website or may be inspected or purchased at our Customer Contact Centre.

9A. Biodiversity certified land

The land IS NOT biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10. Biodiversity stewardship sites

The land IS NOT land (of which CN is aware) under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A. Native vegetation clearing set asides

The land IS NOT land (of which CN is aware) that contains a set aside area under section 60ZC of the Local Land Services Act 2013.

11. Bush fire prone land

The land, either in whole or in part IS bush fire prone land for the purposes of the Environmental Planning and Assessment Act 1979.

12. Property vegetation plans

Not applicable. The Native Vegetation Act 2003 does not apply to the Newcastle local government area.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

CN HAS NOT been notified that an order has been made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. Directions under Part 3A

The land IS NOT AFFECTED by a direction by the Minister in force under section 75P (2) (c1) of the Act.

15. Site compatibility certificates and conditions for seniors housing

(a) The land IS NOT AFFECTED by a current site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004.

(b) The land IS NOT AFFECTED by any terms of kind referred to in clause 18(2) of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, that have been imposed as a condition of consent to a development application granted after 11 October, 2007 in respect of the land.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Infrastructure) 2007.

17. Site compatibility certificates and conditions for affordable rental housing

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Affordable Rental Housing) 2009.

18. Paper subdivision information

The land IS NOT AFFECTED by any development plan that applies to the land or that is proposed to be subject to a consent ballot.

19. Site verification certificates

The land IS NOT AFFECTED by a current site verification certificate (of which CN is aware) issued under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20. Loose-fill asbestos insulation

CN HAS NOT been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register of loose-fill asbestos insulation, that is required to be maintained under that Division.

21. Affected building notices and building product rectification orders

The land IS NOT AFFECTED by any affected building notice of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by any building product rectification order that has not been fully complied with, of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by an outstanding notice of intention to make a building product rectification order of which CN is aware.

An affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017.
Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Note: *There are no matters prescribed by section 59(2) of the Contaminated Land Management Act 1997 to be disclosed, however if other contamination information is held by the Council this may be provided under a section 10.7(5) certificate.*

Part 2:

Advice provided under section 10.7(5)

ATTENTION: *Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5).*

22. Outstanding Notices and Orders issued by City of Newcastle (CN).

Our records indicate that this premise IS NOT AFFECTED by a current notice or order (excluding the notices or orders mentioned in the note below).

NOTE: *CN has not inspected the premises immediately prior to the issue of this certificate. It is possible that the premises are affected by matters of which we are unaware.*

NOTE: *This Certificate does not include any advice regarding outstanding notices or orders issued under the Environmental Planning and Assessment Act 1979 or the Local Government Act 1993. To obtain advice regarding these matters, you should lodge an application for a Certificate as to Outstanding Notices and Orders (accompanied by the appropriate fee). For further information, please contact the Customer Contact Centre on (02) 4974 2000.*

23. Further consent requirements under the Newcastle Local Environmental Plan 2012.

The following provisions of the Newcastle Local Environmental Plan 2012 affect the carrying out of development on the land. These provisions are in addition to those required to be disclosed at Item 2 of this Certificate.

Refer to clause 3.1 Exempt Development of the Newcastle Local Environmental Plan 2012

Refer to clause 3.2 Complying Development of the Newcastle Local Environmental Plan 2012

Note: *The Newcastle Local Environmental 2012 may have additional provisions that affect the carry out of development. Refer to the Newcastle Local Environmental 2012 for the full affect it may have on the land or obtain profession advice for more information.*

24. Suspension of covenants.

Refer to 1.9A Suspension of covenants, agreements and instruments of the Newcastle Local Environmental Plan 2012.

25. Draft development control plans.

A draft development control plan DOES NOT APPLY to the land. The draft plans are exhibited pursuant to Part 3 of the Environmental Planning and Assessment Regulation 2000.

26. Heritage Act 1977.

The land IS NOT AFFECTED by a listing on the State Heritage Register or an Interim Heritage Order that is in force under the Heritage Act 1977.

NOTE: *The above advice is provided to the extent that CN has been notified by the Heritage Council of NSW. For up-to-date details, contact the Office of Environment and Heritage, PO Box A290, South Sydney NSW 1232 Ph: (02) 9995 5000.*

27. Listing by National Trust of Australia.

The land IS NOT AFFECTED by a listing of the National Trust of Australia (NSW).

NOTE: The above advice is provided to the extent that CN has been notified by the National Trust of Australia (NSW). For up-to-date details, contact the National Trust Ph 02 9258 0123.

28. Australian Heritage Database.

The land IS NOT AFFECTED by a listing on the Australian Heritage Database.

NOTE: The above advice is provided to the extent that CN has been notified by the Department of the Environment. For up-to-date details, contact the Department of the Environment, Heritage, King Edward Terrace, Parkes ACT 2600. Ph (02) 6274 1111.

29. Environment Protection & Biodiversity Conservation Act 1999 (Cth)

Under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999, actions which have, may have or are likely to have, a significant impact on a matter of national environmental significance may be taken only with the approval of the Commonwealth Minister for the Environment.

Approval is also required for actions that have a significant effect on the environment of Commonwealth land. These actions may be on Commonwealth land or other land.

This approval is in addition to any approvals under the (NSW) Environmental Planning and Assessment Act 1979 or other NSW legislation.

Matters of national environmental significance are:

- declared World Heritage areas
- declared Ramsar wetlands
- listed threatened species and ecological communities
- listed migratory species
- nuclear actions
- the environment of Commonwealth marine areas.

Locations within the City of Newcastle that are a declared Ramsar wetland include Kooragang Nature Reserve and Shortland Wetlands. Listed threatened species and listed migratory species are known to occur within the City of Newcastle.

30. Other matters

The land is affected by the following:

Newcastle earthquake

Earthquakes occurred in the vicinity of Newcastle on 28th December 1989 and 6 August 1994. Buildings on the land may have suffered damage as a consequence of the earthquakes. Prospective purchasers are advised to make their own enquiries as to whether the property is affected by any damage.

Local Planning Strategy

The Local Planning Strategy is the principal land use strategy for Newcastle. It was adopted by the Council on 28 July 2015. The Strategy is taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Lower Hunter Regional Strategy (2006 - 2031)

The Lower Hunter Regional Strategy has been prepared by the Department of Planning and Infrastructure. The contents of the strategy will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Newcastle City-Wide Floodplain Risk Management Study and Plan (2012)

The Newcastle City-wide Floodplain Risk Management Study and Plan addresses flood management for the City of Newcastle. The Study and Plan will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Issued without alterations or additions, 11/02/20
Authorised by

JEREMY BATH
CHIEF EXECUTIVE OFFICER



City of
Newcastle

Planning Certificate

Section 10.7, Environmental Planning and Assessment Act 1979

To: Lotsearch Pty Ltd
Level 3, 68 Alfred Street
MILSONS POINT NSW 2061

Certificate No: PL2020/00660
Fees: \$133.00
Receipt No(s): D001449713

Your Reference: LS011100

Date of Issue: 11/02/2020

The Land: Lot 131 DP 262057
30 Vista Parade Kotara NSW 2289

Advice provided on this Certificate:

Advice under section 10.7(2): see items 1 – 21
Additional advice under section 10.7(5): see Items 22 – 30

IMPORTANT: Please read this certificate carefully

This certificate contains important information about the land.

Please check for any item which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, phone our **Customer Contact Centre** on (02) 4974 2000, or come in and see us.

The information provided in this certificate relates only to the land described above. If you need information about adjoining or nearby land, or about the City of Newcastle (CN) development policies for the general area, contact our **Customer Contact Centre**.

All information provided is correct as at 11/02/2020. However, it's possible for changes to occur within a short time. We recommend that you only rely upon a very recent certificate.

City of Newcastle

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Ground floor,
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Part 1:

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ATTENTION: The explanatory notes appearing in italic print within Part 1 are provided to assist understanding, but do not form part of the advice provided under section 10.7(2). These notes shall be taken as being advice provided under section 10.7(5).

1. Names of relevant planning instruments and DCPs

The following environmental planning instruments, proposed environmental planning instruments and development control plans apply to the land, either in full or in part.

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State Environmental Planning Policy No. 50 - Canal Estate Development

State Environmental Planning Policy No. 55 - Remediation of Land

State Environmental Planning Policy No. 64 - Advertising and Signage

State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development

State Environmental Planning Policy No. 70 - Affordable Housing (Revised Schemes)

State Environmental Planning Policy (Housing For Seniors or People with a Disability) 2004

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State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Concurrences) 2018

State Environmental Planning Policy (Primary Production and Rural Development) 2019

Newcastle Local Environmental Plan 2012

Newcastle Development Control Plan 2012

2. Zoning and land use under relevant LEPs

Newcastle Local Environmental Plan 2012

Zoning: The Newcastle Local Environmental Plan 2012 identifies the land as being within the following zone(s):

Zone R2 Low Density Residential

Note: Refer to www.newcastle.nsw.gov.au or www.legislation.nsw.gov.au web site for LEP instrument and zoning maps.

The following is an extract from the zoning provisions contained in Newcastle Local Environmental Plan 2012:

Zone R2 Low Density Residential

- **Objectives of zone**

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To accommodate a diversity of housing forms that respects the amenity, heritage and character of surrounding development and the quality of the environment.

- **Permitted without consent**

Environmental protection works; Home occupations

- **Permitted with consent**

Boarding houses; Child care centres; Community facilities; Dwelling houses; Educational establishments; Emergency services facilities; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Hospitals; Neighbourhood shops; Recreation areas; Residential accommodation; Respite day care centres; Roads; Tourist and visitor accommodation

- **Prohibited**

Backpackers' accommodation; Hostels; Rural workers' dwellings; Serviced apartments; Any other development not specified in, permitted without consent or permitted with consent

Minimum land dimensions for erection of a dwelling-house: The Newcastle Local Environmental Plan 2012 contains development standards relating to minimum land dimensions for the erection of a dwelling house. Refer to clause 4.1 Minimum subdivision lot size and Part 4 Principle development standards of the Newcastle LEP 2012 for provisions relating to minimum lot sizes for residential development.

Critical habitat: The Newcastle Local Environmental Plan 2012 does not identify the land as including or comprising critical habitat.

Heritage conservation area: The land is not within a heritage conservation area under the Newcastle Local Environmental Plan 2012.

Heritage items: There are no heritage items listed in the Newcastle Local Environmental Plan 2012 situated on the land.

3. Complying development

Note Other requirements: The advice below for all Complying Development Codes, is limited to identifying whether or not the **land**, the subject of the certificate, is land on which complying development may be carried out because of Clauses 1.17A(1)(c) to (e), (2), (3) & (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP).

To ascertain the extent to which the complying development may or may not be carried out on the land, maps are available on City of Newcastle (CN) web pages.

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Complying development under the General Housing Code MAY be carried out on this land.

Rural Housing Code

Complying development under the Rural Housing Code MAY be carried out on this land.

Housing Alterations Code

Complying development under the Housing Alterations Code MAY be carried out on this land.

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Complying development under the General Development Code MAY be carried out on this land.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code MAY be carried out on this land.

Commercial and Industrial (New Buildings and Additions) Code

Complying development under the Commercial and Industrial (New Buildings and Additions) Code MAY be carried out on this land.

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Demolition Code

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Fire Safety Code

Complying development under the Fire Safety Code MAY be carried out on this land.

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The land IS NOT subject to an agreement for annual charges under section 496B of the Local Government Act 1993 for coastal protection services (within the meaning of section 553B of that Act).

5. Mine Subsidence Compensation Act 1961

The land IS WITHIN a declared Mine Subsidence District under section 20 of the Coal Mine Subsidence Compensation Act 2017. Development in a Mine Subsidence District requires approval from Subsidence Advisory NSW. Subsidence Advisory NSW provides compensation to property owners for mine subsidence damage. To be eligible for compensation, development must be constructed in accordance with Subsidence Advisory NSW approval. Subsidence Advisory NSW has set surface development guidelines for properties in Mine Subsidence Districts that specify building requirements to help prevent potential damage from coal mine subsidence.

NOTE: The above advice is provided to the extent that City of Newcastle (CN) has been notified by Subsidence Advisory NSW.

6. Road widening or realignment

NOTE: The Roads and Maritime Services (RMS) may have proposals that are not referred to in this item. For advice about affectation by RMS proposals, contact the Roads and Maritime Services, Locked Mail Bag 30 Newcastle 2300. Ph: 131 782.

The land IS NOT AFFECTED by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993.

The land IS NOT AFFECTED by any road widening or road realignment under an environmental planning instrument.

The land IS NOT AFFECTED by road widening or road realignment under a resolution of the Council.

7. Policies on hazard risk restrictions

Except as stated below, the land is not affected by a policy referred to in Item 7 of Schedule 4 of the Environmental Planning and Assessment Regulation 2000 that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Potential acid sulfate soils: Works carried out on the land must be undertaken in accordance with Clause 6.1 Acid sulfate soils of the Newcastle Local Environmental Plan 2012.

Land Contamination: Council has adopted a policy of restricting development or imposing conditions on properties affected by Land Contamination. Refer to the Newcastle Development Control Plan 2012, which may be inspected or purchased at our Customer Contact Centre.

Bush fire: Under clause 5.11 Bush fire hazard reduction of the Newcastle LEP 2012, bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent.

NOTE: The Rural Fires Act 1997 also makes provision relating to the carrying out of development on bush fire prone land.

NOTE: The absence of a policy to restrict development of the land because of the likelihood of a particular risk does not imply that the land is free from that risk. City of Newcastle (CN) considers the likelihood of natural and man-made risks when determining development applications under section 4.15 of the Environmental Planning and Assessment Act 1979. Detailed investigation carried out in conjunction with the preparation or assessment of a development application may result in CN either refusing development consent or imposing conditions of consent on the basis of risks that are not identified above.

7A. Flood related development controls information

Our information currently indicates that the property is, or contains, flood prone land as defined in the Floodplain Development Manual: the management of flood liable land, April 2005 published by the NSW Government.

Section 4.01 Flood Management of Newcastle Development Control Plan (DCP) 2012 provides guidelines with respect to all development of flood prone land. This includes development for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings. The DCP may be viewed on our website, inspected or purchased at our Customer Contact Centre.

NOTE: More detailed flood information specific to the property is available on separate flooding certificate application through our Customer Contact Centre on (02) 4974 2000

8. Land reserved for acquisition

The land is not identified for acquisition by a public authority (as referred to in section 3.15 of the Act) by any environmental planning instrument or proposed environmental planning instrument applying to the land.

9. Contributions plans

The following contribution plan/s apply to the land.

Section 7.12 Newcastle Local Infrastructure Contributions Plan 2019:

The Plan specifies section 7.12 contributions that may be imposed as a condition of development consent.

NOTE: Contributions plans are available on our website or may be inspected or purchased at our Customer Contact Centre.

9A. Biodiversity certified land

The land IS NOT biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10. Biodiversity stewardship sites

The land IS NOT land (of which CN is aware) under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A. Native vegetation clearing set asides

The land IS NOT land (of which CN is aware) that contains a set aside area under section 60ZC of the Local Land Services Act 2013.

11. Bush fire prone land

The land, either in whole or in part IS bush fire prone land for the purposes of the Environmental Planning and Assessment Act 1979.

12. Property vegetation plans

Not applicable. The Native Vegetation Act 2003 does not apply to the Newcastle local government area.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

CN HAS NOT been notified that an order has been made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. Directions under Part 3A

The land IS NOT AFFECTED by a direction by the Minister in force under section 75P (2) (c1) of the Act.

15. Site compatibility certificates and conditions for seniors housing

(a) The land IS NOT AFFECTED by a current site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004.

(b) The land IS NOT AFFECTED by any terms of kind referred to in clause 18(2) of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, that have been imposed as a condition of consent to a development application granted after 11 October, 2007 in respect of the land.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Infrastructure) 2007.

17. Site compatibility certificates and conditions for affordable rental housing

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Affordable Rental Housing) 2009.

18. Paper subdivision information

The land IS NOT AFFECTED by any development plan that applies to the land or that is proposed to be subject to a consent ballot.

19. Site verification certificates

The land IS NOT AFFECTED by a current site verification certificate (of which CN is aware) issued under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20. Loose-fill asbestos insulation

CN HAS NOT been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register of loose-fill asbestos insulation, that is required to be maintained under that Division.

21. Affected building notices and building product rectification orders

The land IS NOT AFFECTED by any affected building notice of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by any building product rectification order that has not been fully complied with, of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by an outstanding notice of intention to make a building product rectification order of which CN is aware.

An affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017.
Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Note: *There are no matters prescribed by section 59(2) of the Contaminated Land Management Act 1997 to be disclosed, however if other contamination information is held by the Council this may be provided under a section 10.7(5) certificate.*

Part 2:

Advice provided under section 10.7(5)

ATTENTION: *Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5).*

22. Outstanding Notices and Orders issued by City of Newcastle (CN).

Our records indicate that this premise IS NOT AFFECTED by a current notice or order (excluding the notices or orders mentioned in the note below).

NOTE: *CN has not inspected the premises immediately prior to the issue of this certificate. It is possible that the premises are affected by matters of which we are unaware.*

NOTE: *This Certificate does not include any advice regarding outstanding notices or orders issued under the Environmental Planning and Assessment Act 1979 or the Local Government Act 1993. To obtain advice regarding these matters, you should lodge an application for a Certificate as to Outstanding Notices and Orders (accompanied by the appropriate fee). For further information, please contact the Customer Contact Centre on (02) 4974 2000.*

23. Further consent requirements under the Newcastle Local Environmental Plan 2012.

The following provisions of the Newcastle Local Environmental Plan 2012 affect the carrying out of development on the land. These provisions are in addition to those required to be disclosed at Item 2 of this Certificate.

Refer to clause 3.1 Exempt Development of the Newcastle Local Environmental Plan 2012

Refer to clause 3.2 Complying Development of the Newcastle Local Environmental Plan 2012

Note: *The Newcastle Local Environmental 2012 may have additional provisions that affect the carry out of development. Refer to the Newcastle Local Environmental 2012 for the full affect it may have on the land or obtain profession advice for more information.*

24. Suspension of covenants.

Refer to 1.9A Suspension of covenants, agreements and instruments of the Newcastle Local Environmental Plan 2012.

25. Draft development control plans.

A draft development control plan DOES NOT APPLY to the land. The draft plans are exhibited pursuant to Part 3 of the Environmental Planning and Assessment Regulation 2000.

26. Heritage Act 1977.

The land IS NOT AFFECTED by a listing on the State Heritage Register or an Interim Heritage Order that is in force under the Heritage Act 1977.

NOTE: *The above advice is provided to the extent that CN has been notified by the Heritage Council of NSW. For up-to-date details, contact the Office of Environment and Heritage, PO Box A290, South Sydney NSW 1232 Ph: (02) 9995 5000.*

27. Listing by National Trust of Australia.

The land IS NOT AFFECTED by a listing of the National Trust of Australia (NSW).

NOTE: The above advice is provided to the extent that CN has been notified by the National Trust of Australia (NSW). For up-to-date details, contact the National Trust Ph 02 9258 0123.

28. Australian Heritage Database.

The land IS NOT AFFECTED by a listing on the Australian Heritage Database.

NOTE: The above advice is provided to the extent that CN has been notified by the Department of the Environment. For up-to-date details, contact the Department of the Environment, Heritage, King Edward Terrace, Parkes ACT 2600. Ph (02) 6274 1111.

29. Environment Protection & Biodiversity Conservation Act 1999 (Cth)

Under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999, actions which have, may have or are likely to have, a significant impact on a matter of national environmental significance may be taken only with the approval of the Commonwealth Minister for the Environment.

Approval is also required for actions that have a significant effect on the environment of Commonwealth land. These actions may be on Commonwealth land or other land.

This approval is in addition to any approvals under the (NSW) Environmental Planning and Assessment Act 1979 or other NSW legislation.

Matters of national environmental significance are:

- declared World Heritage areas
- declared Ramsar wetlands
- listed threatened species and ecological communities
- listed migratory species
- nuclear actions
- the environment of Commonwealth marine areas.

Locations within the City of Newcastle that are a declared Ramsar wetland include Kooragang Nature Reserve and Shortland Wetlands. Listed threatened species and listed migratory species are known to occur within the City of Newcastle.

30. Other matters

The land is affected by the following:

Newcastle earthquake

Earthquakes occurred in the vicinity of Newcastle on 28th December 1989 and 6 August 1994. Buildings on the land may have suffered damage as a consequence of the earthquakes. Prospective purchasers are advised to make their own enquiries as to whether the property is affected by any damage.

Local Planning Strategy

The Local Planning Strategy is the principal land use strategy for Newcastle. It was adopted by the Council on 28 July 2015. The Strategy is taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Lower Hunter Regional Strategy (2006 - 2031)

The Lower Hunter Regional Strategy has been prepared by the Department of Planning and Infrastructure. The contents of the strategy will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Newcastle City-Wide Floodplain Risk Management Study and Plan (2012)

The Newcastle City-wide Floodplain Risk Management Study and Plan addresses flood management for the City of Newcastle. The Study and Plan will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Issued without alterations or additions, 11/02/20
Authorised by

JEREMY BATH
CHIEF EXECUTIVE OFFICER

Annex C



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

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

Summary of Owners Report

Address: - 30 Vista Parade, Kotara

Description: - Lot 12 D.P. 560852

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) & Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
14.08.1929 (1929 to 1956)	The Scottish Australian Mining Company Limited	Vol 4312 Fol 88 Now Vol 6102 Fol 167
09.07.1956 (1956 to 1964)	Hunter District Industries Pty Limited	Vol 6102 Fol 167 Now Vol 9881 Fol 9
14.10.1964 (1964 to 1967)	Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 9881 Fol 9 Now Vol 10684 Fol 82
23.11.1967 (1967 to 1970)	William Henry Hudson (Master Builder)	Vol 10684 Fol 82
02.03.1970 (1970 to 1973)	W.H. Hudson Developments Pty Limited	Vol 10684 Fol 82 Now Vol 12313 Fol 173
20.11.1973 (1973 to date)	# Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 12313 Fol 173 Now 12/560852

Denotes current registered proprietor

Leases: - NIL

Easements: -

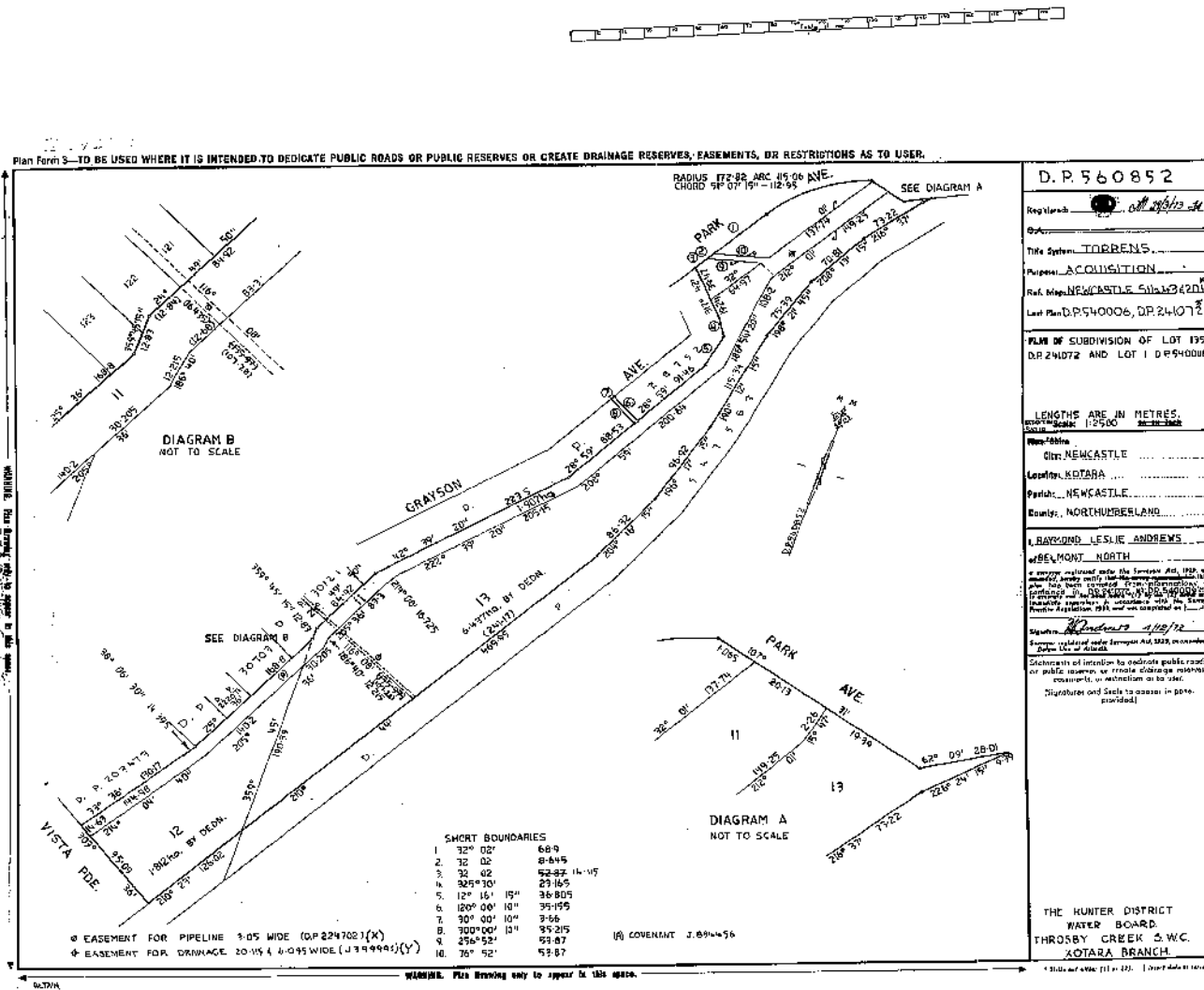
- 11.11.1982 (S 846861 & D.P. 616629) Easement for Stormwater Channel and Sewermain

***Rights to Mine**

- 14.10.1964 (J 834456) Subject to Rights to mine

Yours Sincerely
Mark Groll
13 February 2020





SIGNATURE AND SCALE ONLY.

Signature

Scale

THE HUNTER DISTRICT
WATER BOARD
THROSBY CREEK S.W.C.
KOTARA BRANCH

1. Jack Raymond Watson, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 1st day of December, 1976.

Signature

Plan Form 1

WARNING: OVERSIZING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

<p>Council Clerk's Certificate</p> <p>I hereby certify that—</p> <p>(a) the requirements of the Local Government Act, 1979 have been complied with in relation to the registration of this plan;</p> <p>(b) the requirements of section 340 of the Metropolitan Water, Sewerage, and Drainage Act, 1954, as amended, (Hunter District Water, Sewerage, and Drainage Act 1956, as amended)</p> <p>have been complied with by the applicant in relation to the proposed</p> <p>creation of a "new road", "subdivision" or "consolidation" of land.</p> <p>Subdivision No.</p> <p>Date</p> <p>(Signature) Council Clerk</p> <p>*This part of certificate to be deleted where the application is only for a consolidation of land or the creation of a new road or where the land to be subdivided is wholly outside the limits of operation of the Metropolitan Water, Sewerage and Drainage Act, 1954, as amended, (Hunter District Water, Sewerage and Drainage Act 1956, as amended).</p>	<p>Surveyor's Certificate</p> <p>I, ERIC ARTHUR ARMSTRONG</p> <p>of H.Q.W.B. DX7856 NEWCASTLE</p> <p>as a surveyor registered under the Surveyors Act, 1920, do hereby certify that the foregoing is a true and correct copy of the plan as compiled from D.P. 560852</p> <p>is accurate and true, and was compiled from the original plan as deposited with me on 12 TH FEBRUARY 1961</p> <p>Signature Surveyor registered under Surveyors Act, 1920 as amended Signed on 12 TH FEBRUARY 1961</p>	<p>PLAN OF PROPOSED EASEMENT FOR STORMWATER CHANNEL & SEWERMAIN, 7 WIDE WITHIN LOTS 12 & 13 D.P. 560852.</p> <p>Registered: 3.7.1981</p> <p>C.A.S.</p> <p>Tile System: TORRENS</p> <p>Purpose: EASEMENT</p> <p>Ref. Map: U6950-44</p> <p>Last Plan: D.P. 560852</p> <p>City: NEWCASTLE Locality: KOTARA</p> <p>Parish: NEWCASTLE County: NORTHUMBERLAND</p> <p>Reduction Ratio 1: 800 Lengths are in metres.</p>
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Signatures, seals and statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

THE HUNTER DISTRICT WATER BOARD

THROSBY CREEK STORMWATER CHANNEL

(A) PROPOSED EMT. FOR STORMWATER CHANNEL & SEWERMAIN 7 WIDE, TOTAL AREA = 625.7m²

Plan Drawing only to appear in this space.

Plan Drawing only to appear in this space.



I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

13th July, 1981



09881009

NEW SOUTH WALES

Crown Grant Vol. 109 Fol. 41
Prior Title Vol. 7447 Fol. 179

CERTIFICATE OF TITLE

PROPERTY ACT, 1900, as amended.



EH

Vol. 3001 Fol. 8
CANCELLED
1st Edition issued 4-12-1964

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

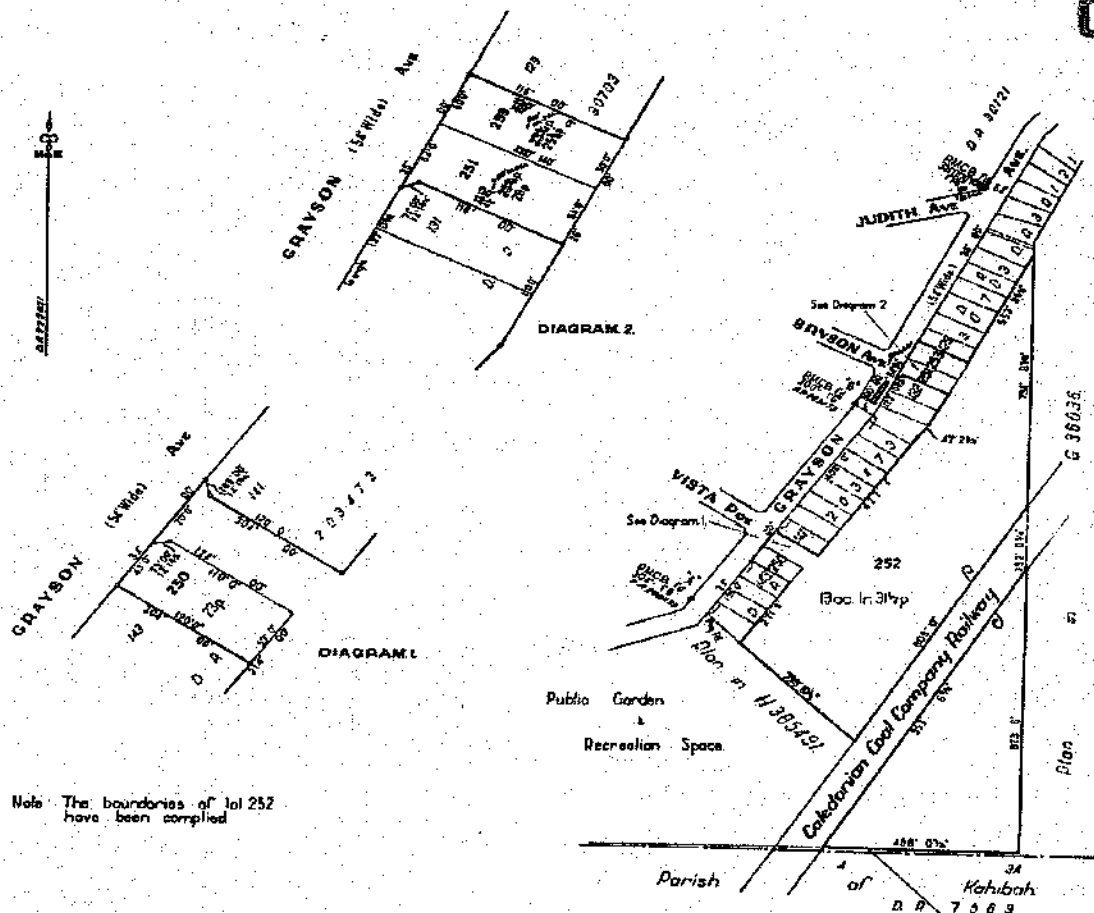
Witness *Hohen*

Jawatson
Registrar-General.



PLAN SHOWING LOCATION OF LAND

CANCELLED



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 252 in Deposited Plan 222071 at Kotara in the City of Newcastle Parish of Newcastle and County of Northumberland, excepting thereout all mines seams and beds of coal and other minerals.

FIRST SCHEDULE (continued overleaf)

~~HUNTER DISTRICT INDUSTRIES PTY. LIMITED.~~


Jawatson
Registrar-General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Jawatson
Registrar-General.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
Members of the Roman Catholic Church for the Diocese of Montreal	Transfer	J834456	14.10.1964	15.1.1965	Joubert
This deed is cancelled as to the whole Now, conveyance of the land issued on 14.10.1964 for lots in Defective Plan No. 234597 as follows: Lots 42 Vol. 6634 Fol. 8 221 respectively.					
 Joubert REGISTRAR GENERAL					

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION	
	NUMBER	DATE					
Covenant	J834456		Created by transfer N° J834456	15.1.1965	Joubert		
Transfer	J834456	14.10.1964	Covenant (right to sit down the surface and sub-surface) affecting the land within described in instrument N° J834456. The interest of the Council of the City of Montreal in the new road shown on D.P. 234597	15.1.1965	Joubert		
				8.11.67	Joubert		

1834456
ready to
sent
D.P. 234597
by post on
D.P. 234597
note or
road

8



10684

NEW SOUTH WALES

Crown Grant Vol. 109 Fol. 41
Prior Title Vol. 9881 Fol. 9

CERTIFICATE OF TITLE
PROPERTY ACT, 1900, as amended.



Vol. 10684 Fol. 82

CANCELLED

HB Edition issued 17-11-1967

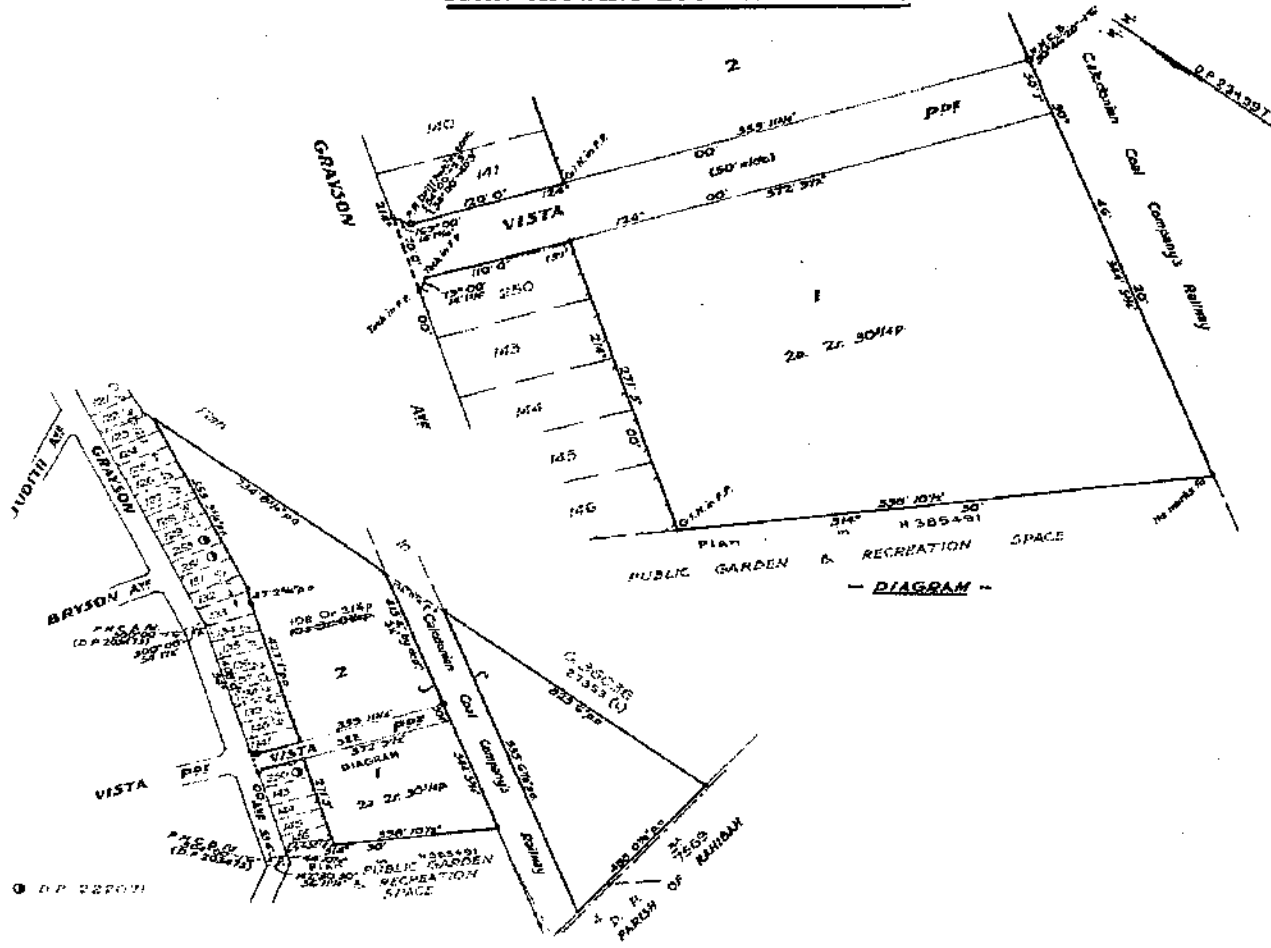
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness *M. S. Allen*

J. J. J. J.
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 234597 at Kotara, in the City of Newcastle, Parish of Newcastle and County of Northumberland. EXCEPTING THEREOUT all mines, seams and beds of coal and other minerals.

FIRST SCHEDULE (continued overleaf)

~~TRUSTEES OF THE ROMAN CATHOLIC CHURCH FOR THE DIOCESE OF MAITLAND.~~

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine all coal and other minerals affecting the land above described as set out in Transfer No. J834456.
3. Covenant created by Transfer No. J834456.

J. J. J. J.
Registrar General.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

William Henry Hudson of New Lambton Heights, Master Builder
10-11 Hudson Development Pty. Limited

This Deed is cancelled as to part and New Certificate of Title Vol. 11540 Fol 202-212

Issued on 10-3-1971 for Lots 31-41

This Deed is cancelled as to part and New Certificate of Title Vol. 11540 Fol 213-240

Issued on 10-3-1971 for Lots 62-89

This Deed is cancelled as to part and New Certificate of Title Vol. 11634 Fol 1646

Issued on 28-7-1971 for Lots 90 to 135

NATURE	INSTRUMENT		ENTERED	Signature of Registrar-General
	NUMBER	DATE		
Transfer	16897266	23-11-1967	7-12-1967	<i>Janatson</i>
Transfer	1776523	2-3-1970	14-1970	<i>Janatson</i>
Deposited Plan	240273		25-3-1971	<i>Janatson</i>
Deposited Plan	240274		25-3-1971	<i>Janatson</i>
Deposited Plan	241072		3-8-1971	<i>Janatson</i>

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION	
	NUMBER	DATE					
			The interest of the Council of the City of Newcastle in the new road shown on D.P. 240273.	22-12-1970	<i>Janatson</i>		
	M119045		Interests created pursuant to Section 88B Conveyancing Act, 1919, by the registration of Deposited Plan 240273.	22-12-1970	<i>Janatson</i>		
			The interest of the Council of the City of Newcastle in new roads and addition to existing road shown on D.P. 241072.				
			Interests created pursuant to Section 88B Conveyancing Act, 1919, by the registration of Deposited Plan 241072.				
			The residue of land in this certificate of title comprises road Entered 3rd August 1971 <i>Janatson</i> REGISTRAR GENERAL				

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

NEW SOUTH WALES

STATE OF TITLE
PROPERTY ACT, 1900, as amended.



11634046

Vol. **11634** Fol. **46**

Edition issued 28-7-1971

Crown Grant Vol. 109 Fol.41

Prior Title Vol.10684 Fol.82



I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

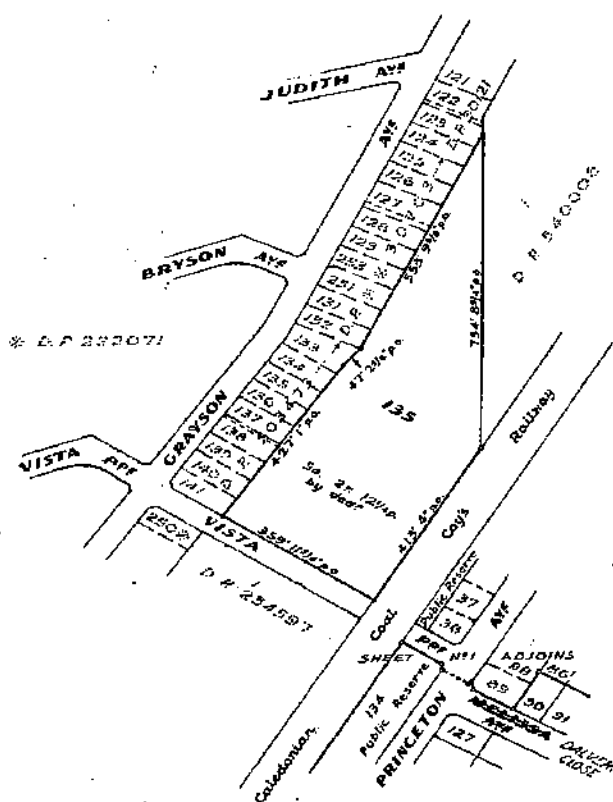
Witness

Barnes

Jawatson
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 135 in Deposited Plan 241072 at Adamstown in the City of Newcastle Parish of Newcastle and County of Northumberland. EXCEPTING THEREOUT all mines, seams and beds of coal and other minerals excepted by Transfer No.J834456.

FIRST SCHEDULE

W.H. HUDSON DEVELOPMENTS PTY. LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine as set out in Transfer No.J834456.
3. Covenant created by Transfer No.J834456.

Jawatson
Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TILES OFFICE.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

This deed is cancelled as to the whole
 New Certificates of Title have issued on 28-12-1973
 for lots in Deposited Plan No. 56852 as follows:
 Lots 1 to 13 Vol. 12313 Fol. 172 to 174 respectively.

Janakson
 REGISTRAR GENERAL



INSTRUMENT

NATURE

NUMBER

DATE

ENTERED

Signature of Registrar-General

DP560352

CT 20-7-73

N423282

1st 11-12-73

N42

SECOND SCHEDULE (continued)

INSTRUMENT

NATURE

NUMBER

DATE

PARTICULARS

ENTERED

Signature of Registrar-General

CANCELLATION

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED



CIFICATE OF TITLE



12313173

NEW SOUTH WALES

AL PROPERTY ACT, 1900

Vol. **12313** Fol. **173**

Crown Grant Vol. 109 Fol.41

Prior Title Vol.11634 Fol.46



Edition issued 28-12-1973.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Jawatson
Registrar General.

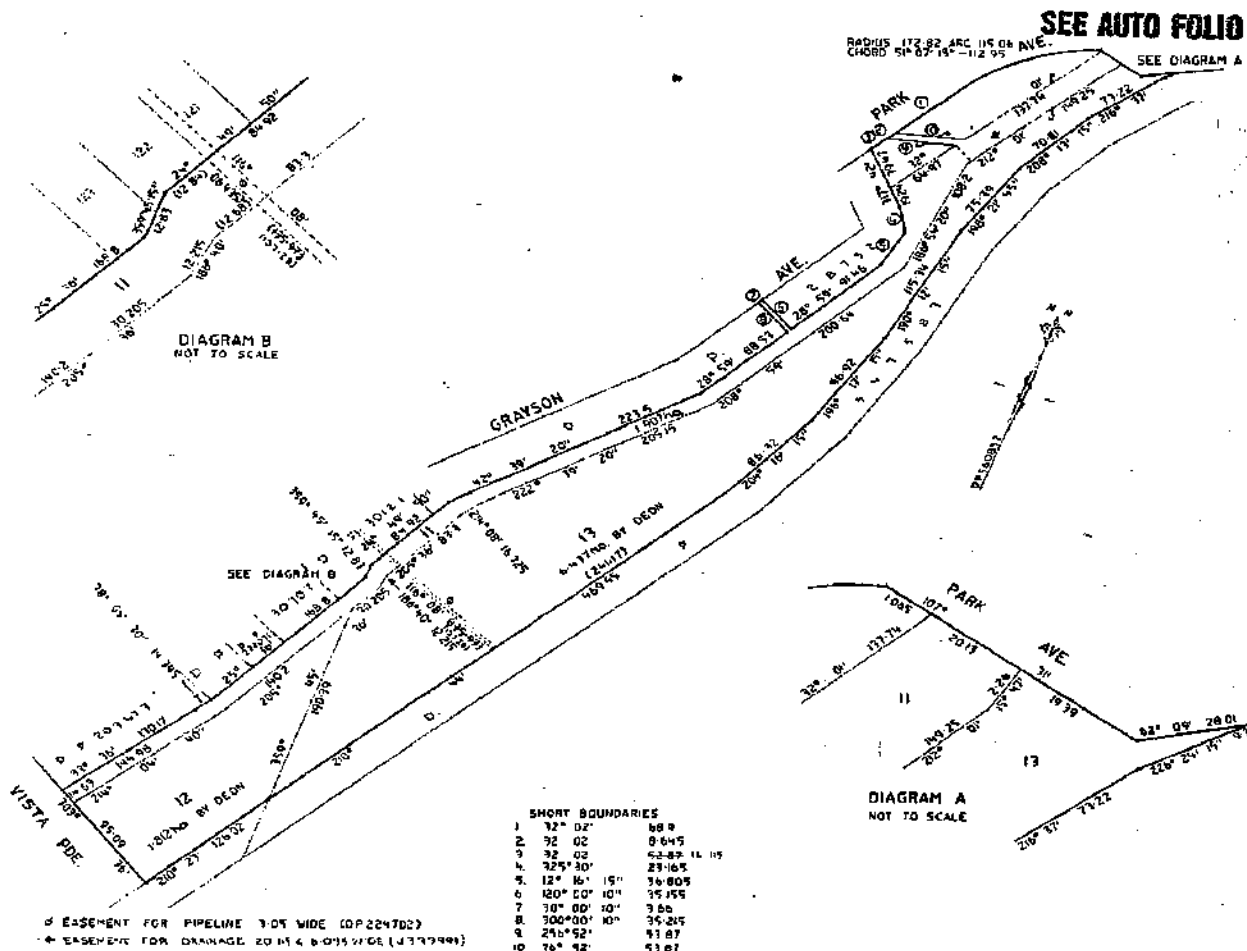


CANCELLED



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 12 in Deposited Plan 560852 in the City of Newcastle Parish of Newcastle and County of Northumberland. EXCEPTING THEREOUT all mines seams and beds of coal and other minerals excepted by Transfer No.J834456.

FIRST SCHEDULE

~~W.H. HUDSON DEVELOPMENTS PTY. LIMITED.~~

SECOND SCHEDULE

GRY

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine as set out in Transfer No.J834456. *p*
3. Covenant created by Transfer No.J834456. *p*

XE
CV

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

Vol. 12313 Fol. 173

[illegible]

A

[illegible]

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED



LAND
REGISTRY
SERVICES

Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

13/2/2020 7:09AM

FOLIO: 12/560852

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 12313 FOL 173

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
3/8/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
1/10/1996		AMENDMENT: LOCAL GOVT AREA	
4/6/2014	AI631395	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

kotara vista parade

PRINTED ON 13/2/2020



FOLIO: 12/560852

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
13/2/2020	7:08 AM	-	-

VOL 12313 FOL 173 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 12 IN DEPOSITED PLAN 560852
LOCAL GOVERNMENT AREA NEWCASTLE
PARISH OF NEWCASTLE COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP560852

FIRST SCHEDULE

THE TRUSTEES FOR THE ROMAN CATHOLIC CHURCH OF THE DIOCESE
OF MAITLAND (T N844873)

SECOND SCHEDULE (4 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 J834456 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO
MINE
- 3 J834456 COVENANT
- * 4 S846861 EASEMENT FOR STORMWATER CHANNEL AND SEWERMAIN
AFFECTING THE PART OF THE LAND WITHIN DESCRIBED SHOWN
SO BURDENED IN DP616629

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Annex D



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 11 Feb 2020 12:43:12

Reference: LS011100 EP

Address: 30 Vista Parade, Kotara, NSW 2289

Disclaimer:

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

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	28/10/2019	28/10/2019	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	15/01/2020	14/01/2020	Monthly	1000	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	29/01/2020	29/01/2020	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	07/01/2020	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	05/11/2019	07/03/2017	Quarterly	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	05/02/2020	13/07/2012	Quarterly	1000	0	0	2
EPA PFAS Investigation Program	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	2000	0	0	0
Defence PFAS Investigation Program	Department of Defence	18/12/2019	18/12/2019	Monthly	2000	0	0	0
Defence PFAS Management Program	Department of Defence	18/12/2019	18/12/2019	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	20/01/2020	12/12/2019	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	21/01/2020	21/01/2020	Monthly	2000	0	0	1
EPA Other Sites with Contamination Issues	Environment Protection Authority	04/02/2020	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	1000	0	1	3
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	1000	3	3	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	3	3
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	4	4
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	6
Points of Interest	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	1	2	39
Tanks (Areas)	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	0	0	1
Tanks (Points)	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	0	0	1
Major Easements	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	0	0	8
State Forest	NSW Department of Finance, Services & Innovation	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	21/01/2020	30/09/2019	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	2	2	2
Botany Groundwater Management Zones	NSW Department of Planning, Industry and Environment	15/03/2018	01/10/2005	As required	1000	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	23

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Geological Units 1:250,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	2	-	3
Geological Structures 1:250,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	0	-	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	1	1	1
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1000	3	-	6
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	03/02/2020	06/12/2019	Weekly	500	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	1	1	2
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	03/02/2020	07/12/2018	Weekly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	03/02/2020	24/01/2020	Weekly	1000	1	4	51
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	04/02/2020	31/07/2018	Quarterly	1000	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	04/02/2020	20/11/2019	Quarterly	1000	0	0	0
State Heritage Register - Curtilages	NSW Office of Environment & Heritage	08/11/2019	09/11/2018	Quarterly	1000	0	0	0
Environmental Planning Instrument Heritage	NSW Department of Planning, Industry and Environment	03/02/2020	17/01/2020	Weekly	1000	0	0	2
Bush Fire Prone Land	NSW Rural Fire Service	04/02/2020	14/12/2019	Quarterly	1000	2	3	4
Lower Hunter and Central Coast Regional Vegetation Survey	NSW Office of Environment & Heritage	28/02/2015	16/11/2009	As required	1000	2	2	6
Ramsar Wetlands of Australia	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	3	3	4
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	5	5	10
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	05/02/2020	05/02/2020	Weekly	10000	-	-	-

Site Diagram

30 Vista Parade, Kotara, NSW 2289



Legend <div><div></div> Site Boundary</div> <div><div></div> Internal Parcel Boundaries</div>	Total Area: 29348m ² Total Perimeter: 829m	
	<small>Disclaimers:</small> Measurements are approximate only and may have been simplified or smaller lengths removed for readability. Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.	
	<small>Scale:</small> 0 25 50 Meters	<small>Data Sources:</small> Aerial Imagery: © Aerometrex Pty Ltd
	<small>Coordinate System:</small> GDA 1994 MGA Zone 56	<small>Date:</small> 12 February 2020

Contaminated Land

30 Vista Parade, Kotara, NSW 2289

List of NSW contaminated sites notified to EPA

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

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist (m)	Direction
N/A	No records in buffer								

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

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

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

Contaminated Land

30 Vista Parade, Kotara, NSW 2289

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

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

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

Former Gasworks

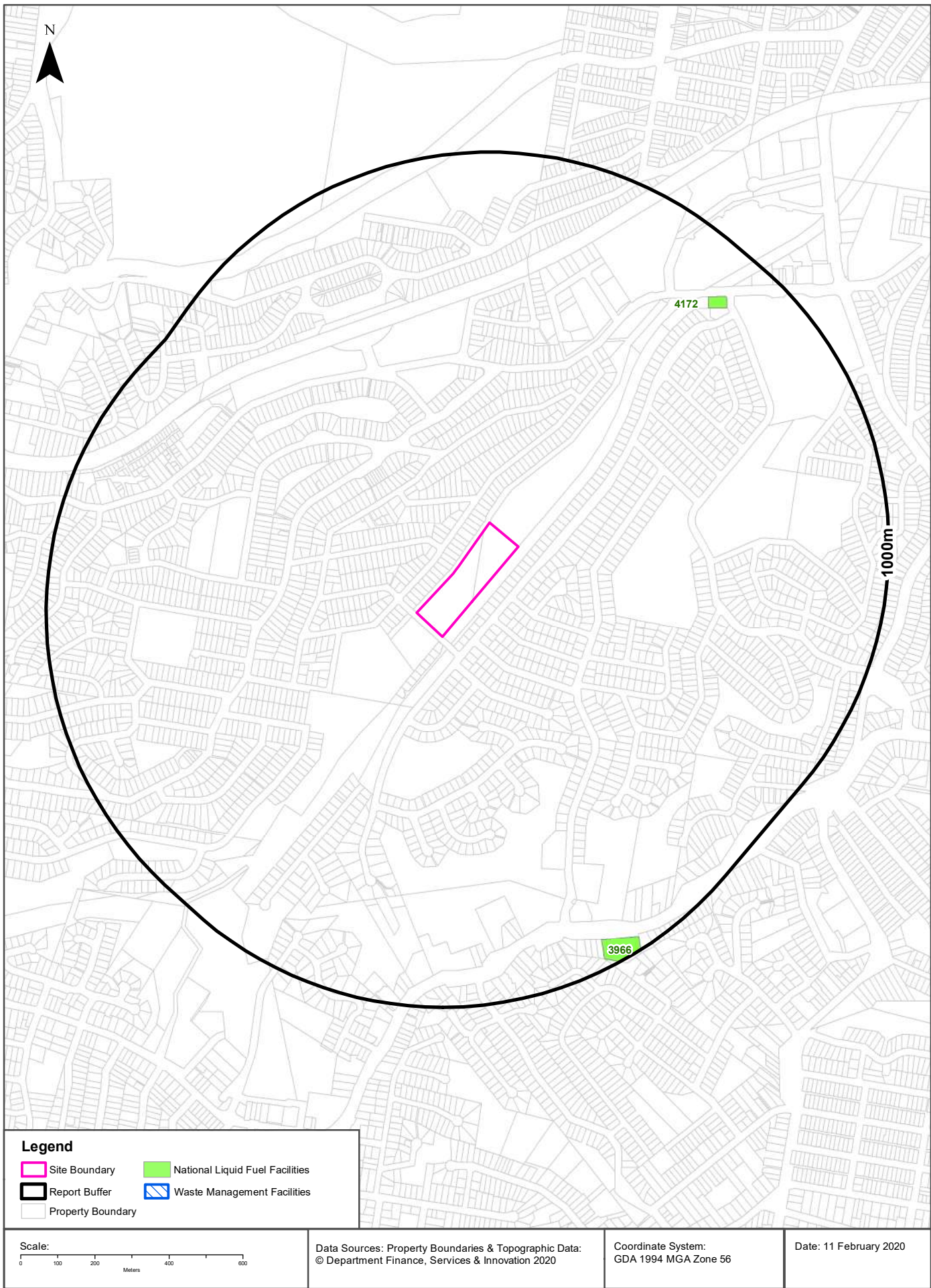
Former Gasworks within the dataset buffer:

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

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

Waste Management & Liquid Fuel Facilities

30 Vista Parade, Kotara, NSW 2289



Waste Management & Liquid Fuel Facilities

30 Vista Parade, Kotara, NSW 2289

National Waste Management Site Database

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

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

Waste Management Facilities Data Source: Geoscience Australia

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National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
4172	Shell	Coles Express Kotara	93 Park Avenue	Kotara	Petrol Station	Operational		25/07/2011	Premise Match	823m	North East
3966	7-Eleven Pty Ltd	Mobil Charlestown	317 Pacific Highway	Highfields	Petrol Station	Operational		13/07/2012	Premise Match	922m	South East

National Liquid Fuel Facilities Data Source: Geoscience Australia

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PFAS Investigation & Management Programs

30 Vista Parade, Kotara, NSW 2289

EPA PFAS Investigation Program

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

Id	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

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

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

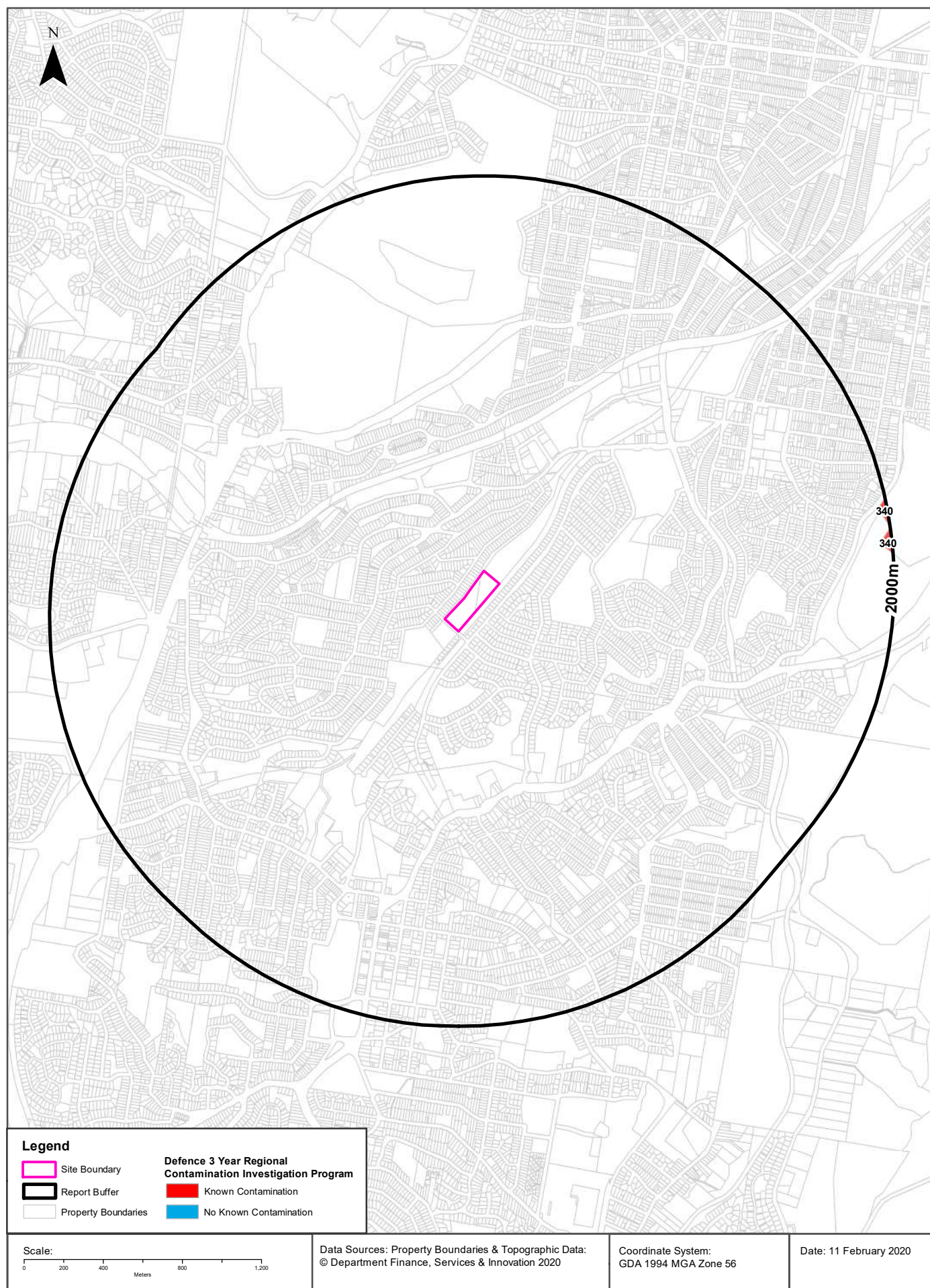
Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence 3 Year Regional Contamination Investigation Program

30 Vista Parade, Kotara, NSW 2289



Defence Sites

30 Vista Parade, Kotara, NSW 2289

Defence 3 Year Regional Contamination Investigation Program

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

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
340	Adamstown MUD	Adamstown, New South Wales	YES	Premise Match	1942m	East

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

EPA Other Sites with Contamination Issues

30 Vista Parade, Kotara, NSW 2289

EPA Other Sites with Contamination Issues

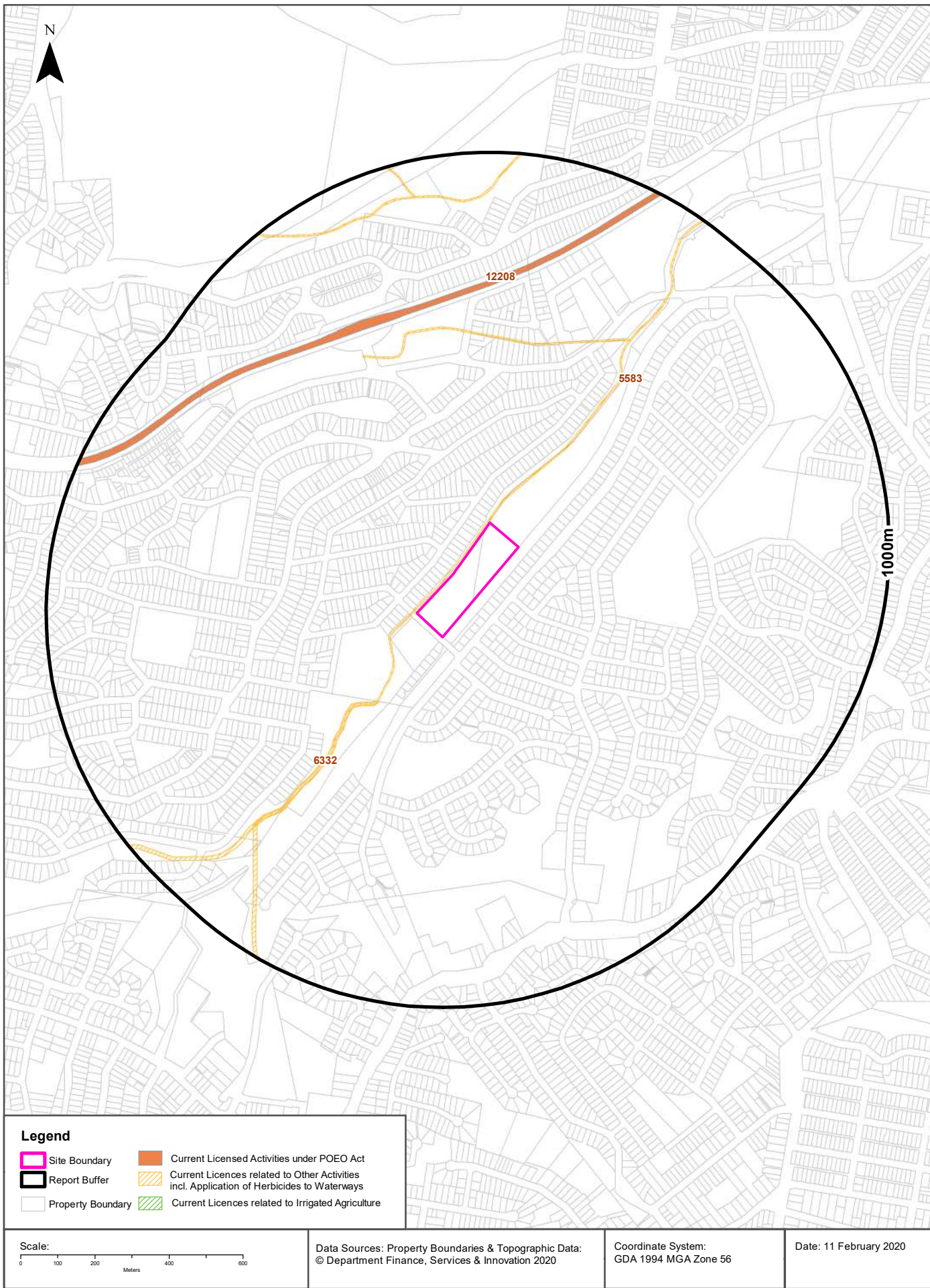
This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

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

Sites within the dataset buffer:

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

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



EPA Activities

30 Vista Parade, Kotara, NSW 2289

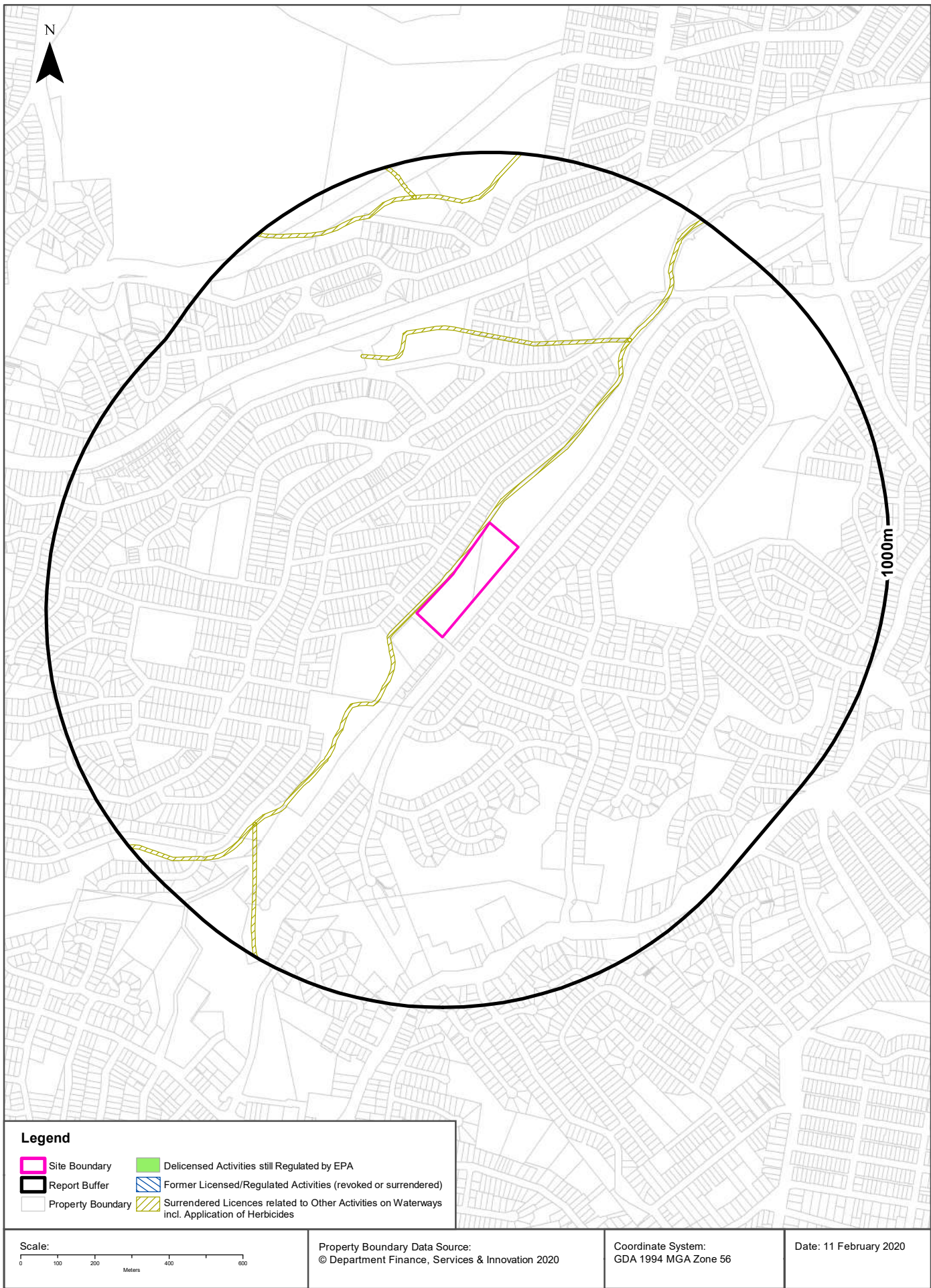
Licensed Activities under the POEO Act 1997

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

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
5583	NEWCASTLE CITY COUNCIL	WATERWAYS OF NEWCASTLE CITY	-	NEWCASTLE	Other activities	Network of Features	3m	West
6332	LAKE MACQUARIE CITY COUNCIL	-	-	SPEERS POINT	Other activities	Network of Features	246m	South West
12208	SYDNEY TRAINS		PO BOX K349, HAYMARKET, NSW 1238		Railway systems activities	Network of Features	605m	North West

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority



EPA Activities

30 Vista Parade, Kotara, NSW 2289

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

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

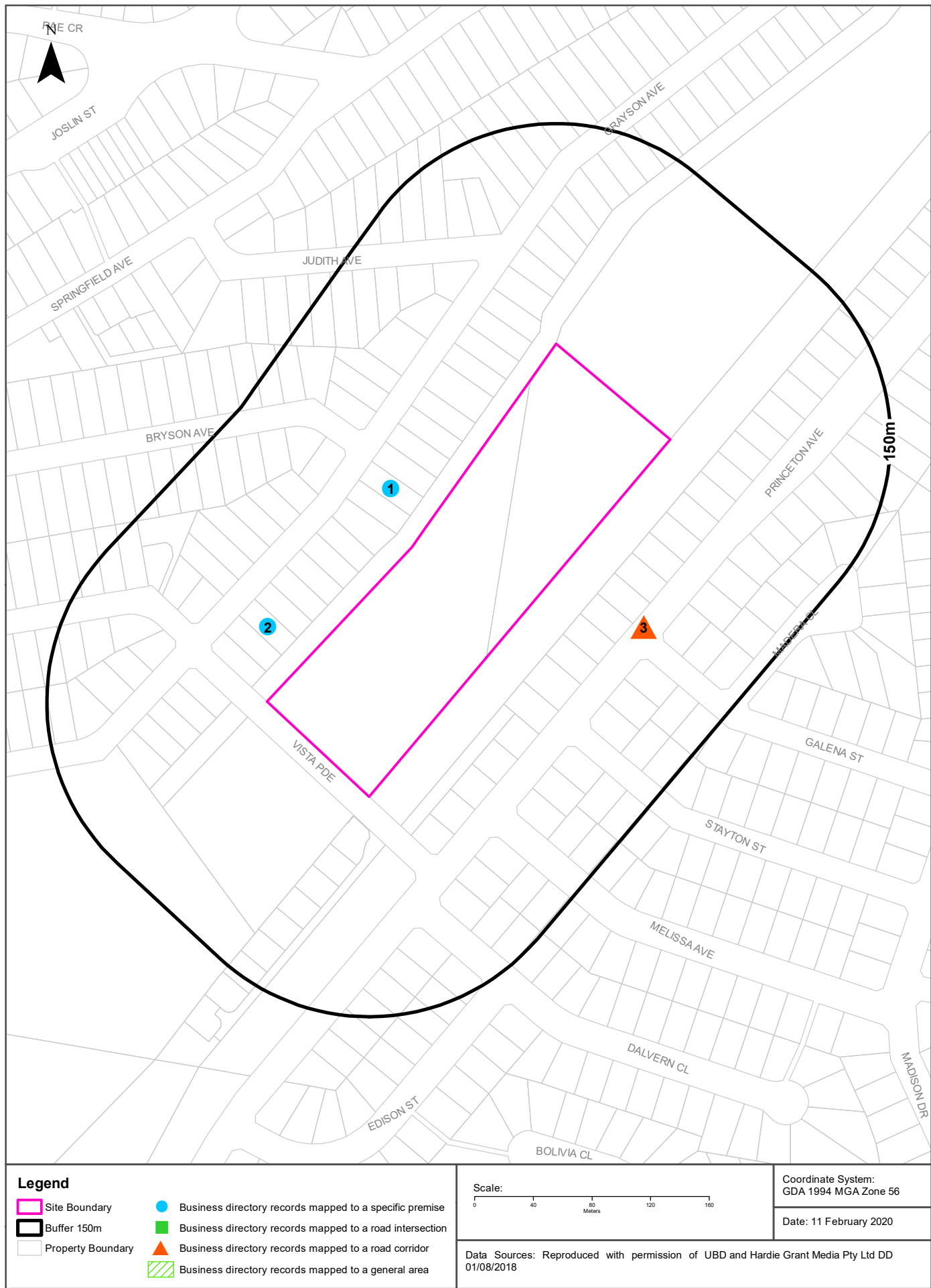
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite

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

Historical Business Directories

30 Vista Parade, Kotara, NSW 2289



Historical Business Directories

30 Vista Parade, Kotara, NSW 2289

Business Directory Records 1950-1991 Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	BUILDERS &/OR BUILDING CONTRACTORS (M.M.B.A.)	Beveridge, K., 91 Grayson Ave., Kotara South, Newcastle	625327	1970	Premise Match	13m	North West
2	PAINTERS, PAPERHANGERS DECORATORS	Brown, T., 107 Grayson Ave., Kotara, Newcastle	632763	1970	Premise Match	14m	West
	SIGNWRITERS	Brown, T., 107 Grayson Ave., Kotara, Newcastle	634288	1970	Premise Match	14m	West

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Business Directory Records 1950-1991

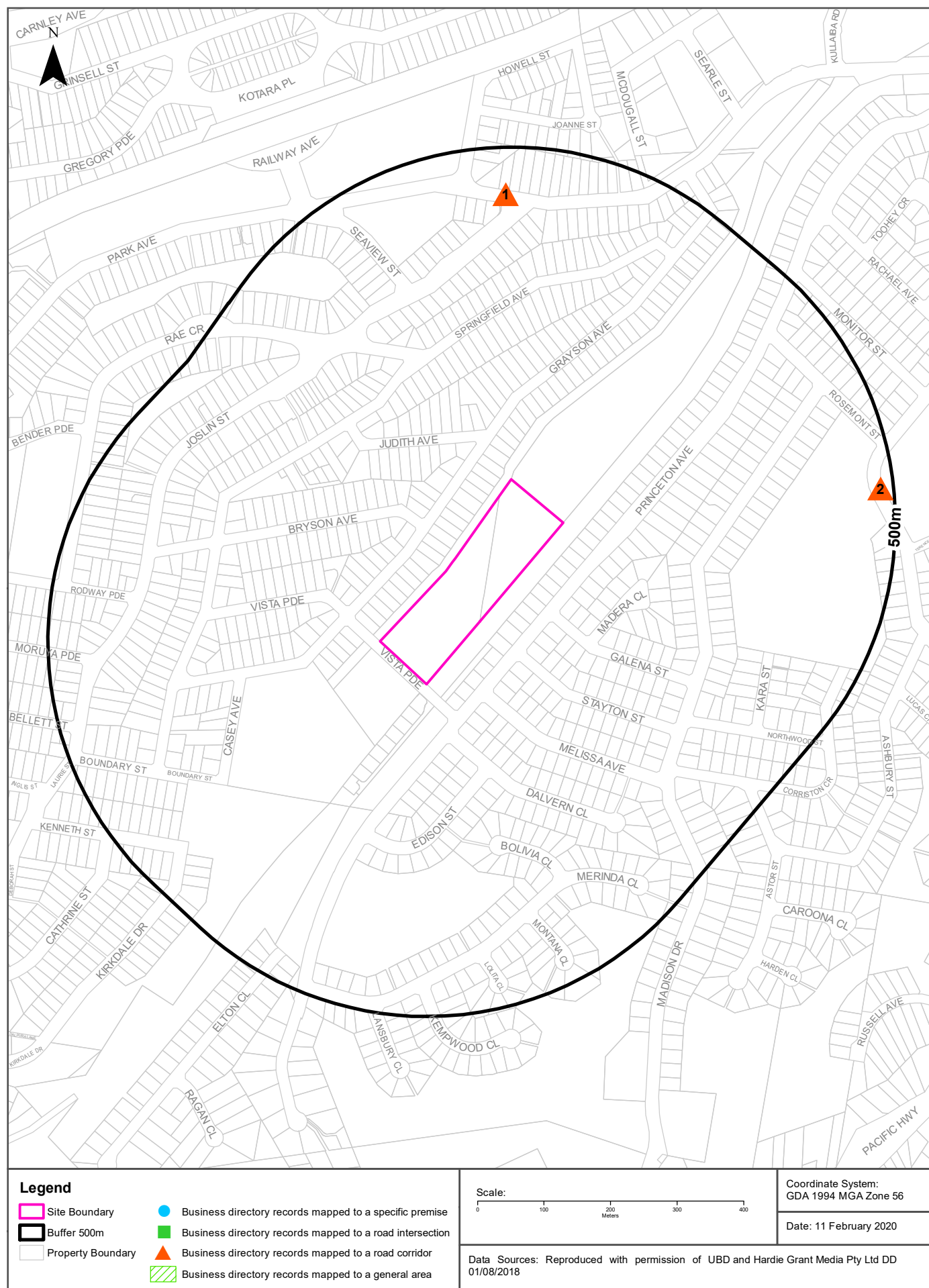
Road or Area Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
3	SQUASH COURTS.	Belair Squash Centre., Princeton Av Kotara, Newcastle	92029	1991	Road Match	61m
	SQUASH COURTS.	Belair Squash Centre, Princeton Ave., Kotara. Newcastle	179537	1982	Road Match	61m
	INSURANCE BROKERS.	D.F.L. General Insurances, Belair Commercial Centre, Princeton Ave. Kotara Newcastle	175746	1982	Road Match	61m
	REAL ESTATE AGENTS &/OR VALUERS.	Tapp. R., Belair Commercial Centre, Princeton Ave., Kotara Newcastle	178745	1982	Road Match	61m

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30 Vista Parade, Kotara, NSW 2289



Historical Business Directories

30 Vista Parade, Kotara, NSW 2289

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

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

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

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

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

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Parkway Service Station Park Ave. Adamstown Newcastle	177093	1982	Road Match	408m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	B.P. Service Station, Park Ave., Adamstown, Newcastle	632163	1970	Road Match	408m
	MOTOR GARAGES &/OR ENGINEERS	Bel-Air Service Station, Park Ave., Kotara South, Newcastle	631850	1970	Road Match	408m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	BP Kotara, Park Ave., Kotara, Newcastle	632166	1970	Road Match	408m
	MOTOR GARAGES &/OR ENGINEERS	Parkway Service Station, Park Ave., Adamstown, Newcastle	631933	1970	Road Match	408m
2	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Esso Service Centre, Lexington Pde., Kotara, Newcastle	632209	1970	Road Match	462m

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Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Coordinate System:
 GDA 1994 MGA Zone 56

Date: 11 February 2020



Aerial Imagery 2014

30 Vista Parade, Kotara, NSW 2289



Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 56

Date: 11 February 2020

Aerial Imagery 2007

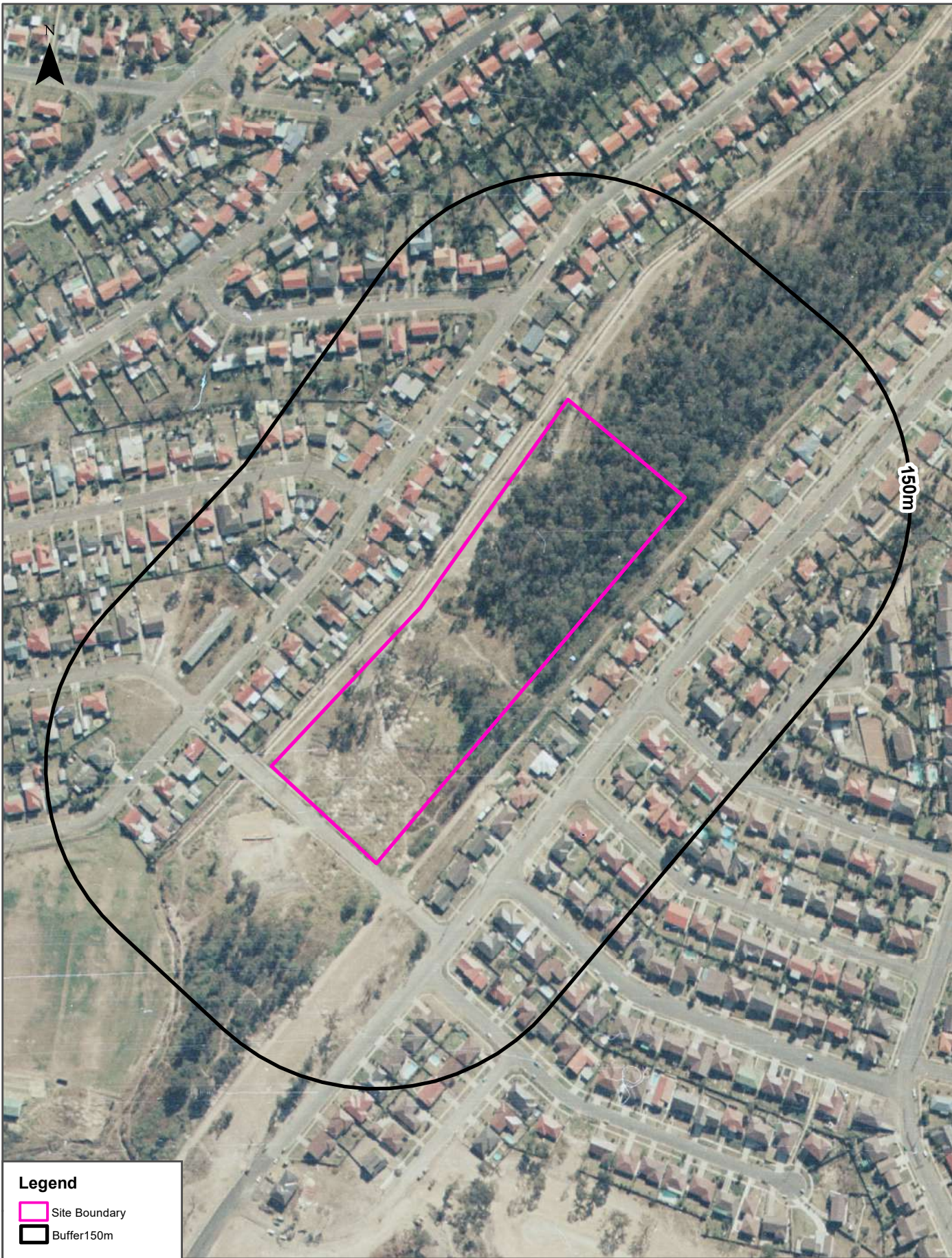
30 Vista Parade, Kotara, NSW 2289





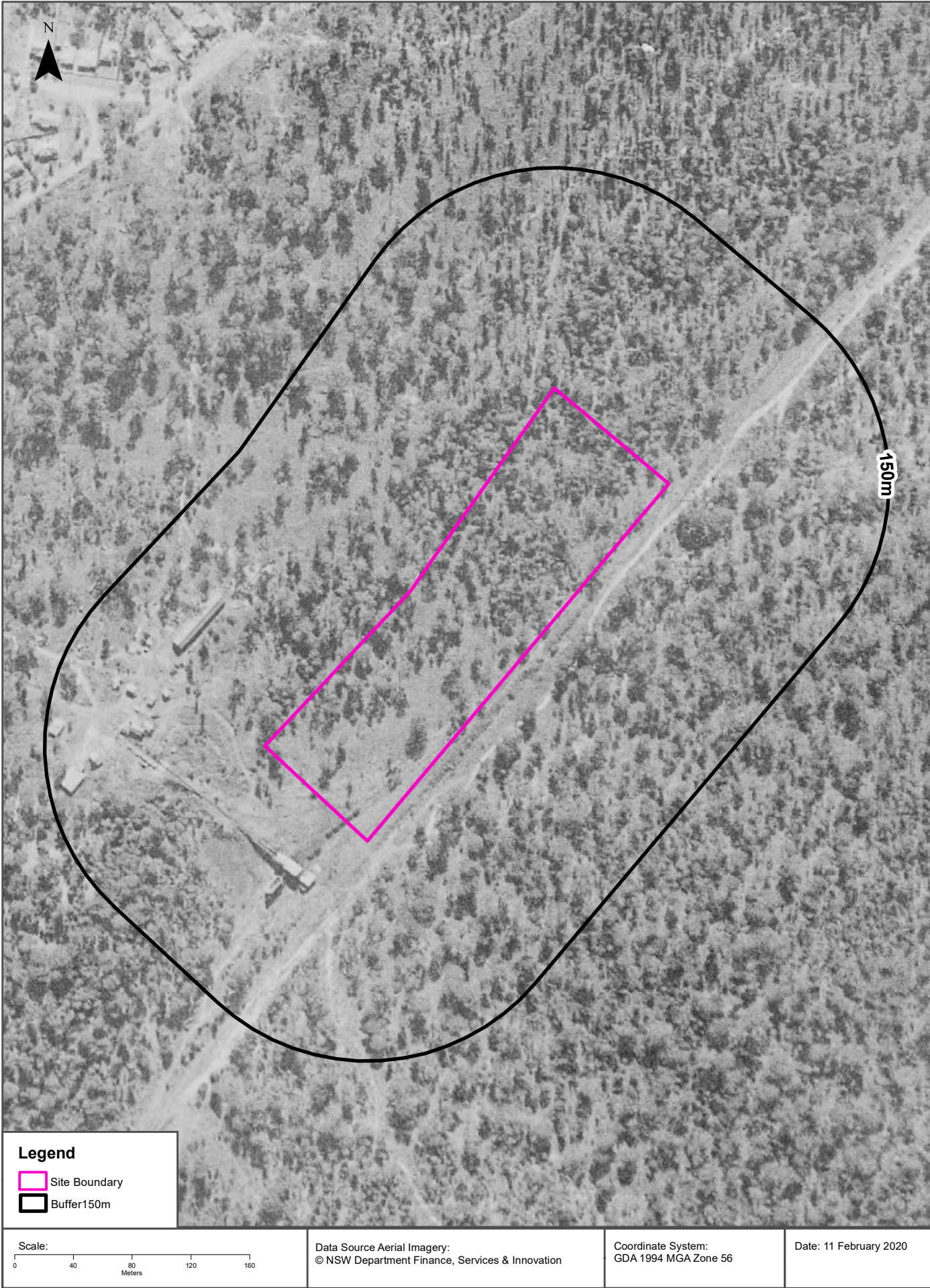


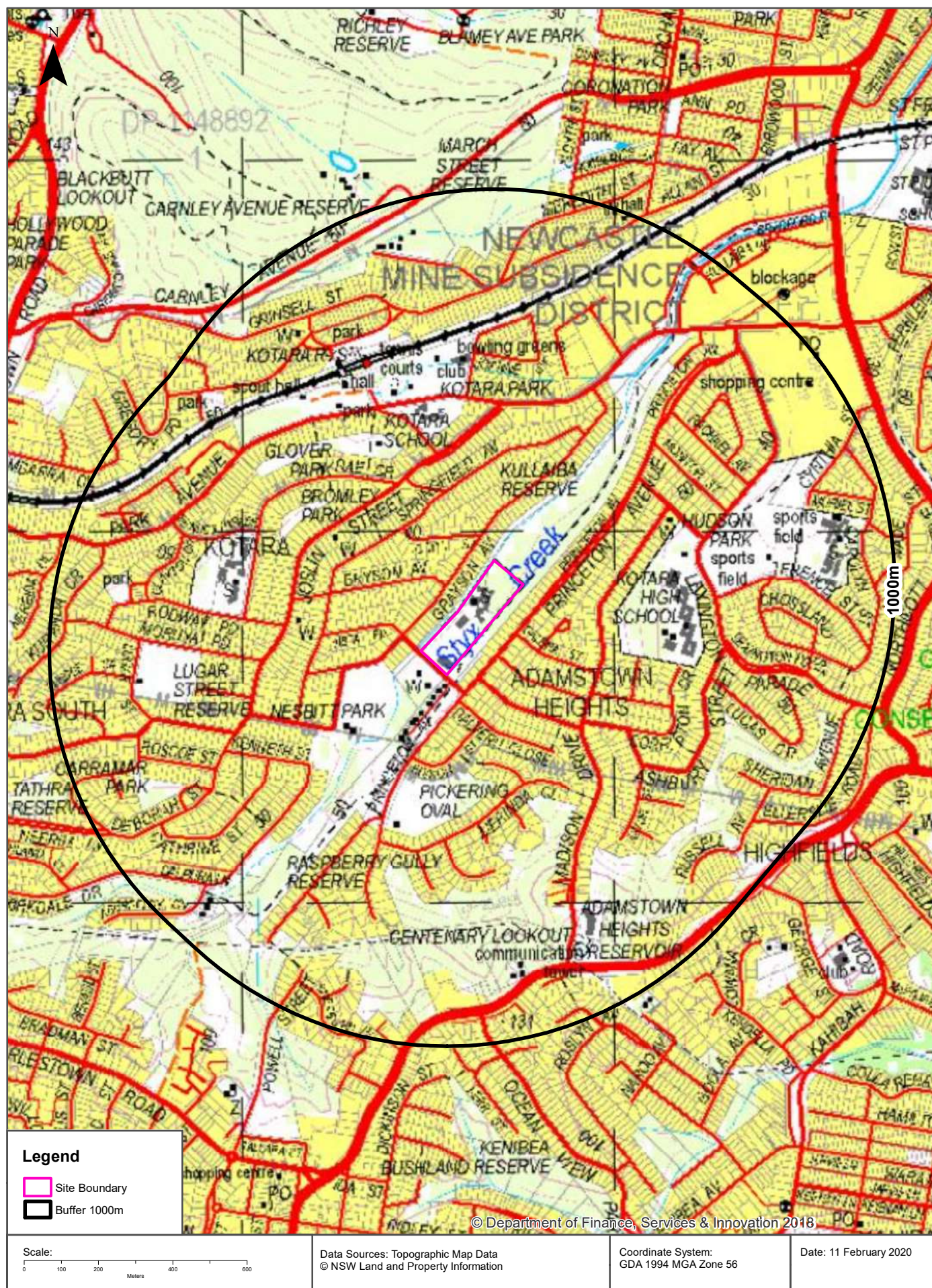
Scale: 0 40 80 120 160 Meters	Data Source Aerial Imagery: © NSW Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 11 February 2020
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Scale: 0 40 80 120 160 Meters	Data Source Aerial Imagery: © NSW Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 11 February 2020
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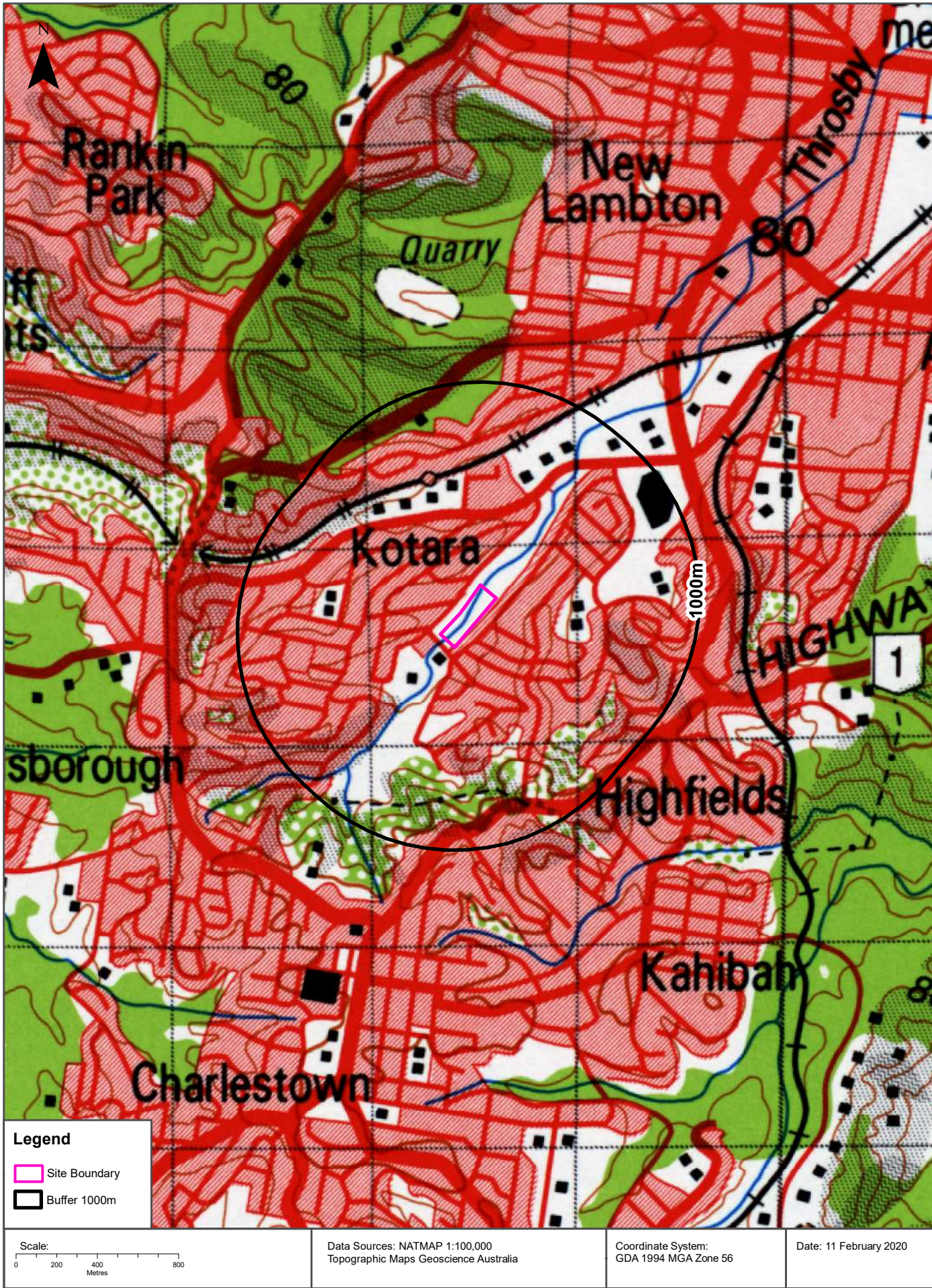






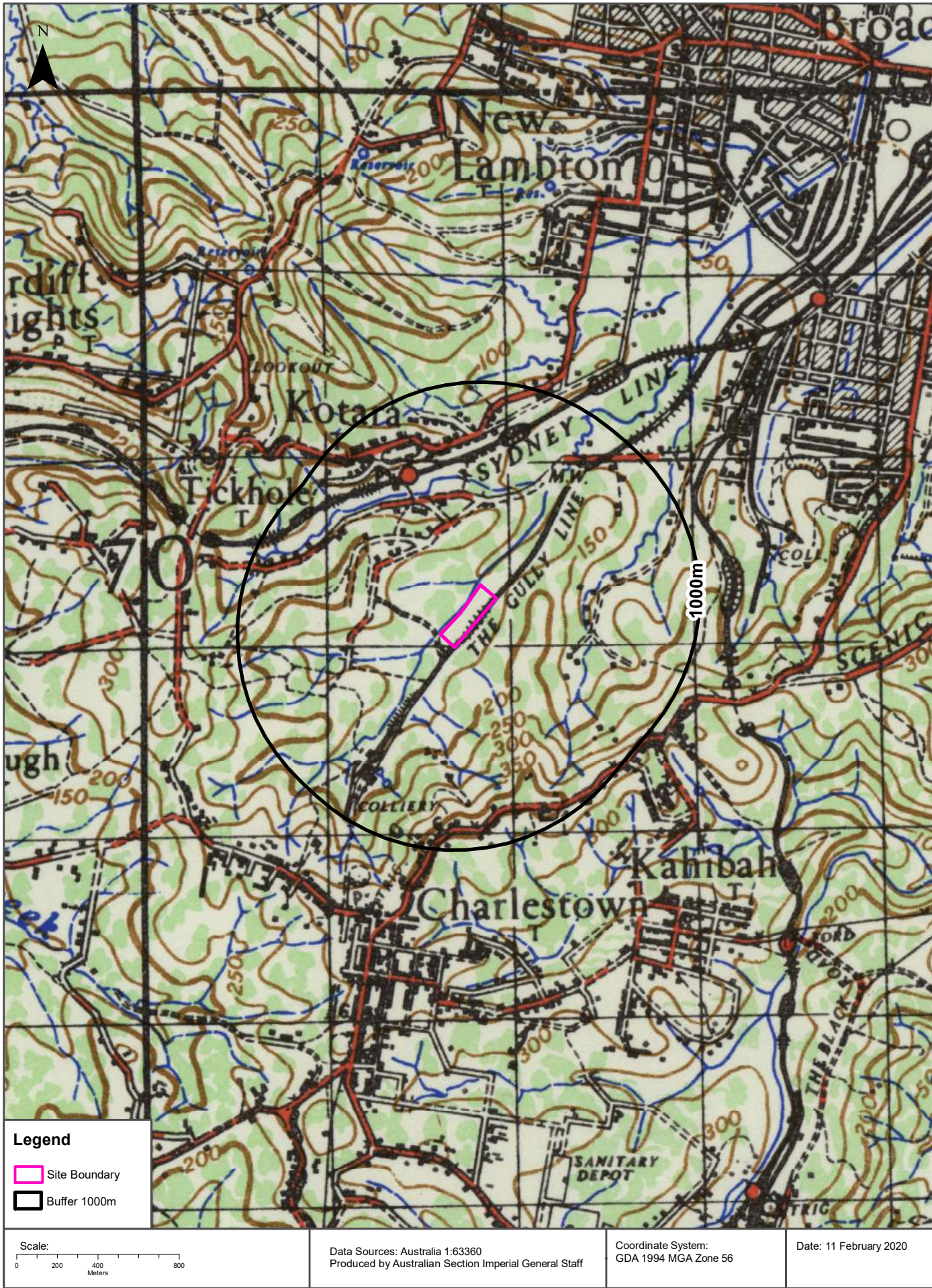
Historical Map 1981

30 Vista Parade, Kotara, NSW 2289



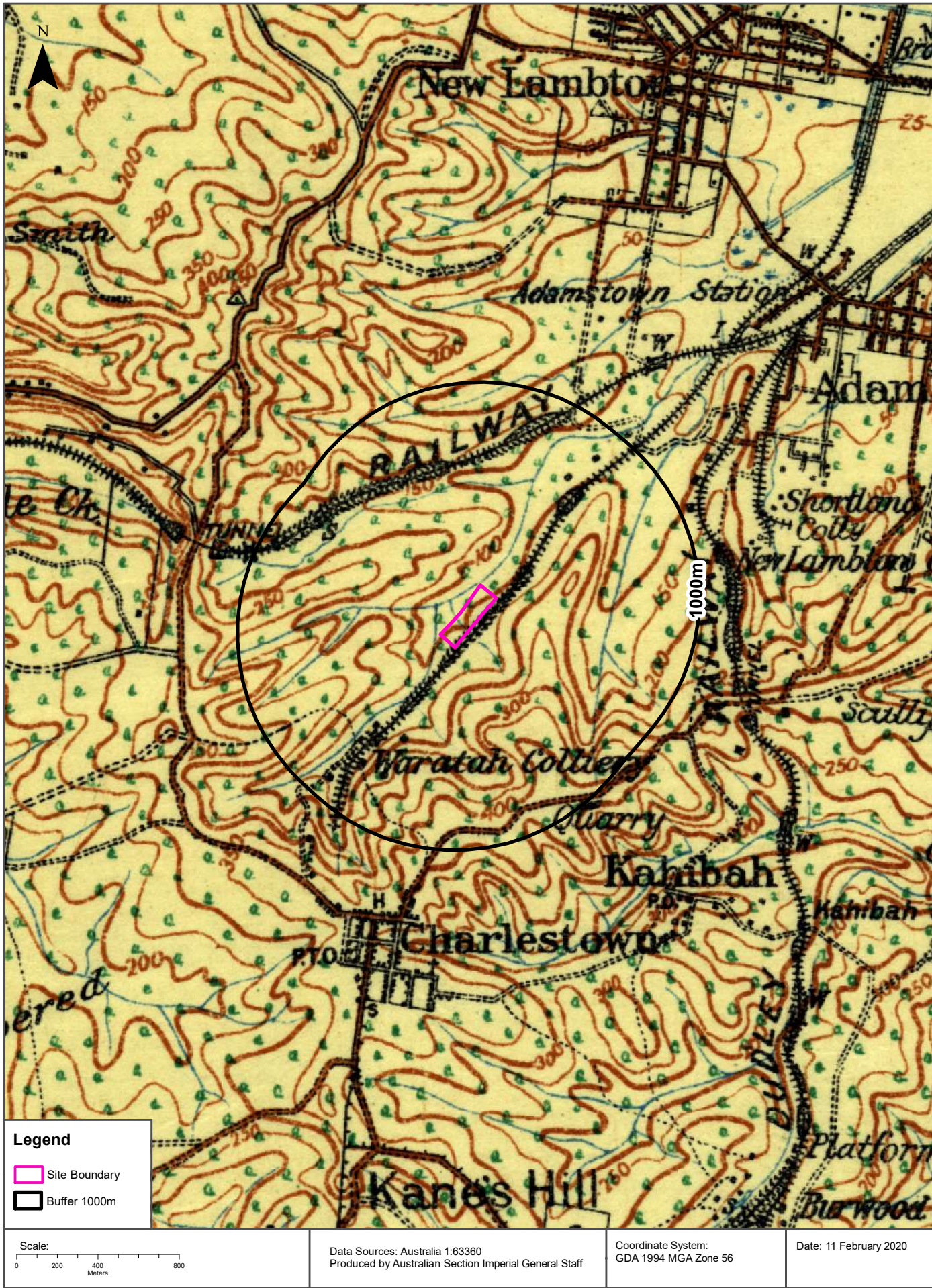
Historical Map c.1941

30 Vista Parade, Kotara, NSW 2289



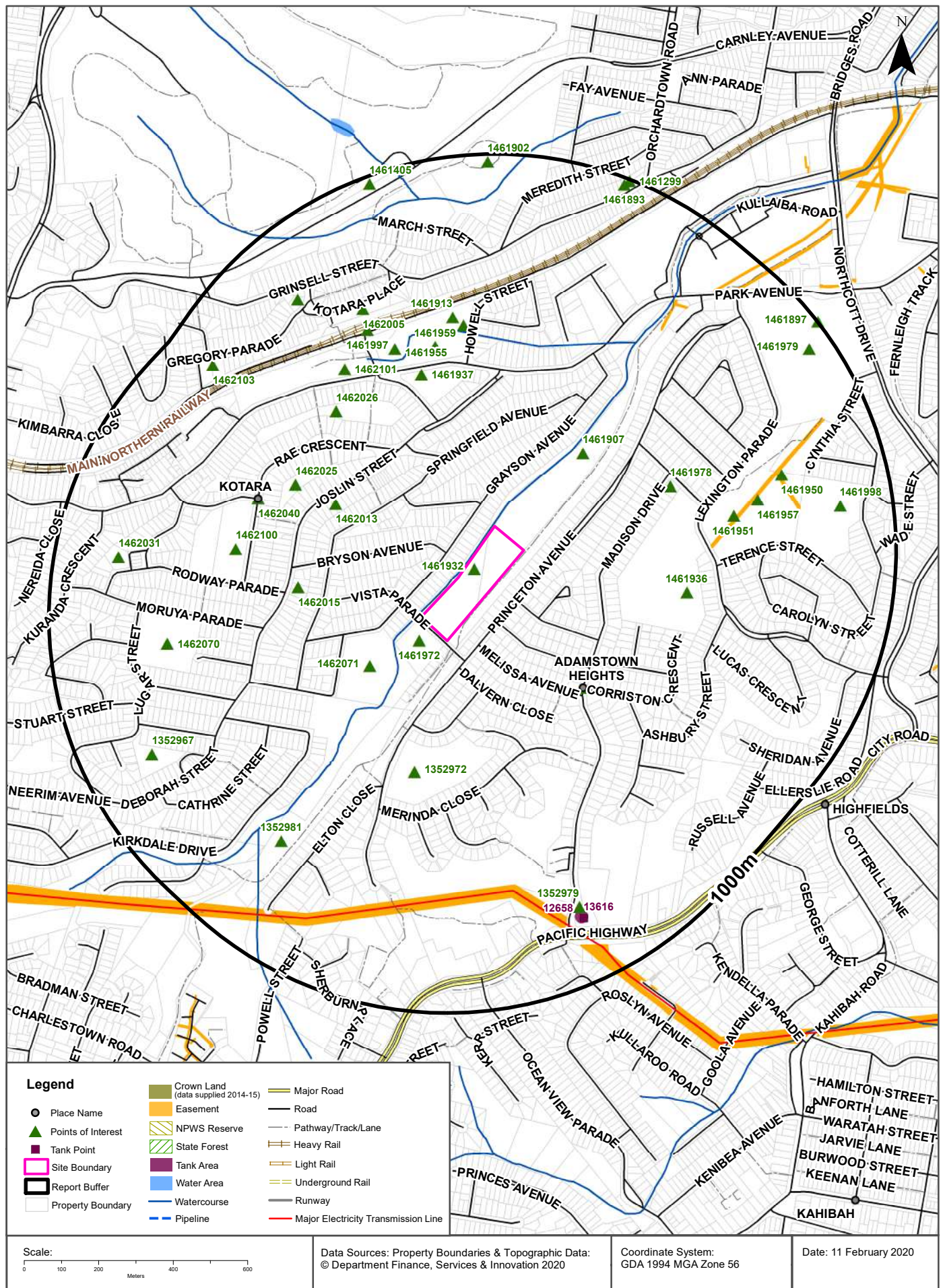
Historical Map c.1913

30 Vista Parade, Kotara, NSW 2289



Topographic Features

30 Vista Parade, Kotara, NSW 2289



Topographic Features

30 Vista Parade, Kotara, NSW 2289

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1461932	Primary School	ST JAMES PRIMARY SCHOOL	0m	Onsite
1461972	Place Of Worship	CATHOLIC CHURCH	51m	South West
1462071	Sports Field	NESBITT PARK	191m	South West
1461907	Park	KULLAIBA RESERVE	301m	North East
1462015	Place Of Worship	ANGLICAN CHURCH	340m	West
1461917	Suburb	ADAMSTOWN HEIGHTS	360m	South East
1352972	Sports Field	PICKERING OVAL	363m	South
1462013	Place Of Worship	UNITING CHURCH	375m	North West
1461978	Place Of Worship	BAPTIST CHURCH	429m	North East
1461936	High School	KOTARA HIGH SCHOOL	452m	East
1461937	Special School	KOTARA SCHOOL	452m	North
1462025	Park	BROMLEY PARK	489m	North West
1461959	Sports Field	KOTARA PARK	508m	North
1462026	Park	GLOVER PARK	526m	North West
1462100	Primary School	KOTARA SOUTH PUBLIC SCHOOL	530m	West
1462040	Suburb	KOTARA	541m	West
1461955	Sports Court	TENNIS COURTS	546m	North
1461880	Club	KOTARA BOWLING AND RECREATION CLUB	546m	North
1461951	Sports Field	Sports Field	571m	East
1461913	Sports Field	BOWLING GREENS	572m	North
1462101	Park	Park	583m	North West
1461997	Railway Station	KOTARA RAILWAY STATION	628m	North West
1461957	Park	HUDSON PARK	641m	East
1462005	Park	Park	682m	North
1462070	Sports Field	LUGAR STREET RESERVE	685m	West
1352981	Park	RASPBERRY GULLY RESERVE	698m	South West
1461950	Sports Field	Sports Field	720m	East
1352979	Lookout	CENTENARY LOOKOUT	798m	South
1462007	Place Of Worship	UNITING CHURCH	806m	North West
1352967	Park	CARRAMAR PARK	812m	South West
1462031	Park	Park	828m	West

Map Id	Feature Type	Label	Distance	Direction
1461998	Primary School	BELAIR PUBLIC SCHOOL	857m	East
1462103	Park	Park	868m	North West
1461979	Shopping Centre	WESTFIELD KOTARA	937m	North East
1461405	Parking Area	Parking Area	979m	North
1461902	Park	MARCH STREET RESERVE	979m	North
1461893	Place Of Worship	UNITING CHURCH	981m	North
1461299	Community Facility	NEW LAMBTON UNITING CHURCH HALL	995m	North
1461897	Post Office	KOTARA POST OFFICE	999m	North East

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

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Topographic Features

30 Vista Parade, Kotara, NSW 2289

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
12658	Water	Operational	ADAMSTOWN HEIGHTS RESERVOIR	14/07/2018	806m	South

Tanks (Points)

What are the Tank Points located within the dataset buffer?

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
13616	Water	Feature on Previous LPI Tank Area Supply		04/12/2012	830m	South

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

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Major Easements

What Major Easements exist within the dataset buffer?

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120112903	Primary	Undefined		502m	East
120119219	Primary	Undefined		675m	South West
120119966	Primary	Undefined		691m	North East
120119969	Primary	Undefined		765m	North East
120108952	Primary	Undefined		765m	North East
120116325	Primary	Undefined		866m	North East
120109153	Primary	Undefined		909m	South
120111705	Primary	Undefined		909m	North East

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

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Topographic Features

30 Vista Parade, Kotara, NSW 2289

State Forest

What State Forest exist within the dataset buffer?

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

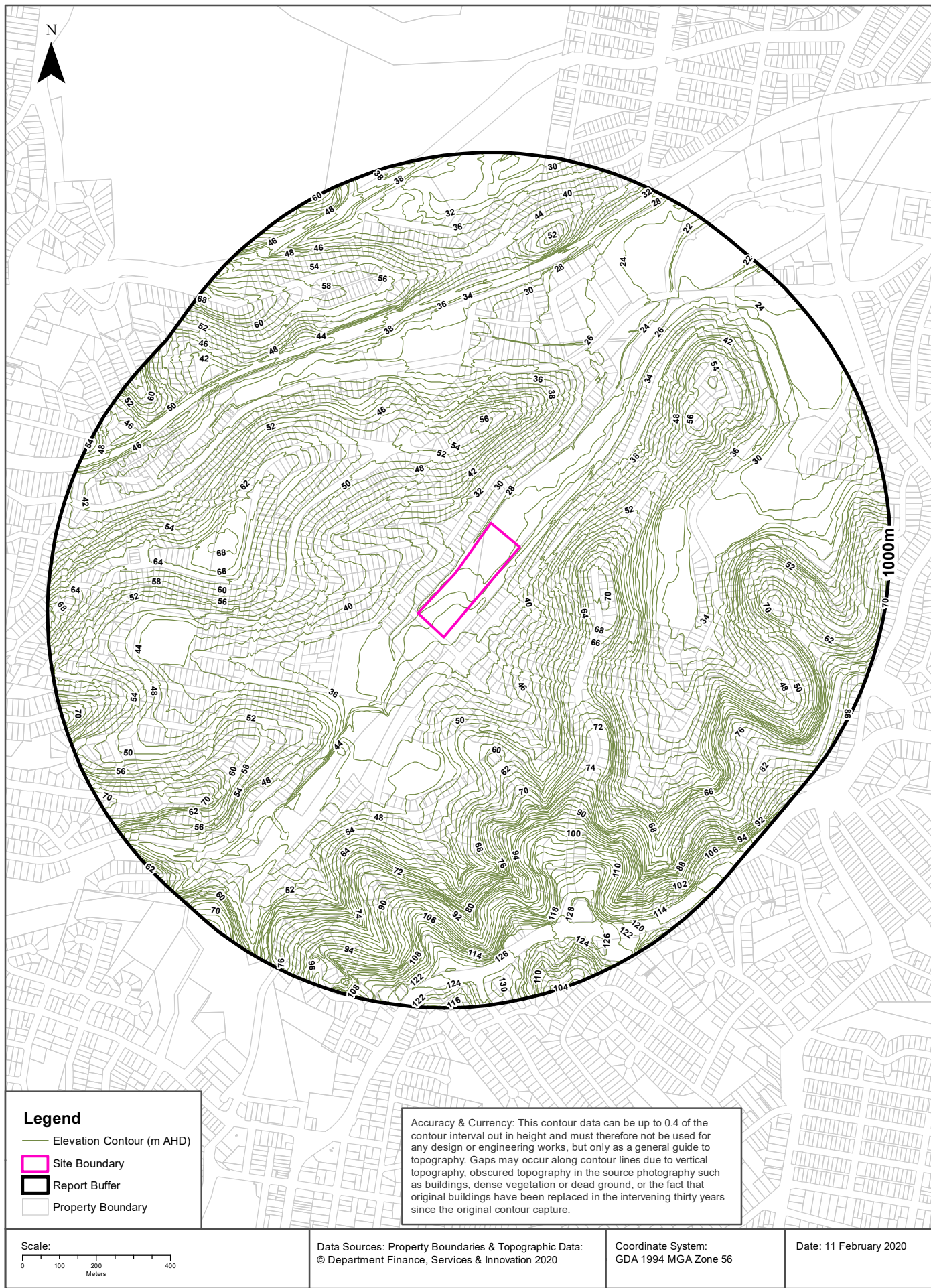
State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)
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National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

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

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018)
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Hydrogeology & Groundwater

30 Vista Parade, Kotara, NSW 2289

Hydrogeology

Description of aquifers on-site:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive aquifers of low to moderate productivity

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

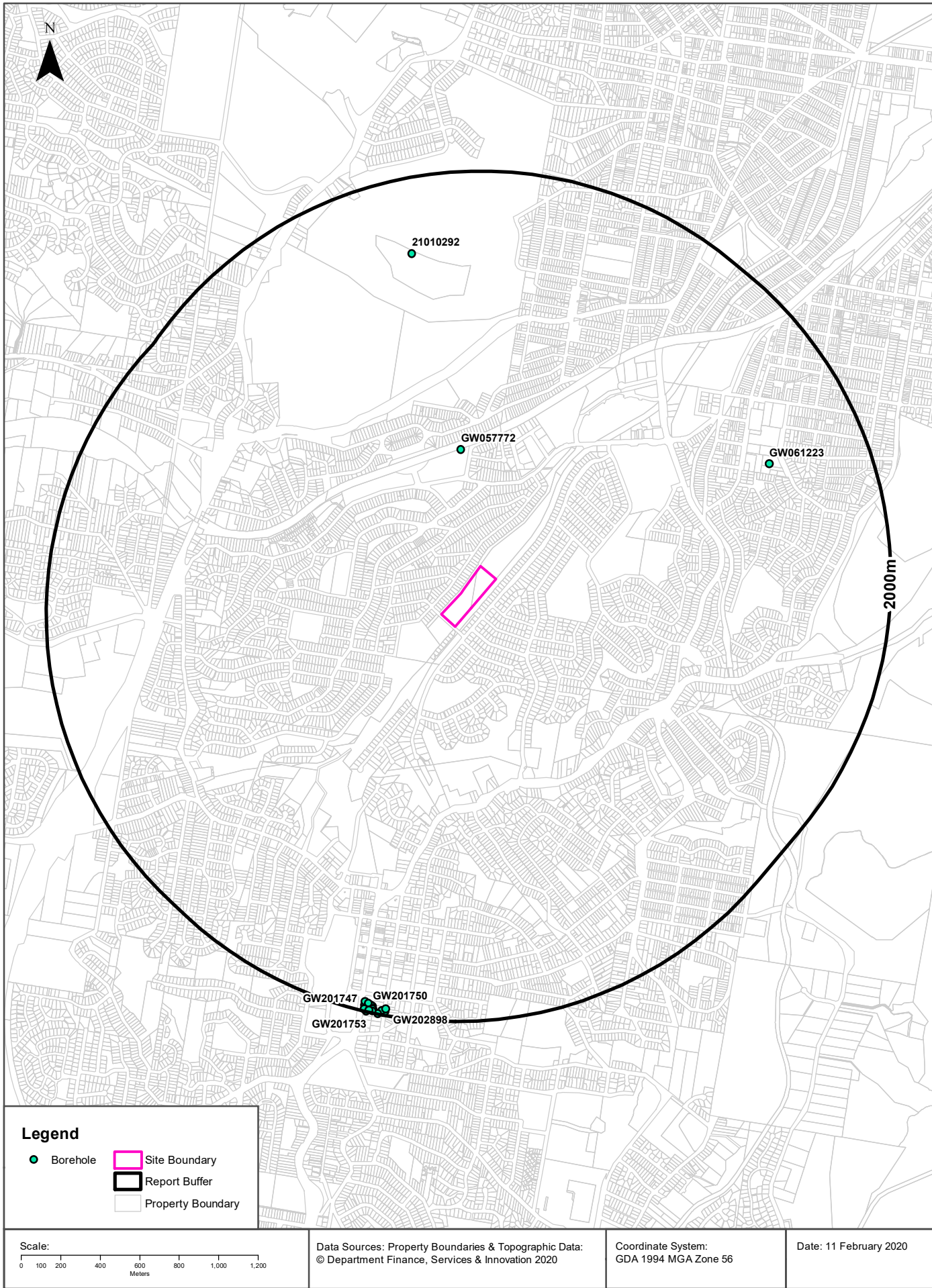
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Botany Groundwater Management Zones

Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries



Hydrogeology & Groundwater

30 Vista Parade, Kotara, NSW 2289

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW057772	20BL120210	Bore	Private	Recreation (groundwater)	Recreation (groundwater)		01/02/1981	24.00	24.00					597m	North
GW061223	20BL133110	Bore	Private	Domestic	Domestic		01/06/1985	36.50	36.50	3001-7000 ppm				1501m	North East
21010292					UNK								56.27	1618m	North
GW201757	20BL173012	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	6.40	6.40		4.90		104.57	1952m	South
GW201758	20BL173012	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	5.70	5.70		4.80		103.76	1958m	South
GW201749	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	5.50	5.50		3.30		103.53	1963m	South
GW202897	20BL173546	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW11	14/07/2003	6.00	6.00		2.07		94.76	1966m	South
GW201751	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	6.00	6.00		3.30		102.15	1967m	South
GW201748	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	5.90	5.90		4.70		103.48	1970m	South
GW201750	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	5.40	5.40		3.50		102.16	1971m	South
GW201747	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		07/01/2009	7.00	7.00		5.00		104.59	1971m	South
GW201755	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	7.40	7.40		3.30		102.19	1977m	South
GW202892	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW17	09/09/2003	6.00	6.00		0.96		92.78	1979m	South
GW202894	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW21	27/08/2007	5.00	5.00					1979m	South
GW202888	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW9	22/07/2003	6.00	6.00		1.59		94.96	1980m	South
GW202898	20BL173547	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW12	14/07/2003	5.40	5.40		1.27		93.13	1983m	South
GW202895	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW22	27/08/2007	4.50	4.50					1986m	South
GW201752	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	6.50	6.50		4.80		104.35	1990m	South
GW202890	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW15	09/09/2003	6.00	6.00		1.69		95.11	1991m	South
GW201756	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	7.30	7.30		3.20		102.23	1991m	South
GW201754	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	6.80	6.80		3.30		102.51	1991m	South
GW202891	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW16	09/09/2003	6.00	6.00		1.56		93.96	1999m	South
GW201753	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	7.40	7.40		4.50		103.34	1999m	South

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Hydrogeology & Groundwater

30 Vista Parade, Kotara, NSW 2289

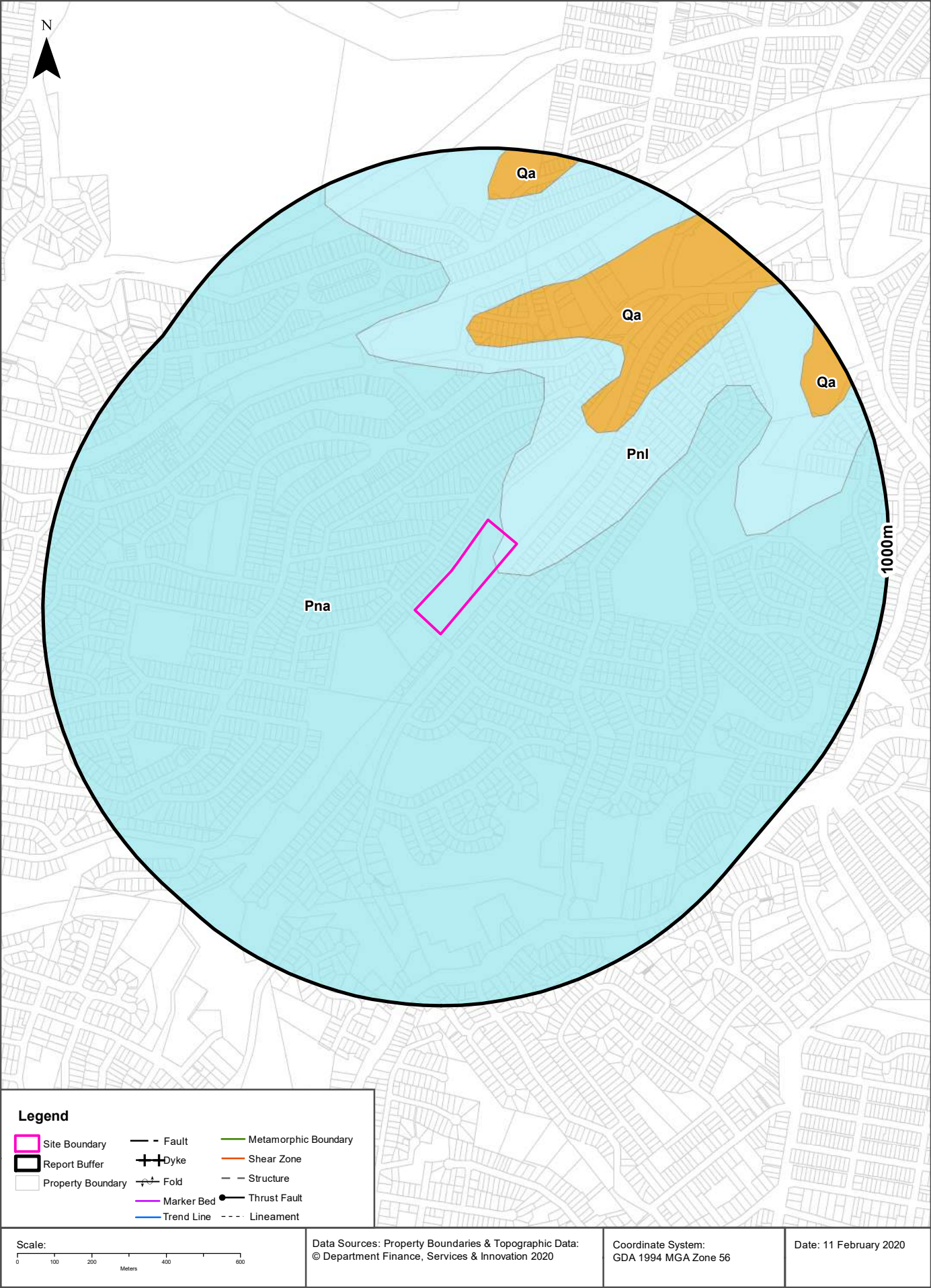
Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW057772	0.00m-0.30m Soil 0.30m-22.00m Clay 22.00m-24.00m Shale Water Bearing	597m	North
GW061223	0.00m-4.87m Fill 4.87m-9.10m Clay 9.10m-14.60m Shale 14.60m-18.28m Sandstone 18.28m-22.80m Coal Water Supply 22.80m-30.17m Conglomerate 30.17m-32.00m Coal Water Supply 32.00m-36.50m Sandstone	1501m	North East
GW201757	0.00m-5.40m Fill; Silty Clay, weathered seam, medium to high plasticity, brown, moist 5.40m-6.10m Conglomerate, cemented, moist 6.10m-6.20m Silty Clay; medium plasticity, pale grey, moist 6.20m-6.40m Conglomerate, cemented, moist	1952m	South
GW201758	0.00m-3.50m Fill; Silty Clay, medium to high plasticity, red/brown, moist 3.50m-5.40m Fill; Silty Clay, as above, wet 5.40m-5.70m Bedrock, wet (Conglomerate?)	1958m	South
GW201749	0.00m-4.20m Fill; Gravelly Silt, low plasticity, dark grey, moist 4.20m-4.80m Silty Clay; medium plasticity, red orange, trace gravel, wet 4.80m-5.50m Conglomerate, cemented, wet	1963m	South
GW202897	0.00m-0.20m Fill; Bitumen 0.20m-0.80m Fill; Sandy Gravel, brown, moist, poorly graded, fine gravel-coarse sand, high permeability, no HC odour 0.80m-5.20m Clay, Silty; with some fine gravel, red/white/yellow streaking, low plasticity, low permeability, no HC odour 5.20m-6.00m Clay, Silty; with minor gravel below 4.5m, light grey, soft becoming wet below 4.5m, no HC odour, medium permeability	1966m	South
GW201751	0.00m-0.50m Fill; Clayey Sand, fine to medium grained, brown/black, trace cobbles/boulders, moist 0.50m-2.90m Silty Gravelly Clay; medium plasticity, brown/black, moist 2.90m-3.20m Silt, Gravelly Clayey; low plasticity, pale grey, moist 3.20m-5.10m Silt, Gravelly Clayey; as above, wet 5.10m-6.00m Conglomerate, cemented, wet	1967m	South
GW201748	0.00m-4.00m Fill; Silty Clay, medium to high plasticity, red/brown, moist 4.00m-5.90m Fill; Silty Clay, as above, wet	1970m	South
GW201747	0.00m-4.50m Fill; Silty Clay, medium to high plasticity, red/brown, moist 4.50m-5.70m Fill; Silty Clay, as above, wet 5.70m-7.00m Conglomerate, cemented, wet	1971m	South
GW201750	0.00m-2.60m Fill; Gravelly Silt, low plasticity, dark grey, moist 2.60m-3.50m Fill; Silty Gravelly Clay, medium plasticity, red orange, moist 3.50m-4.90m Fill; Silty Gravelly Clay, as above, wet 4.90m-5.40m Conglomerate, cemented, wet	1971m	South
GW201755	0.00m-0.60m Fill; Sand, fine to medium grained, yellow, sub-angular, trace cobbles/boulders, moist 0.60m-1.90m Clay; medium to high plasticity, grey/brown, moist 1.90m-2.25m Clay; as above, red/brown, moist 2.25m-3.20m Clay; as above, grey/white, moist 3.20m-6.00m Clay; as above, wet 6.00m-6.10m Conglomerate, cemented, wet 6.10m-6.20m Silty Clay; medium plasticity, grey, wet 6.20m-7.40m Conglomerate; cemented, wet	1977m	South
GW202892	0.00m-0.50m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.50m-1.40m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.40m-4.60m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity & permeability, no HC odour 4.60m-5.50m Clay, Silty Sandy; light grey, soft to firm, medium plasticity, low permeability, no HC odour 5.50m-6.00m Conglomerate; yellow brown, rounded pebble (to 10mm) clasts of shale & sandstone in fine matrix, weak, extremely weather	1979m	South

Groundwater No	Drillers Log	Distance	Direction
GW202894	0.00m-0.20m Clay, Sandy; (topsoil), dark brown, no odour, roots & grass cover present 0.20m-0.80m Clay, Sandy; dark brown, minor gravels, roots present, fine-medium sands, no odour 0.80m-1.50m Clay; Sandy; as above, grading to orange/brown, grading to red/grey @ 1.3m 1.50m-4.30m Clay, Sandy; as above, grading to orange, with ironstone. Minor gravels, some grey @ 2.5m. Gravel to 20mm @ 2.8m 4.30m-5.00m Sandstone, grading to; extremely weathered, minor gravels & rocks to 20mm, no odour	1979m	South
GW202888	0.00m-0.30m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.30m-1.60m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.60m-4.30m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour, increasing sand 4.30m-5.20m Clay, Silty Sandy; light grey, soft to firm, medium plasticity, low permeability, slight HC odour 5.20m-6.00m Conglomerate; yellow brown, rounded pebbles sized (to 10mm) clasts of shale & sandstone in a fine matrix, weak rock, ext	1980m	South
GW202898	0.00m-0.20m Fill; bitumen 0.20m-0.80m Fill; Sandy Gravel, brown, moist, poorly graded, fine gravel-coarse sand, high permeability, no HC odour 0.80m-2.60m Clay, Silty; with fine gravels, red/brown, medium stiff, low plasticity & permeability, no HC odour 2.60m-4.70m Clay, Silty; with fine gravels, light grey, intact, low plasticity, medium permeability, no HC odour 4.70m-5.40m Clay, silty; as above, red/brown, wet, high plasticity, refusal in shale bedrock	1983m	South
GW202895	0.00m-0.50m Fill; Asphalt & concrete 0.50m-0.60m Fill; coarse sand, brown, with gravel to 30mm, no odour, moist/wet 0.60m-1.50m Clay; grey with mottled pale brown, medium plasticity, organic odour, moist/wet 1.50m-3.00m Clay; as above, grading to grey with mottled red, damp/moist @ 2.7m 3.00m-3.50m Clay, Sandy; pale brown, with minor gravels, no odour, moist 3.50m-4.50m Clay, Sandy; as above, grading to dark red with mottled brown/grey, moist. Wet @ base	1986m	South
GW201752	0.00m-4.60m Fill; Silty Clay, medium to high plasticity, red brown, moist 4.60m-4.80m Silty Gravelly Clay; low plasticity, red brown, moist-wet 4.80m-6.20m Silty Gravelly Clay; low plasticity pale grey, wet 6.20m-6.50m Conglomerate, cemented, wet	1990m	South
GW201754	0.00m-0.80m Fill; Silty Gravelly Clay; medium plasticity, red brown, trace cobbles, building debris 0.80m-3.00m Silty Clay; medium plasticity, pale grey, trace gravel 3.00m-4.60m Silty Clay; as above, red orange 4.60m-6.00m Silty Gravelly Clay; low plasticity, orange, red/brown 6.00m-6.80m Conglomerate; cemented	1991m	South
GW201756	0.00m-1.55m Fill; Clayey Sand, fine to medium grained, sub-angular, yellow brown, moist 1.55m-2.70m Silty Clay; medium plasticity, brown, moist 2.70m-2.80m Ironstone/Gravel band 2.80m-4.40m Silty Gravelly Clay; low plasticity, pale grey, wet from 3m 4.40m-5.70m Gravel, Silty Clayey; sub-angular, grey, wet 5.70m-6.20m Conglomerate, wet 6.20m-6.60m Silty Clay, pale grey, wet 6.60m-7.30m Conglomerate, wet	1991m	South
GW202890	0.00m-0.30m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, no HC odour, high permeability 0.30m-1.60m Clay; grey/olive brown, very fine to stiff, intact, low plasticity, low permeability, no HC odour 1.60m-3.80m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour 3.80m-4.80m Clay, Silty Sandy; light gryn, soft to firm, medium plasticity, low permeability, no HC odour 4.80m-6.00m Conglomerate; yellow brown, rounded pebble sized (to10mm) clasts of shale & sandstone in a fine matrix, weak, extremely	1991m	South
GW201753	0.00m-0.90m Fill; Silty Clay, medium plasticity, brown/black, trace gravel, moist 0.90m-4.30m Silty Clay; medium to high plasticity, pale grey & orange, moist 4.30m-6.90m Silty Clay; as above, wet 6.90m-7.40m Conglomerate, cemented, wet	1999m	South
GW202891	0.00m-0.50m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.50m-1.00m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.00m-3.30m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour 3.30m-4.60m Clay, Silty Sandy; light grey, soft to firm, medium plasticity, low permeability, no HC odour 4.60m-6.00m Conglomerate; yellow brown, rounded pebbles sized (to 10mm) clasts of shale & sandstone in a fine matrix, weak, extremel	1999m	South

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp
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Geology

30 Vista Parade, Kotara, NSW 2289

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Pna	Conglomerate, sandstone, siltstone, coal, tuff		Newcastle Coal Measures		Palaeozoic			1:250,000
Pnl	Sandstone, siltstone, claystone, coal, tuff	Lambton Subgroup	Newcastle Coal Measures	Lambton Subgroup	Palaeozoic			1:250,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Pna	Conglomerate, sandstone, siltstone, coal, tuff		Newcastle Coal Measures		Palaeozoic			1:250,000
Pnl	Sandstone, siltstone, claystone, coal, tuff	Lambton Subgroup	Newcastle Coal Measures	Lambton Subgroup	Palaeozoic			1:250,000
Qa	Undifferentiated alluvial deposits; sand, silt, clay and gravel; some residual and colluvial deposits. Includes some channel, levee, lacustrine, floodplain and swamp deposits. May include some higher level Tertiary terraces	undifferentiated			Cainozoic			1:250,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:250,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
No features				1:250,000

Geological Data Source : NSW Department of Industry, Resources & Energy

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Naturally Occurring Asbestos Potential

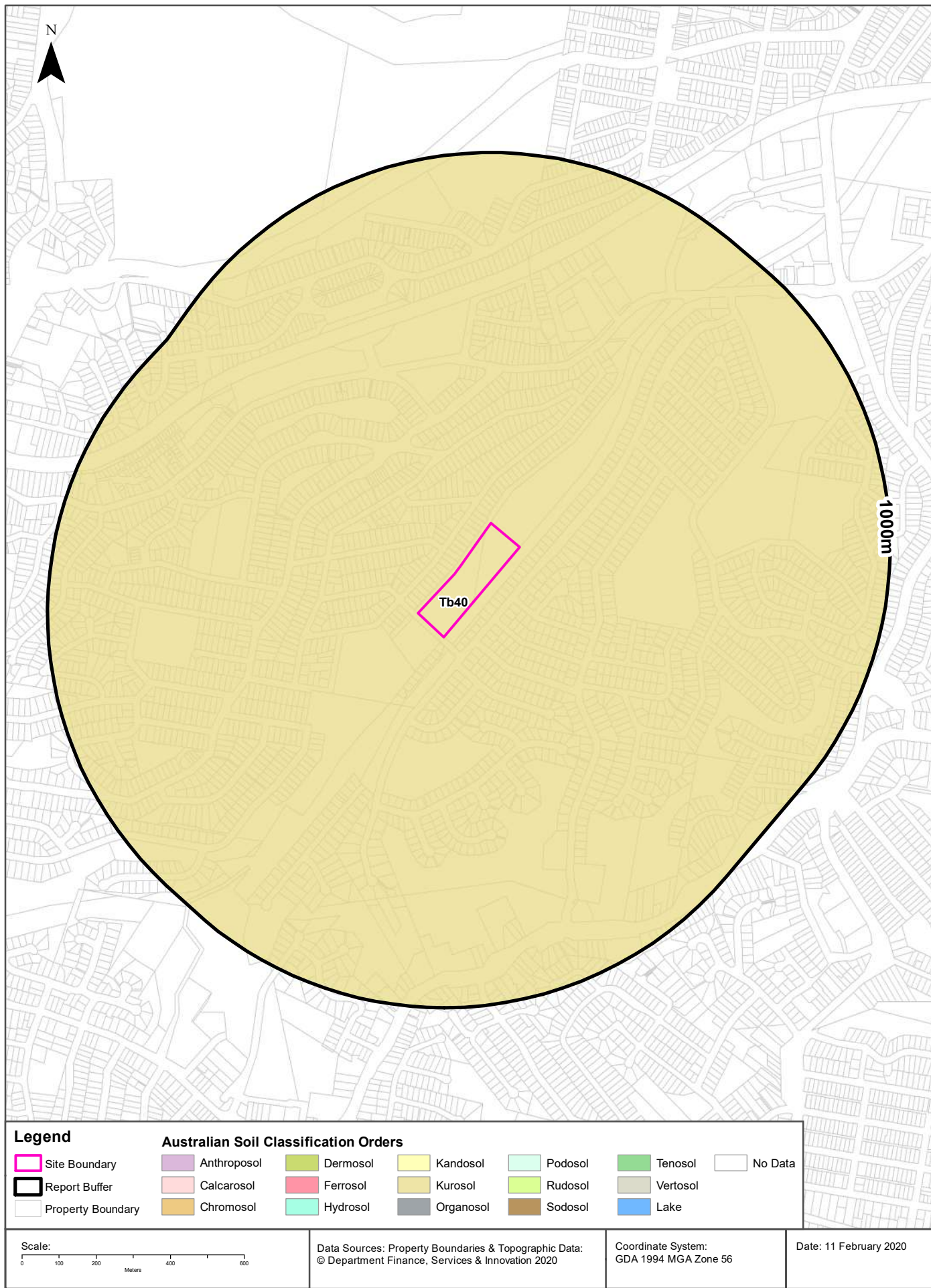
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Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

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

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy



Soils

30 Vista Parade, Kotara, NSW 2289

Atlas of Australian Soils

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

Map Unit Code	Soil Order	Map Unit Description	Distance
Tb40	Kurosol	Undulating to hilly areas with some steep slopes and cliffs, rock outcrops, and narrow terraced valleys: chief soils are hard acidic yellow mottled soils (Dy3.41) with some shallow soils such as (Um4.1) and (Uc4.1) on the steeper slopes. Associated are: (Gn2.2) soils and (Dd1) soils, both of which occur on slopes; undescribed soils in the valleys; and some (Dy5) and (Uc1 .2) soils along the coast. As mapped, small areas of units Gb10 and Cb28 are included.	0m

Atlas of Australian Soils Data Source: CSIRO

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Soil Landscapes

30 Vista Parade, Kotara, NSW 2289



Soils

30 Vista Parade, Kotara, NSW 2289

Soil Landscapes

What are the onsite Soil Landscapes?

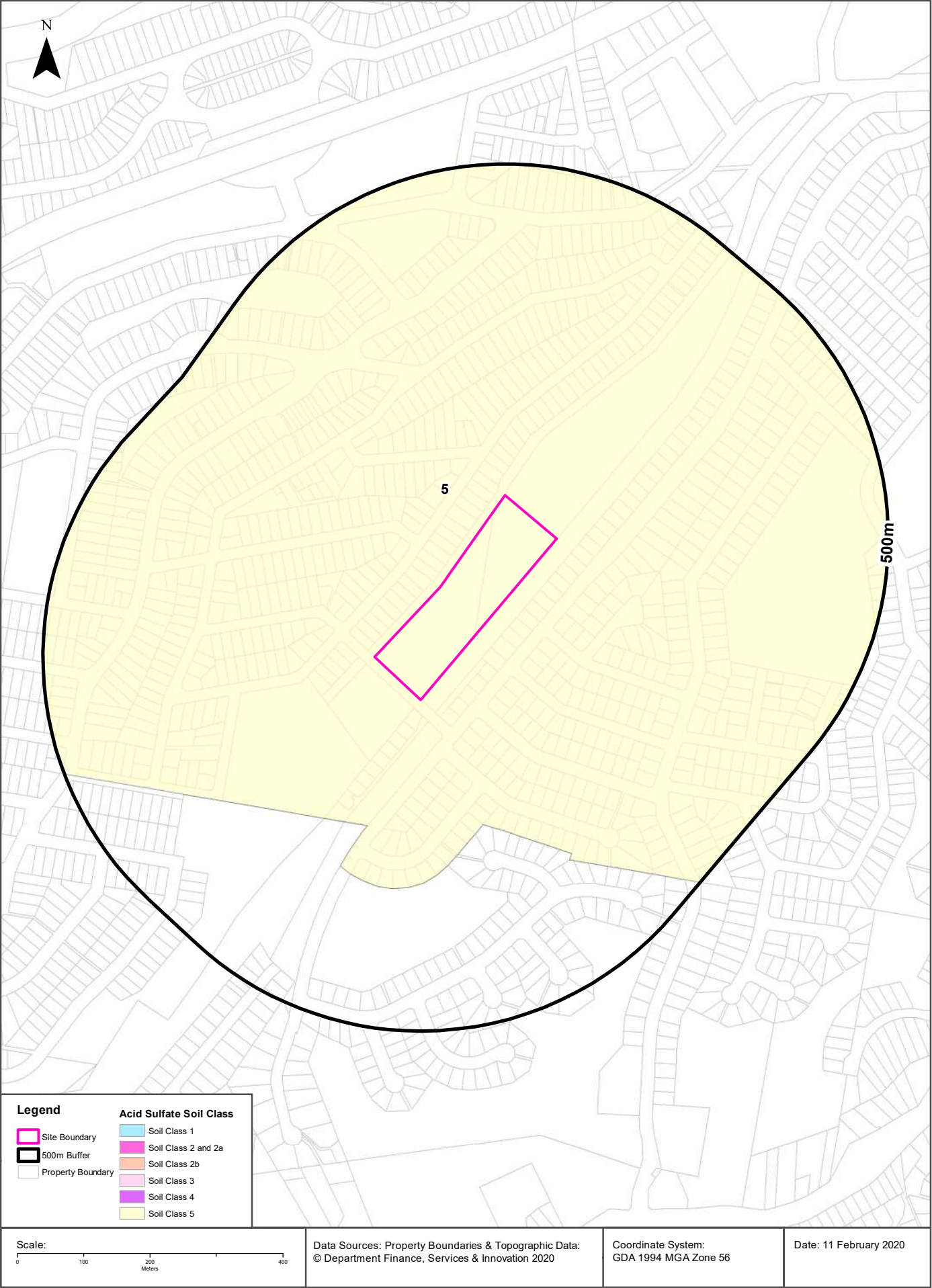
Soil Code	Name	Group	Process	Map Sheet	Scale
ALcc	COCKLE CREEK		ALLUVIAL	Newcastle	1:100,000
ERga	GATESHEAD		EROSIONAL	Newcastle	1:100,000
ERki	KILLINGWORTH		EROSIONAL	Newcastle	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALcc	COCKLE CREEK		ALLUVIAL	Newcastle	1:100,000
COce	CEDAR HILL		COLLUVIAL	Newcastle	1:100,000
COsna	STOCKRINGTON variant a		COLLUVIAL	Newcastle	1:100,000
ERga	GATESHEAD		EROSIONAL	Newcastle	1:100,000
ERki	KILLINGWORTH		EROSIONAL	Newcastle	1:100,000
REwa	WARNERS BAY		RESIDUAL	Newcastle	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage

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Acid Sulfate Soils

30 Vista Parade, Kotara, NSW 2289

Environmental Planning Instrument - Acid Sulfate Soils

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

Soil Class	Description	EPI Name
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Newcastle Local Environmental Plan 2012

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

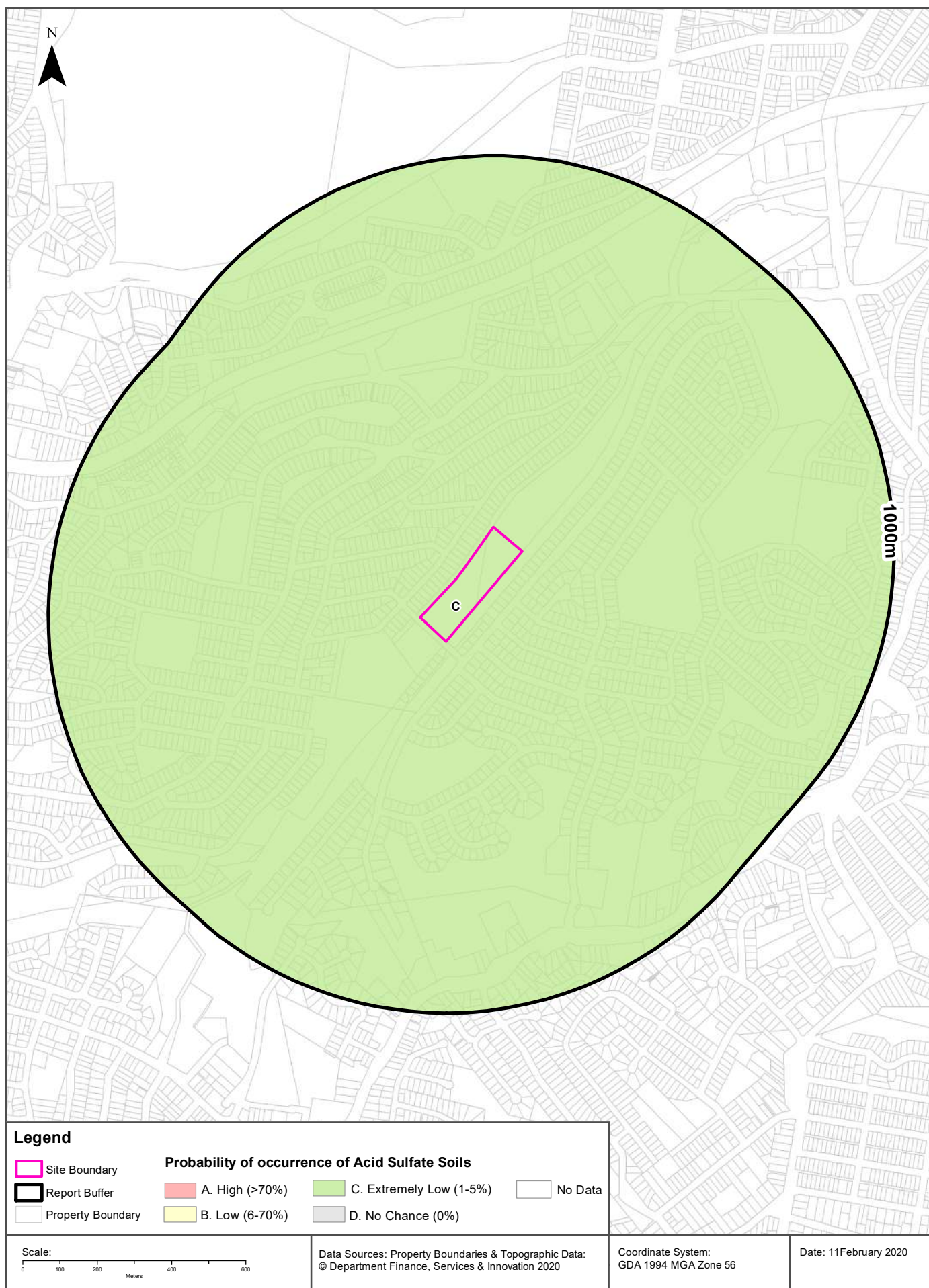
Soil Class	Description	EPI Name	Distance	Direction
None				

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Atlas of Australian Acid Sulfate Soils

30 Vista Parade, Kotara, NSW 2289



Acid Sulfate Soils

30 Vista Parade, Kotara, NSW 2289

Atlas of Australian Acid Sulfate Soils

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

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

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Dryland Salinity

30 Vista Parade, Kotara, NSW 2289

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source : National Land and Water Resources Audit

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

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

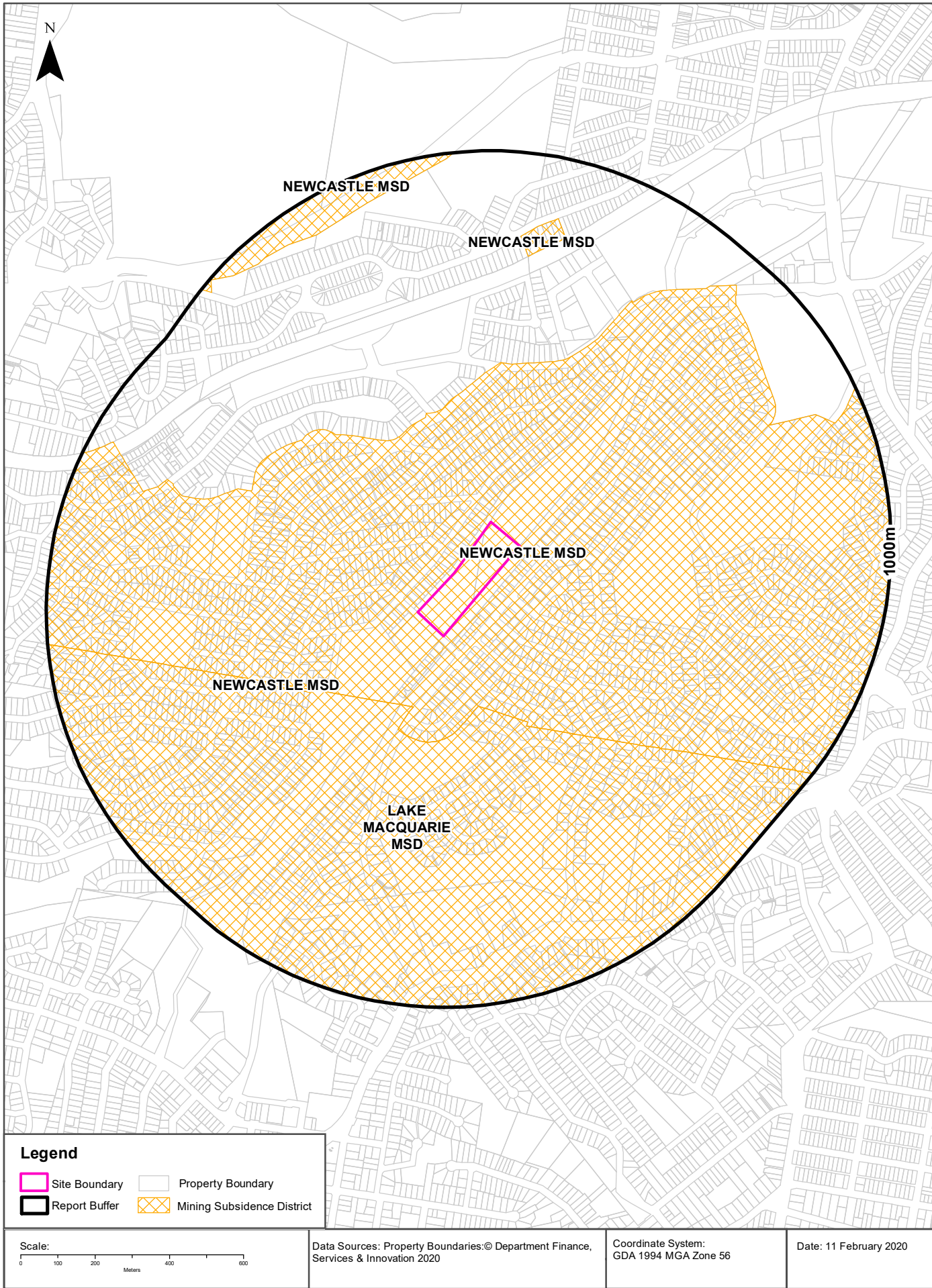
Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
N/A	Outside Data Coverage			

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage

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Mining Subsidence Districts

30 Vista Parade, Kotara, NSW 2289

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
NEWCASTLE	0m	Onsite
LAKE MACQUARIE	207m	South West
NEWCASTLE	355m	North West

Mining Subsidence District Data Source: © Land and Property Information (2016)
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State Environmental Planning Policy

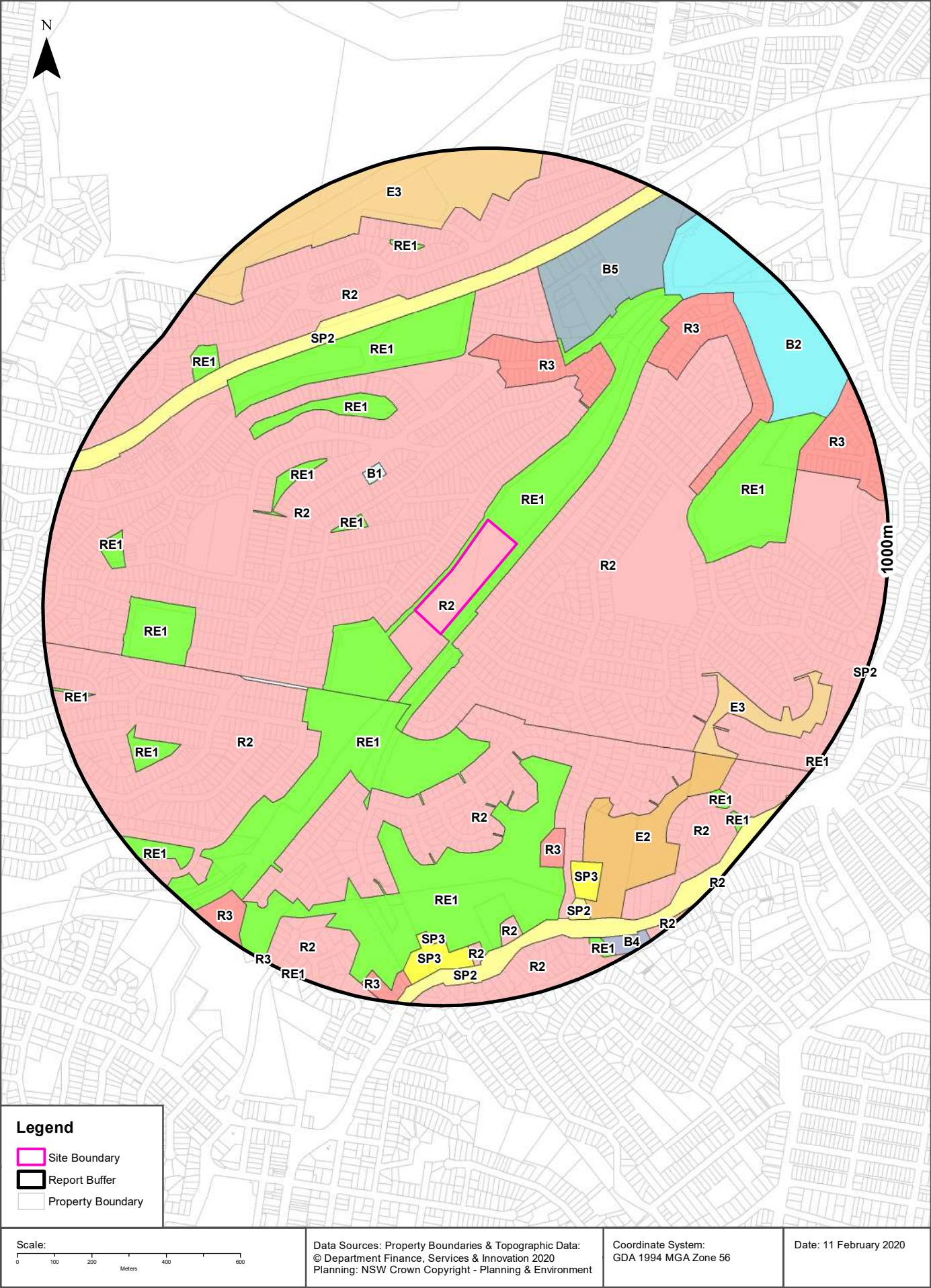
30 Vista Parade, Kotara, NSW 2289

State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

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

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment
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Environmental Planning Instrument

30 Vista Parade, Kotara, NSW 2289

Land Zoning

What EPI Land Zones exist within the dataset buffer?

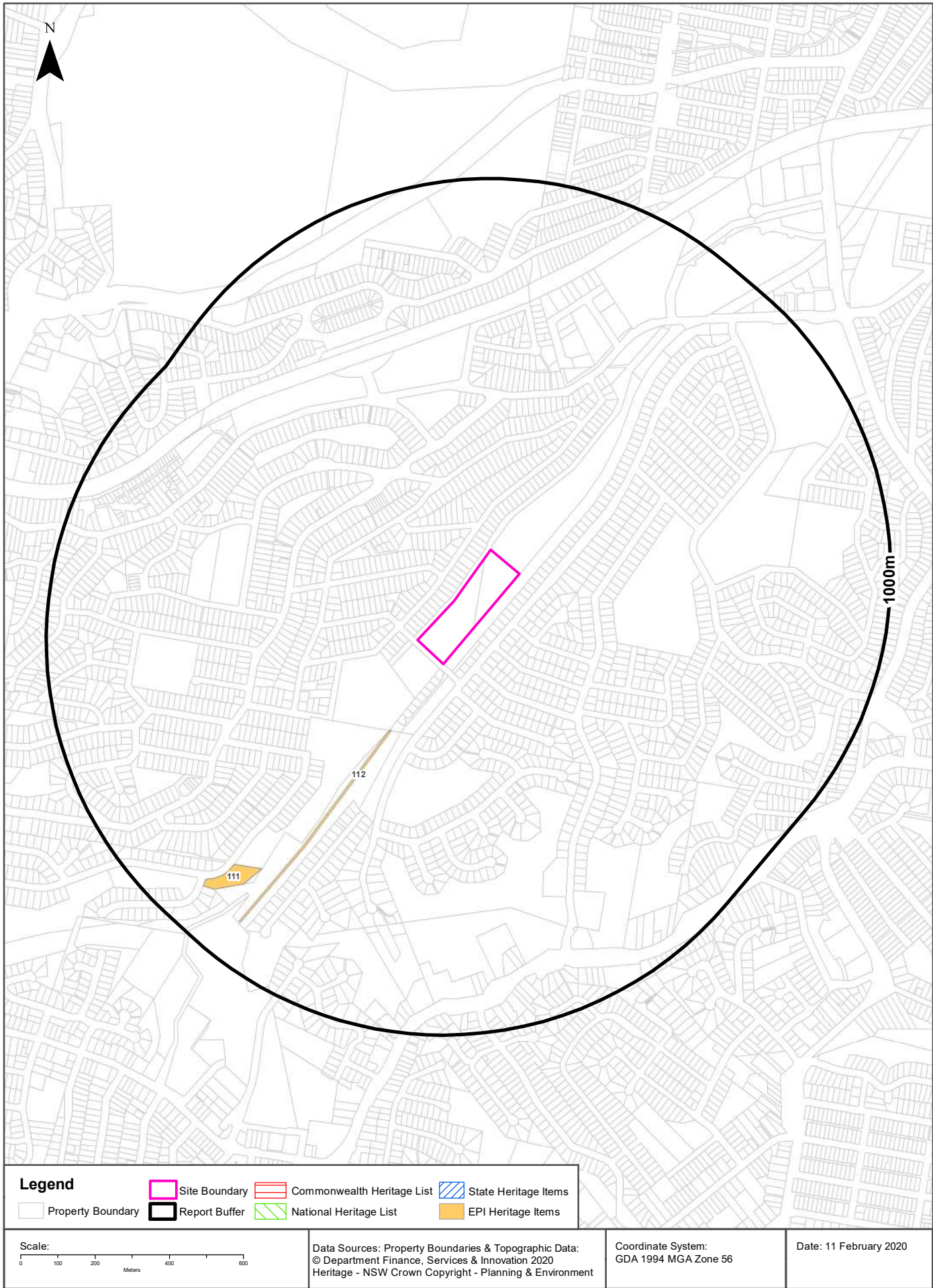
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		0m	Onsite
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		0m	North East
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		13m	West
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		29m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		207m	South West
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		210m	South
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		246m	North West
B1	Neighbourhood Centre		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		295m	North West
R3	Medium Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		358m	North
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		361m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		372m	South
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		385m	North West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		426m	North West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		446m	North West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		462m	East
R3	Medium Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		487m	North East
B5	Business Development		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		494m	North East
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		590m	West
SP2	Infrastructure	Railway	Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		592m	North West
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		604m	South
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		606m	South East
E3	Environmental Management		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		608m	South East
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		632m	North
SP3	Tourist		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		703m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		726m	South West
B2	Local Centre		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		747m	North East
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		752m	North
R3	Medium Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		779m	East

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		782m	South
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		786m	South East
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		788m	West
E3	Environmental Management		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		792m	North
SP2	Infrastructure	Infrastructure	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		797m	South
SP3	Tourist		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		801m	South
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		802m	South
SP3	Tourist		Lake Macquarie Local Environmental Plan 2014	17/07/2015	17/07/2015	06/12/2019	Amendment No 2	818m	South
SP2	Infrastructure	Infrastructure	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		819m	South West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		826m	North West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		827m	South East
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		835m	South
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		868m	South East
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		889m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		890m	West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		905m	South East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		909m	South
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		910m	South
B4	Mixed Use		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		922m	South East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		987m	South
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		988m	South East
SP2	Infrastructure	Classified Road	Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		992m	North
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		996m	South East

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Heritage Items

30 Vista Parade, Kotara, NSW 2289



Heritage

30 Vista Parade, Kotara, NSW 2289

Commonwealth Heritage List

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

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

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

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

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

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

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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State Heritage Register - Curtilages

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

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

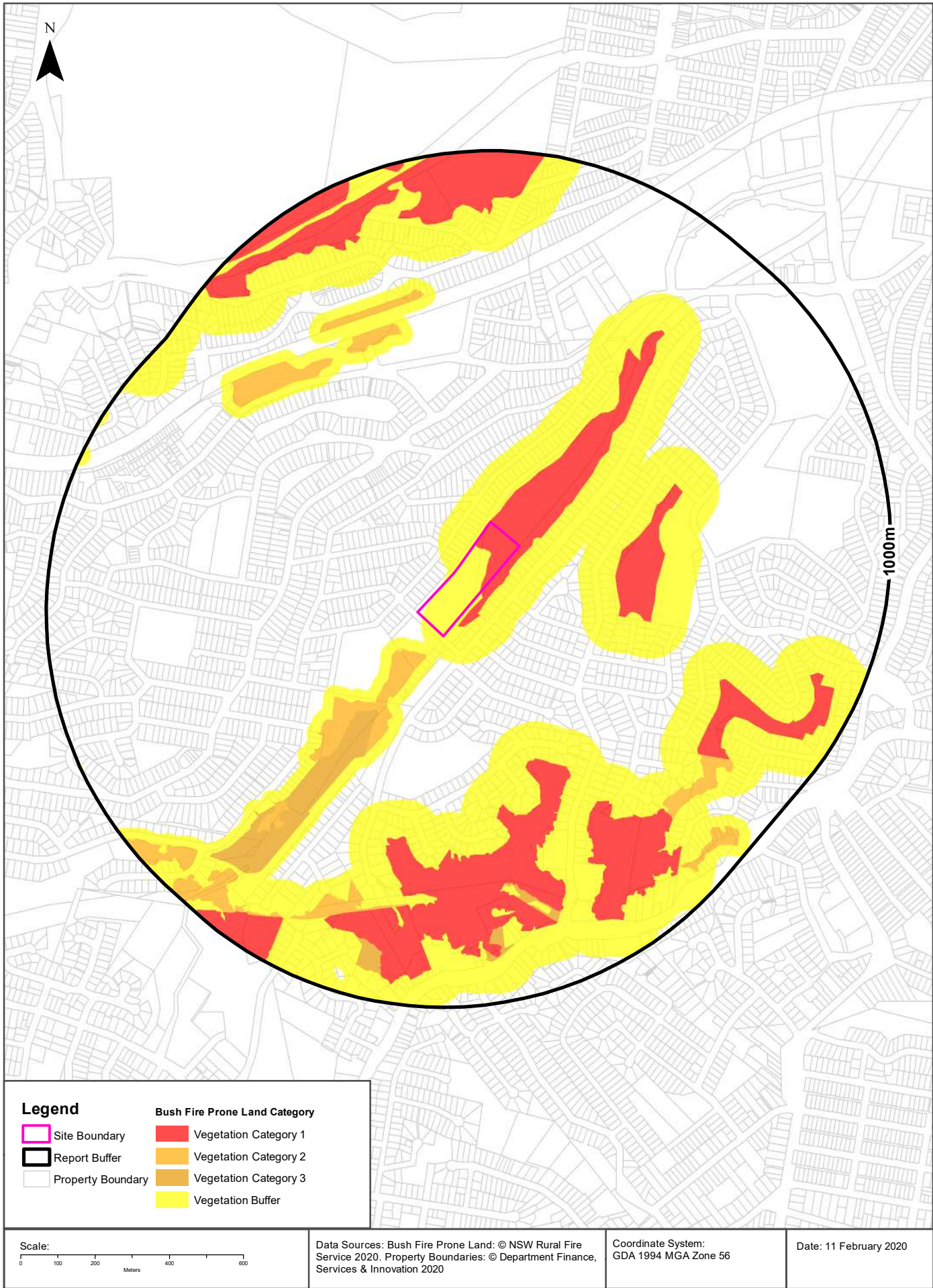
Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage
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Environmental Planning Instrument - Heritage

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

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
112	Raspberry Gully Line Railway	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	24/11/2017	229m	South West
111	South Waratah Colliery	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	24/11/2017	737m	South West

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Natural Hazards

30 Vista Parade, Kotara, NSW 2289

Bush Fire Prone Land

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

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	0m	Onsite
Vegetation Category 1	0m	Onsite
Vegetation Category 2	66m	South West
Vegetation Category 3	265m	South West

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

Ecological Constraints - Vegetation & Ramsar Wetlands

30 Vista Parade, Kotara, NSW 2289



Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

Lower Hunter and Central Coast Regional Vegetation Survey

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

Map Id	Unit Desc	Canopy Code	Canopy Cover	Species	Distance	Direction
5	Alluvial Tall Moist Forest	OF	Mid Dense (Open Forest) 50- <100% cover	E. saligna / S. glomulifera / Glochidion ferdinandi	0m	Onsite
30	Coastal Plains Smooth- barked Apple Woodland	OF	Mid Dense (Open Forest) 50- <100% cover	A. costata / C. gummifera / E. capitellata / E. umbra	0m	Onsite
15	Coastal Foothills Spotted Gum - Ironbark Forest	OF	Mid Dense (Open Forest) 50- <100% cover	C. maculata / E. umbra / E. siderophloia	284m	South
6	Coastal Narrabeen Moist Forest	OF	Mid Dense (Open Forest) 50- <100% cover	S. glomulifera / E. saligna / E. acmenoides	448m	South
5	Alluvial Tall Moist Forest	WO	Sparse (Woodland) 20-<50% cover	E. saligna / S. glomulifera / Glochidion ferdinandi	682m	North East
30	Coastal Plains Smooth- barked Apple Woodland	WO	Sparse (Woodland) 20-<50% cover	A. costata / C. gummifera / E. capitellata / E. umbra	707m	North East

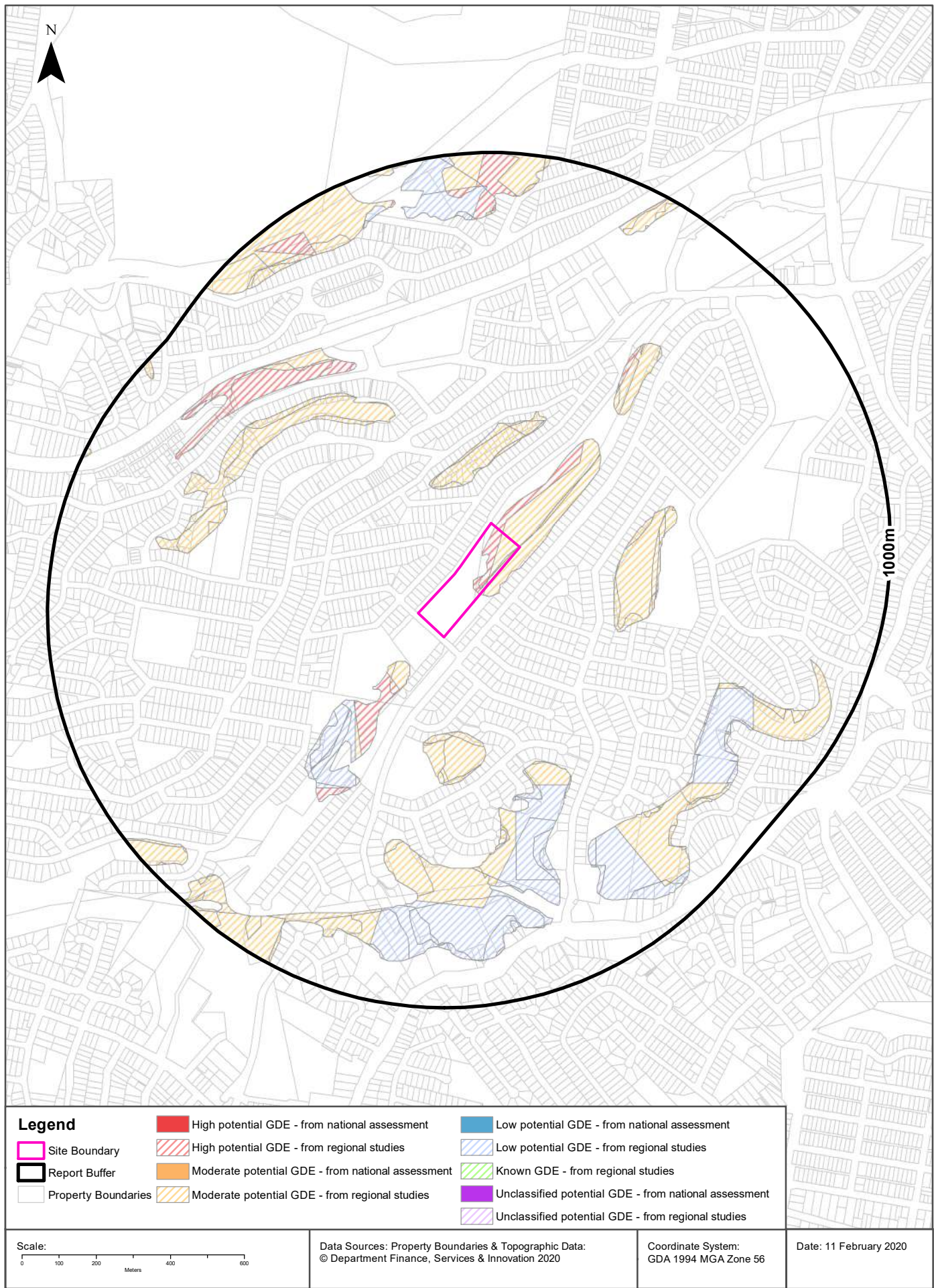
Lower Hunter and Central Coast Regional Vegetation Survey: NSW Office of Environment and Heritage

Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

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

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Environment



Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High potential GDE - from regional studies	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	High potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	Moderate potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	Low potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		289m

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology

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Ecological Constraints - Inflow Dependent Ecosystems Likelihood

30 Vista Parade, Kotara, NSW 2289



Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	2	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	5	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	6	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	10	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	3	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		124m
Terrestrial	4	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		127m
Terrestrial	1	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		174m
Terrestrial	7	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		252m
Terrestrial	9	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		469m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

NSW BioNet Atlas

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

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Crinia tinnula	Wallum Froglet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria olongburensis	Olongburra Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Amaurornis moluccana	Pale-vented Bush-hen	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anas querquedula	Garganey	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Anous stolidus	Common Noddy	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Anseranas semipalmata	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna grisea	Sooty Shearwater	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna pacificus	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris canutus	Red Knot	Not Listed	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris tenuirostris	Great Knot	Vulnerable	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Calonectris leucomelas	Streaked Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calyptorhynchus lathamii	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Charadrius leschenaultii	Greater Sand-plover	Vulnerable	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Charadrius mongolus	Lesser Sand-plover	Vulnerable	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Chlidonias leucopterus	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Diomedea exulans	Wandering Albatross	Endangered	Not Sensitive	Endangered	JAMBA
Animalia	Aves	Egretta sacra	Eastern Reef Egret	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco hypoleucos	Grey Falcon	Endangered	Category 2	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Fregata ariel	Lesser Frigatebird	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gelochelidon nilotica	Gull-billed Tern	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hirundo rustica	Barn Swallow	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Irediparra gallinacea	Comb-crested Jacana	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limnodromus semipalmatus	Asian Dowitcher	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Macronectes giganteus	Southern Giant Petrel	Endangered	Not Sensitive	Endangered	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Macronectes halli	Northern Giant-Petrel	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Motacilla flava	Yellow Wagtail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Oxyura australis	Blue-billed Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Phaethon rubricauda	Red-tailed Tropicbird	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Philomachus pugnax	Ruff	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pterodroma solandri	Providence Petrel	Vulnerable	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stercorarius parasiticus	Arctic Jaeger	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Sula dactylatra	Masked Booby	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Thalassarche cauta	Shy Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thalassarche melanophris	Black-browed Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thinornis rubricollis	Hooded Plover	Critically Endangered	Not Sensitive	Vulnerable	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Todiramphus chloris	Collared Kingfisher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa glareola	Wood Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Xenus cinereus	Terek Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Insecta	Petalura gigantea	Giant Dragonfly	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Arctocephalus forsteri	New Zealand Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Arctocephalus pusillus doriferus	Australian Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Dugong dugon	Dugong	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Eubalaena australis	Southern Right Whale	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Macropus dorsalis	Black-striped Wallaby	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Megaptera novaeangliae	Humpback Whale	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Nyctophilus bifax	Eastern Long-eared Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheath-tail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespudelus troungtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Antaresia stimsoni	Stimson's Python	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Diplodactylus platyrurus	Eastern Fat-tailed Gecko	Endangered	Not Sensitive	Not Listed	
Animalia	Reptilia	Eretmochelys imbricata	Hawksbill Turtle	Not Listed	Not Sensitive	Vulnerable	
Animalia	Reptilia	Uvidicolus sphyrurus	Border Thick-tailed Gecko	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Angophora inopina	Charmhaven Apple	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Chamaesyce psammogeton	Sand Spurge	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Davidsonia jerseyana	Davidson's Plum	Endangered	Category 2	Endangered	
Plantae	Flora	Diuris praecox	Rough Doubletail	Vulnerable	Category 2	Vulnerable	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus parramattensis subsp. parramattensis		Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea shiressii		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Muehlenbeckia costata	Scrambling Lignum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Phaius australis	Southern Swamp Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Pultenaea maritima	Coast Headland Pea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rhodomyrtus psidioides	Native Guava	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rutidosia heterogama	Heath Wrinklewort	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Senecio spathulatus	Coast Groundsel	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Tetratheca juncea	Black-eyed Susan	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Zannichellia palustris		Endangered	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.

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

LC Code	Location Confidence
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Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
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Network of features	Georeferenced to a network of features

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Annex E



BOREHOLE LOG REPORT

HOLE NO: BH1
FILE / JOB NO: P1677
SHEET: 1 OF 1

CLIENT: Catholic School Office
PROJECT: Proposed Early Learning Childcare Centre
LOCATION: St Nicholas Early Education Centre, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: NWR
		CHECKED BY:

TESTING & SAMPLING					MATERIAL						
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations
	Depth (m)	Blows									
	0.0 - 0.1	6	PP: >400kPa	ES 0.15-0.25		GP	FILL: Clayey Sandy GRAVEL, fine to coarse, angular, brown, fine to coarse grained sand	M	VD	FILL	
	0.1 - 0.2	20					Gravelly Sandy CLAY, low plasticity, pale grey / brown, fine to medium grained sand, fine to coarse gravel	D - M		RESIDUAL SOIL	
	0.2 - 0.3	Terminated				Extremely Weathered Tuffaceous SILTSTONE, fine grained, pale grey / white, inferred extremely low strength	D	ROCK			
				1.50m		Silty CLAY, high plasticity, dark grey, mottled orange, with???????		~PL	VSt - H	RESIDUAL SOIL	
				3.00m	Terminated at 3.00 m						

Additional Comments	CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System	SAMPLES & FIELD TESTS	MOISTURE	CONSISTENCY/RELATIVE DENSITY
	WATER Water table Water inflow			
		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear	D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit	VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense





BOREHOLE LOG REPORT

HOLE NO: BH2
FILE / JOB NO: P1677
SHEET: 1 OF 1

CLIENT: Catholic School Office
PROJECT: Proposed Early Learning Childcare Centre
LOCATION: St Nicholas Early Education Centre, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: NWR
		CHECKED BY:

TESTING & SAMPLING				MATERIAL							
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations
	Depth (m)	Blows									
	0.0 - 0.1	8					SM	0.15m TOPSOIL: Silty SAND, fine to medium grained, brown, with grass root fibres	M		TOPSOIL
	0.1 - 0.2	12		ES 0.15-0.25				FILL: Clayey Sandy GRAVEL / Gravelly SAND, fine to coarse grained sand, fine to coarse gravel, brown / pale brown			FILL
	0.2 - 0.3	8					SP				
	0.3 - 0.4	7			1.0				D	D	
	0.4 - 0.5	7									
	0.5 - 0.6	8									
	0.6 - 0.7	10									
	0.7 - 0.8	7		ES 0.80-1.00							
	0.8 - 0.9	5									
	0.9 - 1.0	6									
	1.0 - 1.1	10									
	1.1 - 1.2	12									
	1.2 - 1.3	Terminated		ES 1.50-1.60			GP	1.50m FILL: Clayey GRAVEL (Coal), fine to coarse, black, medium plasticity clay			
					2.0			2.00m Silty Sandy CLAY, high plasticity, grey, fine grained sand			ALLUVIUM
				ES 2.10-2.20			CH		>PL		
					3.0						
							SC	3.00m Clayey SAND, fine to medium grained, grey, high placticty clay			RESIDUAL SOIL
					4.0						
								4.00m Extremely Weathered SANDSTONE / SILTSTONE, fine grained, grey, inferred very low strength			ROCK
					5.0						
					6.0			5.90m Practical Refusal at 3.00 m			
Additional Comments				CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System		SAMPLES & FIELD TESTS		MOISTURE		CONSISTENCY/RELATIVE DENSITY	
				WATER							
				 Water table		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample		D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL		VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense	
				 Water inflow		MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear		PL - Plastic Limit LL - Liquid Limit			





BOREHOLE LOG REPORT

HOLE NO: BH9
FILE / JOB NO: P1678
SHEET: 1 OF 1

CLIENT: Catholic Diocese of Maitland - Newcastle
PROJECT: Proposed School Upgrades
LOCATION: St James Primary School, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: RB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: DS
		CHECKED BY:

TESTING & SAMPLING					MATERIAL						
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations
	Depth (m)	Blows									
				ES 0.25-0.35			GP 0.30m	FILL (BASECOURSE): Silty Sandy GRAVEL, fine to coarse, brown / orange, fine to coarse grained sand		D	FILL
	0.5 - 0.6	4					CH		D - M	F	
	0.6 - 0.7	2									
	0.7 - 0.8	1									
	0.8 - 0.9	2									
	0.9 - 1.0	2									
	1.0 - 1.1	3									
	1.1 - 1.2	2									
	1.2 - 1.3	4									
	1.3 - 1.4	5									
	1.4 - 1.5	3									
	1.5 - 1.6	2									
	1.6 - 1.7	2									
	1.7 - 1.8	2									
	1.8 - 1.9	2									
	1.9 - 2.0	4									
	2.0 - 2.1	5									
	2.1 - 2.2	6									
	2.2 - 2.3	6									
	2.3 - 2.4	7									
				B 0.90-2.00	1.0		CH	Gravelly Silty CLAY, high plasticity, black / dark brown, fine to medium gravel (coal fragments)	>PL - >LL	St	ALLUVIUM
				ES 1.80-2.00	2.0			Terminated at 2.00 m			
									</		

Additional Comments	CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System	SAMPLES & FIELD TESTS	MOISTURE	CONSISTENCY/RELATIVE DENSITY
	WATER  Water table  Water inflow			
		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear	D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit	VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense



BOREHOLE LOG REPORT

HOLE NO: BH10
FILE / JOB NO: P1678
SHEET: 1 OF 1

CLIENT: Catholic Diocese of Maitland - Newcastle
PROJECT: Proposed School Upgrades
LOCATION: St James Primary School, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: RB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: DS
		CHECKED BY:


TESTING & SAMPLING				MATERIAL								
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations	
	Depth (m)	Blows										
				ES 0.20-0.30			GP	FILL (BASECOURSE): Silty Sandy GRAVEL, fine to coarse, brown / orange, fine to coarse grained sand	D - M	D	FILL	
	0.4 - 0.5	7				0.40m	CH	FILL: Sandy Silty CLAY, high plasticity, dark brown, fine to medium grained sand		St		
	0.5 - 0.6	4										
	0.6 - 0.7	5										
	0.7 - 0.8	6										
	0.8 - 0.9	4										
	0.9 - 1.0	3		ES 0.80-1.00		1.0		Gravelly Silty CLAY, high plasticity, black / dark brown, fine to medium gravel (coal fragments)	>PL - >LL	F - St	ALLUVIUM	
	1.0 - 1.1	3										
	1.1 - 1.2	2										
	1.2 - 1.3	3										
	1.3 - 1.4	2										
	1.4 - 1.5	2										
	1.5 - 1.6	1		ES 1.50-1.60		2.0		Silty CLAY, high plasticity, grey, with trace fine to medium gravel, trace fine grained sand	>LL	F		
	1.6 - 1.7	1										
	1.7 - 1.8	3										
	1.8 - 1.9	3										
	1.9 - 2.0	3										
	2.0 - 2.1	2										
	2.1 - 2.2	2										
	2.2 - 2.3	2										
	2.3 - 2.4	3										
	2.4 - 2.5	3										
	2.5 - 2.6	5							Terminated at 2.50 m			
	2.6 - 2.7	5										
	2.7 - 2.8		Terminated									

Additional Comments	CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System	SAMPLES & FIELD TESTS	MOISTURE	CONSISTENCY/RELATIVE DENSITY
	WATER Water table Water inflow			
		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear	D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit	VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense



Annex F


Table 1: Soil Results - Metals, TRH, BTEX.

 <div>VALLEY CIVILAB</div> <div>Geotechnical & Environmental Services</div>	Metals								TRH NEPM (2013)							BTEX			
	Arsenic	Cadmium	Copper	Chromium	Nickel	Lead	Zinc	Mercury	Napthalene	TRH C6-C10 Fraction	TRH C6-C10 less BTEX	TRH >C10-C16 Fraction	TRH >C10-C16 Fraction less N	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	Benzene	Ethylbenzene	Toluene	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	2	0.4	5	5	5	5	5	0.05	0.5	20	20	50	50	100	100	0.1	0.1	0.1	0.3
EILs (NEPM 2013)	100					1100			170										
ESLs - Fine (NEPM 2013)											180		120	1300	5600	65	125	105	105
ESLs - Coarse (NEPM 2013)											180		120	300	2800	50	70	85	45
HIL A (NEPM 2013)	100	20	6000	100	400	300	7400	40											
HSL A - Soil Vapour Clay 0 - <1m (NEPM 2013)									5		50		280			0.7	NL	480	110
Management Limits - Fine Soil (NEPM 2013)										800		1,000		3,500	10,000				
Management Limits - Coarse Soil (NEPM 2013)										700		1,000		2,500	10,000				
HSL A - Direct Contact (CRC Care 2011)									1,400	4,400		3,300		4,500	6,300	100	4,500	14,000	12,000

Sample ID	Sampled Date																			
BH1_0.15-0.25	7/02/2019	7	<0.3	3.5	7.1	24	2.0	27	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH1_0.4-0.5	7/02/2019	7	<0.3	4.6	11	17	2.0	20	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH2_0.15-0.25	7/02/2019	6	<0.3	3.5	7.2	21	1.6	91	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH2_0.8-0.9	7/02/2019	8	<0.3	5.2	11	23	2.4	44	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH3_0.15-0.25	7/02/2019	7	<0.3	2.9	5.8	19	1.6	47	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH3_0.8-0.9	7/02/2019	5	<0.3	4.3	4.7	12	1.6	17	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH9_0.25-0.35	7/02/2019	4	<0.3	8.2	10	3	3.4	35	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH9_0.7-0.8	7/02/2019	9	<0.3	0.6	7.4	34	1.9	56	0.09	<0.1	<25	<25	36	36	180	<120	<0.1	<0.1	<0.1	<0.3
BH10_0.2-0.3	7/02/2019	6	<0.3	9.4	12	12	4.8	37	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH10_0.8-1.0	7/02/2019	9	<0.3	2.4	8.5	28	2.3	46	0.10	<0.1	<25	<25	34	34	130	<120	<0.1	<0.1	<0.1	<0.3
BH12_0.15-0.25	7/02/2019	7	0.4	3.7	7.8	27	2.0	65	0.15	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH12_0.5-0.6	7/02/2019	4	<0.3	5.4	15	8	2.6	24	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3

Statistical Summary																				
Number of Results	7	7	7	7	7	7	7	7	0	1	0	0	0	0	1	1	0	0	0	0
Number of Detects	7	0	7	7	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect	4	0	5.4	15	8	2.6	24	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect	4	0	5.4	15	8	2.6	24	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration	4	-	5.4	15	8	2.6	24	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0


Table 2: Soil Results - PAH, OCP, OPP, PCB.

	PAH						OCP										OPP	PCB
	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound)	Benzo(a)pyrene TEQ (medium bound)	Benzo(a)pyrene TEQ (upper bound)	Naphthalene	Total PAH	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Methoxychlor	Chlorpyrifos	Total PCB*
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	0.5	0.5	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.2	0.1
EILs (NEPM 2013)					170				180									
ESLs - Coarse/Fine (NEPM 2013)	0.7																	
HIL A (NEPM 2013)		3	3	3		300	240	240	240	6	6	270	270	10	6	300	160	1
HSL A - Direct Contact (CRC Care 2011)					1,400													

Sample ID	Sampled Date																		
BH1_0.15-0.25	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH1_0.4-0.5	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	-	-	-	-	-	-	-	-	-	-	-	-
BH2_0.15-0.25	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH2_0.8-0.9	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	1.6	-	-	-	-	-	-	-	-	-	-	-	-
BH3_0.15-0.25	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH3_0.8-0.9	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	-	-	-	-	-	-	-	-	-	-	-	-
BH9_0.25-0.35	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH9_0.7-0.8	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	2.6	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.2-0.3	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	1.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH10_0.8-1.0	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	2.3	-	-	-	-	-	-	-	-	-	-	-	-
BH12_0.15-0.25	7/02/2019	0.2	0.2	0.3	0.3	<0.1	2.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH12_0.5-0.6	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																		
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	1	1	1	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect	0.2	0.2	0.3	0.3	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect	0.2	0.2	0.3	0.3	0	2.6	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration	0.2	0.2	0.3	0.3	-	1.96	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3: Field Duplicate Soil Results - TRH, Metals, PAH.


 VALLEY/CIVILAB Geotechnical & Environmental Services	LOR	Unit	Primary Sample	QA Sample	RPD
			BH3_0.15-0.25	DUP 2	
TRH					
TRH C6-C10 Fraction	20	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH C6-C10 less BTEX	20	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH >C10-C16 Fraction	50	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH >C10-C16 Fraction less N	50	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH >C16-C34 Fraction	100	mg/kg	<u>45</u>	<u>45</u>	0.0
TRH >C34-C40 Fraction	100	mg/kg	<u>60</u>	<u>60</u>	0.0
Naphthalene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
BTEX					
Benzene	0.1	mg/kg	0.05	0.05	0.0
Ethylbenzene	0.1	mg/kg	0.05	0.05	0.0
m&p-Xylenes	0.2	mg/kg	0.1	0.1	0.0
o-Xylene	0.1	mg/kg	0.05	0.05	0.0
Toluene	0.1	mg/kg	0.05	0.05	0.0
Xylenes - Total	0.3	mg/kg	0.15	0.15	0.0
Metals					
Arsenic	2	mg/kg	7	7	0.0
Cadmium	0.4	mg/kg	<u>0.15</u>	<u>0.15</u>	0.0
Chromium	5	mg/kg	2.9	3.3	-12.9
Copper	5	mg/kg	5.8	6	-3.4
Lead	5	mg/kg	19	17	11.1
Mercury	0.1	mg/kg	<u>0.025</u>	<u>0.025</u>	0.0
Nickel	5	mg/kg	1.6	1.5	6.5
Zinc	5	mg/kg	47	43	8.9
PAH					
Acenaphthene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Acenaphthylene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Anthracene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benz(a)anthracene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(a)pyrene	5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(a)pyrene TEQ (lower bound)	0.5	mg/kg	<u>0.1</u>	<u>0.1</u>	0.0
Benzo(a)pyrene TEQ (medium bound)	0.5	mg/kg	<u>0.15</u>	<u>0.15</u>	0.0
Benzo(a)pyrene TEQ (upper bound)	0.2	mg/kg	<u>0.1</u>	<u>0.1</u>	0.0
Benzo(b&j)fluoranthene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(g,h,i)perylene	0.4	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(k)fluoranthene	5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Chrysene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Fluoranthene	0.5	mg/kg	0.1	0.2	-66.7
Fluorene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Naphthalene	0.5	mg/kg	<u>0.05</u>	0.05	0.0
Phenanthrene	0.5	mg/kg	<u>0.05</u>	0.1	-66.7
Pyrene	0.5	mg/kg	0.1	0.2	-66.7
Total PAH	0.5	mg/kg	0.4	0.4	0.0

Notes

RPD = Relative Percentage Difference.

RPD assessment criteria were adopted in general accordance with NEPM Schedule B3 Section 3.5 (NEPC 2013). RPDs where both primary and duplicate results were < 2.5 times the LOR were not considered. RPDs where primary and/or duplicate results were >2.5 times the LOR were assessed based on a threshold of +/- 30%. Exceedence of this threshold triggered consideration of associated data quality.

Table 4: Field Spike and Blank Results.

 VALLEY/CIVILAB Geotechnical & Environmental Services	LOR Soil	Trip Spike Soil	Trip Blank Soil
Date			
Unit of Measure	mg/kg	% Recovery	mg/kg
BTEX			
Benzene	0.1	89%	<u>0.05</u>
Toluene	0.1	86%	<u>0.05</u>
Ethylbenzene	0.1	89%	<u>0.05</u>
m&p-Xylenes	0.2	89%	<u>0.1</u>
o-Xylene	0.1	89%	<u>0.05</u>
Xylenes - Total	0.3	-	<u>0.15</u>

Annex G

CLIENT DETAILS

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 Order Number **03934**
 Samples **16**

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SGS Reference **SE189064 R0**
 Date Received **11 Feb 2019**
 Date Reported **18 Feb 2019**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



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Parameter	Units	LOR	Sample Number	SE189064.001	SE189064.002	SE189064.003	SE189064.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH1_0.15-0.25	BH1_0.4-0.5	BH2_0.15-0.25	BH2_0.8-0.9

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	83	78	77	79
d4-1,2-dichloroethane (Surrogate)	%	-	92	88	86	89
d8-toluene (Surrogate)	%	-	89	85	83	88
Bromofluorobenzene (Surrogate)	%	-	79	78	78	78

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	83	78	77	79
d4-1,2-dichloroethane (Surrogate)	%	-	92	88	86	89
d8-toluene (Surrogate)	%	-	89	85	83	88
Bromofluorobenzene (Surrogate)	%	-	79	78	78	78

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number	SE189064.001	SE189064.002	SE189064.003	SE189064.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH1_0.15-0.25	BH1_0.4-0.5	BH2_0.15-0.25	BH2_0.8-0.9

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	75
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	0.2
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	0.3
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.2	0.2	0.4
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.2	<0.1	0.3	0.2
Pyrene	mg/kg	0.1	0.1	<0.1	0.2	0.2
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	0.1	0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	0.1	0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	1.6
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	1.1

Surrogates

d5-nitrobenzene (Surrogate)	%	-	94	92	96	92
2-fluorobiphenyl (Surrogate)	%	-	102	104	102	94
d14-p-terphenyl (Surrogate)	%	-	100	98	100	92

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1	-
Lindane	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	-	<0.1	-
Aldrin	mg/kg	0.1	<0.1	-	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	-	<0.2	-
Endrin	mg/kg	0.2	<0.2	-	<0.2	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE189064.001 Soil 07 Feb 2019 BH1_0.15-0.25	SE189064.002 Soil 07 Feb 2019 BH1_0.4-0.5	SE189064.003 Soil 07 Feb 2019 BH2_0.15-0.25	SE189064.004 Soil 07 Feb 2019 BH2_0.8-0.9
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OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1	-
Isodrin	mg/kg	0.1	<0.1	-	<0.1	-
Mirex	mg/kg	0.1	<0.1	-	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103	-	107	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	-	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	-	<0.2	-
Malathion	mg/kg	0.2	<0.2	-	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	<0.2	-
Methidathion	mg/kg	0.5	<0.5	-	<0.5	-
Ethion	mg/kg	0.2	<0.2	-	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	<0.2	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	<1.7	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	102	-	102	-
d14-p-terphenyl (Surrogate)	%	-	100	-	100	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103	-	107	-
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Parameter	Units	LOR	Sample Number	SE189064.001	SE189064.002	SE189064.003	SE189064.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH1_0.15-0.25	BH1_0.4-0.5	BH2_0.15-0.25	BH2_0.8-0.9

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	7	7	6	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	3.5	4.6	3.5	5.2
Copper, Cu	mg/kg	0.5	7.1	11	7.2	11
Nickel, Ni	mg/kg	0.5	2.0	2.0	1.6	2.4
Lead, Pb	mg/kg	1	24	17	21	23
Zinc, Zn	mg/kg	2	27	20	91	44

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	9.4	11	11	9.9
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-	-	-
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Parameter	Sample Number		SE189064.005	SE189064.006	SE189064.007	SE189064.008
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
	Sample Name		BH3_0.15-0.25	BH3_0.8-0.9	BH9_0.25-0.35	BH9_0.7-0.8
Units	LOR					

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	82	82	76	79
d4-1,2-dichloroethane (Surrogate)	%	-	79	92	87	87
d8-toluene (Surrogate)	%	-	86	89	82	88
Bromofluorobenzene (Surrogate)	%	-	76	75	73	73

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	82	82	76	79
d4-1,2-dichloroethane (Surrogate)	%	-	79	92	87	87
d8-toluene (Surrogate)	%	-	86	89	82	88
Bromofluorobenzene (Surrogate)	%	-	76	75	73	73

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number	SE189064.005	SE189064.006	SE189064.007	SE189064.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH3_0.15-0.25	BH3_0.8-0.9	BH9_0.25-0.35	BH9_0.7-0.8

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	<20	<20	<20	20
TRH C15-C28	mg/kg	45	<45	<45	<45	180
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	200
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25	36
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	36
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	180
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	0.6
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	0.7
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	0.8
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.1	<0.1	<0.1	0.2
Pyrene	mg/kg	0.1	0.1	<0.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	0.2
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	2.6
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	1.4

Surrogates

d5-nitrobenzene (Surrogate)	%	-	94	94	92	82
2-fluorobiphenyl (Surrogate)	%	-	106	102	96	98
d14-p-terphenyl (Surrogate)	%	-	104	100	96	98

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1	-
Lindane	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	-	<0.1	-
Aldrin	mg/kg	0.1	<0.1	-	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	-	<0.2	-
Endrin	mg/kg	0.2	<0.2	-	<0.2	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE189064.005 Soil 07 Feb 2019 BH3_0.15-0.25	SE189064.006 Soil 07 Feb 2019 BH3_0.8-0.9	SE189064.007 Soil 07 Feb 2019 BH9_0.25-0.35	SE189064.008 Soil 07 Feb 2019 BH9_0.7-0.8
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OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1	-
Isodrin	mg/kg	0.1	<0.1	-	<0.1	-
Mirex	mg/kg	0.1	<0.1	-	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	102	-	102	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	-	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	-	<0.2	-
Malathion	mg/kg	0.2	<0.2	-	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	<0.2	-
Methidathion	mg/kg	0.5	<0.5	-	<0.5	-
Ethion	mg/kg	0.2	<0.2	-	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	<0.2	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	<1.7	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	106	-	96	-
d14-p-terphenyl (Surrogate)	%	-	104	-	96	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	102	-	102	-
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Parameter	Units	LOR	Sample Number	SE189064.005	SE189064.006	SE189064.007	SE189064.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH3_0.15-0.25	BH3_0.8-0.9	BH9_0.25-0.35	BH9_0.7-0.8

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	7	5	4	9
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	2.9	4.3	8.2	0.6
Copper, Cu	mg/kg	0.5	5.8	4.7	10	7.4
Nickel, Ni	mg/kg	0.5	1.6	1.6	3.4	1.9
Lead, Pb	mg/kg	1	19	12	3	34
Zinc, Zn	mg/kg	2	47	17	35	56

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	0.09
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	10	8.0	6.1	13
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-	-	-
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Parameter	Sample Number		SE189064.009	SE189064.010	SE189064.011	SE189064.012
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
	Sample Name		BH10_0.2-0.3	BH10_0.8-1.0	BH12_0.15-0.25	BH12_0.5-0.6
Units	LOR					

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	79	74	77	84
d4-1,2-dichloroethane (Surrogate)	%	-	91	82	86	87
d8-toluene (Surrogate)	%	-	86	82	85	91
Bromofluorobenzene (Surrogate)	%	-	77	72	75	73

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	79	74	77	84
d4-1,2-dichloroethane (Surrogate)	%	-	91	82	86	87
d8-toluene (Surrogate)	%	-	86	82	85	91
Bromofluorobenzene (Surrogate)	%	-	77	72	75	73

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number	SE189064.009	SE189064.010	SE189064.011	SE189064.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH10_0.2-0.3	BH10_0.8-1.0	BH12_0.15-0.25	BH12_0.5-0.6

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	140	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	140	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	34	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	34	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	130	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	0.5	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	0.5	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	0.7	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.3	0.2	0.5	<0.1
Pyrene	mg/kg	0.1	0.2	0.2	0.4	<0.1
Benzo(a)anthracene	mg/kg	0.1	0.1	0.2	0.2	<0.1
Chrysene	mg/kg	0.1	0.1	0.1	0.2	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	<0.1	0.2	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	0.3	<0.2
Total PAH (18)	mg/kg	0.8	1.1	2.3	2.2	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	1.1	1.3	2.2	<0.8

Surrogates

d5-nitrobenzene (Surrogate)	%	-	94	84	96	94
2-fluorobiphenyl (Surrogate)	%	-	100	100	104	102
d14-p-terphenyl (Surrogate)	%	-	98	98	100	100

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1	-
Lindane	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	-	<0.1	-
Aldrin	mg/kg	0.1	<0.1	-	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	-	<0.2	-
Endrin	mg/kg	0.2	<0.2	-	<0.2	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE189064.009 Soil 07 Feb 2019 BH10_0.2-0.3	SE189064.010 Soil 07 Feb 2019 BH10_0.8-1.0	SE189064.011 Soil 07 Feb 2019 BH12_0.15-0.25	SE189064.012 Soil 07 Feb 2019 BH12_0.5-0.6
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OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1	-
Isodrin	mg/kg	0.1	<0.1	-	<0.1	-
Mirex	mg/kg	0.1	<0.1	-	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	111	-	112	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	-	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	-	<0.2	-
Malathion	mg/kg	0.2	<0.2	-	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	<0.2	-
Methidathion	mg/kg	0.5	<0.5	-	<0.5	-
Ethion	mg/kg	0.2	<0.2	-	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	<0.2	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	<1.7	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	100	-	104	-
d14-p-terphenyl (Surrogate)	%	-	98	-	100	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	111	-	112	-
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Parameter	Units	LOR	Sample Number	SE189064.009	SE189064.010	SE189064.011	SE189064.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH10_0.2-0.3	BH10_0.8-1.0	BH12_0.15-0.25	BH12_0.5-0.6

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	6	9	7	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.4	<0.3
Chromium, Cr	mg/kg	0.3	9.4	2.4	3.7	5.4
Copper, Cu	mg/kg	0.5	12	8.5	7.8	15
Nickel, Ni	mg/kg	0.5	4.8	2.3	2.0	2.6
Lead, Pb	mg/kg	1	12	28	27	8
Zinc, Zn	mg/kg	2	37	46	65	24

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	0.10	0.15	<0.05
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	6.4	11	12	8.2
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-	-	-
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Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE189064.013 Soil 07 Feb 2019 DUP 2	SE189064.014 Water 07 Feb 2019 RIN	SE189064.015 Soil 07 Feb 2019 TRIP SPIKE	SE189064.016 Soil 07 Feb 2019 TRIP BLANK
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VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	-	[89%]	<0.1
Toluene	mg/kg	0.1	<0.1	-	[86%]	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	-	[89%]	<0.1
m/p-xylene	mg/kg	0.2	<0.2	-	[89%]	<0.2
o-xylene	mg/kg	0.1	<0.1	-	[89%]	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	-	-	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	75	-	77	78
d4-1,2-dichloroethane (Surrogate)	%	-	84	-	87	83
d8-toluene (Surrogate)	%	-	81	-	82	80
Bromofluorobenzene (Surrogate)	%	-	74	-	78	71

Totals

Total Xylenes	mg/kg	0.3	<0.3	-	-	<0.3
Total BTEX	mg/kg	0.6	<0.6	-	-	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	-	-	<25
TRH C6-C9	mg/kg	20	<20	-	-	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	75	-	-	78
d4-1,2-dichloroethane (Surrogate)	%	-	84	-	-	83
d8-toluene (Surrogate)	%	-	81	-	-	80
Bromofluorobenzene (Surrogate)	%	-	74	-	-	71

VPF F Bands

Benzene (F0)	mg/kg	0.1	<0.1	-	-	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-	-	<25

Parameter	Units	LOR
Sample Number	SE189064.013	SE189064.014
Sample Matrix	Soil	Water
Sample Date	07 Feb 2019	07 Feb 2019
Sample Name	DUP 2	RIN
		SE189064.015
		Soil
		07 Feb 2019
		TRIP SPIKE
		SE189064.016
		Soil
		07 Feb 2019
		TRIP BLANK

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	<20	-	-	<20
TRH C15-C28	mg/kg	45	<45	-	-	<45
TRH C29-C36	mg/kg	45	<45	-	-	<45
TRH C37-C40	mg/kg	100	<100	-	-	<100
TRH C10-C36 Total	mg/kg	110	<110	-	-	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	-	-	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	-	-	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	-	-	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	-	-	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	<0.1	-	-	-
2-methylnaphthalene	mg/kg	0.1	<0.1	-	-	-
1-methylnaphthalene	mg/kg	0.1	<0.1	-	-	-
Acenaphthylene	mg/kg	0.1	<0.1	-	-	-
Acenaphthene	mg/kg	0.1	<0.1	-	-	-
Fluorene	mg/kg	0.1	<0.1	-	-	-
Phenanthrene	mg/kg	0.1	0.1	-	-	-
Anthracene	mg/kg	0.1	<0.1	-	-	-
Fluoranthene	mg/kg	0.1	0.2	-	-	-
Pyrene	mg/kg	0.1	0.2	-	-	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-	-
Chrysene	mg/kg	0.1	<0.1	-	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-	-
Total PAH (18)	mg/kg	0.8	<0.8	-	-	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	-	-	-

Surrogates

d5-nitrobenzene (Surrogate)	%	-	96	-	-	-
2-fluorobiphenyl (Surrogate)	%	-	104	-	-	-
d14-p-terphenyl (Surrogate)	%	-	102	-	-	-

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-	-
Alpha BHC	mg/kg	0.1	<0.1	-	-	-
Lindane	mg/kg	0.1	<0.1	-	-	-
Heptachlor	mg/kg	0.1	<0.1	-	-	-
Aldrin	mg/kg	0.1	<0.1	-	-	-
Beta BHC	mg/kg	0.1	<0.1	-	-	-
Delta BHC	mg/kg	0.1	<0.1	-	-	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	-	-
o,p'-DDE	mg/kg	0.1	<0.1	-	-	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	-	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	-	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	-	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	-	-
p,p'-DDE	mg/kg	0.1	<0.1	-	-	-
Dieldrin	mg/kg	0.2	<0.2	-	-	-
Endrin	mg/kg	0.2	<0.2	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE189064.013 Soil 07 Feb 2019 DUP 2	SE189064.014 Water 07 Feb 2019 RIN	SE189064.015 Soil 07 Feb 2019 TRIP SPIKE	SE189064.016 Soil 07 Feb 2019 TRIP BLANK
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OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	-	-
o,p'-DDT	mg/kg	0.1	<0.1	-	-	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	-	-
p,p'-DDD	mg/kg	0.1	<0.1	-	-	-
p,p'-DDT	mg/kg	0.1	<0.1	-	-	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	-	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	-	-
Methoxychlor	mg/kg	0.1	<0.1	-	-	-
Endrin Ketone	mg/kg	0.1	<0.1	-	-	-
Isodrin	mg/kg	0.1	<0.1	-	-	-
Mirex	mg/kg	0.1	<0.1	-	-	-
Total CLP OC Pesticides	mg/kg	1	<1	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105	-	-	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	-	-
Dimethoate	mg/kg	0.5	<0.5	-	-	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	-	-
Fenitrothion	mg/kg	0.2	<0.2	-	-	-
Malathion	mg/kg	0.2	<0.2	-	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	-	-
Methidathion	mg/kg	0.5	<0.5	-	-	-
Ethion	mg/kg	0.2	<0.2	-	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	-	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	104	-	-	-
d14-p-terphenyl (Surrogate)	%	-	102	-	-	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	-	-
Arochlor 1221	mg/kg	0.2	<0.2	-	-	-
Arochlor 1232	mg/kg	0.2	<0.2	-	-	-
Arochlor 1242	mg/kg	0.2	<0.2	-	-	-
Arochlor 1248	mg/kg	0.2	<0.2	-	-	-
Arochlor 1254	mg/kg	0.2	<0.2	-	-	-
Arochlor 1260	mg/kg	0.2	<0.2	-	-	-
Arochlor 1262	mg/kg	0.2	<0.2	-	-	-
Arochlor 1268	mg/kg	0.2	<0.2	-	-	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105	-	-	-
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Parameter	Units	LOR	Sample Number	SE189064.013	SE189064.014	SE189064.015	SE189064.016
			Sample Matrix	Soil	Water	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	DUP 2	RIN	TRIP SPIKE	TRIP BLANK

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	7	-	-	-
Cadmium, Cd	mg/kg	0.3	<0.3	-	-	-
Chromium, Cr	mg/kg	0.3	3.3	-	-	-
Copper, Cu	mg/kg	0.5	6.0	-	-	-
Nickel, Ni	mg/kg	0.5	1.5	-	-	-
Lead, Pb	mg/kg	1	17	-	-	-
Zinc, Zn	mg/kg	2	43	-	-	-

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	-	-	-
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	11	-	-	<0.5
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	<1	-	-
Cadmium, Cd	µg/L	0.1	-	<0.1	-	-
Chromium, Cr	µg/L	1	-	<1	-	-
Copper, Cu	µg/L	1	-	<1	-	-
Lead, Pb	µg/L	1	-	<1	-	-
Nickel, Ni	µg/L	1	-	<1	-	-
Zinc, Zn	µg/L	5	-	<5	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	<0.0001	-	-
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MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury (dissolved) in Water Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery
Mercury	LB166839	mg/L	0.0001	<0.0001	90%	75%

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB167085	mg/kg	0.05	<0.05	16%	95%	91%

Moisture Content Method: ME-(AU)-[ENV]AN002

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB167082	%w/w	0.5	7 - 13%

OC Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Hexachlorobenzene (HCB)	LB167081	mg/kg	0.1	<0.1	0%	NA
Alpha BHC	LB167081	mg/kg	0.1	<0.1	0%	NA
Lindane	LB167081	mg/kg	0.1	<0.1	0%	NA
Heptachlor	LB167081	mg/kg	0.1	<0.1	0%	124%
Aldrin	LB167081	mg/kg	0.1	<0.1	0%	125%
Beta BHC	LB167081	mg/kg	0.1	<0.1	0%	NA
Delta BHC	LB167081	mg/kg	0.1	<0.1	0%	113%
Heptachlor epoxide	LB167081	mg/kg	0.1	<0.1	0%	NA
o,p'-DDE	LB167081	mg/kg	0.1	<0.1	0%	NA
Alpha Endosulfan	LB167081	mg/kg	0.2	<0.2	0%	NA
Gamma Chlordane	LB167081	mg/kg	0.1	<0.1	0%	NA
Alpha Chlordane	LB167081	mg/kg	0.1	<0.1	0%	NA
trans-Nonachlor	LB167081	mg/kg	0.1	<0.1	0%	NA
p,p'-DDE	LB167081	mg/kg	0.1	<0.1	0%	NA
Dieldrin	LB167081	mg/kg	0.2	<0.2	0%	124%
Endrin	LB167081	mg/kg	0.2	<0.2	0%	114%
o,p'-DDD	LB167081	mg/kg	0.1	<0.1	0%	NA
o,p'-DDT	LB167081	mg/kg	0.1	<0.1	0%	NA
Beta Endosulfan	LB167081	mg/kg	0.2	<0.2	0%	NA
p,p'-DDD	LB167081	mg/kg	0.1	<0.1	0%	NA
p,p'-DDT	LB167081	mg/kg	0.1	<0.1	0%	108%
Endosulfan sulphate	LB167081	mg/kg	0.1	<0.1	0%	NA
Endrin Aldehyde	LB167081	mg/kg	0.1	<0.1	0%	NA
Methoxychlor	LB167081	mg/kg	0.1	<0.1	0%	NA
Endrin Ketone	LB167081	mg/kg	0.1	<0.1	0%	NA
Isodrin	LB167081	mg/kg	0.1	<0.1	0%	NA
Mirex	LB167081	mg/kg	0.1	<0.1	0%	NA
Total CLP OC Pesticides	LB167081	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB167081	%	-	100%	3%	90%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dichlorvos	LB167081	mg/kg	0.5	<0.5	0%	108%
Dimethoate	LB167081	mg/kg	0.5	<0.5	0%	NA
Diazinon (Dimpylate)	LB167081	mg/kg	0.5	<0.5	0%	105%
Fenitrothion	LB167081	mg/kg	0.2	<0.2	0%	NA
Malathion	LB167081	mg/kg	0.2	<0.2	0%	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB167081	mg/kg	0.2	<0.2	0%	102%
Parathion-ethyl (Parathion)	LB167081	mg/kg	0.2	<0.2	0%	NA
Bromophos Ethyl	LB167081	mg/kg	0.2	<0.2	0%	NA
Methidathion	LB167081	mg/kg	0.5	<0.5	0%	NA
Ethion	LB167081	mg/kg	0.2	<0.2	0%	89%
Azinphos-methyl (Guthion)	LB167081	mg/kg	0.2	<0.2	0%	NA
Total OP Pesticides*	LB167081	mg/kg	1.7	<1.7	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
2-fluorobiphenyl (Surrogate)	LB167081	%	-	106%	2%	98%
d14-p-terphenyl (Surrogate)	LB167081	%	-	102%	4%	94%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB167081	mg/kg	0.1	<0.1	0%	106%	110%
2-methylnaphthalene	LB167081	mg/kg	0.1	<0.1	0%	NA	NA
1-methylnaphthalene	LB167081	mg/kg	0.1	<0.1	0%	NA	NA
Acenaphthylene	LB167081	mg/kg	0.1	<0.1	0%	117%	118%
Acenaphthene	LB167081	mg/kg	0.1	<0.1	0%	111%	111%
Fluorene	LB167081	mg/kg	0.1	<0.1	0%	NA	NA
Phenanthrene	LB167081	mg/kg	0.1	<0.1	33 - 36%	111%	110%
Anthracene	LB167081	mg/kg	0.1	<0.1	0%	109%	108%
Fluoranthene	LB167081	mg/kg	0.1	<0.1	20 - 24%	104%	105%
Pyrene	LB167081	mg/kg	0.1	<0.1	22 - 26%	101%	102%
Benzo(a)anthracene	LB167081	mg/kg	0.1	<0.1	10 - 43%	NA	NA
Chrysene	LB167081	mg/kg	0.1	<0.1	12 - 43%	NA	NA
Benzo(b&j)fluoranthene	LB167081	mg/kg	0.1	<0.1	13 - 30%	NA	NA
Benzo(k)fluoranthene	LB167081	mg/kg	0.1	<0.1	0 - 14%	NA	NA
Benzo(a)pyrene	LB167081	mg/kg	0.1	<0.1	3 - 40%	114%	99%
Indeno(1,2,3-cd)pyrene	LB167081	mg/kg	0.1	<0.1	15 - 26%	NA	NA
Dibenzo(ah)anthracene	LB167081	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB167081	mg/kg	0.1	<0.1	10 - 12%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=0	LB167081	TEQ (mg/kg)	0.2	<0.2	0 - 9%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB167081	TEQ (mg/kg)	0.3	<0.3	0 - 6%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB167081	TEQ (mg/kg)	0.2	<0.2	0 - 29%	NA	NA
Total PAH (18)	LB167081	mg/kg	0.8	<0.8	13 - 43%	NA	NA
Total PAH (NEPM/WHO 16)	LB167081	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB167081	%	-	98%	0 - 2%	94%	94%
2-fluorobiphenyl (Surrogate)	LB167081	%	-	106%	0 - 2%	98%	102%
d14-p-terphenyl (Surrogate)	LB167081	%	-	102%	0 - 4%	94%	96%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arochlor 1016	LB167081	mg/kg	0.2	<0.2	0%	NA
Arochlor 1221	LB167081	mg/kg	0.2	<0.2	0%	NA
Arochlor 1232	LB167081	mg/kg	0.2	<0.2	0%	NA
Arochlor 1242	LB167081	mg/kg	0.2	<0.2	0%	NA
Arochlor 1248	LB167081	mg/kg	0.2	<0.2	0%	NA
Arochlor 1254	LB167081	mg/kg	0.2	<0.2	0%	NA
Arochlor 1260	LB167081	mg/kg	0.2	<0.2	0%	102%
Arochlor 1262	LB167081	mg/kg	0.2	<0.2	0%	NA
Arochlor 1268	LB167081	mg/kg	0.2	<0.2	0%	NA
Total PCBs (Arochlors)	LB167081	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB167081	%	-	100%	3%	99%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB167083	mg/kg	1	<1	13%	98%	88%
Cadmium, Cd	LB167083	mg/kg	0.3	<0.3	0%	98%	94%
Chromium, Cr	LB167083	mg/kg	0.3	<0.3	0%	95%	93%
Copper, Cu	LB167083	mg/kg	0.5	<0.5	2%	86%	97%
Nickel, Ni	LB167083	mg/kg	0.5	<0.5	8%	86%	92%
Lead, Pb	LB167083	mg/kg	1	<1	5%	84%	92%
Zinc, Zn	LB167083	mg/kg	2	<2.0	1%	91%	95%

Trace Metals (Dissolved) in Water by ICPMS Method: ME-(AU)-[ENV]AN318

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery
Arsenic, As	LB166853	µg/L	1	<1	91%	96%
Cadmium, Cd	LB166853	µg/L	0.1	<0.1	106%	105%
Chromium, Cr	LB166853	µg/L	1	<1	112%	106%
Copper, Cu	LB166853	µg/L	1	<1	115%	105%
Lead, Pb	LB166853	µg/L	1	<1	104%	99%
Nickel, Ni	LB166853	µg/L	1	<1	109%	99%
Zinc, Zn	LB166853	µg/L	5	<5	110%	109%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C10-C14	LB167081	mg/kg	20	<20	0%	98%	118%
TRH C15-C28	LB167081	mg/kg	45	<45	0 - 13%	98%	133%
TRH C29-C36	LB167081	mg/kg	45	<45	0%	103%	103%
TRH C37-C40	LB167081	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB167081	mg/kg	110	<110	0%	NA	NA
TRH C10-C40 Total (F bands)	LB167081	mg/kg	210	<210	0%	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH >C10-C16	LB167081	mg/kg	25	<25	0%	98%	118%
TRH >C10-C16 - Naphthalene (F2)	LB167081	mg/kg	25	<25	0%	NA	NA
TRH >C16-C34 (F3)	LB167081	mg/kg	90	<90	0%	100%	133%
TRH >C34-C40 (F4)	LB167081	mg/kg	120	<120	0%	110%	NA

VOC's in Soil Method: ME-(AU)-[ENV]AN433

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB167080	mg/kg	0.1	<0.1	0%	81%	80%
Toluene	LB167080	mg/kg	0.1	<0.1	0%	81%	78%
Ethylbenzene	LB167080	mg/kg	0.1	<0.1	0%	80%	82%
m/p-xylene	LB167080	mg/kg	0.2	<0.2	0%	83%	87%
o-xylene	LB167080	mg/kg	0.1	<0.1	0%	81%	84%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB167080	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB167080	%	-	80%	2 - 6%	79%	83%
d4-1,2-dichloroethane (Surrogate)	LB167080	%	-	90%	2 - 9%	90%	84%
d8-toluene (Surrogate)	LB167080	%	-	86%	1 - 7%	87%	86%
Bromofluorobenzene (Surrogate)	LB167080	%	-	79%	0 - 4%	87%	89%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes	LB167080	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB167080	mg/kg	0.6	<0.6	0%	NA	NA

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB167080	mg/kg	25	<25	0%	88%	90%
TRH C6-C9	LB167080	mg/kg	20	<20	0%	83%	86%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB167080	%	-	80%	2 - 6%	79%	83%
d4-1,2-dichloroethane (Surrogate)	LB167080	%	-	90%	2 - 9%	90%	84%
d8-toluene (Surrogate)	LB167080	%	-	86%	1 - 7%	87%	86%
Bromofluorobenzene (Surrogate)	LB167080	%	-	79%	0 - 4%	87%	89%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB167080	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB167080	mg/kg	25	<25	0%	102%	106%

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

METHOD

AN433

METHODOLOGY SUMMARY

VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
		-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.

Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

SE189064 R0

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Project **P1677-KOTARA**
Order Number **03934**
Samples **16**

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SGS Reference **SE189064 R0**
Date Received **11 Feb 2019**
Date Reported **18 Feb 2019**

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	15 Soil 1 Water
Date documentation received	11/2/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	8.7°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		



HOLDING TIME SUMMARY

SE189064 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Parth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RIN	SE189064.014	LB166839	07 Feb 2019	11 Feb 2019	07 Mar 2019	13 Feb 2019	07 Mar 2019	15 Feb 2019

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167085	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
DUP 2	SE189064.013	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167082	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH9_0.7-0.8	SE189064.008	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
DUP 2	SE189064.013	LB167083	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RIN	SE189064.014	LB166853	07 Feb 2019	11 Feb 2019	06 Aug 2019	13 Feb 2019	06 Aug 2019	13 Feb 2019



HOLDING TIME SUMMARY

SE189064 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167081	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP SPIKE	SE189064.015	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.15-0.25	SE189064.001	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH1_0.4-0.5	SE189064.002	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.15-0.25	SE189064.003	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH2_0.8-0.9	SE189064.004	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.15-0.25	SE189064.005	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH3_0.8-0.9	SE189064.006	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.25-0.35	SE189064.007	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH9_0.7-0.8	SE189064.008	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.2-0.3	SE189064.009	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH10_0.8-1.0	SE189064.010	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.15-0.25	SE189064.011	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH12_0.5-0.6	SE189064.012	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 2	SE189064.013	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP SPIKE	SE189064.015	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189064.016	LB167080	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides In Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	103
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	107
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	102
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	102
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	111
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	112
	DUP 2	SE189064.013	%	60 - 130%	105

OP Pesticides In Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	102
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	102
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	106
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	96
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	100
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	104
	DUP 2	SE189064.013	%	60 - 130%	104
d14-p-terphenyl (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	100
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	100
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	104
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	96
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	98
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	100
	DUP 2	SE189064.013	%	60 - 130%	102

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1_0.15-0.25	SE189064.001	%	70 - 130%	102
	BH1_0.4-0.5	SE189064.002	%	70 - 130%	104
	BH2_0.15-0.25	SE189064.003	%	70 - 130%	102
	BH2_0.8-0.9	SE189064.004	%	70 - 130%	94
	BH3_0.15-0.25	SE189064.005	%	70 - 130%	106
	BH3_0.8-0.9	SE189064.006	%	70 - 130%	102
	BH9_0.25-0.35	SE189064.007	%	70 - 130%	96
	BH9_0.7-0.8	SE189064.008	%	70 - 130%	98
	BH10_0.2-0.3	SE189064.009	%	70 - 130%	100
	BH10_0.8-1.0	SE189064.010	%	70 - 130%	100
	BH12_0.15-0.25	SE189064.011	%	70 - 130%	104
	BH12_0.5-0.6	SE189064.012	%	70 - 130%	102
	DUP 2	SE189064.013	%	70 - 130%	104
	DUP 2	SE189064.013	%	70 - 130%	104
d14-p-terphenyl (Surrogate)	BH1_0.15-0.25	SE189064.001	%	70 - 130%	100
	BH1_0.4-0.5	SE189064.002	%	70 - 130%	98
	BH2_0.15-0.25	SE189064.003	%	70 - 130%	100
	BH2_0.8-0.9	SE189064.004	%	70 - 130%	92
	BH3_0.15-0.25	SE189064.005	%	70 - 130%	104
	BH3_0.8-0.9	SE189064.006	%	70 - 130%	100
	BH9_0.25-0.35	SE189064.007	%	70 - 130%	96
	BH9_0.7-0.8	SE189064.008	%	70 - 130%	98
	BH10_0.2-0.3	SE189064.009	%	70 - 130%	98
	BH10_0.8-1.0	SE189064.010	%	70 - 130%	98
	BH12_0.15-0.25	SE189064.011	%	70 - 130%	100
	BH12_0.5-0.6	SE189064.012	%	70 - 130%	100
	DUP 2	SE189064.013	%	70 - 130%	102
	DUP 2	SE189064.013	%	70 - 130%	102
d5-nitrobenzene (Surrogate)	BH1_0.15-0.25	SE189064.001	%	70 - 130%	94
	BH1_0.4-0.5	SE189064.002	%	70 - 130%	92
	BH2_0.15-0.25	SE189064.003	%	70 - 130%	96
	BH2_0.8-0.9	SE189064.004	%	70 - 130%	92
	BH3_0.15-0.25	SE189064.005	%	70 - 130%	94
	BH3_0.8-0.9	SE189064.006	%	70 - 130%	94
	BH9_0.25-0.35	SE189064.007	%	70 - 130%	92
	BH9_0.7-0.8	SE189064.008	%	70 - 130%	82
	BH10_0.2-0.3	SE189064.009	%	70 - 130%	94
	BH10_0.2-0.3	SE189064.009	%	70 - 130%	94

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	BH10_0.8-1.0	SE189064.010	%	70 - 130%	84
	BH12_0.15-0.25	SE189064.011	%	70 - 130%	96
	BH12_0.5-0.6	SE189064.012	%	70 - 130%	94
	DUP 2	SE189064.013	%	70 - 130%	96

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	103
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	107
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	102
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	102
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	111
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	112
	DUP 2	SE189064.013	%	60 - 130%	105

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	79
	BH1_0.4-0.5	SE189064.002	%	60 - 130%	78
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	78
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	78
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	76
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	75
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	73
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	73
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	77
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	72
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	75
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	73
	DUP 2	SE189064.013	%	60 - 130%	74
	TRIP SPIKE	SE189064.015	%	60 - 130%	78
	TRIP BLANK	SE189064.016	%	60 - 130%	71
d4-1,2-dichloroethane (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	92
	BH1_0.4-0.5	SE189064.002	%	60 - 130%	88
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	86
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	89
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	79
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	92
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	87
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	87
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	91
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	82
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	86
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	87
	DUP 2	SE189064.013	%	60 - 130%	84
	TRIP SPIKE	SE189064.015	%	60 - 130%	87
	TRIP BLANK	SE189064.016	%	60 - 130%	83
d8-toluene (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	89
	BH1_0.4-0.5	SE189064.002	%	60 - 130%	85
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	83
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	88
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	86
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	89
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	82
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	88
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	86
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	82
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	85
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	91
	DUP 2	SE189064.013	%	60 - 130%	81
	TRIP SPIKE	SE189064.015	%	60 - 130%	82
	TRIP BLANK	SE189064.016	%	60 - 130%	80

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	83
	BH1_0.4-0.5	SE189064.002	%	60 - 130%	78
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	77
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	79
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	82
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	82
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	76
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	79
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	79
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	74
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	77
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	84
	DUP 2	SE189064.013	%	60 - 130%	75
	TRIP SPIKE	SE189064.015	%	60 - 130%	77
	TRIP BLANK	SE189064.016	%	60 - 130%	78

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	79
	BH1_0.4-0.5	SE189064.002	%	60 - 130%	78
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	78
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	78
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	76
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	75
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	73
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	73
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	77
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	72
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	75
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	73
	DUP 2	SE189064.013	%	60 - 130%	74
	TRIP BLANK	SE189064.016	%	60 - 130%	71
d4-1,2-dichloroethane (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	92
	BH1_0.4-0.5	SE189064.002	%	60 - 130%	88
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	86
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	89
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	79
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	92
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	87
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	87
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	91
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	82
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	86
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	87
	DUP 2	SE189064.013	%	60 - 130%	84
	TRIP BLANK	SE189064.016	%	60 - 130%	83
d8-toluene (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	89
	BH1_0.4-0.5	SE189064.002	%	60 - 130%	85
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	83
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	88
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	86
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	89
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	82
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	88
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	86
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	82
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	85
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	91
	DUP 2	SE189064.013	%	60 - 130%	81
	TRIP BLANK	SE189064.016	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	BH1_0.15-0.25	SE189064.001	%	60 - 130%	83

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	BH1_0.4-0.5	SE189064.002	%	60 - 130%	78
	BH2_0.15-0.25	SE189064.003	%	60 - 130%	77
	BH2_0.8-0.9	SE189064.004	%	60 - 130%	79
	BH3_0.15-0.25	SE189064.005	%	60 - 130%	82
	BH3_0.8-0.9	SE189064.006	%	60 - 130%	82
	BH9_0.25-0.35	SE189064.007	%	60 - 130%	76
	BH9_0.7-0.8	SE189064.008	%	60 - 130%	79
	BH10_0.2-0.3	SE189064.009	%	60 - 130%	79
	BH10_0.8-1.0	SE189064.010	%	60 - 130%	74
	BH12_0.15-0.25	SE189064.011	%	60 - 130%	77
	BH12_0.5-0.6	SE189064.012	%	60 - 130%	84
	DUP 2	SE189064.013	%	60 - 130%	75
	TRIP BLANK	SE189064.016	%	60 - 130%	78

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Porth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB166839.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB167085.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167081.001	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Alpha BHC	mg/kg	0.1	<0.1
	Lindane	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	Endrin Aldehyde	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Endrin Ketone	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167081.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Bromophos Ethyl	mg/kg	0.2	<0.2
	Methidathion	mg/kg	0.5	<0.5
	Ethion	mg/kg	0.2	<0.2
	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	2-fluorobiphenyl (Surrogate)	%	-	106
	d14-p-terphenyl (Surrogate)	%	-	102
Surrogates				

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167081.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167081.001	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates			
	d5-nitrobenzene (Surrogate)	%	-	98
	2-fluorobiphenyl (Surrogate)	%	-	106
	d14-p-terphenyl (Surrogate)	%	-	102

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167081.001	Arochlor 1016	mg/kg	0.2	<0.2
	Arochlor 1221	mg/kg	0.2	<0.2
	Arochlor 1232	mg/kg	0.2	<0.2
	Arochlor 1242	mg/kg	0.2	<0.2
	Arochlor 1248	mg/kg	0.2	<0.2
	Arochlor 1254	mg/kg	0.2	<0.2
	Arochlor 1260	mg/kg	0.2	<0.2
	Arochlor 1262	mg/kg	0.2	<0.2
	Arochlor 1268	mg/kg	0.2	<0.2
	Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates			
	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB167083.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB166853.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB167081.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB167080.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result
LB167080.001	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-
		Bromofluorobenzene (Surrogate)	%	-
	Totals	Total BTEX	mg/kg	0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result
LB167080.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.010	LB167085.014	Mercury	mg/kg	0.05	0.10	0.12	74	16

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.010	LB167082.011	% Moisture	%w/w	0.5	11	13	38	13
SE189207.003	LB167082.020	% Moisture	%w/w	0.5	5.5	5.1	49	7

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.011	LB167081.027	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
Surrogates		Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.17	30	3

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.009	LB167081.027	Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
		Methodathion	mg/kg	0.5	<0.5	<0.5	200	0
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.009	LB167081.027	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	0.1	<0.1	125	33
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	0.3	0.3	63	20
		Pyrene	mg/kg	0.1	0.2	0.3	68	26
		Benzo(a)anthracene	mg/kg	0.1	0.1	0.2	101	43
		Chrysene	mg/kg	0.1	0.1	0.2	101	43
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.2	80	30
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	141	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0.2	113	40
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.1	125	26
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.1	141	10
		Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	0.2	167	9
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	0.3	116	6
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	0.3	107	29
		Total PAH (18)	mg/kg	0.8	1.1	1.7	87	43
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	0
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE189207.002	LB167081.028	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthene	mg/kg	0.1	<0.1	0	200	0
		Fluorene	mg/kg	0.1	<0.1	0	200	0
		Phenanthrene	mg/kg	0.1	0.3	0.49	54	36
		Anthracene	mg/kg	0.1	<0.1	0.09	173	0
		Fluoranthene	mg/kg	0.1	0.7	0.93	42	24
		Pyrene	mg/kg	0.1	0.7	0.81	44	22
		Benzo(a)anthracene	mg/kg	0.1	0.6	0.64	46	10
		Chrysene	mg/kg	0.1	0.5	0.6	48	12
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.8	0.92	42	13
		Benzo(k)fluoranthene	mg/kg	0.1	0.5	0.39	54	14
		Benzo(a)pyrene	mg/kg	0.1	0.7	0.67	45	3
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.5	0.58	49	15
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0.4	0.43	55	12
		Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	0.9	0.9353	31	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	1.0	1.0353	39	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	1.0	0.9853	30	0
		Total PAH (18)	mg/kg	0.8	5.7	6.48	43	13
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.45	30	2
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.51	30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.48	30	0

PCBs in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.011	LB167081.024	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.011	LB167081.024	Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
		Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	mg/kg	-	0	0	30	3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.010	LB167083.014	Arsenic, As	mg/kg	1	9	7	42	13
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	2.4	2.4	51	0
		Copper, Cu	mg/kg	0.5	8.5	8.4	36	2
		Nickel, Ni	mg/kg	0.5	2.3	2.1	53	8
		Lead, Pb	mg/kg	1	28	27	34	5
		Zinc, Zn	mg/kg	2	46	45	34	1

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189064.009	LB167081.026	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	<45	200	0
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	mg/kg	25	<25	<25	200	0
		TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE189207.002	LB167081.024	TRH C10-C14	mg/kg	20	<20	0	200	0
		TRH C15-C28	mg/kg	45	52	59	111	13
		TRH C29-C36	mg/kg	45	<45	0	200	0
		TRH C37-C40	mg/kg	100	<100	0	200	0
		TRH C10-C36 Total	mg/kg	110	<110	59	200	0
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	mg/kg	25	<25	0	200	0
		TRH >C10-C16	mg/kg	25	<25	0	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE189064.010	LB167080.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0	
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0	
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0	
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0	
			Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	50	2
		d4-1,2-dichloroethane (Surrogate)		mg/kg	-	4.1	4.0	50	2	
		d8-toluene (Surrogate)		mg/kg	-	4.1	4.1	50	1	
		Bromofluorobenzene (Surrogate)		mg/kg	-	3.6	3.6	50	0	
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0	
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0	
SE189207.003	LB167080.024	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0	
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0	
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0	
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0	
			Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	3.9	50	6
		d4-1,2-dichloroethane (Surrogate)		mg/kg	-	4.6	4.2	50	9	
		d8-toluene (Surrogate)		mg/kg	-	4.3	4.1	50	7	
		Bromofluorobenzene (Surrogate)		mg/kg	-	3.7	3.8	50	4	
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0	

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189207.003	LB167080.024	Totals	Total BTEX	mg/kg	0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %		
SE189064.010	LB167080.014	TRH C6-C10	mg/kg	25	<25	<25	200	0		
		TRH C6-C9	mg/kg	20	<20	<20	200	0		
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	30	2	
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.0	30	2	
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.1	30	1	
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	3.6	30	0	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0	
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0	
		SE189207.003	LB167080.024	TRH C6-C10	mg/kg	25	<25	<25	200	0
				TRH C6-C9	mg/kg	20	<20	<20	200	0
Surrogates	Dibromofluoromethane (Surrogate)			mg/kg	-	4.1	3.9	30	6	
	d4-1,2-dichloroethane (Surrogate)			mg/kg	-	4.6	4.2	30	9	
	d8-toluene (Surrogate)			mg/kg	-	4.3	4.1	30	7	
	Bromofluorobenzene (Surrogate)			mg/kg	-	3.7	3.8	30	4	
VPH F Bands	Benzene (F0)			mg/kg	0.1	<0.1	<0.1	200	0	
	TRH C6-C10 minus BTEX (F1)			mg/kg	25	<25	<25	200	0	

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167085.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	95

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167081.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	124
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	125
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	113
	Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	124
	Endrin	mg/kg	0.2	0.2	0.2	60 - 140	114
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	108
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	90

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167081.002	Dichlorvos	mg/kg	0.5	2.2	2	60 - 140	108
	Diazinon (Dimpylate)	mg/kg	0.5	2.1	2	60 - 140	105
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	102
	Ethion	mg/kg	0.2	1.8	2	60 - 140	89
Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
	d14-p-terphenyl (Surrogate)	mg/ka	-	0.5	0.5	40 - 130	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB167081.002	Naphthalene	mg/kg	0.1	4.2	4	60 - 140	106	
	Acenaphthylene	mg/kg	0.1	4.7	4	60 - 140	117	
	Acenaphthene	mg/kg	0.1	4.4	4	60 - 140	111	
	Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	111	
	Anthracene	mg/kg	0.1	4.3	4	60 - 140	109	
	Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	104	
	Pyrene	mg/kg	0.1	4.0	4	60 - 140	101	
	Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	114	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
d14-p-terphenyl (Surrogate)		mg/kg	-	0.5	0.5	40 - 130	94	

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167081.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	102

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167083.002	Arsenic, As	mg/kg	1	330	336.32	79 - 120	98
	Cadmium, Cd	mg/kg	0.3	410	416.6	69 - 131	98
	Chromium, Cr	mg/kg	0.3	33	35.2	80 - 120	95
	Copper, Cu	mg/kg	0.5	320	370.46	80 - 120	86
	Nickel, Ni	mg/kg	0.5	180	210.88	79 - 120	86
	Lead, Pb	mg/kg	1	90	107.87	79 - 120	84
	Zinc, Zn	mg/kg	2	280	301.27	80 - 121	91

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB166853.002	Arsenic, As	µg/L	1	18	20	80 - 120	91
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	106
	Chromium, Cr	µg/L	1	22	20	80 - 120	112
	Copper, Cu	µg/L	1	23	20	80 - 120	115
	Lead, Pb	µg/L	1	21	20	80 - 120	104
	Nickel, Ni	µg/L	1	22	20	80 - 120	109
	Zinc, Zn	µg/L	5	22	20	80 - 120	110

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil
Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB167081.002	TRH C10-C14	mg/kg	20	39	40	60 - 140	98	
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	98	
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	103	
	TRH F Bands	TRH >C10-C16	mg/kg	25	39	40	60 - 140	98
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	100
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	110

VOC's in Soil
Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167080.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	81
	Aromatic	Toluene	mg/kg	0.1	2.3	2.9	60 - 140	81
		Ethylbenzene	mg/kg	0.1	2.3	2.9	60 - 140	80
		m/p-xylene	mg/kg	0.2	4.8	5.8	60 - 140	83
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	81
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	79
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87

Volatile Petroleum Hydrocarbons in Soil
Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB167080.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	88	
	TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	83	
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	79
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	102

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Porth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE188919.002	LB166839.004	Mercury	mg/L	0.0001	0.0060	-0.0164	0.008	75

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189064.001	LB167085.004	Mercury	mg/kg	0.05	0.21	<0.05	0.2	91

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189064.002	LB167081.024	Naphthalene	mg/kg	0.1	4.4	<0.1	4	110
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.7	<0.1	4	118
		Acenaphthene	mg/kg	0.1	4.4	<0.1	4	111
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.6	0.2	4	110
		Anthracene	mg/kg	0.1	4.4	<0.1	4	108
		Fluoranthene	mg/kg	0.1	4.3	<0.1	4	105
		Pyrene	mg/kg	0.1	4.2	<0.1	4	102
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.0	<0.1	4	99
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.0	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.1	<0.3	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.0	<0.2	-	-
		Total PAH (18)	mg/kg	0.8	35	<0.8	-	-
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	96

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189064.001	LB167083.004	Arsenic, As	mg/kg	1	51	7	50	88
		Cadmium, Cd	mg/kg	0.3	47	<0.3	50	94
		Chromium, Cr	mg/kg	0.3	50	3.5	50	93
		Copper, Cu	mg/kg	0.5	56	7.1	50	97
		Nickel, Ni	mg/kg	0.5	48	2.0	50	92
		Lead, Pb	mg/kg	1	70	24	50	92
		Zinc, Zn	mg/kg	2	74	27	50	95

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189008.001	LB166853.004	Arsenic, As	µg/L	1	22	3	20	96
		Cadmium, Cd	µg/L	0.1	21	<0.1	20	105
		Chromium, Cr	µg/L	1	23	2	20	106
		Copper, Cu	µg/L	1	21	<1	20	105
		Lead, Pb	µg/L	1	22	2	20	99
		Nickel, Ni	µg/L	1	53	33	20	99
		Zinc, Zn	µg/L	5	25	<5	20	109

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR
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Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189064.002	LB167081.025	TRH C10-C14	mg/kg	20	47	<20	40	118
		TRH C15-C28	mg/kg	45	53	<45	40	133
		TRH C29-C36	mg/kg	45	<45	<45	40	103
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	mg/kg	25	47	<25	40	118
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	47	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	133
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE189064.001	LB167080.004	Monocyclic	Benzene	mg/kg	0.1	2.3	<0.1	2.9	80	
			Aromatic	Toluene	mg/kg	0.1	2.3	<0.1	2.9	78
			Ethylbenzene	mg/kg	0.1	2.4	<0.1	2.9	82	
			m/p-xylene	mg/kg	0.2	5.1	<0.2	5.8	87	
			o-xylene	mg/kg	0.1	2.4	<0.1	2.9	84	
			Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)		mg/kg	-	4.1	4.2	-	83
			d4-1,2-dichloroethane (Surrogate)		mg/kg	-	4.2	4.6	-	84
			d8-toluene (Surrogate)		mg/kg	-	4.3	4.4	-	86
			Bromofluorobenzene (Surrogate)		mg/kg	-	4.5	3.9	-	89
		Totals	Total Xylenes		mg/kg	0.3	7.5	<0.3	-	-
			Total BTEX		mg/kg	0.6	14	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE189064.001	LB167080.004	TRH C6-C10	mg/kg	25	<25	<25	24.65	90	
		TRH C6-C9	mg/kg	20	20	<20	23.2	86	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.2	-	83
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.6	-	84
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.4	-	86
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	3.9	-	89
		VPH F	Benzene (F0)	mg/kg	0.1	2.3	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	106

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service .
 - ** Indicative data, theoretical holding time exceeded.
 - Sample not analysed for this analyte.
 - IS Insufficient sample for analysis.
 - LNR Sample listed, but not received.
 - LOR Limit of reporting.
 - QFH QC result is above the upper tolerance.
 - QFL QC result is below the lower tolerance.
-
- ① At least 2 of 3 surrogates are within acceptance criteria.
 - ② RPD failed acceptance criteria due to sample heterogeneity.
 - ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
 - ④ Recovery failed acceptance criteria due to matrix interference.
 - ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
 - ⑥ LOR was raised due to sample matrix interference.
 - ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
 - ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
 - ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
 - ⑩ LOR was raised due to high conductivity of the sample (required dilution).
 - † Refer to Analytical Report comments for further information.

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Email: au.samplerreceipt.sydney@sgs.com

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 3

Contact Name: Malcolm Adrien

Results Required By: _____
Telephone: 0429 496 618


Facsimile:

Email Results:

malcolm.adrien@vclab.com.au; jake.duck@vclab.com.au;
monica.esposito@vclab.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL 17	ON HOLD	CL 10
BH1-0.15-0.25	7/2/2019	1		X		1	X		
BH1-0.4-0.5	7/2/2019	2		X		1			X
BH1-0.6-0.7	7/2/2019			X		1		X	
BH2-0.15-0.25	7/2/2019	3		X		1	X		
BH2-0.8-0.9	7/2/2019	4		X		1			X
BH2-1.5-1.6	7/2/2019			X		1		X	
BH2-2.1-2.2	7/2/2019			X		1		X	
BH3-0.15-0.25	7/2/2019	5		X		1	X		
BH3-0.8-0.9	7/2/2019	6		X		1			X

SGS EHS Alexandria Laboratory



SE189064 COC
Received: 11-Feb-2019

Received By: EL-AD

Date/Time: 11 FEB 19 1030

SGS EHS Alexandria Laboratory



SE189064 COC

Received: 11-Feb-2019

Relinquished By: Monica ESPR 10

Date/Time: 8/2/19

Received By: SWAPN

Date/Time 11 FEB 19 1030

Relinquished By:

Date/Time:

Received By:

Date/Time	Location	Activity	Remarks
10/10/2023 10:00	Room 101	Meeting with Mr. Smith	Discussed project progress
10/10/2023 14:30	Room 202	Training session	Completed module 3
10/10/2023 18:00	Room 303	Dinner with team	Relaxed and enjoyed
10/11/2023 09:00	Room 101	Meeting with Mr. Jones	Discussed new initiative
10/11/2023 13:00	Room 202	Training session	Completed module 4
10/11/2023 17:00	Room 303	Dinner with team	Relaxed and enjoyed

Samples Intact: Yes No

Temperature: Ambient / Chilled

Sample Cooler Sealed: Yes/ No

Laboratory Quotation No:

Comments:



Page 2 of 3

Company Name:	Valley Civilab
Address:	3/62 Sandringham Avenue Thornton 2322
Contact Name:	Malcolm Adrien

Project Name/No:	PI677 - KOTARA
Purchase Order No:	03034
Results Required By:	
Telephone:	0429 496 618
Facsimile:	
Email Results:	malcolm.adrien@vclab.com.au; jake.duck@vclab.com.au; monica.esposito@vclab.com.au

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 3 of 3

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Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL 17	ON HOLD	CL 10	CL 2	CL 5										
BL12-1.2-1.3	7/2/2019			X		1		X													
DUP 2	7/2/2019	13		X		1	X														
RIN	7/2/2019	14		X		1				X											
TRIP SPIKE	7/2/2019	15		X		1					X										
TRIP BLANK	7/2/2019	16		X		1					X										
	7/2/2019			X		1															
	7/2/2019			X		1															
	7/2/2019			X		1															
	7/2/2019			X		1															

Relinquished By: Monica Esposito Date/Time: 8/2/19 Received By: SWAB Date/Time: 11 FEB 19 1030

Relinquished By: Date/Time: Received By: Date/Time:

Samples Intact: Yes/No Temperature: Ambient / Chilled Sample Cooler Sealed: Yes/No Laboratory Quotation No:

Comments:

shard with SE189065 SWAB

Annex H

Photograph 1: Carpark area, front of site.



Photograph 2: Location on site. Looking south-west.



Photograph 3: Grassed fields in front of Cola. Looking south-east.



Photograph 4: Site on location, driveway looking south-west.



Photograph 5: Site on location, along northern boundary.





Preliminary Site Investigation

St James Primary School, 30 Vista Parade, Kotara

Ref: P1678-R-003-PSI-Rev0

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Project Details

Site Address:	St James Primary School, 30 Vista Parade, Kotara	
Project Type:	Preliminary Site Investigation	
Project No.	Report Type	Report No.
P1678	PSI	3

Report Register

Revision Number	Reported By	Reviewed By	Date
Rev0	JD	MA	19/2/20

We confirm that the following report has been produced for Catholic Diocese of Maitland-Newcastle, based on the described methods and conditions within.

For and on behalf of **Valley Civilab Pty Ltd**,



Malcolm Adrien

Environmental Services Manager

Executive Summary

Valley Civilab Pty Ltd (Valley Civilab) was engaged by Catholic Diocese of Maitland-Newcastle to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at St James Primary School, 30 Vista Parade, Kotara NSW (herein referred to as the site).

The section of the site undergoing assessment currently consists of a gravel carpark, surrounded by grassed areas and pre-existing G Block Hall belonging to St James Primary School. The client has provided plans for the intended development of three new proposed buildings (Blocks A1, A2 and B), a new carpark and circulation road and a new footpath and forecourt across the entire site.

This PSI includes the following elements:

- Review of historical aerial images of the site and surrounding area;
- Compilation of a historical title summary;
- Review of a Section 10.7 Planning Certificate;
- Review of publicly available environmental databases and legislative instruments;
- Site inspection and interview with knowledgeable site representative (if available);
- A preliminary Conceptual Site Model (CSM) with assessment of source-pathway-receptor linkages; and
- Recommendations for further investigation, any management requirements and/or any ongoing management, monitoring or remedial works that may be required.

With use of a VC supplied drill rig, a total of fifteen (15) soil samples (including one (1) duplicate sample for QA/QC purposes) were collected from seven (7) boreholes, drilled to a maximum depth of approximately 2.0m and sent to external lab SGS to be chemically analysed for a range of contaminants to determine site soils suitability in comparison to guidelines relevant to the proposed land use.

Desktop review of available information and site inspection including a limited soil investigation have allowed assessment of potential health and environmental issues relating to the site. Key findings were:

- 1) Potential contamination sources at the site are limited based on area land use;
- 2) Visible signs of gross contamination were not observed during site inspection and intrusive works;
- 3) Some minor contamination in shallow soils was identified within sampling locations. One sample exceeds the ESL value for F2 hydrocarbon fraction, however the sample location is from a shallow sample within a driveway area and the sample is not considered representative of the overall conditions of the Site and is not considered to pose a risk to sensitive receptors.
- 4) All sample results were below the HIL A land use criteria, which is the most sensitive land use provided in the NEPM.

In summary, based on the desktop study and limited intrusive sampling conducted on the Site, no indication of gross contamination has been identified which would constrain the expanded development of the Site for its use as a primary school.

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ANNEXES

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1 Introduction

1.1 Background

Valley Civilab Pty Ltd (Valley Civilab) was engaged by Catholic Diocese of Maitland-Newcastle to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at St James Primary School, 30 Vista Parade, Kotara ,NSW (herein referred to as the site).

The section of the site undergoing assessment currently consists of a gravel carpark, surrounded by grassed areas and pre-existing G Block Hall belonging to St James Primary School. The client has provided plans for the intended development of three new proposed buildings (Blocks A1, A2 and B), a new carpark and circulation road and a new footpath and forecourt across the entire site. The Preliminary Site Investigation is required for due diligence purposes as part of the development application.

A Site Features Plan is presented as *Figure 1 of Annex A*.

1.2 Objectives

The objectives of this PSI were to investigate potential contaminant sources, pathways and receptors in relation to the site as well as inform preliminary consideration of potential risks to human health and/or the environment within the context of the most sensitive land use. The Site is intended to have a dual Commercial/Residential Land Use. For the purpose of the investigation, HIL A criteria has been adopted as the most sensitive land use.

This report has been prepared in general accordance with provisions for a PSI as defined within the *National Environment Protection Measure* (NEPC 2013), *AS 4482.1-1997 Guide to the sampling and Investigation of potentially contaminated soil* and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA 1997).

All information collected informed the development of the preliminary conceptual site model which provides a representation of potential contamination sources, receptors and exposure pathways between these sources and receptors.

1.3 Scope of Works

1.3.1 Preliminary Site Investigation

This PSI includes the following elements:

- Review of historical aerial images of the site and surrounding area;
- Compilation of a historical title summary;
- Review of a Section 10.7 Planning Certificate;
- Review of publicly available environmental databases and legislative instruments;
- Site inspection and interview with knowledgeable site representative (if available);
- A preliminary Conceptual Site Model (CSM) with assessment of source-pathway-receptor linkages; and

- Recommendations for further investigation, any management requirements and/or any ongoing management, monitoring or remedial works that may be required

1.3.2 Limited Sampling

Collection of a total of fifteen (15) soil samples (including one (1) duplicate sample for QA/QC purposes) from seven (7) boreholes, drilled to a maximum depth of approximately 2.0m BGL using a VC supplied drill rig to determine site suitability for the proposed land use. Samples were analysed for the presence of the following analytes:

- Benzene, Toluene, Ethyl Benzene & Xylene (BTEX);
- Total Recoverable Hydrocarbons (TRH);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg);
- Organochlorine Pesticides (OCP) & Organophosphorus Pesticides (OPP);
- Polychlorinated Biphenyls (PCB).

Quality Assurance comprised of the following;

- Collection of a duplicate sample at a rate of 1 per 20 samples.
- One rinsate solution per day.

2 Site Description

2.1 Site and Lot identification

The site is located at St James Primary School, 30 Vista Parade, Kotara NSW, legally identified as Lot 12 DP 560852 and Lot 131 DP 262057. The site forms a rectangular shaped block of approximately 29,080m², adjacent to Vista Parade along the South Western boundary (SIX Maps, 2019).

A summary of site information is provided in **Table 1** below.

Table 1 - Site Identification

<i>Item</i>	<i>Description</i>
Current Site Owner	Trustees of the Roman Catholic Church for the Diocese of Maitland
Site Address	St James Primary School, 30 Vista Parade, Kotara
Current Zoning	Zone R2 Low Density Residential
Legal Description	Lot 12 DP 560852 Lot 131 DP 262057
Local Government Authority	Newcastle City Council
Site Area	Approximately 29,080 m ²
Elevation	33m Above Sea Level (ASL)
Geographical Location (GDA94-MGA56)	151°42'4.12"E 32°56'52.47"S

Review of The Newcastle Local Environmental Plan (LEP) 2012 together with the Planning Certificate under Section 10.7 Part 2 and 5 of the Environmental Planning and Assessment Act 1979 (attached as *Annex B*) provides the following information:

- 1) The site is not affected by heritage items;
- 2) The site and/or adjacent lots are not affected by land reserved for acquisition;
- 3) The site is not affected by environmentally sensitive land or critical habitat;
- 4) The site and/or adjacent lots are/contain flood prone land. Section 4.01 Flood Management of Newcastle Development Control Plan (DCP) 2012 provides guidelines with respect to all development on flood prone land.
- 5) There are no prescribed matters under section 59(2) of the Contaminated Land Management Act 1997 to be disclosed.

Review of the CSIRO Acid Sulfate Resource Information Service (ASRIS, 2008) identifies the site as being within an unassessed area of Acid Sulfate Soils.

2.2 Surrounding Land Use

The site is located predominantly within a residential area of Kotara. Review of satellite imagery identified surrounding land uses as summarised in **Table 2** below.

Table 2 - Summary of surrounding land uses

Direction	Land Use	Distance
North	Residential dwellings	Adjacent
East	Residential dwellings	Adjacent
South	Residential dwellings	Adjacent
West	Residential dwellings	Adjacent

3 Background Data Review and Database Searches

3.1 Summary of ownership and site use

Historical title searches completed for the site provide a summary of ownership as described in **Table 3** below.

Table 3 - Summary of site ownership

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
14.08.1929 (1929 to 1956)	The Scottish Australian Mining Company Limited	Vol 4312 Fol 88 Now Vol 6102 Fol 167
09.07.1956 (1956 to 1964)	Hunter District Industries Pty Limited	Vol 6102 Fol 167 Now Vol 9881 Fol 9
14.10.1964 (1964 to 1967)	Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 9881 Fol 9 Now Vol 10684 Fol 82
23.11.1967 (1967 to 1970)	William Henry Hudson (Master Builder)	Vol 10684 Fol 82
02.03.1970 (1970 to 1973)	W.H. Hudson Developments Pty Limited	Vol 10684 Fol 82 Now Vol 12313 Fol 173
20.11.1973 (1973 to date)	# Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 12313 Fol 173 Now 12/560852

Historical title documents sourced as part of this assessment are presented as *Annex C*.

3.2 Historical Photographs

Historical aerials and satellite images dating 1954 – 2019 provide a summary of development at the site and within the surrounding area. Historical images are presented as part of *Annex D* and a summary of review in **Table 4** below.

Table 4 - Historical Aerial Review

Date	Summary
1954	The image dated 1954 is an excerpt from a low resolution black and white aerial photograph depicting the site and surrounding area. At this time, the site is vegetated vacant land with some minor commercial development to the south-western region of the area surrounding the site.
1965	The image dated 1965 is an excerpt from a high resolution black and white aerial photograph depicting the site and surrounding area. The site remains undeveloped as per the 1954 image, major residential development is seen to the immediate west of the site.
1976	The image dated 1976 is an excerpt from a high resolution colour aerial photograph depicting the site and surrounding area. The site remains undeveloped as per the 1954 and 1965 images, with some clearing of vegetation to the south of the site. Major residential development is seen to the immediate east of the site and development of St Phillips Church to the south of Vista Parade.
1983	The image dated 1983 is a low-resolution colour aerial image depicting the site and surrounding area. At this time, the development of St James PS can be depicted at the site. Surrounding residential areas remain consistent to the 1976 image.
1993	The image dated 1993 remains consistent with the 1983 image.
2007	The image dated 2007 is a high-resolution colour satellite image depicting the site and surrounding area. The site remains consistent to previous images with the addition of the netball/basketball courts to the south of the St James PS school buildings. Surrounding residential areas remain consistent to the 1983-1994 images.
2014	The image dated 2014 is a high-resolution colour satellite image depicting the site and surrounding area. Major development is apparent at the site, with the addition of a cola, covering the netball/basketball courts, additional coverage across the site and the development of the hall, parking area and connecting road to the existing St James PS buildings to the north.

Date	Summary
2018	The image dated 2018 is a low-resolution colour satellite image depicting the site and surrounding area. Some minor development within the site is apparent. Surrounding areas appear consistent to previous images.
2019	The image dated 2019 is a high-resolution colour satellite image depicting the site and surrounding area. Site and surrounding areas appear consistent to the 2018 image.

3.3 Site Setting

3.4 Topography and hydrology

Reference to the Newcastle Soil Landscape Map indicates that the site is located within the Cockle Creek Landscape. The landscape is characterized by narrow floodplains, alluvial fan deposits and broad delta deposits in the Awaba Hills. Review of Google Earth Pro (2019) indicates the site slightly slopes from 41 Above Sea Level (ASL) in the Eastern corner of the lot, to 32m ASL in the eastern corner. The closest surface water body identified is Styx Creek which runs adjacent to Grayson Avenue on the North-Western boundary of the site.

3.4.1 Lithology and Geology

Reference to the Newcastle Soil Landscape Map indicates that the site is located within the Cockle Creek Landscape. The landscape is characterized by narrow floodplains, alluvial fan deposits and broad delta deposits in the Awaba Hills.

Review of the NSW Department of Industry, Resources & Energy database; Newcastle 1: 250,000 Geological Sheet indicates that the site lies on the Newcastle Coal Measures. Typical lithology includes Conglomerate, Sandstone, tuff, shale and coal.

3.4.2 Hydrogeology

Review of the NSW Department of Primary Industries – Office of Water / Water Administration Ministerial Corporation database identified two registered bores within 1.5km of the site. Bore details are presented in **Table 5** below.

Table 5 - Groundwater Bore Details

Bore ID	Construction Date	Location	Depth (mbgl)	Purpose
GW057772	01/02/1981	597m North	24.00	Recreation (groundwater)
GW061223	01/06/1985	1501m North East	36.50	Domestic

Groundwater data for the identified bores were not available for review at the time of this report.

3.5 Chemical storage and waste production/disposal

The results of the SafeWork Dangerous Goods Search were not included as part of this report due to the historical and ongoing land use of the Site.

3.6 Environmental incident history/register

Sources to inform consideration of potential environment incidents at the site were not identified as part of this investigation.

3.7 Online Database Searches

3.7.1 Current and Former Environmental Protection Licenses

A review of the licenced activities under the Protection of the Environment Operations act 1997 was completed on the 11th February 2020.

A number of NSW EPA licensed activities have been conducted within proximity to the Site. The tables below list both former and current licensed activities and the type of licensed activity conducted.

Table 6 - Current Licensed EPA Activities

EPL	Organisation	Activity	Approximate Distance from Site
4965	SYDNEY WATER CORPORATION	Other activities	3m West
6332	LAKE MACQUARIE CITY COUNCIL	Other activities	246m South West
12208	SYDNEY TRAINS	Railway systems activities	North West

Table 7 - Former Licensed EPA Activities

License Number	Organisation	Activity	Approximate Distance from Site
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	Other Activities / Non Scheduled Activity - Application of Herbicides	On-site
4838	Robert Orchard	Other Activities / Non Scheduled Activity - Application of Herbicides	On-Site
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	Other Activities / Non Scheduled Activity - Application of Herbicides	On-Site

3.7.2 Heritage

Review of the Heritage Data Source - Planning & Environment, indicates the site is not affected by heritage items. The closest registered heritage item is an EPI Heritage item; 'Raspberry Gully Line Railway' situated 229m south-west of the Site. Registered heritage items within the area are described in **Table 8** below.

Table 8 - Heritage Item Summary

Heritage Item Number	Description	Approximate Distance from Site
-	Raspberry Gully Line Railway	229m South West
-	South Waratah Colliery	737m South West

A figure detailing locations of heritage items listed above is presented within Lotsearch Report in *Annex D*.

3.7.3 Contaminated Land Records

A review of the NSW EPA Contaminated Land Record of Notices was completed on 11th February 2020. This review identified that the site is not subject to regulation by the NSW EPA under Section 60 of the *Contaminated Land Management (CLM) Act 1997* and similarly that there are no sites within the surrounding area subject to regulation under the *CLM Act 1997*.

A review of the NSW EPA List of Contaminated Sites was completed 11th February 2020. This review identified that the site has not been notified to the EPA as a contaminated site and similarly that there are no sites within the surrounding area that have been notified. The findings of these reviews indicate that the site is unlikely to be impacted by contamination known to the EPA.

3.7.4 Naturally Occurring Asbestos

NSW Department of Industry, Resources & Energy (2016) identifies that the site does not fall in an area known to contain naturally occurring asbestos.

4 Site Inspection

Two Valley Civilab environmental scientists experienced in contaminated site assessments visited the Site 7th February 2019. Site inspection identified a sampling area consisting of a gravel carpark surrounded by grassed fields and a driveway adjacent to pre-existing G Block Hall connecting to Vista Parade at the southern boundary of the site. No obvious signs of contamination were visually identified during the site inspection or field investigation.

5 Soil Investigation

As stated in Section 1.3, a soil investigation was conducted for contaminants of concern. The sampling density and analytical schedule generated as part of this intrusive investigation is only intended to supplement findings from the desktop review of information and is not intended to meet the minimum requirements of a Detailed Site Investigation (DSI) as outlined within the *NSW Office of Environment and Heritage: Guidelines for Consultants Reporting on Contaminated Sites (2011)*.

All works were conducted in accordance with Valley Civilab's relevant Standard Operating Procedures (SOPs). Methodologies are outlined in the following sub-sections. Borelogs are presented in *Annex E*, Soil Investigation locations are presented in *Figure 1 of Annex A*.

5.1 Soil sampling

Limited Sampling consisted of the collection of a total of thirteen (13) soil samples (including one duplicate sample for QA/QC purposes) from six (6) boreholes, drilled to a maximum depth of approximately 2.0m BGL using a VC supplied drill rig to determine site suitability for the proposed land use. Samples were analysed for the presence of the following analytes:

- Benzene, Toluene, Ethyl Benzene & Xylene (BTEX);
- Total Recoverable Hydrocarbons (TRH);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg);
- Organochlorine Pesticides (OCP) & Organophosphorus Pesticides (OPP); and
- Polychlorinated Biphenyls (PCB).

Quality Assurance comprised of the following;

- Collection of a duplicate sample at a rate of 1 per 20 samples.
- One rinsate solution per day.

5.2 Assessment Criteria

Analytical data was screened against relevant Tier 1 Trigger Values as defined or referenced within the NEPM 2013 Schedule B1 for Residential A land use. Specifically:

- 1) Health Investigation Levels for Residential A land use (HIL-A) for heavy metals, PAHs, OCP, OPP and PCBs were derived from *Table 1A (1)*;
- 2) Health Screening Levels were derived from *CRC Care Technical Report 10 – Health screening levels for petroleum hydrocarbons in soil and groundwater – Summary* (Friebel and Nadebaum 2011) for sand-based soils in Residential land use (HSL-A) for TRH, BTEX and Naphthalene. These include criteria for considering potential vapour intrusion defined in *Table B3* and criteria for direct contact defined in *Table B4*;
- 3) Management Limits from Table 1B (7) for TPH fractions F1-F4 in soil for Residential land use;
- 4) Ecological investigation levels (EILs) for inorganics to assess risks to ecological receptors from Table 1B(4 and 5); and
- 5) Ecological screening levels (ESLs) for TPH fractions F1-F4, BTEX and Benzo(a)Pyrene in coarse soil for Residential A land use from Table 1B(6).

HIL and HSL assessment criteria address potential health risks to receptors associated with potential contamination.

As the proposed development consists of the expansion of the primary school, the most sensitive land use criteria provided in the NEPM has been adopted.

All criteria adopted along with their associated values are displayed in *Tables 1 – 2* of *Annex F*.

5.3 Analytical Results

A tabulated assessment of analytical results against assessment criteria is presented in *Tables 1 - 2* within *Annex F* with laboratory reports presented in *Annex G*.

- Results of the laboratory analysis returned concentrations below the Limit of Reporting (LOR) for BTEX, OCP, OPP and PCB.
- All heavy metal results were below HIL-A criteria.
- Concentrations above the LOR for F2 fraction total recoverable hydrocarbon (TRH) were reported for samples BH13_0.15-0.25 and BH13_0.6-0.7, these values exceed ESLs for Fine and Coarse soils (NEPM 2013) but are below the applicable HSL for the soil type. A concentration above the LOR for F3 TRH was reported for Sample BH13_0.15-0.25, this value exceeds the ESL for coarse soils (NEPM 2013). All remaining samples were reported below the LOR for TRH.
- Concentrations above the LOR were reported in seven samples for Total PAH and in six samples for Benzo(a)pyrene, however these values were all still below HIL-A Criteria. Sample BH13_0.15-0.25 was reported with a concentration above the LOR for Naphthalene, however this value falls below screening criteria. All remaining samples were reported below the LOR for PAH.

The results of the analysis indicate the soils sampled for the targeted assessment area meet the HIL-A criteria for residential A which is the most sensitive land use criteria provided in the NEPM.

6 Analytical Data Quality Assessment

The quality of analytical data presented within this report has been assessed with reference to the following issues:

- 1) Sampling technique;
- 2) Preservation and storage of samples upon collection and transport to the laboratory;
- 3) Sample holding times;
- 4) Analytical procedures;
- 5) Laboratory limit of reporting (LOR);
- 6) Laboratory quality assurance (QA) procedures; and
- 7) The occurrence of apparently unusual or anomalous results.

A review of these items was conducted to assess data in terms of completeness, representativeness, comparability, accuracy and precision. A discussion of the data quality assessment related to the items listed above is provided in the subsections that follow.

6.1 Sample Collection, Storage, Transport and Analysis

6.1.1 General

Samples were collected, stored and transported to the laboratory in accordance with Valley Civilab's standard operating procedures which are consistent with guidelines provided in the ASC NEPM (2013). All samples were collected in appropriate containers provided by the laboratory.

6.1.2 Holding Times

Laboratory analysis was undertaken within specified holding times in accordance with Schedule B3 of the ASC NEPM (2013) and using NATA accepted analytical procedures.

6.1.3 Sample Transport and Storage temperature

In accordance with Schedule B3 of the ASC NEPM (2013), all samples were chilled during transport to the laboratory and evidence of chilling was recorded on the sample receipt documentation for the laboratory.

6.2 Field Intra-Laboratory Duplicate Assessment

Relative Percentage Differences (RPDs) were calculated between the primary sample concentration and its corresponding intra-laboratory duplicate. As stipulated by the NEPM, the RPD acceptance criteria is 30% however it is noted that higher variations can be expected for organic analysis, samples with low analyte concentrations or non-homogenous samples (NEPC, 2013). As such, the primary laboratory RPD acceptance criteria were used and are as follows:

- 1) Results <10 times the LOR: No Limit;
- 2) Results between 10-20 times the LOR: RPD must lie between 0-50%; and
- 3) Results >20 times the LOR: RPD must lie between 0-30%

The results of the Rinsate sample analysis were all found to be below the laboratory Limit of Reporting for all analytes, indicating field decontamination procedures were adequate.

Results of the RPD analysis between primary and duplicate samples were all within allowable limits.

The analytical data is considered sufficiently complete, representative, comparable, accurate and precise to serve as an adequate basis for interpretation for the purposes of this project.

6.3 Laboratory Quality Assurance and Quality Control

Laboratory QA/QC procedures and results are detailed in the certified laboratory results contained in *Annex G*. The analytical methods implemented by the laboratories were reported to be consistent with the scope of their NATA accreditation and consistent with Schedule B3 of the ASC NEPM (2013). The laboratory generally reported an adequate range and frequency of data quality information (including laboratory duplicates and control samples).

The reported laboratory data quality was considered acceptable to meet the objectives of this assessment.

6.4 Data Quality Summary

Overall, the data from this investigation is considered to be of sufficient quality to serve as a basis for interpretation as part of this assessment.

7 Preliminary Conceptual Site Model

A CSM is a representation of site related information regarding contaminant sources, exposure pathways and receptors. A CSM facilitates consideration of risks to human health and the environment associated with site contamination through assessment of source – pathway – receptor linkages. A preliminary CSM based on the understanding of site history and environmental setting is presented in the following sections.

7.1 Potential Sources and Associated Contaminants of Concern

Analytical results from the intrusive investigation did not indicate any Contaminants of Potential Concern (CoPC).

Off-site sources of contamination with the potential to affect the site were considered unlikely taking into consideration information discussed in Section 2.2 of this report.

7.2 Potential Receptors and Pathways

The following receptors have been identified based on current site setting and proposed future development:

- 1) Construction workers associated with the proposed development;
- 2) Current and future site users (including secondary students and workers);
- 3) Future on-site intrusive maintenance workers; and
- 4) Terrestrial flora and fauna.

Pathways by which the contamination may affect the receptors presented above includes:

- 1) Direct contact (dermal contact, incidental ingestion and dust inhalation);
- 2) Ecological uptake.

7.3 SPR Linkage Assessment

A source-pathway-receptor (SPR) linkage is present when a pathway links a source with a receptor. These linkages are considered complete where a risk to the identified receptors may exist, now or in the future. Given that soil analytical results were reported below the adopted screening criteria (HIL/HSL A) for the identified receptors via the relevant pathway (direct contact), this SPR linkage is incomplete. Therefore, a potential exposure risk is considered unlikely.

8 Conclusions

Valley Civilab Pty Ltd (Valley Civilab) was engaged by Catholic Diocese of Maitland-Newcastle to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at St James Primary School, 30 Vista Parade, Kotara NSW (herein referred to as the site). Analysis was conducted for

contaminants of concern to identify any potential contamination issues that would constrain the site use for its proposed expanding development.

The detailed desktop review of available information and thorough site inspection including shallow soil investigation have enabled the development of a preliminary conceptual site model allowing assessment of potential health and environmental issues relating to the site. Key findings were:

- 1) Potential contamination sources at the site are limited based on area land use;
- 2) Visible signs of gross contamination were not observed during site inspection and intrusive works;
- 3) Some minor contamination in shallow soils was identified within sampling locations. One sample exceeds the ESL value for F2 hydrocarbon fraction, however the sample location is from a shallow sample within a driveway area and the sample is not considered representative of the overall conditions of the Site and is not considered to pose a risk to sensitive receptors.
- 4) All sample results were below the HIL A land use criteria, which is the most sensitive land use provided in the NEPM.

In summary, based on the desktop study and limited intrusive sampling conducted on the Site, no indication of gross contamination has been identified which would constrain the expanded development of the Site for its use as a primary school.

If you have any further questions about this report, please contact the undersigned.

For and on behalf of

Valley Civilab Pty Ltd



Jake Duck
Environmental Scientist.



Malcolm Adrien
Environmental Services Manager

References:

Australian Standard AS 4482.1-2005 (2005) *Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 1 – Non-volatile and Semi-Volatile Compounds.*

National Environment Protection Council (NEPC), (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999, NEPM, Canberra. Schedule B2: Guideline On-site Characterisation.*

NSW EPA (1997) *Guidelines for Consultants Reporting on Contaminated Sites.*

NSW EPA (1997). *Contaminated Land Management Act 1997.*

NSW EPA (2017) *Naturally Occurring Asbestos in NSW*

<https://trade.maps.arcgis.com/apps/PublicInformation/index.html?appid=87434b6ec7dd4aba8cb664d8e646fb06> accessed 23/01/20.

Lotsearch (2019) Enviro Professional, Reference: LS011100 EP 11 - Feb 2020 12:43:12

LIMITATIONS

This report was prepared in accordance with the scope of work outlined within this report and subject to the applicable cost, time and other constraints. Valley Civilab performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental profession. Valley Civilab makes no warranty concerning the suitability of the site for any purpose or the possibility of any use, development or re-development of the site. Except as otherwise stated, Valley Civilab's assessment is limited strictly to identifying specified environmental conditions associated with the subject site and does not evaluate structural conditions of any buildings on the subject site. Lack of identification in the report of any hazardous or toxic materials on the subject site should not be interpreted as a guarantee that such materials do not exist on the site.

This assessment is based on site inspection conducted by Valley Civilab personnel, sampling and analysis described in the report, and information provided by Catholic Diocese of Maitland-Newcastle or other people with knowledge of the site conditions. All conclusions and recommendations made in the report are the professional opinions of the Valley Civilab personnel involved with the project and, while normal checking of the accuracy of data has been conducted, Valley Civilab assumes no responsibility or liability for errors in data obtained from such sources, regulatory agencies or any other external sources, nor from occurrences outside the scope of this project.

Valley Civilab is not engaged in environmental consulting and reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity or investment purposes.

VALLEY CIVILAB PREPARED THIS REPORT FOR THE SOLE AND EXCLUSIVE BENEFIT AND USE OF Catholic Diocese of Maitland-Newcastle. NOTWITHSTANDING DELIVERY OF THIS REPORT BY VALLEY CIVILAB OR Catholic Diocese of Maitland-Newcastle TO ANY THIRD PARTY, UNLESS OTHERWISE EXPRESSLY AGREED, ANY COPY OF THIS REPORT PROVIDED TO A THIRD PARTY IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY, WITHOUT THE RIGHT TO RELY AND VALLEY CIVILAB DISCLAIMS ALL LIABILITY TO SUCH THIRD PARTY TO THE EXTENT PERMITTED BY LAW. ANY USE OF THIS REPORT BY A THIRD PARTY IS DEEMED TO CONSTITUTE ACCEPTANCE OF THIS LIMITATION.

Annex A





Annex B



City of
Newcastle

Planning Certificate

Section 10.7, Environmental Planning and Assessment Act 1979

To: Lotsearch Pty Ltd
Level 3, 68 Alfred Street
MILSONS POINT NSW 2061

Certificate No: PL2020/00661
Fees: \$133.00
Receipt No(s): D001449713

Your Reference: LS011100

Date of Issue: 11/02/2020

The Land: Lot 12 DP 560852
30 Vista Parade Kotara NSW 2289

Advice provided on this Certificate:

Advice under section 10.7(2): see items 1 – 21
Additional advice under section 10.7(5): see Items 22 – 30

IMPORTANT: Please read this certificate carefully

This certificate contains important information about the land.

Please check for any item which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, phone our **Customer Contact Centre** on (02) 4974 2000, or come in and see us.

The information provided in this certificate relates only to the land described above. If you need information about adjoining or nearby land, or about the City of Newcastle (CN) development policies for the general area, contact our **Customer Contact Centre**.

All information provided is correct as at 11/02/2020. However, it's possible for changes to occur within a short time. We recommend that you only rely upon a very recent certificate.

City of Newcastle

PO Box 489
NEWCASTLE 2300

Phone: (02) 4974 2000
Facsimile: (02) 4974 2222

Customer Contact Centre

Ground floor,
12 Stewart Avenue
Newcastle West NSW 2300

Office hours:

Mondays to Fridays 8.30 am to 5.00 pm

Part 1:

Advice provided under section 10.7(2)

ATTENTION: The explanatory notes appearing in italic print within Part 1 are provided to assist understanding, but do not form part of the advice provided under section 10.7(2). These notes shall be taken as being advice provided under section 10.7(5).

1. Names of relevant planning instruments and DCPs

The following environmental planning instruments, proposed environmental planning instruments and development control plans apply to the land, either in full or in part.

State Environmental Planning Policy No. 1 - Development Standards

State Environmental Planning Policy No. 21 - Caravan Parks

State Environmental Planning Policy No. 33 - Hazardous and Offensive Development

State Environmental Planning Policy No. 36 - Manufactured Home Estates

State Environmental Planning Policy No. 44 - Koala Habitat Protection

State Environmental Planning Policy No. 50 - Canal Estate Development

State Environmental Planning Policy No. 55 - Remediation of Land

State Environmental Planning Policy No. 64 - Advertising and Signage

State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development

State Environmental Planning Policy No. 70 - Affordable Housing (Revised Schemes)

State Environmental Planning Policy (Housing For Seniors or People with a Disability) 2004

State Environmental Planning Policy (Building Sustainability Index:BASIX) 2004

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Affordable Rental Housing) 2009

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Concurrences) 2018

State Environmental Planning Policy (Primary Production and Rural Development) 2019

Newcastle Local Environmental Plan 2012

Newcastle Development Control Plan 2012

2. Zoning and land use under relevant LEPs

Newcastle Local Environmental Plan 2012

Zoning: The Newcastle Local Environmental Plan 2012 identifies the land as being within the following zone(s):

Zone R2 Low Density Residential

Note: Refer to www.newcastle.nsw.gov.au or www.legislation.nsw.gov.au web site for LEP instrument and zoning maps.

The following is an extract from the zoning provisions contained in Newcastle Local Environmental Plan 2012:

Zone R2 Low Density Residential

- **Objectives of zone**

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To accommodate a diversity of housing forms that respects the amenity, heritage and character of surrounding development and the quality of the environment.

- **Permitted without consent**

Environmental protection works; Home occupations

- **Permitted with consent**

Boarding houses; Child care centres; Community facilities; Dwelling houses; Educational establishments; Emergency services facilities; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Hospitals; Neighbourhood shops; Recreation areas; Residential accommodation; Respite day care centres; Roads; Tourist and visitor accommodation

- **Prohibited**

Backpackers' accommodation; Hostels; Rural workers' dwellings; Serviced apartments; Any other development not specified in, permitted without consent or permitted with consent

Minimum land dimensions for erection of a dwelling-house: The Newcastle Local Environmental Plan 2012 contains development standards relating to minimum land dimensions for the erection of a dwelling house. Refer to clause 4.1 Minimum subdivision lot size and Part 4 Principle development standards of the Newcastle LEP 2012 for provisions relating to minimum lot sizes for residential development.

Critical habitat: The Newcastle Local Environmental Plan 2012 does not identify the land as including or comprising critical habitat.

Heritage conservation area: The land is not within a heritage conservation area under the Newcastle Local Environmental Plan 2012.

Heritage items: There are no heritage items listed in the Newcastle Local Environmental Plan 2012 situated on the land.

3. Complying development

Note Other requirements: *The advice below for all Complying Development Codes, is limited to identifying whether or not the **land**, the subject of the certificate, is land on which complying development may be carried out because of Clauses 1.17A(1)(c) to (e), (2), (3) & (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP).*

To ascertain the extent to which the complying development may or may not be carried out on the land, maps are available on City of Newcastle (CN) web pages.

General Housing Code

Complying development under the General Housing Code MAY be carried out on this land.

Rural Housing Code

Complying development under the Rural Housing Code MAY be carried out on this land.

Housing Alterations Code

Complying development under the Housing Alterations Code MAY be carried out on this land.

General Development Code

Complying development under the General Development Code MAY be carried out on this land.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code MAY be carried out on this land.

Commercial and Industrial (New Buildings and Additions) Code

Complying development under the Commercial and Industrial (New Buildings and Additions) Code MAY be carried out on this land.

Subdivision Code

Complying development under the Subdivision Code MAY be carried out on this land.

Demolition Code

Complying development under the Demolition Code MAY be carried out on this land.

Fire Safety Code

Complying development under the Fire Safety Code MAY be carried out on this land.

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The land IS NOT subject to an agreement for annual charges under section 496B of the Local Government Act 1993 for coastal protection services (within the meaning of section 553B of that Act).

5. Mine Subsidence Compensation Act 1961

The land IS WITHIN a declared Mine Subsidence District under section 20 of the Coal Mine Subsidence Compensation Act 2017. Development in a Mine Subsidence District requires approval from Subsidence Advisory NSW. Subsidence Advisory NSW provides compensation to property owners for mine subsidence damage. To be eligible for compensation, development must be constructed in accordance with Subsidence Advisory NSW approval. Subsidence Advisory NSW has set surface development guidelines for properties in Mine Subsidence Districts that specify building requirements to help prevent potential damage from coal mine subsidence.

NOTE: The above advice is provided to the extent that City of Newcastle (CN) has been notified by Subsidence Advisory NSW.

6. Road widening or realignment

NOTE: The Roads and Maritime Services (RMS) may have proposals that are not referred to in this item. For advice about affectation by RMS proposals, contact the Roads and Maritime Services, Locked Mail Bag 30 Newcastle 2300. Ph: 131 782.

The land IS NOT AFFECTED by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993.

The land IS NOT AFFECTED by any road widening or road realignment under an environmental planning instrument.

The land IS NOT AFFECTED by road widening or road realignment under a resolution of the Council.

7. Policies on hazard risk restrictions

Except as stated below, the land is not affected by a policy referred to in Item 7 of Schedule 4 of the Environmental Planning and Assessment Regulation 2000 that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Potential acid sulfate soils: Works carried out on the land must be undertaken in accordance with Clause 6.1 Acid sulfate soils of the Newcastle Local Environmental Plan 2012.

Land Contamination: Council has adopted a policy of restricting development or imposing conditions on properties affected by Land Contamination. Refer to the Newcastle Development Control Plan 2012, which may be inspected or purchased at our Customer Contact Centre.

Bush fire: Under clause 5.11 Bush fire hazard reduction of the Newcastle LEP 2012, bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent.

NOTE: The Rural Fires Act 1997 also makes provision relating to the carrying out of development on bush fire prone land.

NOTE: The absence of a policy to restrict development of the land because of the likelihood of a particular risk does not imply that the land is free from that risk. City of Newcastle (CN) considers the likelihood of natural and man-made risks when determining development applications under section 4.15 of the Environmental Planning and Assessment Act 1979. Detailed investigation carried out in conjunction with the preparation or assessment of a development application may result in CN either refusing development consent or imposing conditions of consent on the basis of risks that are not identified above.

7A. Flood related development controls information

Our information currently indicates that the property is, or contains, flood prone land as defined in the Floodplain Development Manual: the management of flood liable land, April 2005 published by the NSW Government.

Section 4.01 Flood Management of Newcastle Development Control Plan (DCP) 2012 provides guidelines with respect to all development of flood prone land. This includes development for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings. The DCP may be viewed on our website, inspected or purchased at our Customer Contact Centre.

NOTE: More detailed flood information specific to the property is available on separate flooding certificate application through our Customer Contact Centre on (02) 4974 2000

8. Land reserved for acquisition

The land is not identified for acquisition by a public authority (as referred to in section 3.15 of the Act) by any environmental planning instrument or proposed environmental planning instrument applying to the land.

9. Contributions plans

The following contribution plan/s apply to the land.

Section 7.12 Newcastle Local Infrastructure Contributions Plan 2019:

The Plan specifies section 7.12 contributions that may be imposed as a condition of development consent.

NOTE: Contributions plans are available on our website or may be inspected or purchased at our Customer Contact Centre.

9A. Biodiversity certified land

The land IS NOT biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10. Biodiversity stewardship sites

The land IS NOT land (of which CN is aware) under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A. Native vegetation clearing set asides

The land IS NOT land (of which CN is aware) that contains a set aside area under section 60ZC of the Local Land Services Act 2013.

11. Bush fire prone land

The land, either in whole or in part IS bush fire prone land for the purposes of the Environmental Planning and Assessment Act 1979.

12. Property vegetation plans

Not applicable. The Native Vegetation Act 2003 does not apply to the Newcastle local government area.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

CN HAS NOT been notified that an order has been made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. Directions under Part 3A

The land IS NOT AFFECTED by a direction by the Minister in force under section 75P (2) (c1) of the Act.

15. Site compatibility certificates and conditions for seniors housing

(a) The land IS NOT AFFECTED by a current site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004.

(b) The land IS NOT AFFECTED by any terms of kind referred to in clause 18(2) of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, that have been imposed as a condition of consent to a development application granted after 11 October, 2007 in respect of the land.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Infrastructure) 2007.

17. Site compatibility certificates and conditions for affordable rental housing

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Affordable Rental Housing) 2009.

18. Paper subdivision information

The land IS NOT AFFECTED by any development plan that applies to the land or that is proposed to be subject to a consent ballot.

19. Site verification certificates

The land IS NOT AFFECTED by a current site verification certificate (of which CN is aware) issued under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20. Loose-fill asbestos insulation

CN HAS NOT been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register of loose-fill asbestos insulation, that is required to be maintained under that Division.

21. Affected building notices and building product rectification orders

The land IS NOT AFFECTED by any affected building notice of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by any building product rectification order that has not been fully complied with, of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by an outstanding notice of intention to make a building product rectification order of which CN is aware.

An affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017.
Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Note: *There are no matters prescribed by section 59(2) of the Contaminated Land Management Act 1997 to be disclosed, however if other contamination information is held by the Council this may be provided under a section 10.7(5) certificate.*

Part 2:

Advice provided under section 10.7(5)

ATTENTION: *Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5).*

22. Outstanding Notices and Orders issued by City of Newcastle (CN).

Our records indicate that this premise IS NOT AFFECTED by a current notice or order (excluding the notices or orders mentioned in the note below).

NOTE: *CN has not inspected the premises immediately prior to the issue of this certificate. It is possible that the premises are affected by matters of which we are unaware.*

NOTE: *This Certificate does not include any advice regarding outstanding notices or orders issued under the Environmental Planning and Assessment Act 1979 or the Local Government Act 1993. To obtain advice regarding these matters, you should lodge an application for a Certificate as to Outstanding Notices and Orders (accompanied by the appropriate fee). For further information, please contact the Customer Contact Centre on (02) 4974 2000.*

23. Further consent requirements under the Newcastle Local Environmental Plan 2012.

The following provisions of the Newcastle Local Environmental Plan 2012 affect the carrying out of development on the land. These provisions are in addition to those required to be disclosed at Item 2 of this Certificate.

Refer to clause 3.1 Exempt Development of the Newcastle Local Environmental Plan 2012

Refer to clause 3.2 Complying Development of the Newcastle Local Environmental Plan 2012

Note: *The Newcastle Local Environmental 2012 may have additional provisions that affect the carry out of development. Refer to the Newcastle Local Environmental 2012 for the full affect it may have on the land or obtain profession advice for more information.*

24. Suspension of covenants.

Refer to 1.9A Suspension of covenants, agreements and instruments of the Newcastle Local Environmental Plan 2012.

25. Draft development control plans.

A draft development control plan DOES NOT APPLY to the land. The draft plans are exhibited pursuant to Part 3 of the Environmental Planning and Assessment Regulation 2000.

26. Heritage Act 1977.

The land IS NOT AFFECTED by a listing on the State Heritage Register or an Interim Heritage Order that is in force under the Heritage Act 1977.

NOTE: *The above advice is provided to the extent that CN has been notified by the Heritage Council of NSW. For up-to-date details, contact the Office of Environment and Heritage, PO Box A290, South Sydney NSW 1232 Ph: (02) 9995 5000.*

27. Listing by National Trust of Australia.

The land IS NOT AFFECTED by a listing of the National Trust of Australia (NSW).

NOTE: The above advice is provided to the extent that CN has been notified by the National Trust of Australia (NSW). For up-to-date details, contact the National Trust Ph 02 9258 0123.

28. Australian Heritage Database.

The land IS NOT AFFECTED by a listing on the Australian Heritage Database.

NOTE: The above advice is provided to the extent that CN has been notified by the Department of the Environment. For up-to-date details, contact the Department of the Environment, Heritage, King Edward Terrace, Parkes ACT 2600. Ph (02) 6274 1111.

29. Environment Protection & Biodiversity Conservation Act 1999 (Cth)

Under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999, actions which have, may have or are likely to have, a significant impact on a matter of national environmental significance may be taken only with the approval of the Commonwealth Minister for the Environment.

Approval is also required for actions that have a significant effect on the environment of Commonwealth land. These actions may be on Commonwealth land or other land.

This approval is in addition to any approvals under the (NSW) Environmental Planning and Assessment Act 1979 or other NSW legislation.

Matters of national environmental significance are:

- declared World Heritage areas
- declared Ramsar wetlands
- listed threatened species and ecological communities
- listed migratory species
- nuclear actions
- the environment of Commonwealth marine areas.

Locations within the City of Newcastle that are a declared Ramsar wetland include Kooragang Nature Reserve and Shortland Wetlands. Listed threatened species and listed migratory species are known to occur within the City of Newcastle.

30. Other matters

The land is affected by the following:

Newcastle earthquake

Earthquakes occurred in the vicinity of Newcastle on 28th December 1989 and 6 August 1994. Buildings on the land may have suffered damage as a consequence of the earthquakes. Prospective purchasers are advised to make their own enquiries as to whether the property is affected by any damage.

Local Planning Strategy

The Local Planning Strategy is the principal land use strategy for Newcastle. It was adopted by the Council on 28 July 2015. The Strategy is taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Lower Hunter Regional Strategy (2006 - 2031)

The Lower Hunter Regional Strategy has been prepared by the Department of Planning and Infrastructure. The contents of the strategy will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Newcastle City-Wide Floodplain Risk Management Study and Plan (2012)

The Newcastle City-wide Floodplain Risk Management Study and Plan addresses flood management for the City of Newcastle. The Study and Plan will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Issued without alterations or additions, 11/02/20
Authorised by

JEREMY BATH
CHIEF EXECUTIVE OFFICER



City of
Newcastle

Planning Certificate

Section 10.7, Environmental Planning and Assessment Act 1979

To: Lotsearch Pty Ltd
Level 3, 68 Alfred Street
MILSONS POINT NSW 2061

Certificate No: PL2020/00660
Fees: \$133.00
Receipt No(s): D001449713

Your Reference: LS011100

Date of Issue: 11/02/2020

The Land: Lot 131 DP 262057
30 Vista Parade Kotara NSW 2289

Advice provided on this Certificate:

Advice under section 10.7(2): see items 1 – 21
Additional advice under section 10.7(5): see Items 22 – 30

IMPORTANT: Please read this certificate carefully

This certificate contains important information about the land.

Please check for any item which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, phone our **Customer Contact Centre** on (02) 4974 2000, or come in and see us.

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All information provided is correct as at 11/02/2020. However, it's possible for changes to occur within a short time. We recommend that you only rely upon a very recent certificate.

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Mondays to Fridays 8.30 am to 5.00 pm

Part 1:

Advice provided under section 10.7(2)

ATTENTION: The explanatory notes appearing in italic print within Part 1 are provided to assist understanding, but do not form part of the advice provided under section 10.7(2). These notes shall be taken as being advice provided under section 10.7(5).

1. Names of relevant planning instruments and DCPs

The following environmental planning instruments, proposed environmental planning instruments and development control plans apply to the land, either in full or in part.

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State Environmental Planning Policy No. 21 - Caravan Parks

State Environmental Planning Policy No. 33 - Hazardous and Offensive Development

State Environmental Planning Policy No. 36 - Manufactured Home Estates

State Environmental Planning Policy No. 44 - Koala Habitat Protection

State Environmental Planning Policy No. 50 - Canal Estate Development

State Environmental Planning Policy No. 55 - Remediation of Land

State Environmental Planning Policy No. 64 - Advertising and Signage

State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development

State Environmental Planning Policy No. 70 - Affordable Housing (Revised Schemes)

State Environmental Planning Policy (Housing For Seniors or People with a Disability) 2004

State Environmental Planning Policy (Building Sustainability Index:BASIX) 2004

State Environmental Planning Policy (State Significant Precincts) 2005

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State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Concurrences) 2018

State Environmental Planning Policy (Primary Production and Rural Development) 2019

Newcastle Local Environmental Plan 2012

Newcastle Development Control Plan 2012

2. Zoning and land use under relevant LEPs

Newcastle Local Environmental Plan 2012

Zoning: The Newcastle Local Environmental Plan 2012 identifies the land as being within the following zone(s):

Zone R2 Low Density Residential

Note: Refer to www.newcastle.nsw.gov.au or www.legislation.nsw.gov.au web site for LEP instrument and zoning maps.

The following is an extract from the zoning provisions contained in Newcastle Local Environmental Plan 2012:

Zone R2 Low Density Residential

- **Objectives of zone**

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To accommodate a diversity of housing forms that respects the amenity, heritage and character of surrounding development and the quality of the environment.

- **Permitted without consent**

Environmental protection works; Home occupations

- **Permitted with consent**

Boarding houses; Child care centres; Community facilities; Dwelling houses; Educational establishments; Emergency services facilities; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Hospitals; Neighbourhood shops; Recreation areas; Residential accommodation; Respite day care centres; Roads; Tourist and visitor accommodation

- **Prohibited**

Backpackers' accommodation; Hostels; Rural workers' dwellings; Serviced apartments; Any other development not specified in, permitted without consent or permitted with consent

Minimum land dimensions for erection of a dwelling-house: The Newcastle Local Environmental Plan 2012 contains development standards relating to minimum land dimensions for the erection of a dwelling house. Refer to clause 4.1 Minimum subdivision lot size and Part 4 Principle development standards of the Newcastle LEP 2012 for provisions relating to minimum lot sizes for residential development.

Critical habitat: The Newcastle Local Environmental Plan 2012 does not identify the land as including or comprising critical habitat.

Heritage conservation area: The land is not within a heritage conservation area under the Newcastle Local Environmental Plan 2012.

Heritage items: There are no heritage items listed in the Newcastle Local Environmental Plan 2012 situated on the land.

3. Complying development

Note Other requirements: The advice below for all Complying Development Codes, is limited to identifying whether or not the **land**, the subject of the certificate, is land on which complying development may be carried out because of Clauses 1.17A(1)(c) to (e), (2), (3) & (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP).

To ascertain the extent to which the complying development may or may not be carried out on the land, maps are available on City of Newcastle (CN) web pages.

General Housing Code

Complying development under the General Housing Code MAY be carried out on this land.

Rural Housing Code

Complying development under the Rural Housing Code MAY be carried out on this land.

Housing Alterations Code

Complying development under the Housing Alterations Code MAY be carried out on this land.

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Complying development under the General Development Code MAY be carried out on this land.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code MAY be carried out on this land.

Commercial and Industrial (New Buildings and Additions) Code

Complying development under the Commercial and Industrial (New Buildings and Additions) Code MAY be carried out on this land.

Subdivision Code

Complying development under the Subdivision Code MAY be carried out on this land.

Demolition Code

Complying development under the Demolition Code MAY be carried out on this land.

Fire Safety Code

Complying development under the Fire Safety Code MAY be carried out on this land.

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The land IS NOT subject to an agreement for annual charges under section 496B of the Local Government Act 1993 for coastal protection services (within the meaning of section 553B of that Act).

5. Mine Subsidence Compensation Act 1961

The land IS WITHIN a declared Mine Subsidence District under section 20 of the Coal Mine Subsidence Compensation Act 2017. Development in a Mine Subsidence District requires approval from Subsidence Advisory NSW. Subsidence Advisory NSW provides compensation to property owners for mine subsidence damage. To be eligible for compensation, development must be constructed in accordance with Subsidence Advisory NSW approval. Subsidence Advisory NSW has set surface development guidelines for properties in Mine Subsidence Districts that specify building requirements to help prevent potential damage from coal mine subsidence.

NOTE: The above advice is provided to the extent that City of Newcastle (CN) has been notified by Subsidence Advisory NSW.

6. Road widening or realignment

NOTE: The Roads and Maritime Services (RMS) may have proposals that are not referred to in this item. For advice about affectation by RMS proposals, contact the Roads and Maritime Services, Locked Mail Bag 30 Newcastle 2300. Ph: 131 782.

The land IS NOT AFFECTED by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993.

The land IS NOT AFFECTED by any road widening or road realignment under an environmental planning instrument.

The land IS NOT AFFECTED by road widening or road realignment under a resolution of the Council.

7. Policies on hazard risk restrictions

Except as stated below, the land is not affected by a policy referred to in Item 7 of Schedule 4 of the Environmental Planning and Assessment Regulation 2000 that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Potential acid sulfate soils: Works carried out on the land must be undertaken in accordance with Clause 6.1 Acid sulfate soils of the Newcastle Local Environmental Plan 2012.

Land Contamination: Council has adopted a policy of restricting development or imposing conditions on properties affected by Land Contamination. Refer to the Newcastle Development Control Plan 2012, which may be inspected or purchased at our Customer Contact Centre.

Bush fire: Under clause 5.11 Bush fire hazard reduction of the Newcastle LEP 2012, bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent.

NOTE: The Rural Fires Act 1997 also makes provision relating to the carrying out of development on bush fire prone land.

NOTE: The absence of a policy to restrict development of the land because of the likelihood of a particular risk does not imply that the land is free from that risk. City of Newcastle (CN) considers the likelihood of natural and man-made risks when determining development applications under section 4.15 of the Environmental Planning and Assessment Act 1979. Detailed investigation carried out in conjunction with the preparation or assessment of a development application may result in CN either refusing development consent or imposing conditions of consent on the basis of risks that are not identified above.

7A. Flood related development controls information

Our information currently indicates that the property is, or contains, flood prone land as defined in the Floodplain Development Manual: the management of flood liable land, April 2005 published by the NSW Government.

Section 4.01 Flood Management of Newcastle Development Control Plan (DCP) 2012 provides guidelines with respect to all development of flood prone land. This includes development for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings. The DCP may be viewed on our website, inspected or purchased at our Customer Contact Centre.

NOTE: More detailed flood information specific to the property is available on separate flooding certificate application through our Customer Contact Centre on (02) 4974 2000

8. Land reserved for acquisition

The land is not identified for acquisition by a public authority (as referred to in section 3.15 of the Act) by any environmental planning instrument or proposed environmental planning instrument applying to the land.

9. Contributions plans

The following contribution plan/s apply to the land.

Section 7.12 Newcastle Local Infrastructure Contributions Plan 2019:

The Plan specifies section 7.12 contributions that may be imposed as a condition of development consent.

NOTE: Contributions plans are available on our website or may be inspected or purchased at our Customer Contact Centre.

9A. Biodiversity certified land

The land IS NOT biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10. Biodiversity stewardship sites

The land IS NOT land (of which CN is aware) under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A. Native vegetation clearing set asides

The land IS NOT land (of which CN is aware) that contains a set aside area under section 60ZC of the Local Land Services Act 2013.

11. Bush fire prone land

The land, either in whole or in part IS bush fire prone land for the purposes of the Environmental Planning and Assessment Act 1979.

12. Property vegetation plans

Not applicable. The Native Vegetation Act 2003 does not apply to the Newcastle local government area.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

CN HAS NOT been notified that an order has been made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. Directions under Part 3A

The land IS NOT AFFECTED by a direction by the Minister in force under section 75P (2) (c1) of the Act.

15. Site compatibility certificates and conditions for seniors housing

(a) The land IS NOT AFFECTED by a current site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004.

(b) The land IS NOT AFFECTED by any terms of kind referred to in clause 18(2) of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, that have been imposed as a condition of consent to a development application granted after 11 October, 2007 in respect of the land.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Infrastructure) 2007.

17. Site compatibility certificates and conditions for affordable rental housing

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Affordable Rental Housing) 2009.

18. Paper subdivision information

The land IS NOT AFFECTED by any development plan that applies to the land or that is proposed to be subject to a consent ballot.

19. Site verification certificates

The land IS NOT AFFECTED by a current site verification certificate (of which CN is aware) issued under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20. Loose-fill asbestos insulation

CN HAS NOT been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register of loose-fill asbestos insulation, that is required to be maintained under that Division.

21. Affected building notices and building product rectification orders

The land IS NOT AFFECTED by any affected building notice of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by any building product rectification order that has not been fully complied with, of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by an outstanding notice of intention to make a building product rectification order of which CN is aware.

An affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017.
Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Note: *There are no matters prescribed by section 59(2) of the Contaminated Land Management Act 1997 to be disclosed, however if other contamination information is held by the Council this may be provided under a section 10.7(5) certificate.*

Part 2:

Advice provided under section 10.7(5)

ATTENTION: *Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5).*

22. Outstanding Notices and Orders issued by City of Newcastle (CN).

Our records indicate that this premise IS NOT AFFECTED by a current notice or order (excluding the notices or orders mentioned in the note below).

NOTE: *CN has not inspected the premises immediately prior to the issue of this certificate. It is possible that the premises are affected by matters of which we are unaware.*

NOTE: *This Certificate does not include any advice regarding outstanding notices or orders issued under the Environmental Planning and Assessment Act 1979 or the Local Government Act 1993. To obtain advice regarding these matters, you should lodge an application for a Certificate as to Outstanding Notices and Orders (accompanied by the appropriate fee). For further information, please contact the Customer Contact Centre on (02) 4974 2000.*

23. Further consent requirements under the Newcastle Local Environmental Plan 2012.

The following provisions of the Newcastle Local Environmental Plan 2012 affect the carrying out of development on the land. These provisions are in addition to those required to be disclosed at Item 2 of this Certificate.

Refer to clause 3.1 Exempt Development of the Newcastle Local Environmental Plan 2012

Refer to clause 3.2 Complying Development of the Newcastle Local Environmental Plan 2012

Note: *The Newcastle Local Environmental 2012 may have additional provisions that affect the carry out of development. Refer to the Newcastle Local Environmental 2012 for the full affect it may have on the land or obtain profession advice for more information.*

24. Suspension of covenants.

Refer to 1.9A Suspension of covenants, agreements and instruments of the Newcastle Local Environmental Plan 2012.

25. Draft development control plans.

A draft development control plan DOES NOT APPLY to the land. The draft plans are exhibited pursuant to Part 3 of the Environmental Planning and Assessment Regulation 2000.

26. Heritage Act 1977.

The land IS NOT AFFECTED by a listing on the State Heritage Register or an Interim Heritage Order that is in force under the Heritage Act 1977.

NOTE: *The above advice is provided to the extent that CN has been notified by the Heritage Council of NSW. For up-to-date details, contact the Office of Environment and Heritage, PO Box A290, South Sydney NSW 1232 Ph: (02) 9995 5000.*

27. Listing by National Trust of Australia.

The land IS NOT AFFECTED by a listing of the National Trust of Australia (NSW).

NOTE: The above advice is provided to the extent that CN has been notified by the National Trust of Australia (NSW). For up-to-date details, contact the National Trust Ph 02 9258 0123.

28. Australian Heritage Database.

The land IS NOT AFFECTED by a listing on the Australian Heritage Database.

NOTE: The above advice is provided to the extent that CN has been notified by the Department of the Environment. For up-to-date details, contact the Department of the Environment, Heritage, King Edward Terrace, Parkes ACT 2600. Ph (02) 6274 1111.

29. Environment Protection & Biodiversity Conservation Act 1999 (Cth)

Under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999, actions which have, may have or are likely to have, a significant impact on a matter of national environmental significance may be taken only with the approval of the Commonwealth Minister for the Environment.

Approval is also required for actions that have a significant effect on the environment of Commonwealth land. These actions may be on Commonwealth land or other land.

This approval is in addition to any approvals under the (NSW) Environmental Planning and Assessment Act 1979 or other NSW legislation.

Matters of national environmental significance are:

- declared World Heritage areas
- declared Ramsar wetlands
- listed threatened species and ecological communities
- listed migratory species
- nuclear actions
- the environment of Commonwealth marine areas.

Locations within the City of Newcastle that are a declared Ramsar wetland include Kooragang Nature Reserve and Shortland Wetlands. Listed threatened species and listed migratory species are known to occur within the City of Newcastle.

30. Other matters

The land is affected by the following:

Newcastle earthquake

Earthquakes occurred in the vicinity of Newcastle on 28th December 1989 and 6 August 1994. Buildings on the land may have suffered damage as a consequence of the earthquakes. Prospective purchasers are advised to make their own enquiries as to whether the property is affected by any damage.

Local Planning Strategy

The Local Planning Strategy is the principal land use strategy for Newcastle. It was adopted by the Council on 28 July 2015. The Strategy is taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Lower Hunter Regional Strategy (2006 - 2031)

The Lower Hunter Regional Strategy has been prepared by the Department of Planning and Infrastructure. The contents of the strategy will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Newcastle City-Wide Floodplain Risk Management Study and Plan (2012)

The Newcastle City-wide Floodplain Risk Management Study and Plan addresses flood management for the City of Newcastle. The Study and Plan will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Issued without alterations or additions, 11/02/20
Authorised by

JEREMY BATH
CHIEF EXECUTIVE OFFICER

Annex C



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

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

Summary of Owners Report

Address: - 30 Vista Parade, Kotara

Description: - Lot 12 D.P. 560852

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) & Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
14.08.1929 (1929 to 1956)	The Scottish Australian Mining Company Limited	Vol 4312 Fol 88 Now Vol 6102 Fol 167
09.07.1956 (1956 to 1964)	Hunter District Industries Pty Limited	Vol 6102 Fol 167 Now Vol 9881 Fol 9
14.10.1964 (1964 to 1967)	Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 9881 Fol 9 Now Vol 10684 Fol 82
23.11.1967 (1967 to 1970)	William Henry Hudson (Master Builder)	Vol 10684 Fol 82
02.03.1970 (1970 to 1973)	W.H. Hudson Developments Pty Limited	Vol 10684 Fol 82 Now Vol 12313 Fol 173
20.11.1973 (1973 to date)	# Trustees of the Roman Catholic Church for the Diocese of Maitland	Vol 12313 Fol 173 Now 12/560852

Denotes current registered proprietor

Leases: - NIL

Easements: -

- 11.11.1982 (S 846861 & D.P. 616629) Easement for Stormwater Channel and Sewermain

***Rights to Mine**

- 14.10.1964 (J 834456) Subject to Rights to mine

Yours Sincerely
Mark Groll
13 February 2020



Plan Form 1

WARNING: OVERSIZING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

<p>Council Clerk's Certificate</p> <p>I hereby certify that—</p> <p>(a) the requirements of the Local Government Act, 1979 have been complied with in relation to the registration of this plan;</p> <p>(b) the requirements of section 340 of the Metropolitan Water, Sewerage, and Drainage Act, 1954, as amended, (Hunter District Water, Sewerage, and Drainage Act 1956, as amended)</p> <p>have been complied with by the applicant in relation to the proposed</p> <p>creation of a "new road", "subdivision" or "consolidation" of land.</p> <p>Subdivision No.</p> <p>Date</p> <p>(Signature) Council Clerk</p> <p>*This part of certificate to be deleted where the application is only for a consolidation of land or the creation of a new road or where the land to be subdivided is wholly outside the area of operation of the Metropolitan Water, Sewerage and Drainage Act, 1954, as amended.</p>	<p>Surveyor's Certificate</p> <p>I, ERIC ARTHUR ARMSTRONG</p> <p>of H.W.B. DX7856 NEWCASTLE</p> <p>as a surveyor registered under the Surveyors Act, 1920, do hereby certify that the foregoing is a true and correct copy of the plan as compiled from D.P. 560852</p> <p>is accurate and true, and was compiled from the original plan as deposited with me on 12 TH FEBRUARY 1961</p> <p>Signature Surveyor registered under Surveyors Act, 1920 in accordance with the Act of 1920. *Signed on either (1) or (2). *Signature of Surveyor</p>	<p>PLAN OF PROPOSED EASEMENT FOR STORMWATER CHANNEL & SEWERMAIN, 7 WIDE WITHIN LOTS 12 & 13 D.P. 560852.</p> <p>Registered: 3.7.1981</p> <p>C.A.S.</p> <p>Tile System: TORRENS</p> <p>Purpose: EASEMENT</p> <p>Ref. Map: U6950-44</p> <p>Last Plan: D.P. 560852</p> <p>City: NEWCASTLE Locality: KOTARA</p> <p>Parish: NEWCASTLE County: NORTHUMBERLAND</p> <p>Reduction Ratio 1: 500 Lengths are in metres.</p>
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Signatures, seals and statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

THE HUNTER DISTRICT WATER BOARD

THROSBY CREEK STORMWATER CHANNEL

(A) PROPOSED EMT. FOR STORMWATER CHANNEL & SEWERMAIN 7 WIDE, TOTAL AREA = 625.7m²

Plan Drawing only to appear in this space.

Plan Drawing only to appear in this space.



I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

13th July, 1981

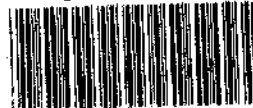
Crown Grant Vol. 109 Fol. 41
Prior Title Vol. 7447 Fol. 179



PROPERTY ACT, 1900, as amended.



EH



29821009

Vol. 5001 Fol. 8
1st Edition issued 4-12-1964

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

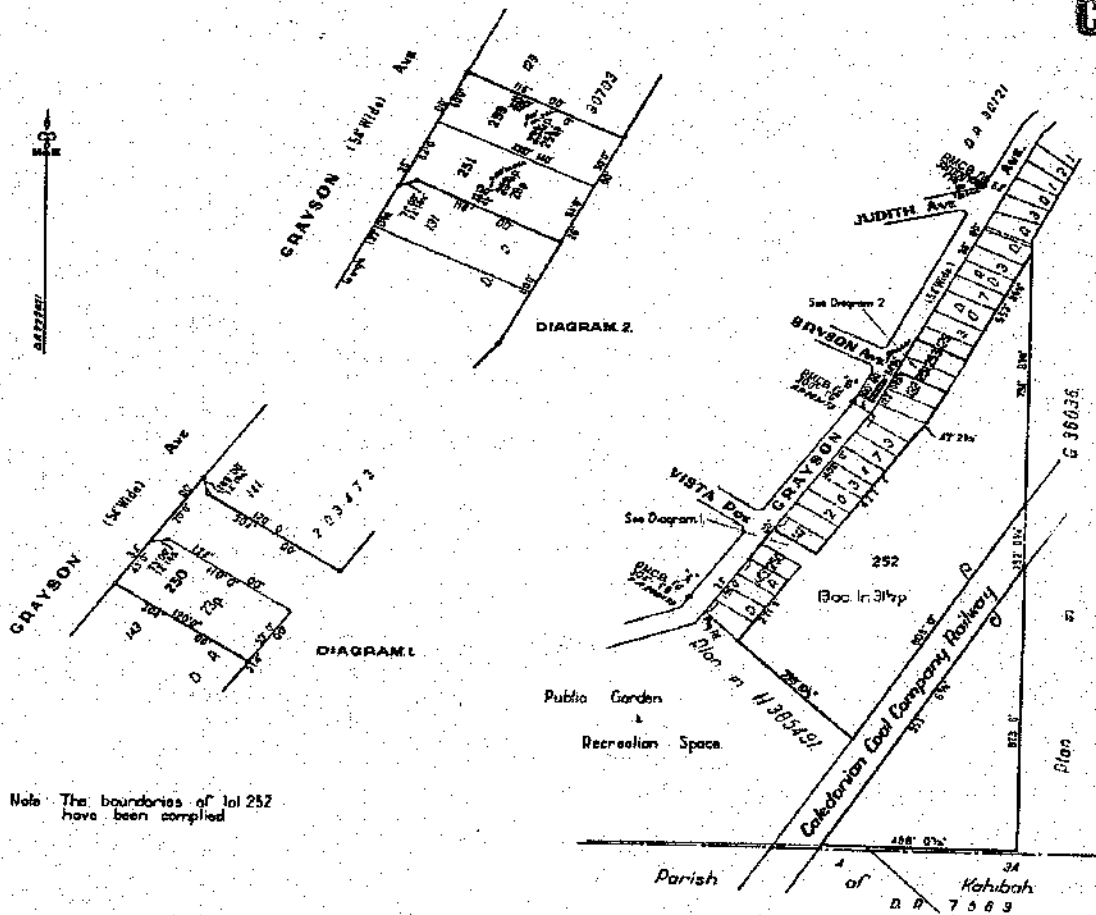
Witness *J. E. Cohen*

Lawton
Registrar General.



PLAN SHOWING LOCATION OF LAND

CANCELLED



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 252 in Deposited Plan 222071 at Kotara in the City of Newcastle Parish of Newcastle and County of Northumberland, excepting thereout all mines seams and beds of coal and other minerals.

FIRST SCHEDULE (continued overleaf)

~~HUNTER DISTRICT INDUSTRIES PTY. LIMITED.~~

Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.


J. Watson
Registrar General.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
Members of the Roman Catholic Church for the Diocese of Montreal	Transfer	J834456	14-10-1964	15-1-1965	Joubert
This deed is cancelled as to the whole Now, conveyance of the land issued on 14-10-1964 for lots in Defective Plan No. J834456 as follows: Lots 42 Vol. 6634 Fol. 8 221 respectively.					
 Joubert REGISTRAR GENERAL					

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION	
	NUMBER	DATE					
Covenant	J834456		Created by transfer N° J834456	15-1-1965	Joubert		
Transfer	J834456	14-10-1964	Covenant (right to sit down the surface and sub-surface) affecting the land within described in instrument N° J834456. The interest of the Council of the City of Montreal in the new road shown on D.P. 234597	15-1-1965	Joubert		
				8-11-67	Joubert		

1834456
 reading room
 of the Registrar General
 sent
 D.P. 234597
 69/10/67
 Reg. filed on
 D.P. 234597
 1/10/67
 made

8



10684



CERTIFICATE OF TITLE
PROPERTY ACT, 1900, as amended.

NEW SOUTH WALES

Crown Grant Vol. 109 Fol. 41
Prior Title Vol. 9881 Fol. 9

Vol. 10684 Fol. 82



CANCELLED
HB Edition issued 17-11-1967

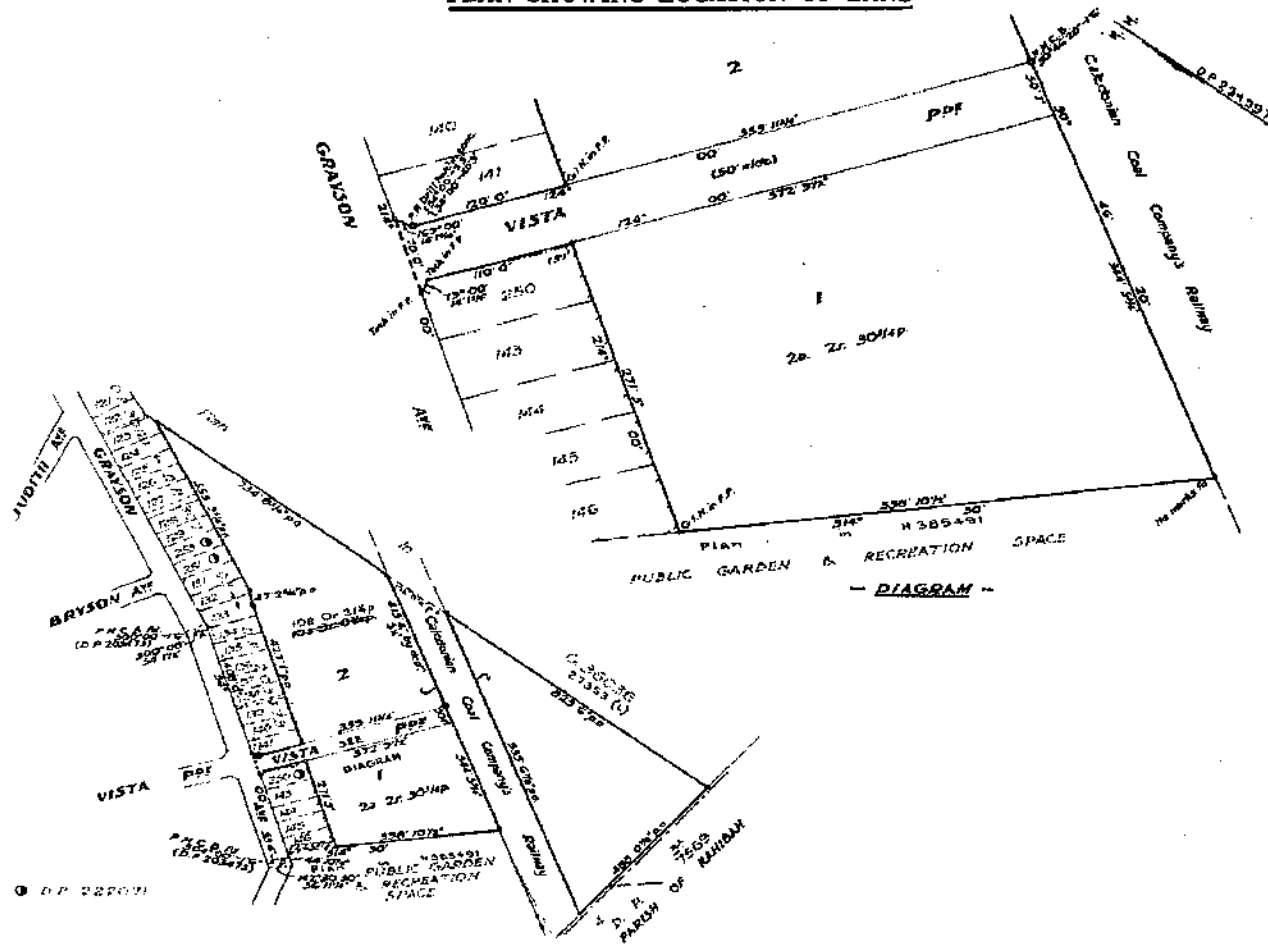
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness *M. S. Allen*

J. J. J. J.
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 234597 at Kotara, in the City of Newcastle, Parish of Newcastle and County of Northumberland. EXCEPTING THEREOUT all mines, seams and beds of coal and other minerals.

FIRST SCHEDULE (continued overleaf)

~~TRUSTEES OF THE ROMAN CATHOLIC CHURCH FOR THE DIOCESE OF MAITLAND.~~

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine all coal and other minerals affecting the land above described as set out in Transfer No. J834456.
3. Covenant created by Transfer No. J834456.

J. J. J. J.
Registrar General.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

William Henry Hudson of New Lambton Heights, Master Builder
10.11. Hudson, Seaforth Road, Pty. Limited
 This Deed is cancelled as to part and New Certificate of Title Vol. 11540 Fol 202-212
 Issued on 10-3-1971 for Lots 31-41
 This Deed is cancelled as to part and New Certificate of Title Vol. 11540 Fol 213-240
 Issued on 10-3-1971 for Lots 62-89
 This Deed is cancelled as to part and New Certificate of Title Vol. 11634 Fol 1646.
 Issued on 28-7-1971 for Lots 90 to 135

NATURE	INSTRUMENT		ENTERED	Signature of Registrar-General
	NUMBER	DATE		
Transfer	16897266	23-11-1967	7-12-1967	<i>Janatson</i>
Transfer	1776523	2-3-1970	14-1970	<i>Janatson</i>
Deposited Plan	240273		25-3-1971	<i>Janatson</i>
Deposited Plan	240274		25-3-1971	<i>Janatson</i>
Deposited Plan	241072		3-8-1971	<i>Janatson</i>

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION	
	NUMBER	DATE					
			The interest of the Council of the City of Newcastle in the new road shown on D.P. 240273.	22-12-1970	<i>Janatson</i>		
	M119045		Interests created pursuant to Section 88B Conveyancing Act, 1919, by the registration of Deposited Plan 240273.	22-12-1970	<i>Janatson</i>		
			The interest of the Council of the City of Newcastle in new roads and addition to existing road shown on D.P. 241072.				
			Interests created pursuant to Section 88B Conveyancing Act, 1919, by the registration of Deposited Plan 241072.				
			The residue of land in this certificate of title comprises road Entered 3rd August 1971 <i>Janatson</i> REGISTRAR GENERAL				

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

NEW SOUTH WALES

STATE OF TITLE
PROPERTY ACT, 1900, as amended.



11634046

Vol. **11634** Fol. **46**

Edition issued 28-7-1971

Crown Grant Vol. 109 Fol.41

Prior Title Vol.10684 Fol.82



I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

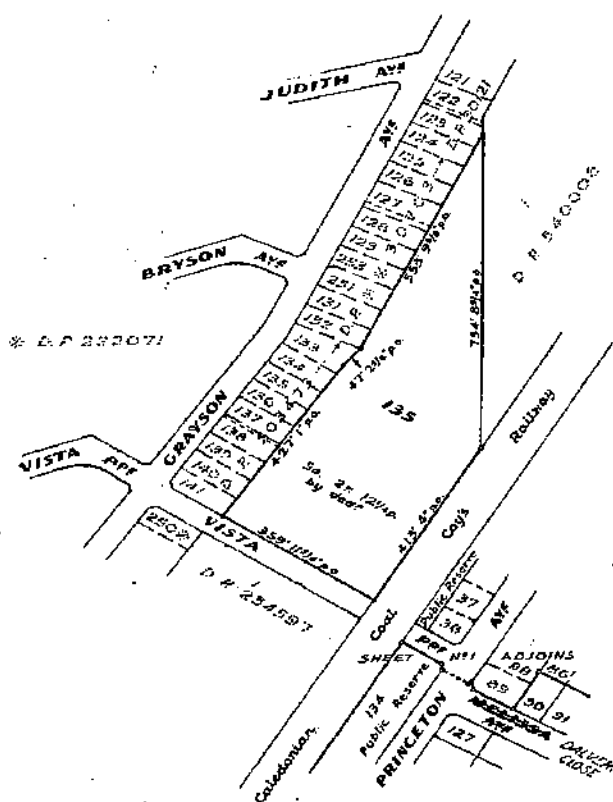
Witness

Barnes

Jawatson
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 135 in Deposited Plan 241072 at Adamstown in the City of Newcastle Parish of Newcastle and County of Northumberland. EXCEPTING THEREOUT all mines, seams and beds of coal and other minerals excepted by Transfer No.J834456.

FIRST SCHEDULE

W.H. HUDSON DEVELOPMENTS PTY. LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine as set out in Transfer No.J834456.
3. Covenant created by Transfer No.J834456.

Jawatson
Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TILES OFFICE.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

This deed is cancelled as to the whole
 New Certificates of Title have issued on 28-12-1973
 for lots in Deposited Plan No. 56852 as follows:
 Lots 1 to 13 Vol. 12313 Fol. 172 to 174 respectively.

J. J. J. J.
 REGISTRAR GENERAL



INSTRUMENT

NATURE

NUMBER

DATE

ENTERED

Signature of Registrar-General

DP560352
 CT 20-7-73
 N423282
 1st 11-12-73
 N.C.

SECOND SCHEDULE (continued)

INSTRUMENT

NATURE

NUMBER

DATE

PARTICULARS

ENTERED

Signature of Registrar-General

CANCELLATION

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED



CIFICATE OF TITLE



12313173

NEW SOUTH WALES

AL PROPERTY ACT, 1900

Vol. **12313** Fol. **173**

Crown Grant Vol. 109 Fol.41

Prior Title Vol.11634 Fol.46



Edition issued 28-12-1973.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Jawatson
Registrar General.

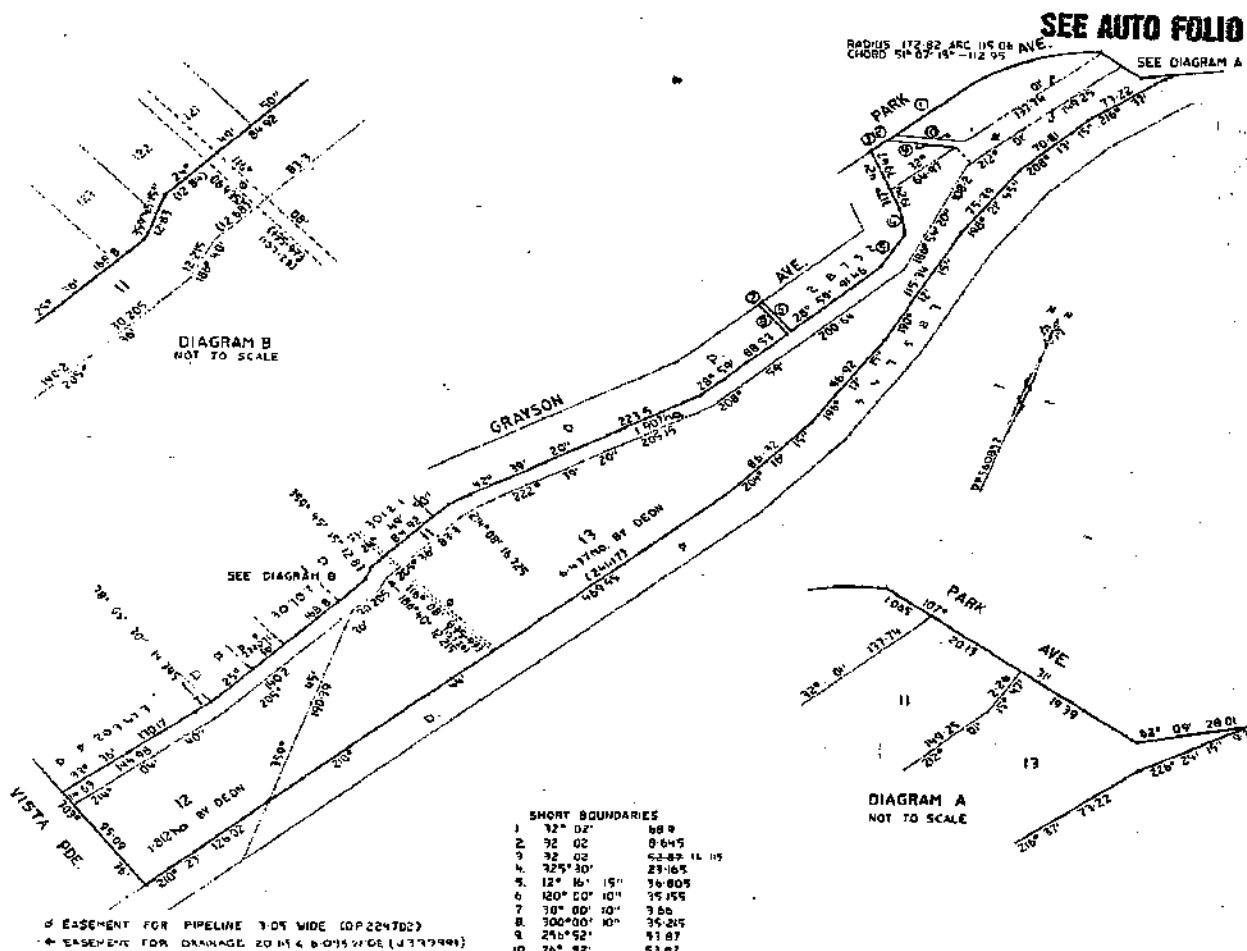


CANCELLED



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 12 in Deposited Plan 560852 in the City of Newcastle Parish of Newcastle and County of Northumberland. EXCEPTING THEREOUT all mines seams and beds of coal and other minerals excepted by Transfer No.J834456.

FIRST SCHEDULE

~~W.H. HUDSON DEVELOPMENTS PTY. LIMITED.~~

SECOND SCHEDULE

GRY

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights to mine as set out in Transfer No.J834456.
3. Covenant created by Transfer No.J834456.

XE
CV

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

Vol. 12313 Fol. 173

[illegible]

A

[illegible]

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED



LAND
REGISTRY
SERVICES

Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

13/2/2020 7:09AM

FOLIO: 12/560852

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 12313 FOL 173

Recorded -----	Number -----	Type of Instrument -----	C.T. Issue -----
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
3/8/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
1/10/1996		AMENDMENT: LOCAL GOVT AREA	
4/6/2014	AI631395	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

kotara vista parade

PRINTED ON 13/2/2020



FOLIO: 12/560852

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
13/2/2020	7:08 AM	-	-

VOL 12313 FOL 173 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 12 IN DEPOSITED PLAN 560852
LOCAL GOVERNMENT AREA NEWCASTLE
PARISH OF NEWCASTLE COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP560852

FIRST SCHEDULE

THE TRUSTEES FOR THE ROMAN CATHOLIC CHURCH OF THE DIOCESE
OF MAITLAND (T N844873)

SECOND SCHEDULE (4 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 J834456 LAND EXCLUDES MINERALS AND IS SUBJECT TO RIGHTS TO
MINE
- 3 J834456 COVENANT
- * 4 S846861 EASEMENT FOR STORMWATER CHANNEL AND SEWERMAIN
AFFECTING THE PART OF THE LAND WITHIN DESCRIBED SHOWN
SO BURDENED IN DP616629

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Annex D



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 11 Feb 2020 12:43:12

Reference: LS011100 EP

Address: 30 Vista Parade, Kotara, NSW 2289

Disclaimer:

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

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	28/10/2019	28/10/2019	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	15/01/2020	14/01/2020	Monthly	1000	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	29/01/2020	29/01/2020	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	07/01/2020	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	05/11/2019	07/03/2017	Quarterly	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	05/02/2020	13/07/2012	Quarterly	1000	0	0	2
EPA PFAS Investigation Program	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	2000	0	0	0
Defence PFAS Investigation Program	Department of Defence	18/12/2019	18/12/2019	Monthly	2000	0	0	0
Defence PFAS Management Program	Department of Defence	18/12/2019	18/12/2019	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	20/01/2020	12/12/2019	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	21/01/2020	21/01/2020	Monthly	2000	0	0	1
EPA Other Sites with Contamination Issues	Environment Protection Authority	04/02/2020	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	1000	0	1	3
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	1000	3	3	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	3	3
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	4	4
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	6
Points of Interest	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	1	2	39
Tanks (Areas)	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	0	0	1
Tanks (Points)	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	0	0	1
Major Easements	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	0	0	8
State Forest	NSW Department of Finance, Services & Innovation	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	21/01/2020	30/09/2019	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	2	2	2
Botany Groundwater Management Zones	NSW Department of Planning, Industry and Environment	15/03/2018	01/10/2005	As required	1000	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	23

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Geological Units 1:250,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	2	-	3
Geological Structures 1:250,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	0	-	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	1	1	1
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1000	3	-	6
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	03/02/2020	06/12/2019	Weekly	500	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	NSW Department of Finance, Services & Innovation	17/10/2019	17/10/2019	Quarterly	1000	1	1	2
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	03/02/2020	07/12/2018	Weekly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	03/02/2020	24/01/2020	Weekly	1000	1	4	51
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	04/02/2020	31/07/2018	Quarterly	1000	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	04/02/2020	20/11/2019	Quarterly	1000	0	0	0
State Heritage Register - Curtilages	NSW Office of Environment & Heritage	08/11/2019	09/11/2018	Quarterly	1000	0	0	0
Environmental Planning Instrument Heritage	NSW Department of Planning, Industry and Environment	03/02/2020	17/01/2020	Weekly	1000	0	0	2
Bush Fire Prone Land	NSW Rural Fire Service	04/02/2020	14/12/2019	Quarterly	1000	2	3	4
Lower Hunter and Central Coast Regional Vegetation Survey	NSW Office of Environment & Heritage	28/02/2015	16/11/2009	As required	1000	2	2	6
Ramsar Wetlands of Australia	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	3	3	4
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	5	5	10
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	05/02/2020	05/02/2020	Weekly	10000	-	-	-

Site Diagram

30 Vista Parade, Kotara, NSW 2289



Legend <div><div></div> Site Boundary</div> <div><div></div> Internal Parcel Boundaries</div>	Total Area: 29348m ² Total Perimeter: 829m	
	<small>Disclaimers:</small> Measurements are approximate only and may have been simplified or smaller lengths removed for readability. Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.	
	<small>Scale:</small> 0 25 50 Meters	<small>Data Sources:</small> Aerial Imagery: © Aerometrex Pty Ltd
	<small>Coordinate System:</small> GDA 1994 MGA Zone 56	<small>Date:</small> 12 February 2020

Contaminated Land

30 Vista Parade, Kotara, NSW 2289

List of NSW contaminated sites notified to EPA

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

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist (m)	Direction
N/A	No records in buffer								

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

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

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

Contaminated Land

30 Vista Parade, Kotara, NSW 2289

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

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

Contaminated Land Records of Notice Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit

<http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm>

Former Gasworks

Former Gasworks within the dataset buffer:

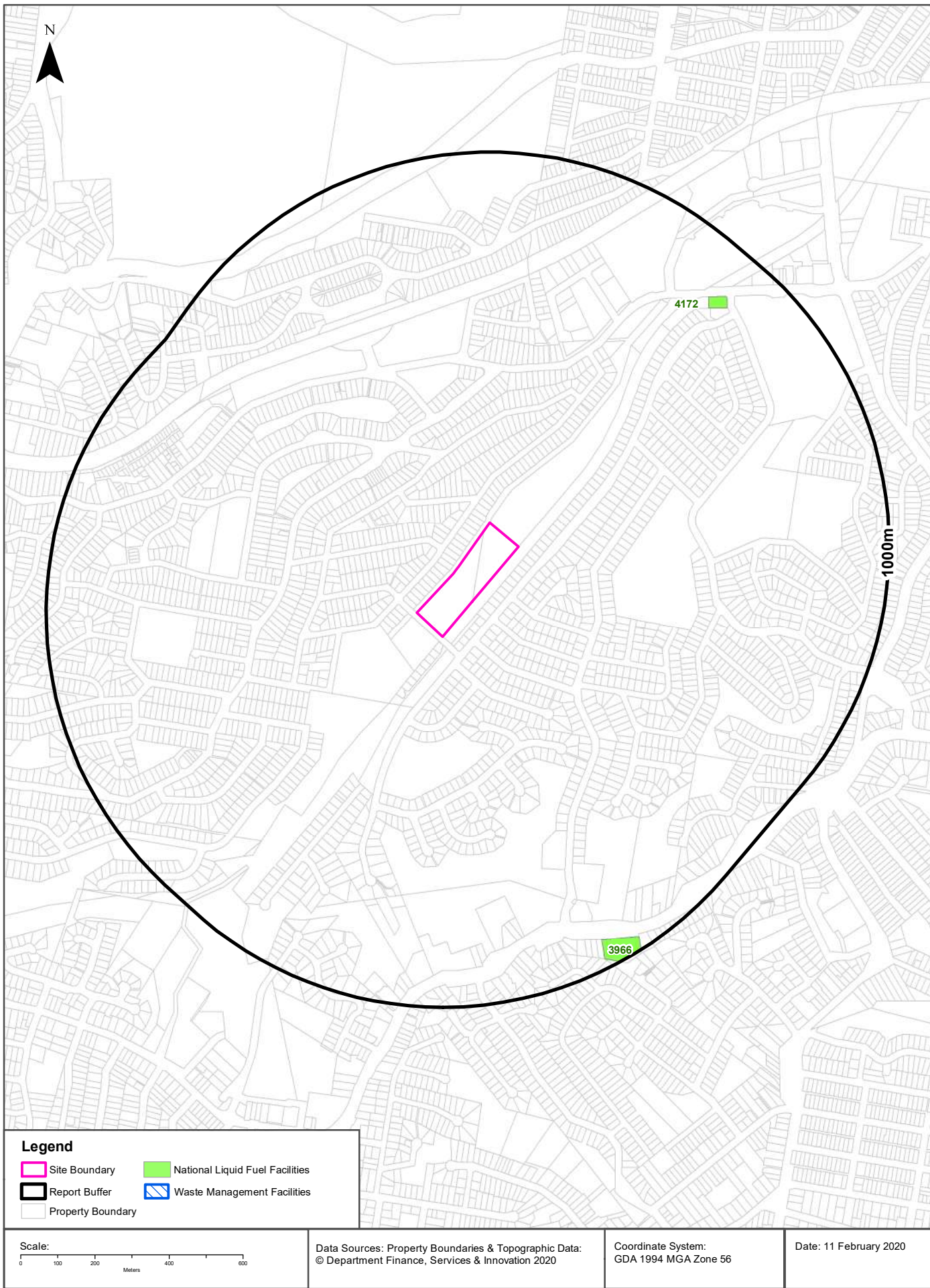
Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Waste Management & Liquid Fuel Facilities

30 Vista Parade, Kotara, NSW 2289



Waste Management & Liquid Fuel Facilities

30 Vista Parade, Kotara, NSW 2289

National Waste Management Site Database

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

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

Waste Management Facilities Data Source: Geoscience Australia

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National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
4172	Shell	Coles Express Kotara	93 Park Avenue	Kotara	Petrol Station	Operational		25/07/2011	Premise Match	823m	North East
3966	7-Eleven Pty Ltd	Mobil Charlestown	317 Pacific Highway	Highfields	Petrol Station	Operational		13/07/2012	Premise Match	922m	South East

National Liquid Fuel Facilities Data Source: Geoscience Australia

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PFAS Investigation & Management Programs

30 Vista Parade, Kotara, NSW 2289

EPA PFAS Investigation Program

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

Id	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

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

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

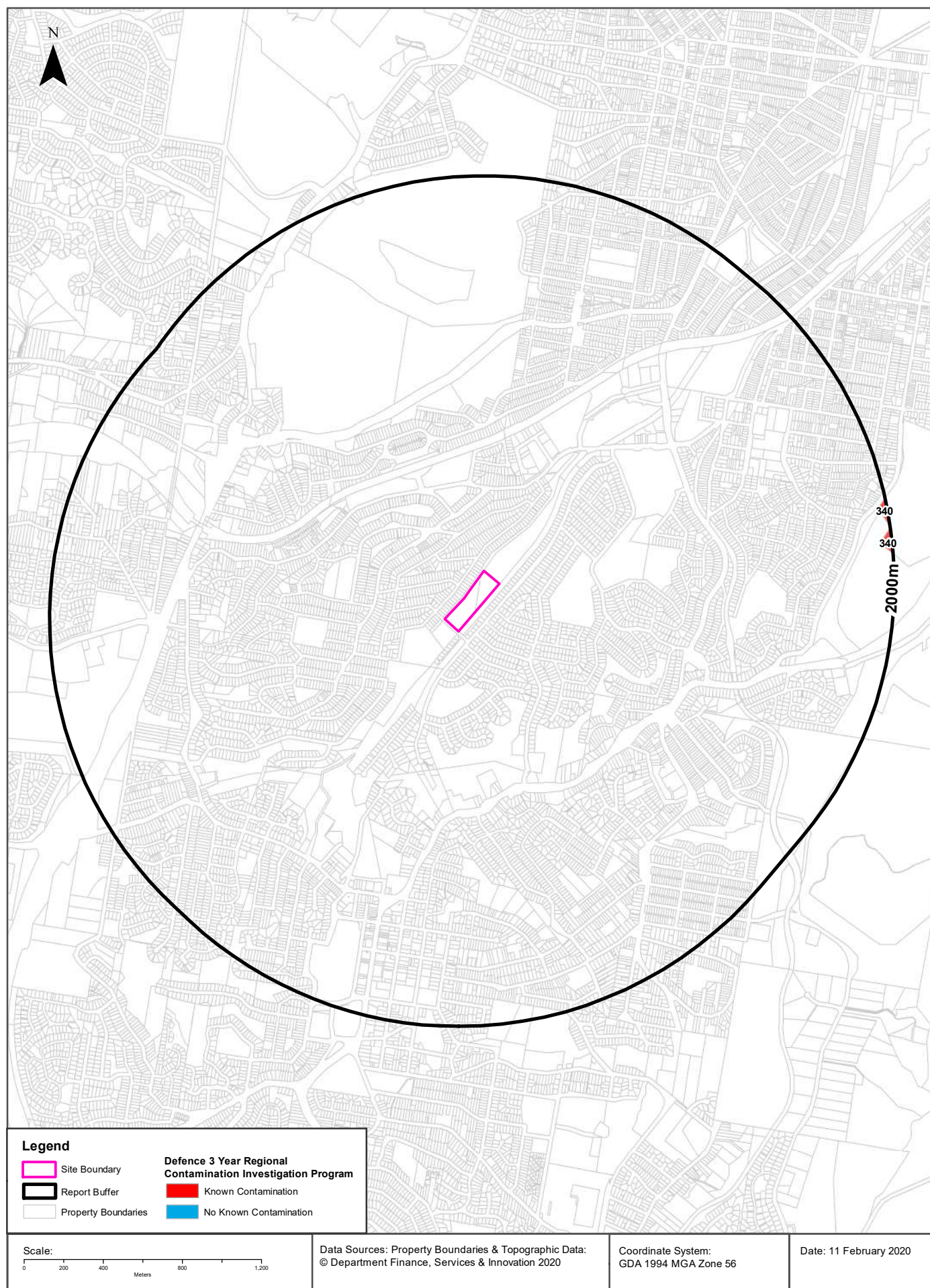
Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence 3 Year Regional Contamination Investigation Program

30 Vista Parade, Kotara, NSW 2289



Defence Sites

30 Vista Parade, Kotara, NSW 2289

Defence 3 Year Regional Contamination Investigation Program

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

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
340	Adamstown MUD	Adamstown, New South Wales	YES	Premise Match	1942m	East

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

EPA Other Sites with Contamination Issues

30 Vista Parade, Kotara, NSW 2289

EPA Other Sites with Contamination Issues

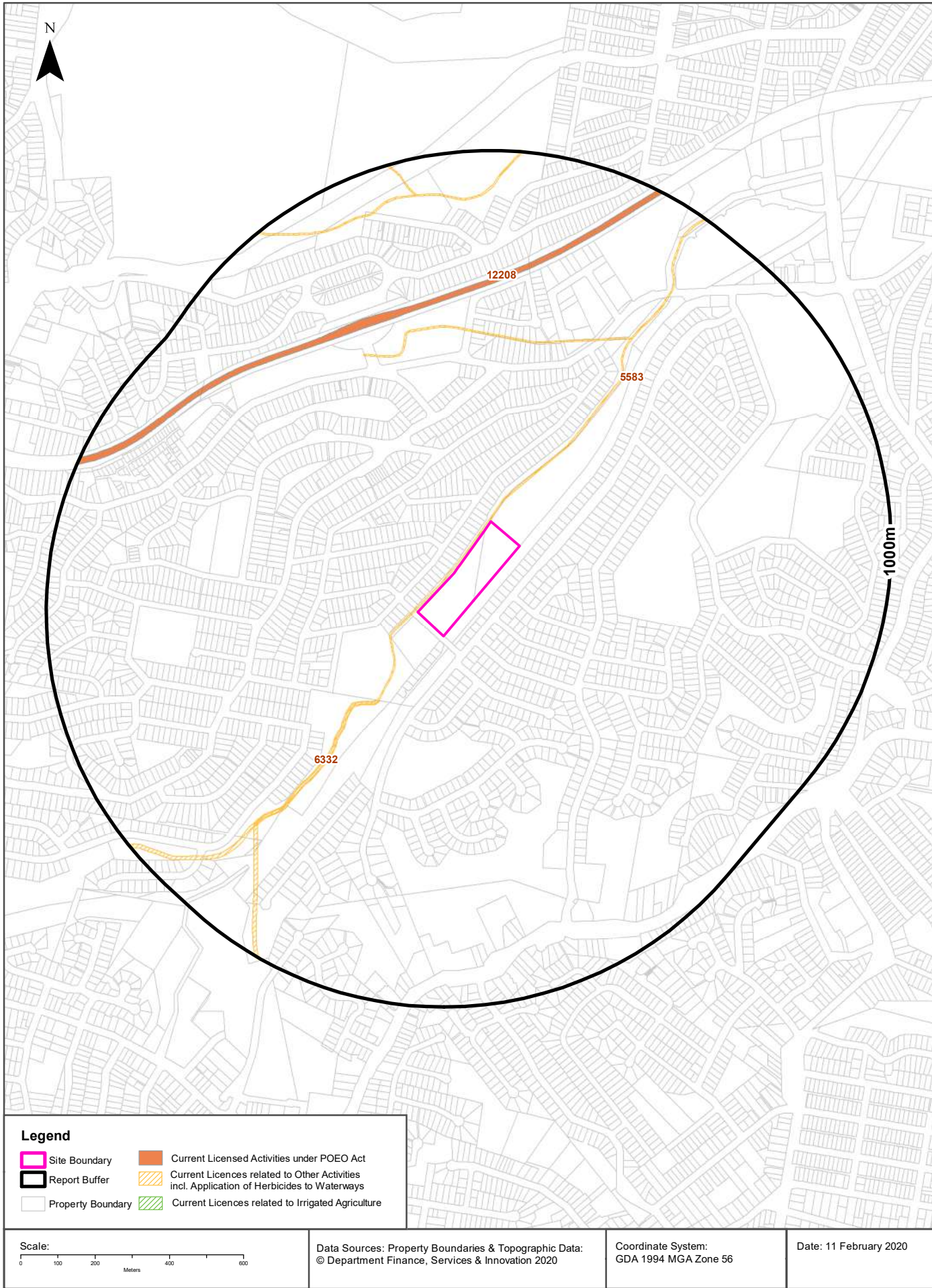
This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

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

Sites within the dataset buffer:

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

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



EPA Activities

30 Vista Parade, Kotara, NSW 2289

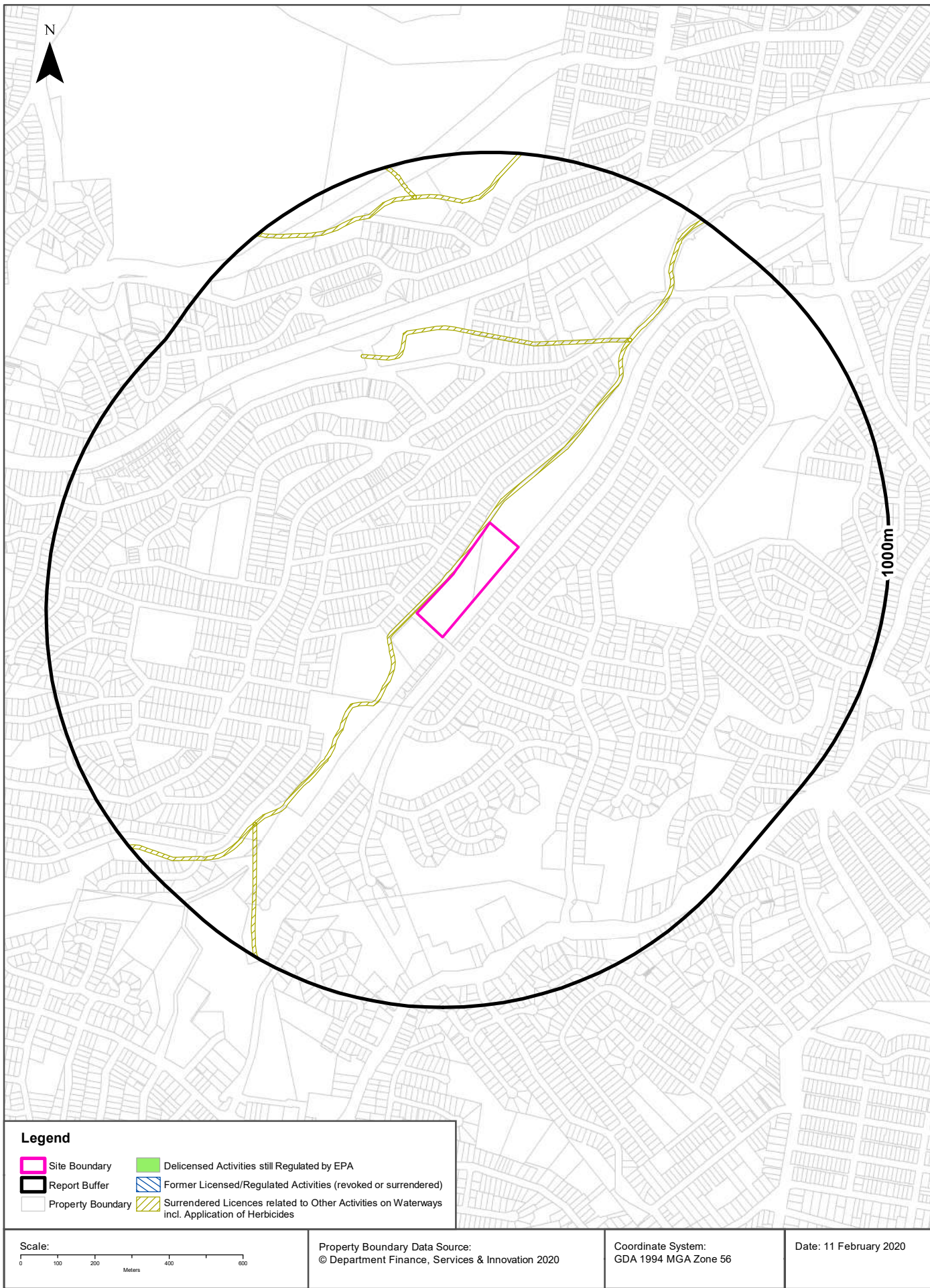
Licensed Activities under the POEO Act 1997

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

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
5583	NEWCASTLE CITY COUNCIL	WATERWAYS OF NEWCASTLE CITY	-	NEWCASTLE	Other activities	Network of Features	3m	West
6332	LAKE MACQUARIE CITY COUNCIL	-	-	SPEERS POINT	Other activities	Network of Features	246m	South West
12208	SYDNEY TRAINS		PO BOX K349, HAYMARKET, NSW 1238		Railway systems activities	Network of Features	605m	North West

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority



EPA Activities

30 Vista Parade, Kotara, NSW 2289

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

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

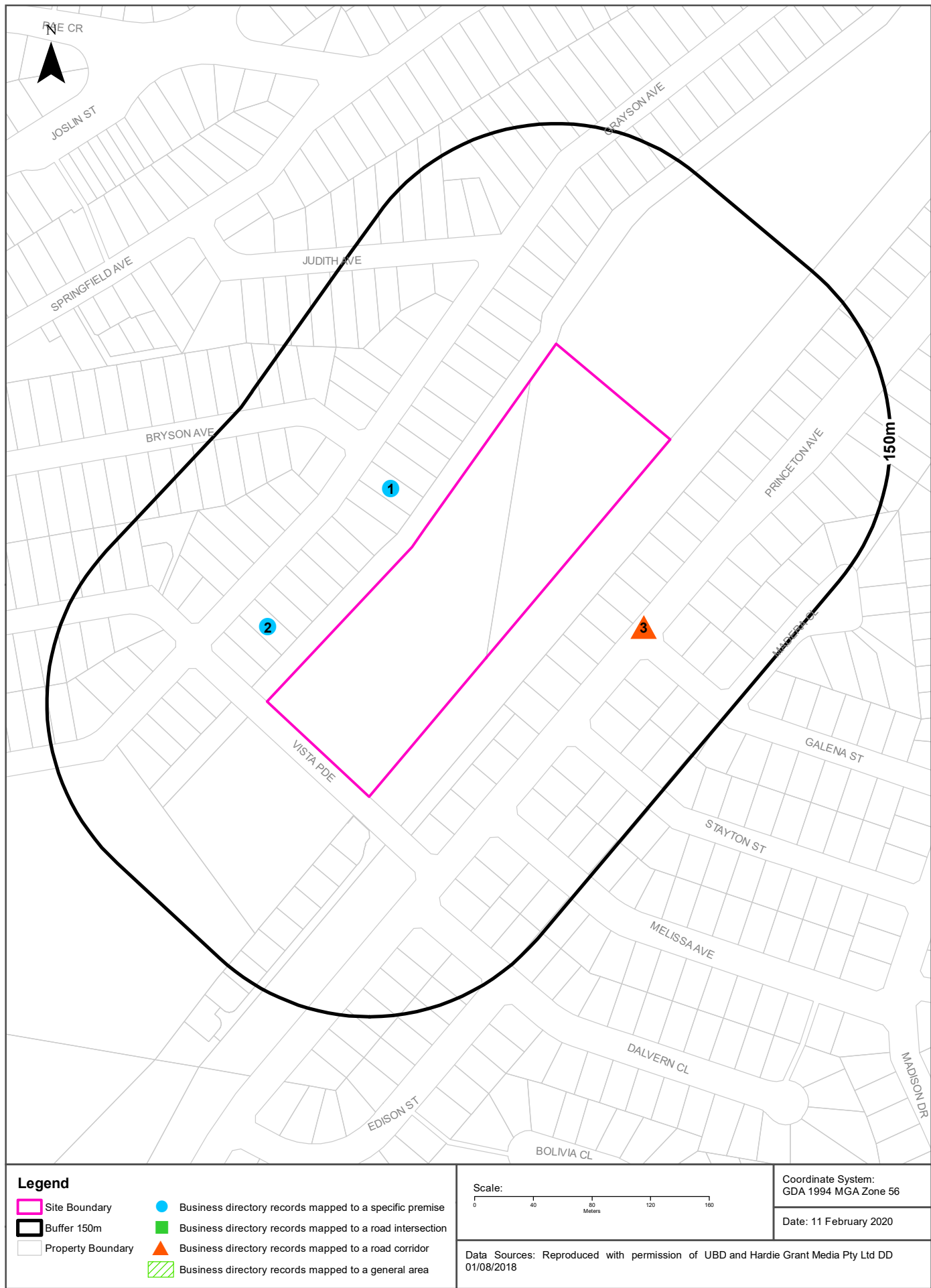
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite

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

Historical Business Directories

30 Vista Parade, Kotara, NSW 2289



Historical Business Directories

30 Vista Parade, Kotara, NSW 2289

Business Directory Records 1950-1991 Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	BUILDERS &/OR BUILDING CONTRACTORS (M.M.B.A.)	Beveridge, K., 91 Grayson Ave., Kotara South, Newcastle	625327	1970	Premise Match	13m	North West
2	PAINTERS, PAPERHANGERS DECORATORS	Brown, T., 107 Grayson Ave., Kotara, Newcastle	632763	1970	Premise Match	14m	West
	SIGNWRITERS	Brown, T., 107 Grayson Ave., Kotara, Newcastle	634288	1970	Premise Match	14m	West

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Business Directory Records 1950-1991

Road or Area Matches

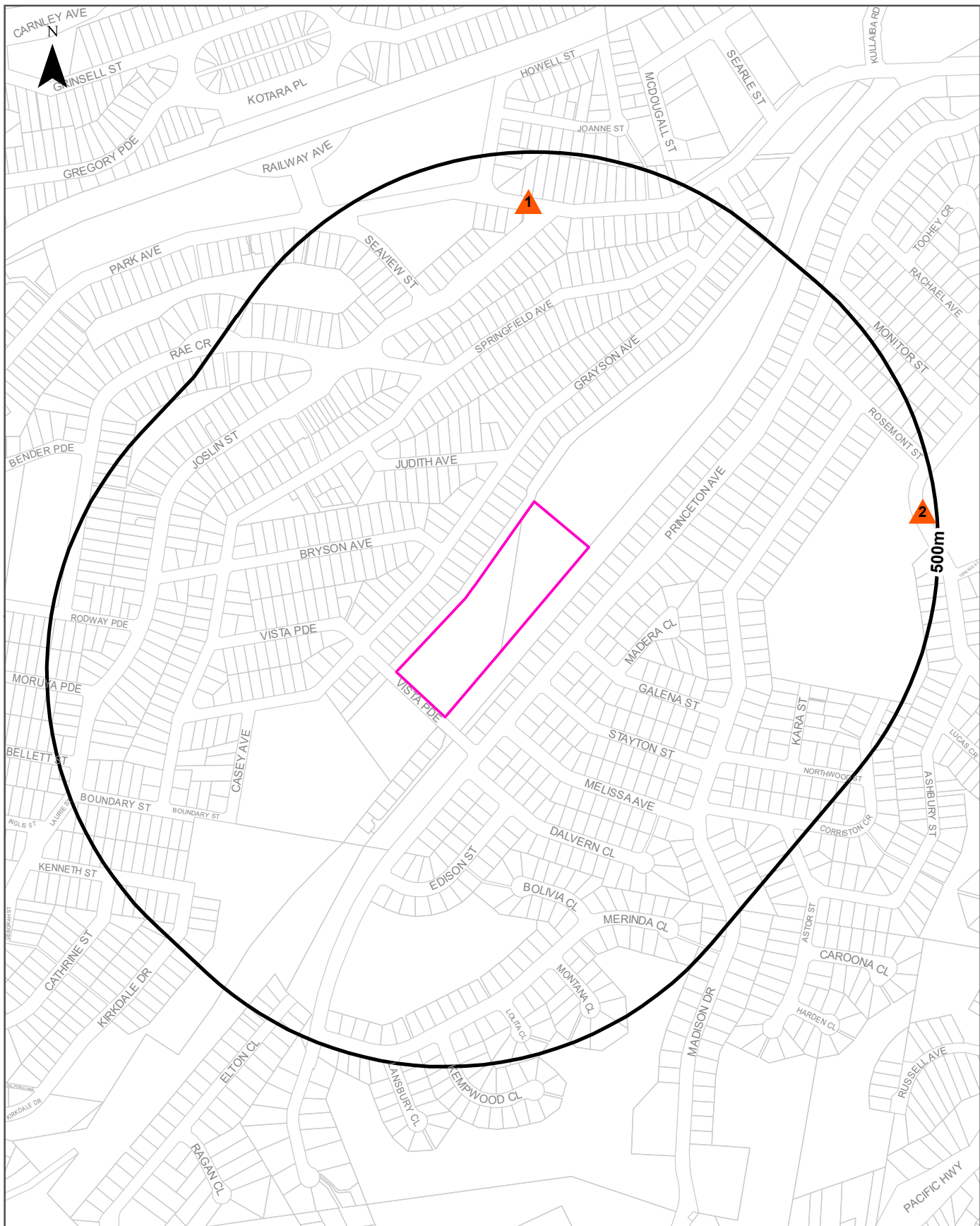
Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
3	SQUASH COURTS.	Belair Squash Centre., Princeton Av Kotara, Newcastle	92029	1991	Road Match	61m
	SQUASH COURTS.	Belair Squash Centre, Princeton Ave., Kotara. Newcastle	179537	1982	Road Match	61m
	INSURANCE BROKERS.	D.F.L. General Insurances, Belair Commercial Centre, Princeton Ave. Kotara Newcastle	175746	1982	Road Match	61m
	REAL ESTATE AGENTS &/OR VALUERS.	Tapp. R., Belair Commercial Centre, Princeton Ave., Kotara Newcastle	178745	1982	Road Match	61m

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Dry Cleaners, Motor Garages & Service Stations

30 Vista Parade, Kotara, NSW 2289



Legend		Scale: 0 100 200 300 400 Meters	Coordinate System: GDA 1994 MGA Zone 56
Site Boundary	Business directory records mapped to a specific premise		Date: 11 February 2020
Buffer 500m	Business directory records mapped to a road intersection	Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018	
Property Boundary	Business directory records mapped to a road corridor		
Business directory records mapped to a general area			

Historical Business Directories

30 Vista Parade, Kotara, NSW 2289

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

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

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

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

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

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Parkway Service Station Park Ave. Adamstown Newcastle	177093	1982	Road Match	408m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	B.P. Service Station, Park Ave., Adamstown, Newcastle	632163	1970	Road Match	408m
	MOTOR GARAGES &/OR ENGINEERS	Bel-Air Service Station, Park Ave., Kotara South, Newcastle	631850	1970	Road Match	408m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	BP Kotara, Park Ave., Kotara, Newcastle	632166	1970	Road Match	408m
	MOTOR GARAGES &/OR ENGINEERS	Parkway Service Station, Park Ave., Adamstown, Newcastle	631933	1970	Road Match	408m
2	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Esso Service Centre, Lexington Pde., Kotara, Newcastle	632209	1970	Road Match	462m

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Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Coordinate System:
 GDA 1994 MGA Zone 56

Date: 11 February 2020





Legend

- Site Boundary
- Buffer 150m

Scale:
 0 40 80 120 160
 Meters

Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Coordinate System:
 GDA 1994 MGA Zone 56

Date: 11 February 2020

Aerial Imagery 2007

30 Vista Parade, Kotara, NSW 2289



Scale:

0 40 80 120 160
Meters

Data Sources: Aerial Imagery © Aerometrex Pty Ltd

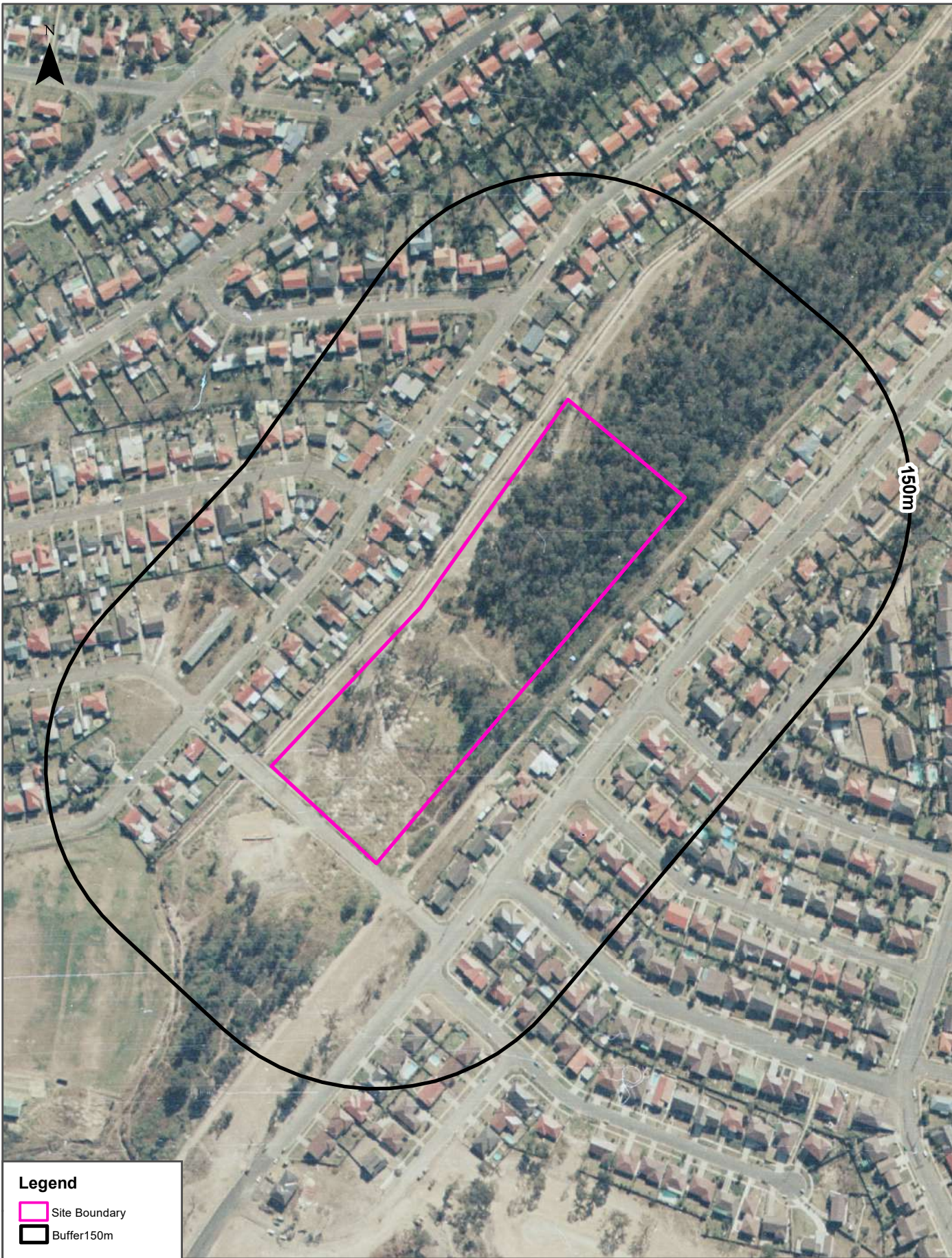
Coordinate System:
GDA 1994 MGA Zone 56

Date: 11 February 2020





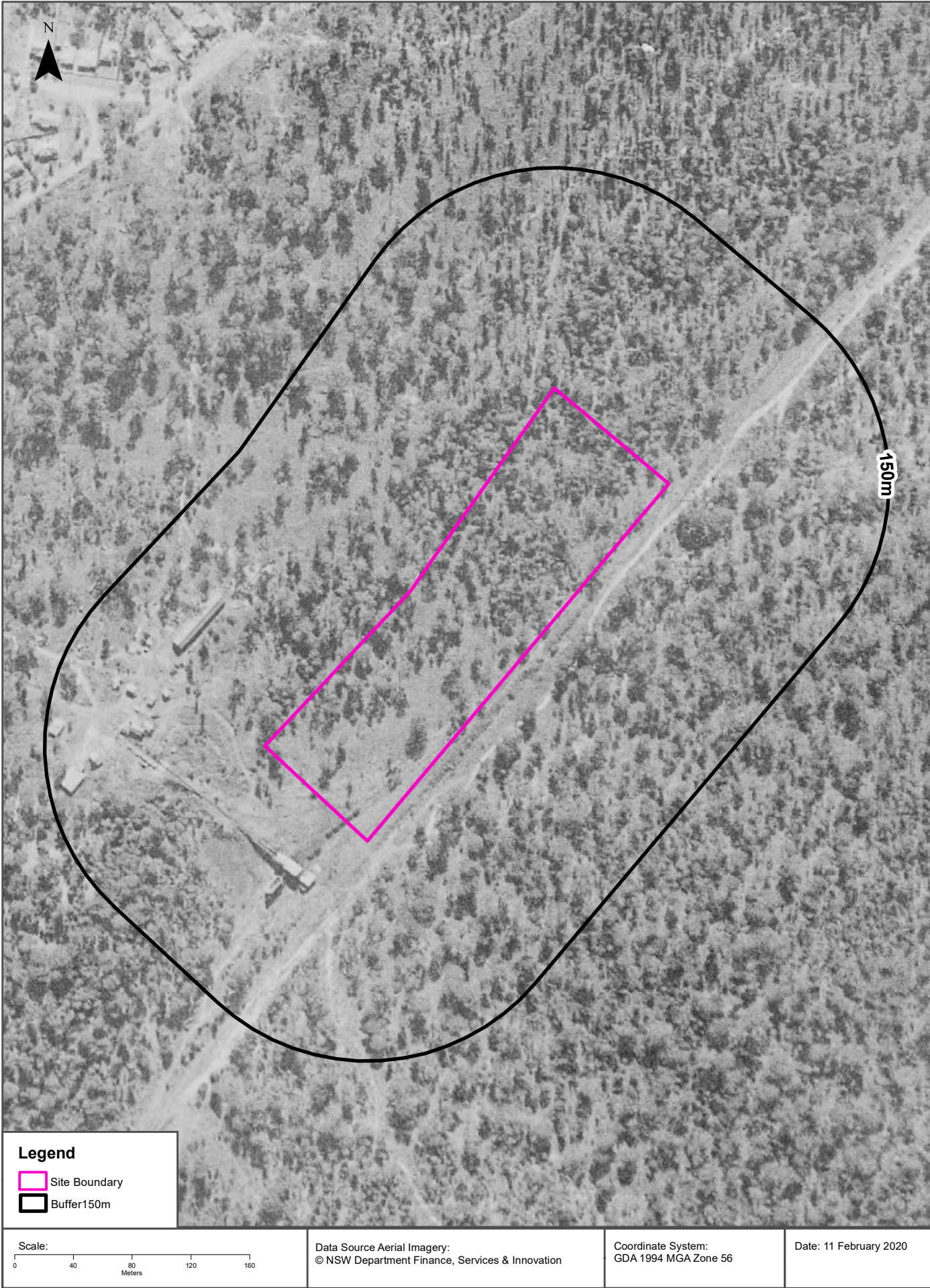
Scale: 0 40 80 120 160 Meters	Data Source Aerial Imagery: © NSW Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 11 February 2020
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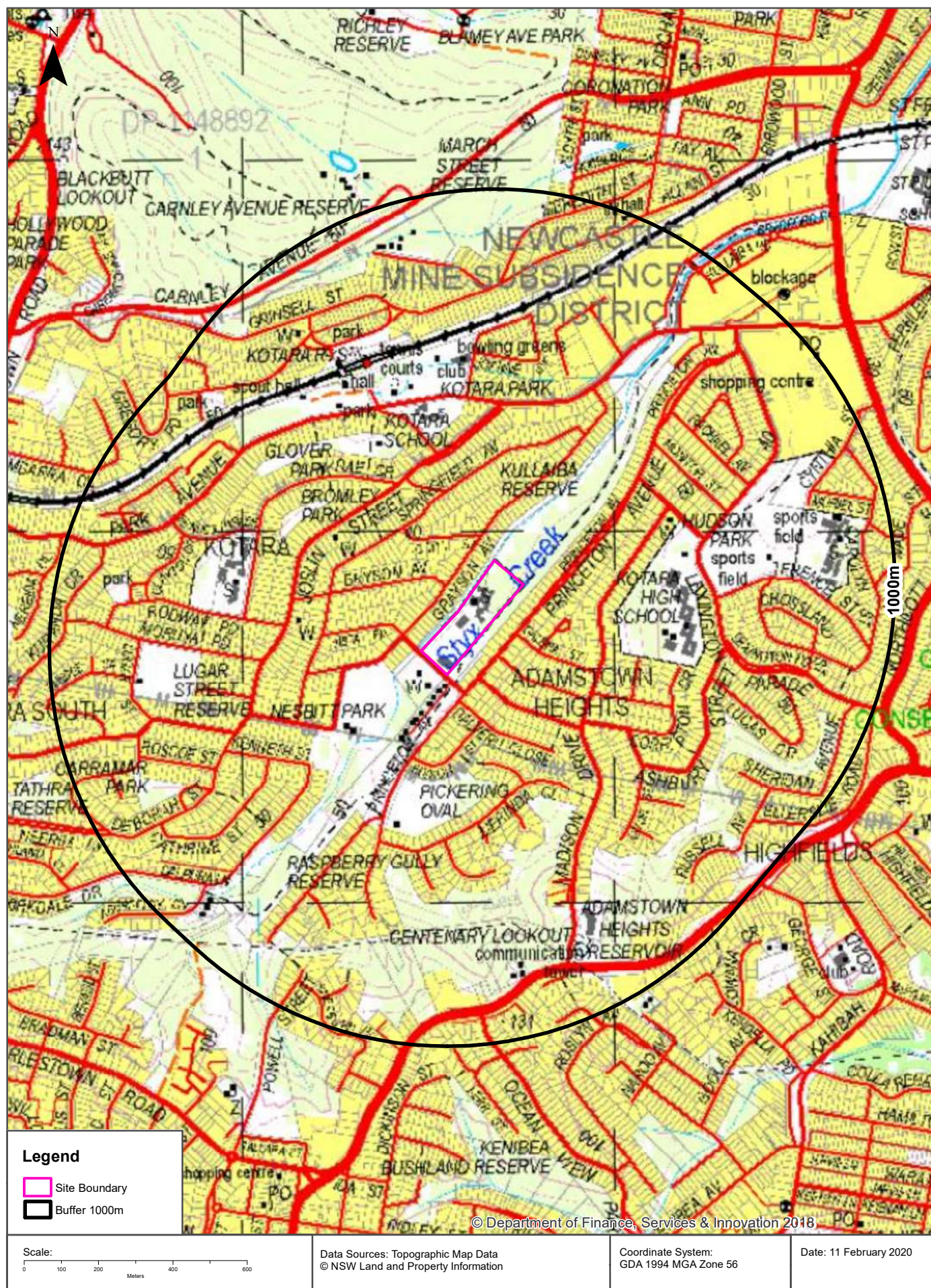


Scale: 0 40 80 120 160 Meters	Data Source Aerial Imagery: © NSW Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 11 February 2020
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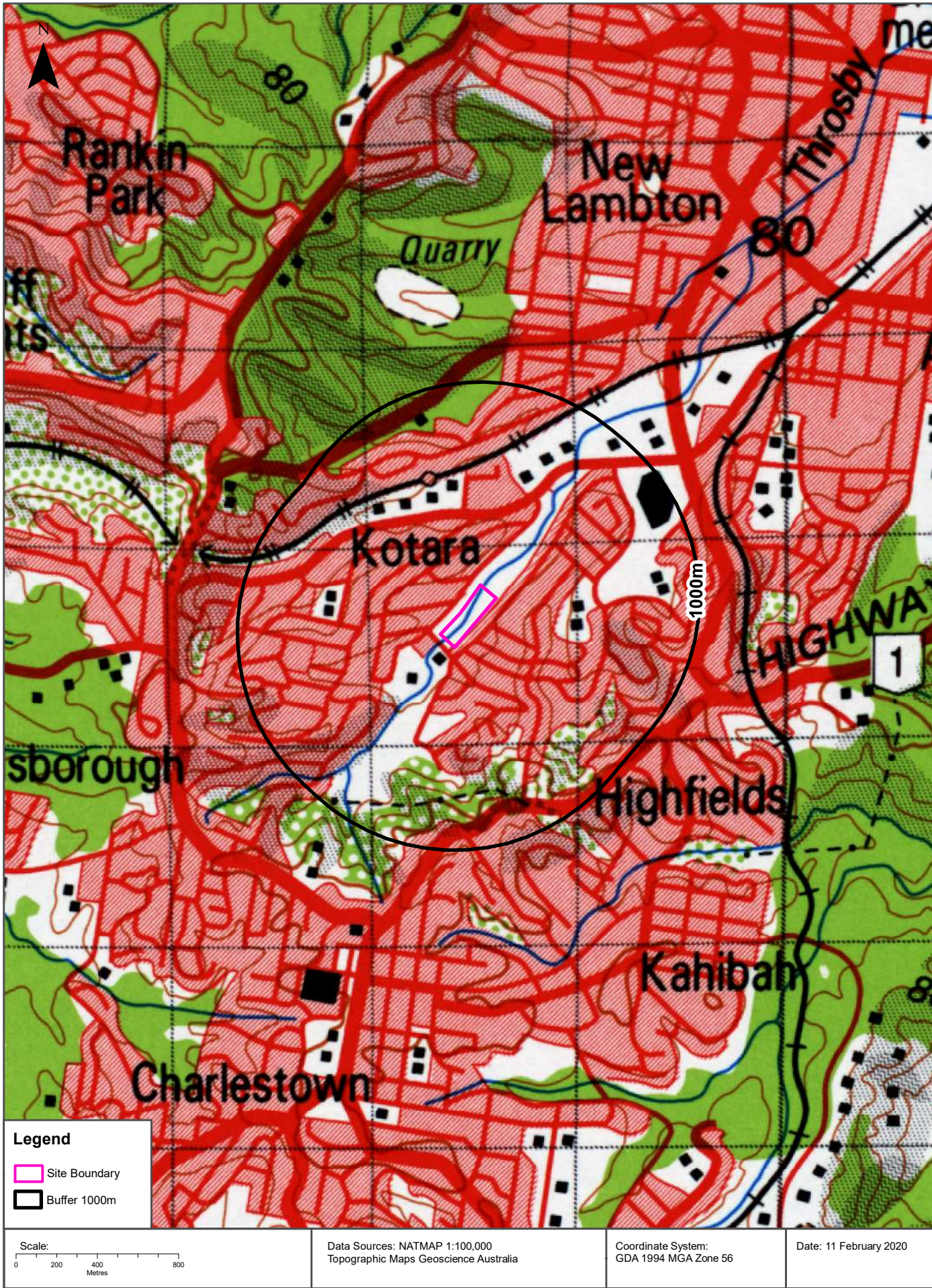
Data Source Aerial Imagery: © NSW Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 11 February 2020
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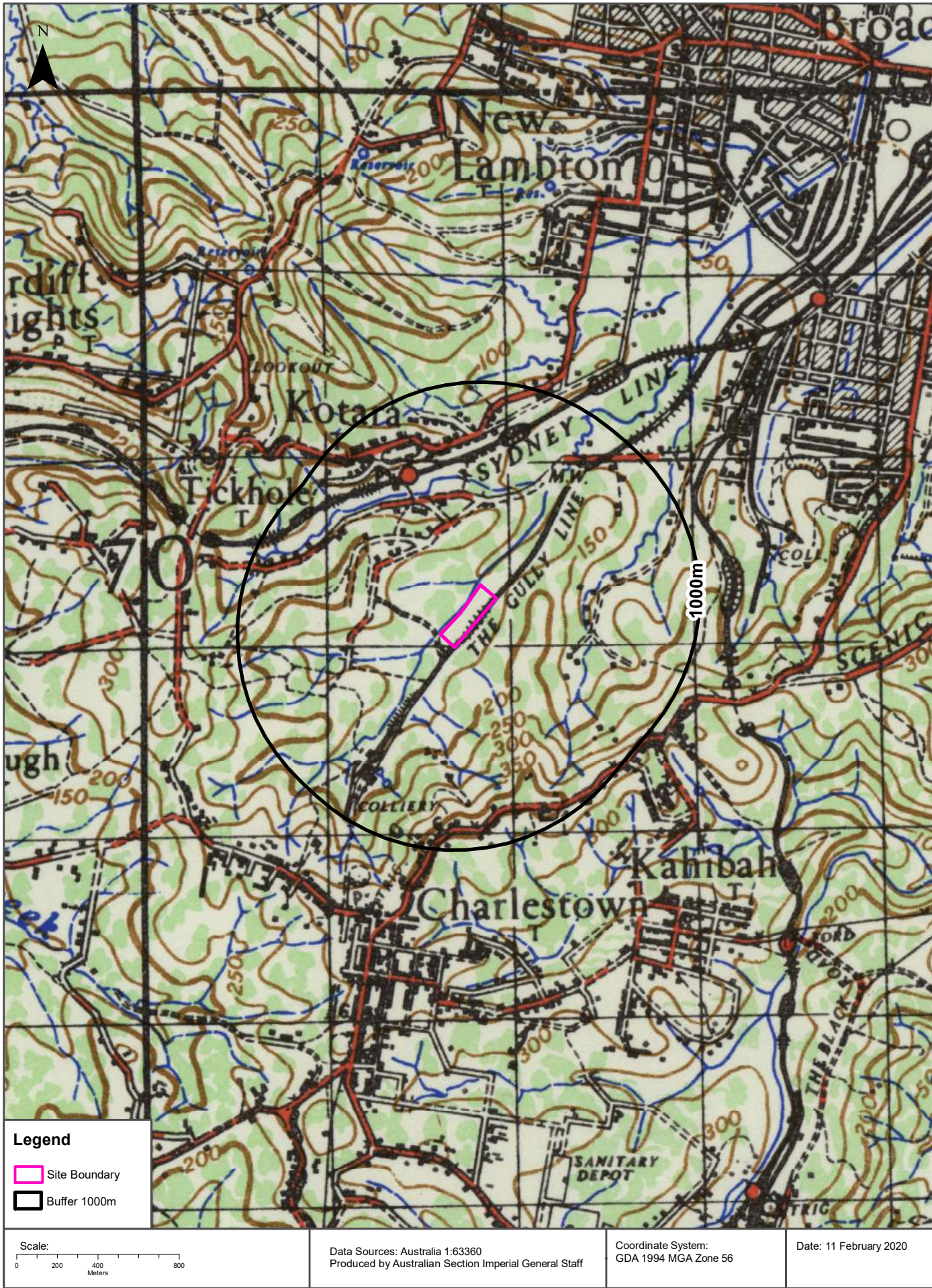
Historical Map 1981

30 Vista Parade, Kotara, NSW 2289



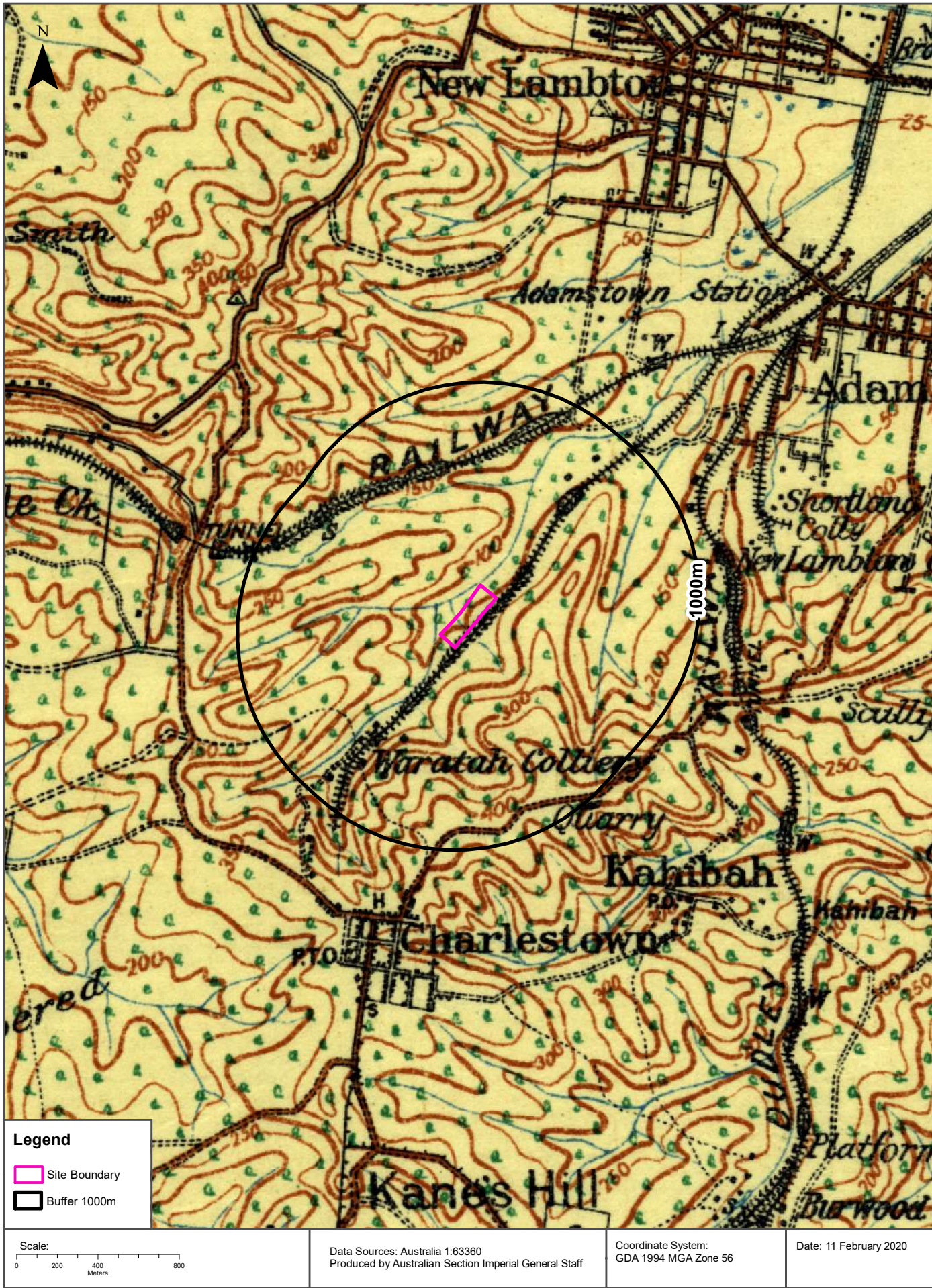
Historical Map c.1941

30 Vista Parade, Kotara, NSW 2289



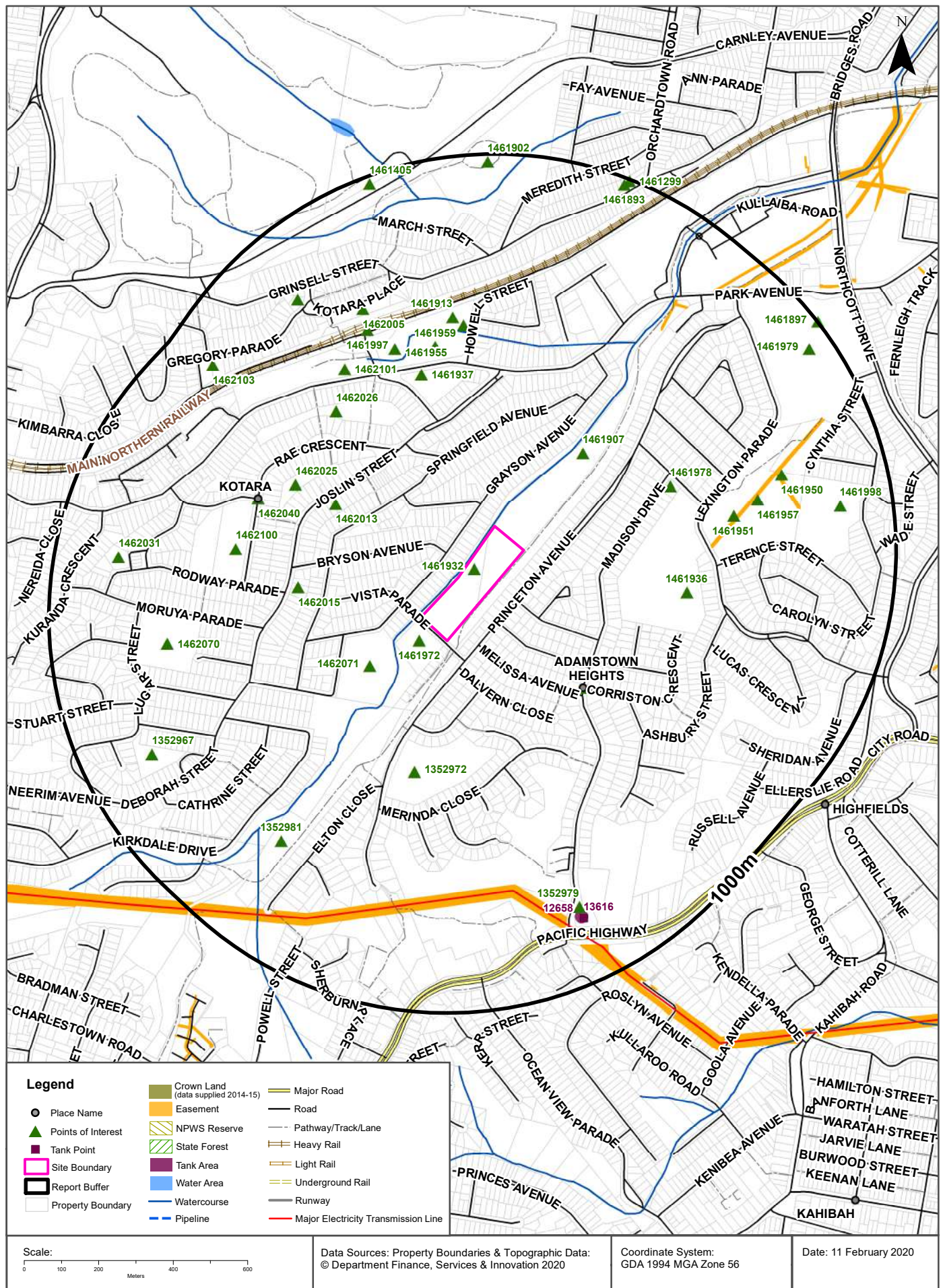
Historical Map c.1913

30 Vista Parade, Kotara, NSW 2289



Topographic Features

30 Vista Parade, Kotara, NSW 2289



Topographic Features

30 Vista Parade, Kotara, NSW 2289

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1461932	Primary School	ST JAMES PRIMARY SCHOOL	0m	Onsite
1461972	Place Of Worship	CATHOLIC CHURCH	51m	South West
1462071	Sports Field	NESBITT PARK	191m	South West
1461907	Park	KULLAIBA RESERVE	301m	North East
1462015	Place Of Worship	ANGLICAN CHURCH	340m	West
1461917	Suburb	ADAMSTOWN HEIGHTS	360m	South East
1352972	Sports Field	PICKERING OVAL	363m	South
1462013	Place Of Worship	UNITING CHURCH	375m	North West
1461978	Place Of Worship	BAPTIST CHURCH	429m	North East
1461936	High School	KOTARA HIGH SCHOOL	452m	East
1461937	Special School	KOTARA SCHOOL	452m	North
1462025	Park	BROMLEY PARK	489m	North West
1461959	Sports Field	KOTARA PARK	508m	North
1462026	Park	GLOVER PARK	526m	North West
1462100	Primary School	KOTARA SOUTH PUBLIC SCHOOL	530m	West
1462040	Suburb	KOTARA	541m	West
1461955	Sports Court	TENNIS COURTS	546m	North
1461880	Club	KOTARA BOWLING AND RECREATION CLUB	546m	North
1461951	Sports Field	Sports Field	571m	East
1461913	Sports Field	BOWLING GREENS	572m	North
1462101	Park	Park	583m	North West
1461997	Railway Station	KOTARA RAILWAY STATION	628m	North West
1461957	Park	HUDSON PARK	641m	East
1462005	Park	Park	682m	North
1462070	Sports Field	LUGAR STREET RESERVE	685m	West
1352981	Park	RASPBERRY GULLY RESERVE	698m	South West
1461950	Sports Field	Sports Field	720m	East
1352979	Lookout	CENTENARY LOOKOUT	798m	South
1462007	Place Of Worship	UNITING CHURCH	806m	North West
1352967	Park	CARRAMAR PARK	812m	South West
1462031	Park	Park	828m	West

Map Id	Feature Type	Label	Distance	Direction
1461998	Primary School	BELAIR PUBLIC SCHOOL	857m	East
1462103	Park	Park	868m	North West
1461979	Shopping Centre	WESTFIELD KOTARA	937m	North East
1461405	Parking Area	Parking Area	979m	North
1461902	Park	MARCH STREET RESERVE	979m	North
1461893	Place Of Worship	UNITING CHURCH	981m	North
1461299	Community Facility	NEW LAMBTON UNITING CHURCH HALL	995m	North
1461897	Post Office	KOTARA POST OFFICE	999m	North East

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

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Topographic Features

30 Vista Parade, Kotara, NSW 2289

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
12658	Water	Operational	ADAMSTOWN HEIGHTS RESERVOIR	14/07/2018	806m	South

Tanks (Points)

What are the Tank Points located within the dataset buffer?

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
13616	Water	Feature on Previous LPI Tank Area Supply		04/12/2012	830m	South

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

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Major Easements

What Major Easements exist within the dataset buffer?

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120112903	Primary	Undefined		502m	East
120119219	Primary	Undefined		675m	South West
120119966	Primary	Undefined		691m	North East
120119969	Primary	Undefined		765m	North East
120108952	Primary	Undefined		765m	North East
120116325	Primary	Undefined		866m	North East
120109153	Primary	Undefined		909m	South
120111705	Primary	Undefined		909m	North East

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

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Topographic Features

30 Vista Parade, Kotara, NSW 2289

State Forest

What State Forest exist within the dataset buffer?

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

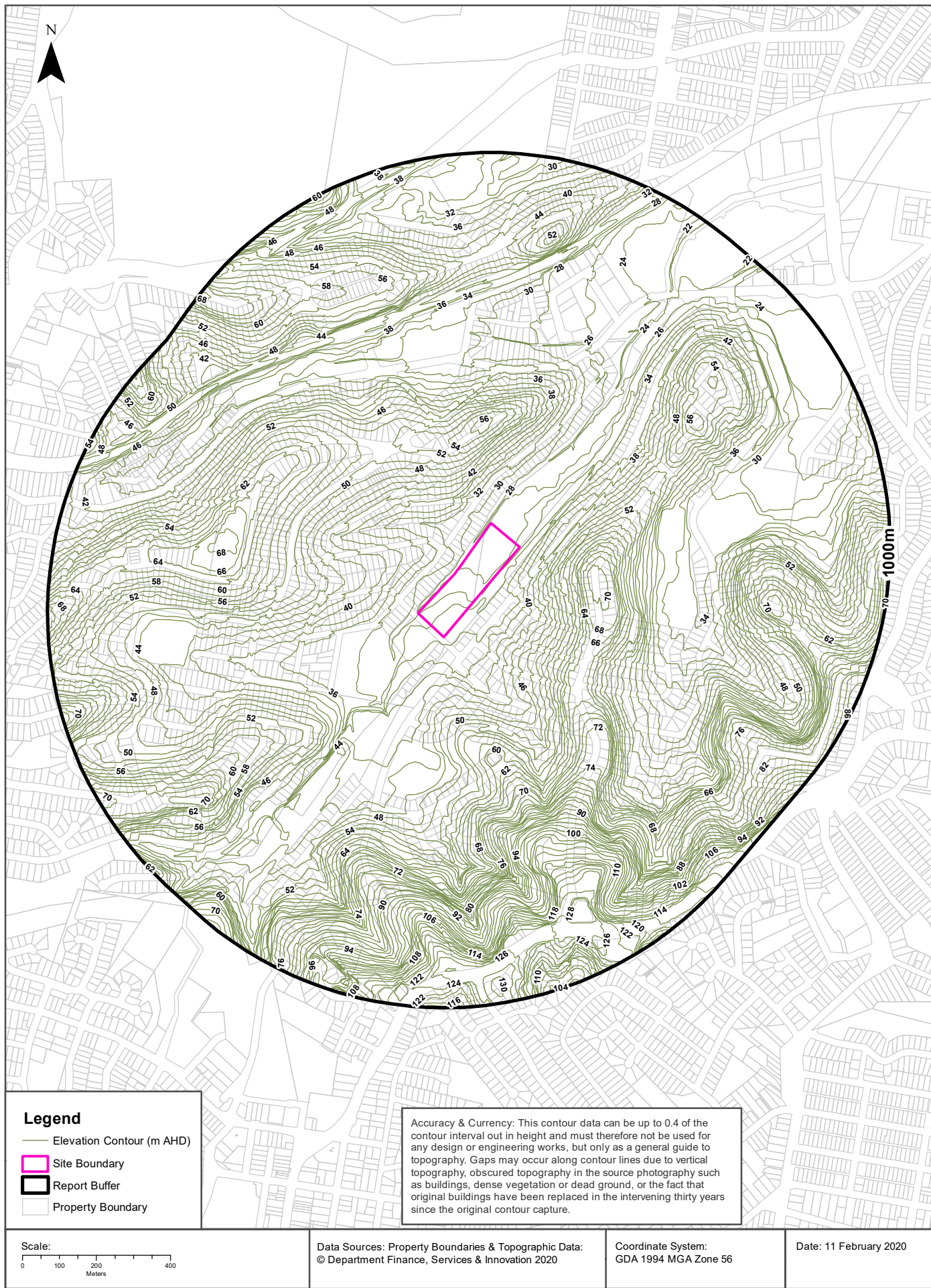
State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)
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National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

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

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018)
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Hydrogeology & Groundwater

30 Vista Parade, Kotara, NSW 2289

Hydrogeology

Description of aquifers on-site:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive aquifers of low to moderate productivity

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

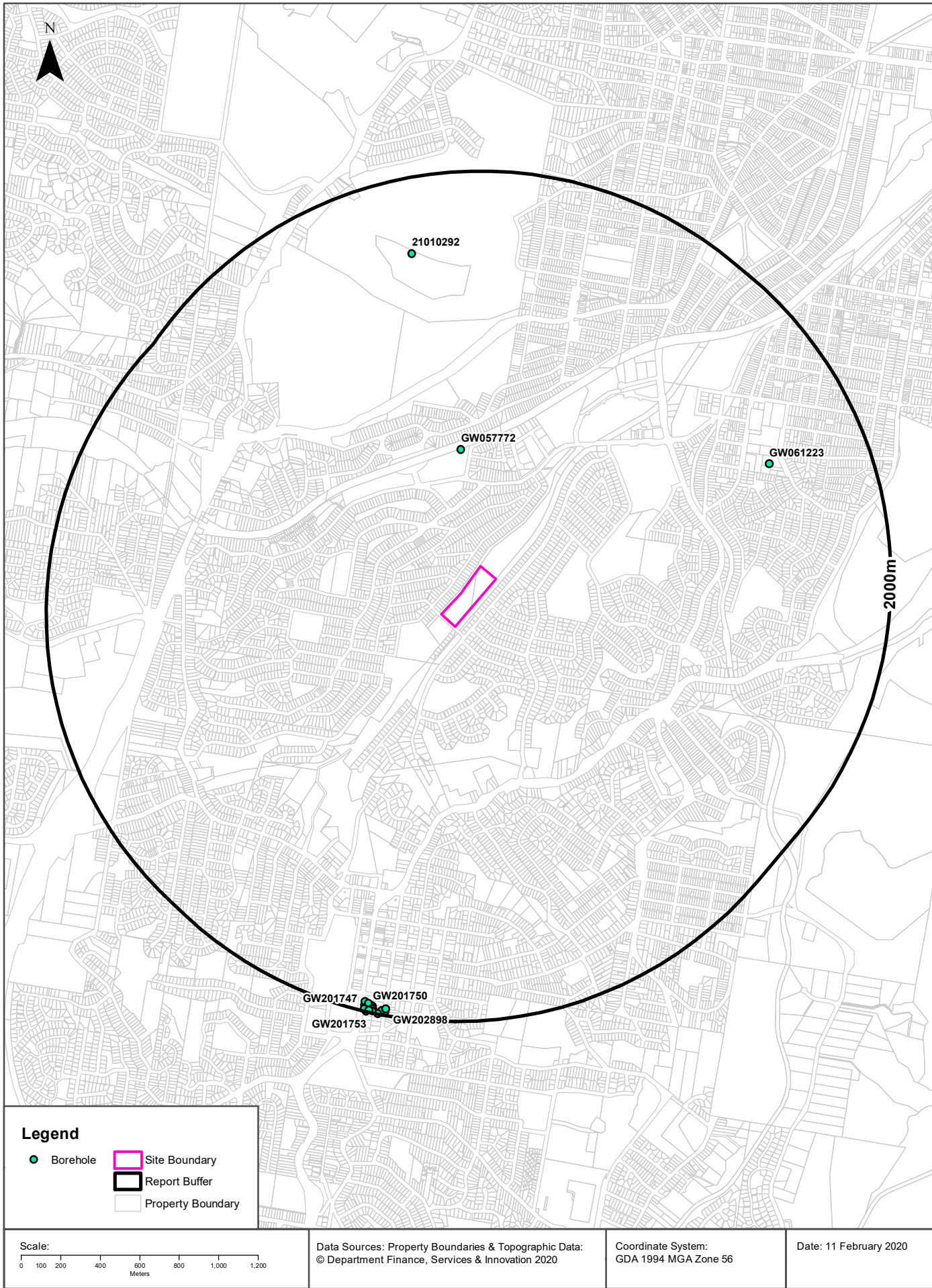
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Botany Groundwater Management Zones

Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries



Hydrogeology & Groundwater

30 Vista Parade, Kotara, NSW 2289

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW057772	20BL120210	Bore	Private	Recreation (groundwater)	Recreation (groundwater)		01/02/1981	24.00	24.00					597m	North
GW061223	20BL133110	Bore	Private	Domestic	Domestic		01/06/1985	36.50	36.50	3001-7000 ppm				1501m	North East
21010292					UNK								56.27	1618m	North
GW201757	20BL173012	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	6.40	6.40		4.90		104.57	1952m	South
GW201758	20BL173012	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	5.70	5.70		4.80		103.76	1958m	South
GW201749	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	5.50	5.50		3.30		103.53	1963m	South
GW202897	20BL173546	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW11	14/07/2003	6.00	6.00		2.07		94.76	1966m	South
GW201751	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	6.00	6.00		3.30		102.15	1967m	South
GW201748	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	5.90	5.90		4.70		103.48	1970m	South
GW201750	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	5.40	5.40		3.50		102.16	1971m	South
GW201747	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		07/01/2009	7.00	7.00		5.00		104.59	1971m	South
GW201755	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	7.40	7.40		3.30		102.19	1977m	South
GW202892	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW17	09/09/2003	6.00	6.00		0.96		92.78	1979m	South
GW202894	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW21	27/08/2007	5.00	5.00					1979m	South
GW202888	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW9	22/07/2003	6.00	6.00		1.59		94.96	1980m	South
GW202898	20BL173547	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW12	14/07/2003	5.40	5.40		1.27		93.13	1983m	South
GW202895	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW22	27/08/2007	4.50	4.50					1986m	South
GW201752	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	6.50	6.50		4.80		104.35	1990m	South
GW202890	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW15	09/09/2003	6.00	6.00		1.69		95.11	1991m	South
GW201756	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	7.30	7.30		3.20		102.23	1991m	South
GW201754	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	6.80	6.80		3.30		102.51	1991m	South
GW202891	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW16	09/09/2003	6.00	6.00		1.56		93.96	1999m	South
GW201753	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	7.40	7.40		4.50		103.34	1999m	South

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Hydrogeology & Groundwater

30 Vista Parade, Kotara, NSW 2289

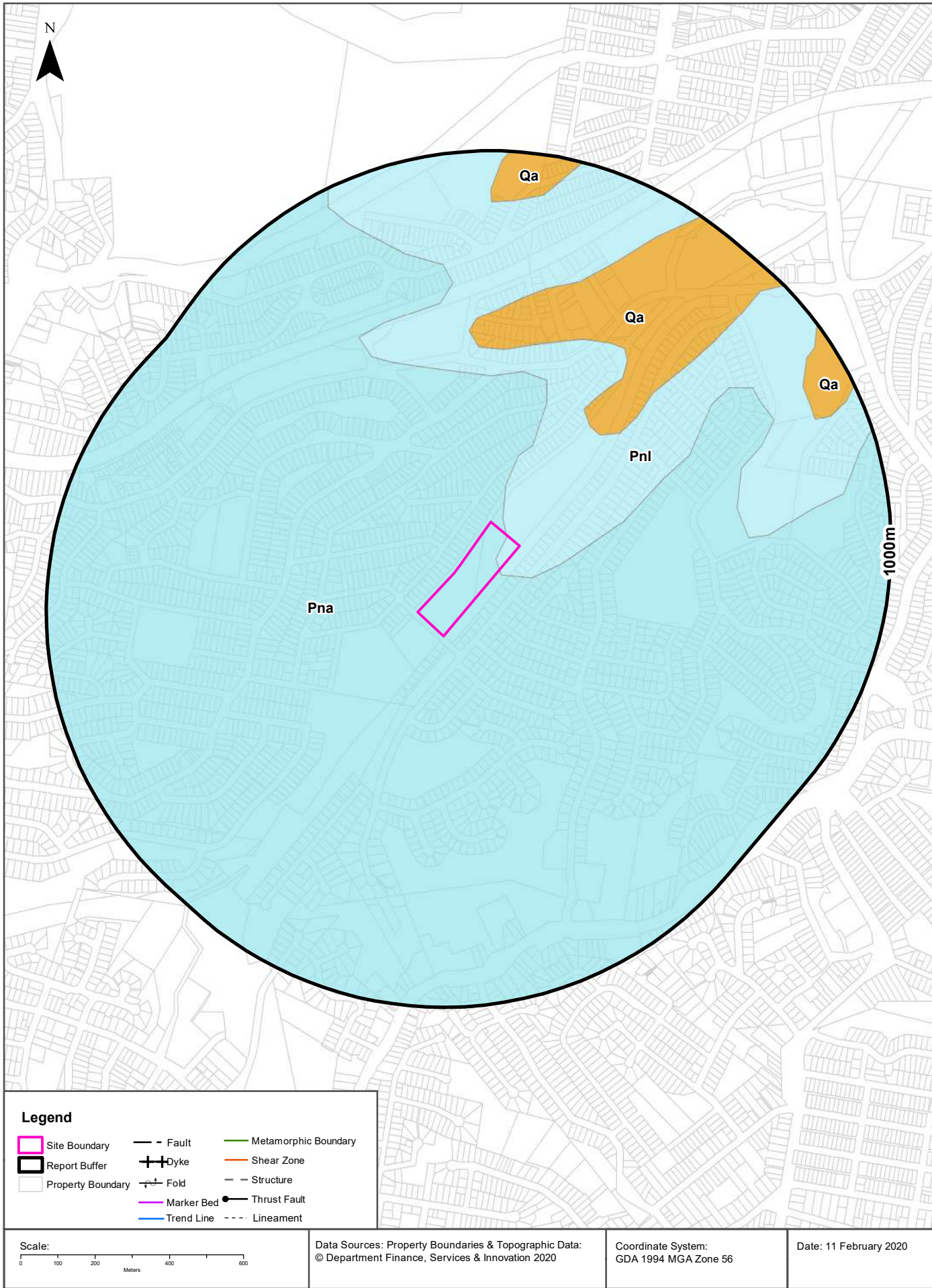
Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW057772	0.00m-0.30m Soil 0.30m-22.00m Clay 22.00m-24.00m Shale Water Bearing	597m	North
GW061223	0.00m-4.87m Fill 4.87m-9.10m Clay 9.10m-14.60m Shale 14.60m-18.28m Sandstone 18.28m-22.80m Coal Water Supply 22.80m-30.17m Conglomerate 30.17m-32.00m Coal Water Supply 32.00m-36.50m Sandstone	1501m	North East
GW201757	0.00m-5.40m Fill; Silty Clay, weathered seam, medium to high plasticity, brown, moist 5.40m-6.10m Conglomerate, cemented, moist 6.10m-6.20m Silty Clay; medium plasticity, pale grey, moist 6.20m-6.40m Conglomerate, cemented, moist	1952m	South
GW201758	0.00m-3.50m Fill; Silty Clay, medium to high plasticity, red/brown, moist 3.50m-5.40m Fill; Silty Clay, as above, wet 5.40m-5.70m Bedrock, wet (Conglomerate?)	1958m	South
GW201749	0.00m-4.20m Fill; Gravelly Silt, low plasticity, dark grey, moist 4.20m-4.80m Silty Clay; medium plasticity, red orange, trace gravel, wet 4.80m-5.50m Conglomerate, cemented, wet	1963m	South
GW202897	0.00m-0.20m Fill; Bitumen 0.20m-0.80m Fill; Sandy Gravel, brown, moist, poorly graded, fine gravel-coarse sand, high permeability, no HC odour 0.80m-5.20m Clay, Silty; with some fine gravel, red/white/yellow streaking, low plasticity, low permeability, no HC odour 5.20m-6.00m Clay, Silty; with minor gravel below 4.5m, light grey, soft becoming wet below 4.5m, no HC odour, medium permeability	1966m	South
GW201751	0.00m-0.50m Fill; Clayey Sand, fine to medium grained, brown/black, trace cobbles/boulders, moist 0.50m-2.90m Silty Gravelly Clay; medium plasticity, brown/black, moist 2.90m-3.20m Silt, Gravelly Clayey; low plasticity, pale grey, moist 3.20m-5.10m Silt, Gravelly Clayey; as above, wet 5.10m-6.00m Conglomerate, cemented, wet	1967m	South
GW201748	0.00m-4.00m Fill; Silty Clay, medium to high plasticity, red/brown, moist 4.00m-5.90m Fill; Silty Clay, as above, wet	1970m	South
GW201747	0.00m-4.50m Fill; Silty Clay, medium to high plasticity, red/brown, moist 4.50m-5.70m Fill; Silty Clay, as above, wet 5.70m-7.00m Conglomerate, cemented, wet	1971m	South
GW201750	0.00m-2.60m Fill; Gravelly Silt, low plasticity, dark grey, moist 2.60m-3.50m Fill; Silty Gravelly Clay, medium plasticity, red orange, moist 3.50m-4.90m Fill; Silty Gravelly Clay, as above, wet 4.90m-5.40m Conglomerate, cemented, wet	1971m	South
GW201755	0.00m-0.60m Fill; Sand, fine to medium grained, yellow, sub-angular, trace cobbles/boulders, moist 0.60m-1.90m Clay; medium to high plasticity, grey/brown, moist 1.90m-2.25m Clay; as above, red/brown, moist 2.25m-3.20m Clay; as above, grey/white, moist 3.20m-6.00m Clay; as above, wet 6.00m-6.10m Conglomerate, cemented, wet 6.10m-6.20m Silty Clay; medium plasticity, grey, wet 6.20m-7.40m Conglomerate; cemented, wet	1977m	South
GW202892	0.00m-0.50m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.50m-1.40m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.40m-4.60m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity & permeability, no HC odour 4.60m-5.50m Clay, Silty Sandy; light grey, soft to firm, medium plasticity, low permeability, no HC odour 5.50m-6.00m Conglomerate; yellow brown, rounded pebble (to 10mm) clasts of shale & sandstone in fine matrix, weak, extremely weather	1979m	South

Groundwater No	Drillers Log	Distance	Direction
GW202894	0.00m-0.20m Clay, Sandy; (topsoil), dark brown, no odour, roots & grass cover present 0.20m-0.80m Clay, Sandy; dark brown, minor gravels, roots present, fine-medium sands, no odour 0.80m-1.50m Clay; Sandy; as above, grading to orange/brown, grading to red/grey @ 1.3m 1.50m-4.30m Clay, Sandy; as above, grading to orange, with ironstone. Minor gravels, some grey @ 2.5m. Gravel to 20mm @ 2.8m 4.30m-5.00m Sandstone, grading to; extremely weathered, minor gravels & rocks to 20mm, no odour	1979m	South
GW202888	0.00m-0.30m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.30m-1.60m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.60m-4.30m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour, increasing sand 4.30m-5.20m Clay, Silty Sandy; light grey, soft to firm, medium plasticity, low permeability, slight HC odour 5.20m-6.00m Conglomerate; yellow brown, rounded pebbles sized (to 10mm) clasts of shale & sandstone in a fine matrix, weak rock, ext	1980m	South
GW202898	0.00m-0.20m Fill; bitumen 0.20m-0.80m Fill; Sandy Gravel, brown, moist, poorly graded, fine gravel-coarse sand, high permeability, no HC odour 0.80m-2.60m Clay, Silty; with fine gravels, red/brown, medium stiff, low plasticity & permeability, no HC odour 2.60m-4.70m Clay, Silty; with fine gravels, light grey, intact, low plasticity, medium permeability, no HC odour 4.70m-5.40m Clay, silty; as above, red/brown, wet, high plasticity, refusal in shale bedrock	1983m	South
GW202895	0.00m-0.50m Fill; Asphalt & concrete 0.50m-0.60m Fill; coarse sand, brown, with gravel to 30mm, no odour, moist/wet 0.60m-1.50m Clay; grey with mottled pale brown, medium plasticity, organic odour, moist/wet 1.50m-3.00m Clay; as above, grading to grey with mottled red, damp/moist @ 2.7m 3.00m-3.50m Clay, Sandy; pale brown, with minor gravels, no odour, moist 3.50m-4.50m Clay, Sandy; as above, grading to dark red with mottled brown/grey, moist. Wet @ base	1986m	South
GW201752	0.00m-4.60m Fill; Silty Clay, medium to high plasticity, red brown, moist 4.60m-4.80m Silty Gravelly Clay; low plasticity, red brown, moist-wet 4.80m-6.20m Silty Gravelly Clay; low plasticity pale grey, wet 6.20m-6.50m Conglomerate, cemented, wet	1990m	South
GW201754	0.00m-0.80m Fill; Silty Gravelly Clay; medium plasticity, red brown, trace cobbles, building debris 0.80m-3.00m Silty Clay; medium plasticity, pale grey, trace gravel 3.00m-4.60m Silty Clay; as above, red orange 4.60m-6.00m Silty Gravelly Clay; low plasticity, orange, red/brown 6.00m-6.80m Conglomerate; cemented	1991m	South
GW201756	0.00m-1.55m Fill; Clayey Sand, fine to medium grained, sub-angular, yellow brown, moist 1.55m-2.70m Silty Clay; medium plasticity, brown, moist 2.70m-2.80m Ironstone/Gravel band 2.80m-4.40m Silty Gravelly Clay; low plasticity, pale grey, wet from 3m 4.40m-5.70m Gravel, Silty Clayey; sub-angular, grey, wet 5.70m-6.20m Conglomerate, wet 6.20m-6.60m Silty Clay, pale grey, wet 6.60m-7.30m Conglomerate, wet	1991m	South
GW202890	0.00m-0.30m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, no HC odour, high permeability 0.30m-1.60m Clay; grey/olive brown, very fine to stiff, intact, low plasticity, low permeability, no HC odour 1.60m-3.80m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour 3.80m-4.80m Clay, Silty Sandy; light gryn, soft to firm, medium plasticity, low permeability, no HC odour 4.80m-6.00m Conglomerate; yellow brown, rounded pebble sized (to10mm) clasts of shale & sandstone in a fine matrix, weak, extremely	1991m	South
GW201753	0.00m-0.90m Fill; Silty Clay, medium plasticity, brown/black, trace gravel, moist 0.90m-4.30m Silty Clay; medium to high plasticity, pale grey & orange, moist 4.30m-6.90m Silty Clay; as above, wet 6.90m-7.40m Conglomerate, cemented, wet	1999m	South
GW202891	0.00m-0.50m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.50m-1.00m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.00m-3.30m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour 3.30m-4.60m Clay, Silty Sandy; light grey, soft to firm, medium plasticity, low permeability, no HC odour 4.60m-6.00m Conglomerate; yellow brown, rounded pebbles sized (to 10mm) clasts of shale & sandstone in a fine matrix, weak, extremel	1999m	South

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp
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Geology

30 Vista Parade, Kotara, NSW 2289

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Pna	Conglomerate, sandstone, siltstone, coal, tuff		Newcastle Coal Measures		Palaeozoic			1:250,000
Pnl	Sandstone, siltstone, claystone, coal, tuff	Lambton Subgroup	Newcastle Coal Measures	Lambton Subgroup	Palaeozoic			1:250,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Pna	Conglomerate, sandstone, siltstone, coal, tuff		Newcastle Coal Measures		Palaeozoic			1:250,000
Pnl	Sandstone, siltstone, claystone, coal, tuff	Lambton Subgroup	Newcastle Coal Measures	Lambton Subgroup	Palaeozoic			1:250,000
Qa	Undifferentiated alluvial deposits; sand, silt, clay and gravel; some residual and colluvial deposits. Includes some channel, levee, lacustrine, floodplain and swamp deposits. May include some higher level Tertiary terraces	undifferentiated			Cainozoic			1:250,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:250,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
No features				1:250,000

Geological Data Source : NSW Department of Industry, Resources & Energy

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Naturally Occurring Asbestos Potential

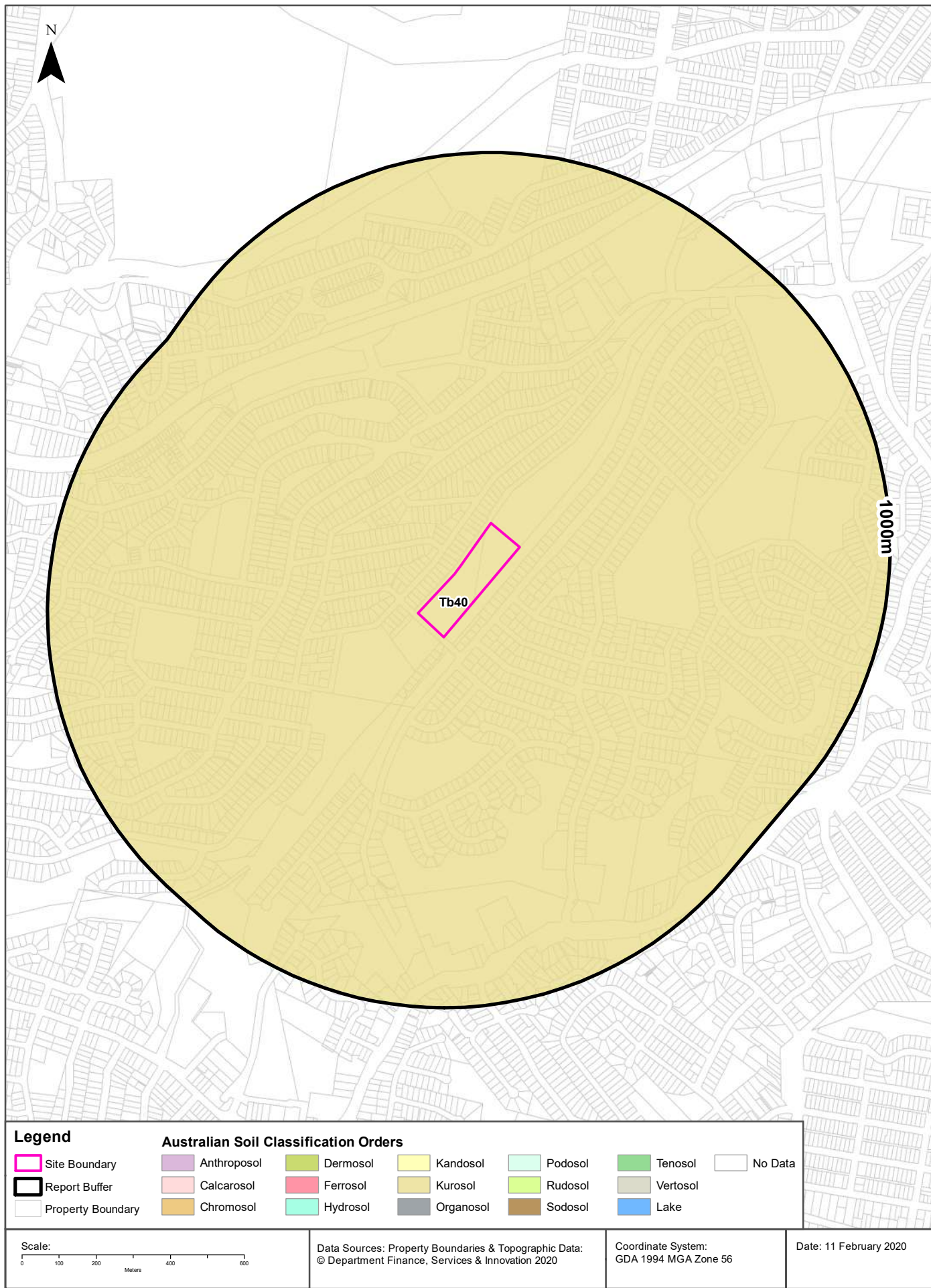
30 Vista Parade, Kotara, NSW 2289

Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

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

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy



Soils

30 Vista Parade, Kotara, NSW 2289

Atlas of Australian Soils

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

Map Unit Code	Soil Order	Map Unit Description	Distance
Tb40	Kurosol	Undulating to hilly areas with some steep slopes and cliffs, rock outcrops, and narrow terraced valleys: chief soils are hard acidic yellow mottled soils (Dy3.41) with some shallow soils such as (Um4.1) and (Uc4.1) on the steeper slopes. Associated are: (Gn2.2) soils and (Dd1) soils, both of which occur on slopes; undescribed soils in the valleys; and some (Dy5) and (Uc1 .2) soils along the coast. As mapped, small areas of units Gb10 and Cb28 are included.	0m

Atlas of Australian Soils Data Source: CSIRO

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Soil Landscapes

30 Vista Parade, Kotara, NSW 2289



Soils

30 Vista Parade, Kotara, NSW 2289

Soil Landscapes

What are the onsite Soil Landscapes?

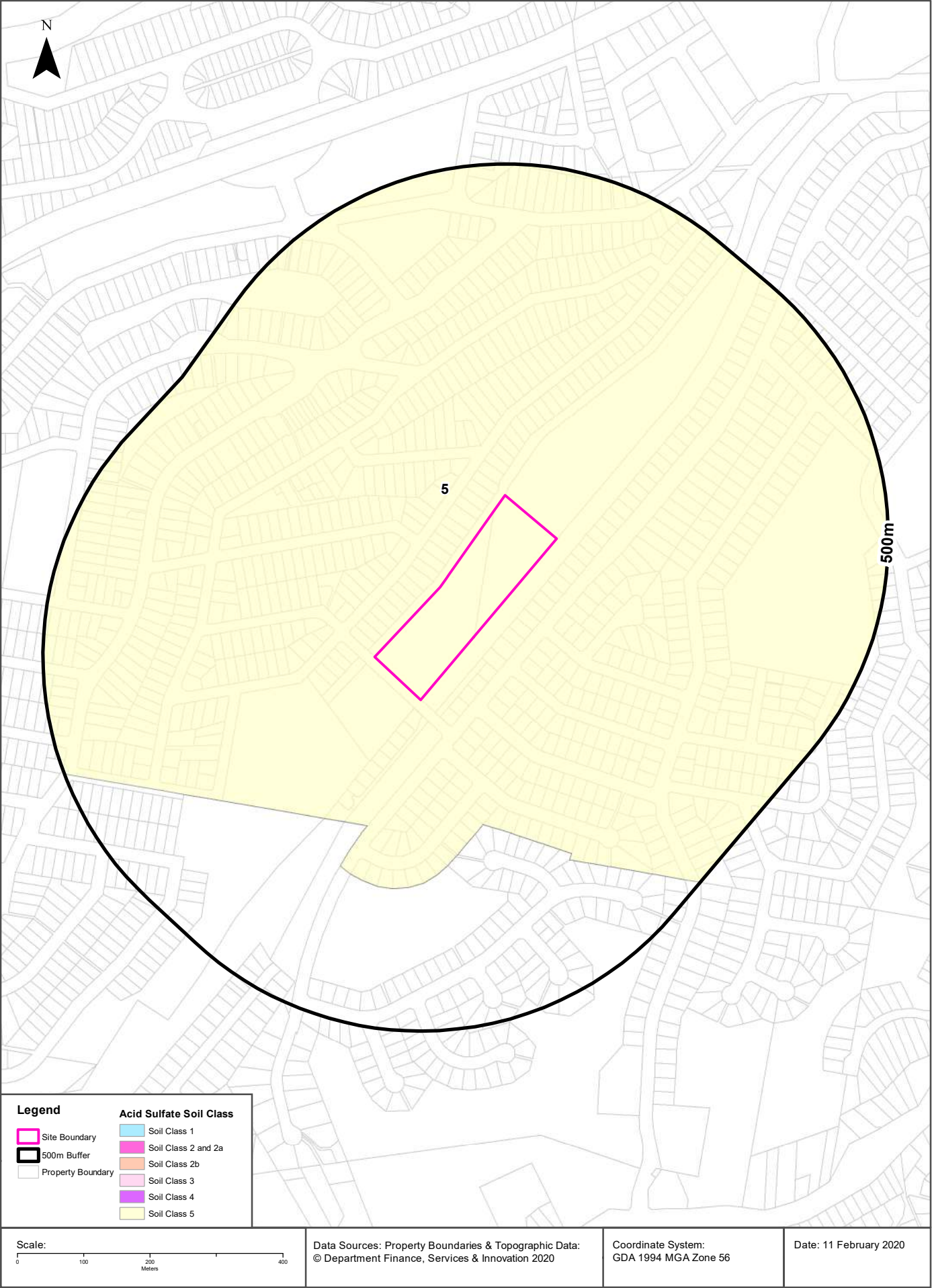
Soil Code	Name	Group	Process	Map Sheet	Scale
ALcc	COCKLE CREEK		ALLUVIAL	Newcastle	1:100,000
ERga	GATESHEAD		EROSIONAL	Newcastle	1:100,000
ERki	KILLINGWORTH		EROSIONAL	Newcastle	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALcc	COCKLE CREEK		ALLUVIAL	Newcastle	1:100,000
COce	CEDAR HILL		COLLUVIAL	Newcastle	1:100,000
COsna	STOCKRINGTON variant a		COLLUVIAL	Newcastle	1:100,000
ERga	GATESHEAD		EROSIONAL	Newcastle	1:100,000
ERki	KILLINGWORTH		EROSIONAL	Newcastle	1:100,000
REwa	WARNERS BAY		RESIDUAL	Newcastle	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage

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Acid Sulfate Soils

30 Vista Parade, Kotara, NSW 2289

Environmental Planning Instrument - Acid Sulfate Soils

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

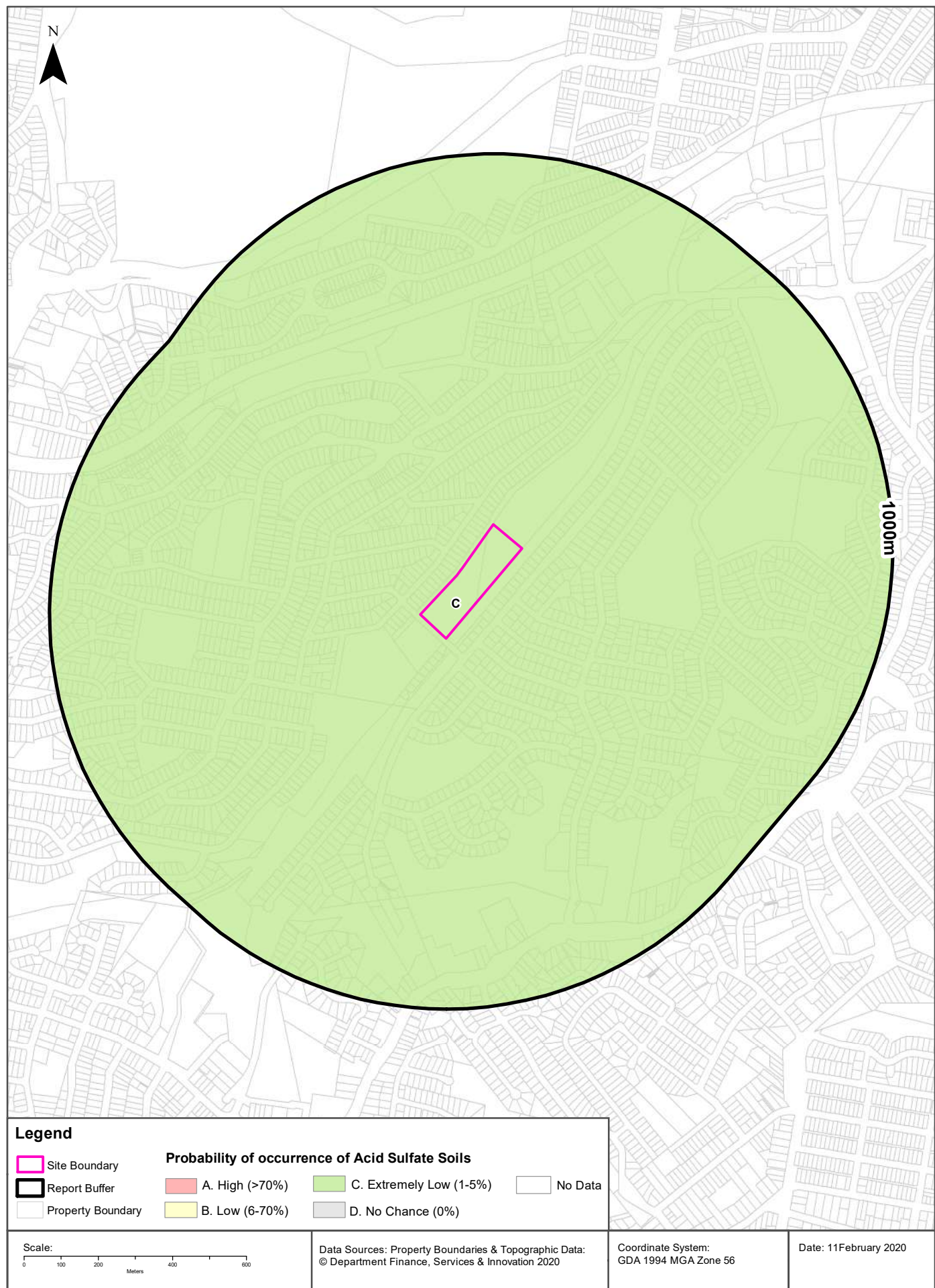
Soil Class	Description	EPI Name
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Newcastle Local Environmental Plan 2012

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

Soil Class	Description	EPI Name	Distance	Direction
None				

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Acid Sulfate Soils

30 Vista Parade, Kotara, NSW 2289

Atlas of Australian Acid Sulfate Soils

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

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

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Dryland Salinity

30 Vista Parade, Kotara, NSW 2289

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source : National Land and Water Resources Audit

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

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

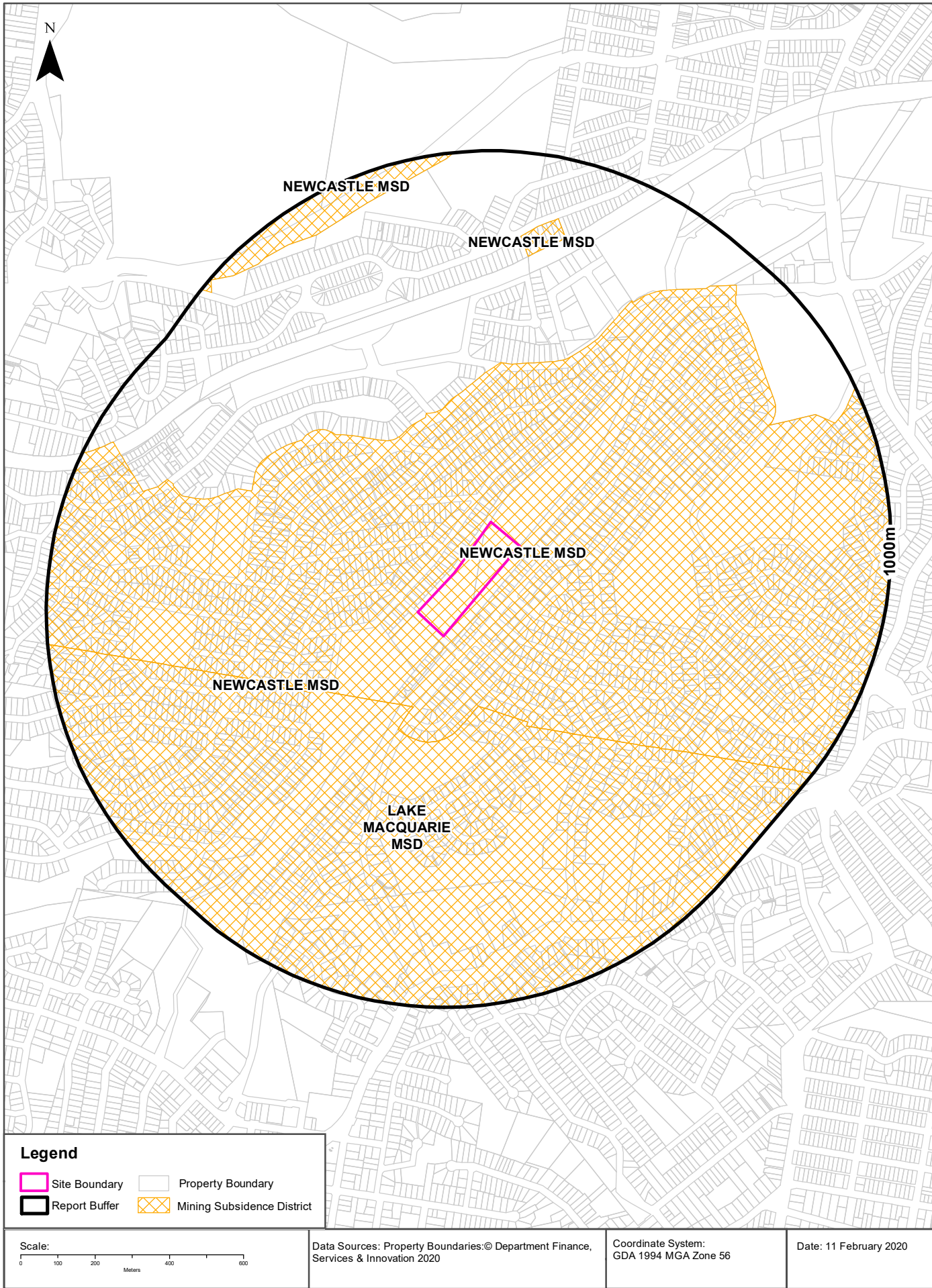
Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
N/A	Outside Data Coverage			

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage

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Mining Subsidence Districts

30 Vista Parade, Kotara, NSW 2289

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
NEWCASTLE	0m	Onsite
LAKE MACQUARIE	207m	South West
NEWCASTLE	355m	North West

Mining Subsidence District Data Source: © Land and Property Information (2016)
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State Environmental Planning Policy

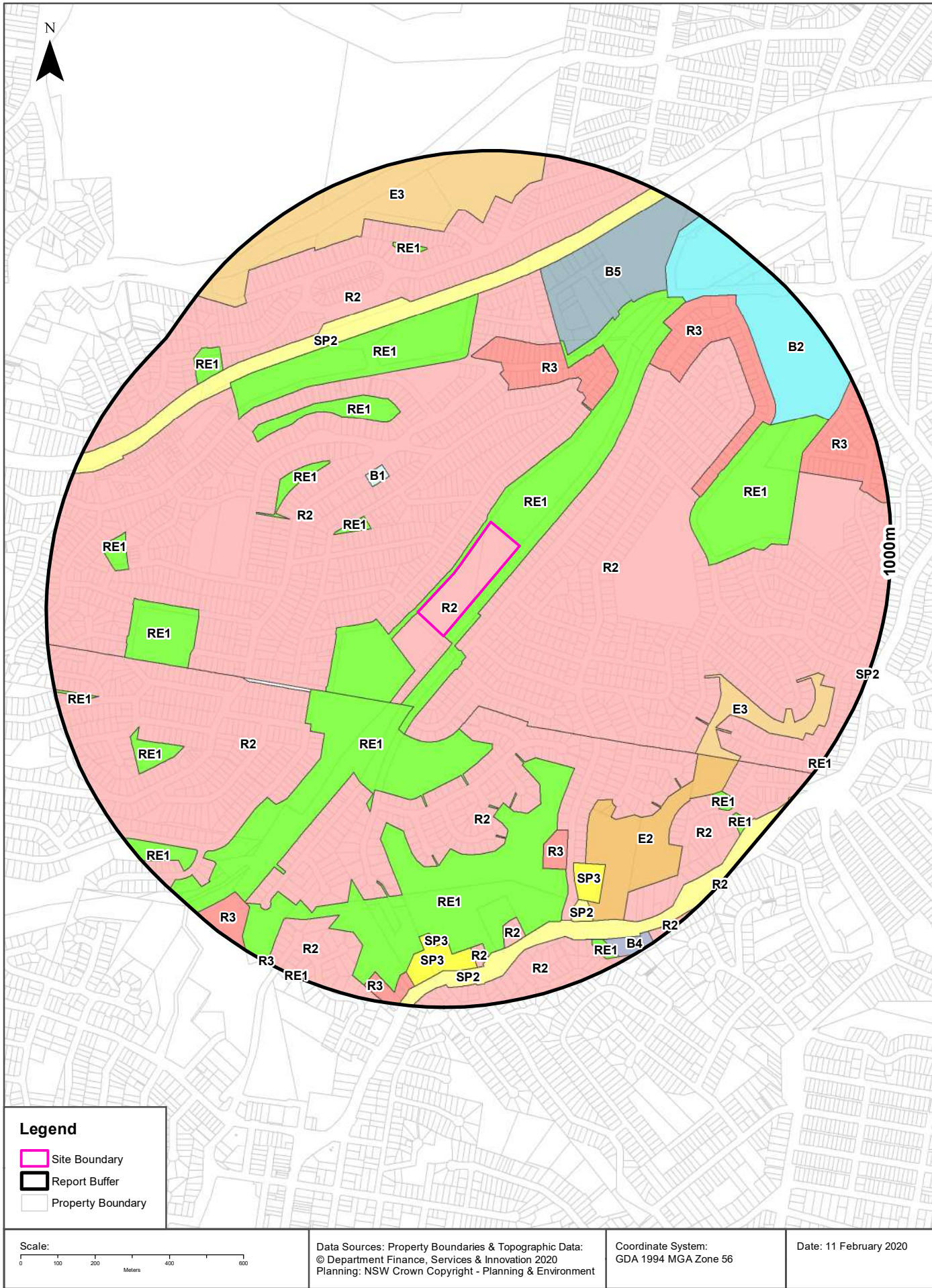
30 Vista Parade, Kotara, NSW 2289

State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

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

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment
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Environmental Planning Instrument

30 Vista Parade, Kotara, NSW 2289

Land Zoning

What EPI Land Zones exist within the dataset buffer?

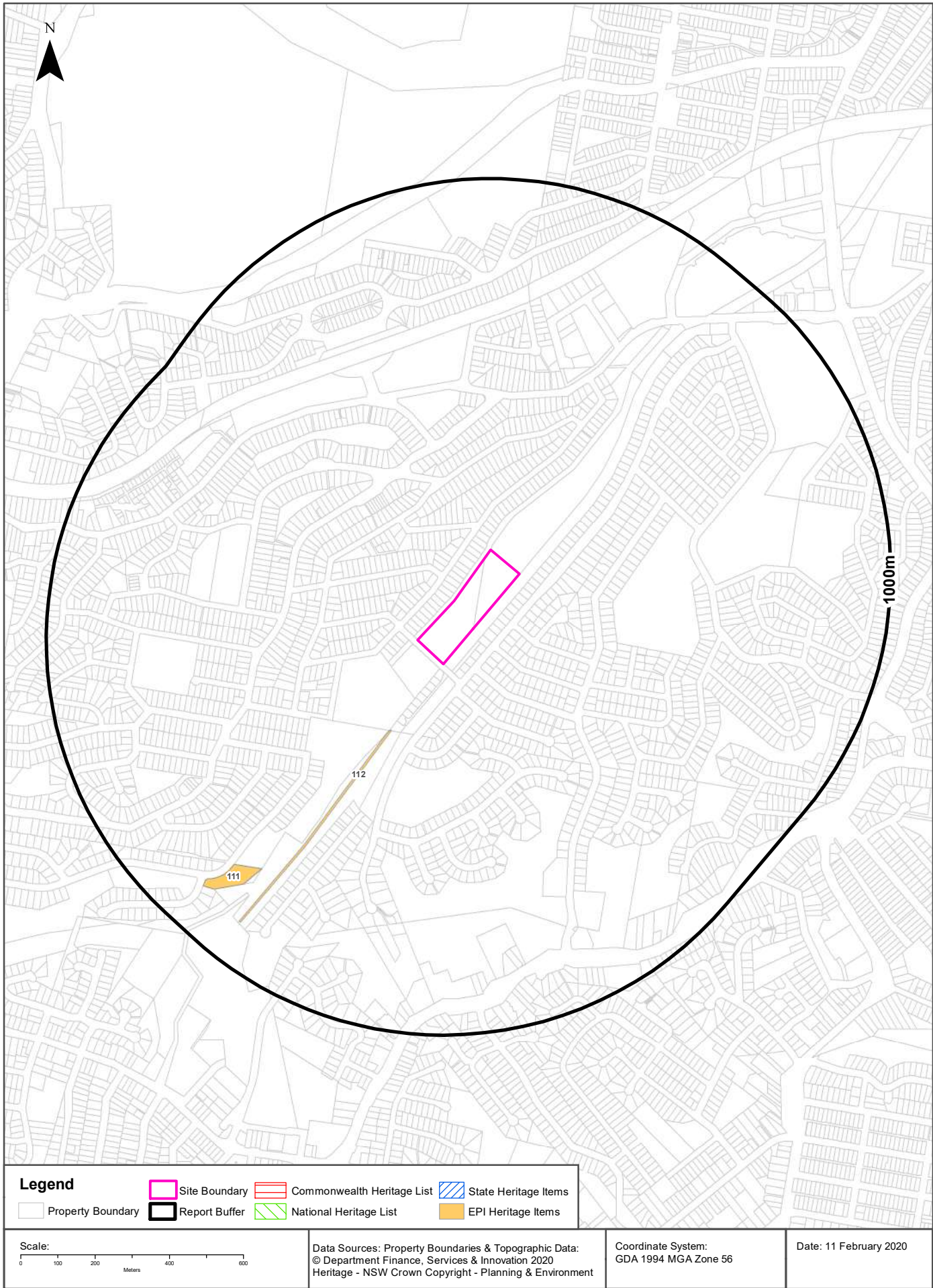
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		0m	Onsite
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		0m	North East
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		13m	West
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		29m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		207m	South West
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		210m	South
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		246m	North West
B1	Neighbourhood Centre		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		295m	North West
R3	Medium Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		358m	North
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		361m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		372m	South
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		385m	North West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		426m	North West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		446m	North West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		462m	East
R3	Medium Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		487m	North East
B5	Business Development		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		494m	North East
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		590m	West
SP2	Infrastructure	Railway	Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		592m	North West
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		604m	South
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		606m	South East
E3	Environmental Management		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		608m	South East
R2	Low Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		632m	North
SP3	Tourist		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		703m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		726m	South West
B2	Local Centre		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		747m	North East
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		752m	North
R3	Medium Density Residential		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		779m	East

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		782m	South
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		786m	South East
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		788m	West
E3	Environmental Management		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		792m	North
SP2	Infrastructure	Infrastructure	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		797m	South
SP3	Tourist		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		801m	South
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		802m	South
SP3	Tourist		Lake Macquarie Local Environmental Plan 2014	17/07/2015	17/07/2015	06/12/2019	Amendment No 2	818m	South
SP2	Infrastructure	Infrastructure	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		819m	South West
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		826m	North West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		827m	South East
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		835m	South
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		868m	South East
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		889m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		890m	West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		905m	South East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		909m	South
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		910m	South
B4	Mixed Use		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		922m	South East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		987m	South
RE1	Public Recreation		Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		988m	South East
SP2	Infrastructure	Classified Road	Newcastle Local Environmental Plan 2012	15/06/2012	15/06/2012	13/09/2019		992m	North
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	06/12/2019		996m	South East

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Heritage Items

30 Vista Parade, Kotara, NSW 2289



Heritage

30 Vista Parade, Kotara, NSW 2289

Commonwealth Heritage List

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

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

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

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

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

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

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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State Heritage Register - Curtilages

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

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

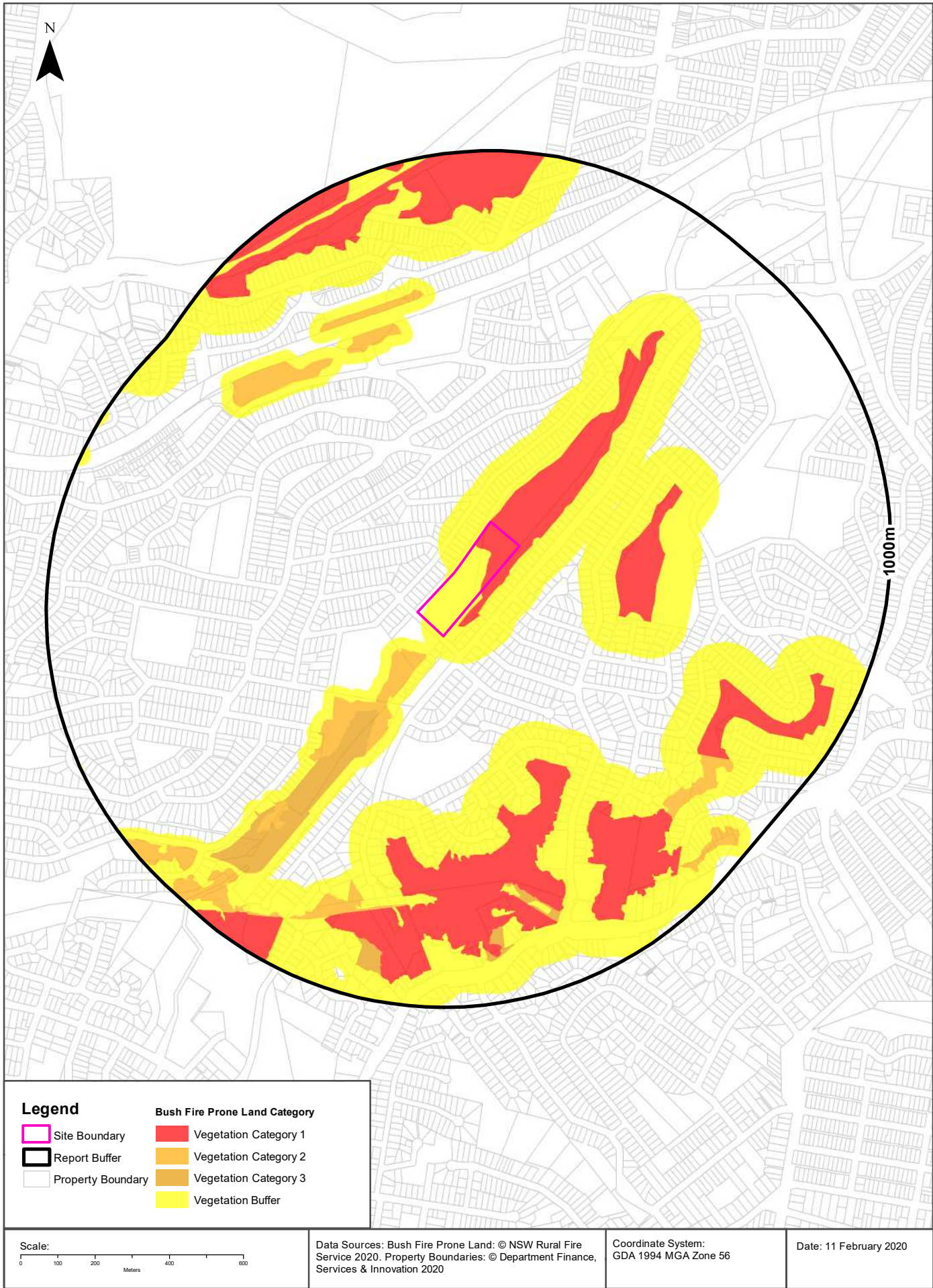
Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage
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Environmental Planning Instrument - Heritage

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

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
112	Raspberry Gully Line Railway	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	24/11/2017	229m	South West
111	South Waratah Colliery	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	24/11/2017	737m	South West

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Natural Hazards

30 Vista Parade, Kotara, NSW 2289

Bush Fire Prone Land

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

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	0m	Onsite
Vegetation Category 1	0m	Onsite
Vegetation Category 2	66m	South West
Vegetation Category 3	265m	South West

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

Ecological Constraints - Vegetation & Ramsar Wetlands

30 Vista Parade, Kotara, NSW 2289



Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

Lower Hunter and Central Coast Regional Vegetation Survey

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

Map Id	Unit Desc	Canopy Code	Canopy Cover	Species	Distance	Direction
5	Alluvial Tall Moist Forest	OF	Mid Dense (Open Forest) 50- <100% cover	E. saligna / S. glomulifera / Glochidion ferdinandi	0m	Onsite
30	Coastal Plains Smooth- barked Apple Woodland	OF	Mid Dense (Open Forest) 50- <100% cover	A. costata / C. gummifera / E. capitellata / E. umbra	0m	Onsite
15	Coastal Foothills Spotted Gum - Ironbark Forest	OF	Mid Dense (Open Forest) 50- <100% cover	C. maculata / E. umbra / E. siderophloia	284m	South
6	Coastal Narrabeen Moist Forest	OF	Mid Dense (Open Forest) 50- <100% cover	S. glomulifera / E. saligna / E. acmenoides	448m	South
5	Alluvial Tall Moist Forest	WO	Sparse (Woodland) 20-<50% cover	E. saligna / S. glomulifera / Glochidion ferdinandi	682m	North East
30	Coastal Plains Smooth- barked Apple Woodland	WO	Sparse (Woodland) 20-<50% cover	A. costata / C. gummifera / E. capitellata / E. umbra	707m	North East

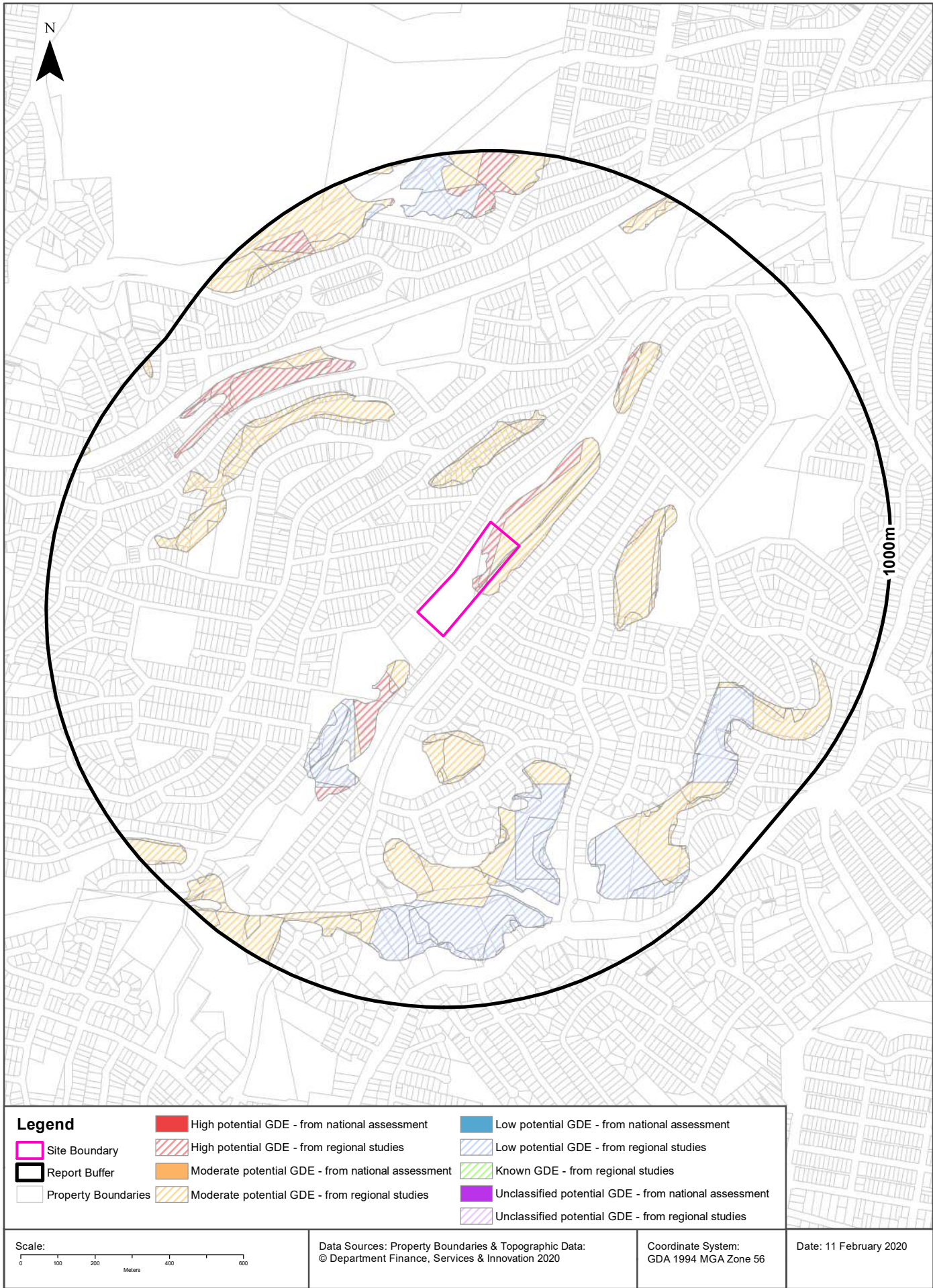
Lower Hunter and Central Coast Regional Vegetation Survey: NSW Office of Environment and Heritage

Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

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

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Environment



Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High potential GDE - from regional studies	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	High potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	Moderate potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	Low potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		289m

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology

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Ecological Constraints - Inflow Dependent Ecosystems Likelihood

30 Vista Parade, Kotara, NSW 2289



Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	2	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	5	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	6	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	10	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	3	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		124m
Terrestrial	4	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		127m
Terrestrial	1	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		174m
Terrestrial	7	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		252m
Terrestrial	9	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		469m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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Ecological Constraints

30 Vista Parade, Kotara, NSW 2289

NSW BioNet Atlas

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

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Crinia tinnula	Wallum Froglet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria olongburensis	Olongburra Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Amaurornis moluccana	Pale-vented Bush-hen	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anas querquedula	Garganey	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Anous stolidus	Common Noddy	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Anseranas semipalmata	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna grisea	Sooty Shearwater	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna pacificus	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris canutus	Red Knot	Not Listed	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris tenuirostris	Great Knot	Vulnerable	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Calonectris leucomelas	Streaked Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calyptorhynchus lathamii	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Charadrius leschenaultii	Greater Sand-plover	Vulnerable	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Charadrius mongolus	Lesser Sand-plover	Vulnerable	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Chlidonias leucopterus	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Diomedea exulans	Wandering Albatross	Endangered	Not Sensitive	Endangered	JAMBA
Animalia	Aves	Egretta sacra	Eastern Reef Egret	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco hypoleucos	Grey Falcon	Endangered	Category 2	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Fregata ariel	Lesser Frigatebird	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gelochelidon nilotica	Gull-billed Tern	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hirundo rustica	Barn Swallow	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Irediparra gallinacea	Comb-crested Jacana	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limnodromus semipalmatus	Asian Dowitcher	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Macronectes giganteus	Southern Giant Petrel	Endangered	Not Sensitive	Endangered	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Macronectes halli	Northern Giant-Petrel	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Motacilla flava	Yellow Wagtail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Oxyura australis	Blue-billed Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Phaethon rubricauda	Red-tailed Tropicbird	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Philomachus pugnax	Ruff	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pterodroma solandri	Providence Petrel	Vulnerable	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stercorarius parasiticus	Arctic Jaeger	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Sula dactylatra	Masked Booby	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Thalassarche cauta	Shy Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thalassarche melanophrys	Black-browed Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thinornis rubricollis	Hooded Plover	Critically Endangered	Not Sensitive	Vulnerable	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Todiramphus chloris	Collared Kingfisher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa glareola	Wood Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Xenus cinereus	Terek Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Insecta	Petalura gigantea	Giant Dragonfly	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Arctocephalus forsteri	New Zealand Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Arctocephalus pusillus doriferus	Australian Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Dugong dugon	Dugong	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Eubalaena australis	Southern Right Whale	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Macropus dorsalis	Black-striped Wallaby	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Megaptera novaeangliae	Humpback Whale	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Nyctophilus bifax	Eastern Long-eared Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascogale cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheath-tail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespertilio macrotis	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Antaresia stimsoni	Stimson's Python	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Diplodactylus platyrurus	Eastern Fat-tailed Gecko	Endangered	Not Sensitive	Not Listed	
Animalia	Reptilia	Eretmochelys imbricata	Hawksbill Turtle	Not Listed	Not Sensitive	Vulnerable	
Animalia	Reptilia	Uvidicolus sphyrurus	Border Thick-tailed Gecko	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Angophora inopina	Charmhaven Apple	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Chamaesyce psammogeton	Sand Spurge	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Davidsonia jerseyana	Davidson's Plum	Endangered	Category 2	Endangered	
Plantae	Flora	Diuris praecox	Rough Doubletail	Vulnerable	Category 2	Vulnerable	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus parramattensis subsp. parramattensis		Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea shiressii		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Muehlenbeckia costata	Scrambling Lignum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Phaius australis	Southern Swamp Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Pultenaea maritima	Coast Headland Pea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rhodomyrtus psidioides	Native Guava	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rutidosia heterogama	Heath Wrinklewort	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Senecio spathulatus	Coast Groundsel	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Tetratheca juncea	Black-eyed Susan	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Zannichellia palustris		Endangered	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.

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

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Annex E






BOREHOLE LOG REPORT

HOLE NO: BH4
FILE / JOB NO: P1678
SHEET: 1 OF 1

CLIENT: Catholic Diocese of Maitland - Newcastle
PROJECT: Proposed School Upgrades
LOCATION: St James Primary School, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: RB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: DS
		CHECKED BY:

TESTING & SAMPLING					MATERIAL						
Water	DCP		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations
	Depth (m)	Blows									
				ES 0.15-0.25	0.02m		SW	FILL: ASPHALT Seal	M	D	FILL
			ES 0.50-0.60	0.25m	FILL: Silty Gravelly SAND, fine to coarse grained, brown, fine to coarse gravel				ROCK		
				0.55m	Extremely Weathered SANDSTONE, fine to medium grained, grey, inferred extremely low strength				ALLUVIUM		
				1.0	Silty CLAY, high plasticity, dark grey / black, with coal fragments						
			ES 1.20-1.30	1.20m	As above, becoming grey, trace coal fragments						
					1.80m		CH		>PL		RESIDUAL SOIL
					2.0		CH	Silty Sandy CLAY, high plasticity, grey / mottled orange, fine grained sand		VSt	
					3.00m						
					3.0			Terminated at 3.00 m			
					4.0						
					5.0						
					6.0						
					7.0						
					8.0						
					9.0						
Additional Comments				CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System		SAMPLES & FIELD TESTS		MOISTURE		CONSISTENCY/RELATIVE DENSITY	
				<div>WATER</div> <div> Water table</div> <div> Water inflow</div>		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear		D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit		VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense	

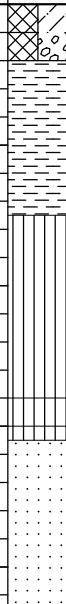




BOREHOLE LOG REPORT

HOLE NO: BH5
FILE / JOB NO: P1678
SHEET: 1 OF 1

CLIENT: Catholic Diocese of Maitland - Newcastle
PROJECT: Proposed School Upgrades
LOCATION: St James Primary School, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: RB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: DS
		CHECKED BY:

TESTING & SAMPLING				MATERIAL									
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations		
	Depth (m)	Blows											
				ES 0.10-0.20		SM 0.20m	FILL: Silty SAND, fine to medium grained, grey / brown	D - M	D	FILL			
				GP 0.40m		FILL: GRAVEL, fine to medium, grey / brown, with silty SAND, fine grained, grey / brown Sandy SILT, low plasticity, dark brown, with fine to medium gravel	D		ALLUVIUM				
	0.6 - 0.7	4		ES 0.80-1.10		1.0	ML	1.50m	Silty CLAY, high plasticity, brown	D - M	F		
	0.7 - 0.8	2											
	0.8 - 0.9	1											
	0.9 - 1.0	2											
	1.0 - 1.1	2											
	1.1 - 1.2	4											
	1.2 - 1.3	8											
	1.3 - 1.4	8											
	1.4 - 1.5	11		ES 1.20-1.30									
	1.5 - 1.6	Terminated											
						2.0	CH	2.80m			>PL	VSt - H	
						3.0							
							CH	3.00m	Silty Sandy CLAY, high plasticity, orange / mottled grey			RESIDUAL SOIL	
							CH	3.10m	Becoming brown				
									Extremely Weathered SANDSTONE, fine grained, orange / brown, inferred very low strength			BEDROCK	
							4.0						
									4.30m				
										Refusal at 4.30 m			
Additional Comments				CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System		SAMPLES & FIELD TESTS		MOISTURE		CONSISTENCY/RELATIVE DENSITY			
				WATER  Water table  Water inflow		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear		D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit		VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense			





BOREHOLE LOG REPORT

HOLE NO: BH6
FILE / JOB NO: P1678
SHEET: 1 OF 1

CLIENT: Catholic Diocese of Maitland - Newcastle
PROJECT: Proposed School Upgrades
LOCATION: St James Primary School, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: DS
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: DS
		CHECKED BY:

TESTING & SAMPLING					MATERIAL						
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations
	Depth (m)	Blows									
	0.0 - 0.1	6		U50 0.80-1.00	1.0		ML 				

Additional Comments	CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System	SAMPLES & FIELD TESTS	MOISTURE	CONSISTENCY/RELATIVE DENSITY
	WATER Water table Water inflow			
		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear	D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit	VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

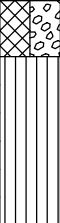




BOREHOLE LOG REPORT

HOLE NO: BH11
FILE / JOB NO: P1678
SHEET: 1 OF 1

CLIENT: Catholic Diocese of Maitland - Newcastle
PROJECT: Proposed School Upgrades
LOCATION: St James Primary School, 30 Vista Parade, Kotara South

POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: RB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: DS
		CHECKED BY:

TESTING & SAMPLING				MATERIAL							
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations
	Depth (m)	Blows									
	0.0 - 0.1	8		ES		GP	FILL (BASECOURSE): Silty Sandy GRAVEL, fine to coarse, brown / orange, fine to coarse grained sand	D	VD	FILL	
	0.1 - 0.2	10/50mm Refusal		0.15-0.25							0.40m
				B			CH	Silty CLAY, high plasticity, grey with orange band	<PL	VSt	ALLUVIUM
				0.40-1.00							
			D								
				1.30-1.50			2.00m	Terminated at 2.00 m			

Additional Comments	CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System	SAMPLES & FIELD TESTS	MOISTURE	CONSISTENCY/RELATIVE DENSITY
	WATER  Water table  Water inflow			
		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear	D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit	VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense





BOREHOLE LOG REPORT

HOLE NO: BH13
FILE / JOB NO: P1678
SHEET: 1 OF 1

CLIENT: Catholic Diocese of Maitland - Newcastle
PROJECT: Proposed School Upgrades
LOCATION: St James Primary School, 30 Vista Parade, Kotara South


POSITION:	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer mounted drill rig	CONTRACTOR:	DRILLER: RB
DATE LOGGED: 07/02/2019	DATE SAMPLED: 07/02/2019	LOGGED BY: DS
		CHECKED BY:

TESTING & SAMPLING				MATERIAL							
Water	DCP AS 1289.6.3.2-1997		Field Tests	Samples	Depth (m)	Graphic Log	Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/Relative Density	STRUCTURE & Other Observations
	Depth (m)	Blows									
	0.0 - 0.1	10/80mm Refusal		ES 0.15-0.25		SM 0.10m	FILL: Silty SAND, fine to medium grained, grey	D	D	FILL	
	GP 0.40m			FILL: Silty GRAVEL (Coal), fine to medium. black							
	SP 0.70m			FILL: Silty Gravelly SAND (Crushed Sandstone), fine to medium grained, white, fine to medium gravel							
	SP 1.20m			FILL: as above, becoming grey / orange							
	CH 1.50-1.60			Silty CLAY, high plasticity, grey, orange band							
							Terminated at 2.00 m				

Additional Comments	CLASSIFICATION SYMBOLS & SOIL DESCRIPTION Based on Unified Classification System	SAMPLES & FIELD TESTS	MOISTURE	CONSISTENCY/RELATIVE DENSITY
	WATER  Water table  Water inflow			
		U - Undisturbed Sample D - Disturbed Sample ES - Environmental Sample B - Bulk Disturbed Sample MC - Moisture Content PP - Pocket Penetrometer SPT - Standard Penetration Test VS - Vane Shear	D - Dry M - Moist W - Wet <PL - Moist, below PL ~PL - Moist, approx. PL >PL - Moist, above PL ~LL - Wet, approx. LL >LL - Wet, above LL PL - Plastic Limit LL - Liquid Limit	VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff H - Hard VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

Annex F


Table 1: Soil Results - Metals, TRH, BTEX.

 <div>VALLEYCIVILAB</div> <div>Geotechnical & Environmental Services</div>	Metals								TRH NEPM (2013)							BTEX			
	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	Napthalene	TRH C6-C10 Fraction	TRH C6-C10 less BTEX	TRH >C10-C16 Fraction	TRH >C10-C16 Fraction less N	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	Benzene	Ethylbenzene	Toluene	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	2	0.4	5	5	5	5	5	0.05	0.5	20	20	50	50	100	100	0.1	0.1	0.1	0.3
EILs (NEPM 2013)	100				1100				170										
ESLs - Fine (NEPM 2013)											180		120	1300	5600	65	125	105	105
ESLs - Coarse (NEPM 2013)											180		120	300	2800	50	70	85	45
HIL A (NEPM 2013)	100	20	100	6000	300	400	7400	40											
HSL A - Soil Vapour Clay 0 - <1m (NEPM 2013)									5		50		280			0.7	NL	480	110
Management Limits - Fine Soil (NEPM 2013)										800		1,000		3,500	10,000				
Management Limits - Coarse Soil (NEPM 2013)										700		1,000		2,500	10,000				
HSL A - Direct Contact (CRC Care 2011)									1,400	4,400		3,300		4,500	6,300	100	4,500	14,000	12,000

Sample ID	Sampled Date																			
BH4_0.15-0.25	7/02/2019	11	<0.3	8.5	12	10	11	44	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH4_1.2-1.3	7/02/2019	3	<0.3	3.3	2	9	1.3	6.2	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH5_0.15-0.25	7/02/2019	9	<0.3	6.6	15	18	8.7	150	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH5_0.8-1.0	7/02/2019	3	<0.3	2.7	4.8	8	1.4	12	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH6_0.15-0.25	7/02/2019	5	<0.3	3.8	8.7	11	1.8	28	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH6_0.7-0.8	7/02/2019	5	<0.3	3.3	4	14	1.5	10	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH7_0.15-0.25	7/02/2019	5	<0.3	3.4	5.7	14	1.6	19	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH7_0.7-0.8	7/02/2019	5	<0.3	3.1	5.8	14	1.5	18	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH8_0.15-0.25	7/02/2019	8	<0.3	7.5	9.7	14	5.5	40	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH8_0.8-0.9	7/02/2019	9	<0.3	5.1	7.4	18	2.8	61	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH11_0.15-0.25	7/02/2019	4	<0.3	8.8	15	17	11	71	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH11_1.3-1.5	7/02/2019	8	<0.3	5.6	2.9	9	1.7	6.6	<0.05	<0.1	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3
BH13_0.15-0.25	7/02/2019	4	<0.3	2.7	17	13	3.8	34	<0.05	<0.1	<25	<25	160	160	590	<120	<0.1	<0.1	<0.1	<0.3
BH13_0.6-0.7	7/02/2019	8	<0.3	4.3	5.7	10	2.6	13	<0.05	<0.1	<25	<25	39	39	<90	<120	<0.1	<0.1	<0.1	<0.3

Statistical Summary																				
Number of Results	7	7	7	7	7	7	7	7	0	1	0	0	0	0	1	1	0	0	0	0
Number of Detects	7	0	7	7	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect	4	0	15	5.4	8	2.6	24	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect	4	0	15	5.4	8	2.6	24	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration	4	-	15	5.4	8	2.6	24	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0


Table 2: Soil Results - PAH, OCP, OPP, PCB.

	PAH						OCP										OPP	PCB
	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound)	Benzo(a)pyrene TEQ (medium bound)	Benzo(a)pyrene TEQ (upper bound)	Naphthalene	Total PAH	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Methoxychlor	Chlorpyrifos	Total PCB*
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	0.5	0.5	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.2	0.1
EILs (NEPM 2013)					170				180									
ESLs - Coarse/Fine (NEPM 2013)	0.7																	
HIL A (NEPM 2013)		3	3	3		300	240	240	240	6	6	270	270	10	6	300	160	1
HSL A - Direct Contact (CRC Care 2011)					1,400													

Sample ID	Sampled Date																		
BH4_0.15-0.25	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH4_1.2-1.3	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	-	-	-	-	-	-	-	-	-	-	-	-
BH5_0.15-0.25	7/02/2019	0.1	<0.2	<0.3	0.2	<0.1	1.4	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH5_0.8-1.0	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	-	-	-	-	-	-	-	-	-	-	-	-
BH6_0.15-0.25	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH6_0.7-0.8	7/02/2019	0.1	<0.2	<0.3	0.2	<0.1	2	-	-	-	-	-	-	-	-	-	-	-	-
BH7_0.15-0.25	7/02/2019	0.1	<0.2	<0.3	0.2	<0.1	1.9	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH7_0.7-0.8	7/02/2019	0.3	0.4	0.5	0.4	<0.1	3.9	-	-	-	-	-	-	-	-	-	-	-	-
BH8_0.15-0.25	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	1.3	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH8_0.8-0.9	7/02/2019	0.2	0.3	0.4	0.4	<0.1	3	-	-	-	-	-	-	-	-	-	-	-	-
BH11_0.15-0.25	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH11_1.3-1.5	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0.15-0.25	7/02/2019	0.1	<0.2	<0.3	0.2	0.1	6	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<1
BH13_0.6-0.7	7/02/2019	<0.1	<0.2	<0.3	<0.2	<0.1	<0.8	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																			
Number of Results	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Number of Detects	6	2	2	6	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect	0.1	0.3	0.4	0.2	0.1	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect	0.3	0.4	0.5	0.4	0.1	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration	0.15	0.35	0.45	0.26667	0.1	2.78571	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5: Field Duplicate Soil Results - TRH, Metals, PAH.


 VALLEY/CIVILAB Geotechnical & Environmental Services	LOR	Unit	Primary Sample	QA Sample	RPD
			BH11_1.3-1.5	DUP 1	
TRH					
TRH C6-C10 Fraction	20	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH C6-C10 less BTEX	20	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH >C10-C16 Fraction	50	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH >C10-C16 Fraction less N	50	mg/kg	<u>12.5</u>	<u>12.5</u>	0.0
TRH >C16-C34 Fraction	100	mg/kg	<u>45</u>	<u>45</u>	0.0
TRH >C34-C40 Fraction	100	mg/kg	<u>60</u>	<u>60</u>	0.0
Naphthalene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
BTEX					
Benzene	0.1	mg/kg	0.05	0.05	0.0
Ethylbenzene	0.1	mg/kg	0.05	0.05	0.0
m&p-Xylenes	0.2	mg/kg	0.1	0.1	0.0
o-Xylene	0.1	mg/kg	0.05	0.05	0.0
Toluene	0.1	mg/kg	0.05	0.05	0.0
Xylenes - Total	0.3	mg/kg	0.15	0.15	0.0
Metals					
Arsenic	2	mg/kg	8	8	0.0
Cadmium	0.4	mg/kg	<u>0.15</u>	<u>0.15</u>	0.0
Chromium	5	mg/kg	5.6	5.6	0.0
Copper	5	mg/kg	2.9	3.5	-18.8
Lead	5	mg/kg	9	11	-20.0
Mercury	0.1	mg/kg	<u>0.025</u>	<u>0.025</u>	0.0
Nickel	5	mg/kg	1.7	1.4	19.4
Zinc	5	mg/kg	6.6	9.1	-31.8
PAH					
Acenaphthene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Acenaphthylene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Anthracene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benz(a)anthracene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(a)pyrene	5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(a)pyrene TEQ (lower bound)	0.5	mg/kg	<u>0.1</u>	<u>0.1</u>	0.0
Benzo(a)pyrene TEQ (medium bound)	0.5	mg/kg	<u>0.15</u>	<u>0.15</u>	0.0
Benzo(a)pyrene TEQ (upper bound)	0.2	mg/kg	<u>0.1</u>	<u>0.1</u>	0.0
Benzo(b&j)fluoranthene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(g,h,i)perylene	0.4	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Benzo(k)fluoranthene	5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Chrysene	1	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Fluoranthene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Fluorene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Naphthalene	0.5	mg/kg	<u>0.05</u>	0.05	0.0
Phenanthrene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Pyrene	0.5	mg/kg	<u>0.05</u>	<u>0.05</u>	0.0
Total PAH	0.5	mg/kg	0.4	0.4	0.0

Notes

RPD = Relative Percentage Difference.

RPD assessment criteria were adopted in general accordance with NEPM Schedule B3 Section 3.5 (NEPC 2013). RPDs where both primary and duplicate results were < 2.5 times the LOR were not considered. RPDs where primary and/or duplicate results were >2.5 times the LOR were assessed based on a threshold of +/- 30%. Exceedence of this threshold triggered consideration of associated data quality.

Table 7: Field Spike and Blank Results.

 VALLEY/CIVILAB Geotechnical & Environmental Services	LOR Soil	Trip Spike Soil	Trip Blank Soil
Date			
Unit of Measure	mg/kg	% Recovery	mg/kg
BTEX			
Benzene	0.1	86%	0.05
Toluene	0.1	86%	0.05
Ethylbenzene	0.1	89%	0.05
m&p-Xylenes	0.2	89%	0.1
o-Xylene	0.1	89%	0.05
Xylenes - Total	0.3	-	0.15

Annex G

CLIENT DETAILS

Contact **Jake Duck**
 Client **VALLEY CIVILAB PTY LTD**
 Address **PO BOX 3127
 THORNTON NSW 2322**

Telephone **61 2 4966 1844**
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Project **P1678-KOTARA**
 Order Number **03787**
 Samples **18**

LABORATORY DETAILS

Manager **Huong Crawford**
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Telephone **+61 2 8594 0400**
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SGS Reference **SE189065 R0**
 Date Received **11 Feb 2019**
 Date Reported **18 Feb 2019**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



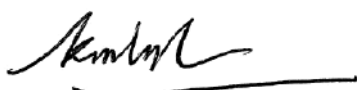
Bennet Lo
 Senior Organic Chemist/Metals Chemis



Dong Liang
 Metals/Inorganics Team Leader



Kamrul Ahsan
 Senior Chemist



Ly Kim Ha
 Organic Section Head



Teresa Nguyen
 Organic Chemist

Parameter	Sample Number		SE189065.001	SE189065.002	SE189065.003	SE189065.004
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
	Sample Name		BH4_0.15-0.25	BH4_1.2-1.3	BH5_0.15-0.25	BH5_0.8-1.0
Units	LOR					

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	86	81	83	80
d4-1,2-dichloroethane (Surrogate)	%	-	87	90	95	88
d8-toluene (Surrogate)	%	-	93	85	89	86
Bromofluorobenzene (Surrogate)	%	-	80	75	71	71

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	86	81	83	80
d4-1,2-dichloroethane (Surrogate)	%	-	87	90	95	88
d8-toluene (Surrogate)	%	-	93	85	89	86
Bromofluorobenzene (Surrogate)	%	-	80	75	71	71

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number	SE189065.001	SE189065.002	SE189065.003	SE189065.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH4_0.15-0.25	BH4_1.2-1.3	BH5_0.15-0.25	BH5_0.8-1.0

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.3	0.2
Pyrene	mg/kg	0.1	<0.1	<0.1	0.3	0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	1.4	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	1.4	<0.8

Surrogates

d5-nitrobenzene (Surrogate)	%	-	96	94	90	92
2-fluorobiphenyl (Surrogate)	%	-	102	100	100	102
d14-p-terphenyl (Surrogate)	%	-	102	102	100	100

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1	-
Lindane	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	-	<0.1	-
Aldrin	mg/kg	0.1	<0.1	-	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	-	<0.2	-
Endrin	mg/kg	0.2	<0.2	-	<0.2	-

Parameter	Units	LOR	Sample Number	SE189065.001	SE189065.002	SE189065.003	SE189065.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH4_0.15-0.25	BH4_1.2-1.3	BH5_0.15-0.25	BH5_0.8-1.0

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1	-
Isodrin	mg/kg	0.1	<0.1	-	<0.1	-
Mirex	mg/kg	0.1	<0.1	-	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	95	-	105	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	-	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	-	<0.2	-
Malathion	mg/kg	0.2	<0.2	-	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	<0.2	-
Methidathion	mg/kg	0.5	<0.5	-	<0.5	-
Ethion	mg/kg	0.2	<0.2	-	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	<0.2	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	<1.7	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	102	-	100	-
d14-p-terphenyl (Surrogate)	%	-	102	-	100	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	95	-	105	-
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Parameter	Units	LOR	Sample Number	SE189065.001	SE189065.002	SE189065.003	SE189065.004
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH4_0.15-0.25	BH4_1.2-1.3	BH5_0.15-0.25	BH5_0.8-1.0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	11	3	9	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	8.5	3.3	6.6	2.7
Copper, Cu	mg/kg	0.5	12	2.0	15	4.8
Nickel, Ni	mg/kg	0.5	11	1.3	8.7	1.4
Lead, Pb	mg/kg	1	10	9	18	8
Zinc, Zn	mg/kg	2	44	6.2	150	12

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	7.1	14	6.2	11
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-	-	-
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Parameter	Sample Number		SE189065.005	SE189065.006	SE189065.007	SE189065.008
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
	Sample Name		BH6_0.15-0.25	BH6_0.7-0.8	BH7_0.15-0.25	BH7_0.7-0.8
Parameter	Units	LOR				

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	81	79	83	84
d4-1,2-dichloroethane (Surrogate)	%	-	83	83	93	96
d8-toluene (Surrogate)	%	-	84	83	86	89
Bromofluorobenzene (Surrogate)	%	-	71	77	73	78

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	81	79	83	84
d4-1,2-dichloroethane (Surrogate)	%	-	83	83	93	96
d8-toluene (Surrogate)	%	-	84	83	86	89
Bromofluorobenzene (Surrogate)	%	-	71	77	73	78

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number	SE189065.005	SE189065.006	SE189065.007	SE189065.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH6_0.15-0.25	BH6_0.7-0.8	BH7_0.15-0.25	BH7_0.7-0.8

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.1	0.2	0.5
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.2	0.6	0.6	1.0
Pyrene	mg/kg	0.1	0.2	0.5	0.4	0.8
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.2	0.2	0.3
Chrysene	mg/kg	0.1	<0.1	0.2	0.2	0.3
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.2	0.2	0.4
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	0.1	0.2
Benzo(a)pyrene	mg/kg	0.1	<0.1	0.1	0.1	0.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	0.4
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	0.5
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.2	0.2	0.4
Total PAH (18)	mg/kg	0.8	<0.8	2.0	1.9	3.9
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	2.0	1.9	3.9

Surrogates

d5-nitrobenzene (Surrogate)	%	-	94	96	96	96
2-fluorobiphenyl (Surrogate)	%	-	102	102	102	102
d14-p-terphenyl (Surrogate)	%	-	102	102	102	100

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1	-
Lindane	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	-	<0.1	-
Aldrin	mg/kg	0.1	<0.1	-	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	-	<0.2	-
Endrin	mg/kg	0.2	<0.2	-	<0.2	-

Parameter	Units	LOR	Sample Number	SE189065.005	SE189065.006	SE189065.007	SE189065.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH6_0.15-0.25	BH6_0.7-0.8	BH7_0.15-0.25	BH7_0.7-0.8

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1	-
Isodrin	mg/kg	0.1	<0.1	-	<0.1	-
Mirex	mg/kg	0.1	<0.1	-	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	106	-	103	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	-	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	-	<0.2	-
Malathion	mg/kg	0.2	<0.2	-	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	<0.2	-
Methidathion	mg/kg	0.5	<0.5	-	<0.5	-
Ethion	mg/kg	0.2	<0.2	-	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	<0.2	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	<1.7	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	102	-	102	-
d14-p-terphenyl (Surrogate)	%	-	102	-	102	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	106	-	103	-
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Parameter	Units	LOR	Sample Number	SE189065.005	SE189065.006	SE189065.007	SE189065.008
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH6_0.15-0.25	BH6_0.7-0.8	BH7_0.15-0.25	BH7_0.7-0.8

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	5	5	5	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	3.8	3.3	3.4	3.1
Copper, Cu	mg/kg	0.5	8.7	4.0	5.7	5.8
Nickel, Ni	mg/kg	0.5	1.8	1.5	1.6	1.5
Lead, Pb	mg/kg	1	11	14	14	14
Zinc, Zn	mg/kg	2	28	10	19	18

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	13	15	13	10
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-	-	-
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Parameter	Sample Number		SE189065.009	SE189065.010	SE189065.011	SE189065.012
	Sample Matrix		Soil	Soil	Soil	Soil
	Sample Date		07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
	Sample Name		BH8_0.15-0.25	BH8_0.8-0.9	BH11_0.15-0.25	BH11_1.3-1.5
Units	LOR					

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	82	83	81	91
d4-1,2-dichloroethane (Surrogate)	%	-	93	93	89	92
d8-toluene (Surrogate)	%	-	85	87	84	90
Bromofluorobenzene (Surrogate)	%	-	74	77	70	72

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Dibromofluoromethane (Surrogate)	%	-	82	83	81	91
d4-1,2-dichloroethane (Surrogate)	%	-	93	93	89	92
d8-toluene (Surrogate)	%	-	85	87	84	90
Bromofluorobenzene (Surrogate)	%	-	74	77	70	72

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Sample Number	SE189065.009	SE189065.010	SE189065.011	SE189065.012
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
	Sample Name	BH8_0.15-0.25	BH8_0.8-0.9	BH11_0.15-0.25	BH11_1.3-1.5
	Units	LOR			

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	0.3	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.4	0.8	0.2	<0.1
Pyrene	mg/kg	0.1	0.3	0.6	0.2	<0.1
Benzo(a)anthracene	mg/kg	0.1	0.1	0.3	<0.1	<0.1
Chrysene	mg/kg	0.1	0.1	0.2	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.3	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	0.2	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0.3	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.4	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.4	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	1.3	3.0	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	1.3	3.0	<0.8	<0.8

Surrogates

d5-nitrobenzene (Surrogate)	%	-	94	96	92	96
2-fluorobiphenyl (Surrogate)	%	-	102	102	100	102
d14-p-terphenyl (Surrogate)	%	-	100	102	102	104

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1	-
Lindane	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	-	<0.1	-
Aldrin	mg/kg	0.1	<0.1	-	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	-	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	-	<0.2	-
Endrin	mg/kg	0.2	<0.2	-	<0.2	-

Parameter	Units	LOR	Sample Number	SE189065.009	SE189065.010	SE189065.011	SE189065.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH8_0.15-0.25	BH8_0.8-0.9	BH11_0.15-0.25	BH11_1.3-1.5

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1	-
Isodrin	mg/kg	0.1	<0.1	-	<0.1	-
Mirex	mg/kg	0.1	<0.1	-	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105	-	92	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	-	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	-	<0.2	-
Malathion	mg/kg	0.2	<0.2	-	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	<0.2	-
Methidathion	mg/kg	0.5	<0.5	-	<0.5	-
Ethion	mg/kg	0.2	<0.2	-	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	<0.2	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	<1.7	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	102	-	100	-
d14-p-terphenyl (Surrogate)	%	-	100	-	102	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105	-	92	-
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Parameter	Units	LOR	Sample Number	SE189065.009	SE189065.010	SE189065.011	SE189065.012
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH8_0.15-0.25	BH8_0.8-0.9	BH11_0.15-0.25	BH11_1.3-1.5

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	8	9	4	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	7.5	5.1	8.8	5.6
Copper, Cu	mg/kg	0.5	9.7	7.4	15	2.9
Nickel, Ni	mg/kg	0.5	5.5	2.8	11	1.7
Lead, Pb	mg/kg	1	14	18	17	9
Zinc, Zn	mg/kg	2	40	61	71	6.6

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	7.5	5.7	4.4	15
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-	-	-
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Parameter	Units	LOR	Sample Number	SE189065.013	SE189065.014	SE189065.015	SE189065.016
			Sample Matrix	Soil	Soil	Soil	Water
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH13_0.15-0.25	BH13_0.6-0.7	DUP 1	RIN

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	-

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	78	95	82	-
d4-1,2-dichloroethane (Surrogate)	%	-	87	100	91	-
d8-toluene (Surrogate)	%	-	87	102	88	-
Bromofluorobenzene (Surrogate)	%	-	80	89	78	-

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	-

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	<25	<25	<25	-
TRH C6-C9	mg/kg	20	<20	<20	<20	-

Surrogates

Dibromofluoromethane (Surrogate)	%	-	78	95	82	-
d4-1,2-dichloroethane (Surrogate)	%	-	87	100	91	-
d8-toluene (Surrogate)	%	-	87	102	88	-
Bromofluorobenzene (Surrogate)	%	-	80	89	78	-

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	-

Parameter	Sample Number	SE189065.013	SE189065.014	SE189065.015	SE189065.016
	Sample Matrix	Soil	Soil	Soil	Water
	Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
	Sample Name	BH13_0.15-0.25	BH13_0.6-0.7	DUP 1	RIN
Units LOR					

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 14/2/2019

TRH C10-C14	mg/kg	20	110	30	<20	-
TRH C15-C28	mg/kg	45	510	89	<45	-
TRH C29-C36	mg/kg	45	170	<45	<45	-
TRH C37-C40	mg/kg	100	<100	<100	<100	-
TRH C10-C36 Total	mg/kg	110	790	120	<110	-
TRH C10-C40 Total (F bands)	mg/kg	210	740	<210	<210	-

TRH F Bands

TRH >C10-C16	mg/kg	25	160	39	<25	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	160	39	<25	-
TRH >C16-C34 (F3)	mg/kg	90	590	<90	<90	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	-

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 14/2/2019

Naphthalene	mg/kg	0.1	0.1	<0.1	<0.1	-
2-methylnaphthalene	mg/kg	0.1	1.0	<0.1	<0.1	-
1-methylnaphthalene	mg/kg	0.1	1.9	0.2	<0.1	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Phenanthrene	mg/kg	0.1	1.5	0.2	<0.1	-
Anthracene	mg/kg	0.1	0.1	<0.1	<0.1	-
Fluoranthene	mg/kg	0.1	0.3	<0.1	<0.1	-
Pyrene	mg/kg	0.1	0.4	<0.1	<0.1	-
Benzo(a)anthracene	mg/kg	0.1	0.3	<0.1	<0.1	-
Chrysene	mg/kg	0.1	0.2	<0.1	<0.1	-
Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	<0.1	<0.1	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Benzo(a)pyrene	mg/kg	0.1	0.1	<0.1	<0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.2	<0.2	<0.2	-
Total PAH (18)	mg/kg	0.8	6.0	<0.8	<0.8	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	3.1	<0.8	<0.8	-

Surrogates

d5-nitrobenzene (Surrogate)	%	-	82	98	92	-
2-fluorobiphenyl (Surrogate)	%	-	106	100	98	-
d14-p-terphenyl (Surrogate)	%	-	90	98	100	-

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-	-
Alpha BHC	mg/kg	0.1	<0.1	-	-	-
Lindane	mg/kg	0.1	<0.1	-	-	-
Heptachlor	mg/kg	0.1	<0.1	-	-	-
Aldrin	mg/kg	0.1	<0.1	-	-	-
Beta BHC	mg/kg	0.1	<0.1	-	-	-
Delta BHC	mg/kg	0.1	<0.1	-	-	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	-	-
o,p'-DDE	mg/kg	0.1	<0.1	-	-	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	-	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	-	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	-	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	-	-
p,p'-DDE	mg/kg	0.1	<0.1	-	-	-
Dieldrin	mg/kg	0.2	<0.2	-	-	-
Endrin	mg/kg	0.2	<0.2	-	-	-

Parameter	Units	LOR	Sample Number	SE189065.013	SE189065.014	SE189065.015	SE189065.016
			Sample Matrix	Soil	Soil	Soil	Water
			Sample Date	07 Feb 2019	07 Feb 2019	07 Feb 2019	07 Feb 2019
			Sample Name	BH13_0.15-0.25	BH13_0.6-0.7	DUP 1	RIN

OC Pesticides in Soil Method: AN420 Tested: 18/2/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	-	-	-
o,p'-DDT	mg/kg	0.1	<0.1	-	-	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	-	-
p,p'-DDD	mg/kg	0.1	<0.1	-	-	-
p,p'-DDT	mg/kg	0.1	<0.1	-	-	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	-	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	-	-
Methoxychlor	mg/kg	0.1	<0.1	-	-	-
Endrin Ketone	mg/kg	0.1	<0.1	-	-	-
Isodrin	mg/kg	0.1	<0.1	-	-	-
Mirex	mg/kg	0.1	<0.1	-	-	-
Total CLP OC Pesticides	mg/kg	1	<1	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103	-	-	-
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OP Pesticides in Soil Method: AN420 Tested: 14/2/2019

Dichlorvos	mg/kg	0.5	<0.5	-	-	-
Dimethoate	mg/kg	0.5	<0.5	-	-	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	-	-
Fenitrothion	mg/kg	0.2	<0.2	-	-	-
Malathion	mg/kg	0.2	<0.2	-	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	-	-
Methidathion	mg/kg	0.5	<0.5	-	-	-
Ethion	mg/kg	0.2	<0.2	-	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	-	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	106	-	-	-
d14-p-terphenyl (Surrogate)	%	-	90	-	-	-

PCBs in Soil Method: AN420 Tested: 14/2/2019

Arochlor 1016	mg/kg	0.2	<0.2	-	-	-
Arochlor 1221	mg/kg	0.2	<0.2	-	-	-
Arochlor 1232	mg/kg	0.2	<0.2	-	-	-
Arochlor 1242	mg/kg	0.2	<0.2	-	-	-
Arochlor 1248	mg/kg	0.2	<0.2	-	-	-
Arochlor 1254	mg/kg	0.2	<0.2	-	-	-
Arochlor 1260	mg/kg	0.2	<0.2	-	-	-
Arochlor 1262	mg/kg	0.2	<0.2	-	-	-
Arochlor 1268	mg/kg	0.2	<0.2	-	-	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103	-	-	-
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Parameter	Units	LOR
Sample Number	SE189065.013	SE189065.014
Sample Matrix	Soil	Soil
Sample Date	07 Feb 2019	07 Feb 2019
Sample Name	BH13_0.15-0.25	BH13_0.6-0.7
		DUP 1
		07 Feb 2019
		RIN

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 14/2/2019

Arsenic, As	mg/kg	1	4	8	8	-
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	-
Chromium, Cr	mg/kg	0.3	2.7	4.3	5.6	-
Copper, Cu	mg/kg	0.5	17	5.7	3.5	-
Nickel, Ni	mg/kg	0.5	3.8	2.6	1.4	-
Lead, Pb	mg/kg	1	13	10	11	-
Zinc, Zn	mg/kg	2	34	13	9.1	-

Mercury in Soil Method: AN312 Tested: 14/2/2019

Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	-
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Moisture Content Method: AN002 Tested: 14/2/2019

% Moisture	%w/w	0.5	9.0	5.0	11	-
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-	-	<1
Cadmium, Cd	µg/L	0.1	-	-	-	<0.1
Chromium, Cr	µg/L	1	-	-	-	<1
Copper, Cu	µg/L	1	-	-	-	<1
Lead, Pb	µg/L	1	-	-	-	<1
Nickel, Ni	µg/L	1	-	-	-	<1
Zinc, Zn	µg/L	5	-	-	-	<5

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-	-	<0.0001
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	Sample Number	SE189065.017	SE189065.018
	Sample Matrix	Soil	Soil
	Sample Date	07 Feb 2019	07 Feb 2019
	Sample Name	TRIP SPIKE	TRIP BLANK
Parameter	Units	LOR	

VOC's in Soil Method: AN433 Tested: 14/2/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	[86%]	<0.1
Toluene	mg/kg	0.1	[86%]	<0.1
Ethylbenzene	mg/kg	0.1	[89%]	<0.1
m/p-xylene	mg/kg	0.2	[89%]	<0.2
o-xylene	mg/kg	0.1	[89%]	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	-	<0.1
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	77	78
d4-1,2-dichloroethane (Surrogate)	%	-	87	83
d8-toluene (Surrogate)	%	-	82	80
Bromofluorobenzene (Surrogate)	%	-	78	71

Totals

Total Xylenes	mg/kg	0.3	-	<0.3
Total BTEX	mg/kg	0.6	-	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 14/2/2019

TRH C6-C10	mg/kg	25	-	-
TRH C6-C9	mg/kg	20	-	-

Surrogates

Dibromofluoromethane (Surrogate)	%	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-
d8-toluene (Surrogate)	%	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-

VPF F Bands

Benzene (F0)	mg/kg	0.1	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	-	-

		Sample Number	SE189065.017	SE189065.018
		Sample Matrix	Soil	Soil
		Sample Date	07 Feb 2019	07 Feb 2019
		Sample Name	TRIP SPIKE	TRIP BLANK
Parameter	Units	LOR		

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 18/2/2019

TRH C10-C14	mg/kg	20	-	<20
TRH C15-C28	mg/kg	45	-	<45
TRH C29-C36	mg/kg	45	-	<45
TRH C37-C40	mg/kg	100	-	<100
TRH C10-C36 Total	mg/kg	110	-	<110
TRH C10-C40 Total (F bands)	mg/kg	210	-	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	-	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	<25
TRH >C16-C34 (F3)	mg/kg	90	-	<90
TRH >C34-C40 (F4)	mg/kg	120	-	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 18/2/2019

Naphthalene	mg/kg	0.1	-	-
2-methylnaphthalene	mg/kg	0.1	-	-
1-methylnaphthalene	mg/kg	0.1	-	-
Acenaphthylene	mg/kg	0.1	-	-
Acenaphthene	mg/kg	0.1	-	-
Fluorene	mg/kg	0.1	-	-
Phenanthrene	mg/kg	0.1	-	-
Anthracene	mg/kg	0.1	-	-
Fluoranthene	mg/kg	0.1	-	-
Pyrene	mg/kg	0.1	-	-
Benzo(a)anthracene	mg/kg	0.1	-	-
Chrysene	mg/kg	0.1	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	-	-
Benzo(k)fluoranthene	mg/kg	0.1	-	-
Benzo(a)pyrene	mg/kg	0.1	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	-	-
Benzo(ghi)perylene	mg/kg	0.1	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	-	-
Total PAH (18)	mg/kg	0.8	-	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	-	-

Surrogates

d5-nitrobenzene (Surrogate)	%	-	-	-
2-fluorobiphenyl (Surrogate)	%	-	-	-
d14-p-terphenyl (Surrogate)	%	-	-	-

OC Pesticides in Soil Method: AN420 Tested: 18/2/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	-	-
Alpha BHC	mg/kg	0.1	-	-
Lindane	mg/kg	0.1	-	-
Heptachlor	mg/kg	0.1	-	-
Aldrin	mg/kg	0.1	-	-
Beta BHC	mg/kg	0.1	-	-
Delta BHC	mg/kg	0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-

		Sample Number	SE189065.017	SE189065.018
		Sample Matrix	Soil	Soil
		Sample Date	07 Feb 2019	07 Feb 2019
		Sample Name	TRIP SPIKE	TRIP BLANK
Parameter	Units	LOR		

OC Pesticides in Soil Method: AN420 Tested: 14/2/2019 (continued)

Dieldrin	mg/kg	0.2	-	-
Endrin	mg/kg	0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-
Methoxychlor	mg/kg	0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-
Isodrin	mg/kg	0.1	-	-
Mirex	mg/kg	0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-
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OP Pesticides in Soil Method: AN420 Tested: 18/2/2019

Dichlorvos	mg/kg	0.5	-	-
Dimethoate	mg/kg	0.5	-	-
Diazinon (Dimpylate)	mg/kg	0.5	-	-
Fenitrothion	mg/kg	0.2	-	-
Malathion	mg/kg	0.2	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	-	-
Bromophos Ethyl	mg/kg	0.2	-	-
Methidathion	mg/kg	0.5	-	-
Ethion	mg/kg	0.2	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	-	-
Total OP Pesticides*	mg/kg	1.7	-	-

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	-	-
d14-p-terphenyl (Surrogate)	%	-	-	-

		Sample Number	SE189065.017	SE189065.018
		Sample Matrix	Soil	Soil
		Sample Date	07 Feb 2019	07 Feb 2019
		Sample Name	TRIP SPIKE	TRIP BLANK
Parameter	Units	LOR		

PCBs in Soil Method: AN420 Tested: 18/2/2019

Arochlor 1016	mg/kg	0.2	-	-
Arochlor 1221	mg/kg	0.2	-	-
Arochlor 1232	mg/kg	0.2	-	-
Arochlor 1242	mg/kg	0.2	-	-
Arochlor 1248	mg/kg	0.2	-	-
Arochlor 1254	mg/kg	0.2	-	-
Arochlor 1260	mg/kg	0.2	-	-
Arochlor 1262	mg/kg	0.2	-	-
Arochlor 1268	mg/kg	0.2	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-
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Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 18/2/2019

Arsenic, As	mg/kg	1	-	-
Cadmium, Cd	mg/kg	0.3	-	-
Chromium, Cr	mg/kg	0.3	-	-
Copper, Cu	mg/kg	0.5	-	-
Nickel, Ni	mg/kg	0.5	-	-
Lead, Pb	mg/kg	1	-	-
Zinc, Zn	mg/kg	2	-	-

Mercury in Soil Method: AN312 Tested: 18/2/2019

Mercury	mg/kg	0.05	-	-
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Moisture Content Method: AN002 Tested: 18/2/2019

% Moisture	%w/w	0.5	-	<0.5
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	Sample Number	SE189065.017	SE189065.018
	Sample Matrix	Soil	Soil
	Sample Date	07 Feb 2019	07 Feb 2019
	Sample Name	TRIP SPIKE	TRIP BLANK
Parameter	Units	LOR	

Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 14/2/2019

Arsenic, As	µg/L	1	-	-
Cadmium, Cd	µg/L	0.1	-	-
Chromium, Cr	µg/L	1	-	-
Copper, Cu	µg/L	1	-	-
Lead, Pb	µg/L	1	-	-
Nickel, Ni	µg/L	1	-	-
Zinc, Zn	µg/L	5	-	-

Mercury (dissolved) in Water Method: AN311(Perth)/AN312 Tested: 15/2/2019

Mercury	mg/L	0.0001	-	-
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MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Mercury (dissolved) in Water Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery
Mercury	LB166839	mg/L	0.0001	<0.0001	90%	75%

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB167057	mg/kg	0.05	<0.05	0%	88%	102%

Moisture Content Method: ME-(AU)-[ENV]AN002

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB167055	%w/w	0.5	14%

OC Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Hexachlorobenzene (HCB)	LB167053	mg/kg	0.1	<0.1	0%	NA
Alpha BHC	LB167053	mg/kg	0.1	<0.1	0%	NA
Lindane	LB167053	mg/kg	0.1	<0.1	0%	NA
Heptachlor	LB167053	mg/kg	0.1	<0.1	0%	124%
Aldrin	LB167053	mg/kg	0.1	<0.1	0%	125%
Beta BHC	LB167053	mg/kg	0.1	<0.1	0%	NA
Delta BHC	LB167053	mg/kg	0.1	<0.1	0%	113%
Heptachlor epoxide	LB167053	mg/kg	0.1	<0.1	0%	NA
o,p'-DDE	LB167053	mg/kg	0.1	<0.1	0%	NA
Alpha Endosulfan	LB167053	mg/kg	0.2	<0.2	0%	NA
Gamma Chlordane	LB167053	mg/kg	0.1	<0.1	0%	NA
Alpha Chlordane	LB167053	mg/kg	0.1	<0.1	0%	NA
trans-Nonachlor	LB167053	mg/kg	0.1	<0.1	0%	NA
p,p'-DDE	LB167053	mg/kg	0.1	<0.1	0%	NA
Dieldrin	LB167053	mg/kg	0.2	<0.2	0%	124%
Endrin	LB167053	mg/kg	0.2	<0.2	0%	114%
o,p'-DDD	LB167053	mg/kg	0.1	<0.1	0%	NA
o,p'-DDT	LB167053	mg/kg	0.1	<0.1	0%	NA
Beta Endosulfan	LB167053	mg/kg	0.2	<0.2	0%	NA
p,p'-DDD	LB167053	mg/kg	0.1	<0.1	0%	NA
p,p'-DDT	LB167053	mg/kg	0.1	<0.1	0%	108%
Endosulfan sulphate	LB167053	mg/kg	0.1	<0.1	0%	NA
Endrin Aldehyde	LB167053	mg/kg	0.1	<0.1	0%	NA
Methoxychlor	LB167053	mg/kg	0.1	<0.1	0%	NA
Endrin Ketone	LB167053	mg/kg	0.1	<0.1	0%	NA
Isodrin	LB167053	mg/kg	0.1	<0.1	0%	NA
Mirex	LB167053	mg/kg	0.1	<0.1	0%	NA
Total CLP OC Pesticides	LB167053	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB167053	%	-	100%	4%	90%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dichlorvos	LB167053	mg/kg	0.5	<0.5	0%	105%
Dimethoate	LB167053	mg/kg	0.5	<0.5	0%	NA
Diazinon (Dimpylate)	LB167053	mg/kg	0.5	<0.5	0%	107%
Fenitrothion	LB167053	mg/kg	0.2	<0.2	0%	NA
Malathion	LB167053	mg/kg	0.2	<0.2	0%	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB167053	mg/kg	0.2	<0.2	0%	95%
Parathion-ethyl (Parathion)	LB167053	mg/kg	0.2	<0.2	0%	NA
Bromophos Ethyl	LB167053	mg/kg	0.2	<0.2	0%	NA
Methidathion	LB167053	mg/kg	0.5	<0.5	0%	NA
Ethion	LB167053	mg/kg	0.2	<0.2	0%	105%
Azinphos-methyl (Guthion)	LB167053	mg/kg	0.2	<0.2	0%	NA
Total OP Pesticides*	LB167053	mg/kg	1.7	<1.7	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
2-fluorobiphenyl (Surrogate)	LB167053	%	-	104%	0%	102%
d14-p-terphenyl (Surrogate)	LB167053	%	-	104%	2%	98%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB167053	mg/kg	0.1	<0.1	0%	109%	108%
2-methylnaphthalene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
1-methylnaphthalene	LB167053	mg/kg	0.1	<0.1	0 - 15%	NA	NA
Acenaphthylene	LB167053	mg/kg	0.1	<0.1	0%	120%	111%
Acenaphthene	LB167053	mg/kg	0.1	<0.1	0%	107%	112%
Fluorene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
Phenanthrene	LB167053	mg/kg	0.1	<0.1	5 - 18%	116%	112%
Anthracene	LB167053	mg/kg	0.1	<0.1	0%	111%	108%
Fluoranthene	LB167053	mg/kg	0.1	<0.1	0 - 5%	106%	105%
Pyrene	LB167053	mg/kg	0.1	<0.1	0 - 4%	104%	104%
Benzo(a)anthracene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
Chrysene	LB167053	mg/kg	0.1	<0.1	0 - 9%	NA	NA
Benzo(b&j)fluoranthene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(k)fluoranthene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(a)pyrene	LB167053	mg/kg	0.1	<0.1	0%	108%	104%
Indeno(1,2,3-cd)pyrene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
Dibenzo(ah)anthracene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB167053	mg/kg	0.1	<0.1	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=0	LB167053	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB167053	TEQ (mg/kg)	0.3	<0.3	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB167053	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Total PAH (18)	LB167053	mg/kg	0.8	<0.8	0 - 6%	NA	NA
Total PAH (NEPM/WHO 16)	LB167053	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB167053	%	-	100%	0 - 4%	98%	92%
2-fluorobiphenyl (Surrogate)	LB167053	%	-	104%	0 - 2%	102%	98%
d14-p-terphenyl (Surrogate)	LB167053	%	-	104%	2 - 4%	98%	94%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arochlor 1016	LB167053	mg/kg	0.2	<0.2	0%	NA
Arochlor 1221	LB167053	mg/kg	0.2	<0.2	0%	NA
Arochlor 1232	LB167053	mg/kg	0.2	<0.2	0%	NA
Arochlor 1242	LB167053	mg/kg	0.2	<0.2	0%	NA
Arochlor 1248	LB167053	mg/kg	0.2	<0.2	0%	NA
Arochlor 1254	LB167053	mg/kg	0.2	<0.2	0%	NA
Arochlor 1260	LB167053	mg/kg	0.2	<0.2	0%	102%
Arochlor 1262	LB167053	mg/kg	0.2	<0.2	0%	NA
Arochlor 1268	LB167053	mg/kg	0.2	<0.2	0%	NA
Total PCBs (Arochors)	LB167053	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB167053	%	-	100%	4%	99%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB167056	mg/kg	1	<1	23%	108%	80%
Cadmium, Cd	LB167056	mg/kg	0.3	<0.3	0%	101%	91%
Chromium, Cr	LB167056	mg/kg	0.3	<0.3	2%	107%	88%
Copper, Cu	LB167056	mg/kg	0.5	<0.5	1%	97%	91%
Nickel, Ni	LB167056	mg/kg	0.5	<0.5	11%	99%	86%
Lead, Pb	LB167056	mg/kg	1	<1	140%	94%	86%
Zinc, Zn	LB167056	mg/kg	2	<2.0	2%	103%	79%

Trace Metals (Dissolved) in Water by ICPMS Method: ME-(AU)-[ENV]AN318

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery
Arsenic, As	LB166853	µg/L	1	<1	91%	96%
Cadmium, Cd	LB166853	µg/L	0.1	<0.1	106%	105%
Chromium, Cr	LB166853	µg/L	1	<1	112%	106%
Copper, Cu	LB166853	µg/L	1	<1	115%	105%
Lead, Pb	LB166853	µg/L	1	<1	104%	99%
Nickel, Ni	LB166853	µg/L	1	<1	109%	99%
Zinc, Zn	LB166853	µg/L	5	<5	110%	109%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C10-C14	LB167053	mg/kg	20	<20	0 - 22%	108%	103%
TRH C15-C28	LB167053	mg/kg	45	<45	0 - 25%	100%	90%
TRH C29-C36	LB167053	mg/kg	45	<45	0%	80%	98%
TRH C37-C40	LB167053	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB167053	mg/kg	110	<110	0 - 8%	NA	NA
TRH C10-C40 Total (F bands)	LB167053	mg/kg	210	<210	0%	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH >C10-C16	LB167053	mg/kg	25	<25	0 - 20%	103%	95%
TRH >C10-C16 - Naphthalene (F2)	LB167053	mg/kg	25	<25	0 - 20%	NA	NA
TRH >C16-C34 (F3)	LB167053	mg/kg	90	<90	0%	93%	105%
TRH >C34-C40 (F4)	LB167053	mg/kg	120	<120	0%	80%	NA

VOC's in Soil Method: ME-(AU)-[ENV]AN433

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB167052	mg/kg	0.1	<0.1	0%	83%	83%
Toluene	LB167052	mg/kg	0.1	<0.1	0%	81%	81%
Ethylbenzene	LB167052	mg/kg	0.1	<0.1	0%	83%	82%
m/p-xylene	LB167052	mg/kg	0.2	<0.2	0%	84%	85%
o-xylene	LB167052	mg/kg	0.1	<0.1	0%	82%	82%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB167052	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB167052	%	-	78%	1 - 5%	85%	81%
d4-1,2-dichloroethane (Surrogate)	LB167052	%	-	85%	2 - 3%	87%	94%
d8-toluene (Surrogate)	LB167052	%	-	80%	2 - 3%	88%	88%
Bromofluorobenzene (Surrogate)	LB167052	%	-	77%	0 - 2%	84%	86%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes	LB167052	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB167052	mg/kg	0.6	<0.6	0%	NA	NA

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB167052	mg/kg	25	<25	0%	87%	88%
TRH C6-C9	LB167052	mg/kg	20	<20	0%	88%	83%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB167052	%	-	78%	1 - 5%	85%	81%
d4-1,2-dichloroethane (Surrogate)	LB167052	%	-	85%	2 - 3%	87%	94%
d8-toluene (Surrogate)	LB167052	%	-	80%	2 - 3%	88%	88%
Bromofluorobenzene (Surrogate)	LB167052	%	-	77%	0 - 2%	84%	86%

VPF F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB167052	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB167052	mg/kg	25	<25	0%	98%	100%

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

METHOD

AN433

METHODOLOGY SUMMARY

VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
		-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.

Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

SE189065 R0

CLIENT DETAILS

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Project **P1678-KOTARA**
Order Number **03787**
Samples **18**

LABORATORY DETAILS

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SGS Reference **SE189065 R0**
Date Received **11 Feb 2019**
Date Reported **18 Feb 2019**

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
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SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	18 Soil
Date documentation received	11/2/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	8.7°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		



HOLDING TIME SUMMARY

SE189065 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RIN	SE189065.016	LB166839	07 Feb 2019	11 Feb 2019	07 Mar 2019	13 Feb 2019	07 Mar 2019	15 Feb 2019

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167057	07 Feb 2019	11 Feb 2019	07 Mar 2019	14 Feb 2019	07 Mar 2019	18 Feb 2019

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
DUP 1	SE189065.015	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167055	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	19 Feb 2019	18 Feb 2019

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref
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SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019



HOLDING TIME SUMMARY

SE189065 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.15-0.25	SE189065.005	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019
DUP 1	SE189065.015	LB167056	07 Feb 2019	11 Feb 2019	06 Aug 2019	14 Feb 2019	06 Aug 2019	18 Feb 2019

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RIN	SE189065.016	LB166853	07 Feb 2019	11 Feb 2019	06 Aug 2019	13 Feb 2019	06 Aug 2019	13 Feb 2019

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167053	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.15-0.25	SE189065.005	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP SPIKE	SE189065.017	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4_0.15-0.25	SE189065.001	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH4_1.2-1.3	SE189065.002	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.15-0.25	SE189065.003	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH5_0.8-1.0	SE189065.004	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.15-0.25	SE189065.005	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH6_0.7-0.8	SE189065.006	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.15-0.25	SE189065.007	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH7_0.7-0.8	SE189065.008	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.15-0.25	SE189065.009	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH8_0.8-0.9	SE189065.010	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_0.15-0.25	SE189065.011	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH11_1.3-1.5	SE189065.012	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.15-0.25	SE189065.013	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
BH13_0.6-0.7	SE189065.014	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
DUP 1	SE189065.015	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP SPIKE	SE189065.017	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019
TRIP BLANK	SE189065.018	LB167052	07 Feb 2019	11 Feb 2019	21 Feb 2019	14 Feb 2019	26 Mar 2019	18 Feb 2019

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides In Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	95
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	105
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	106
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	103
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	105
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	92
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	103

OP Pesticides In Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	102
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	100
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	102
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	102
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	102
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	100
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	106
d14-p-terphenyl (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	102
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	100
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	102
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	102
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	100
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	102
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	90

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH4_0.15-0.25	SE189065.001	%	70 - 130%	102
	BH4_1.2-1.3	SE189065.002	%	70 - 130%	100
	BH5_0.15-0.25	SE189065.003	%	70 - 130%	100
	BH5_0.8-1.0	SE189065.004	%	70 - 130%	102
	BH6_0.15-0.25	SE189065.005	%	70 - 130%	102
	BH6_0.7-0.8	SE189065.006	%	70 - 130%	102
	BH7_0.15-0.25	SE189065.007	%	70 - 130%	102
	BH7_0.7-0.8	SE189065.008	%	70 - 130%	102
	BH8_0.15-0.25	SE189065.009	%	70 - 130%	102
	BH8_0.8-0.9	SE189065.010	%	70 - 130%	102
	BH11_0.15-0.25	SE189065.011	%	70 - 130%	100
	BH11_1.3-1.5	SE189065.012	%	70 - 130%	102
	BH13_0.15-0.25	SE189065.013	%	70 - 130%	106
	BH13_0.6-0.7	SE189065.014	%	70 - 130%	100
	DUP 1	SE189065.015	%	70 - 130%	98
d14-p-terphenyl (Surrogate)	BH4_0.15-0.25	SE189065.001	%	70 - 130%	102
	BH4_1.2-1.3	SE189065.002	%	70 - 130%	102
	BH5_0.15-0.25	SE189065.003	%	70 - 130%	100
	BH5_0.8-1.0	SE189065.004	%	70 - 130%	100
	BH6_0.15-0.25	SE189065.005	%	70 - 130%	102
	BH6_0.7-0.8	SE189065.006	%	70 - 130%	102
	BH7_0.15-0.25	SE189065.007	%	70 - 130%	102
	BH7_0.7-0.8	SE189065.008	%	70 - 130%	100
	BH8_0.15-0.25	SE189065.009	%	70 - 130%	100
	BH8_0.8-0.9	SE189065.010	%	70 - 130%	102
	BH11_0.15-0.25	SE189065.011	%	70 - 130%	102
	BH11_1.3-1.5	SE189065.012	%	70 - 130%	104
	BH13_0.15-0.25	SE189065.013	%	70 - 130%	90
	BH13_0.6-0.7	SE189065.014	%	70 - 130%	98
	DUP 1	SE189065.015	%	70 - 130%	100
d5-nitrobenzene (Surrogate)	BH4_0.15-0.25	SE189065.001	%	70 - 130%	96
	BH4_1.2-1.3	SE189065.002	%	70 - 130%	94
	BH5_0.15-0.25	SE189065.003	%	70 - 130%	90
	BH5_0.8-1.0	SE189065.004	%	70 - 130%	92
	BH6_0.15-0.25	SE189065.005	%	70 - 130%	94

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	BH6_0.7-0.8	SE189065.006	%	70 - 130%	96
	BH7_0.15-0.25	SE189065.007	%	70 - 130%	96
	BH7_0.7-0.8	SE189065.008	%	70 - 130%	96
	BH8_0.15-0.25	SE189065.009	%	70 - 130%	94
	BH8_0.8-0.9	SE189065.010	%	70 - 130%	96
	BH11_0.15-0.25	SE189065.011	%	70 - 130%	92
	BH11_1.3-1.5	SE189065.012	%	70 - 130%	96
	BH13_0.15-0.25	SE189065.013	%	70 - 130%	82
	BH13_0.6-0.7	SE189065.014	%	70 - 130%	98
	DUP 1	SE189065.015	%	70 - 130%	92

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	95
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	105
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	106
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	103
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	105
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	92
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	103

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	80
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	75
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	71
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	71
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	71
	BH6_0.7-0.8	SE189065.006	%	60 - 130%	77
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	73
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	78
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	74
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	77
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	70
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	72
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	80
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	89
	DUP 1	SE189065.015	%	60 - 130%	78
	TRIP SPIKE	SE189065.017	%	60 - 130%	78
	TRIP BLANK	SE189065.018	%	60 - 130%	71
d4-1,2-dichloroethane (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	87
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	90
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	95
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	88
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	83
	BH6_0.7-0.8	SE189065.006	%	60 - 130%	83
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	93
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	96
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	93
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	93
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	89
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	92
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	87
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	100
	DUP 1	SE189065.015	%	60 - 130%	91
	TRIP SPIKE	SE189065.017	%	60 - 130%	87
	TRIP BLANK	SE189065.018	%	60 - 130%	83
d8-toluene (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	93
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	85
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	89
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	86
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	84

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH6_0.7-0.8	SE189065.006	%	60 - 130%	83
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	86
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	89
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	85
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	87
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	84
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	90
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	87
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	102
	DUP 1	SE189065.015	%	60 - 130%	88
	TRIP SPIKE	SE189065.017	%	60 - 130%	82
	TRIP BLANK	SE189065.018	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	86
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	81
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	83
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	80
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	81
	BH6_0.7-0.8	SE189065.006	%	60 - 130%	79
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	83
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	84
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	82
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	83
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	81
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	91
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	78
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	95
	DUP 1	SE189065.015	%	60 - 130%	82
	TRIP SPIKE	SE189065.017	%	60 - 130%	77
	TRIP BLANK	SE189065.018	%	60 - 130%	78

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	80
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	75
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	71
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	71
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	71
	BH6_0.7-0.8	SE189065.006	%	60 - 130%	77
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	73
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	78
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	74
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	77
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	70
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	72
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	80
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	89
	DUP 1	SE189065.015	%	60 - 130%	78
d4-1,2-dichloroethane (Surrogate)	BH4_0.15-0.25	SE189065.001	%	60 - 130%	87
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	90
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	95
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	88
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	83
	BH6_0.7-0.8	SE189065.006	%	60 - 130%	83
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	93
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	96
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	93
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	93
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	89
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	92
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	87
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	100

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	DUP 1	SE189065.015	%	60 - 130%	91
	BH4_0.15-0.25	SE189065.001	%	60 - 130%	93
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	85
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	89
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	86
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	84
	BH6_0.7-0.8	SE189065.006	%	60 - 130%	83
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	86
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	89
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	85
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	87
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	84
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	90
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	87
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	102
Dibromofluoromethane (Surrogate)	DUP 1	SE189065.015	%	60 - 130%	88
	BH4_0.15-0.25	SE189065.001	%	60 - 130%	86
	BH4_1.2-1.3	SE189065.002	%	60 - 130%	81
	BH5_0.15-0.25	SE189065.003	%	60 - 130%	83
	BH5_0.8-1.0	SE189065.004	%	60 - 130%	80
	BH6_0.15-0.25	SE189065.005	%	60 - 130%	81
	BH6_0.7-0.8	SE189065.006	%	60 - 130%	79
	BH7_0.15-0.25	SE189065.007	%	60 - 130%	83
	BH7_0.7-0.8	SE189065.008	%	60 - 130%	84
	BH8_0.15-0.25	SE189065.009	%	60 - 130%	82
	BH8_0.8-0.9	SE189065.010	%	60 - 130%	83
	BH11_0.15-0.25	SE189065.011	%	60 - 130%	81
	BH11_1.3-1.5	SE189065.012	%	60 - 130%	91
	BH13_0.15-0.25	SE189065.013	%	60 - 130%	78
	BH13_0.6-0.7	SE189065.014	%	60 - 130%	95
	DUP 1	SE189065.015	%	60 - 130%	82

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Porth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB166839.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB167057.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167053.001	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Alpha BHC	mg/kg	0.1	<0.1
	Lindane	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.2	<0.2
	Endrin	mg/kg	0.2	<0.2
	Beta Endosulfan	mg/kg	0.2	<0.2
	p,p'-DDD	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	Endrin Aldehyde	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Endrin Ketone	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167053.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Bromophos Ethyl	mg/kg	0.2	<0.2
	Methidathion	mg/kg	0.5	<0.5
	Ethion	mg/kg	0.2	<0.2
	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	2-fluorobiphenyl (Surrogate)	%	-	104
	d14-p-terphenyl (Surrogate)	%	-	104
Surrogates				

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167053.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167053.001	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
	Benzo(ghi)perylene	mg/kg	0.1	<0.1
	Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates			
	d5-nitrobenzene (Surrogate)	%	-	100
	2-fluorobiphenyl (Surrogate)	%	-	104
	d14-p-terphenyl (Surrogate)	%	-	104

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB167053.001	Arochlor 1016	mg/kg	0.2	<0.2
	Arochlor 1221	mg/kg	0.2	<0.2
	Arochlor 1232	mg/kg	0.2	<0.2
	Arochlor 1242	mg/kg	0.2	<0.2
	Arochlor 1248	mg/kg	0.2	<0.2
	Arochlor 1254	mg/kg	0.2	<0.2
	Arochlor 1260	mg/kg	0.2	<0.2
	Arochlor 1262	mg/kg	0.2	<0.2
	Arochlor 1268	mg/kg	0.2	<0.2
	Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates			
	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB167056.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB166853.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB167053.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB167052.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Number	Parameter	Units	LOR	Result
LB167052.001	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-
		Bromofluorobenzene (Surrogate)	%	-
	Totals	Total BTEX	mg/kg	0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Number	Parameter	Units	LOR	Result
LB167052.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-
		d4-1,2-dichloroethane (Surrogate)	%	-
		d8-toluene (Surrogate)	%	-

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.010	LB167057.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.010	LB167055.011	% Moisture	%w/w	0.5	5.7	4.9	49	14

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.013	LB167053.025	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	30	4	

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.009	LB167053.024	Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
		Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.009	LB167053.024	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	0.1	0.1	121	18
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	0.4	0.4	57	5
		Pyrene	mg/kg	0.1	0.3	0.3	65	4
		Benzo(a)anthracene	mg/kg	0.1	0.1	0.1	101	0
		Chrysene	mg/kg	0.1	0.1	0.1	117	9
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.2	97	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	163	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0.1	135	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	131	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	129	0
		Total PAH (18)	mg/kg	0.8	1.3	1.3	92	6
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	0
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE189065.014	LB167053.022	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	0.2	0.2	81	15
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	0.2	0.2	84	5
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	184	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	173	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
		Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	4
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

PCBs in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.013	LB167053.022	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.013	LB167053.022	Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
		Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	mg/kg	-	0	0	30	4

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN400/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.010	LB167056.014	Arsenic, As	mg/kg	1	9	7	42	23
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	5.1	5.0	40	2
		Copper, Cu	mg/kg	0.5	7.4	7.3	37	1
		Nickel, Ni	mg/kg	0.5	2.8	3.1	47	11
		Lead, Pb	mg/kg	1	18	100	32	140 ②
		Zinc, Zn	mg/kg	2	61	60	33	2

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.009	LB167053.023	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	<45	200	0
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	mg/kg	25	<25	<25	200	0
		TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE189065.014	LB167053.024	TRH C10-C14	mg/kg	20	30	24	104	22
		TRH C15-C28	mg/kg	45	89	69	87	25
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	120	<110	134	8
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	mg/kg	25	39	32	100	20
		TRH >C10-C16	mg/kg	25	39	32	100	20
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	39	32	100	20
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE189065.010	LB167052.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0	
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0	
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0	
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0	
			Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.2	50	1
		d4-1,2-dichloroethane (Surrogate)		mg/kg	-	4.7	4.8	50	3	
		d8-toluene (Surrogate)		mg/kg	-	4.3	4.2	50	2	
		Bromofluorobenzene (Surrogate)		mg/kg	-	3.8	3.8	50	0	
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0	
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0	
SE189065.015	LB167052.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0	
			Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0	
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0	
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0	
			Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.3	50	5
		d4-1,2-dichloroethane (Surrogate)		mg/kg	-	4.6	4.5	50	2	
		d8-toluene (Surrogate)		mg/kg	-	4.4	4.3	50	3	
		Bromofluorobenzene (Surrogate)		mg/kg	-	3.9	3.8	50	2	
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0	

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.015	LB167052.025	Totals	Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE189065.010	LB167052.014	TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.2	30	1
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.8	30	3
		d8-toluene (Surrogate)	mg/kg	-	4.3	4.2	30	2
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.8	30	0
	VPF F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE189065.015	LB167052.025	TRH C6-C10	mg/kg	25	<25	<25	200	0
		TRH C6-C9	mg/kg	20	<20	<20	200	0
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.3	30	5
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.5	30	2
		d8-toluene (Surrogate)	mg/kg	-	4.4	4.3	30	3
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	30	2
	VPF F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167057.002	Mercury	mg/kg	0.05	0.18	0.2	70 - 130	88

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167053.002	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	124
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	125
	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	113
	Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	124
	Endrin	mg/kg	0.2	0.2	0.2	60 - 140	114
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	108
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	90

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167053.002	Dichlorvos	mg/kg	0.5	2.1	2	60 - 140	105
	Diazinon (Dimpylate)	mg/kg	0.5	2.1	2	60 - 140	107
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	95
	Ethion	mg/kg	0.2	2.1	2	60 - 140	105
Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB167053.002	Naphthalene	mg/kg	0.1	4.4	4	60 - 140	109	
	Acenaphthylene	mg/kg	0.1	4.8	4	60 - 140	120	
	Acenaphthene	mg/kg	0.1	4.3	4	60 - 140	107	
	Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	116	
	Anthracene	mg/kg	0.1	4.4	4	60 - 140	111	
	Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	106	
	Pyrene	mg/kg	0.1	4.2	4	60 - 140	104	
	Benzo(a)pyrene	mg/kg	0.1	4.3	4	60 - 140	108	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
d14-p-terphenyl (Surrogate)		mg/kg	-	0.5	0.5	40 - 130	98	

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167053.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	102

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167056.002	Arsenic, As	mg/kg	1	360	336.32	79 - 120	108
	Cadmium, Cd	mg/kg	0.3	420	416.6	69 - 131	101
	Chromium, Cr	mg/kg	0.3	38	35.2	80 - 120	107
	Copper, Cu	mg/kg	0.5	360	370.46	80 - 120	97
	Nickel, Ni	mg/kg	0.5	210	210.88	79 - 120	99
	Lead, Pb	mg/kg	1	100	107.87	79 - 120	94
	Zinc, Zn	mg/kg	2	310	301.27	80 - 121	103

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB166853.002	Arsenic, As	µg/L	1	18	20	80 - 120	91
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	106
	Chromium, Cr	µg/L	1	22	20	80 - 120	112
	Copper, Cu	µg/L	1	23	20	80 - 120	115
	Lead, Pb	µg/L	1	21	20	80 - 120	104
	Nickel, Ni	µg/L	1	22	20	80 - 120	109
	Zinc, Zn	µg/L	5	22	20	80 - 120	110

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil
Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB167053.002	TRH C10-C14	mg/kg	20	43	40	60 - 140	108	
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	100	
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	80	
	TRH F Bands	TRH >C10-C16	mg/kg	25	41	40	60 - 140	103
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	93
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80

VOC's in Soil
Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB167052.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	83
		Aromatic	Toluene	mg/kg	0.1	2.4	2.9	60 - 140
		Ethylbenzene	mg/kg	0.1	2.4	2.9	60 - 140	83
		m/p-xylene	mg/kg	0.2	4.9	5.8	60 - 140	84
		o-xylene	mg/kg	0.1	2.4	2.9	60 - 140	82
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	87
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	84

Volatile Petroleum Hydrocarbons in Soil
Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB167052.002	TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	87	
	TRH C6-C9	mg/kg	20	21	23.2	60 - 140	88	
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	87
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	98

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Porth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE188919.002	LB166839.004	Mercury	mg/L	0.0001	0.0060	-0.0164	0.008	75

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189065.001	LB167057.004	Mercury	mg/kg	0.05	0.22	<0.05	0.2	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189065.002	LB167053.023	Naphthalene	mg/kg	0.1	4.3	<0.1	4	108
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.4	<0.1	4	111
		Acenaphthene	mg/kg	0.1	4.5	<0.1	4	112
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.5	<0.1	4	112
		Anthracene	mg/kg	0.1	4.3	<0.1	4	108
		Fluoranthene	mg/kg	0.1	4.2	<0.1	4	105
		Pyrene	mg/kg	0.1	4.2	<0.1	4	104
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	4.2	<0.1	4	104
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.2	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.3	<0.3	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.2	<0.2	-	-
		Total PAH (18)	mg/kg	0.8	35	<0.8	-	-
		Surrogates						
		d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	92
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	94

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189065.001	LB167056.004	Arsenic, As	mg/kg	1	51	11	50	80
		Cadmium, Cd	mg/kg	0.3	45	<0.3	50	91
		Chromium, Cr	mg/kg	0.3	53	8.5	50	88
		Copper, Cu	mg/kg	0.5	58	12	50	91
		Nickel, Ni	mg/kg	0.5	54	11	50	86
		Lead, Pb	mg/kg	1	53	10	50	86
		Zinc, Zn	mg/kg	2	83	44	50	79

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189008.001	LB166853.004	Arsenic, As	µg/L	1	22	3	20	96
		Cadmium, Cd	µg/L	0.1	21	<0.1	20	105
		Chromium, Cr	µg/L	1	23	2	20	106
		Copper, Cu	µg/L	1	21	<1	20	105
		Lead, Pb	µg/L	1	22	2	20	99
		Nickel, Ni	µg/L	1	53	33	20	99
		Zinc, Zn	µg/L	5	25	<5	20	109

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR
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Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189065.002	LB167053.022	TRH C10-C14	mg/kg	20	41	<20	40	103
		TRH C15-C28	mg/kg	45	<45	<45	40	90
		TRH C29-C36	mg/kg	45	<45	<45	40	98
		TRH C37-C40	mg/kg	100	<100	<100	-	-
		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
		TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	mg/kg	25	38	<25	40	95
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	38	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	105
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE189065.001	LB167052.004	Monocyclic	Benzene	mg/kg	0.1	2.4	<0.1	2.9	83
			Aromatic	Toluene	mg/kg	0.1	2.4	<0.1	2.9
		Ethylbenzene		mg/kg	0.1	2.4	<0.1	2.9	82
		m/p-xylene		mg/kg	0.2	5.0	<0.2	5.8	85
		o-xylene		mg/kg	0.1	2.4	<0.1	2.9	82
		Polycyclic		Naphthalene	mg/kg	0.1	<0.1	<0.1	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.3	-	81
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.4	-	94
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.7	-	88
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.0	-	86
			Totals	Total Xylenes	mg/kg	0.3	7.3	<0.3	-
		Total BTEX		mg/kg	0.6	15	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE189065.001	LB167052.004	TRH C6-C10	mg/kg	25	<25	<25	24.65	88	
		TRH C6-C9	mg/kg	20	<20	<20	23.2	83	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.3	-	81
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.4	-	94
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.7	-	88
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.0	-	86
		VPH F	Benzene (F0)	mg/kg	0.1	2.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	100

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service .
 - ** Indicative data, theoretical holding time exceeded.
 - Sample not analysed for this analyte.
 - IS Insufficient sample for analysis.
 - LNR Sample listed, but not received.
 - LOR Limit of reporting.
 - QFH QC result is above the upper tolerance.
 - QFL QC result is below the lower tolerance.
-
- ① At least 2 of 3 surrogates are within acceptance criteria.
 - ② RPD failed acceptance criteria due to sample heterogeneity.
 - ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
 - ④ Recovery failed acceptance criteria due to matrix interference.
 - ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
 - ⑥ LOR was raised due to sample matrix interference.
 - ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
 - ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
 - ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
 - ⑩ LOR was raised due to high conductivity of the sample (required dilution).
 - † Refer to Analytical Report comments for further information.

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Page 1 of 3

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Email Results:

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monica.esposito@vclab.com.au

[illegible]

SGS EHS Alexandria Laboratory



SE189065 COC

Received: 11-Feb-2019

1030

Date/Time	
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Laboratory Quotation No:

Comments:

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 2 of 3

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499

Email: au.samplerreceipt.sydney@sgs.com

Company Name:	Valley Civilab
Address:	3/62 Sandringham Avenue Thornton 2322

Contact Name: Malcolm Adrien

Project Name/No: P1678 - KOTARA

Purchase Order No: 03287

Results Required By:

Telephone: 0429 496 618

Facsimile:

Email Results:

malcolm.adrien@vclab.com.au; jake.duck@vclab.com.au;
monica.esposito@vclab.com.au

[illegible]

Relinquished By: Miquela Espino

Date/Time: 08/2/19

Received By: Selvan

Date/Time	11 FEB 19	1030
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Relinquished By:

Date/Time:

Received By:

Date/Time	
-----------	--

Samples Intact: Yes/ No

Temperature: Ambient / Chilled

Sample Cooler Sealed: Yes/ No

Laboratory Quotation No:

Comments:



CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 3 of 3

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499

Email: au.samplereceipt.sydney@sgs.com

Company Name: Valley Civilab

Address: 3/62 Sandringham Avenue Thornton 2322

Contact Name: Malcolm Adrien

Project Name/No: P1678 - KODRA

Purchase Order No: 03987

Results Required By: Malcolm Adrien

Telephone: 0429 496 618

Facsimile:

Email Results:

malcolm.adrien@vclab.com.au; jake.duck@vclab.com.au;
monica.esposito@vclab.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL 17	ON HOLD	CL 10	CL 2	CLS									
DUP 1	07/2/2019	15		X		1			X											
RIN	07/2/2019	16								X										
TRIP SPIKE	07/2/2019	17									X									
TRIP BLANK	07/2/2019	18									X									
	07/2/2019																			
	07/2/2019																			
	07/2/2019																			
	07/2/2019																			
	07/2/2019																			

Relinquished By: MONICA ESPOSITO

Date/Time: 8/2/19

Received By: [Signature]

Date/Time: 11/2/19 1030

Relinquished By:

Date/Time:

Received By:

Date/Time:

Samples Intact: Yes/No

Temperature: Ambient / Chilled

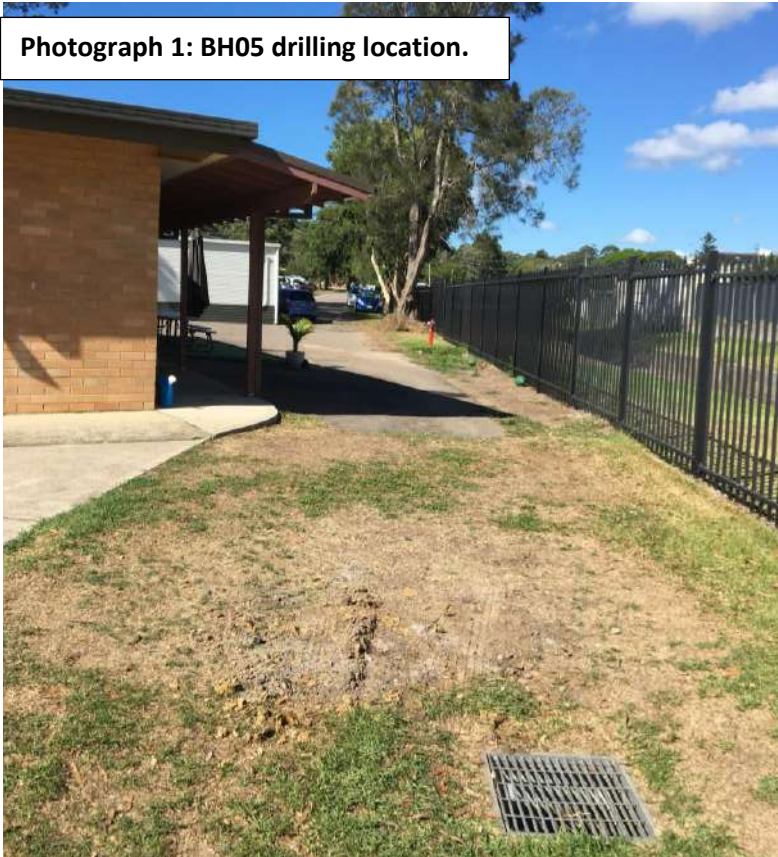
Sample Cooler Sealed: Yes/No

Laboratory Quotation No:

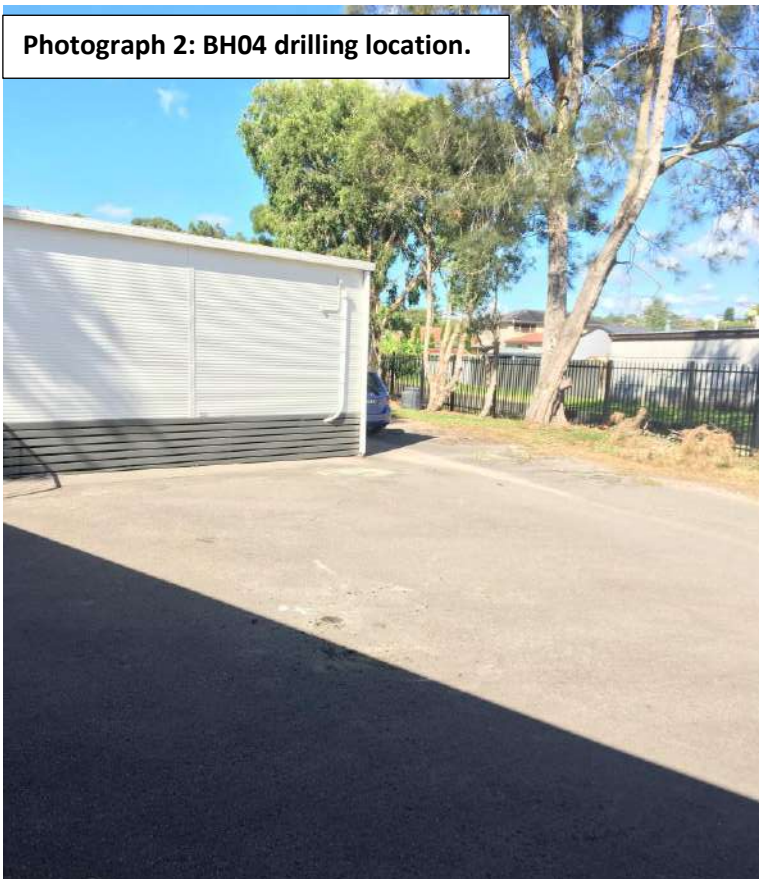
Comments:

Annex H

Photograph 1: BH05 drilling location.



Photograph 2: BH04 drilling location.



Photograph 3: Site on location, drilling at BH07.



Photograph 4: Site on location, BH08 spoil.

