13/02/2020

VALLEY CIVILAB
Geotechnical & Environmental Services

Preliminary Site Investigation

62 Hillsborough Road, Hillsborough & 109-117 Waratah Avenue, Charlestown NSW

Ref: P1989-1-R-001-PSI-Rev0

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Project Details

Site Address:	62 Hillsborough Road, Hillsborough & 109-117 Waratah Avenue, Charlestown NSW	
Project Type:	Preliminary Site Investigation	
Project No.	**Report Type**	**Report No.**
P1989-1	PSI	1

Report Register

Revision Number	Reported By	Reviewed By	Date
Rev0	JD	MA	13/2/2020

We confirm that the following report has been produced for Basketball Association of Newcastle Ltd, 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 Basketball Association of Newcastle Ltd to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at 62 Hillsborough Road, Hillsborough & 109-117 Waratah Avenue, Charlestown NSW (herein referred to as the site).

The site is currently proposed to undergo development into a new indoor basketball facility comprising 10 full size courts, including a show court seating 4000 people. The Preliminary Site Investigation is required for due diligence purposes as part of the development application.

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 Section 10.7 Planning Certificate/s;
- 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.

Limited sampling consisted of the collection of a total of thirteen (13) soil samples (Including one (1) duplicate sample for QA/QC purposes) from in-situ material located in the footprint of the proposed development to determine its suitability for the proposed commercial land use. Samples will be analysed for the presence of the following analytes;

- 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).

The detailed desktop review of available information and thorough site inspection including limited 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 historical land use;
2) Visible signs of gross contamination were not observed during site inspection and intrusive works; and
3) Contamination in shallow soils above the adopted land use criteria 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 development of the Site for its proposed land use as a Commercial development.

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1 Introduction

1.1 Background

Valley Civilab Pty Ltd (Valley Civilab) was engaged by Basketball Association of Newcastle Ltd to undertake a Preliminary Site Investigation (PSI) with limited sampling at the site located at 62 Hillsborough Road, Hillsborough & 109-117 Waratah Avenue, Charlestown NSW (herein referred to as the site).

The site is currently proposed to undergo development into a new indoor basketball facility. 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 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 potential land use. The Site is intended to have a Commercial Land Use. For the purpose of the investigation, HIL D 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 thirteen (13) soil samples (Including one (1) duplicate sample for QA/QC purposes) from in-situ material located in the footprint of the proposed development to determine its suitability for the proposed commercial land use. Samples will be analysed for the presence of the following analytes;

- 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 will include the collection of a Trip Spike/Trip Blank to ensure sample integrity and the collection of one rinsate blank per sampling event. A duplicate sample will be analysed and the Relative Percentage Difference (RPD) will be compared between primary and duplicate sample to analyze field sampling techniques.

2 Site Description

2.1 Site and Lot identification

The site is located at 62 Hillsborough Road, Hillsborough & 109-117 Waratah Avenue, Charlestown NSW, legally identified as Lots 11 & 12 of DP 879281 and Lots 6, 7 & 8 of DP 9594. The site forms an irregular shaped block of approximately 68,089m^2, adjacent to Newcastle Inner City Bypass to the West and Waratah Ave to the eastern site boundary (NearMap, 2019).

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

Table 1 - Site Identification

Item	***Description***
Current Site Owner	Lake Macquarie City Council
Site Address	62 & 62a Hillsborough Road, Hillsborough & 109-117 Waratah Avenue, Charlestown NSW.
Current Zoning	E2 – Environmental Conservation RE1 – Public Recreation (Lot 6 DP 9594 & Lot 12 DP 879281)
Proposed land use	Commercial
Legal Description	Lots 11 & 12 of DP 879281 and Lots 6, 7 & 8 of DP 9594
Local Government Authority	Lake Macquarie City Council

Site Area	Approximately 68,089m^2
Elevation	Average 39m Above Sea Level (ASL)
Geographical Location (GDA94-MGA56)	151°40'45.24"E 32°57'40.87"S

Review of the Lake Macquarie City Council 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 sites is not affected by heritage items;
2) The sites and/or adjacent lots are not affected by land reserved for acquisition;
3) The sites is not affected by environmentally sensitive land or critical habitat;
4) There are no prescribed matters under section 59(2) of the Contaminated Land Management Act 1997 to be disclosed;
5) Lot 11 DP879281 is subject to related development controls; adjacent lots are not subject to flood controls.

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

2.2 Surrounding Land Use

The site is located predominantly within a residential area of Hillsborough. 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	Hillsborough Public School	Adjacent
East	Waratah Ave Residential dwellings	Adjacent 20m
South	Undeveloped land Residential dwellings	Adjacent 65m
West	Newcastle Inner City Bypass Nursery	20m 170m

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
24.07.1924 (1924 to 1970)	Frederick John Barrett (Laborer)	Vol 3618 Fol 116
19.08.1970 (1970 to 1973)	Charles William Roach (Police constable) Daisy Dawn Roach (Married Woman)	Vol 3618 Fol 116
01.08.1973 (1973 to date)	Council of the Shire of Lake Macquarie Now Lake Macquarie City Council	Vol 3618 Fol 116 Now 12/879281

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 mostly vacant, with two structures in the south eastern region of the site and numerous structures to the area to the immediate north of the site.
1965	The image dated 1966 is an excerpt from a high resolution black and white aerial photograph depicting the site and surrounding area. At this time, major residential development is identified to the east of the site and a commercial building to the south-east. Development within the site boundary is not apparent and remains consistent with the 1954 image.
1976	The image dated 1976 is an excerpt from a high-resolution colour aerial photograph depicting the site and surrounding area. Development of Hillsborough Public School is apparent to the north-east of the site along with the demolition of structures to the North of the site as depicted in previous images. Further residential development is apparent to the south-east and north-west of the site with an additional commercial development to the west. Site Features remain consistent with the 1965 image.
1983	The image dated 1983 is an excerpt from a low-resolution colour aerial image depicting the site and surrounding area. Further residential development is apparent to the north-west of the site. Site features remain consistent with the 1965 image.
1993	The image dated 1993 is an excerpt from a low-resolution colour aerial image depicting the site and surrounding area. Site features and surrounding areas appear consistent with those observed in the 1983 image.
2007	The image dated 2007 is an excerpt from a high-resolution colour aerial image depicting the site and surrounding area. Major development is apparent with the Newcastle inner-city bypass to the immediate west of site and extensions to Hillsborough Public School. Site Features remain consistent to the 1993 image.
2018-19	The images dated 2018 & 2019 are excerpts from high-resolution colour aerial images depicting the site and surrounding areas. Features of the site and surrounding areas remain consistent to that of the 2007 image.

3.3 Site Setting

3.4 Topography and hydrology

Topography of the area is characterised by undulating low hills and rises and gently inclined side slopes. Review of Google Earth Pro (2019) indicates that the closest surface water body identified is the Winding Creek which intersects Lots 6, 7 and 8 of the Eastern portions of the site. The site slightly slopes from 40m Above Sea Level (ASL) across the site down to approximately 35 ASL within the creek bed.

3.4.1 Lithology and Geology

Review of the Environment NSW soil landscape database eSpade V2.0– indicates that the site falls within the Warners Bay and Gateshead Soil Landscapes.

Review of the NSW Department of Industry, Resources & Energy database; Newcastle 1: 100,000 Geological Sheet indicates that the site lies on the Newcastle Coal Measures, Moon Island, Boolaroo and Adamstown Subgroups, including the Lambton Subgroup—irregular coal seams, tuff, sandstone, massive conglomerate and shale.

3.4.2 Hydrogeology

Review of the NSW Department of Primary Industries – Office of Water / Water Administration Ministerial Corporation database identified no registered bores within 1km of the site and twenty-two bores within 2km of the site. Groundwater bore details are presented in ***Annex D***. 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 considered necessary as part of this report due to the historically undeveloped nature 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 Environmental Significance

A search of the Australian Department of Environment Protected Matters Search Tool (PMST) was completed to inform consideration of environmental receptors at or surrounding the site. The PMST report identified two threatened ecological communities, thirty-four threatened species and seventeen listed migratory species that may be potentially applicable to the site. The PMST report is presented as *Annex E.*

3.8 Online Database Searches

3.8.1 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 22nd January 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 5 - Current Licensed EPA Activities

License Number	Organisation	Activity	Approximate Distance from Site
6332	Lake Macquarie City Council	Other Activities (Appl. Herbicides to Waterways)	On-site

Table 6 - Delicensed and 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	Onsite
4838	Robert Orchard	Other Activities / Non-Scheduled Activity - Application of Herbicides	Onsite
6630	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Other Activities / Non-Scheduled Activity - Application of Herbicides	Onsite
7248	Pacific Highway, CHARLESTOWN, NSW 2290	Road construction	20m North West

3.8.2 Heritage

Review of the Heritage Data Source - Planning & Environment, indicates the site is not affected by heritage items. There are no registered Heritage items within a 2km radius of the site.

3.8.3 Contaminated Land Records

A review of the NSW EPA List of Contaminated Land list was completed 22nd January 2020. This review identified that the site has not been notified to the EPA as a contaminated site. One site; the current 7-Eleven and former Shell Service Station located 834m East has been notified to the EPA as a contaminated site, currently under assessment. The findings of these reviews indicate that the site is unlikely to be impacted by contamination known to the EPA.

3.8.4 Unexploded Ordonnance (UXO)

A review of the Department of Defence (DoD) UXO Map was completed on 16th January 2020. This review indicates that the closest known location of UXO is located over 7km south-east of the site within Nine Mile Beach area where the DoD indicates UXO area of 'other'.

3.8.5 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

Valley Civilab attended the site on the 30th of January 2020 to consolidate the desktop review described in the sections above. The site visit included a detailed visual inspection of the site surface. Key findings are presented below.

- The site was a predominantly flat sparsely vegetated field with a minor embankment along the northern and western boundaries of the field;
- Hillsborough Public School is situated to the east of the site;
- A small gravel carpark was located to the northern point of Lot 12 used currently by School staff.
- Dense vegetation was observed to the southern and eastern boundaries of the field, these areas were fenced off and appeared to slowly decline towards Winding Creek which runs through the southern portion of the lots; and
- No debris or building waste was observed at the site or in the immediate bushland.

5 Soil Investigation

As stated in Section 1.3, a soil investigation was commissioned following desktop review of information. 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 F*, soil investigation locations are presented in *Figure 1 of Annex A.*

5.1 Soil sampling

Soil sampling consisted of the collection of a total of thirteen (13) soil samples (Including one (1) duplicate sample for QA/QC purposes) from in-situ material located in the footprint of the proposed development to determine its suitability for the proposed commercial land use. Samples were analysed for the presence of the following analytes;

- Total Recoverable Hydrocarbons (TRH);
- BTEX;
- Polyaromatic Hydrocarbons (PAH);
- 8 Heavy Metals;
- Organophosphorus Pesticides (OPP) and Organochlorine Pesticides (OCP);
- Speciated Phenols; and,
- Polychlorinated Biphenyls (PCB's).

Quality assurance included the collection of a field duplicate samples and one rinsate blank per sampling event. The duplicate sample was analysed and the Relative Percentage Difference (RPD) was be compared between primary and duplicate sample to analyze field sampling techniques.

5.2 Assessment Criteria

Tier 1 assessment criteria relevant to the proposed land use have generally been adopted from the NEPM (NEPC, 2013). Specifically, this includes:

1) The CRC CARE (2011) health screening levels (HSLs) for petroleum hydrocarbons at 0 to <2m below ground level in CLAY, adopted to assess potential vapour risks to human receptors;
2) The ASC NEPM (2013) health investigation levels (HILs), adopted to evaluate potential direct contact risks associated with the presence of other contaminants of potential concern (CoPCs) in soil (i.e. metals and PAH);
3) The CRC CARE (2011) assessment criteria for direct contact with petroleum hydrocarbons by future receptors;
4) The ASC NEPM (1999) ecological investigation levels (EILs) for inorganics to assess risks to ecological receptors; and
5) The ASC NEPM (1999) ecological screening levels for coarse soil for hydrocarbon compounds to assess risks to ecological receptors.

All criteria adopted along with their associated values are displayed in *Tables 1 – 2* of *Annex G*.

5.3 Field Observations

Inspection of boreholes and soil cuttings infers the presence of fill material across the investigation area to a maximum depth of up to 2.5mbgl in the western side of the site. The fill material primarily consisted of silty sandy clay. The fill layer was underlain by alluvial and residual clays and followed by weathered sandstone. No visual or olfactory evidence of gross contamination were observed within any at any of the investigation locations.

Borelogs recorded during the intrusive investigation are provided as *Annex F.*

5.4 Analytical Results

A total of twelve (12) primary samples were submitted for chemical analysis for a range of Contaminants of Concern including:

- Total Recoverable Hydrocarbons (TRH);
- BTEX;
- Polyaromatic Hydrocarbons (PAH);
- 8 Heavy Metals;
- Organophosphorus Pesticides (OPP) and Organochlorine Pesticides (OCP);
- Speciated Phenols; and,
- Polychlorinated Biphenyls (PCB's).

The results of the analysis of the twelve (12) primary soils samples indicate that all analytes were below the Limit of Reporting (LOR) for BTEX, OCP, OPP, Speciated Phenols & PCB's. Some minor detections were found for TRH, PAH and Napthalene in one sample with all concentrations below the required HSL/HIL D criteria. All heavy metals results were below the HIL D criteria.

Soil analytical results are included in *Tables 1 – 3* of *Annex G*. All samples returned results which were below applicable assessment criteria for site land use.

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%

One intra-laboratory duplicate sample was collected as part of this investigation. Given that the purpose of the sampling works was to provide preliminary indications as to the presence/absence of contamination, collection of 1 field duplicate per 10 primary samples was considered appropriate.

All RPD results were within the acceptable range. The field QA/QC is considered acceptable for the investigation. Sample and RPDs results are included in *Table 3* of *Annex G*.

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 3.0 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

The detailed desktop review of available information and thorough site inspection including limited soil sampling 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 historical land use;

2) Visible signs of gross contamination were not observed during site inspection and intrusive works; and
3) Contamination in shallow 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 development of the Site for its proposed land use as a Commercial development.

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 Government Department of the Environment (2016) *Protected Matters Search Tool* https://www.environment.gov.au/epbc/protected-matters-search-tool accessed 16/01/20.

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 16/01/20.

Lotsearch (2020) Enviro Professional, *Reference: LS010822 EP – 22 Jan 2020, 18:48:36*

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 Basketball Association of Newcastle Ltd 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.

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VALLEY CIVILAB
Geotechnical & Environmental Services

Annex A

Note:
(1) The scale bar is approximate.
(2) Base layer sourced from Nearmap, Charlestown, NSW. Accessed 16th January, 2019.

Figure 1 - Site Borehole Plan

Scale (m)
0 50 100

N W E S

VALLEY CIVILAB
Geotechnical & Environmental Services

Annex B

26 November 2019

LMCC - EXECUTIVE DEPARTMENT
Box 1906
HUNTER REGION MAIL CENTRE NSW 2310

Our Ref:129450
Your Ref:
ABN 81 065 027 868

PLANNING CERTIFICATE UNDER THE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Fee Paid:	133.00
Receipt No:	W1036.301
Receipt Date:	25 November 2019

DESCRIPTION OF LAND

Address:	62 Hillsborough Road, HILLSBOROUGH NSW 2290
Lot Details:	Lot 12 DP 879281
Parish:	Kahibah
County:	Northumberland

For: MORVEN CAMERON
GENERAL MANAGER

126 – 138 Main Road T 02 4921 0333
Speers Point NSW 2284 E council@lakemac.nsw.gov.au
BOX 1906 HRMC NSW 2310 W lakemac.com.au

lakemac lakemaccity ourlakemac

ABN: 81 065 027 868

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (2)

1 Names of Relevant Planning Instruments and Development Control Plans

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Lake Macquarie Local Environmental Plan 2014

State Environmental Planning Policy - (Housing for Seniors or People with a Disability) 2004 (This SEPP applies to the land to the extent provided by Clause 4 of the SEPP)

State Environmental Planning Policy (Affordable Rental Housing) 2009

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

State Environmental Planning Policy (Concurrences) 2018

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

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

State Environmental Planning Policy (Infrastructure) 2007

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

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

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

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

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

State Environmental Planning Policy No. 19 – Bushland in Urban Areas

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 Homes Estates (except as maybe excluded by Clause 6 of the SEPP)

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. 70 – Affordable Housing (Revised Schemes)

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Lake Macquarie Local Environmental Plan 2014 (Amendment No. F2014/01451)

(3) The name of each development control plan that applies to the carrying out of development on the land.

Lake Macquarie Development Control Plan 2014

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a Local Environmental Plan or a Draft environmental planning instrument.

2 Zoning and land use under relevant Local Environmental Plans

(1) The following answers (a) to (h) relate to the instrument (see 1(1) above).

(a) (i) The identity of the zone applying to the land.

E2 Environmental Conservation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2; Home occupations

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Bed and breakfast accommodation; Boat sheds; Building identification signs; Business identification signs; Car parks; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Home-based child care; Home businesses; Information and education facilities; Recreation areas; Roads; Water recreation structures

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings;

Restricted Premises; Retail premises; Seniors housing; Service stations;

Warehouse or distribution centres; and any other development not specified in item (ii) or (iii)

(i) The identity of the zone applying to the land.

RE1 Public Recreation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Amusement centres; Animal boarding or training establishments; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Crematoria; Educational establishments; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Kiosks; Marinas; Markets; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Sewage reticulation systems; Sewage treatment plants; Signage; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Any development not specified in item (ii) or (iii)

NOTE: **The advice in sections (a) above relates only to restrictions that apply by virtue of the zones indicated. The Lake Macquarie LEP 2014 includes additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

Yes, there are development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

Minimum lot size of 40 ha. Refer to Clause 4.2A of LMLEP 2014 for further information.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

Yes

(e) Whether an item of environmental heritage (however described) is situated on the land.

Local Environmental Plan 2014 Schedule 5 Part 1 Heritage Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 1 Heritage items.

Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas.

Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites.

Local Environmental Plan 2014 Schedule 5 Part 4 Landscape Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 4 Landscape items.

Local Environmental Plan 2004 Schedule 4 Part 1 Heritage Items

There are no heritage items listed for this land within Local Environmental Plan 2004 Schedule 4 Part 1.

Local Environmental Plan 2004 Part 11 Clause 150 Environmental Heritage

There are no heritage items listed for this land within Local Environmental Plan 2004 Part 11 Clause 150 – South Wallarah Peninsula.

NOTE: **An item of environmental heritage, namely Aboriginal heritage, listed within the Aboriginal Heritage Information Management System (AHIMS), may affect the land. Aboriginal objects are protected under the National Parks and Wildlife Act 1974. If Aboriginal objects are found during development, works are to stop and the Office of Environment and Heritage (OEH) contacted immediately. For further information and to access the AHIMS registrar, refer to http://www.environment.nsw.gov.au**

(2) The following answers relate to the Draft Instrument (see 1(2) above).

(a) Nil

NOTE: **The advice in section (a) above relates only to restrictions that apply by virtue of the zones indicated. The Draft instrument may include additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

Yes

(e) Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), and 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the "heritage conservation area" exemption, then complying development under the Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Low Rise Medium Density Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Low Rise Medium Density Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Low Rise Medium Density Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Housing Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Housing Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high

biodiversity significance.

Commercial and Industrial Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Commercial and Industrial Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Commercial and Industrial (New Buildings and Additions) Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Commercial and Industrial (New Buildings and Additions) Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Subdivisions Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Subdivisions Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Rural Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Rural Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Rural Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Greenfield Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Greenfield Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Greenfield Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is reserved for a public purpose in an environmental planning instrument.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

General Development Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the General Development Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Demolition Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Demolition Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Fire Safety Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Fire Safety Code **MAY NOT** be carried out on part of the land because the lot is partly affected by specific lot exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Container Recycling Facilities Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 12 DP 879281

Complying development under the Container Recycling Facilities Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

4 Coastal Protection

(Repealed 3 April 2018)

4A Information relating to beaches and coasts

(Repealed 3 April 2018)

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

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Nil

NOTE: **"Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.**

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 20 of the Coal Mine Subsidence Compensation Act 2017.

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.

6 Road widening and road realignment

Whether the land is affected by any road widening or realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.

No

(b) any environmental planning instrument.

No

(c) any resolution of the Council.

No, other road widening proposals may affect this land and if so, will be noted on the Section 10.7 Subsection (5) certificate.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

(i) adopted by the Council, or

(ii) adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council,

that restricts the development of the land because of the likelihood of:

(a) land slip or subsidence

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by Council's geotechnical areas map. The map is available for viewing at the Council. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(b) bushfire

Yes

(c) tidal inundation

No

(d) acid sulfate soils

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by the Acid Sulfate Soils Map. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(e) contaminated or potentially contaminated land

Yes

Council has adopted a policy that may restrict the development of Contaminated or Potentially Contaminated land. This policy is implemented when zoning, development, or land use changes are proposed. Council does not hold sufficient information about previous use of the land to determine whether the land is contaminated. Consideration of Council's adopted Policy located in the applicable DCP noted in Clause 1(3) above, and the application of provisions under relevant State legislation is recommended.

(f) any other risk (other than flooding).

No

NOTE: **The absence of a council policy restricting development of the land by reason of a particular natural hazard does not mean that the risk from that hazard is non-existent.**

7A Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

No

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

No

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*.

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

No

9 Contributions Plans

The name of each contributions plan applying to the land.

Lake Macquarie City Council Development Contributions Plan - Charlestown Contributions Catchment - 2015

The Lake Macquarie City Council Section 7.12 Contributions Plan – Citywide 2019

9A Biodiversity Certified Land

This land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10 Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A Native vegetation clearing set asides

The land does not contain a set aside area under section 60ZC of the Local Land Services Act 2013.

11 Bush Fire Prone Land

Note: If a lot is not specifically listed in this section then, **NONE** of that lot is bush fire prone land.

Lot 12 DP 879281 **-** SOME of the land is bush fire prone land.

12 Property Vegetation Plans

The land IS NOT subject to a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Has an order been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

The land IS NOT subject to an order 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

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Nil

15 Site compatibility certificates and conditions for seniors housing

(a) Whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(b) Any terms of a kind referred to in clause 18 (2) of 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.

Nil

16 Site compatibility certificates for infrastructure, schools or TAFE establishments

Whether there is a valid site compatibility certificate (infrastructure, schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

17 Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(2) Any terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

Nil

18 Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

Nil

(2) The date of any subdivision order that applies to the land.

Not Applicable

Note: Words and expressions used in this clause have the same meaning as they have in Part 16C of Environmental Planning and Assessment Regulation 2000.

19 Site verification certificates

Whether there is a current site verification certificate, of which the council is aware, in respect of the land.

No

(a) The matter certified by the certificate

Not Applicable

(b) The date on which the certificate ceases to be current

Not Applicable

(c) A copy of the certificate (if any) may be obtained from the head office of the Department of Planning and Infrastructure.

Note: A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20 Loose-fill asbestos insulation

If 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 that is required to be maintained under that Division

No. Council **has not** been notified that a residential premises erected on this land has been identified in the NSW Fair Trading Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

21 Affected building notices and building product rectification orders

(1) Whether there is any affected building notice of which the council is aware that is in force in respect of the land.

No, Council **has not** been notified that an affected building notice is in force in respect of this land.

(2) (a) Whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

A building rectification order **is not** in force in respect of this land.

(b) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

A notice of intention to make a building product rectification order **has not** been given in respect of this land.

(3) In this clause:

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: The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

Matters arising under the Contaminated Land Management Act 1997 (s59 (2))

(a) The land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No

(b) The land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(c) The land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No

(d) The land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the

certificate is issued,

No

(e) The land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (5)

NOTE: SECTION 10.7(6) OF THE ACT STATES THAT A COUNCIL SHALL NOT INCUR ANY LIABILITY IN RESPECT OF ANY ADVICE PROVIDED IN GOOD FAITH PURSUANT TO SUBSECTION (5).

22 Clearing and lopping of trees

The land is NOT affected by the requirements, under Lake Macquarie Local Environmental Plan 2014 and Lake Macquarie Local Environmental Plan 2004, for the clearing and lopping of trees.

23 Easements

The land is NOT affected by a proposed easement in favour of Lake Macquarie City Council.

As to affectation by existing easements, a search of the relevant Title of the land should be undertaken.

24 Outstanding Notice/Order

The land is NOT AFFECTED by an outstanding notice/order issued under any of the following Acts:

- Local Government Act, 1993
- Environmental Planning & Assessment Act, 1979
- Swimming Pools Act, 1992
- Biosecurity Act, 2015
- Protection of the Environment Operations Act, 1997

25 Earthquake

An earthquake was experienced throughout most of the city area on 28/12/89. Prospective purchasers should make their own enquiries as to whether buildings/structures on the land sustained any structural damage.

26 Lifestyle 2030

Council has prepared a strategy to provide direction for future land use planning, urban design and development of the City until the year 2030. A copy of "Lifestyle 2030 - A Strategy for Our Future" is available from Council.

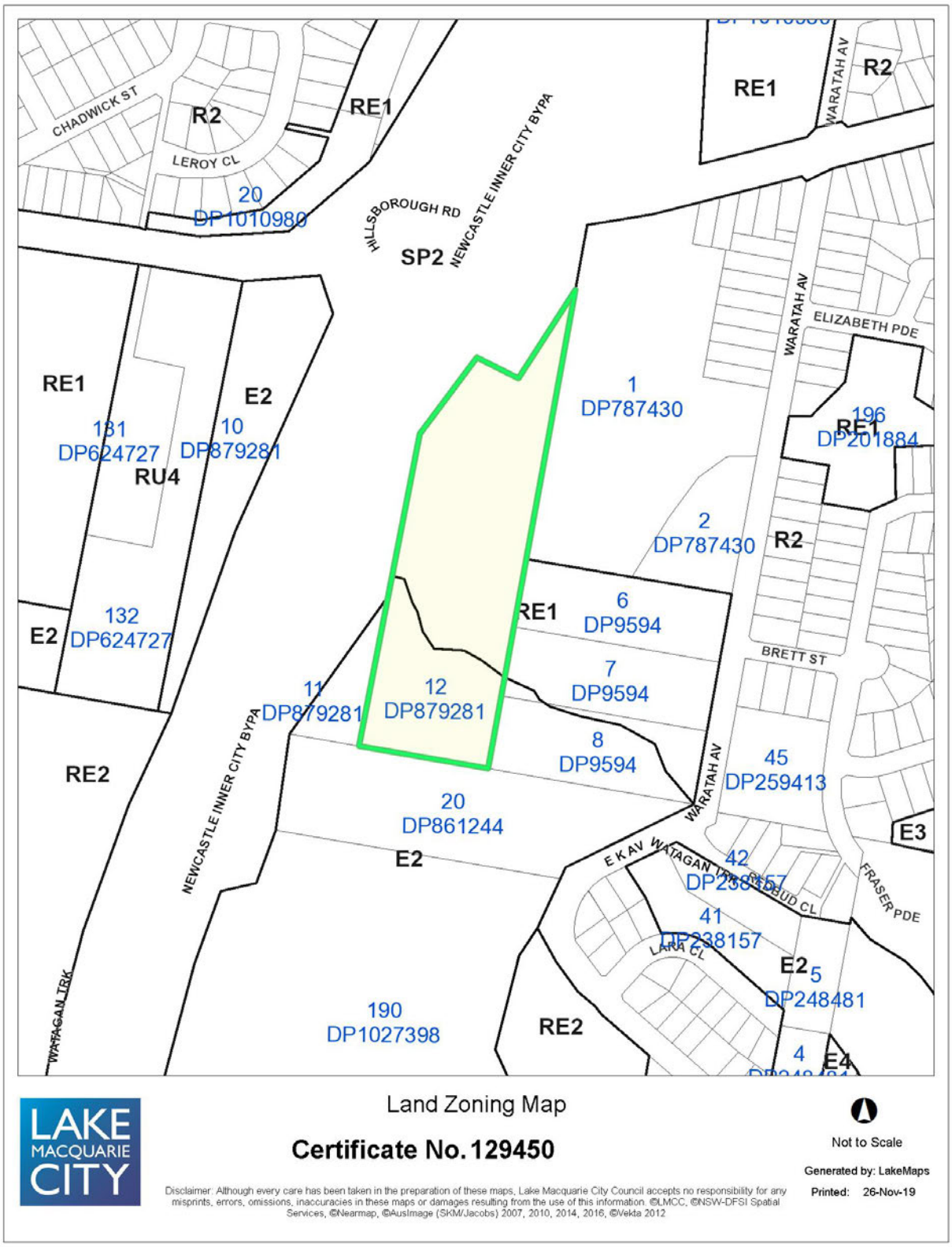
27 Voluntary Planning Agreement

The land is not affected by a Voluntary Planning Agreement.

ATTACHMENTS:

Land Zoning Map

ATTACHMENT: Land Zoning Map



26 November 2019

LMCC - EXECUTIVE DEPARTMENT
Box 1906
HUNTER REGION MAIL CENTRE NSW 2310

Our Ref:129452
Your Ref:
ABN 81 065 027 868

PLANNING CERTIFICATE UNDER THE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Fee Paid: 133.00

Receipt No: W1036.301

Receipt Date: 25 November 2019

DESCRIPTION OF LAND

Address: 62A Hillsborough Road, HILLSBOROUGH NSW 2290

Lot Details: Lot 11 DP 879281

Parish: Kahibah

County: Northumberland

For: MORVEN CAMERON
GENERAL MANAGER

126 – 138 Main Road T 02 4921 0333
Speers Point NSW 2284 E council@lakemac.nsw.gov.au
BOX 1906 HRMC NSW 2310 W lakemac.com.au

lakemac lakemaccity ourlakemac

ABN: 81 065 027 868

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (2)

1 Names of Relevant Planning Instruments and Development Control Plans

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Lake Macquarie Local Environmental Plan 2014

State Environmental Planning Policy (Affordable Rental Housing) 2009

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

State Environmental Planning Policy (Concurrences) 2018

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

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

State Environmental Planning Policy (Infrastructure) 2007

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

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

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

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

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

State Environmental Planning Policy No. 19 – Bushland in Urban Areas

State Environmental Planning Policy No. 21 – Caravan Parks

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

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. 70 – Affordable Housing (Revised Schemes)

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Lake Macquarie Local Environmental Plan 2014 (Amendment No. F2014/01451)

(3) The name of each development control plan that applies to the carrying out of development on the land.

Lake Macquarie Development Control Plan 2014

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a Local Environmental Plan or a Draft environmental planning instrument.

2 Zoning and land use under relevant Local Environmental Plans

(1) The following answers (a) to (h) relate to the instrument (see 1(1) above).

(a) (i) The identity of the zone applying to the land.

E2 Environmental Conservation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2; Home occupations

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Bed and breakfast accommodation; Boat sheds; Building identification signs; Business identification signs; Car parks; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Home-based child care; Home businesses; Information and education facilities; Recreation areas; Roads; Water recreation structures

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted Premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; and any other development not specified in item (ii) or (iii)

NOTE: **The advice in sections (a) above relates only to restrictions that apply by virtue of the zones indicated. The Lake Macquarie LEP 2014 includes additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

Yes, there are development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

Minimum lot size of 40 ha. Refer to Clause 4.2A of LMLEP 2014 for further information.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

Yes

(e) Whether an item of environmental heritage (however described) is situated on the land.

Local Environmental Plan 2014 Schedule 5 Part 1 Heritage Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 1 Heritage items.

Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas.

Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites.

Local Environmental Plan 2014 Schedule 5 Part 4 Landscape Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 4 Landscape items.

Local Environmental Plan 2004 Schedule 4 Part 1 Heritage Items

There are no heritage items listed for this land within Local Environmental Plan 2004 Schedule 4 Part 1.

Local Environmental Plan 2004 Part 11 Clause 150 Environmental Heritage

There are no heritage items listed for this land within Local Environmental Plan 2004 Part 11 Clause 150 – South Wallarah Peninsula.

NOTE: **An item of environmental heritage, namely Aboriginal heritage, listed within the Aboriginal Heritage Information Management System (AHIMS), may affect the land. Aboriginal objects are protected under the National Parks and Wildlife Act 1974. If Aboriginal objects are found during development, works are to stop and the Office of Environment and Heritage (OEH) contacted immediately. For further information and to access the AHIMS registrar, refer to http://www.environment.nsw.gov.au**

(2) The following answers relate to the Draft Instrument (see 1(2) above).

(a) Nil

NOTE: **The advice in section (a) above relates only to restrictions that apply by virtue of the zones indicated. The Draft instrument may include additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

No

(e) Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), and 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the "heritage conservation area" exemption, then complying development under the Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Low Rise Medium Density Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Low Rise Medium Density Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the "heritage conservation area" exemption, then complying development under the Low Rise Medium Density Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Housing Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Housing Alterations Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Commercial and Industrial Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Commercial and Industrial Alterations Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Commercial and Industrial (New Buildings and Additions) Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Commercial and Industrial (New Buildings and Additions) Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive

area.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Subdivisions Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Subdivisions Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Rural Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Rural Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Rural Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Greenfield Housing Code

Note: If a lot is not specifically listed in this section then, complying development

under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Greenfield Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Greenfield Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

General Development Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the General Development Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Demolition Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Demolition Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Fire Safety Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Fire Safety Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Container Recycling Facilities Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 11 DP 879281

Complying development under the Container Recycling Facilities Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

4 Coastal Protection

(Repealed 3 April 2018)

4A Information relating to beaches and coasts

(Repealed 3 April 2018)

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

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal

protection works (within the meaning of section 553B of that Act).

Nil

NOTE: **"Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.**

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 20 of the Coal Mine Subsidence Compensation Act 2017.

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.

6 Road widening and road realignment

Whether the land is affected by any road widening or realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.

No

(b) any environmental planning instrument.

No

(c) any resolution of the Council.

No, other road widening proposals may affect this land and if so, will be noted on the Section 10.7 Subsection (5) certificate.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

(i) adopted by the Council, or

(ii) adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council,

that restricts the development of the land because of the likelihood of:

(a) land slip or subsidence

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by Council's geotechnical areas map. The map is available for viewing at the Council. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(b) bushfire

Yes

(c) tidal inundation

No

(d) acid sulfate soils

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by the Acid Sulfate Soils Map. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(e) contaminated or potentially contaminated land

Yes

Council has adopted a policy that may restrict the development of Contaminated or Potentially Contaminated land. This policy is implemented when zoning, development, or land use changes are proposed. Council does not hold sufficient information about previous use of the land to determine whether the land is contaminated. Consideration of Council's adopted Policy located in the applicable DCP noted in Clause 1(3) above, and the application of provisions under

relevant State legislation is recommended.

(f) any other risk (other than flooding).

No

NOTE: **The absence of a council policy restricting development of the land by reason of a particular natural hazard does not mean that the risk from that hazard is non-existent.**

7A Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

Yes

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

Yes

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*.

ADVICE: Further information on the development restriction mentioned, may be obtained from Council upon application for a “Flood Certificate” or “Flood/Tidal Inundation Certificate”.

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

No

9 Contributions Plans

The name of each contributions plan applying to the land.

Lake Macquarie City Council Development Contributions Plan - Charlestown Contributions Catchment - 2015

The Lake Macquarie City Council Section 7.12 Contributions Plan – Citywide 2019

9A Biodiversity Certified Land

This land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10 Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A Native vegetation clearing set asides

The land does not contain a set aside area under section 60ZC of the Local Land Services Act 2013.

11 Bush Fire Prone Land

Note: If a lot is not specifically listed in this section then, **NONE** of that lot is bush fire prone land.

Lot 11 DP 879281 **-** ALL of the land is bush fire prone land.

12 Property Vegetation Plans

The land IS NOT subject to a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Has an order been made under the Trees (Disputes Between Neighbours) Act 2006 to

carry out work in relation to a tree on the land (but only if the council has been notified of the order).

The land IS NOT subject to an order 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

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Nil

15 Site compatibility certificates and conditions for seniors housing

(a) Whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(b) Any terms of a kind referred to in clause 18 (2) of 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.

Nil

16 Site compatibility certificates for infrastructure, schools or TAFE establishments

Whether there is a valid site compatibility certificate (infrastructure, schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

17 Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(2) Any terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

Nil

18 Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

Nil

(2) The date of any subdivision order that applies to the land.

Not Applicable

Note: Words and expressions used in this clause have the same meaning as they have in Part 16C of Environmental Planning and Assessment Regulation 2000.

19 Site verification certificates

Whether there is a current site verification certificate, of which the council is aware, in respect of the land.

No

(a) The matter certified by the certificate

Not Applicable

(b) The date on which the certificate ceases to be current

Not Applicable

(c) A copy of the certificate (if any) may be obtained from the head office of the Department of Planning and Infrastructure.

Note: A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental

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

20 Loose-fill asbestos insulation

If 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 that is required to be maintained under that Division

No. Council **has not** been notified that a residential premises erected on this land has been identified in the NSW Fair Trading Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

21 Affected building notices and building product rectification orders

(1) Whether there is any affected building notice of which the council is aware that is in force in respect of the land.

No, Council **has not** been notified that an affected building notice is in force in respect of this land.

(2) (a) Whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

A building rectification order **is not** in force in respect of this land.

(b) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

A notice of intention to make a building product rectification order **has not** been given in respect of this land.

(3) In this clause:

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: The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be

specified in a planning certificate:

Matters arising under the Contaminated Land Management Act 1997 (s59 (2))

(a) The land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No

(b) The land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(c) The land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No

(d) The land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(e) The land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (5)

NOTE: SECTION 10.7(6) OF THE ACT STATES THAT A COUNCIL SHALL NOT INCUR ANY LIABILITY IN RESPECT OF ANY ADVICE PROVIDED IN GOOD FAITH PURSUANT TO SUBSECTION (5).

22 Clearing and lopping of trees

The land is NOT affected by the requirements, under Lake Macquarie Local Environmental Plan 2014 and Lake Macquarie Local Environmental Plan 2004, for the clearing and lopping of trees.

23 Easements

The land is NOT affected by a proposed easement in favour of Lake Macquarie City Council.

As to affectation by existing easements, a search of the relevant Title of the land should be undertaken.

24 Outstanding Notice/Order

The land is NOT AFFECTED by an outstanding notice/order issued under any of the following Acts:

- Local Government Act, 1993
- Environmental Planning & Assessment Act, 1979
- Swimming Pools Act, 1992
- Biosecurity Act, 2015
- Protection of the Environment Operations Act, 1997

25 Earthquake

An earthquake was experienced throughout most of the city area on 28/12/89. Prospective purchasers should make their own enquiries as to whether buildings/structures on the land sustained any structural damage.

26 Lifestyle 2030

Council has prepared a strategy to provide direction for future land use planning, urban design and development of the City until the year 2030. A copy of "Lifestyle 2030 - A Strategy for Our Future" is available from Council.

27 Voluntary Planning Agreement

The land is not affected by a Voluntary Planning Agreement.

26 November 2019

LMCC - EXECUTIVE DEPARTMENT
Box 1906
HUNTER REGION MAIL CENTRE NSW 2310

Our Ref:129453
Your Ref:
ABN 81 065 027 868

PLANNING CERTIFICATE UNDER THE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Fee Paid:	133.00
Receipt No:	W1036.301
Receipt Date:	25 November 2019

DESCRIPTION OF LAND

Address:	109 Waratah Avenue, CHARLESTOWN NSW 2290
Lot Details:	Lot 6 DP 9594
Parish:	Kahibah
County:	Northumberland

For: MORVEN CAMERON
GENERAL MANAGER

126 – 138 Main Road T 02 4921 0333
Speers Point NSW 2284 E council@lakemac.nsw.gov.au
BOX 1906 HRMC NSW 2310 W lakemac.com.au

lakemac lakemaccity ourlakemac

ABN: 81 065 027 868

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (2)

1 Names of Relevant Planning Instruments and Development Control Plans

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Lake Macquarie Local Environmental Plan 2014

State Environmental Planning Policy - (Housing for Seniors or People with a Disability) 2004 (This SEPP applies to the land to the extent provided by Clause 4 of the SEPP)

State Environmental Planning Policy (Affordable Rental Housing) 2009

State Environmental Planning Policy (Concurrences) 2018

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

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

State Environmental Planning Policy (Infrastructure) 2007

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

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

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

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

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

State Environmental Planning Policy No. 19 – Bushland in Urban Areas

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 Homes Estates (except as maybe excluded by Clause 6 of the SEPP)

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. 70 – Affordable Housing (Revised Schemes)

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Lake Macquarie Local Environmental Plan 2014 (Amendment No. F2014/01451)

(3) The name of each development control plan that applies to the carrying out of development on the land.

Lake Macquarie Development Control Plan 2014

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a Local Environmental Plan or a Draft environmental planning instrument.

2 Zoning and land use under relevant Local Environmental Plans

(1) The following answers (a) to (h) relate to the instrument (see 1(1) above).

(a) (i) The identity of the zone applying to the land.

RE1 Public Recreation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Amusement centres; Animal boarding or training establishments; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Crematoria; Educational establishments; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Kiosks; Marinas; Markets; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Sewage reticulation systems; Sewage treatment plants; Signage; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Any development not specified in item (ii) or (iii)

NOTE: **The advice in sections (a) above relates only to restrictions that apply by virtue of the zones indicated. The Lake Macquarie LEP 2014 includes additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

No

(e) Whether an item of environmental heritage (however described) is situated on the land.

Local Environmental Plan 2014 Schedule 5 Part 1 Heritage Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 1 Heritage items.

Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas.

Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites.

Local Environmental Plan 2014 Schedule 5 Part 4 Landscape Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 4 Landscape items.

Local Environmental Plan 2004 Schedule 4 Part 1 Heritage Items

There are no heritage items listed for this land within Local Environmental Plan 2004 Schedule 4 Part 1.

Local Environmental Plan 2004 Part 11 Clause 150 Environmental Heritage

There are no heritage items listed for this land within Local Environmental Plan 2004 Part 11 Clause 150 – South Wallarah Peninsula.

NOTE: **An item of environmental heritage, namely Aboriginal heritage, listed within the Aboriginal Heritage Information Management System (AHIMS), may affect the land. Aboriginal objects are protected under the National Parks and Wildlife Act 1974. If Aboriginal objects are found during development, works are to stop and the Office of Environment and Heritage (OEH) contacted immediately. For further information and to access the AHIMS registrar, refer to http://www.environment.nsw.gov.au**

(2) The following answers relate to the Draft Instrument (see 1(2) above).

(a) Nil

NOTE: **The advice in section (a) above relates only to restrictions that apply by virtue of the zones indicated. The Draft instrument may include additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

No

(e) Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), and 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 6 DP 9594

Complying development under the Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the "heritage conservation area" exemption, then complying development under the Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is reserved for a public purpose in an environmental planning instrument.

Low Rise Medium Density Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 6 DP 9594

Complying development under the Low Rise Medium Density Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the "heritage conservation area" exemption, then complying development under the Low Rise Medium Density Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is reserved for a public purpose in an environmental planning instrument.

Housing Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Commercial and Industrial Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Commercial and Industrial (New Buildings and Additions) Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 6 DP 9594

Complying development under the Commercial and Industrial (New Buildings and Additions) Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is reserved for a public purpose in an environmental planning instrument.

Subdivisions Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Rural Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 6 DP 9594

Complying development under the Rural Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Rural Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is reserved for a public purpose in an environmental planning instrument.

Greenfield Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 6 DP 9594

Complying development under the Greenfield Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Greenfield Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is reserved for a public purpose in an environmental planning instrument.

General Development Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Demolition Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Fire Safety Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Container Recycling Facilities Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

4 Coastal Protection

(Repealed 3 April 2018)

4A Information relating to beaches and coasts

(Repealed 3 April 2018)

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

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Nil

NOTE: **"Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.**

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 20 of the Coal Mine Subsidence Compensation Act 2017.

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.

6 Road widening and road realignment

Whether the land is affected by any road widening or realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.

No

(b) any environmental planning instrument.

No

(c) any resolution of the Council.

No, other road widening proposals may affect this land and if so, will be noted on the Section 10.7 Subsection (5) certificate.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

(i) adopted by the Council, or

(ii) adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council,

that restricts the development of the land because of the likelihood of:

(a) land slip or subsidence

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by Council's geotechnical areas map. The map is available for viewing at the Council. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(b) bushfire

Yes

(c) tidal inundation

No

(d) acid sulfate soils

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when

development is proposed on land covered by the Acid Sulfate Soils Map. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(e) contaminated or potentially contaminated land

Yes

Council has adopted a policy that may restrict the development of Contaminated or Potentially Contaminated land. This policy is implemented when zoning, development, or land use changes are proposed. Council does not hold sufficient information about previous use of the land to determine whether the land is contaminated. Consideration of Council's adopted Policy located in the applicable DCP noted in Clause 1(3) above, and the application of provisions under relevant State legislation is recommended.

(f) any other risk (other than flooding).

No

NOTE: **The absence of a council policy restricting development of the land by reason of a particular natural hazard does not mean that the risk from that hazard is non-existent.**

7A Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

No

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

No

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*.

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

No

9 Contributions Plans

The name of each contributions plan applying to the land.

Lake Macquarie City Council Development Contributions Plan - Charlestown Contributions Catchment - 2015

The Lake Macquarie City Council Section 7.12 Contributions Plan – Citywide 2019

9A Biodiversity Certified Land

This land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10 Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A Native vegetation clearing set asides

The land does not contain a set aside area under section 60ZC of the Local Land Services Act 2013.

11 Bush Fire Prone Land

Note: If a lot is not specifically listed in this section then, **NONE** of that lot is bush fire prone land.

Lot 6 DP 9594 **-** ALL of the land is bush fire prone land.

12 Property Vegetation Plans

The land IS NOT subject to a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Has an order been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

The land IS NOT subject to an order 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

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Nil

15 Site compatibility certificates and conditions for seniors housing

(a) Whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(b) Any terms of a kind referred to in clause 18 (2) of 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.

Nil

16 Site compatibility certificates for infrastructure, schools or TAFE establishments

Whether there is a valid site compatibility certificate (infrastructure, schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

17 Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(2) Any terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

Nil

18 Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

Nil

(2) The date of any subdivision order that applies to the land.

Not Applicable

Note: Words and expressions used in this clause have the same meaning as they have in Part 16C of Environmental Planning and Assessment Regulation 2000.

19 Site verification certificates

Whether there is a current site verification certificate, of which the council is aware, in respect of the land.

No

(a) The matter certified by the certificate

Not Applicable

(b) The date on which the certificate ceases to be current

Not Applicable

(c) A copy of the certificate (if any) may be obtained from the head office of the Department of Planning and Infrastructure.

Note: A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20 Loose-fill asbestos insulation

If 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 that is required to be maintained under that Division

No. Council **has not** been notified that a residential premises erected on this land has been identified in the NSW Fair Trading Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

21 Affected building notices and building product rectification orders

(1) Whether there is any affected building notice of which the council is aware that is in force in respect of the land.

No, Council **has not** been notified that an affected building notice is in force in respect of this land.

(2) (a) Whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

A building rectification order **is not** in force in respect of this land.

(b) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

A notice of intention to make a building product rectification order **has not** been given in respect of this land.

(3) In this clause:

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: The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

Matters arising under the Contaminated Land Management Act 1997 (s59 (2))

(a) The land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No

(b) The land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(c) The land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No

(d) The land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(e) The land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (5)

NOTE: SECTION 10.7(6) OF THE ACT STATES THAT A COUNCIL SHALL NOT INCUR ANY LIABILITY IN RESPECT OF ANY ADVICE PROVIDED IN GOOD FAITH PURSUANT TO SUBSECTION (5).

22 Clearing and lopping of trees

The land is NOT affected by the requirements, under Lake Macquarie Local Environmental Plan 2014 and Lake Macquarie Local Environmental Plan 2004, for the clearing and lopping of trees.

23 Easements

The land is NOT affected by a proposed easement in favour of Lake Macquarie City Council.

As to affectation by existing easements, a search of the relevant Title of the land should be undertaken.

24 Outstanding Notice/Order

The land is NOT AFFECTED by an outstanding notice/order issued under any of the following Acts:

- Local Government Act, 1993
- Environmental Planning & Assessment Act, 1979
- Swimming Pools Act, 1992
- Biosecurity Act, 2015
- Protection of the Environment Operations Act, 1997

25 Earthquake

An earthquake was experienced throughout most of the city area on 28/12/89. Prospective purchasers should make their own enquiries as to whether buildings/structures on the land sustained any structural damage.

26 Lifestyle 2030

Council has prepared a strategy to provide direction for future land use planning, urban design and development of the City until the year 2030. A copy of "Lifestyle 2030 - A Strategy for Our Future" is available from Council.

27 Voluntary Planning Agreement

The land is not affected by a Voluntary Planning Agreement.

26 November 2019

LMCC - EXECUTIVE DEPARTMENT
Box 1906
HUNTER REGION MAIL CENTRE NSW 2310

Our Ref:129454
Your Ref:
ABN 81 065 027 868

PLANNING CERTIFICATE UNDER THE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Fee Paid: 133.00

Receipt No: W1036.301

Receipt Date: 25 November 2019

DESCRIPTION OF LAND

Address: 117 Waratah Avenue, CHARLESTOWN NSW 2290

Lot Details: Lot 7 DP 9594, Lot 8 DP 9594

Parish: Kahibah

County: Northumberland

For: MORVEN CAMERON
GENERAL MANAGER

126 – 138 Main Road T 02 4921 0333
Speers Point NSW 2284 E council@lakemac.nsw.gov.au
BOX 1906 HRMC NSW 2310 W lakemac.com.au

lakemac lakemaccity ourlakemac

ABN: 81 065 027 868

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (2)

1 Names of Relevant Planning Instruments and Development Control Plans

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Lake Macquarie Local Environmental Plan 2014Lake Macquarie Local Environmental Plan 2014

State Environmental Planning Policy - (Housing for Seniors or People with a Disability) 2004 (This SEPP applies to the land to the extent provided by Clause 4 of the SEPP)

State Environmental Planning Policy (Affordable Rental Housing) 2009

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

State Environmental Planning Policy (Concurrences) 2018

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

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

State Environmental Planning Policy (Infrastructure) 2007

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

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

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

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

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

State Environmental Planning Policy No. 19 – Bushland in Urban Areas

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 Homes Estates (except as maybe excluded by Clause 6 of the SEPP)

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. 70 – Affordable Housing (Revised Schemes)

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Lake Macquarie Local Environmental Plan 2014 (Amendment No. F2014/01451)

(3) The name of each development control plan that applies to the carrying out of development on the land.

Lake Macquarie Development Control Plan 2014Lake Macquarie Development Control Plan 2014

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a Local Environmental Plan or a Draft environmental planning instrument.

2 Zoning and land use under relevant Local Environmental Plans

(1) The following answers (a) to (h) relate to the instrument (see 1(1) above).

(a) (i) The identity of the zone applying to the land.

E2 Environmental Conservation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2; Home occupations

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Bed and breakfast accommodation; Boat sheds; Building identification signs; Business identification signs; Car parks; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Home-based child care; Home businesses; Information and education facilities; Recreation areas; Roads; Water recreation structures

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted Premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; and any other development not specified in item (ii) or (iii)

(i) The identity of the zone applying to the land.

RE1 Public Recreation

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Amusement centres; Animal boarding or training establishments; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Crematoria; Educational establishments; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Kiosks; Marinas; Markets; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Sewage reticulation systems; Sewage treatment plants; Signage; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Any development not specified in item (ii) or (iii)

NOTE: **The advice in sections (a) above relates only to restrictions that apply by virtue of the zones indicated. The Lake Macquarie LEP 2014 includes additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

Yes, there are development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

Minimum lot size of 40 ha. Refer to Clause 4.2A of LMLEP 2014 for further

information.

Minimum lot size of 40 ha. Refer to Clause 4.2A of LMLEP 2014 for further information.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

Yes

(e) Whether an item of environmental heritage (however described) is situated on the land.

Local Environmental Plan 2014 Schedule 5 Part 1 Heritage Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 1 Heritage items.

Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas.

Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites.

Local Environmental Plan 2014 Schedule 5 Part 4 Landscape Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 4 Landscape items.

Local Environmental Plan 2004 Schedule 4 Part 1 Heritage Items

There are no heritage items listed for this land within Local Environmental Plan 2004 Schedule 4 Part 1.

Local Environmental Plan 2004 Part 11 Clause 150 Environmental Heritage

There are no heritage items listed for this land within Local Environmental Plan 2004 Part 11 Clause 150 – South Wallarah Peninsula.

NOTE: **An item of environmental heritage, namely Aboriginal heritage, listed within the Aboriginal Heritage Information Management System (AHIMS), may affect the land. Aboriginal objects are protected under the National Parks and Wildlife Act 1974. If Aboriginal objects are found during development, works are to stop and the Office of Environment and Heritage (OEH) contacted**

immediately. For further information and to access the AHIMS registrar, refer to http://www.environment.nsw.gov.au

(2) The following answers relate to the Draft Instrument (see 1(2) above).

(a) Nil

NOTE: **The advice in section (a) above relates only to restrictions that apply by virtue of the zones indicated. The Draft instrument may include additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(c) Whether the land includes or comprises critical habitat.

No

(d) Whether the land is in a conservation area (however described).

No

(e) Whether an item of environmental heritage (however described) is situated on the land.

No

3 Complying development

The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), and 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Lot 8 DP 9594

Complying development under the Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Low Rise Medium Density Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Low Rise Medium Density Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Low Rise Medium Density Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Lot 8 DP 9594

Complying development under the Low Rise Medium Density Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Low Rise Medium Density Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Housing Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Housing Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Lot 8 DP 9594

Complying development under the Housing Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Commercial and Industrial Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Commercial and Industrial Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Lot 8 DP 9594

Complying development under the Commercial and Industrial Alterations Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Commercial and Industrial (New Buildings and Additions) Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Commercial and Industrial (New Buildings and Additions) Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive

area.

Lot 8 DP 9594

Complying development under the Commercial and Industrial (New Buildings and Additions) Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

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The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Subdivisions Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Subdivisions Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Lot 8 DP 9594

Complying development under the Subdivisions Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Rural Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Rural Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Rural Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Lot 8 DP 9594

Complying development under the Rural Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Rural Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Greenfield Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Greenfield Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Greenfield Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

Lot 8 DP 9594

Complying development under the Greenfield Housing Code **MAY NOT** be carried out on any part of the lot because the lot is affected by specific land exemptions.

Note: If the lot is only affected by the “heritage conservation area” exemption, then complying development under the Greenfield Housing Code **MAY** be carried out on the lot if the development is a detached outbuilding or swimming pool.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

The land is reserved for a public purpose in an environmental planning instrument.

The land is excluded land being land identified by an environmental planning instrument as being environmentally sensitive or within an ecologically sensitive area.

General Development Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the General Development Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Lot 8 DP 9594

Complying development under the General Development Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Demolition Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Demolition Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Lot 8 DP 9594

Complying development under the Demolition Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Fire Safety Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Fire Safety Code **MAY NOT** be carried out on part of the land because the lot is partly affected by specific lot exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Lot 8 DP 9594

Complying development under the Fire Safety Code **MAY NOT** be carried out on part of the land because the lot is partly affected by specific lot exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Container Recycling Facilities Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Lot 7 DP 9594

Complying development under the Container Recycling Facilities Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

Lot 8 DP 9594

Complying development under the Container Recycling Facilities Code **MAY NOT** be carried out on part of the lot because the lot is partly affected by specific land exemptions.

The lot is affected by the following specific land exemptions:

The land is within an environmentally sensitive area being land within an area of high biodiversity significance.

4 Coastal Protection

(Repealed 3 April 2018)

4A Information relating to beaches and coasts

(Repealed 3 April 2018)

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

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Nil

NOTE: **"Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.**

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 20 of the Coal Mine Subsidence Compensation Act 2017.

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.

6 Road widening and road realignment

Whether the land is affected by any road widening or realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.

No

(b) any environmental planning instrument.

No

(c) any resolution of the Council.

No, other road widening proposals may affect this land and if so, will be noted on the Section 10.7 Subsection (5) certificate.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

(i) adopted by the Council, or

(ii) adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council,

that restricts the development of the land because of the likelihood of:

(a) land slip or subsidence

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by Council's geotechnical areas map. The map is available for viewing at the Council. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(b) bushfire

Yes

(c) tidal inundation

No

(d) acid sulfate soils

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by the Acid Sulfate Soils Map. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(e) contaminated or potentially contaminated land

Yes

Council has adopted a policy that may restrict the development of Contaminated or Potentially Contaminated land. This policy is implemented when zoning, development, or land use changes are proposed. Council does not hold sufficient information about previous use of the land to determine whether the land is contaminated. Consideration of Council's adopted Policy located in the applicable DCP noted in Clause 1(3) above, and the application of provisions under relevant State legislation is recommended.

(f) any other risk (other than flooding).

No

NOTE: **The absence of a council policy restricting development of the land by reason of a particular natural hazard does not mean that the risk from that hazard is non-existent.**

7A Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

No

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

No

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*.

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

No

9 Contributions Plans

The name of each contributions plan applying to the land.

Lake Macquarie City Council Development Contributions Plan - Charlestown Contributions Catchment - 2015

The Lake Macquarie City Council Section 7.12 Contributions Plan – Citywide 2019

9A Biodiversity Certified Land

This land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10 Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A Native vegetation clearing set asides

The land does not contain a set aside area under section 60ZC of the Local Land Services Act 2013.

11 Bush Fire Prone Land

Note: If a lot is not specifically listed in this section then, **NONE** of that lot is bush fire prone land.

Lot 7 DP 9594 **-** ALL of the land is bush fire prone land.

Lot 8 DP 9594 **-** ALL of the land is bush fire prone land.

12 Property Vegetation Plans

The land IS NOT subject to a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Has an order been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

The land IS NOT subject to an order 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

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Nil

15 Site compatibility certificates and conditions for seniors housing

(a) Whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(b) Any terms of a kind referred to in clause 18 (2) of 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.

Nil

16 Site compatibility certificates for infrastructure, schools or TAFE establishments

Whether there is a valid site compatibility certificate (infrastructure, schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

17 Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(2) Any terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

Nil

18 Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

Nil

(2) The date of any subdivision order that applies to the land.

Not Applicable

Note: Words and expressions used in this clause have the same meaning as they have in Part 16C of Environmental Planning and Assessment Regulation 2000.

19 Site verification certificates

Whether there is a current site verification certificate, of which the council is aware, in respect of the land.

No

(a) The matter certified by the certificate

Not Applicable

(b) The date on which the certificate ceases to be current

Not Applicable

(c) A copy of the certificate (if any) may be obtained from the head office of the Department of Planning and Infrastructure.

Note: A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20 Loose-fill asbestos insulation

If 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 that is required to be maintained under that Division

No. Council **has not** been notified that a residential premises erected on this land has been identified in the NSW Fair Trading Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

21 Affected building notices and building product rectification orders

(1) Whether there is any affected building notice of which the council is aware that is in force in respect of the land.

No, Council **has not** been notified that an affected building notice is in force in respect of this land.

(2) (a) Whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

A building rectification order **is not** in force in respect of this land.

(b) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

A notice of intention to make a building product rectification order **has not** been given in respect of this land.

(3) In this clause:

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: The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

Matters arising under the Contaminated Land Management Act 1997 (s59 (2))

(a) The land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No

(b) The land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(c) The land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No

(d) The land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(e) The land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (5)

NOTE: SECTION 10.7(6) OF THE ACT STATES THAT A COUNCIL SHALL NOT INCUR ANY LIABILITY IN RESPECT OF ANY ADVICE PROVIDED IN GOOD FAITH PURSUANT TO SUBSECTION (5).

22 Clearing and lopping of trees

The land is NOT affected by the requirements, under Lake Macquarie Local Environmental Plan 2014 and Lake Macquarie Local Environmental Plan 2004, for the clearing and lopping of trees.

23 Easements

The land is NOT affected by a proposed easement in favour of Lake Macquarie City Council.

As to affectation by existing easements, a search of the relevant Title of the land should be undertaken.

24 Outstanding Notice/Order

The land is NOT AFFECTED by an outstanding notice/order issued under any of the following Acts:

- Local Government Act, 1993
- Environmental Planning & Assessment Act, 1979
- Swimming Pools Act, 1992
- Biosecurity Act, 2015
- Protection of the Environment Operations Act, 1997

25 Earthquake

An earthquake was experienced throughout most of the city area on 28/12/89. Prospective purchasers should make their own enquiries as to whether buildings/structures on the land sustained any structural damage.

26 Lifestyle 2030

Council has prepared a strategy to provide direction for future land use planning, urban design and development of the City until the year 2030. A copy of "Lifestyle 2030 - A Strategy for Our Future" is available from Council.

27 Voluntary Planning Agreement

The land is not affected by a Voluntary Planning Agreement.

28 Proposed Road Widening

The land is affected by a road widening proposal. Contact Council's Asset Management Department for further details.

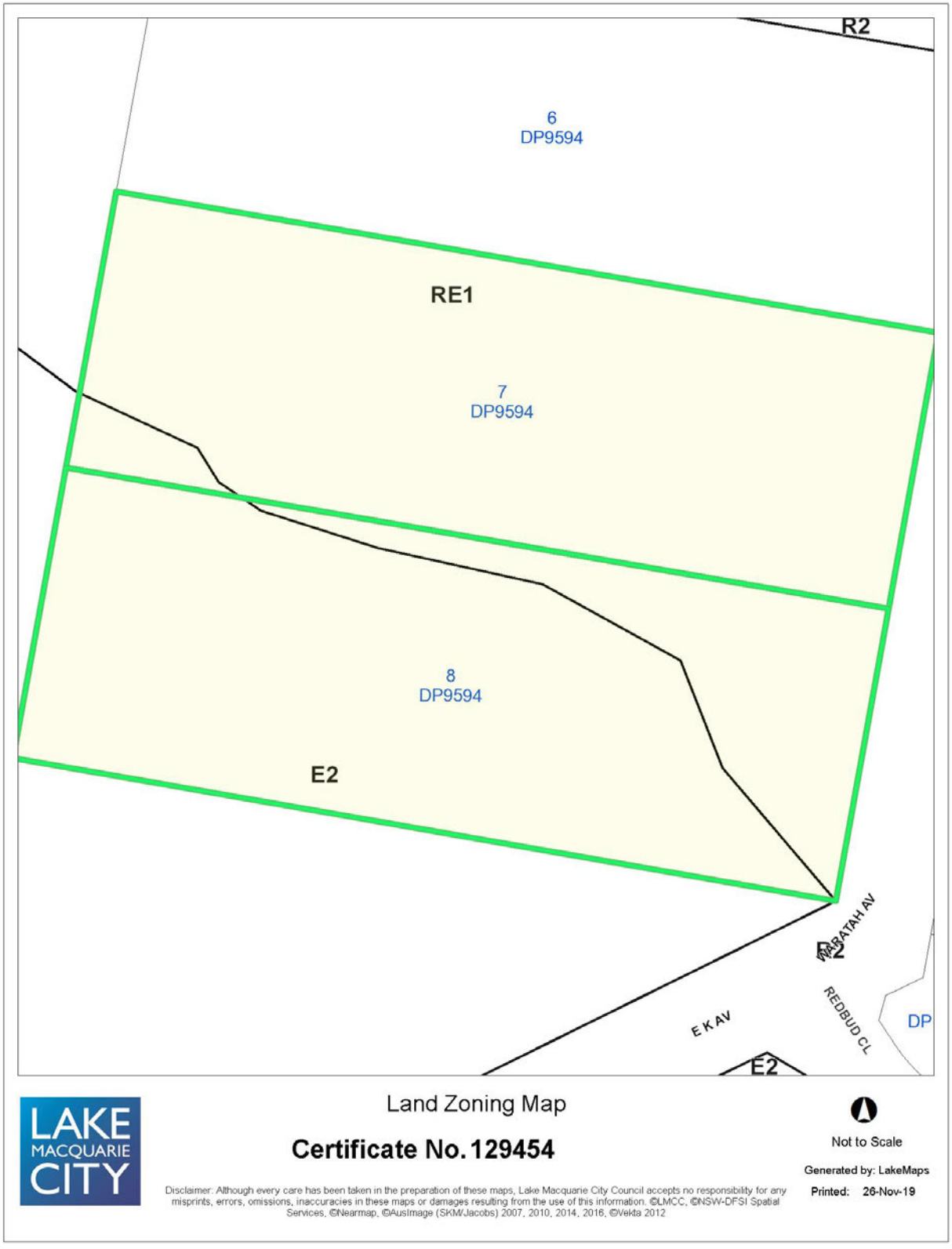
29 Stormwater Detention Basin

Based on current planning, the land or part of the land is proposed to be used for a future stormwater detention basin. Further enquiries should be directed to Lake Macquarie City Council Stormwater Asset Management section. (Trim references: D02398960 and D02398986)

ATTACHMENTS:

Land Zoning Map

ATTACHMENT: Land Zoning Map



VALLEY CIVILAB
Geotechnical & Environmental Services

Annex C

Cadastral Records Enquiry Report : Lot 12 DP 879281

Ref : hILLSBOROUGH rOAD 62

Locality : HILLSBOROUGH
Parish : KAHIBAH
LGA : LAKE MACQUARIE
County : NORTHUMBERLAND

This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

PLAN FORM 2

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

EXECUTED FOR THE ROADS AND TRAFFIC AUTHORITY BY ITS DELEGATE PAUL GREGORY PURSUANT TO BOOK 4008 No. 809 AND BOOK 4117 No. 182.

MANAGER, PROPERTY ASSETS

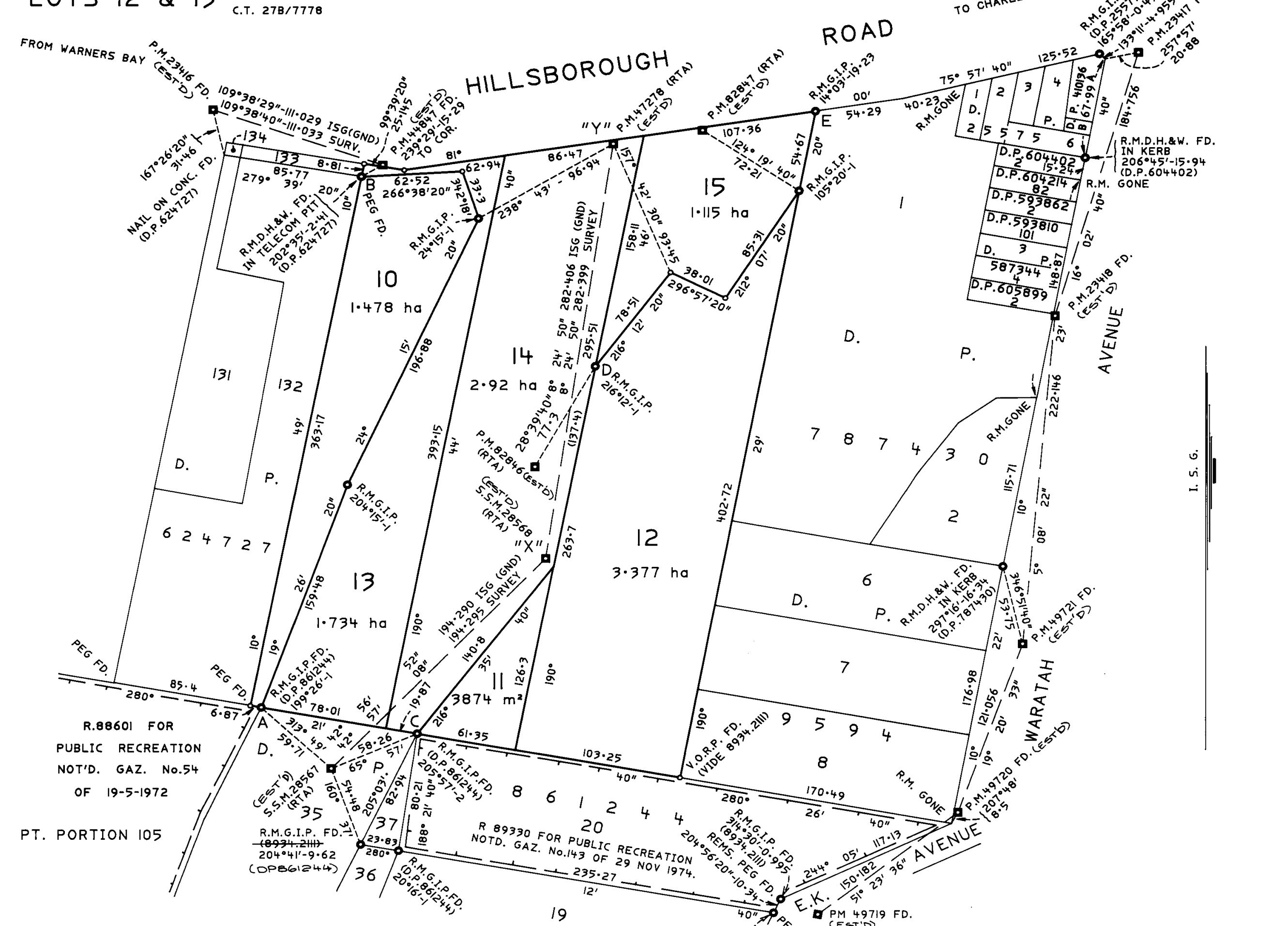
Plan Drawing only to appear in this space

LOTS 10 & 13	LOT 30A, D.P.7778 C.T. 30A/7778
LOTS 11 & 14	LOT 30, D.P.7778 C.T. 30/7778
LOTS 12 & 15	LOT 27B, D.P.7778 C.T. 27B/7778

P.M. COMPARISONS

P.M.44847 TO P.M.47278 - 84° 10' 02" - 142·941 ISG (GND)
84° 10' 09" - 142·946 SURVEY

P.M.47278 TO P.M.23417 - 79° 07' 55" - 330·027 ISG (GND)
79° 07' 54" - 330·020 SURV. (CALC)



Crown Lands Office Approval

PLAN APPROVED ....
Authorised Officer

Land District ....
Paper No. ....
Field Book .... pages ....

Council's Certificate

I hereby certify that -
(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and
** (b) the requirements of † Part 3 Division 2 of the Water Board Act 1987, or † Part 5 Division 7 of the Hunter Water Board (Corporatisation) Act 1991.*
have been complied with by the applicant in relation to the proposed ....
(Insert "new road", "subdivision" or "consolidated lot") set out herein
Subdivision No. ....
Date ....
(Signature) ....
General Manager/Authorised Person
Council File No. ....

** This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.*

† Delete if inapplicable.

SURVEYORS (PRACTICE) REGULATION 1996 : CLAUSE 32 (2)

MARK	I.S.G. CO-ORDINATES EASTING	NORTHING	ZONE	ACC.
SSM 28568	363 302·474	351 400·196	561	3
PM 47278	363 343·797	351 679·557	561	3
PM 44847	363 201·599	351 665·031	561	3

COMBINED SEA LEVEL AND SCALE FACTOR 0·99998
SOURCE: ISG COORDINATES ADOPTED FROM LIC ON 29 JUNE 1998.

SSM 28568 - PM 82846	353° 50' 31" 62·085 ISG (GND)	
	353° 50' 33" 62·089 SURVEY	
PM 82846 - PM 82847	24° 25' 40" 249·227 ISG (GND)	
	24° 25' 40" 249·217 SURVEY	
PM 82847 - PM 47278	260° 26' 24" 55·859 ISG (GND)	
	260° 26' 19" 55·859 SURVEY	

Table of mm

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

R.T.A. FILE 23/252-11

OFFICE USE ONLY

DP 879281

Registered: 1.9.1998

C.A.:

Title System: TORRENS

Purpose: ROADS ACT 1993

Ref.Map: U6350-71

Last Plan: DP 7778

PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.

Lengths are in metres. Reduction Ratio 1: 2000

L.G.A.: LAKE MACQUARIE CITY
Locality: CHARLESTOWN
Parish: KAHIBAH
County: NORTHUMBERLAND

This is sheet 1 of my plan in ~~sheets.~~ ~~(Delete if inapplicable).~~

I, MALCOLM LINDSAY GARRY
of ROADS AND TRAFFIC AUTHORITY
a surveyor registered under the Surveyors Act 1929, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation 1996 and was completed on 26 JUNE 1992 & 26 JUNE 1998.

Signature 30.7.98
Surveyor registered under Surveyors Act, 1929.
Datum Line: "X" - "Y"
Zone: City
R.T.A. F.B. 0023 252 FP 5580 JW

Plans used in preparation of survey/compilation.

NOT WITHIN P.S.A.

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to users.

LOTS 13, 14 & 15 ARE REQUIRED FOR CONTROLLED ACCESS ROAD UNDER SECTION 49 OF THE ROADS ACT, 1993.

ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES MARKED A-B AND C-D-E.

31.7.1998

APPROVED:

PROPERTY MANAGER
HUNTER REGION
ROADS & TRAFFIC AUTHORITY NSW

R.T.A. PLAN 0023 252 SS 0184

PLAN AMENDED IN LTO AT SURVEYORS REQUEST

DP 879281

PLAN FORM 2

Plan Drawing only to appear in this space

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

THE COMMON SEAL of the COUNCIL of the CITY of LAKE MACQUARIE was hereto affixed in pursuance of a Council Resolution passed on 14th day of APRIL 2008

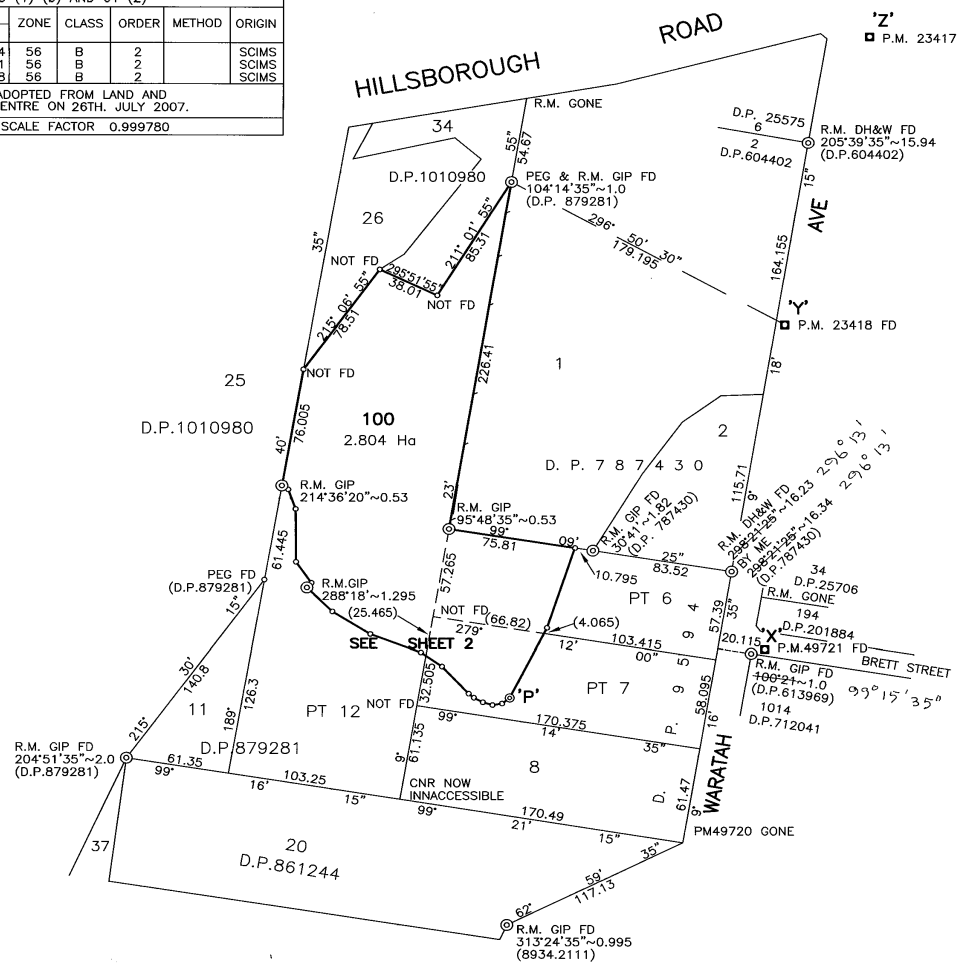
P R Scarfe
ACTING ~~DEPUTY~~ MAYOR Paul Scarfe

Brian Bell
GENERAL MANAGER
Brian Bell

SURVEYING REGULATION 2006 :CLAUSES 35 (1) (b) AND 61 (2)							
MARK	M.G.A. COORDINATES EASTING	M.G.A. COORDINATES NORTHING	ZONE	CLASS	ORDER	METHOD	ORIGIN
PM 49721	376 764.757	6 352 205.404	56	B	2		SCIMS
PM 23417	376 828.106	6 352 605.391	56	B	2		SCIMS
PM 23418	376 780.443	6 352 426.938	56	B	2		SCIMS
M.G.A. COORDINATES ADOPTED FROM LAND AND PROPERTY INFORMATION CENTRE ON 26TH. JULY 2007.							
COMBINED SEA LEVEL & SCALE FACTOR 0.999780							

M.G.A.

'X'–'Y' 184°03'~222.138 BY M.G.A. GND
184°03'~222.134 BY SURVEY
'Y'–'Z' 14°57'15"~184.75 BY M.G.A. GND
14°57'01"~184.746 BY SURVEY
'X'–'P' 258°30'10"~147.750



THIS PLAN IS ONLY AVAILABLE TO DEFINE LAND FOR LEASE PURPOSES WHERE THE TERM PLUS ANY OPTION FOR RENEWAL IS 5 YEARS OR LESS. IT IS NOT AVAILABLE FOR SUBDIVISION OR TITLE ISSUE PURPOSES.

Department of Lands Approval

I ..... in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown hereon have been given.

Signature .....
Date .....
File Number .....
Office .....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed
..... set out herein
* (Insert 'subdivision' or 'new road')
.....
* Authorised Person/General Manager/Accredited Certifier

Consent Authority .....
Date of endorsement .....
Accreditation no: .....
Subdivision Certicate no: .....
File no. .....

* Delete whichever is inapplicable.

SURVEYOR'S REF.: F2004/09966

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 Table of mm 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP1129395 P

Registered: 31.7.2008
C.A:
Title System: TORRENS
Purpose: LEASE
Ref. Map: 6350-71
Last Plan: DP9594, DP879281

PLAN
OF LOT 100 BEING PART OF LOT 12 D.P. 879281 AND PART LOTS 6 & 7 D.P.9594, FOR LEASE PURPOSES

Lengths are in metres. Reduction Ratio 1: 2000

LGA: LAKE MACQUARIE
Locality: CHARLESTOWN
Parish: KAHIBAH
County: NORTHUMBERLAND

This is sheet 1 of my plan in 2 sheets. (Delete if inapplicable).

Surveying Regulation, 2006
I, PETER WILLIAM THOMPSON
of LAKE MACQUARIE CITY COUNCIL P.O.BOX 1906 HUNTER REGION MAIL CENTRE 2310,
a surveyor registered under the Surveying Act, 2002, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveying Regulation, 2006 and was completed on 30/07/2007
The survey relates to LOT 100
(here specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)
(Signature) Dated: 8/8/2007
Surveyor registered under the Surveying Act, 2002
Datum Line : 'X'–'Y' Zone: Urban/~~Rural~~

Plans used in preparation of survey/~~compilation~~.

D.P. 879281	D.P. 25706
D.P. 787430	D.P. 201884
D.P. 9594	D.P. 237553
D.P. 1010980	D.P. 712041
D.P. 604402	D.P. 861244
D.P. 25575	8934.2111

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves. drainage reserves, easements, restrictions on the use of land or positive covenants.

BEARINGS AMENDED IN LPI AT SURVEYORS REQUEST.

12864

PLAN FORM 3 — To be used in conjuction with Plan Form 2 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP1129395

Registered 31.7.2008

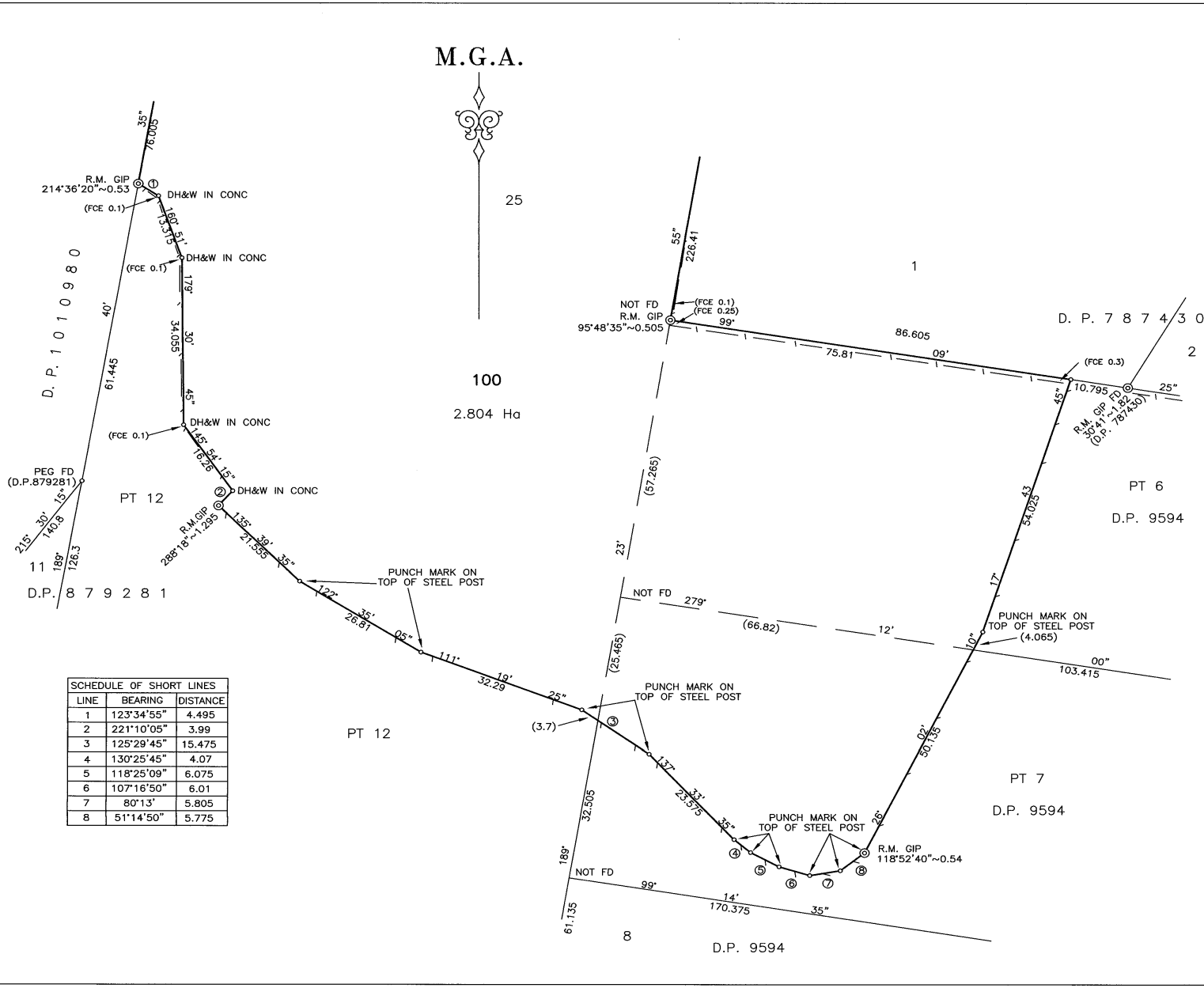
This is sheet 2 of my plan in 2 sheets dated 30th JULY, 2007

Surveyor registered under Surveying Act 2002.

This is sheet of my plan in sheets covered by Subdivision Certificate No. of

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2.



SCHEDULE OF SHORT LINES		
LINE	BEARING	DISTANCE
1	123°34'55"	4.495
2	221°10'05"	3.99
3	125°29'45"	15.475
4	130°25'45"	4.07
5	118°25'09"	6.075
6	107°16'50"	6.01
7	80°13'	5.805
8	51°14'50"	5.775

Reduction Ratio 1 : 500

Plan Drawing only to appear in this space

SURVEYOR'S REF.: F2004/09966
Filename: 12864

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

Redact

hILLSBOROUGH rOAD 62 PRINTED ON 22/1/2020

Received: 22/01/2020 21:56:26

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

Redact

hILLSBOROUGH rOAD 62 PRINTED ON 22/1/2020

Received: 22/01/2020 21:56:18

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

Redact

hILLSBOROUGH rOAD 62 PRINTED ON 22/1/2020

Received: 22/01/2020 21:55:42

VALLEY CIVILAB
Geotechnical & Environmental Services

Annex D

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 22 Jan 2020 18:48:36

Reference: LS010822 EP

Address: 62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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	2
Contaminated Land Records of Notice	Environment Protection Authority	16/12/2019	16/12/2019	Monthly	1000	0	0	1
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	04/11/2019	25/07/2011	Quarterly	1000	0	0	1
EPA PFAS Investigation Program	Environment Protection Authority	07/01/2020	07/01/2020	Monthly	2000	0	0	0
Defence PFAS Investiga ion 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 Na ional 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	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	13/12/2018	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	1	1	1
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	4	4
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	2
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	9	9
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	0
Points of Interest	NSW Department of Finance, Services & Innovation	10/10/2019	10/10/2019	Quarterly	1000	0	2	20
Tanks (Areas)	NSW Department of Finance, Services & Innovation	10/10/2019	10/10/2019	Quarterly	1000	0	0	0
Tanks (Points)	NSW Department of Finance, Services & Innovation	10/10/2019	10/10/2019	Quarterly	1000	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	10/10/2019	10/10/2019	Quarterly	1000	0	0	3
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	Commonweal h of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	2	2	2
Botany Groundwater Management Zones	NSW Department of Primary Industries	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	49

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	2	-	2
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	2	-	4
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning and Environment	06/12/2019	11/10/2019	Weekly	500	0	-	-
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	10/10/2019	10/10/2019	Quarterly	1000	1	1	1
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning and Environment	06/12/2019	07/12/2018	Weekly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning and Environment	06/12/2019	29/11/2019	Weekly	1000	2	7	45
Commonwealth Heritage List	Australian Government Department of he Environment and Energy - Heritage Branch	16/01/2019	31/07/2018	Unknown	1000	0	0	0
National Heritage List	Australian Government Department of he Environment and Energy - Heritage Branch	16/01/2019	28/09/2018	Unknown	1000	0	0	0
State Heritage Register - Cur ilages	NSW Office of Environment & Heritage	08/11/2019	09/11/2018	Quarterly	1000	0	0	0
Environmental Planning Instrument Heritage	NSW Department of Planning and Environment	06/12/2019	29/11/2019	Weekly	1000	0	0	0
Bush Fire Prone Land	NSW Rural Fire Service	28/08/2019	03/06/2019	Quarterly	1000	4	4	4
Lower Hunter and Central Coast Regional Vegetation Survey	NSW Office of Environment & Heritage	28/02/2015	16/11/2009	As required	1000	3	3	5
Ramsar Wetlands of Australia	Commonweal h 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	5	6	6
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	7	8	11
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	21/01/2020	21/01/2020	Weekly	10000	-	-	-

Site Diagram

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229

Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 68089m²

Total Perimeter: 1387m

Scale: 0 25 50 100 Meters

Data Sources: Aerial Imagery: © NSW Department Finance, Services & Innovation 2020

Disclaimers:

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

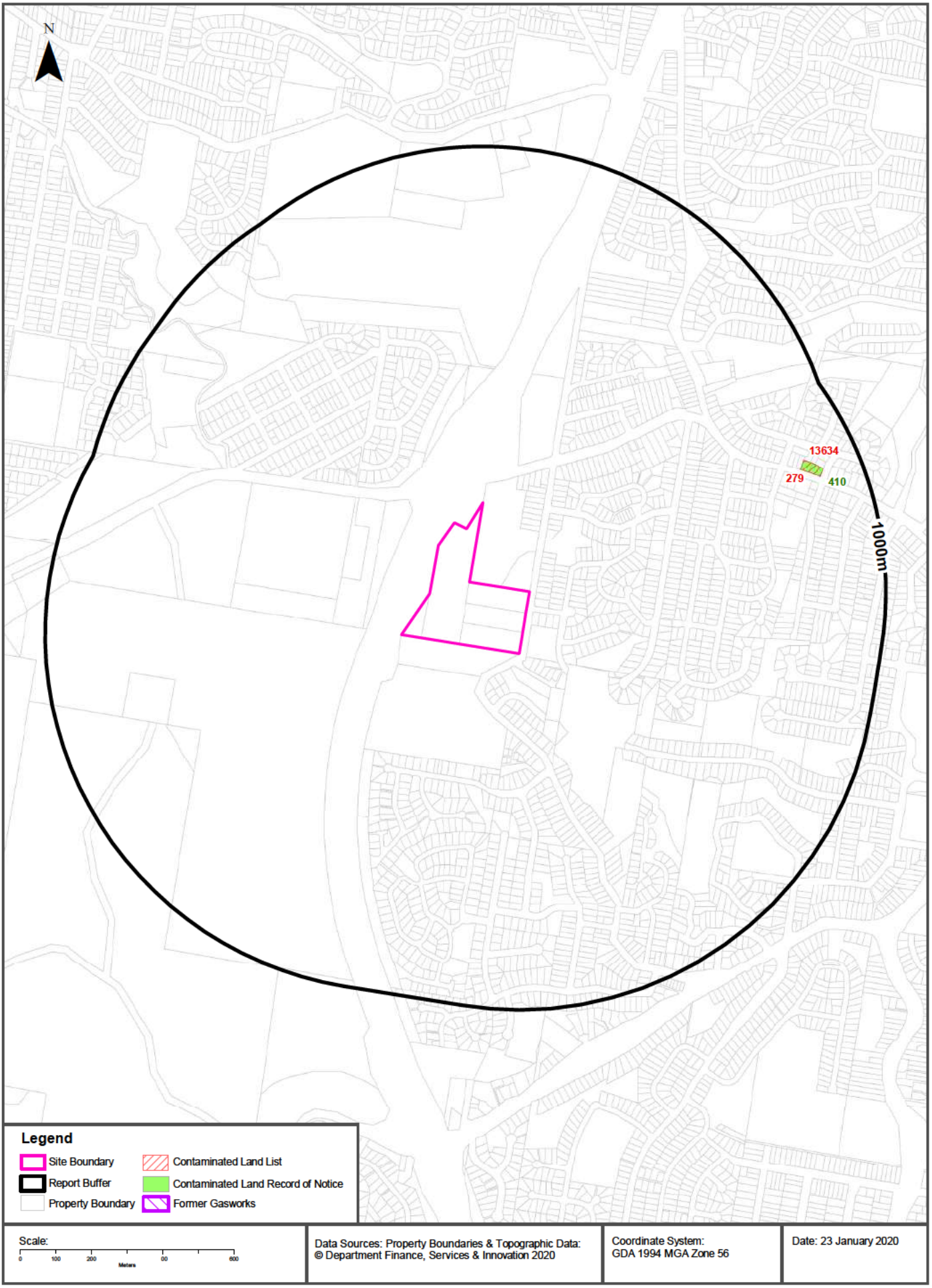
Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System: GDA 1994 MGA Zone 56

Date: 22 January 2020

Contaminated Land

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



Contaminated Land

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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
279	7-Eleven Charlestown	273 Charlestown Road	Charlestown	Service Station	Under assessment	Current EPA List	Premise Match	834m	East
13634	Shell Service Station	273 Charlestown ROAD	CHARLESTOWN	Service Station	N/A - Site no longer on EPA Contaminated Land List	Previous EPA List	Premise Match	834m	East

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
410	Shell Service Station	273 Charlestown ROAD	Charlestown	1 current	3450	Premise Match	834m	East

Contaminated Land Records of Notice Data Source: 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

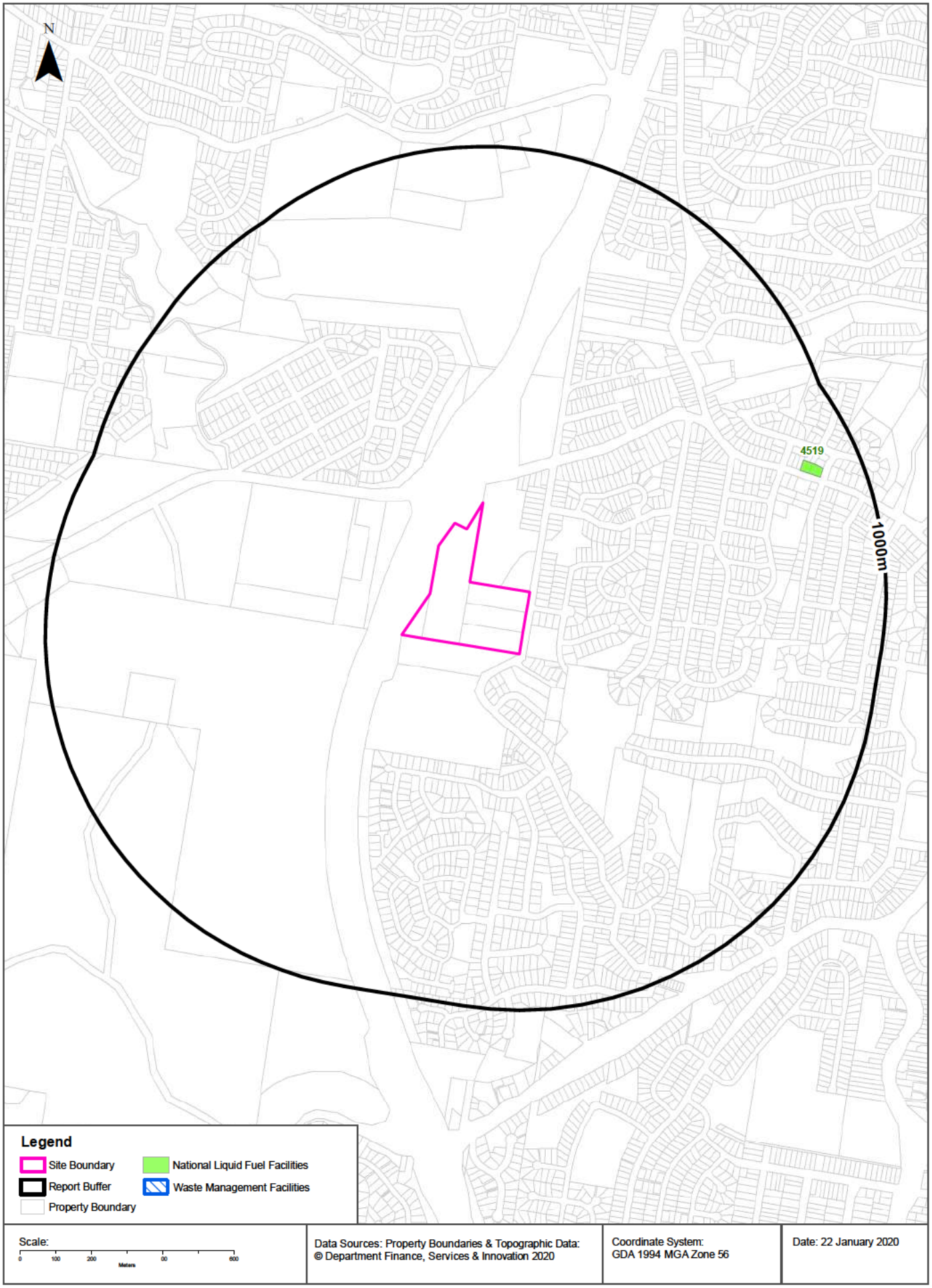
Former Gasworks within the dataset buffer:

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

Former Gasworks Data Source: Environment Protection Authority

Waste Management & Liquid Fuel Facilities

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



Waste Management & Liquid Fuel Facilities

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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											

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
4519	Liberty	BP Charlestown	273 Charlestown Road	Charlestown	Petrol Station	Operational		25/07/2011	Premise Match	834m	East

PFAS Investigation & Management Programs

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

Defence 3 Year Regional Contamination Investigation Program

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

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

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

EPA Other Sites with Contamination Issues

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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

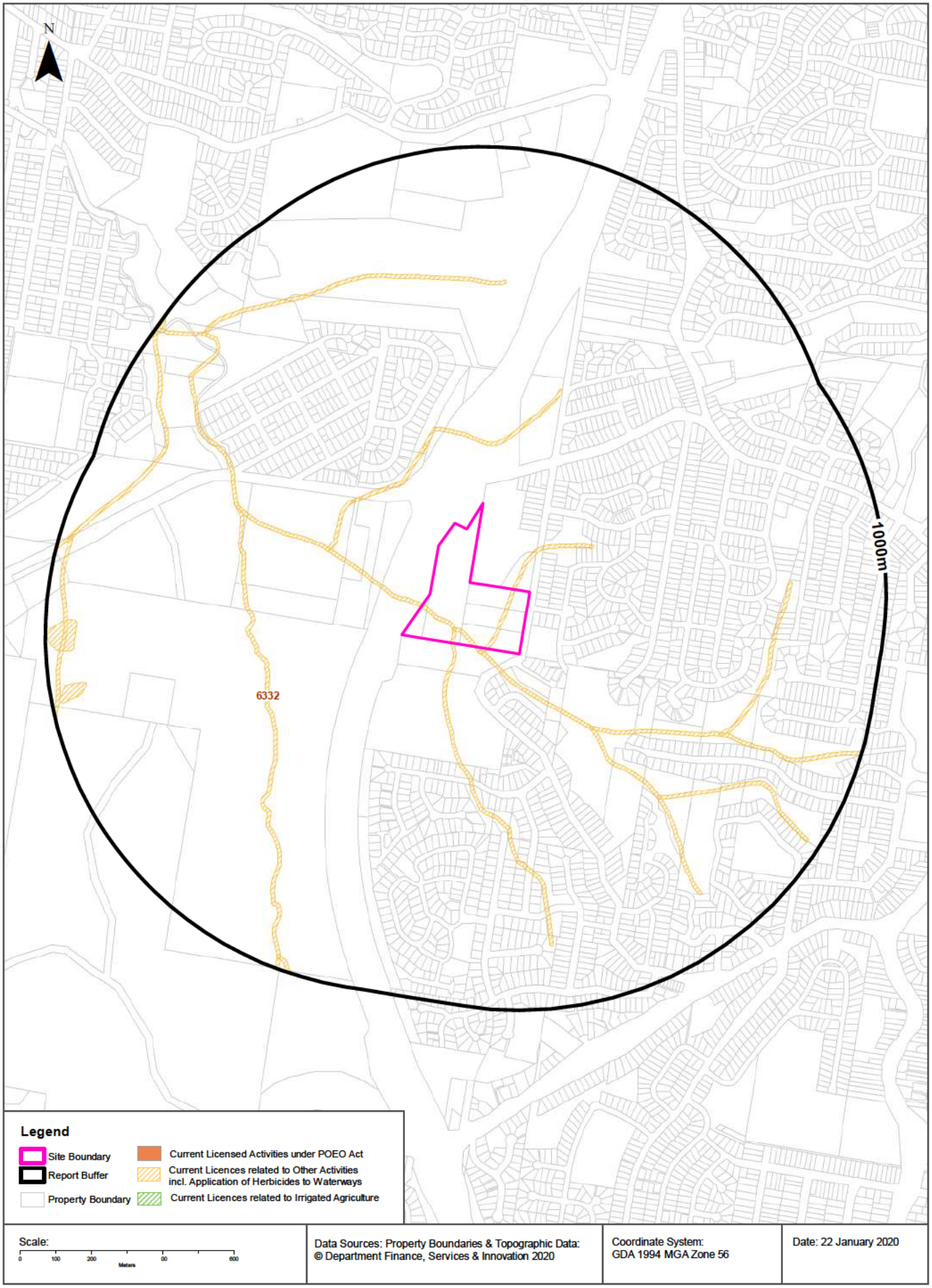
Sites within the dataset buffer:

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

Current EPA Licensed Activities

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



EPA Activities

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

Licensed Activities under the POEO Act 1997

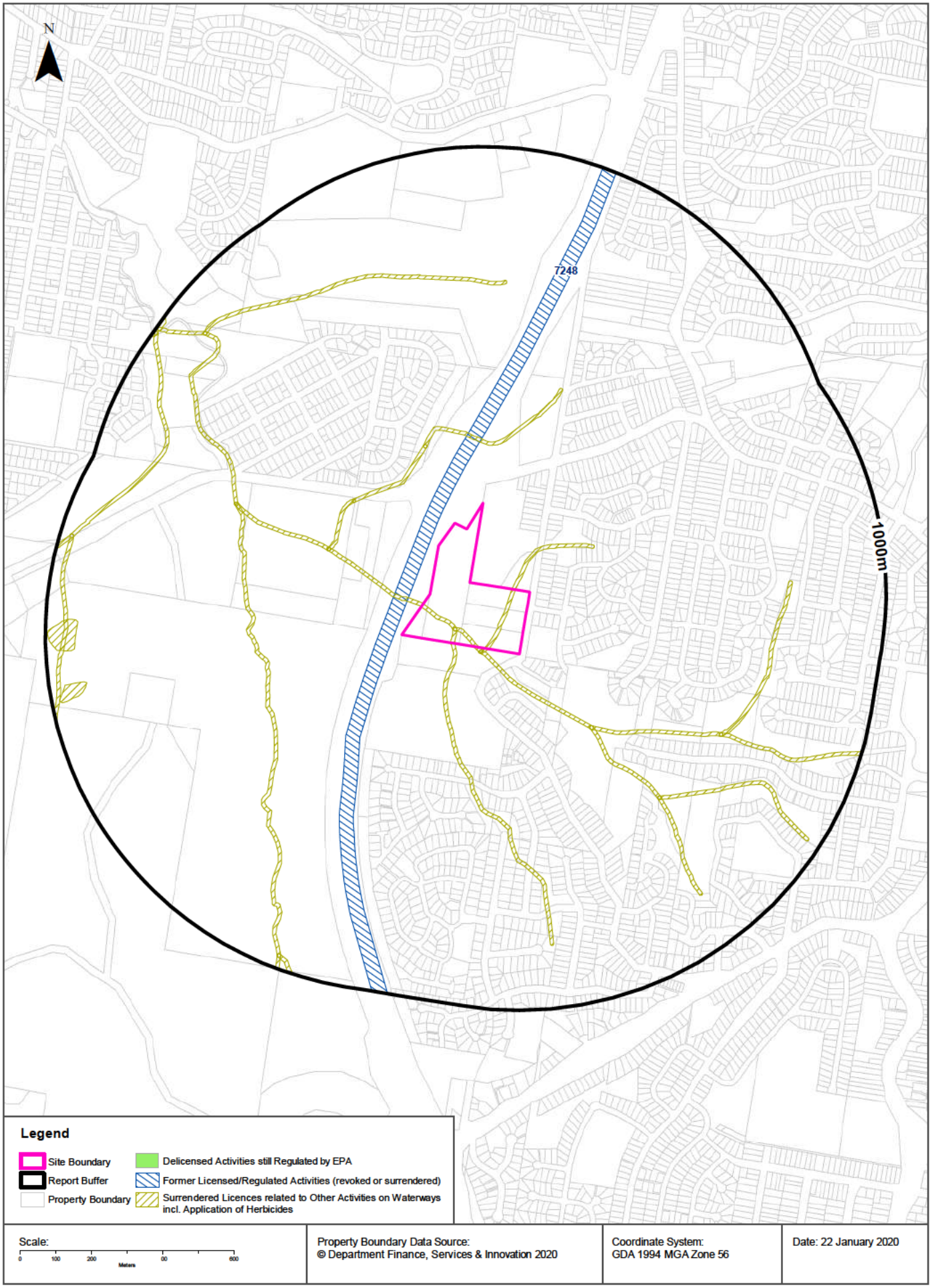
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
6332	LAKE MACQUARIE CITY COUNCIL	-	-	SPEERS POINT	Other activities	Network of Features	0m	Onsite

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



EPA Activities

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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

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

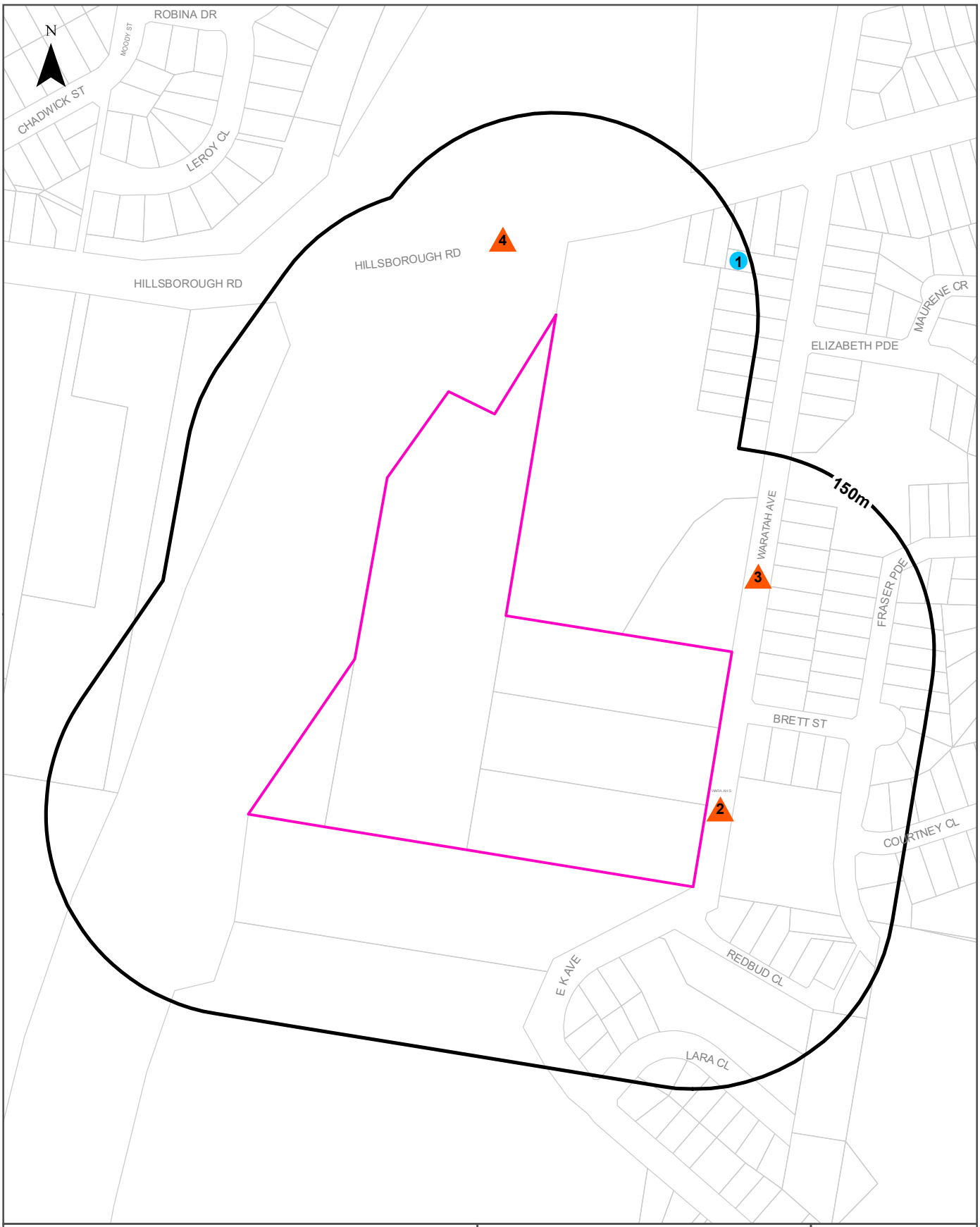
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

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
7248	ROADS & TRAFFIC AUTHORITY OF NEW SOUTH WALES	Pacific Highway, CHARLESTOWN, NSW 2290	Surrendered	04/01/2001	Road construction	Road Match	20m	North West

Former Licensed Activities Data Source: Environment Protection Authority

Historical Business Directories

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



Legend

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

Scale: 0 50 100 150 200 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 22 January 2020

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

Historical Business Directories

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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	CLEANING MAINTENANCE PLUMBING	Ryan W P., 67 Waratah Av Charlestown, Newcastle	83171	1991	Premise Match	130m	North East
	PLUMBERS, GASFITTERS &/OR DRAINLAYERS.	Ryan, W. P. J., 67 Waratah Ave., Charlestown Newcastle	178316	1982	Premise Match	130m	North East

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
2	CONCRETE PRODUCTS MFRS. &/OR DISTS. &/OR W/SALERS	Concrete Company The., 122 Waratah Av Charlestown, Newcastle	83841	1991	Road Match	0m
	CONCRETE PRODUCTS MFRS. &/OR DISTS. &/OR W/SALERS	R T M Sales Pty Ltd., 122 Waratah Av Charlestown, Newcastle	83845	1991	Road Match	0m
3	CONCRETE PRODUCTS MFRS. &/OR DISTS.	Bonded Steps Pty. Ltd., Waratah Ave., Charlestown, Newcastle	626709	1970	Road Match	0m
	CONCRETE CONTRACTORS-CONSTRUCTIONAL	Ryan, T. B., Lot A, Waratah Ave., Charlestown, Newcastle	626686	1970	Road Match	0m
4	CONCRETE CONTRACTORS-CONSTRUCTIONAL	Beeney, A., Hillsborough Rd., Charlestown, Newcastle	130826	1961	Road Match	52m
	CONCRETE PRODUCTS MFRS.	Beeney, A., Hillsborough Rd., Charlestown, Newcastle	130850	1961	Road Match	52m
	CARRIERS/CARTAGE CONTRACTORS	Hardcastle, R. D., Hillsborough Rd., Charlestown, Newcastle	130282	1961	Road Match	52m
	CONCRETE CEMENT READY MIXED	A. Beeney Hillsborough Rd Charlestown Newcastle	120144	1950	Road Match	52m
	CONCRETE PRODUCTS MANUFACTURERS	Beeney, A., Hillsborough Rd., Charlestown Newcastle	120163	1950	Road Match	52m

Historical Business Directories

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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						

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
	No records in buffer					

Aerial Imagery 2019

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229

Scale: 0 40 80 120 160 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 22 January 2020

Aerial Imagery 2018

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229

Aerial Imagery 2014

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229

Scale: 0 40 80 120 160 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 22 January 2020

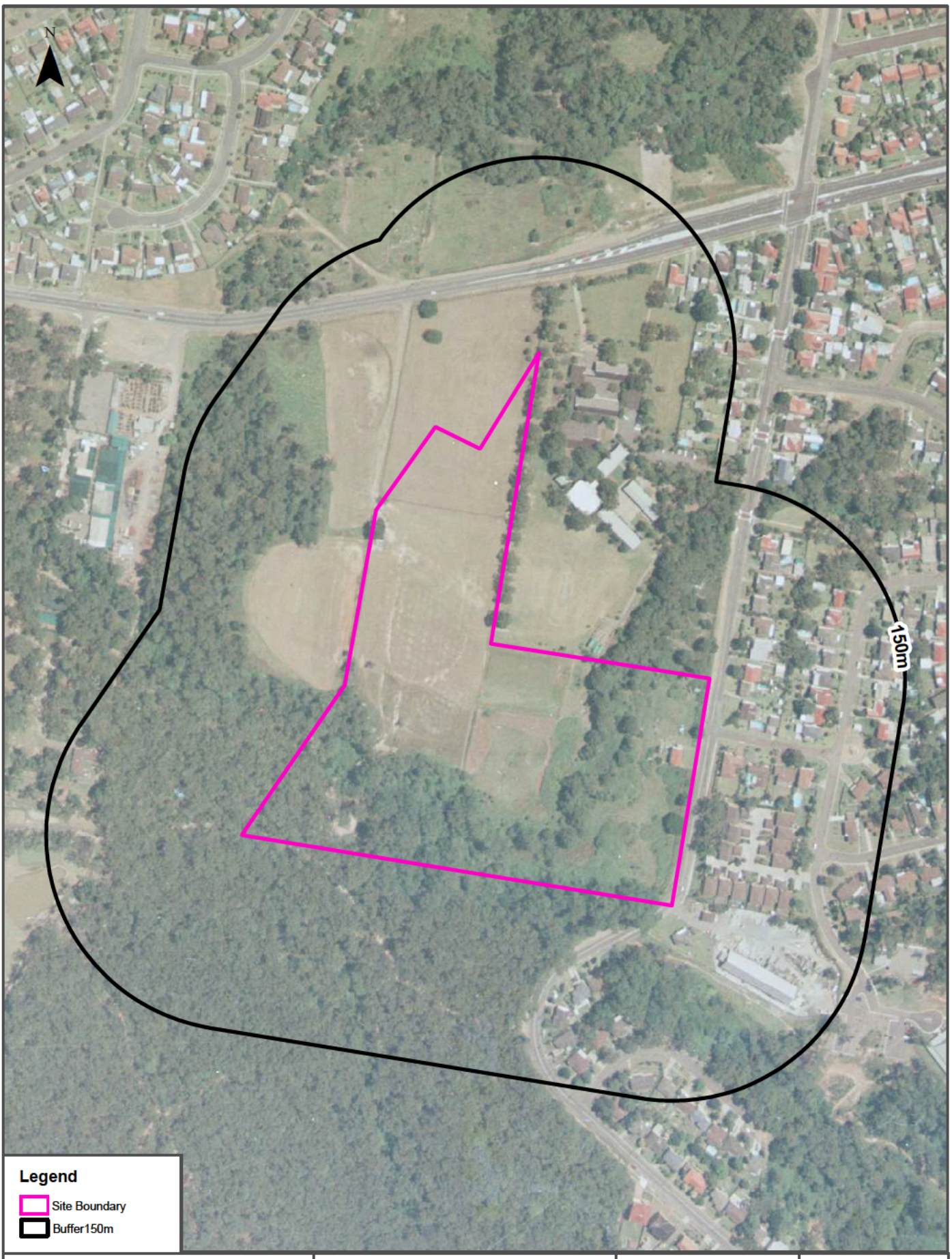
Aerial Imagery 2007

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229

Scale: 0 40 80 120 160 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 22 January 2020

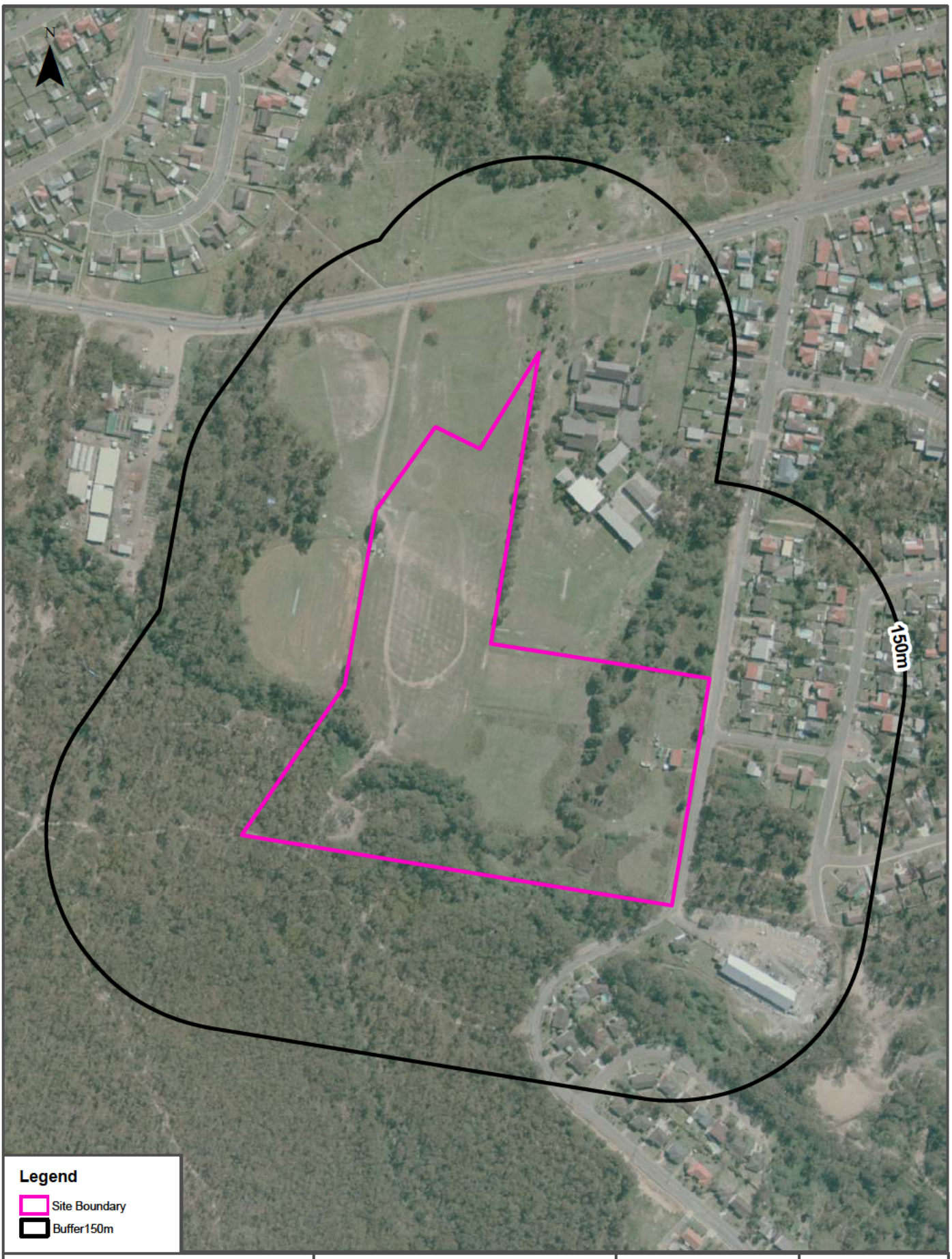
Aerial Imagery 1993

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



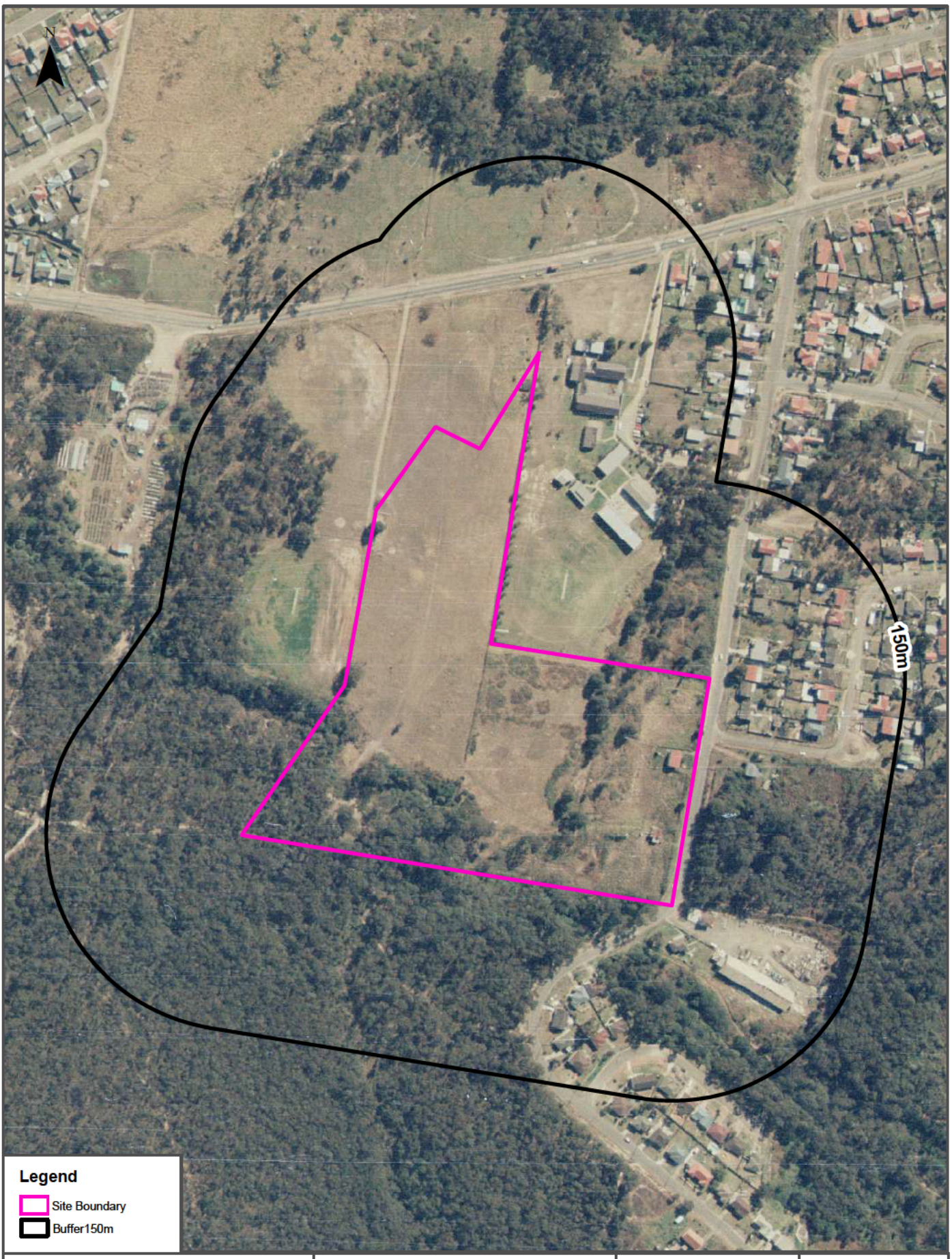
Aerial Imagery 1983

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



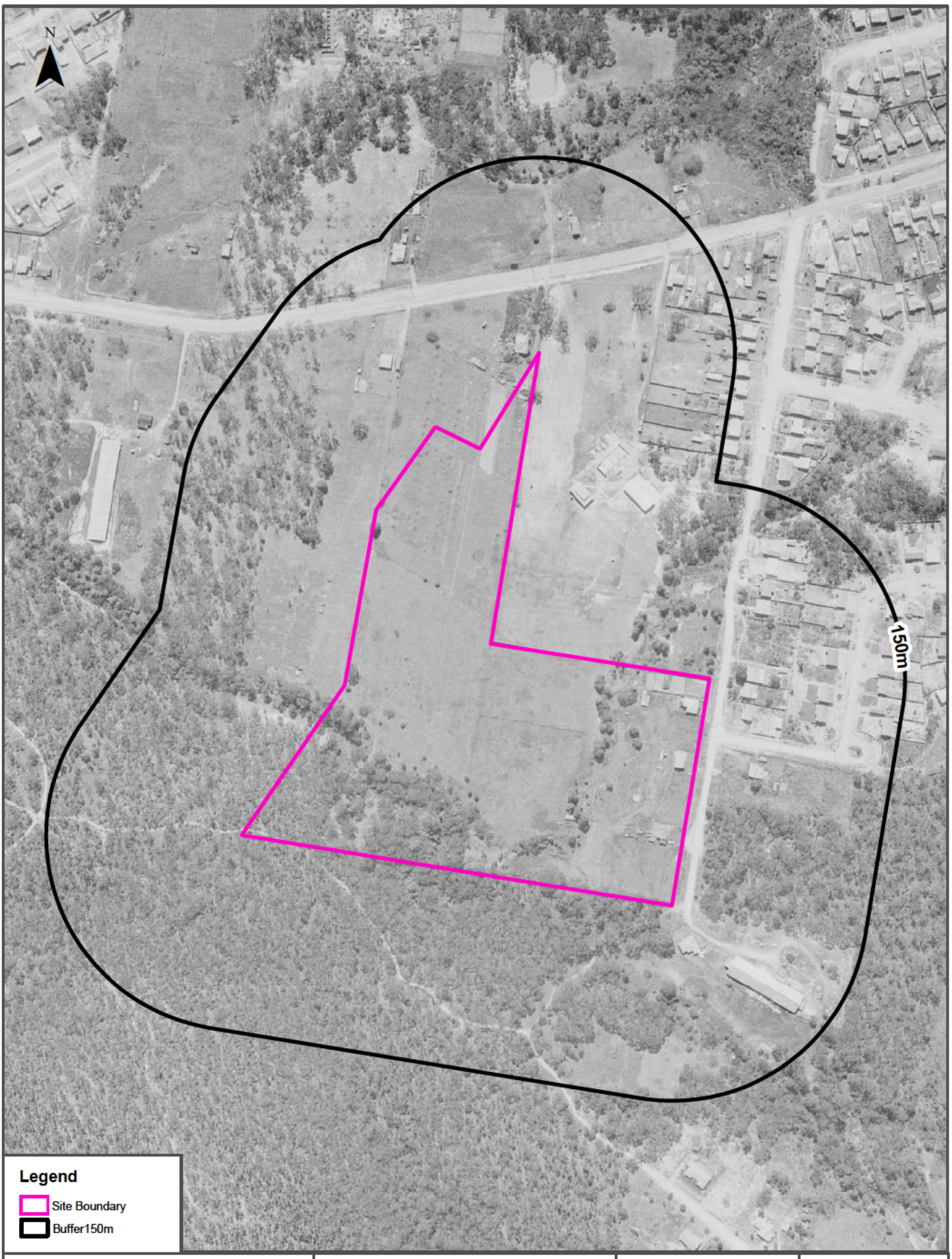
Aerial Imagery 1976

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



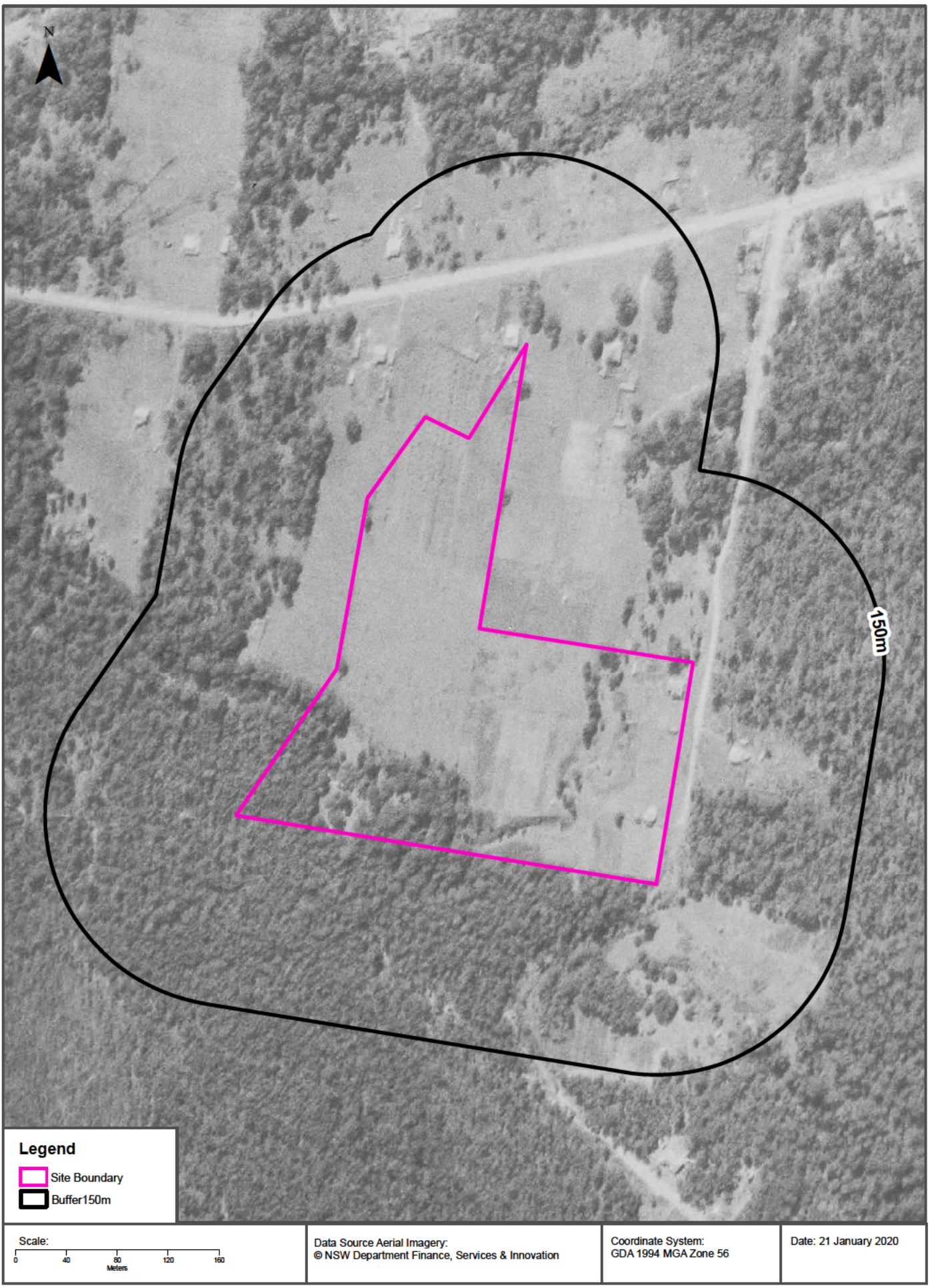
Aerial Imagery 1965

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



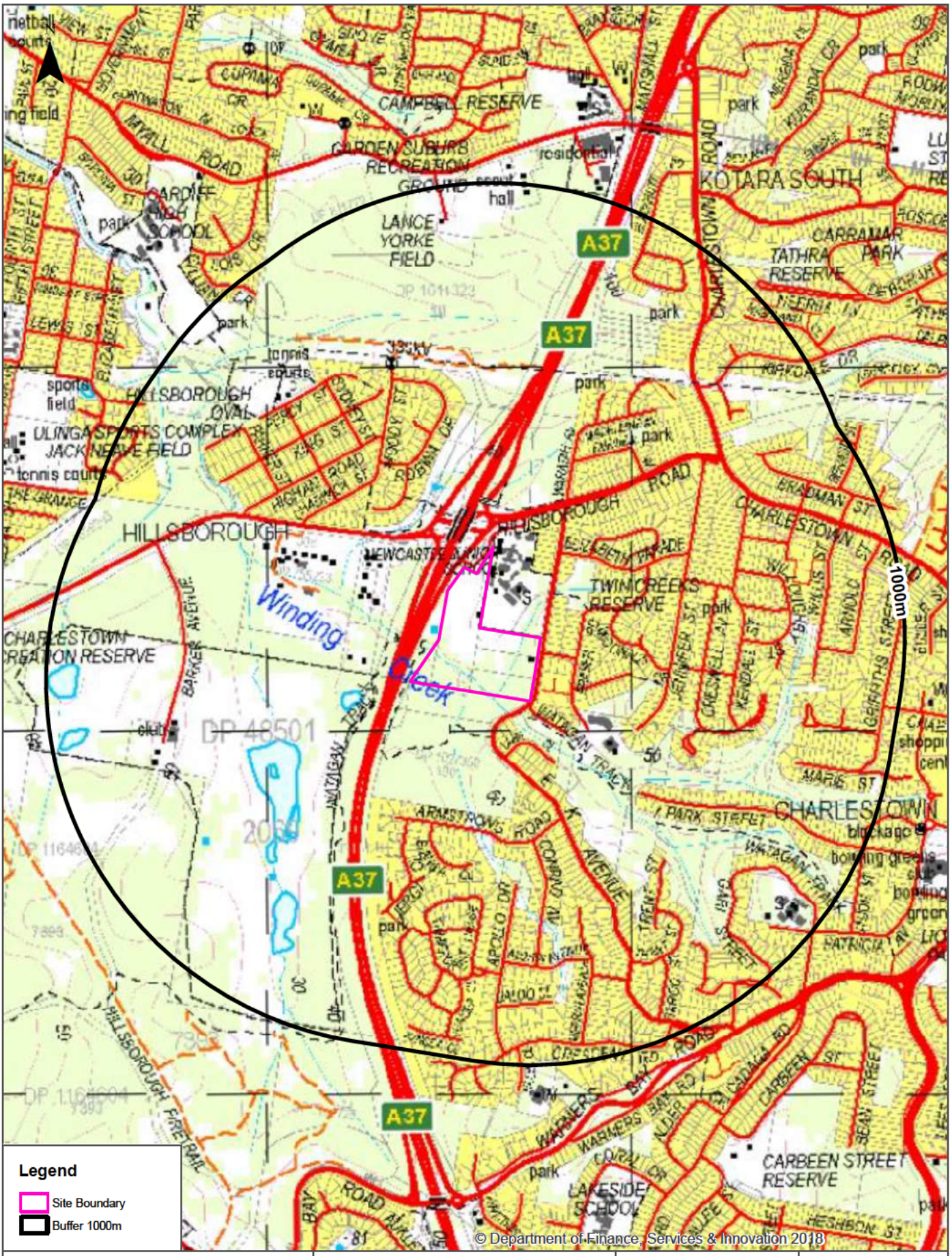
Aerial Imagery 1954

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



Topographic Map 2015

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



Legend

Site Boundary

Buffer 1000m

Scale:

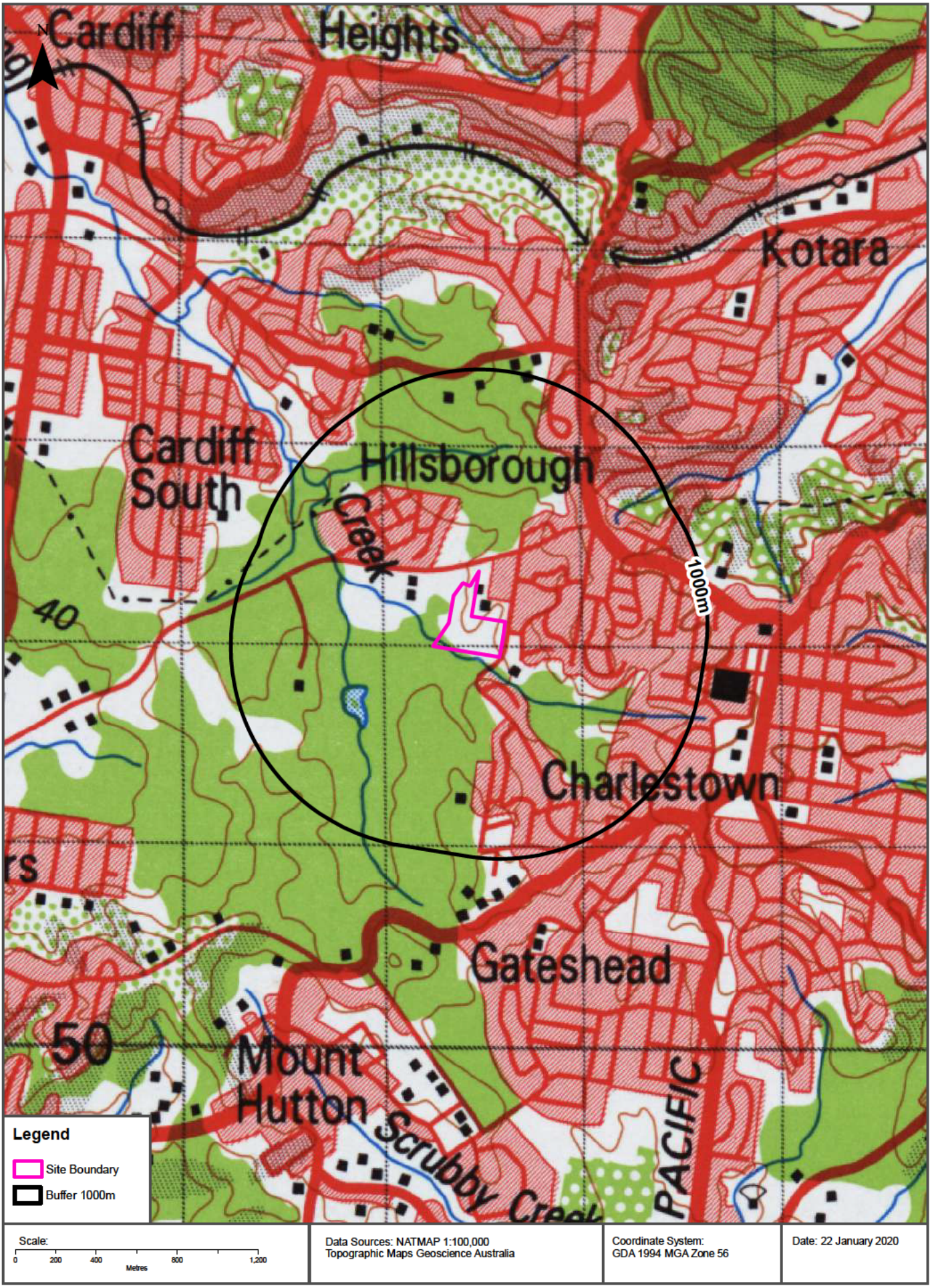
Data Sources: Topographic Map Data
© NSW Land and Property Information

Coordinate System:
GDA 1994 MGA Zone 56

Date: 22 January 2020

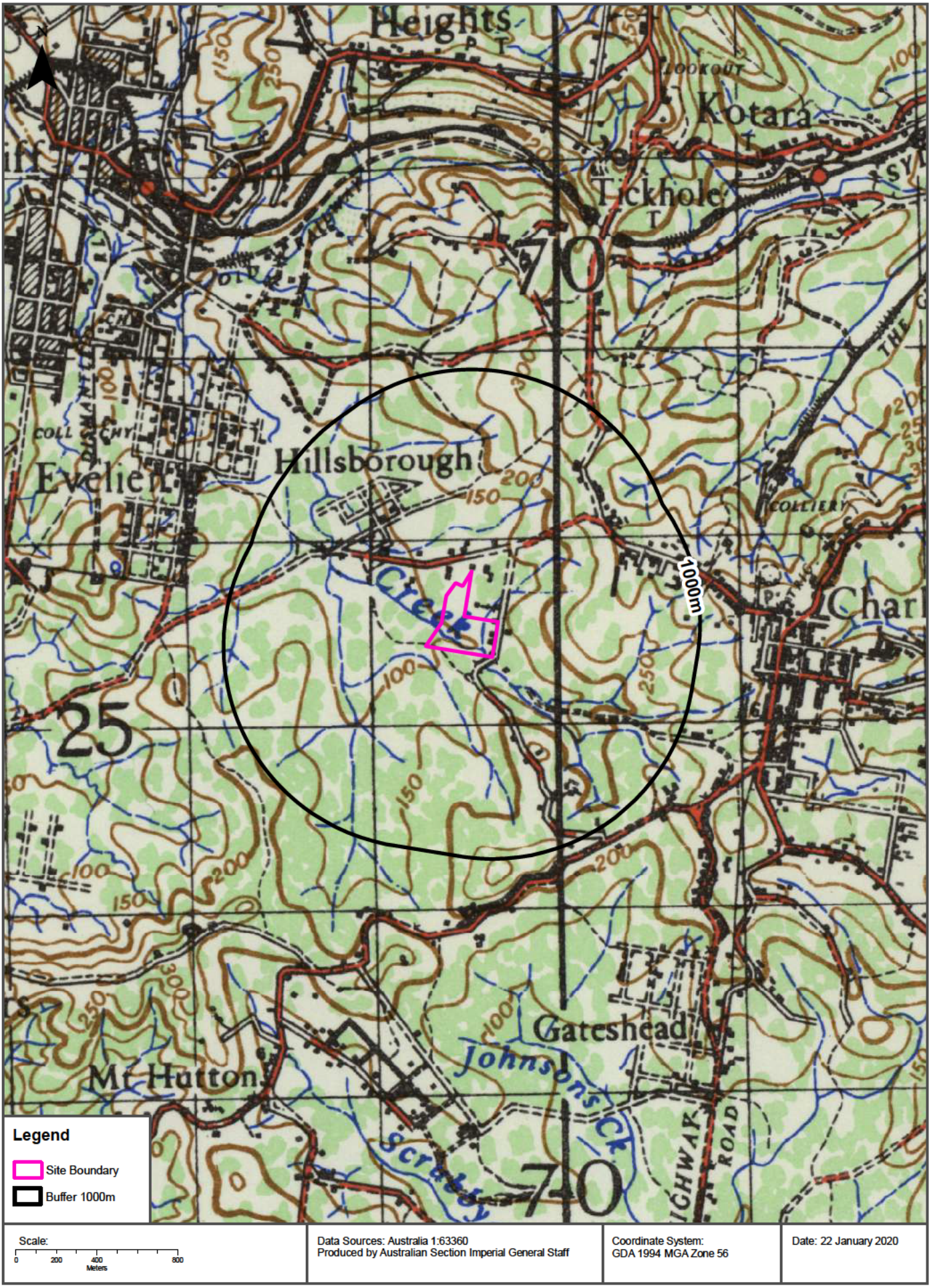
Historical Map 1981

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



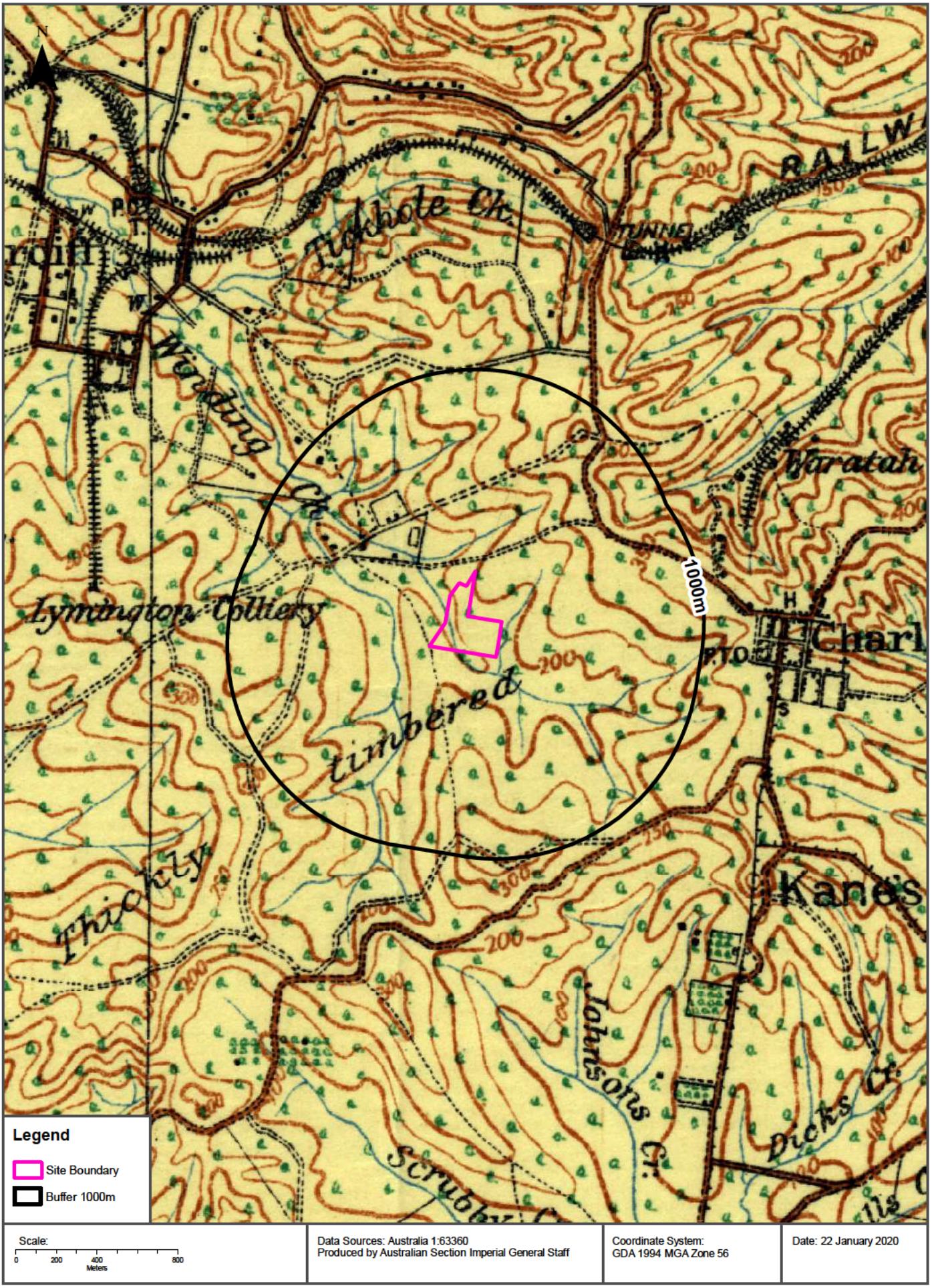
Historical Map c.1941

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



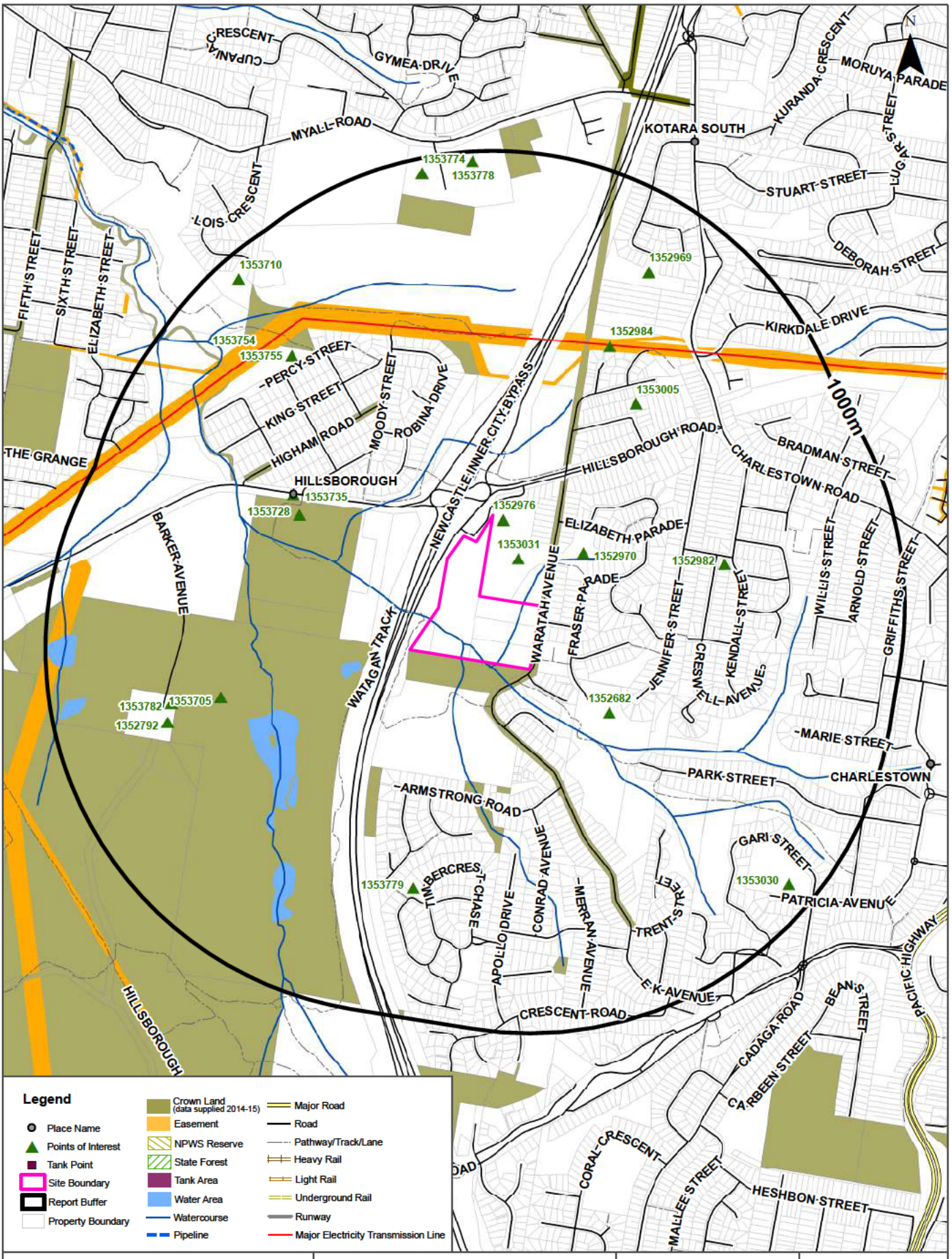
Historical Map c.1913

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290



Topographic Features

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



Topographic Features

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1352976	Special School	NEWCASTLE JUNIOR SCHOOL	32m	North
1353031	Primary School	HILLSBOROUGH PUBLIC SCHOOL	90m	North East
1352970	Park	TWIN CREEKS RESERVE	189m	North East
1352682	Community Facility	ALLAMBI YOUTH SERVICES	248m	South East
1353728	Showground	HILLSBOROUGH DOG SHOWGROUND	421m	North West
1353735	Suburb	HILLSBOROUGH	457m	North West
1353005	Park	Park	499m	North East
1352982	Park	Park	519m	East
1353705	Golf Course	CHARLESTOWN GOLF COURSE	533m	West
1352984	Park	Park	565m	North East
1353779	Park	Park	643m	South
1353782	Club	CHARLESTOWN GOLF CLUB	668m	West
1353755	Sports Court	TENNIS COURTS	683m	North West
1352792	Parking Area	Parking Area	691m	West
1353754	Sports Field	HILLSBOROUGH OVAL	758m	North West
1352969	Park	Park	793m	North East
1353030	Primary School	CHARLESTOWN SOUTH PUBLIC SCHOOL	923m	South East
1353710	Park	Park	937m	North West
1353774	Sports Field	LANCE YORKE FIELD	959m	North
1353778	Sports Field	GARDEN SUBURB RECREATION GROUND	975m	North

Topographic Features

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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
	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

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

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
120119966	Primary	Undefined		378m	West
120119219	Primary	Undefined		471m	North East
120115351	Primary	Undefined		903m	South West

Topographic Features

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

State Forest

What State Forest exist within the dataset buffer?

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

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				

Elevation Contours (m AHD)

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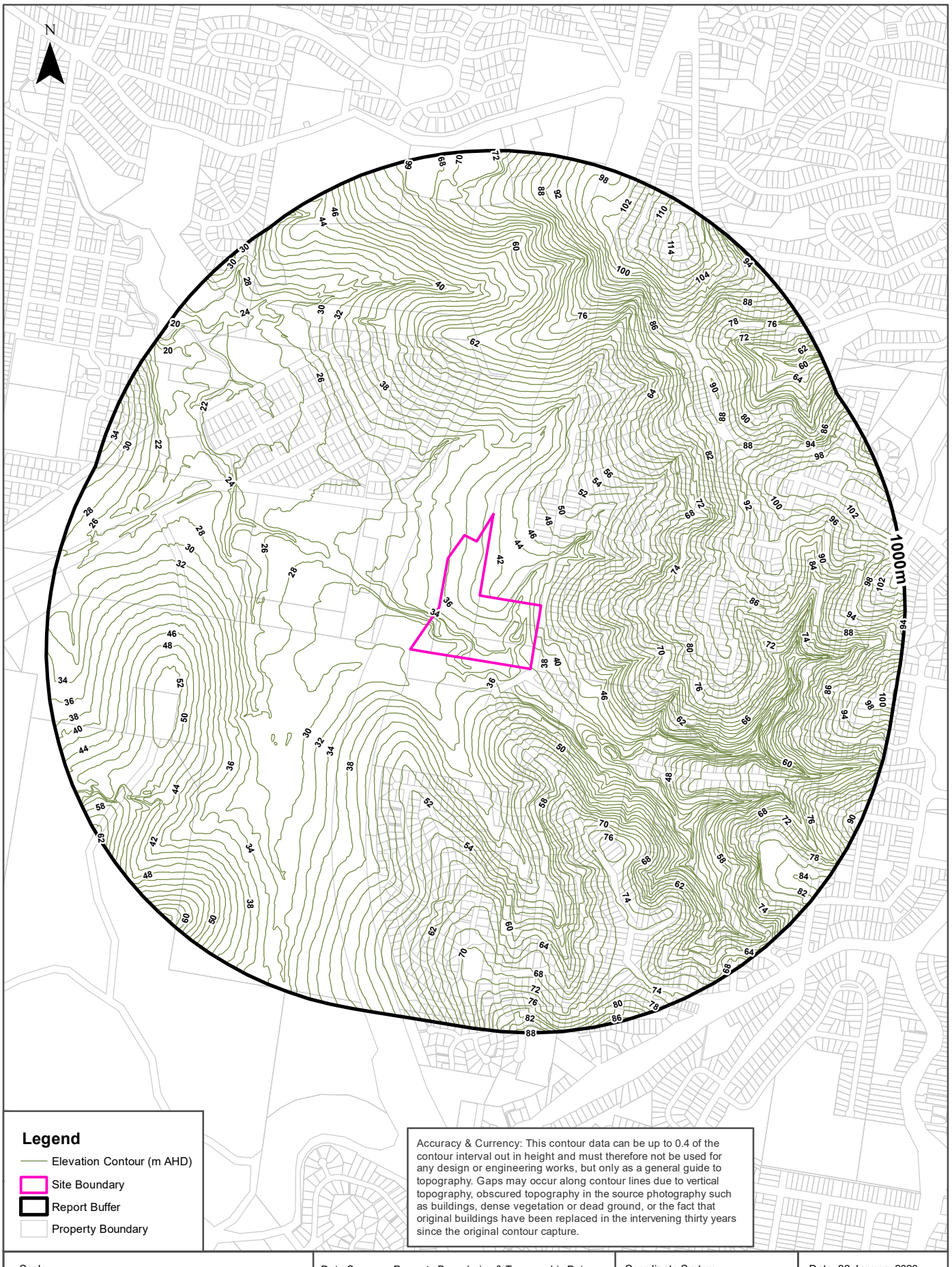


Hydrogeology & Groundwater

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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)

Botany Groundwater Management Zones

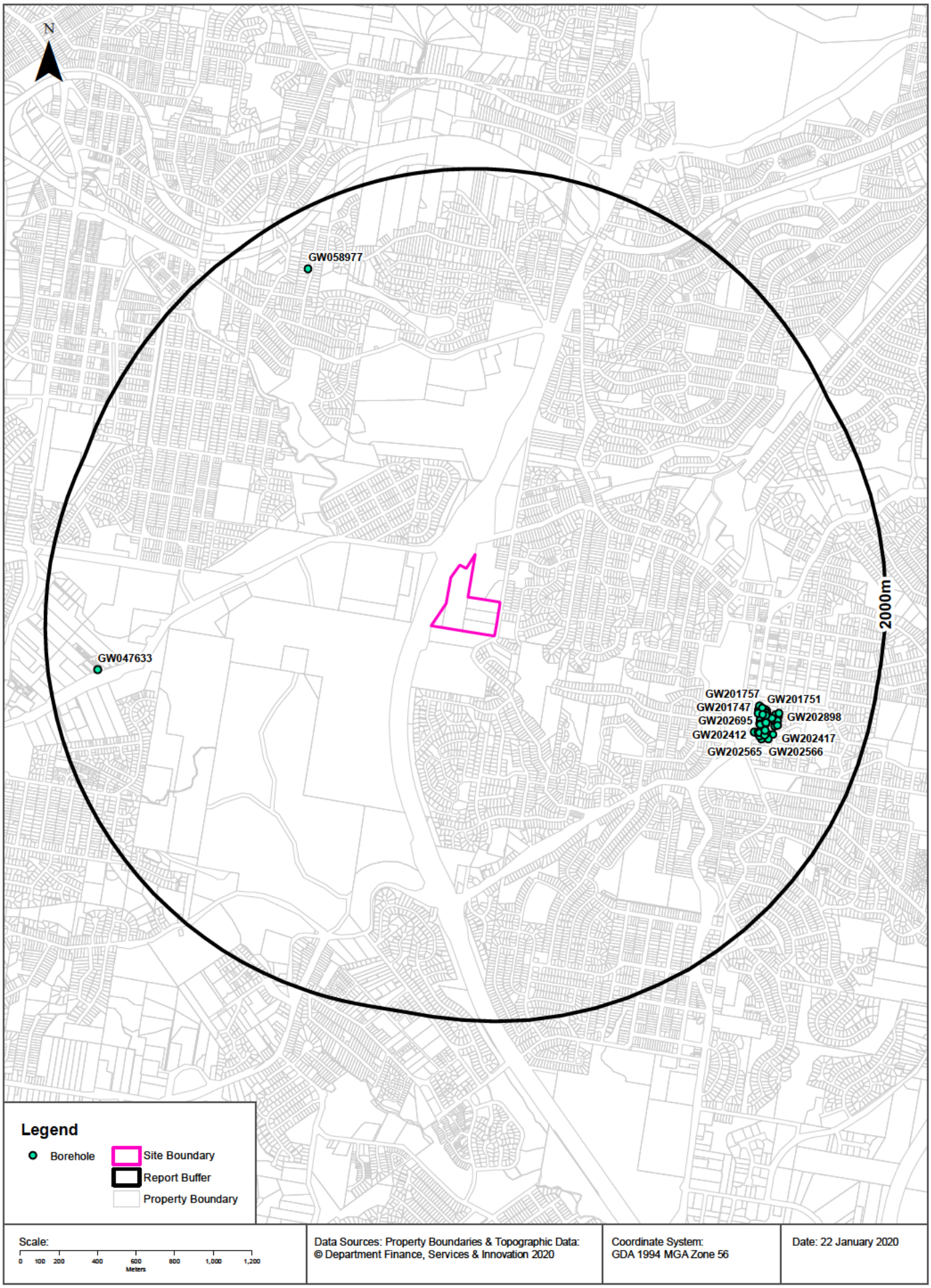
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

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

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

Groundwater Boreholes

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 229



Hydrogeology & Groundwater

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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
GW201757	20BL173012	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	6.40	6.40		4.90		104.57	1421m	East
GW201747	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		07/01/2009	7.00	7.00		5.00		104.59	1423m	East
GW201752	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	6.50	6.50		4.80		104.35	1426m	East
GW202412	20BL172967	Bore	Private	Monitoring Bore	Monitoring Bore		11/11/2011	7.50	7.50		5.00			1437m	South East
GW201748	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	5.90	5.90		4.70		103.48	1438m	East
GW201758	20BL173012	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	5.70	5.70		4.80		103.76	1439m	East
GW201753	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		07/12/2009	7.40	7.40		4.50		103.34	1440m	East
GW202564	20BL173049	Bore	Private	Monitoring Bore	Monitoring Bore		22/05/2012	5.30	5.30		1.90			1448m	East
GW202695	20BL173049	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex - Charlestown - GW17	08/11/2011	5.40	5.40		2.60			1450m	East
GW201750	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	5.40	5.40		3.50		102.16	1450m	East
GW201754	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	6.80	6.80		3.30		102.51	1451m	East
GW201749	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	5.50	5.50		3.30		103.53	1452m	East
GW203146	20BL173699	Bore	Private	Environment Rehabilitation	Environment Rehabilitation	Caltex	15/03/2014	4.70	4.70					1452m	East
GW203147	20BL173699	Bore	Private	Environment Rehabilitation	Environment Rehabilitation	Caltex	15/03/2014	5.90	5.90		3.75			1454m	East
GW202413	20BL172967	Bore	Private	Monitoring Bore	Monitoring Bore		10/11/2011	8.30	8.30					1456m	South East
GW202563	20BL172965, 20BL173497	Bore	Private	Monitoring Bore	Monitoring Bore		21/05/2012	6.50	6.50		3.10			1458m	East
GW203148	20BL173699	Bore	Private	Environment Rehabilitation	Environment Rehabilitation	Caltex	15/03/2014	6.00	6.00		3.81			1463m	East
GW201751	20BL173010	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	6.00	6.00		3.30		102.15	1465m	East
GW202560	20BL172966, 20BL173497	Bore	Private	Monitoring Bore	Monitoring Bore		27/08/2012	7.00	7.00					1465m	South East
GW202561	20BL172966, 20BL173497	Bore	Private	Monitoring Bore	Monitoring Bore		11/11/2011	5.90	5.90					1465m	South East
GW201755	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	7.40	7.40		3.30		102.19	1466m	East
GW203145	20BL173698	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex	15/03/2014	4.70	4.70		3.93			1466m	East

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
GW202696	20BL172966, 20BL173497	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex - Charlestown - GW8A	21/05/2012	6.00	6.00		3.20			1468m	East
GW202894	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW21	27/08/2007	5.00	5.00					1468m	East
GW201756	20BL173011	Bore	Private	Monitoring Bore	Monitoring Bore		08/12/2009	7.30	7.30		3.20		102.23	1468m	East
GW202895	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW22	27/08/2007	4.50	4.50					1469m	East
GW202888	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW9	22/07/2003	6.00	6.00		1.59		94.96	1470m	East
GW202415	20BL172969	Bore	Private	Monitoring Bore	Monitoring Bore		23/08/2011	6.50	6.50		2.00			1470m	South East
GW202890	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW15	09/09/2003	6.00	6.00		1.69		95.11	1471m	East
GW202889	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW10	22/07/2003	6.00	6.00		1.65		94.89	1473m	East
GW203143	20BL173698	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex	15/03/2014	4.30	4.30		1.84			1476m	East
GW203144	20BL173698	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex	15/03/2014	6.10	6.10		1.69			1478m	East
GW202414	20BL172968	Bore	Private	Monitoring Bore	Monitoring Bore		23/08/2011	5.50	5.50		3.30			1478m	East
GW202419	20BL172972	Bore	Private	Monitoring Bore	Monitoring Bore		22/08/2011	5.80	5.80		0.70			1486m	South East
GW202565	20BL173182	Bore	Private	Monitoring Bore	Monitoring Bore		21/05/2012	6.20	6.20		4.30			1486m	South East
GW202416	20BL172970	Bore	Private	Monitoring Bore	Monitoring Bore		23/08/2011	6.00	6.00		3.50			1493m	South East
GW202562	20BL172965, 20BL173497	Bore	Private	Monitoring Bore	Monitoring Bore		11/11/2011	6.00	6.00		3.20			1499m	South East
GW202891	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW16	09/09/2003	6.00	6.00		1.56		93.96	1501m	East
GW202892	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW17	09/09/2003	6.00	6.00		0.96		92.78	1513m	East
GW202566	20BL173181	Bore	Private	Monitoring Bore	Monitoring Bore		23/05/2012	6.00	6.00		4.15			1518m	South East
GW202893	20BL173544	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Charlestown - MW18	09/09/2003	6.00	6.00		0.56		62.41	1519m	East
GW202418	20BL172971	Bore	Private	Monitoring Bore	Monitoring Bore		24/08/2011	6.00	6.00		0.30			1530m	East
GW202897	20BL173546	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW11	14/07/2003	6.00	6.00		2.07		94.76	1531m	East
GW202898	20BL173547	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW12	14/07/2003	5.40	5.40		1.27		93.13	1533m	East
GW202417	20BL172970	Bore	Private	Monitoring Bore	Monitoring Bore		23/08/2011	7.00	7.00		4.70			1535m	South East
GW202896	20BL173545	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW13	14/07/2003	6.00	6.00		0.34			1535m	East
GW202899	20BL173548	Bore	Private	Monitoring Bore	Monitoring Bore	BP Charlestown - MW14	14/07/2003	5.80	6.00		0.35		91.78	1540m	East
GW058977	20BL131099	Spear	Private	Domestic	Domestic		01/12/1983	7.00						1713m	North West
GW047633	20BL015389	Bore	Local Govt	Drainage	Drainage		01/11/1962	27.70	27.70	1001-3000 ppm				1742m	West

Hydrogeology & Groundwater

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
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	1421m	East
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	1423m	East
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	1426m	East
GW202412	0.00m-0.50m Gravel, with Silt, soft mottled 0.50m-1.00m Fill; decreased gravel 1.00m-1.40m Clay; yellow brown, firm 1.40m-2.00m Silty Clay; natural, mottled red/white/yellow-grey 2.00m-3.00m Silty Clay; red, wea hered zone 3.00m-3.30m Silty Clay; red, wea hered zone, increasing silt 3.30m-4.40m Silt; grey, Clay-firm, moist 4.40m-6.00m Clay/Gravel, weathered rock 6.00m-7.50m Silty Clay; pink/grey	1437m	South East
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	1438m	East
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?)	1439m	East
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	1440m	East
GW202564	0.00m-0.16m Fill; Concrete 0.16m-0.18m Fill; Gravel, medium grained 0.18m-0.85m Clay; dark grey with grey mottling, trace sand 0.85m-1.00m Clay; grading to pale grye/brown in colour with trace orange 1.00m-1.40m Clay; grading to orange/brown with grey 1.40m-2.60m Clay, with Sand; grey & red lenses approx 10cm 2.60m-3.20m Clay, with Sand; grading to red/grey 3.20m-3.40m Clay, with Sand; grading to red 3.40m-4.40m Clay, with Sand; grading to grey/white 4.40m-4.60m Clay; stiff, dry, grey/brown 4.60m-5.30m Clay; grading to orange/red with trace gravel	1448m	East
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	1450m	East
GW202695	0.00m-0.15m Fill; Concrete 0.15m-0.90m Clay; med-dark grey/orange brown 0.90m-1.90m Clay; grey,b ecoming paler with depth 1.90m-3.80m Clay; some orange/brown & red/brown lenses throughout <1cm thick 3.80m-4.00m Clay; with weathered rock, dark orange with slight red 4.00m-4.44m Clay; pale grey-brown 4.44m-4.54m Clay; red/brown lense 4.54m-4.72m Clay; grey lense 4.72m-4.86m Clay; red lense 4.86m-4.96m Clay; pale grey lense 4.96m-5.00m Clay; grey lense 5.00m-5.30m Clay; red lense 5.30m-5.40m Clay; grey lense	1450m	East

Groundwater No	Drillers Log	Distance	Direction
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	1451m	East
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	1452m	East
GW203146	0.00m-0.10m Fill; concrete 0.10m-1.20m Fill; clay, gravel & rocks, dark brown & orange/brown 1.20m-3.00m Clay, with some Sand, mottled very pale grey & pale orange, fine grained sand 3.00m-4.70m Sandstone, grading to weathered, orange increasing with depth	1452m	East
GW203147	0.00m-0.20m Fill; Concrete 0.20m-1.40m Fill; yellow Sand with some gravel 1.40m-3.80m Clay; pale grey/white, red/brown clay inclusions, occasional bands of ironstone throughout 3.80m-4.60m Sandstone, weathered; orange/red/brown, drilling as sandy clay 4.60m-5.90m Sandstone, weathered; pale grey with orange/brown mottling	1454m	East
GW202413	0.00m-0.80m Fill; mixed 0.80m-1.20m Clay; higly plastic, pale grey, moist 1.20m-1.60m Gravel, silty; natural, weathered sandstone, becoming silty gravel 1.60m-5.10m Silty Clay; white/mottled yellow/red, increasing red weathered bands, very soft 3.3-3.4m, wet 5.10m-8.30m Rock, very hard, cuttings silty clay	1456m	South East
GW202563	0.00m-0.10m Fill - woodchips, topsoil (garden bed) 0.10m-0.25m Fill - white sand, foam at 0.10m 0.25m-0.27m Fill, cement overspill (orange/brown) 0.27m-0.70m Fill - gravelly, sandy CLAY, grey/green 0.70m-2.00m Sandy Clay, orange/grey 2.00m-3.00m Sandy Clay, grading to grey 3.00m-4.00m Sandy Clay, grading to grey/brown 4.00m-6.50m Sandy Clay, grading to orange/brown	1458m	East
GW203148	0.00m-0.20m Fill; concrete 0.20m-2.30m Fill; sand, gravel & clay mix, orange/brown 2.30m-2.80m Clay; pale grey & pale brown mottling 2.80m-4.00m Clay, sandy/clayey Sand; pale brown wiht minor pale grey veins, fine to medium grained sand 4.00m-4.40m Clay; pale brown with minor pale grey veins, trace sand (fine to medium grianed) 4.40m-6.00m Clay, sandy; fine graied sand, pale brown with minor pale grey veins	1463m	East
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	1465m	East
GW202560	0.00m-1.50m Fill; mixed sand/silt/clay/gravel 1.50m-3.00m Clay, dark grey, highly plastic, with minor silt, becoming lighter grey with depth 3.00m-3.10m Silty Cloay, white, moderately plastic, moist 3.10m-3.70m Clay, yellow brown, with rock textures increased silt 3.70m-5.00m Clay, white red mot led, grading to pale grey with infrequent pink/red 5.00m-5.60m Silty Clay, very soft, wet, white/pale grey, (5.3-5.6 - heavy white clay) 5.60m-7.00m Sandstone, weathered, pink/red, crumbly sandstone, pink silty/sandy clay (very sloppy) gravelly weathered sandstone, ora	1465m	South East
GW202561	0.00m-0.80m Fill; mixed 0.80m-3.20m Clay, gravelly, yellow-brown, decreasing gravel with dep h, becoming white/yellow mottled 3.20m-4.00m Rock, weathered, silt clay - rock texture, mottled white/red becoming harder 4.00m-4.70m Clayey silt, weathererd mudstone, pink/white, hard/crumbly 4.70m-5.90m Clay, increased (silty gravelly clay), red/white/yellow mottled, hit gravelly layer in siltstone, pink band @ 5.5-5.8m	1465m	South East
GW201755	0.00m-0.60m Fill; Sand, fine to m edium 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	1466m	East
GW203145	0.00m-0.20m Fill; Concrete 0.20m-1.40m Fill; gravel with some sand & clay, rocks & bricks, concrete places present 1.40m-2.20m Clay with trace Sand; mottled pale grey, orange & brown 2.20m-4.70m Sandstone, weathered; sandy clay, mottled pale grey & pale orange	1466m	East

Groundwater No	Drillers Log	Distance	Direction
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	1468m	East
GW202696	0.00m-0.50m Fill; wood chips & topsoil, brown, dark brown 0.50m-1.00m Sandy Clay; grey 1.00m-4.00m Sandy Clay; grading to orange/brown/grey 4.00m-6.00m Sandy Clay; grading to red/brown & grey	1468m	East
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	1468m	East
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 mot led 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	1469m	East
GW202415	0.00m-0.10m Fill; Topsoil, clay-like sandy silt, roots 0.10m-3.20m Clay, pale grey with orange/brown mottling, medium plasticity 3.20m-4.08m Clay, with Gravel, orange grey 4.08m-5.10m Clay, gravelly 5.10m-5.20m Clay, dark grey/brown, very stiff 5.20m-6.10m Sand, gravelly, with trace clay 6.10m-6.50m Clay, grey/brown	1470m	South East
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	1470m	East
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 grye, soft to firm, meidum 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	1471m	East
GW202889	0.00m-0.30m Fill; Sandy Gravel; brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.30m-1.50m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.50m-4.60m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour 4.60m-6.00m Clay, Silty Sandy; light grey, soft, to firm, medium plasticity, low permeability, no HC odour	1473m	East
GW203143	0.00m-0.20m Topsoil; clayey Sand, wood, charcoal, woodchips, fine to medium grained sand, dark brown 0.20m-0.40m Clay; dull brown/orange mottling, roots 0.40m-1.50m Clay; pale brown/grey/orange mottling, roots, becoming paler with depth 1.50m-3.30m Clay, Sandy; pale grey with pale brown mottling, fine grained sand 3.30m-4.30m Clay, Sandy; pale grey with orange mottling, increasing sand content & grain size wi h depth	1476m	East
GW202414	0.00m-0.20m Clay, moist, brown 0.20m-0.30m Clay, moist, yellow brown 0.30m-0.50m Rock, residual textures 0.50m-1.00m Clay, becoming white with weathered red zones 1.00m-2.00m Silty Clay 2.00m-3.00m Silty Clay, white, soft, moist 3.00m-4.00m Rock 4.00m-5.50m Rock, weathered, becoming harder with depth	1478m	East
GW203144	0.00m-0.10m Topsoil; Clayey Sand, wood, charcoal, woodchips, fine to medium grained sand, dark brown 0.10m-0.20m Clay, Sandy; fine grained, dark brown 0.20m-0.90m Clay; mottled pale orange/brown & pale grey, friable/fractures 0.90m-1.40m Clay; mottled orange/pale grey with dark brown inclusions 1.40m-1.70m Clay; mottled pale grey/orange 1.70m-2.00m Clay; predominantly orange/brown 2.00m-3.60m Clay; pale grey with minor pale orange mottling 3.60m-3.80m Clay; red, trace sand 3.80m-4.40m Sandstone, weathered; clayey Sand, fine to medium grained, mottled pale grey & pale orange 4.40m-6.10m Sandstone, weathered; sandy Clay with gravel, mottled pale grey & orange	1478m	East

Groundwater No	Drillers Log	Distance	Direction
GW202419	0.00m-0.15m Fill; Concrete 0.15m-0.50m Clay; grey/brown, white mottling 0.50m-1.10m Clay; gravelly, off-white/pale grey 1.10m-2.70m Clay; grey, orange & red with mottling 2.70m-4.50m Clay; grey/brown & pale grey/brown 4.50m-5.50m Clay; becoming more grey with depth 5.50m-5.80m Clay; grey orange & red with mot ling	1486m	South East
GW202565	0.00m-0.20m Fill; Topsoil, dark grey/brown 0.20m-0.70m Fill; Topsoil mixed with orange/yellow & grey/brown stiff Clay 0.70m-1.50m Fill; orange/yellow & grey/brown stiff clay 1.50m-2.40m Clay; stiff, orange/yellow & grye/brown, with grey & red bands 2.40m-2.60m Clay; no more red colouration 2.60m-3.60m Clay; grading to pale grey, grey/brown 3.60m-4.60m Clay; becoming less grey with depth 4.60m-4.80m Clay; grey colour returning to strata 4.80m-6.20m Clay; grading to dark grey with grey stiff clay	1486m	South East
GW202416	0.00m-0.20m Fill; Topsoil, clay sandy silt, roots 0.20m-2.90m Clay; pale brown/grey, becoming paler with depth, medium plasticity 2.90m-3.90m Clay; red/brown, gravelly lense 3.90m-5.00m Clay; pale grey, high plasticity 5.00m-5.20m Clay; red/grey/brown, high plasticity 5.20m-6.00m Clay	1493m	South East
GW202562	0.00m-1.50m Fill - Gravel 1.50m-2.30m Fill - Natural 2.30m-3.20m Silty Clay; white/yellow mottled, high palsticity, moist 3.20m-3.50m Clay; gravelly, soft, grey, wet 3.50m-4.70m Gravel, clayey; hard, mottled yellow/white 4.70m-6.00m Silty Clay; mottled yellow/red/white, moist	1499m	South East
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 permability, 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	1501m	East
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, meidum 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	1513m	East
GW202566	0.00m-0.20m Fill; Topsoil, dark brown/grey 0.20m-1.50m Clay; orange/brown & grey, becoming paler 1.50m-2.80m Clay; becoming less orange to no orange colouration (grey, pale grey/brown) 2.80m-3.30m Clay; grading to trace grey/brown, majority grey 3.30m-4.30m Clay; grading to soft pale grey/white clay layer 4.30m-5.80m Clay, with Gravelly Sand; red 5.80m-6.00m Clay, with Gravelly Sand; grading to orange/grey brown	1518m	South East
GW202893	0.00m-0.30m Fill; Sandy Gravel, brown, fine gravel to coarse sand, dense, poorly graded, moist, high permeability, no HC odour 0.30m-1.70m Clay; grey/olive brown, very firm to stiff, intact, low plasticity, low permeability, no HC odour 1.70m-3.00m Clay, Silty; red/brown with grey streaking, firm, intact, low plasticity, low permeability, no HC odour 3.00m-4.70m Clay, Silty Sandy; light grey, soft, to firm, medium plasticity, low permeability, no HC odour 4.70m-6.00m Conglomerate; yellow brown, rounded pebble (to 10mm) clasts of shale & sandstone in fine matrix, weak rock, no HC odour,	1519m	East
GW202418	0.00m-0.10m Fill; Topsoil, clay/sandy silt, grass roots 0.10m-0.90m Fill; Clay, dark grey, medium plasticity 0.90m-1.90m Clay; pale grey/brown, low plasticity 1.90m-2.65m Clay; with red lenses, medium plasticity 2.65m-2.80m Clay; soft, high plasticity 2.80m-3.00m Clay; red, claystone lense, low plasticity 3.00m-3.50m Clay; with gravel, red/orange, low plasticity 3.50m-4.00m Clay; grey, high plasticity 4.00m-4.50m Clay; gravelly, red, low plasticity 4.50m-6.00m Clay; grey with orange mottling, high plasticity	1530m	East

Groundwater No	Drillers Log	Distance	Direction
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	1531m	East
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	1533m	East
GW202417	0.00m-2.90m Clay; orange/brown & grey mottling, medium plas icity 2.90m-6.00m Clay; brown/grey, very stiff, medium plasticity 6.00m-7.00m Clay; pale brown/orange & grey, medium plasticity	1535m	South East
GW202896	0.00m-0.30m Fill, Sandy Gravel; brown, moist, poorly graded, fine gravel-coarse sand, high permeability, no HC odour 0.30m-1.30m Silt, Clayey; with some medium-coarse sand & fine gravel, moist, high plasticity, medium permeability, no HC odour 1.30m-3.60m Clay, Silty; olive borwn, soft becoming wet below 2.8m, high plasticity, low permeability, no HC odour 3.60m-5.40m Clay, Silty; with fine gravel, <10mm, light grey, low plasticity, medium permeability, no HC odour 5.40m-6.00m Clay, Silty; as above, light grey/brown with red streaking, medium plsaticity	1535m	East
GW202899	0.00m-0.50m Fill; Sandy Gravel, brown, moist, poorly graded, fine gravel-coarse sand, high permeability, no HC odour 0.50m-1.50m Silt, Clayey; with some medium-coarse sand & fine gravel, moist, high plasticity, medium permeability, no HC odour 1.50m-2.70m Clay, Silty; light grey/light brown with red streaks, stiff, intact, low permeability, no HC odour 2.70m-6.00m Clay, Silty; with minor gravels below 4.5m, light grey, soft-becoming wet below 4.5m, low plasticity, medium permeabilit	1540m	East
GW047633	0.00m-3.05m Overburden 3.05m-23.16m Shale 3.05m-23.16m Coal Small Seam 23.16m-27.74m Coal	1742m	West

Geology 1:250,000

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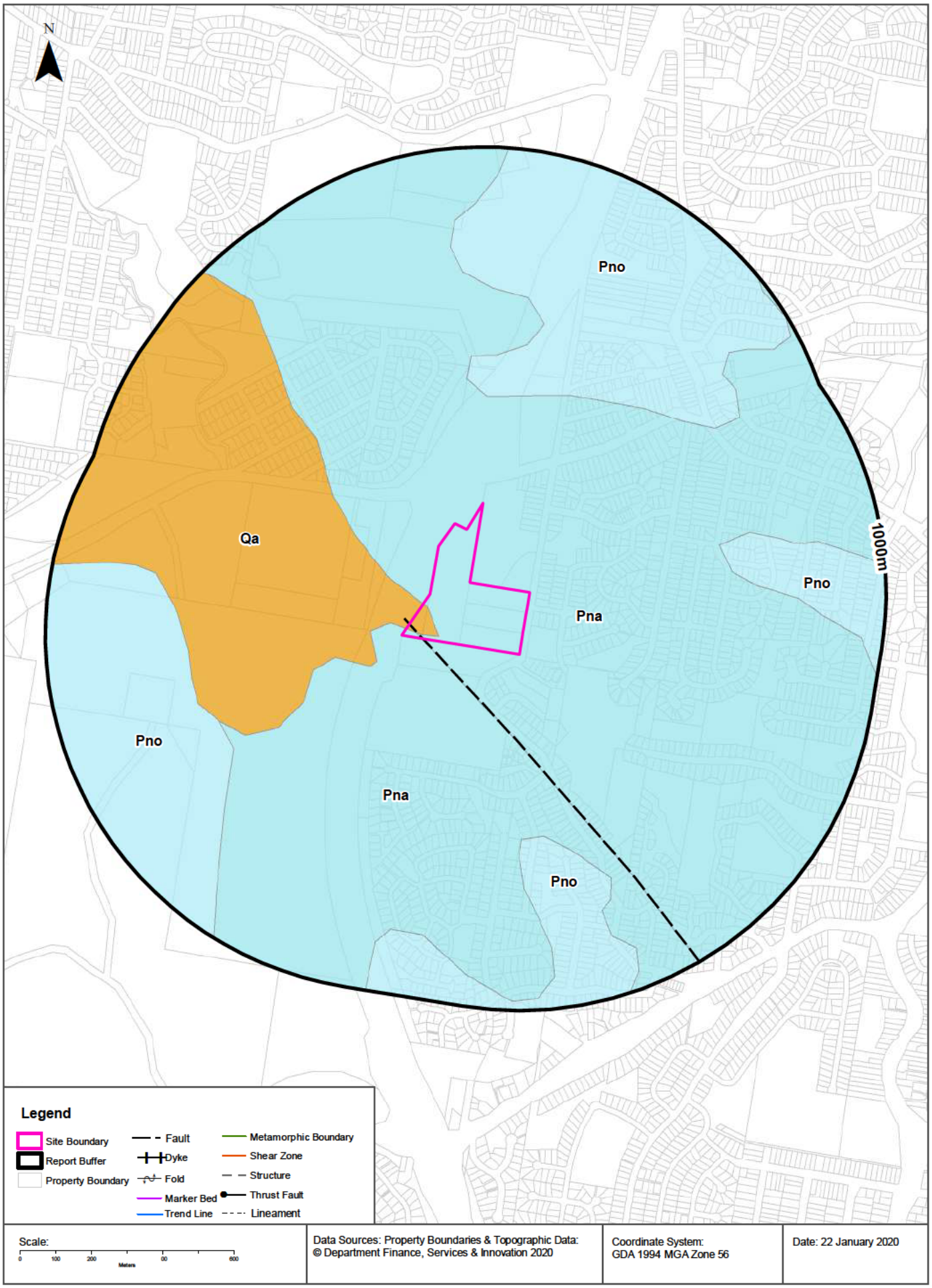

Geology

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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
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

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
Pno	Sandstone, conglomerate, siltstone, coal, tuff	Boolaroo Subgroup	Newcastle Coal Measures	Boolaroo 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
Fault		Fault, Concealed	Bohena	1:250,000
Fault		Fault, Accurate	Bohena	1:250,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
Fault		Fault, Concealed	Bohena	1:250,000
Fault		Fault, Accurate	Bohena	1:250,000

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

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												

Atlas of Australian Soils

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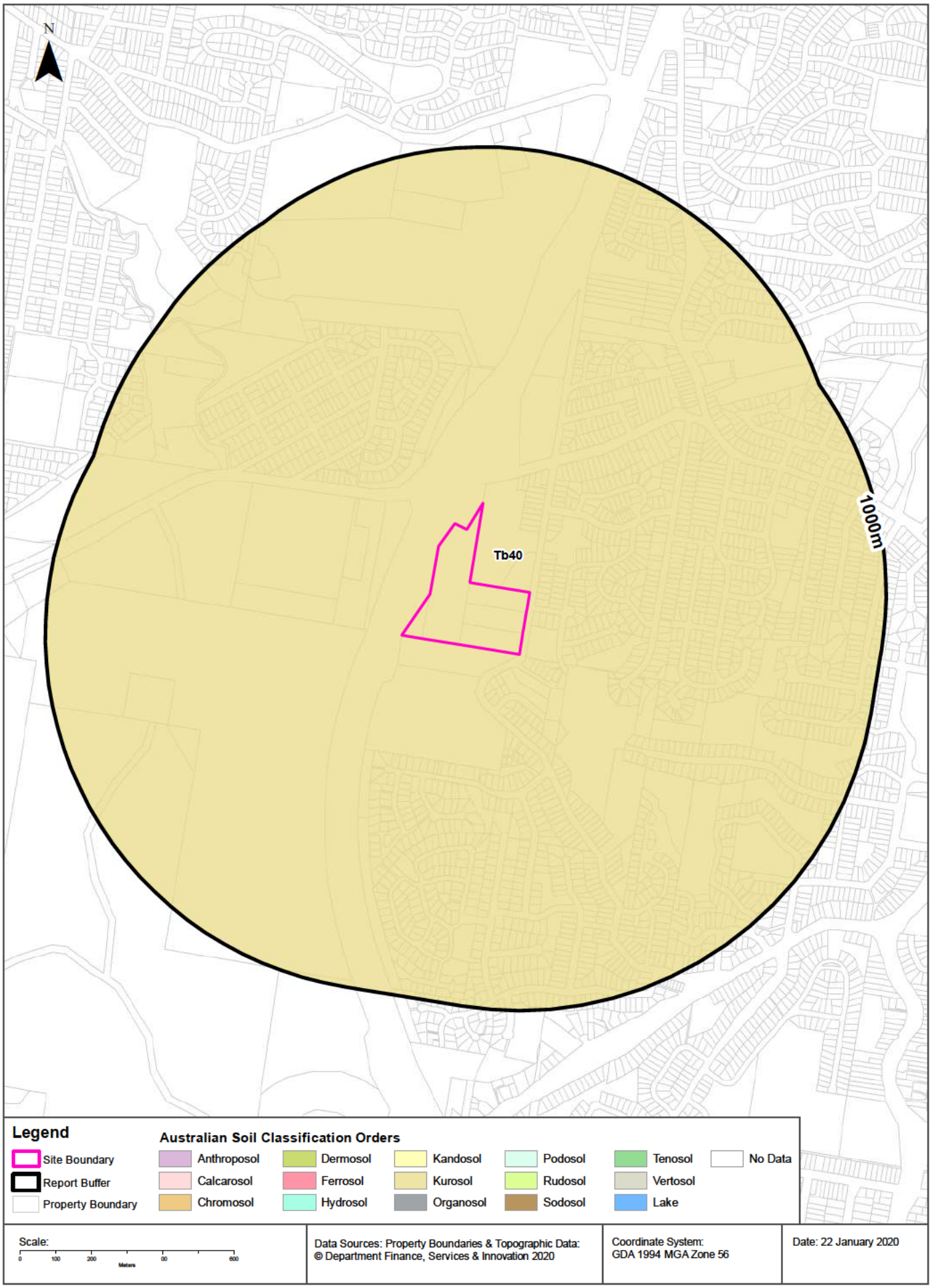

Soils

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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 he coast. As mapped, small areas of units Gb10 and Cb28 are included.	0m

Soil Landscapes

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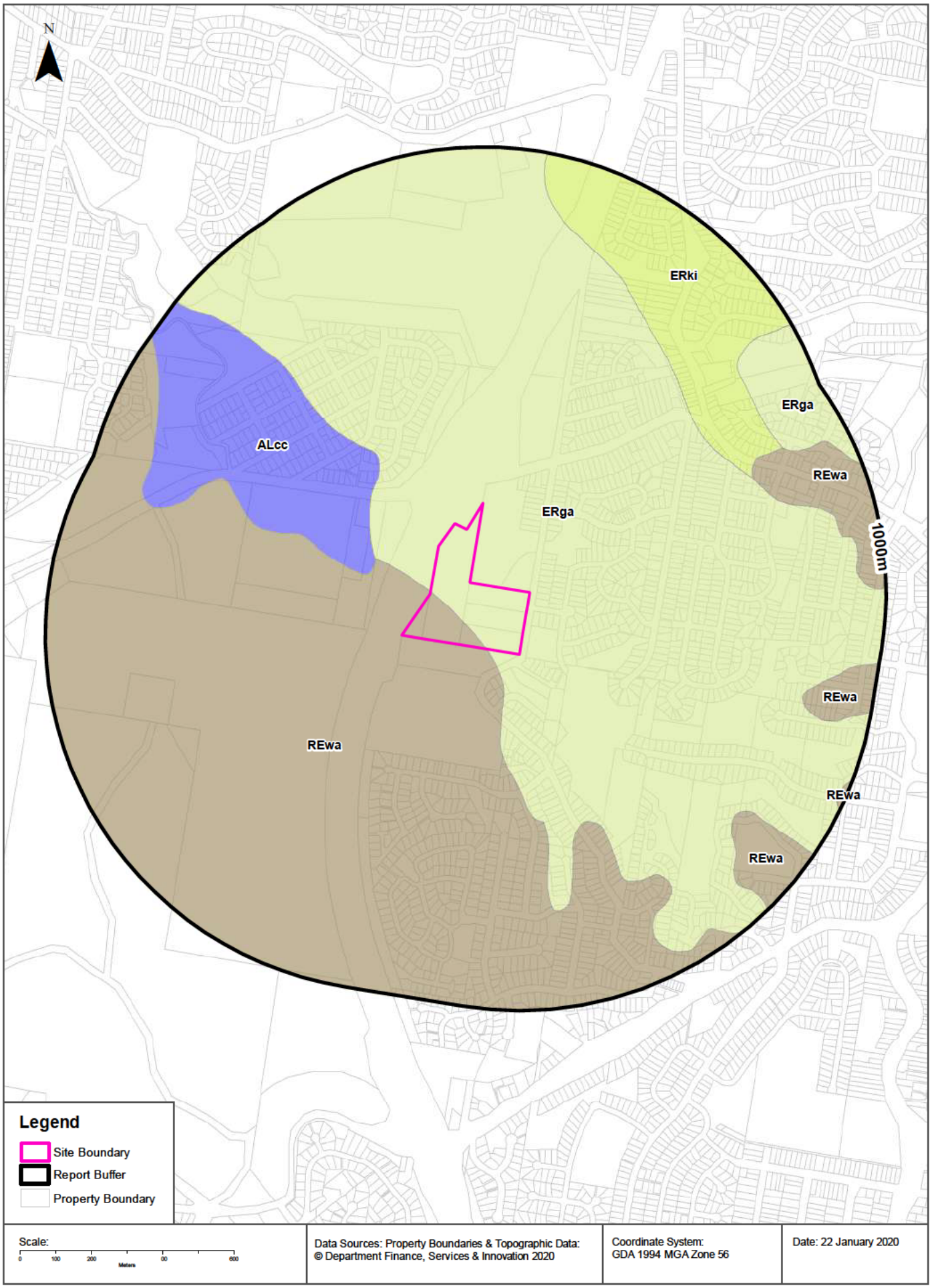

Soils

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Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
ERga	GATESHEAD		EROSIONAL	Newcastle	1:100,000
REwa	WARNERS BAY		RESIDUAL	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
ERga	GATESHEAD		EROSIONAL	Newcastle	1:100,000
ERki	KILLINGWORTH		EROSIONAL	Newcastle	1:100,000
REwa	WARNERS BAY		RESIDUAL	Newcastle	1:100,000

Acid Sulfate Soils

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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
N/A		

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

Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

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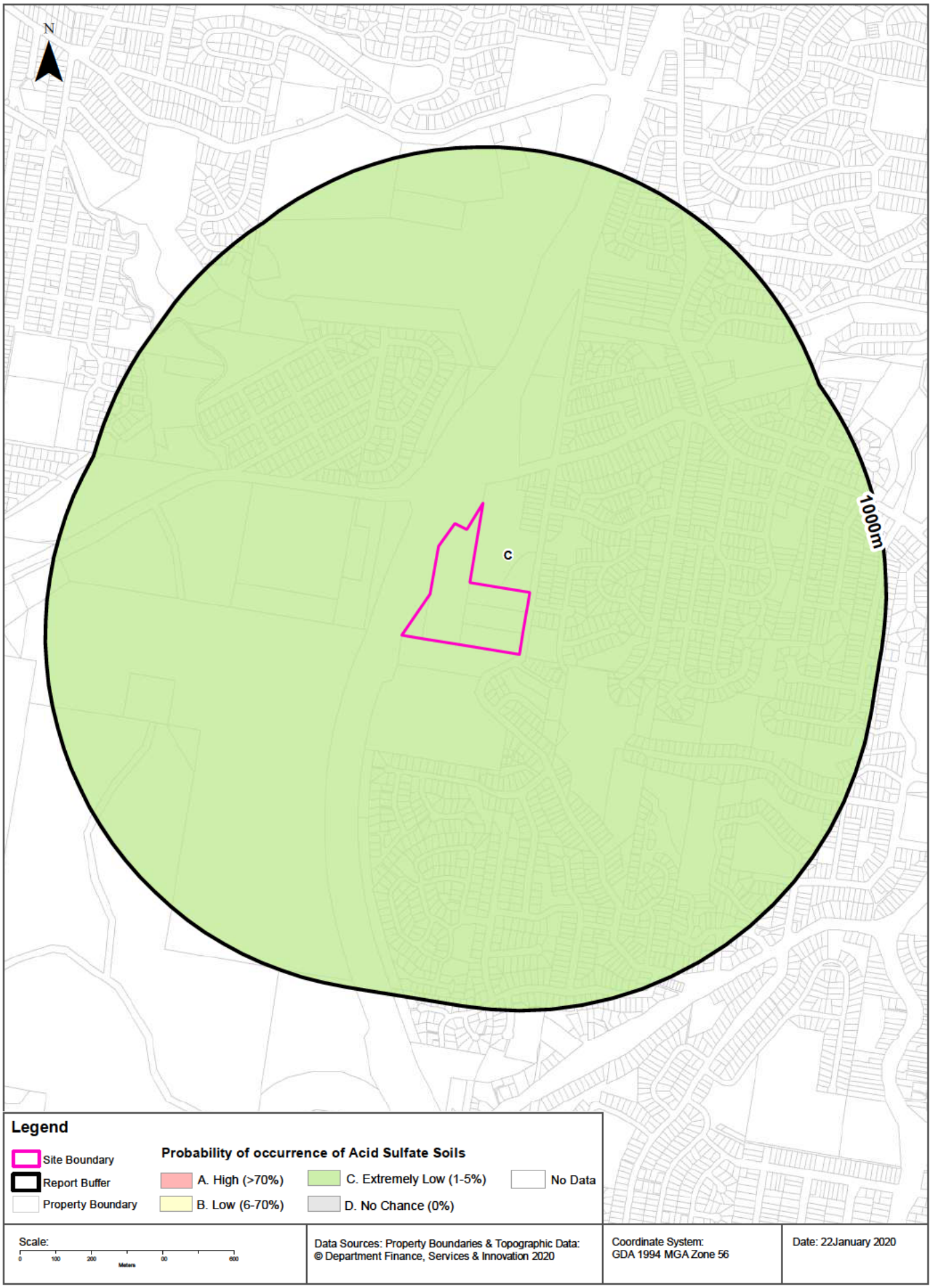

Acid Sulfate Soils

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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

Dryland Salinity

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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

Mining Subsidence Districts

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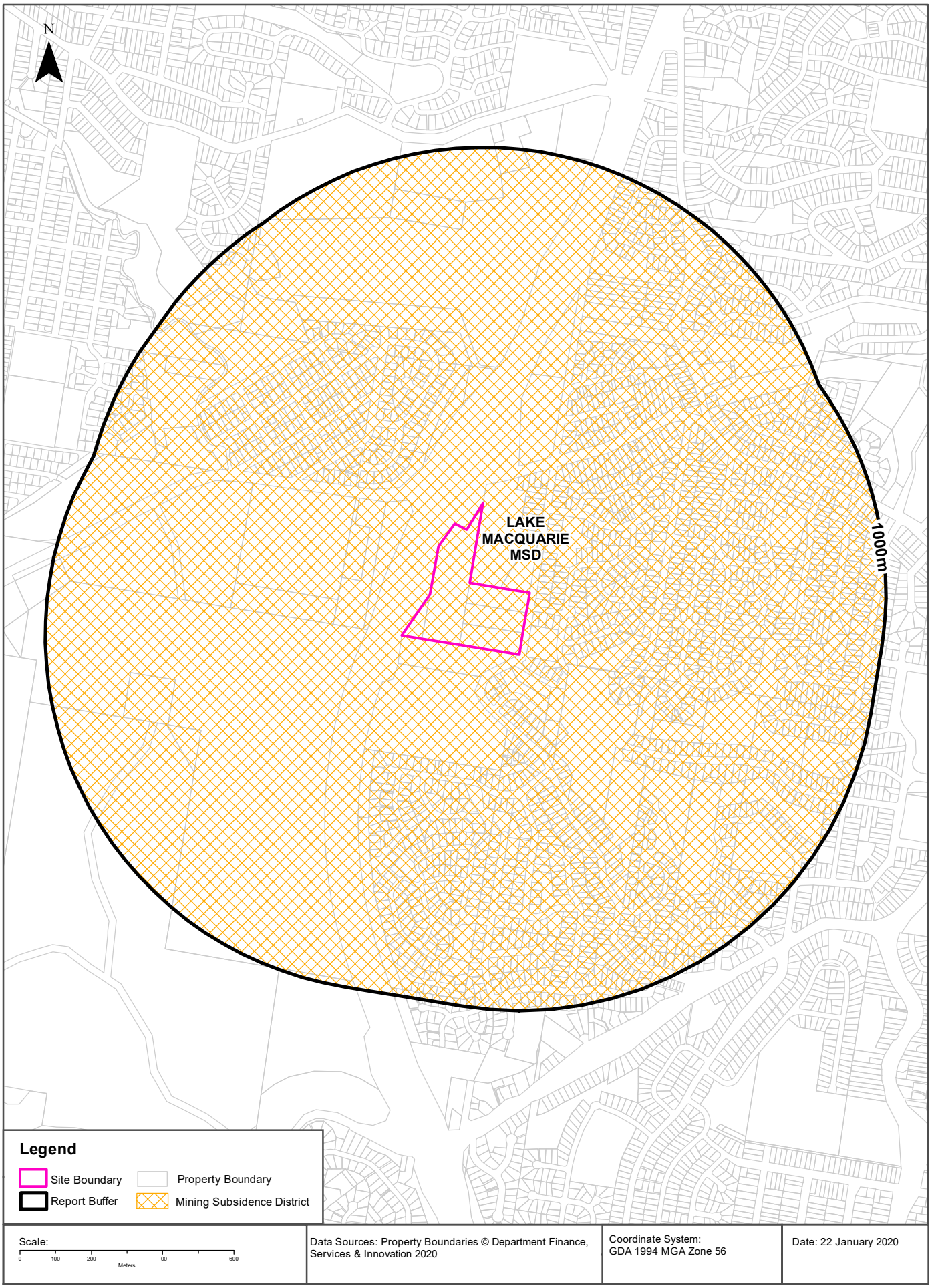

Mining Subsidence Districts

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Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
LAKE MACQUARIE	0m	Onsite

State Environmental Planning Policy

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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							

EPI Planning Zones

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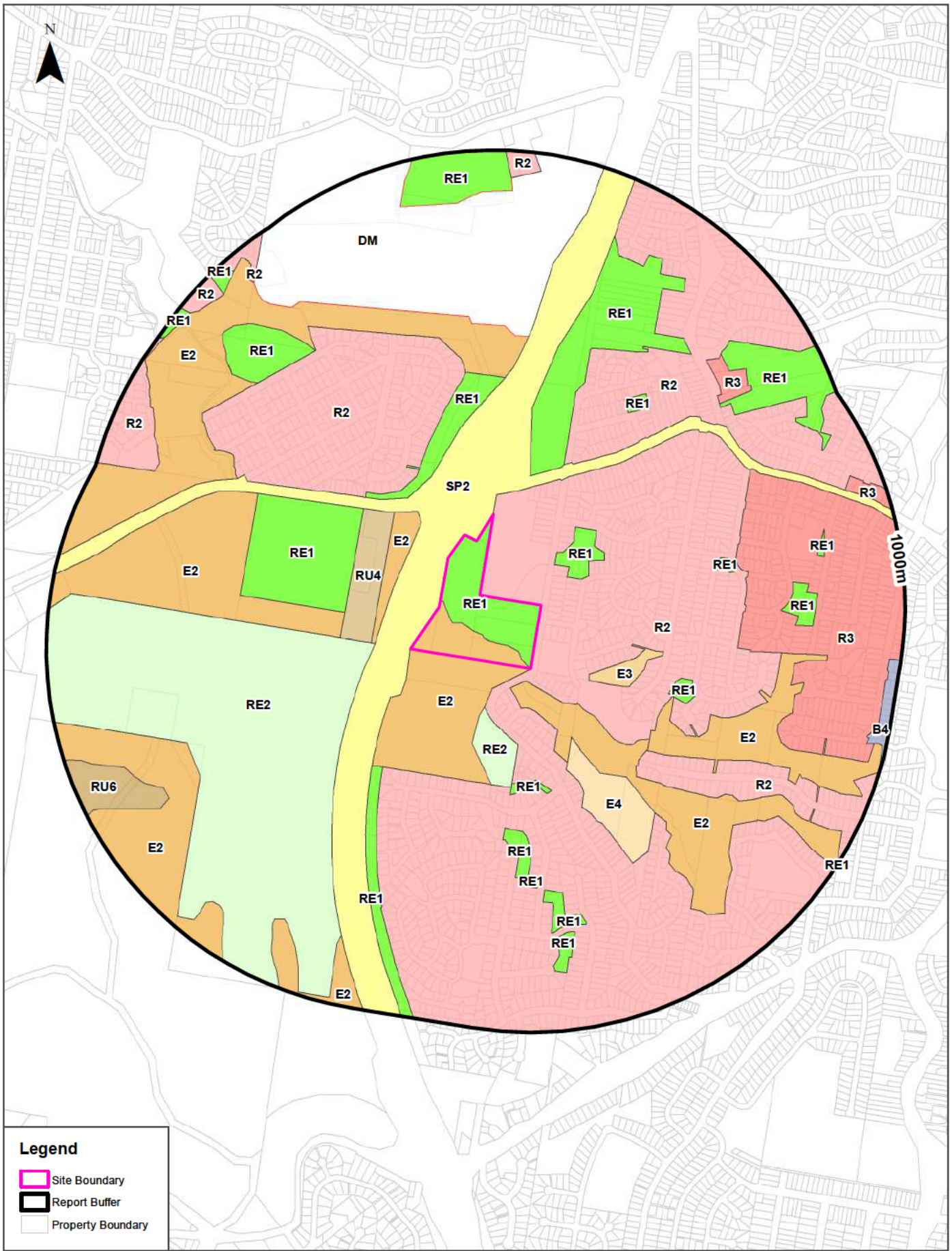

Environmental Planning Instrument

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		0m	Onsite
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		0m	Onsite
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		0m	South East
SP2	Infrastructure	Infrastructure	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		0m	South West
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		33m	South East
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		97m	North West
RE2	Private Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		98m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		105m	North East
RU4	Primary Production Small Lots		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		109m	West
RE2	Private Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		123m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		145m	North East
E3	Environmental Management		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		162m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		179m	North
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		194m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		205m	West
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		207m	North West
E4	Environmental Living		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		220m	South East
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		237m	North East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		306m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		331m	South
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		372m	South East
E2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		378m	West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		386m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		442m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		464m	North East
DM	Deferred Matter		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		496m	North
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		496m	East
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		551m	East

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		578m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		607m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		650m	North West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		660m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		689m	North East
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		692m	North East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		730m	South
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		771m	East
RU6	Transi ion		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		777m	South West
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		832m	North West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		861m	North
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		894m	East
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		902m	North
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		934m	North West
B4	Mixed Use		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		944m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		970m	North West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/01/2019		998m	South East

Heritage

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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
N/A	No records in buffer								

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

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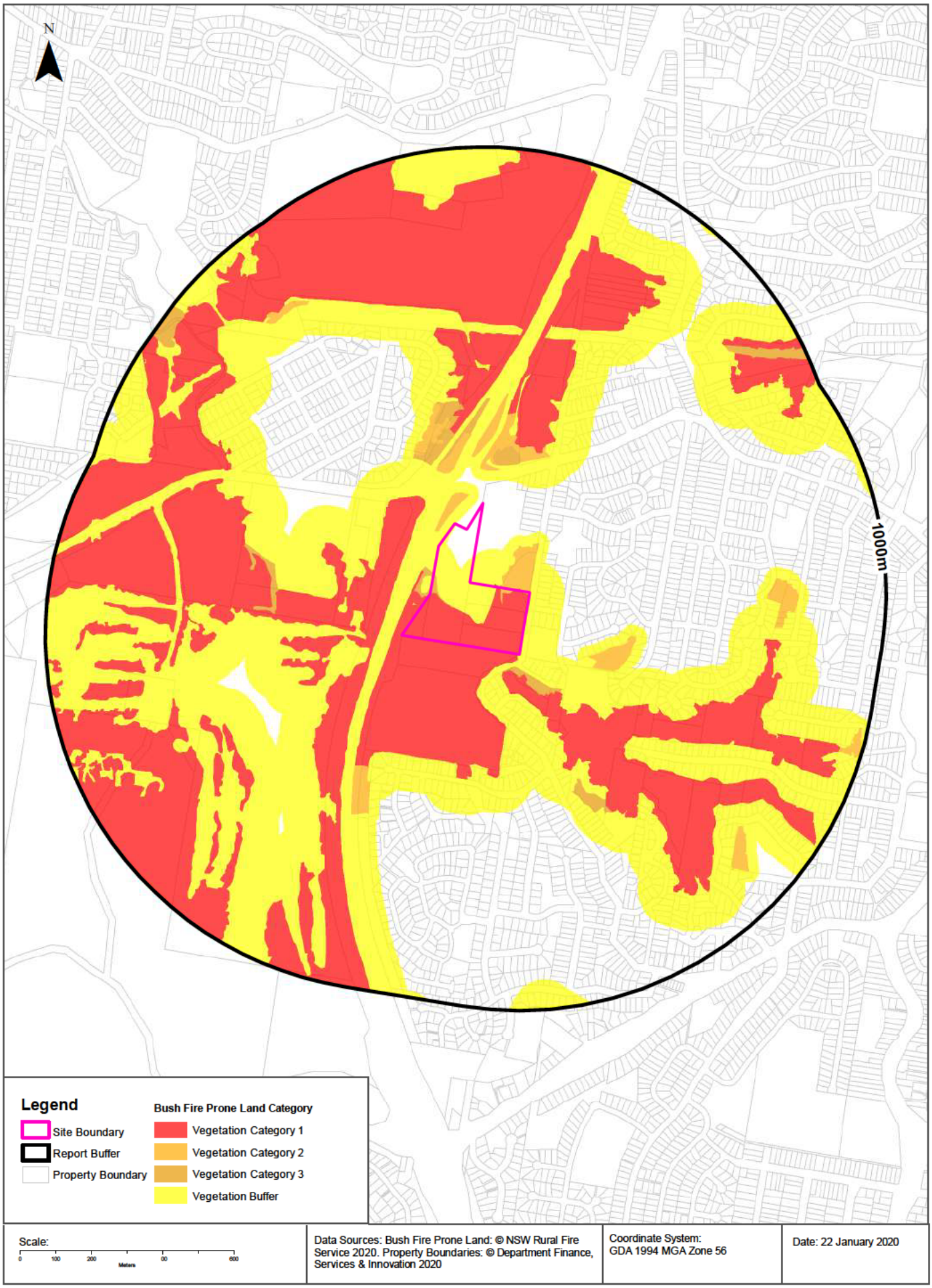

Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2020. Property Boundaries: © Department Finance, Services & Innovation 2020

Coordinate System: GDA 1994 MGA Zone 56

Date: 22 January 2020

Natural Hazards

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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	0m	Onsite
Vegetation Category 3	0m	Onsite

Ecological Constraints - Vegetation & Ramsar Wetlands

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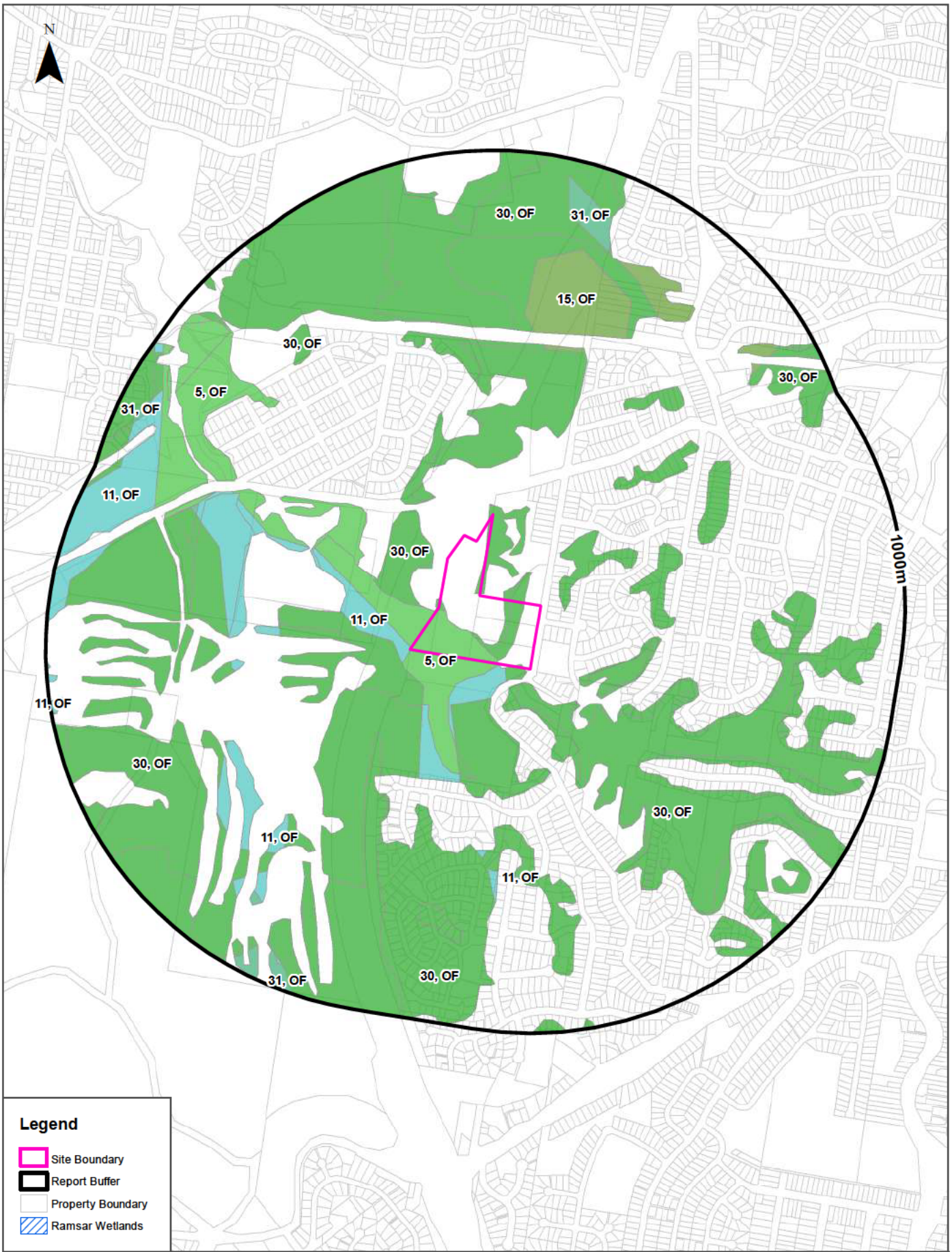

Ecological Constraints

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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
11	Coastal Sheltered Apple - Peppermint Forest	OF	Mid Dense (Open Forest) 50-<100% cover	A. costata / E. piperita	0m	Onsite
15	Coastal Foothills Spotted Gum - Ironbark Forest	OF	Mid Dense (Open Forest) 50-<100% cover	C. maculata / E. umbra / E. siderophloia	476m	North
31	Coastal Plains Scribbly Gum Woodland	OF	Mid Dense (Open Forest) 50-<100% cover	E. haemostoma / C. gummifera / E. capitellata / A. inopina	692m	West

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 - Groundwater Dependent Ecosystems Atlas

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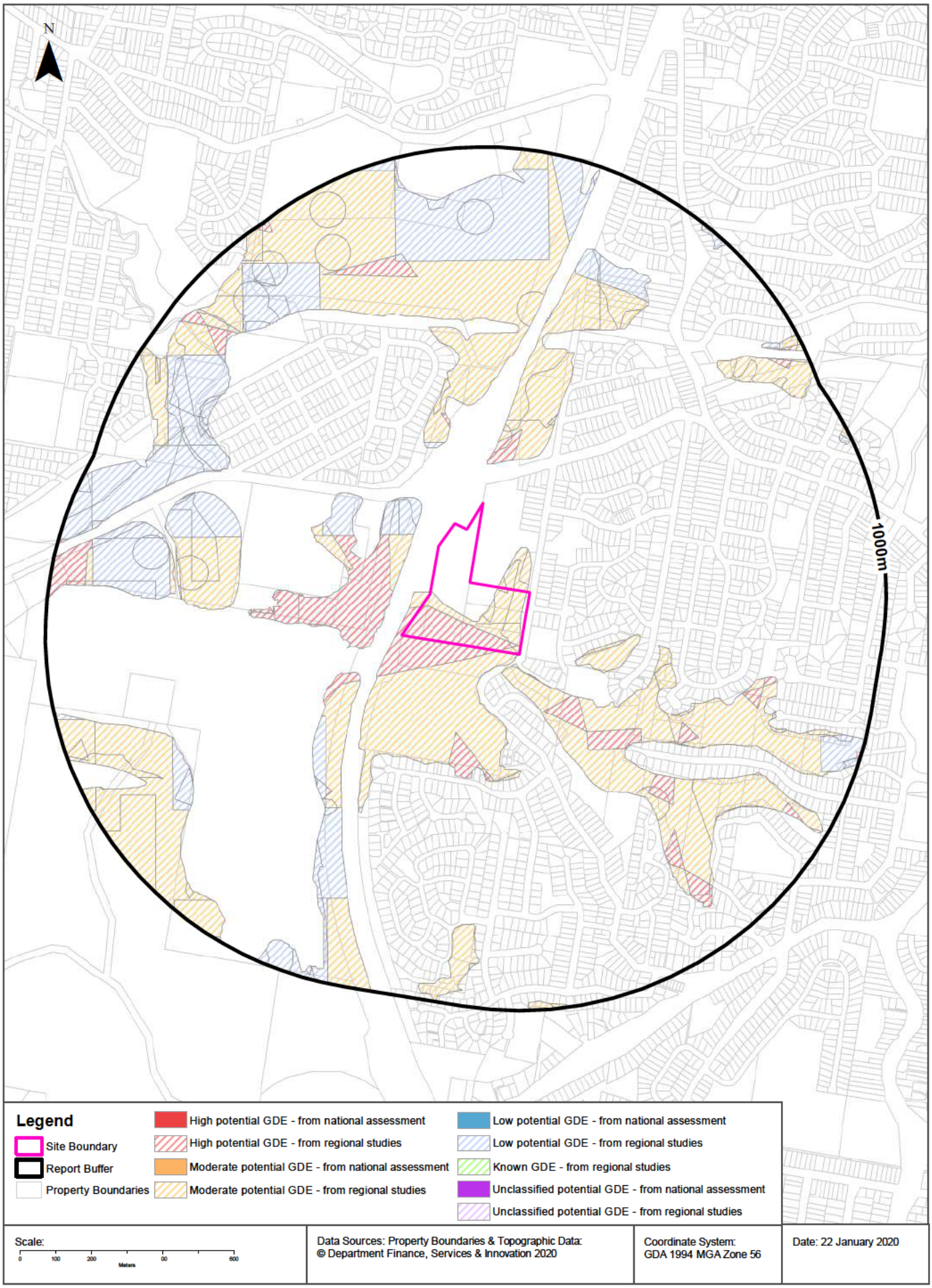

Ecological Constraints

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Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High poten ial GDE - from regional studies	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	High poten ial 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	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	Moderate potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	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	Deeply dissected sandstone plateaus.	Vegetation		76m

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

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Ecological Constraints

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	2	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	2	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	3	Deeply dissected sandstone plateaus.	Vegetation		0m
Terrestrial	6	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m
Terrestrial	6	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	7	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	10	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m
Terrestrial	5	Deeply dissected sandstone plateaus.	Vegetation		76m
Terrestrial	4	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		141m
Terrestrial	8	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		201m
Terrestrial	1	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		357m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Ecological Constraints

62 & 62a Hillsborough Road, Hillsborough, & 109-117 Waratah Avenue, Charlestown, NSW 2290

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	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 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 poicilop ilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Charadrius mongolus	Lesser Sand-plover	Vulnerable	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
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 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	Limosa lapponica	Bar-tailed Godwit	Not Listed	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	
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 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	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
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	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 melanophris	Black-browed Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thinornis rubricollis	Hooded Plover	Critically Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	Todiramphus chloris	Collared Kingfisher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Tringa glareola	Wood Sandpiper	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	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	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Endangered	Not Sensitive	Endangered	
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	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
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 australis	Yellow-bellied Glider	Vulnerable	Not Sensitive	Not Listed	
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 Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	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	
Animalia	Reptilia	Caretta caretta	Loggerhead Tur le	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Diplodactylus platyurus	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	Cynanchum elegans	White-flowered Wax Plant	Endangered	Not Sensitive	Endangered	
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	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
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	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	Rutidosis 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
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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VALLEY CIVILAB
Geotechnical & Environmental Services

Annex E

Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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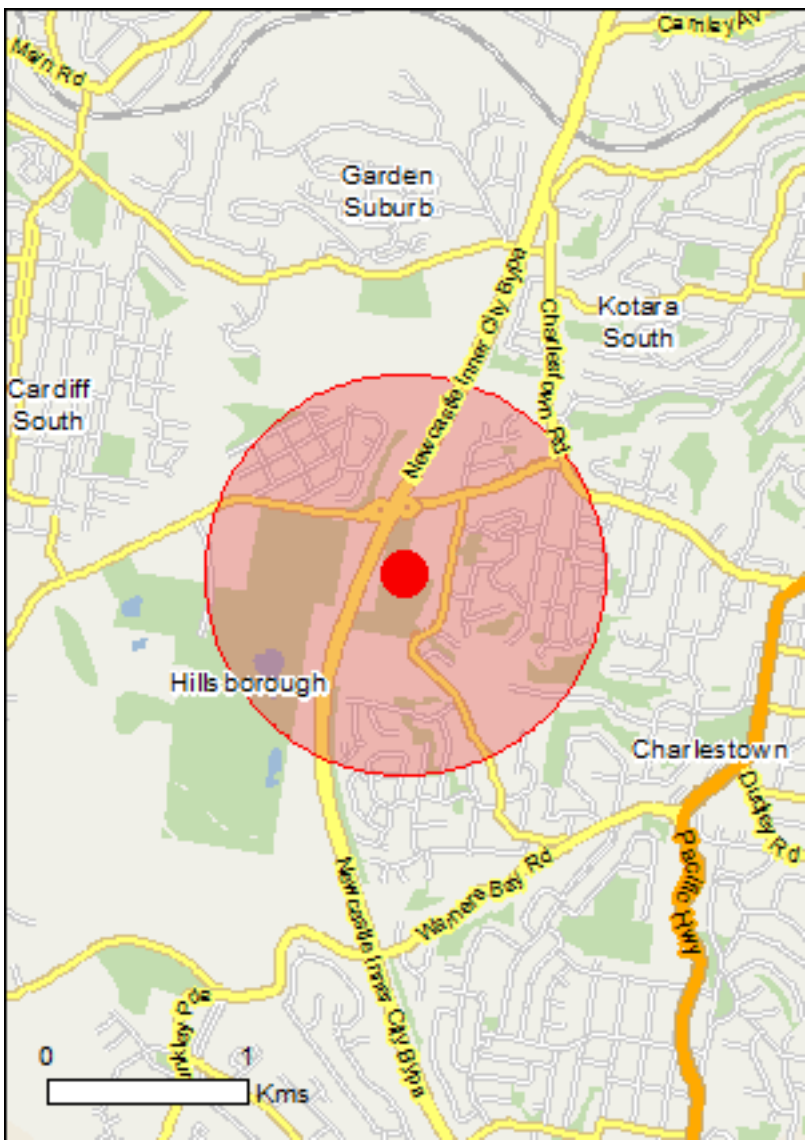

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Coordinates
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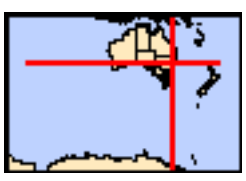

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	34
Listed Migratory Species:	17

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	44
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Hunter estuary wetlands	Within 10km of Ramsar

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat may occur within area
Frogs		
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat may occur within area
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Litoria littlejohni Littlejohn's Tree Frog, Heath Frog [64733]	Vulnerable	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat likely to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Angophora inopina Charmhaven Apple [64832]	Vulnerable	Species or species habitat likely to occur within area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Diuris praecox Newcastle Doubletail [55086]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat may occur within area
Grevillea parviflora subsp. parviflora Small-flower Grevillea [64910]	Vulnerable	Species or species habitat likely to occur within area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat known to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species

Name	Threatened	Type of Presence
		habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		

Name	Status	Type of Presence
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-32.96078 151.67948

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

VALLEY CIVILAB
Geotechnical & Environmental Services

Annex F

BOREHOLE LOG REPORT

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH1
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',5", E151°,38',1.6"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING					MATERIAL						
Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP AS 1289 6 3.2-1997 Blows	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
	0.0 - 0.1	6					SP	FILL: Silty SAND, fine grained, grey / brown	D	D	FILL
	0.1 - 0.2	10									
	0.2 - 0.3	11									
	0.3 - 0.4	Refusal						0.40m			
				ES 0.40-0.50	0.5			Silty CLAY, high plasticity, light brown / mottled orange			RESIDUAL SOIL
				D 0.50-0.60			CH				
					1.0			1.20m			
								Becoming grey / light brown / mottled red			
					1.5				<PL	St to VSt	
					2.0		CH				
					2.5			2.80m			
								Extremely Weathered Clayey SANDSTONE, fine grained, red, very low to low strength			ROCK
					3.0				D		
								3.20m			
								Refusal at 3.20 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH2
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',27.9", E151°,40',36.1"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING				MATERIAL						
Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	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
	0.0 - 0.1	7						FILL: Silty Gravelly SAND, fine to medium grained, grey / brown, fine to coarse gravel			FILL
	0.1 - 0.2	9									
	0.2 - 0.3	16					SP		D	D	
	0.3 - 0.4	5									
	0.4 - 0.5	4		ES 0.40-0.50	0.5			0.50m			
	0.5 - 0.6	6						FILL: COAL FRAGMENTS / REJECTS, fine to medium grained up to 10mm, black			
	0.6 - 0.7	8							D to M	L to MD	
	0.7 - 0.8	8						0.80m			
	0.8 - 0.9	7						FILL: Carbonaceous CLAY, low to medium plasticity, black, with fine coal gravel			
	0.9 - 1.0	8		ES 0.90-1.00							
	1.0 - 1.1	5		D 1.00-1.10	1.0						
	1.1 - 1.2	5									
	1.2 - 1.3	4									
	1.3 - 1.4	5					CL-CI		M		
	1.4 - 1.5	7			1.5						
	1.5 - 1.6	6									
	1.6 - 1.7	6									
	1.7 - 1.8	6									
	1.8 - 1.9	6									
	1.9 - 2.0	7		ES 1.90-2.00	2.0			2.00m			
	2.0 - 2.1	4						Silty Sandy CLAY, high plasticity, grey / light grey / mottled yellow			ALLUVIUM
	2.1 - 2.2	4									
	2.2 - 2.3	5					CH				
	2.3 - 2.4	4								St	
	2.4 - 2.5	4						2.50m			
	2.5 - 2.6	4			2.5			Silty CLAY, high plasticity, light brown / brown / mottled orange			RESIDUAL SOIL
	2.6 - 2.7	4					CH				
	2.7 - 2.8	5									
	2.8 - 2.9	4						2.90m			
	2.9 - 3.0	3						Becoming light brown / grey / mottled red	>PL		
	3.0 - 3.1	4			3.0		CH				
	3.1 - 3.2	5						3.20m			
	3.2 - 3.3	Terminated						Becoming grey / mottled red			
					3.5		CH				
					4.0			4.00m			
								Terminated at 4 00 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH3
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',35.5", E151°,40',44.1"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING / MATERIAL

Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	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
	0.0 - 0.1	6					SP	FILL: Silty SAND, fine grained, pale brown			FILL
	0.1 - 0.2	12						0.10m			
	0.2 - 0.3	11					SP	FILL: Silty SAND, fine grained, pale brown, with fine gravel	D	D	
	0.3 - 0.4	8		ES 0.30-0.40				0.30m			
	0.4 - 0.5	5			0.5		CI	FILL: Sandy Silty CLAY, medium plasticity, grey / brown, fine to medium sand, trace of fine gravel	<PL		
	0.5 - 0.6	7									
	0.6 - 0.7	8									
	0.7 - 0.8	7						0.80m			
	0.8 - 0.9	8						FILL: Carbonaceous CLAY, low to medium plasticity, black, with fine coal gravel			
	0.9 - 1.0	6			1.0		CL-CI		~PL		
	1.0 - 1.1	5		U 1.00-1.20				1.20m			
	1.1 - 1.2	5						FILL: Sandy Silty CLAY, medium plasticity, grey / brown, fine to medium sand, trace of fine gravel			
	1.2 - 1.3	7									
	1.3 - 1.4	7									
	1.4 - 1.5	6		ES 1.40-1.50	1.5		CI		<PL		
	1.5 - 1.6	5									
	1.6 - 1.7	6									
	1.7 - 1.8	4						1.80m			
	1.8 - 1.9	5						Silty Sandy CLAY, high plasticity, grey, with thin lamination of light grey / brown, fine sand			ALLUVIUM
	1.9 - 2.0	4			2.0						
	2.0 - 2.1	4					CH			St	
	2.1 - 2.2	4									
	2.2 - 2.3	4									
	2.3 - 2.4	5									
	2.4 - 2.5	4						2.50m			
	2.5 - 2.6	5			2.5			Silty CLAY, high plasticity, light brown / brown / mottled orange / mottled red			RESIDUAL SOIL
	2.6 - 2.7	4									
	2.7 - 2.8	6									
	2.8 - 2.9	6							>PL		
	2.9 - 3.0	5			3.0						
	3.0 - 3.1	4									
	3.1 - 3.2	4									
	3.2 - 3.3	5					CH				
	3.3 - 3.4	5			3.5						
	3.4 - 3.5	Terminated									
					4.0			4.00m			
								Terminated at 4.00 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

U	-	Undisturbed Sample
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ES	-	Environmental Sample
B	-	Bulk Disturbed Sample
MC	-	Moisture Content
PP	-	Pocket Penetrometer
SPT	-	Standard Penetration Test
VS	-	Vane Shear

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT: Basketbll Association of Newcastle Limited
PROJECT: Proposed Basketball Courts
LOCATION: 62 Hillsborough Road, Charlestown

HOLE NO: BH4
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',35.3", E151°,40',47.6"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING

Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	Field Tests	Samples
	0.0 - 0.1	5		
	0.1 - 0.2	11		
	0.2 - 0.3	21		
	0.3 - 0.4	Refusal		
				ES 0.40-0.50
				B 0.50-1.00 ES 0.70-0.80

MATERIAL

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
0.5		SP	FILL: Silty SAND, fine grained, grey / brown	D	D	FILL
			0.50m			
		CH	Silty CLAY, high plasticity, light brown / mottled orange	>PL	St to VSt	RESIDUAL SOIL
1.0			1.00m			
		CH	Becoming, brown / light brown / mottled red / mottled orange			
			1.40m			
1.5			Extremely Weathered SANDSTONE, fine grained, brown / red, inferred very low strength	M		ROCK
2.0						
2.5						
3.0			3.00m			
			Extremely Weathered SANDSTONE, light brown, inferred very low strength	W		
3.5						
4.0						
			4.20m			
			Refusal at 4.20 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH5
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',36.5", E151°,40',46.1"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING

Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	Field Tests	Samples
	0.0 - 0.1	10		
	0.1 - 0.2	16		
	0.2 - 0.3	12		
	0.3 - 0.4	8		ES 0.30-0.40
	0.4 - 0.5	6		
	0.5 - 0.6	6		U 0.50-0.70
	0.6 - 0.7	7		
	0.7 - 0.8	8		
	0.8 - 0.9	10		
	0.9 - 1.0	11		
	1.0 - 1.1	13		
	1.1 - 1.2	19		
	1.2 - 1.3	Terminated		ES 1.40-1.50

MATERIAL

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
0.2		SP	FILL: Silty SAND, fine grained, grey / brown	D	D	FILL
			0.30m			
0.4			Silty CLAY, high plasticity, light brown / mottled orange			RESIDUAL SOIL
0.6						
0.8		CH		>PL	St to VSt	
1.0						
1.2			1.20m Extremely Weathered Clayey SANDSTONE, fine grained, medium to high plasticity, grey / red, very low strength			ROCK
1.4						
1.6				D to M		
1.8			1.90m As above very low to low strength			
2.0			2.00m Refusal at 2.00 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT: Basketbll Association of Newcastle Limited
PROJECT: Proposed Basketball Courts
LOCATION: 62 Hillsborough Road, Charlestown

HOLE NO: BH6
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',37.1", E151°,40',43.4"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING

Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	Field Tests	Samples
	0.0 - 0.1	7		
	0.1 - 0.2	11		
	0.2 - 0.3	10		
	0.3 - 0.4	9		
	0.4 - 0.5	7		
	0.5 - 0.6	5		
	0.6 - 0.7	4		
	0.7 - 0.8	7		ES 0.70-0.80
	0.8 - 0.9	7		
	0.9 - 1.0	8		
	1.0 - 1.1	7		
	1.1 - 1.2	7		
	1.2 - 1.3	6		
	1.3 - 1.4	7		B 1.00-1.70
	1.4 - 1.5	6		
	1.5 - 1.6	7		
	1.6 - 1.7	5		
	1.7 - 1.8	7		ES 1.70-1.80
	1.8 - 1.9	6		
	1.9 - 2.0	8		
	2.0 - 2.1	5		
	2.1 - 2.2	5		
	2.2 - 2.3	4		
	2.3 - 2.4	3		
	2.4 - 2.5	2		
	2.5 - 2.6	2		D 2.50-2.60
	2.6 - 2.7	3		
	2.7 - 2.8	2		
	2.8 - 2.9	3		
	2.9 - 3.0	3		
	3.0 - 3.1	3		
	3.1 - 3.2	2		
	3.2 - 3.3	3		
	3.3 - 3.4	2		
	3.4 - 3.5	3		
	3.5 - 3.6	Terminated		

MATERIAL

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
		SP	0.10m FILL: Silty SAND, fine grained, brown	D	D	FILL
			FILL: Carbonaceous CLAY, low plasticity, black, with fine coal gravel			
0.5		CL		D to M	F to St	
			1.00m FILL: Silty CLAY, high plasticity, grey / thin laminations of light grey, trace of fine gravel, with tree root at 1.5m			
1.5		CH		>PL	St to VSt	
2.0						
			2.50m Silty CLAY / Clayey SILT, medium plasticity, dark grey / green / light brown			ALLUVIUM
3.0		CL-ML		>PL to W	F	
			3.50m Silty CLAY, high plasticity, brown / red / mottled yellow			RESIDUAL SOIL
		CH				
4.0			4.00m Becoming Extrememly Weathered SANDSTONE	<PL	VSt to H	ROCK
4.5						
5.0			5.00m Practical Refusal at 5 00 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH7
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',39.1", E151°,40',43.4"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING / MATERIAL

Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	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
	0.0 - 0.1	8					SP	FILL: Silty SAND, fine grained, brown		D	FILL
	0.1 - 0.2	12			0.10m			FILL: Carbonaceous CLAY, low plasticity, black, with fine coal gravel			
	0.2 - 0.3	13									
	0.3 - 0.4	15		ES 0.30-0.40							
	0.4 - 0.5	Terminated		D 0.40-0.50	0.5		CL		D	F to St	
					1.00m			FILL: Silty CLAY, high plasticity, grey / brown with thin laminations of orange and yellow			
					1.0		CH		~PL	St to VSt	
					1.50m			FILL: Silty CLAY, high plasticity, dark grey / grey, trace of fine gravel and fine coal gravel			
				ES 1.50-1.60	1.5		CH			St	
					2.00m			Silty CLAY, high plasticity, dark grey			ALLUVIUM
					2.0		CH			F to St	
					2.50m			Silty CLAY, high plasticity, red / brown			RESIDUAL SOIL
					2.5				>PL		
					3.0		CH			St to VSt	
					3.5						
					4.00m			Terminated at 4 00 m			
					4.0						

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH8
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',39", E151°,40',45.6"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING

Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	Field Tests	Samples
	0.0 - 0.1	9		
	0.1 - 0.2	15		
	0.2 - 0.3	12		ES 0.20-0.30
	0.3 - 0.4	9		
	0.4 - 0.5	5		
	0.5 - 0.6	7		
	0.6 - 0.7	7		
	0.7 - 0.8	8		D 0.70-0.80
	0.8 - 0.9	10		ES 0.80-0.90
	0.9 - 1.0	10		
	1.0 - 1.1	13		
	1.1 - 1.2	15		
	1.2 - 1.3	19		
	1.3 - 1.4	Terminated		

MATERIAL

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
		SP	FILL: Silty SAND, fine grained, grey / brown			FILL
			0.10m			
		GP	FILL: Silty Sandy GRAVEL, fine to medium grained, angular, grey / brown, fine sand	D	D	
			0.30m			
			Silty CLAY, high plasticity, brown / red, trace fine sand			RESIDUAL SOIL
0.5		CH				
			1.00m			
1.0			Becoming Extremely Weathered SANDSTONE			ROCK
1.5				<PL	St to VSt	
2.0			2.20m			
			Becoming grey / mottled red			
2.5						
			2.90m			
			Refusal at 2.90 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH9
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',39.5", E151°,40',46.4"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING					MATERIAL						
Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP AS 1289 6 3.2-1997 Blows	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
	0.0 - 0.1	10						FILL: Silty Sandy GRAVEL, fine to medium grained, angular, grey / brown, fine sand			FILL
	0.1 - 0.2	8					GP		D	D	
	0.2 - 0.3	7		ES 0.00-0.40							
	0.3 - 0.4	7						0.30m FILL: Carbonaceous CLAY, low plasticity, black, with fine coal gravel			
	0.4 - 0.5	7			0.5		CL			F to St	
	0.5 - 0.6	6									
	0.6 - 0.7	5									
	0.7 - 0.8	5						0.80m FILL: Silty Sandy CLAY, high plasticity, brown / mottled orange / mottled red / mottled yellow			
	0.8 - 0.9	6							<PL		
	0.9 - 1.0	6			1.0						
	1.0 - 1.1	6									
	1.1 - 1.2	5									
	1.2 - 1.3	4		B 1.00-1.50			CH			St	
	1.3 - 1.4	4									
	1.4 - 1.5	2		ES 1.40-1.50	1.5						
	1.5 - 1.6	3							>PL		
	1.6 - 1.7	3						1.70m Extremely Weathered SANDSTONE, fine grained, orange / light brown, very low strength, trace fine gravel			ROCK
	1.7 - 1.8	6									
	1.8 - 1.9	4									
	1.9 - 2.0	8			2.0						
	2.0 - 2.1	8									
	2.1 - 2.2	9									
	2.2 - 2.3	9									
	2.3 - 2.4	11			2.5						
	2.4 - 2.5	12									
	2.5 - 2.6	Terminated									
					3.0				M		
					3.5						
					4.0						
					4.5			4.50m Terminated at 4 50 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH10
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',40", E151°,40',48.7"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING					MATERIAL						
Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP AS 1289 6 3.2-1997 Blows	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
	0.0 - 0.1	10			0.0			FILL: Silty SAND, fine grained, brown / grey			FILL
	0.1 - 0.2	15									
	0.2 - 0.3	9									
	0.3 - 0.4	7		ES 0.30-0.40			SP		D	D	
	0.4 - 0.5	5									
	0.5 - 0.6	4			0.5						
	0.6 - 0.7	5									
	0.7 - 0.8	5						0.70m FILL: Silty Sandy CLAY, medium plasticity, dark grey / dark brown, fine sand			
	0.8 - 0.9	4									
	0.9 - 1.0	4		ES 0.90-1.00	1.0						
	1.0 - 1.1	5					CI		>PL		
	1.1 - 1.2	6									
	1.2 - 1.3	7									
	1.3 - 1.4	6								St	
	1.4 - 1.5	7						1.40m Silty CLAY, high plasticity, orange / brown			RESIDUAL SOIL
	1.5 - 1.6	7			1.5						
	1.6 - 1.7	6		U 1.50-1.70							
	1.7 - 1.8	6					CH		<PL		
	1.8 - 1.9	5									
	1.9 - 2.0	7									
	2.0 - 2.1	8			2.0			2.00m Extremely Weathered Clayey SANDSTONE, fine grained, high plasticity, orange / brown / yellow			ROCK
	2.1 - 2.2	8									
	2.2 - 2.3	10									
	2.3 - 2.4	10									
	2.4 - 2.5	11			2.5				M		
	2.5 - 2.6	Terminated						2.60m Becoming grey / mottled yellow with fine to medium gravel			
								2.80m Weathered SANDSTONE, fine grained, yellow / orange with fine gravel			
					3.0			3.00m Refusal at 3.00 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

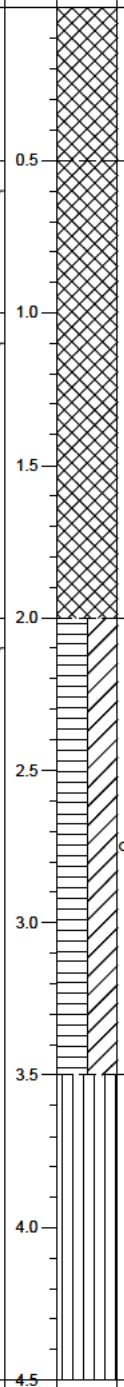
HOLE NO: BH11
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',41.4", E151°,40',48"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING

Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	Field Tests	Samples
	0.0 - 0.1	7		
	0.1 - 0.2	16		
	0.2 - 0.3	21		
	0.3 - 0.4	15		
	0.4 - 0.5	Refusal		
				ES 0.50-0.60
				B 0.60-1.00
				ES 1.00-1.10
				D 2.00-2.10

MATERIAL



Classification Symbol	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	Moisture Condition	Consistency/ Relative Density	STRUCTURE & Other Observations
SP	FILL: Silty SAND, fine grained, brown / grey	D	D	FILL
	0.50m			
Cl	FILL: Silty Sandy CLAY, medium plasticity, dark grey / dark brown, fine sand		St	
	2.00m			
CL-Cl	Silty Clayey / Clayey S LT, low to medium plasticity, dark grey with plant matter	>PL	F to St	ALLUVIUM
	3.50m			
CH	Silty Sandy CLAY, high plasticity, grey / brown, fine to medium sand	>PL - W	St to VSt	RESIDUAL SOIL
	4.50m			
	Terminated at 4 50 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

VALLEY CIVILAB Geotechnical & Environmental Services

CLIENT : Basketbll Association of Newcastle Limited
PROJECT : Proposed Basketball Courts
LOCATION : 62 Hillsborough Road, Charlestown

HOLE NO: BH12
FILE / JOB NO: P1989-1
SHEET: 1 OF 1

POSITION: -S32°,57',41", E151°,40',45.6"	SURFACE ELEVATION:	INCLINATION: 90°
DRILLING METHOD: Trailer Mounted Drill Rig	CONTRACTOR:	DRILLER: LB
DATE LOGGED: 30/01/2020 DATE SAMPLED: 30/01/2020	LOGGED BY: ML	CHECKED BY: NWR

TESTING & SAMPLING				MATERIAL						
Water	DCP AS 1289 6 3.2-1997 Depth (m)	DCP Blows	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
	0.0 - 0.1	7			0		SP	FILL: Silty SAND, fine grained, brown / grey	D	D	FILL
	0.1 - 0.2	8						0.20m			
	0.2 - 0.3	7						FILL: Silty Sandy CLAY, high plasticity, brown / mottled orange / mottled grey / light grey / red / light brown / dark brown			
	0.3 - 0.4	6		ES 0.30-0.40							
	0.4 - 0.5	4			0.5						
	0.5 - 0.6	4									
	0.6 - 0.7	6									
	0.7 - 0.8	6									
	0.8 - 0.9	6									
	0.9 - 1.0	5			1.0						
	1.0 - 1.1	6		ES 1.00-1.10							
	1.1 - 1.2	5									
	1.2 - 1.3	6		U 1.20-1.40							
	1.3 - 1.4	7					CH			St	
	1.4 - 1.5	7			1.5						
	1.5 - 1.6	7									
	1.6 - 1.7	7									
	1.7 - 1.8	6									
	1.8 - 1.9	5							>PL		
	1.9 - 2.0	7									
	2.0 - 2.1	8			2.0						
	2.1 - 2.2	6									
	2.2 - 2.3	6									
	2.3 - 2.4	7									
	2.4 - 2.5	6		ES 2.40-2.50	2.5						
	2.5 - 2.6	5						2.50m			
	2.6 - 2.7	7						Sily CLAY/ Clayey S LT, medium plasticity, dark grey / dark brown			ALLUVIUM
	2.7 - 2.8	8									
	2.8 - 2.9	10									
	2.9 - 3.0	11			3.0						
	3.0 - 3.1	11					CI			F to St	
	3.1 - 3.2	15									
	3.2 - 3.3	Terminated									
					3.5						
								3.50m			
								Silty CLAY, high plasticity, red / brown / mottled yellow			RESIDUAL SOIL
					4.0		CH		<PL	St to VSt	
					4.5			4.50m			
								Terminated at 4 50 m			

Additional Comments

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

WATER

Water table

Water inflow

SAMPLES & FIELD TESTS

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

MOISTURE

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

CONSISTENCY/ RELATIVE DENSITY

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

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Annex G

	Metals								TRH NEPM (2013)							BTEX			
	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	TRH C6-C10 Fraction	TRH C6-C10 minus BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Napthalene	Benzene	Toluene	Ethylbenzene	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	1	0.3	0.5	0.5	1	0.5	2	0.05	25	25	25	25	90	120	0.1	0.1	0.1	0.1	0.3
EILs (NEPM 2013)	160				1800										370				
ESLs - Fine (NEPM 2013)										215		170	2500	6600		95	135	185	180
ESLs - Coarse (NEPM 2013)										215		170	1700	3300		75	135	165	95
HIL D (NEPM 2013)	3000	900	3600	240000	1500	6000	400000	730											
HSL D - Soil Vapour Sand 0 - <1m (NEPM 2013)										260		NL			NL	3	NL	NL	230
HSL D - Soil Vapour Sand 1 - <2m (NEPM 2013)										370		NL			NL	3	NL	NL	NL
HSL D - Soil Vapour Sand 2 - <4m (NEPM 2013)										630		NL			NL	3	NL	NL	NL
HSL D - Soil Vapour Sand 4m+ (NEPM 2013)										NL		NL			NL	3	NL	NL	NL
HSL D - Soil Vapour Silt 0 - <1m (NEPM 2013)										250		NL			NL	4	NL	NL	NL
HSL D - Soil Vapour Silt 1 - <2m (NEPM 2013)										360		NL			NL	4	NL	NL	NL
HSL D - Soil Vapour Silt 2 - <4m (NEPM 2013)										590		NL			NL	6	NL	NL	NL
HSL D - Soil Vapour Silt 4m+ (NEPM 2013)										NL		NL			NL	10	NL	NL	NL
HSL D - Soil Vapour Clay 0 - <1m (NEPM 2013)										310		NL			NL	4	NL	NL	NL
HSL D - Soil Vapour Clay 1 - <2m (NEPM 2013)										480		NL			NL	6	NL	NL	NL
HSL D - Soil Vapour Clay 2 - <4m (NEPM 2013)										NL		NL			NL	9	NL	NL	NL
HSL D - Soil Vapour Clay 4m+ (NEPM 2013)										NL		NL			NL	20	NL	NL	NL
Management Limits - Fine Soil (NEPM 2013)									*800*		*1,000*		*5,000*	*10,000*					
Management Limits - Coarse Soil (NEPM 2013)									*700*		*1,000*		*3,500*	*10,000*					
HSL D - Direct Contact (CRC Care 2011)									**26,000**		**20,000**		**27,000**	**38,000**	**11,000**	**430**	**99,000**	**27,000**	**81,000**

Sample ID	Sampled Date																			
BH1 0.4-0.5	30/1/2020	**3**	<0.3	**16**	**1.4**	**15**	**1.0**	**19**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH2 0.4-0.5	30/1/2020	**4**	<0.3	<0.5	**3.1**	**21**	**2.4**	<2	<0.05	<25	<25	**33**	**33**	**160**	<120	**0.2**	<0.1	<0.1	<0.1	<0.3
BH3 0.3-0.4	30/1/2020	**5**	<0.3	**7.1**	**5.5**	**25**	**1.4**	**22**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH4 0.3-0.4	30/1/2020	**6**	<0.3	**6.3**	**4.8**	**18**	**1.7**	**17**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH5 0.3-0.4	30/1/2020	**6**	<0.3	**30**	**0.6**	**18**	**1.4**	**5.7**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH6 0.7-0.8	30/1/2020	**4**	<0.3	**1.8**	**4.9**	**35**	**1.2**	**3.0**	**0.07**	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH7 0.3-0.4	30/1/2020	**8**	<0.3	**1.2**	**4.4**	**21**	<0.5	**4.5**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH8 0.2-0.3	30/1/2020	**5**	<0.3	**19**	**1.0**	**10**	**0.7**	**4.1**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH9 0.3-0.4	30/1/2020	**5**	<0.3	**8.7**	**2.9**	**24**	**1.2**	**18**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH10 0.3-0.4	30/1/2020	**4**	<0.3	**3.6**	**4.5**	**20**	**1.1**	**25**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH11 0.5-0.6	30/1/2020	**4**	<0.3	**2.6**	**5.6**	**25**	**0.9**	**44**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
BH12 0.3-0.4	30/1/2020	**7**	<0.3	**4.0**	**3.7**	**20**	**1.2**	**15**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3

Statistical Summary																			
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	12	0	11	12	12	11	11	1	0	0	1	1	1	0	1	0	0	0	0
Minimum Detect	3	0	1.2	0.6	10	0.7	3	0.07	0	0	33	33	160	0	0.2	0	0	0	0
Maximum Detect	8	0	30	5.6	35	2.4	44	0.07	0	0	33	33	160	0	0.2	0	0	0	0
Average Concentration	5.083333	-	9.118182	3.533333	21	1.290909	16.11818	0.07	-	-	33	33	160	-	0.2	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	PAH						Phenol				OCP													OPP	PCB
	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs, BaP TEQ <LOR=0	Carcinogenic PAHs, BaP TEQ <LOR=LOR	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	Total PAH	Pentachlorophenol	2-Methylphenol (o-Cresol)	3&4-Methylphenol (m&p-Cresol)	Phenol	Aldrin	o,p'-DDE	o,p'-DDD	o,p'-DDT	Gamma Chlordane	Alpha Chlordane	Dieldrin	Alpha Endosulfan	Beta Endosulfan	Endrin	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Toxaphene	Chlorpyrifos (Chlorpyrifos Ethyl)	Total PCBs (Arochlors)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	0.1	0.1	0 2	0.3	0.2	0.8	0.5	0.5	1	0.5	0.1	0.1	0.1	0.1	0.2	0.2	0 2	0 2	0 2	0.2	0.1	0.1	0.1	1	0.2	1
EILs (NEPM 2013)	370													640												
ESLs - Coarse/Fine (NEPM 2013)		0.7																								
HIL D (NEPM 2013)			40	40	40	4000	660	25,000	25,000	240,000	45	3600	3600	3600	530	530	45	2000	2000	100	50	80	2500	160	2000	7
HSL B - Direct Contact (CRC Care 2011)	**11,000**																									
Sample ID	**Sampled Date**																									
BH1 0.4-0.5	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH2 0.4-0.5	30/1/2020	**0.2**	<0.1	<0 2	<0 3	<0 2	**5.4**	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH3 0.3-0.4	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH4 0.3-0.4	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH5 0.3-0.4	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH6 0.7-0.8	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH7 0.3-0.4	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH8 0.2-0.3	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH9 0.3-0.4	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH10 0.3-0.4	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH11 0.5-0.6	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
BH12 0.3-0.4	30/1/2020	<0.1	<0.1	<0 2	<0 3	<0 2	<0.8	<0.5	<0.5	<1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0 2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
Statistical Summary																										
Number of Results	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Number of Detects	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect	0.2	0	0	0	0	5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect	0.2	0	0	0	0	5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration	0.2	-	-	-	-	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3: Duplicate Results; Metals

VALLEY CIVILAB Geotechnical & Environmental Services	LOR	Unit	Primary Sample	QA Sample	RPD
			BH3 0.3-0.4	DUP1	
Metals					
Arsenic	2	mg/kg	**5**	**4**	22.2
Cadmium	0.3	mg/kg	0.15	0.15	0.0
Chromium	0.3	mg/kg	**7.1**	**21**	-98.9
Copper	0.5	mg/kg	**5.5**	**2.1**	89.5
Lead	1	mg/kg	**25**	**15**	50.0
Nickel	0.5	mg/kg	**1.4**	**1.3**	7.4
Zinc	2	mg/kg	**22**	**34**	-42.9
Mercury	0.05	mg/kg	0.025	0.025	0.0

Table 4: Duplicate Results; Metals

	LOR	Unit	RINS
Metals			
Arsenic	2	µg/L	<1
Cadmium	0.3	µg/L	<0.1
Chromium	0.3	µg/L	<1
Copper	0.5	µg/L	<1
Lead	1	µg/L	<1
Nickel	0.5	µg/L	<1
Zinc	2	µg/L	<5
Mercury	0.05	mg/L	<0.0001

VALLEY CIVILAB
Geotechnical & Environmental Services

Annex H

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Jake Duck	Manager	Huong Crawford
Client	VALLEY CIVILAB PTY LTD	Laboratory	SGS Alexandria Environmental
Address	PO BOX 3127 THORNTON NSW 2322	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Project	**P1989-1**	SGS Reference	**SE202304 R0**
Order Number	**494**	Date Received	31 Jan 2020
Samples	14	Date Reported	07 Feb 2020

COMMENTS

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

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Parameter	Units	LOR	Sample Number: SE202304.001 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH1 0.4-0.5	SE202304.002 Soil 30 Jan 2020 BH2 0.4-0.5	SE202304.003 Soil 30 Jan 2020 BH3 0.3-0.4	SE202304.004 Soil 30 Jan 2020 BH4 0.3-0.4
VOC's in Soil Method: AN433 Tested: 31/1/2020						
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
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	83	81	84	84
d8-toluene (Surrogate)	%	-	87	83	88	86
Bromofluorobenzene (Surrogate)	%	-	87	80	89	85
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: 31/1/2020						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	83	81	84	84
d8-toluene (Surrogate)	%	-	87	83	88	86
Bromofluorobenzene (Surrogate)	%	-	87	80	89	85
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: SE202304.001 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH1 0.4-0.5	SE202304.002 Soil 30 Jan 2020 BH2 0.4-0.5	SE202304.003 Soil 30 Jan 2020 BH3 0.3-0.4	SE202304.004 Soil 30 Jan 2020 BH4 0.3-0.4
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 31/1/2020						
TRH C10-C14	mg/kg	20	<20	20	<20	<20
TRH C15-C28	mg/kg	45	<45	160	<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	180	<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	33	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	33	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	160	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 31/1/2020						
Naphthalene	mg/kg	0.1	<0.1	0.2	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	0.8	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	1.0	<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	1.7	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	0.5	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	0.4	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.3	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	0.3	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.2	<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	5.4	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	3.6	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	70	75	73	77
2-fluorobiphenyl (Surrogate)	%	-	82	83	83	86
d14-p-terphenyl (Surrogate)	%	-	80	77	83	82
OC Pesticides in Soil Method: AN420 Tested: 31/1/2020						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE202304.001 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH1 0.4-0.5	SE202304.002 Soil 30 Jan 2020 BH2 0.4-0.5	SE202304.003 Soil 30 Jan 2020 BH3 0.3-0.4	SE202304.004 Soil 30 Jan 2020 BH4 0.3-0.4
OC Pesticides in Soil Method: AN420 Tested: 31/1/2020 (continued)						
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	119	109	108	110
OP Pesticides in Soil Method: AN420 Tested: 31/1/2020						
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7
Surrogates						
2-fluorobiphenyl (Surrogate)	%	-	82	83	83	86
d14-p-terphenyl (Surrogate)	%	-	80	77	83	82
PCBs in Soil Method: AN420 Tested: 31/1/2020						
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	119	109	108	110

Parameter	Units	LOR	Sample Number: SE202304.001 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH1 0.4-0.5	SE202304.002 Soil 30 Jan 2020 BH2 0.4-0.5	SE202304.003 Soil 30 Jan 2020 BH3 0.3-0.4	SE202304.004 Soil 30 Jan 2020 BH4 0.3-0.4
Speciated Phenols in Soil Method: AN420 Tested: 31/1/2020						
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2
Surrogates						
2,4,6-Tribromophenol (Surrogate)	%	-	118	116	129	128
d5-phenol (Surrogate)	%	-	111	115	120	114
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 4/2/2020						
Arsenic, As	mg/kg	1	3	4	5	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	16	<0.5	7.1	6.3
Copper, Cu	mg/kg	0.5	1.4	3.1	5.5	4.8
Nickel, Ni	mg/kg	0.5	1.0	2.4	1.4	1.7
Lead, Pb	mg/kg	1	15	21	25	18
Zinc, Zn	mg/kg	2	19	<2.0	22	17
Mercury in Soil Method: AN312 Tested: 4/2/2020						
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content Method: AN002 Tested: 31/1/2020						
% Moisture	%w/w	1	18.2	13.0	16.6	12.7
Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 4/2/2020						
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	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE202304.001 Soil 30 Jan 2020 BH1 0.4-0.5	SE202304.002 Soil 30 Jan 2020 BH2 0.4-0.5	SE202304.003 Soil 30 Jan 2020 BH3 0.3-0.4	SE202304.004 Soil 30 Jan 2020 BH4 0.3-0.4
Mercury (dissolved) in Water	**Method: AN311(Perth)/AN312**	**Tested: 3/2/2020**					
Mercury	mg/L	0.0001		-	-	-	-

Parameter	Units	LOR	Sample Number: SE202304.005 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH5 0.3-0.4	SE202304.006 Soil 30 Jan 2020 BH6 0.7-0.8	SE202304.007 Soil 30 Jan 2020 BH7 0.3-0.4	SE202304.008 Soil 30 Jan 2020 BH8 0.2-0.3
VOC's in Soil Method: AN433 Tested: 31/1/2020						
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
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	82	80	83	84
d8-toluene (Surrogate)	%	-	85	81	87	87
Bromofluorobenzene (Surrogate)	%	-	84	77	85	86
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: 31/1/2020						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	82	80	83	84
d8-toluene (Surrogate)	%	-	85	81	87	87
Bromofluorobenzene (Surrogate)	%	-	84	77	85	86
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: SE202304.005 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH5 0.3-0.4	SE202304.006 Soil 30 Jan 2020 BH6 0.7-0.8	SE202304.007 Soil 30 Jan 2020 BH7 0.3-0.4	SE202304.008 Soil 30 Jan 2020 BH8 0.2-0.3
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 31/1/2020						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	50	<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: 31/1/2020						
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	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	0.4	<0.1	<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	<0.1	<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	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	80	82	76	71
2-fluorobiphenyl (Surrogate)	%	-	89	92	82	82
d14-p-terphenyl (Surrogate)	%	-	86	88	81	82
OC Pesticides in Soil Method: AN420 Tested: 31/1/2020						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE202304.005 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH5 0.3-0.4	SE202304.006 Soil 30 Jan 2020 BH6 0.7-0.8	SE202304.007 Soil 30 Jan 2020 BH7 0.3-0.4	SE202304.008 Soil 30 Jan 2020 BH8 0.2-0.3
OC Pesticides in Soil Method: AN420 Tested: 31/1/2020 (continued)						
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105	103	101	103
OP Pesticides in Soil Method: AN420 Tested: 31/1/2020						
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7
Surrogates						
2-fluorobiphenyl (Surrogate)	%	-	89	92	82	82
d14-p-terphenyl (Surrogate)	%	-	86	88	81	82
PCBs in Soil Method: AN420 Tested: 31/1/2020						
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	105	103	101	103

Parameter	Units	LOR	Sample Number: SE202304.005 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH5 0.3-0.4	SE202304.006 Soil 30 Jan 2020 BH6 0.7-0.8	SE202304.007 Soil 30 Jan 2020 BH7 0.3-0.4	SE202304.008 Soil 30 Jan 2020 BH8 0.2-0.3
Speciated Phenols in Soil Method: AN420 Tested: 31/1/2020						
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2
Surrogates						
2,4,6-Tribromophenol (Surrogate)	%	-	126	112	112	123
d5-phenol (Surrogate)	%	-	114	114	116	111
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 4/2/2020						
Arsenic, As	mg/kg	1	6	4	8	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	30	1.8	1.2	19
Copper, Cu	mg/kg	0.5	0.6	4.9	4.4	1.0
Nickel, Ni	mg/kg	0.5	1.4	1.2	<0.5	0.7
Lead, Pb	mg/kg	1	18	35	21	10
Zinc, Zn	mg/kg	2	5.7	3.0	4.5	4.1
Mercury in Soil Method: AN312 Tested: 4/2/2020						
Mercury	mg/kg	0.05	<0.05	0.07	<0.05	<0.05
Moisture Content Method: AN002 Tested: 31/1/2020						
% Moisture	%w/w	1	23.2	19.9	15.5	17.7
Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 4/2/2020						
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	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE202304.005 Soil 30 Jan 2020 BH5 0.3-0.4	SE202304.006 Soil 30 Jan 2020 BH6 0.7-0.8	SE202304.007 Soil 30 Jan 2020 BH7 0.3-0.4	SE202304.008 Soil 30 Jan 2020 BH8 0.2-0.3
Mercury (dissolved) in Water	**Method: AN311(Perth)/AN312**	**Tested: 3/2/2020**					
Mercury	mg/L	0.0001		-	-	-	-

Parameter	Units	LOR	Sample Number: SE202304.009 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH9 0.3-0.4	SE202304.010 Soil 30 Jan 2020 BH10 0.3-0.4	SE202304.011 Soil 30 Jan 2020 BH11 0.5-0.6	SE202304.012 Soil 30 Jan 2020 BH12 0.3-0.4
VOC's in Soil Method: AN433 Tested: 31/1/2020						
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
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	82	93	75	83
d8-toluene (Surrogate)	%	-	87	96	77	86
Bromofluorobenzene (Surrogate)	%	-	85	95	74	87
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: 31/1/2020						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	82	93	75	83
d8-toluene (Surrogate)	%	-	87	96	77	86
Bromofluorobenzene (Surrogate)	%	-	85	95	74	87
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: SE202304.009 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH9 0.3-0.4	SE202304.010 Soil 30 Jan 2020 BH10 0.3-0.4	SE202304.011 Soil 30 Jan 2020 BH11 0.5-0.6	SE202304.012 Soil 30 Jan 2020 BH12 0.3-0.4
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 31/1/2020						
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: 31/1/2020						
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	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<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	<0.1	<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	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	76	78	85	94
2-fluorobiphenyl (Surrogate)	%	-	86	87	91	103
d14-p-terphenyl (Surrogate)	%	-	85	87	89	97
OC Pesticides in Soil Method: AN420 Tested: 31/1/2020						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE202304.009 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH9 0.3-0.4	SE202304.010 Soil 30 Jan 2020 BH10 0.3-0.4	SE202304.011 Soil 30 Jan 2020 BH11 0.5-0.6	SE202304.012 Soil 30 Jan 2020 BH12 0.3-0.4
OC Pesticides in Soil Method: AN420 Tested: 31/1/2020 (continued)						
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103	102	120	114
OP Pesticides in Soil Method: AN420 Tested: 31/1/2020						
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7
Surrogates						
2-fluorobiphenyl (Surrogate)	%	-	86	87	91	103
d14-p-terphenyl (Surrogate)	%	-	85	87	89	97
PCBs in Soil Method: AN420 Tested: 31/1/2020						
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103	102	120	114

Parameter	Units	LOR	Sample Number: SE202304.009 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: BH9 0.3-0.4	SE202304.010 Soil 30 Jan 2020 BH10 0.3-0.4	SE202304.011 Soil 30 Jan 2020 BH11 0.5-0.6	SE202304.012 Soil 30 Jan 2020 BH12 0.3-0.4
Speciated Phenols in Soil Method: AN420 Tested: 31/1/2020						
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2
Surrogates						
2,4,6-Tribromophenol (Surrogate)	%	-	126	117	129	121
d5-phenol (Surrogate)	%	-	114	112	116	122
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 4/2/2020						
Arsenic, As	mg/kg	1	5	4	4	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	8.7	3.6	2.6	4.0
Copper, Cu	mg/kg	0.5	2.9	4.5	5.6	3.7
Nickel, Ni	mg/kg	0.5	1.2	1.1	0.9	1.2
Lead, Pb	mg/kg	1	24	20	25	20
Zinc, Zn	mg/kg	2	18	25	44	15
Mercury in Soil Method: AN312 Tested: 4/2/2020						
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content Method: AN002 Tested: 31/1/2020						
% Moisture	%w/w	1	18.9	8.5	9.6	14.8
Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 4/2/2020						
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	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE202304.009 Soil 30 Jan 2020 BH9 0.3-0.4	SE202304.010 Soil 30 Jan 2020 BH10 0.3-0.4	SE202304.011 Soil 30 Jan 2020 BH11 0.5-0.6	SE202304.012 Soil 30 Jan 2020 BH12 0.3-0.4
Mercury (dissolved) in Water	**Method: AN311(Perth)/AN312**	**Tested: 3/2/2020**					
Mercury	mg/L	0.0001		-	-	-	-

Parameter	Units	LOR	Sample Number: SE202304.013 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: DUP1	Sample Number: SE202304.014 Sample Matrix: Water Sample Date: 30 Jan 2020 Sample Name: RINS
VOC's in Soil Method: AN433 Tested: 6/2/2020				
Monocyclic Aromatic Hydrocarbons				
Benzene	mg/kg	0.1	-	-
Toluene	mg/kg	0.1	-	-
Ethylbenzene	mg/kg	0.1	-	-
m/p-xylene	mg/kg	0.2	-	-
o-xylene	mg/kg	0.1	-	-
Polycyclic VOCs				
Naphthalene	mg/kg	0.1	-	-
Surrogates				
d4-1,2-dichloroethane (Surrogate)	%	-	-	-
d8-toluene (Surrogate)	%	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-
Totals				
Total Xylenes	mg/kg	0.3	-	-
Total BTEX	mg/kg	0.6	-	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 6/2/2020				
TRH C6-C10	mg/kg	25	-	-
TRH C6-C9	mg/kg	20	-	-
Surrogates				
d4-1,2-dichloroethane (Surrogate)	%	-	-	-
d8-toluene (Surrogate)	%	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-
VPH F Bands				
Benzene (F0)	mg/kg	0.1	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	-	-

Parameter	Units	LOR	Sample Number: SE202304.013 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: DUP1	Sample Number: SE202304.014 Sample Matrix: Water Sample Date: 30 Jan 2020 Sample Name: RINS
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 4/2/2020				
TRH C10-C14	mg/kg	20	-	-
TRH C15-C28	mg/kg	45	-	-
TRH C29-C36	mg/kg	45	-	-
TRH C37-C40	mg/kg	100	-	-
TRH C10-C36 Total	mg/kg	110	-	-
TRH >C10-C40 Total (F bands)	mg/kg	210	-	-
TRH F Bands				
TRH >C10-C16	mg/kg	25	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	-
TRH >C16-C34 (F3)	mg/kg	90	-	-
TRH >C34-C40 (F4)	mg/kg	120	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 4/2/2020				
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: 7/2/2020				
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	-	-

Parameter	Units	LOR	Sample Number: SE202304.013 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: DUP1	Sample Number: SE202304.014 Sample Matrix: Water Sample Date: 30 Jan 2020 Sample Name: RINS
OC Pesticides in Soil Method: AN420 Tested: 7/2/2020 (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)	%	-	-	-
OP Pesticides in Soil Method: AN420 Tested: 4/2/2020				
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)	%	-	-	-

Parameter	Units	LOR	Sample Number: SE202304.013 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: DUP1	Sample Number: SE202304.014 Sample Matrix: Water Sample Date: 30 Jan 2020 Sample Name: RINS
PCBs in Soil Method: AN420 Tested: 7/2/2020				
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)	%	-	-	-
Speciated Phenols in Soil Method: AN420 Tested: 4/2/2020				
Phenol	mg/kg	0.5	-	-
2-methyl phenol (o-cresol)	mg/kg	0.5	-	-
3/4-methyl phenol (m/p-cresol)	mg/kg	1	-	-
Total Cresol	mg/kg	1.5	-	-
2-chlorophenol	mg/kg	0.5	-	-
2,4-dimethylphenol	mg/kg	0.5	-	-
2,6-dichlorophenol	mg/kg	0.5	-	-
2,4-dichlorophenol	mg/kg	0.5	-	-
2,4,6-trichlorophenol	mg/kg	0.5	-	-
2-nitrophenol	mg/kg	0.5	-	-
4-nitrophenol	mg/kg	1	-	-
2,4,5-trichlorophenol	mg/kg	0.5	-	-
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	-	-
Pentachlorophenol	mg/kg	0.5	-	-
2,4-dinitrophenol	mg/kg	2	-	-
4-chloro-3-methylphenol	mg/kg	2	-	-
Surrogates				
2,4,6-Tribromophenol (Surrogate)	%	-	-	-
d5-phenol (Surrogate)	%	-	-	-
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 4/2/2020				
Arsenic, As	mg/kg	1	**4**	-
Cadmium, Cd	mg/kg	0.3	<0.3	-
Chromium, Cr	mg/kg	0.5	**21**	-
Copper, Cu	mg/kg	0.5	**2.1**	-
Nickel, Ni	mg/kg	0.5	**1.3**	-
Lead, Pb	mg/kg	1	**15**	-
Zinc, Zn	mg/kg	2	**34**	-

Parameter	Units	LOR	Sample Number: SE202304.013 Sample Matrix: Soil Sample Date: 30 Jan 2020 Sample Name: DUP1	Sample Number: SE202304.014 Sample Matrix: Water Sample Date: 30 Jan 2020 Sample Name: RINS
Mercury in Soil Method: AN312 Tested: 4/2/2020				
Mercury	mg/kg	0.05	<0.05	-
Moisture Content Method: AN002 Tested: 31/1/2020				
% Moisture	%w/w	1	15.5	-
Trace Metals (Dissolved) in Water by ICPMS Method: AN318 Tested: 4/2/2020				
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: 3/2/2020				
Mercury	mg/L	0.0001	-	<0.0001

QC SUMMARY

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	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB192216	mg/L	0.0001	<0.0001	0%	81%	91%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB192325	mg/kg	0.05	<0.05	0%	112%	93%

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

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB192194	%w/w	1	2 - 31%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Hexachlorobenzene (HCB)	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Alpha BHC	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Lindane	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Heptachlor	LB192193	mg/kg	0.1	<0.1	0%	84%	113%
Aldrin	LB192193	mg/kg	0.1	<0.1	0%	85%	109%
Beta BHC	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Delta BHC	LB192193	mg/kg	0.1	<0.1	0%	84%	106%
Heptachlor epoxide	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDE	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Endosulfan	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Gamma Chlordane	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Chlordane	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
trans-Nonachlor	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDE	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Dieldrin	LB192193	mg/kg	0.2	<0.2	0%	87%	108%
Endrin	LB192193	mg/kg	0.2	<0.2	0%	86%	107%
o,p'-DDD	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDT	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Beta Endosulfan	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
p,p'-DDD	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDT	LB192193	mg/kg	0.1	<0.1	0%	74%	102%
Endosulfan sulphate	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Aldehyde	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Methoxychlor	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Ketone	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Isodrin	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Mirex	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Total CLP OC Pesticides	LB192193	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB192193	%	-	106%	3 - 16%	105%	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.

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dichlorvos	LB192193	mg/kg	0.5	<0.5	0%	78%	80%
Dimethoate	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
Diazinon (Dimpylate)	LB192193	mg/kg	0.5	<0.5	0%	86%	91%
Fenitrothion	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Malathion	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB192193	mg/kg	0.2	<0.2	0%	84%	88%
Parathion-ethyl (Parathion)	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Bromophos Ethyl	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Methidathion	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
Ethion	LB192193	mg/kg	0.2	<0.2	0%	69%	75%
Azinphos-methyl (Guthion)	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Total OP Pesticides*	LB192193	mg/kg	1.7	<1.7	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
2-fluorobiphenyl (Surrogate)	LB192193	%	-	85%	0 - 4%	82%	84%
d14-p-terphenyl (Surrogate)	LB192193	%	-	84%	1 - 2%	77%	82%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB192193	mg/kg	0.1	<0.1	0%	95%	102%
2-methylnaphthalene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
1-methylnaphthalene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Acenaphthylene	LB192193	mg/kg	0.1	<0.1	0%	97%	105%
Acenaphthene	LB192193	mg/kg	0.1	<0.1	0%	99%	108%
Fluorene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Phenanthrene	LB192193	mg/kg	0.1	<0.1	0%	101%	108%
Anthracene	LB192193	mg/kg	0.1	<0.1	0%	95%	104%
Fluoranthene	LB192193	mg/kg	0.1	<0.1	0%	92%	99%
Pyrene	LB192193	mg/kg	0.1	<0.1	0%	99%	106%
Benzo(a)anthracene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Chrysene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(b&j)fluoranthene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(k)fluoranthene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(a)pyrene	LB192193	mg/kg	0.1	<0.1	0%	96%	102%
Indeno(1,2,3-cd)pyrene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Dibenzo(ah)anthracene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB192193	mg/kg	0.1	<0.1	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=0	LB192193	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB192193	TEQ (mg/kg)	0.3	<0.3	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB192193	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Total PAH (18)	LB192193	mg/kg	0.8	<0.8	0%	NA	NA
Total PAH (NEPM/WHO 16)	LB192193	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB192193	%	-	76%	0 - 2%	73%	75%
2-fluorobiphenyl (Surrogate)	LB192193	%	-	85%	0 - 4%	82%	84%
d14-p-terphenyl (Surrogate)	LB192193	%	-	84%	1 - 2%	77%	82%

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	MS %Recovery
Arochlor 1016	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1221	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1232	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1242	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1248	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1254	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1260	LB192193	mg/kg	0.2	<0.2	0%	89%	91%
Arochlor 1262	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1268	LB192193	mg/kg	0.2	<0.2	0%	NA	NA
Total PCBs (Arochlors)	LB192193	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB192193	%	-	106%	3 - 16%	91%	108%

Speciated Phenols in Soil Method ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Phenol	LB192193	mg/kg	0.5	<0.5	0%	109%	110%
2-methyl phenol (o-cresol)	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
3/4-methyl phenol (m/p-cresol)	LB192193	mg/kg	1	<1	0%	NA	NA
Total Cresol	LB192193	mg/kg	1.5	<1.5	0%	NA	NA
2-chlorophenol	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
2,4-dimethylphenol	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
2,6-dichlorophenol	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
2,4-dichlorophenol	LB192193	mg/kg	0.5	<0.5	0%	76%	96%
2,4,6-trichlorophenol	LB192193	mg/kg	0.5	<0.5	0%	82%	97%
2-nitrophenol	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
4-nitrophenol	LB192193	mg/kg	1	<1	0%	NA	NA
2,4,5-trichlorophenol	LB192193	mg/kg	0.5	<0.5	0%	NA	NA
2,3,4,6/2,3,5,6-tetrachlorophenol	LB192193	mg/kg	1	<1	0%	NA	NA
Pentachlorophenol	LB192193	mg/kg	0.5	<0.5	0%	81%	77%
2,4-dinitrophenol	LB192193	mg/kg	2	<2	0%	NA	NA
4-chloro-3-methylphenol	LB192193	mg/kg	2	<2	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
2,4,6-Tribromophenol (Surrogate)	LB192193	%	-	122%	1%	116%	124%
d5-phenol (Surrogate)	LB192193	%	-	117%	3%	113%	114%

QC SUMMARY

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.

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	LB192318	mg/kg	1	<1	2 - 33%	105%	101%
Cadmium, Cd	LB192318	mg/kg	0.3	<0.3	0%	96%	99%
Chromium, Cr	LB192318	mg/kg	0.5	<0.5	2 - 8%	92%	105%
Copper, Cu	LB192318	mg/kg	0.5	<0.5	11 - 34%	106%	109%
Nickel, Ni	LB192318	mg/kg	0.5	<0.5	4 - 9%	99%	102%
Lead, Pb	LB192318	mg/kg	1	<1	0 - 19%	110%	99%
Zinc, Zn	LB192318	mg/kg	2	<2.0	5 - 77%	103%	110%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB192281	µg/L	1	<1	0%	96%	98%
Cadmium, Cd	LB192281	µg/L	0.1	<0.1	0%	100%	103%
Chromium, Cr	LB192281	µg/L	1	<1	1%	112%	113%
Copper, Cu	LB192281	µg/L	1	<1	0 - 9%	113%	113%
Lead, Pb	LB192281	µg/L	1	<1	0%	102%	102%
Nickel, Ni	LB192281	µg/L	1	<1	4%	108%	108%
Zinc, Zn	LB192281	µg/L	5	<5	1 - 5%	110%	118%

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	LB192193	mg/kg	20	<20	0%	103%	128%
TRH C15-C28	LB192193	mg/kg	45	<45	0%	98%	123%
TRH C29-C36	LB192193	mg/kg	45	<45	0%	75%	85%
TRH C37-C40	LB192193	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB192193	mg/kg	110	<110	0%	NA	NA
TRH >C10-C40 Total (F bands)	LB192193	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	LB192193	mg/kg	25	<25	0%	100%	125%
TRH >C10-C16 - Naphthalene (F2)	LB192193	mg/kg	25	<25	0%	NA	NA
TRH >C16-C34 (F3)	LB192193	mg/kg	90	<90	0%	93%	110%
TRH >C34-C40 (F4)	LB192193	mg/kg	120	<120	0%	80%	NA

QC SUMMARY

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.

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	LB192192	mg/kg	0.1	<0.1	0%	79%	81%
Toluene	LB192192	mg/kg	0.1	<0.1	0%	86%	88%
Ethylbenzene	LB192192	mg/kg	0.1	<0.1	0%	80%	85%
m/p-xylene	LB192192	mg/kg	0.2	<0.2	0%	80%	85%
o-xylene	LB192192	mg/kg	0.1	<0.1	0%	79%	84%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB192192	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB192192	%	-	83%	5 - 6%	111%	116%
d8-toluene (Surrogate)	LB192192	%	-	87%	6 - 8%	119%	127%
Bromofluorobenzene (Surrogate)	LB192192	%	-	87%	3 - 11%	110%	119%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes	LB192192	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB192192	mg/kg	0.6	<0.6	0%	NA	NA

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	LB192192	mg/kg	25	<25	0%	101%	105%
TRH C6-C9	LB192192	mg/kg	20	<20	0%	104%	107%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB192192	%	-	83%	5 - 6%	111%	116%
d8-toluene (Surrogate)	LB192192	%	-	87%	6 - 8%	119%	127%
Bromofluorobenzene (Surrogate)	LB192192	%	-	87%	3 - 11%	110%	119%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB192192	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB192192	mg/kg	25	<25	0%	111%	114%

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,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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 SUMMARY

METHOD	METHODOLOGY SUMMARY
AN433	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
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been 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 calcuated 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:

a. 1 Bq is equivalent to 27 pCi
b. 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-qb/environment-health-and-safety.

STATEMENT OF QA/QC PERFORMANCE

SE202304 R0

CLIENT DETAILS

Contact	Jake Duck
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Telephone	61 2 4966 1844
Facsimile	(Not specified)
Email	jake.duck@vclab.com.au
Project	**P1989-1**
Order Number	**494**
Samples	14

LABORATORY DETAILS

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SGS Reference	**SE202304 R0**
Date Received	31 Jan 2020
Date Reported	07 Feb 2020

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.
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:

Surrogate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	1 item
Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE202304 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
RINS	SE202304.014	LB192216	30 Jan 2020	31 Jan 2020	27 Feb 2020	03 Feb 2020	27 Feb 2020	03 Feb 2020

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.4-0.5	SE202304.001	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020
DUP1	SE202304.013	LB192325	30 Jan 2020	31 Jan 2020	27 Feb 2020	04 Feb 2020	27 Feb 2020	05 Feb 2020

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.4-0.5	SE202304.001	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020
DUP1	SE202304.013	LB192194	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	05 Feb 2020	03 Feb 2020

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.4-0.5	SE202304.001	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.4-0.5	SE202304.001	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020

HOLDING TIME SUMMARY

SE202304 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.

OP Pesticides in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH11 0.5-0.6	SE202304.011	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020

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 0.4-0.5	SE202304.001	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.4-0.5	SE202304.001	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	07 Feb 2020

Speciated Phenols in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.4-0.5	SE202304.001	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020

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 0.4-0.5	SE202304.001	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020

HOLDING TIME SUMMARY

SE202304 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
DUP1	SE202304.013	LB192318	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	06 Feb 2020

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
RINS	SE202304.014	LB192281	30 Jan 2020	31 Jan 2020	28 Jul 2020	04 Feb 2020	28 Jul 2020	04 Feb 2020

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 0.4-0.5	SE202304.001	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192193	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	04 Feb 2020

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.4-0.5	SE202304.001	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020

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 0.4-0.5	SE202304.001	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH2 0.4-0.5	SE202304.002	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH3 0.3-0.4	SE202304.003	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH4 0.3-0.4	SE202304.004	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH5 0.3-0.4	SE202304.005	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH6 0.7-0.8	SE202304.006	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH7 0.3-0.4	SE202304.007	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH8 0.2-0.3	SE202304.008	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH9 0.3-0.4	SE202304.009	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH10 0.3-0.4	SE202304.010	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH11 0.5-0.6	SE202304.011	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020
BH12 0.3-0.4	SE202304.012	LB192192	30 Jan 2020	31 Jan 2020	13 Feb 2020	31 Jan 2020	11 Mar 2020	06 Feb 2020

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 identifer 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 0.4-0.5	SE202304.001	%	60 - 130%	119
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	109
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	108
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	110
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	105
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	103
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	101
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	103
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	103
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	102
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	120
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	114

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	82
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	83
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	83
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	86
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	89
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	92
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	82
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	82
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	86
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	87
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	91
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	103
d14-p-terphenyl (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	80
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	77
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	83
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	82
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	86
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	88
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	81
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	82
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	85
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	87
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	89
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	97

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1 0.4-0.5	SE202304.001	%	70 - 130%	82
	BH2 0.4-0.5	SE202304.002	%	70 - 130%	83
	BH3 0.3-0.4	SE202304.003	%	70 - 130%	83
	BH4 0.3-0.4	SE202304.004	%	70 - 130%	86
	BH5 0.3-0.4	SE202304.005	%	70 - 130%	89
	BH6 0.7-0.8	SE202304.006	%	70 - 130%	92
	BH7 0.3-0.4	SE202304.007	%	70 - 130%	82
	BH8 0.2-0.3	SE202304.008	%	70 - 130%	82
	BH9 0.3-0.4	SE202304.009	%	70 - 130%	86
	BH10 0.3-0.4	SE202304.010	%	70 - 130%	87
	BH11 0.5-0.6	SE202304.011	%	70 - 130%	91
	BH12 0.3-0.4	SE202304.012	%	70 - 130%	103
d14-p-terphenyl (Surrogate)	BH1 0.4-0.5	SE202304.001	%	70 - 130%	80
	BH2 0.4-0.5	SE202304.002	%	70 - 130%	77
	BH3 0.3-0.4	SE202304.003	%	70 - 130%	83
	BH4 0.3-0.4	SE202304.004	%	70 - 130%	82
	BH5 0.3-0.4	SE202304.005	%	70 - 130%	86
	BH6 0.7-0.8	SE202304.006	%	70 - 130%	88
	BH7 0.3-0.4	SE202304.007	%	70 - 130%	81
	BH8 0.2-0.3	SE202304.008	%	70 - 130%	82

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 identifer 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 %
d14-p-terphenyl (Surrogate)	BH9 0.3-0.4	SE202304.009	%	70 - 130%	85
	BH10 0.3-0.4	SE202304.010	%	70 - 130%	87
	BH11 0.5-0.6	SE202304.011	%	70 - 130%	89
	BH12 0.3-0.4	SE202304.012	%	70 - 130%	97
d5-nitrobenzene (Surrogate)	BH1 0.4-0.5	SE202304.001	%	70 - 130%	70 †
	BH2 0.4-0.5	SE202304.002	%	70 - 130%	75
	BH3 0.3-0.4	SE202304.003	%	70 - 130%	73
	BH4 0.3-0.4	SE202304.004	%	70 - 130%	77
	BH5 0.3-0.4	SE202304.005	%	70 - 130%	80
	BH6 0.7-0.8	SE202304.006	%	70 - 130%	82
	BH7 0.3-0.4	SE202304.007	%	70 - 130%	76
	BH8 0.2-0.3	SE202304.008	%	70 - 130%	71
	BH9 0.3-0.4	SE202304.009	%	70 - 130%	76
	BH10 0.3-0.4	SE202304.010	%	70 - 130%	78
	BH11 0.5-0.6	SE202304.011	%	70 - 130%	85
	BH12 0.3-0.4	SE202304.012	%	70 - 130%	94

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	119
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	109
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	108
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	110
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	105
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	103
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	101
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	103
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	103
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	102
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	120
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	114

Speciated Phenols in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	BH1 0.4-0.5	SE202304.001	%	70 - 130%	118
	BH2 0.4-0.5	SE202304.002	%	70 - 130%	116
	BH3 0.3-0.4	SE202304.003	%	70 - 130%	129
	BH4 0.3-0.4	SE202304.004	%	70 - 130%	128
	BH5 0.3-0.4	SE202304.005	%	70 - 130%	126
	BH6 0.7-0.8	SE202304.006	%	70 - 130%	112
	BH7 0.3-0.4	SE202304.007	%	70 - 130%	112
	BH8 0.2-0.3	SE202304.008	%	70 - 130%	123
	BH9 0.3-0.4	SE202304.009	%	70 - 130%	126
	BH10 0.3-0.4	SE202304.010	%	70 - 130%	117
	BH11 0.5-0.6	SE202304.011	%	70 - 130%	129
	BH12 0.3-0.4	SE202304.012	%	70 - 130%	121
d5-phenol (Surrogate)	BH1 0.4-0.5	SE202304.001	%	50 - 130%	111
	BH2 0.4-0.5	SE202304.002	%	50 - 130%	115
	BH3 0.3-0.4	SE202304.003	%	50 - 130%	120
	BH4 0.3-0.4	SE202304.004	%	50 - 130%	114
	BH5 0.3-0.4	SE202304.005	%	50 - 130%	114
	BH6 0.7-0.8	SE202304.006	%	50 - 130%	114
	BH7 0.3-0.4	SE202304.007	%	50 - 130%	116
	BH8 0.2-0.3	SE202304.008	%	50 - 130%	111
	BH9 0.3-0.4	SE202304.009	%	50 - 130%	114
	BH10 0.3-0.4	SE202304.010	%	50 - 130%	112
	BH11 0.5-0.6	SE202304.011	%	50 - 130%	116
	BH12 0.3-0.4	SE202304.012	%	50 - 130%	122

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units

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 identifer 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 %
Bromofluorobenzene (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	87
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	80
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	89
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	85
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	84
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	77
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	85
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	86
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	85
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	95
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	74
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	83
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	81
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	84
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	84
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	82
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	80
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	83
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	84
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	82
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	93
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	75
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	83
d8-toluene (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	87
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	83
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	88
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	86
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	85
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	81
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	87
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	87
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	87
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	96
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	77
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	86

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	87
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	80
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	89
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	85
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	84
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	77
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	85
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	86
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	85
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	95
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	74
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	83
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	81
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	84
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	84
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	82
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	80
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	83
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	84
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	82
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	93

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 identifer 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)	BH11 0.5-0.6	SE202304.011	%	60 - 130%	75
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	83
d8-toluene (Surrogate)	BH1 0.4-0.5	SE202304.001	%	60 - 130%	87
	BH2 0.4-0.5	SE202304.002	%	60 - 130%	83
	BH3 0.3-0.4	SE202304.003	%	60 - 130%	88
	BH4 0.3-0.4	SE202304.004	%	60 - 130%	86
	BH5 0.3-0.4	SE202304.005	%	60 - 130%	85
	BH6 0.7-0.8	SE202304.006	%	60 - 130%	81
	BH7 0.3-0.4	SE202304.007	%	60 - 130%	87
	BH8 0.2-0.3	SE202304.008	%	60 - 130%	87
	BH9 0.3-0.4	SE202304.009	%	60 - 130%	87
	BH10 0.3-0.4	SE202304.010	%	60 - 130%	96
	BH11 0.5-0.6	SE202304.011	%	60 - 130%	77
	BH12 0.3-0.4	SE202304.012	%	60 - 130%	86

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(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB192216.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB192325.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB192193.001		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)	%	-	106

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB192193.001		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
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	85
		d14-p-terphenyl (Surrogate)	%	-	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB192193.001	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
LB192193.001		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)	%	-	76
		2-fluorobiphenyl (Surrogate)	%	-	85
		d14-p-terphenyl (Surrogate)	%	-	84

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

Sample Number		Parameter	Units	LOR	Result
LB192193.001		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)	%	-	106

Speciated Phenols in Soil — Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB192193.001		Phenol	mg/kg	0.5	<0.5
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
		2-chlorophenol	mg/kg	0.5	<0.5
		2,4-dimethylphenol	mg/kg	0.5	<0.5
		2,6-dichlorophenol	mg/kg	0.5	<0.5
		2,4-dichlorophenol	mg/kg	0.5	<0.5
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5
		2-nitrophenol	mg/kg	0.5	<0.5
		4-nitrophenol	mg/kg	1	<1
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5
		2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
		Pentachlorophenol	mg/kg	0.5	<0.5
		2,4-dinitrophenol	mg/kg	2	<2
		4-chloro-3-methylphenol	mg/kg	2	<2
	Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	122
		d5-phenol (Surrogate)	%	-	117

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

Sample Number	Parameter	Units	LOR	Result
LB192318.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	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
LB192281.001	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

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.

Trace Metals (Dissolved) in Water by ICPMS (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB192281.001	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
LB192193.001	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
LB192192.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	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
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	83
		d8-toluene (Surrogate)	%	-	87
		Bromofluorobenzene (Surrogate)	%	-	87
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB192192.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	83

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / 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 x SDL / Mean + 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 identifer 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(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202324.001	LB192216.012	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192325.014	Mercury	mg/kg	0.05	<0.05	<0.05	197	0
SE202304.013	LB192325.023	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 %
SE202304.005	LB192194.011	% Moisture	%w/w	1	23.2	22.7	34	2
SE202304.013	LB192194.020	% Moisture	%w/w	1	15.5	21.1	35	31

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014		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	-	0.16	0.15	30	3
SE202304.011	LB192193.024		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

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / 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 x SDL / Mean + 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 identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.011	LB192193.024		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	-	0.18	0.15	30	16

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014		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	-	0.4	0.4	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
SE202304.011	LB192193.024		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	-	0.4	0.4	30	1

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014	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	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	200	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

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / 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 x SDL / Mean + 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 identifer 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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014		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	-	0.4	0.4	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
SE202304.011	LB192193.024		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	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	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	-	0.4	0.4	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	1

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014		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
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	3
SE202304.011	LB192193.024		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
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / 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 x SDL / Mean + 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 identifer 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 %
SE202304.011	LB192193.024	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	16

Speciated Phenols in Soil — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014		Phenol	mg/kg	0.5	<0.5	<0.5	200	0
			2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	200	0
			3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	200	0
			Total Cresol	mg/kg	1.5	<1.5	<1.5	200	0
			2-chlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2-nitrophenol	mg/kg	0.5	<0.5	<0.5	200	0
			4-nitrophenol	mg/kg	1	<1	<1	200	0
			2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	200	0
			Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	200	0
			2,4-dinitrophenol	mg/kg	2	<2	<2	200	0
			4-chloro-3-methylphenol	mg/kg	2	<2	<2	200	0
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	6.3	6.3	30	1
			d5-phenol (Surrogate)	mg/kg	-	2.3	2.2	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 %
SE202304.005	LB192318.014		Arsenic, As	mg/kg	1	6	4	51	33
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	30	31	32	2
			Copper, Cu	mg/kg	0.5	0.6	<0.5	143	11
			Nickel, Ni	mg/kg	0.5	1.4	1.4	66	4
			Lead, Pb	mg/kg	1	18	18	36	0
			Zinc, Zn	mg/kg	2	5.7	5.4	66	5
SE202304.013	LB192318.023		Arsenic, As	mg/kg	1	4	4	56	2
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	21	19	33	8
			Copper, Cu	mg/kg	0.5	2.1	3.0	50	34
			Nickel, Ni	mg/kg	0.5	1.3	1.2	70	9
			Lead, Pb	mg/kg	1	15	18	36	19
			Zinc, Zn	mg/kg	2	34	76	34	77 ②

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202357.005	LB192281.014		Arsenic, As	µg/L	1	0.189	0.168	200	0
			Cadmium, Cd	µg/L	0.1	0.025	0.023	200	0
			Chromium, Cr	µg/L	1	1.015	0.957	116	1
			Copper, Cu	µg/L	1	0.692	0.684	160	0
			Lead, Pb	µg/L	1	0.005	-0.004	200	0
			Nickel, Ni	µg/L	1	3.34	3.477	44	4
			Zinc, Zn	µg/L	5	792.183	797.239	16	1
SE202371.002	LB192281.018		Copper, Cu	µg/L	1	3	3	53	9
			Zinc, Zn	µg/L	5	<5	5	116	5

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014		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	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

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / 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 x SDL / Mean + 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 identifer 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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192193.014	TRH F Bands	TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE202304.011	LB192193.024		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	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

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192192.014	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	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	7.8	50	5
			d8-toluene (Surrogate)	mg/kg	-	8.5	8.1	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.4	8.2	50	3
		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
SE202304.012	LB192192.022	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	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.3	7.8	50	6
			d8-toluene (Surrogate)	mg/kg	-	8.6	8.0	50	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.7	7.8	50	11
		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

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE202304.005	LB192192.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	7.8	30	5
			d8-toluene (Surrogate)	mg/kg	-	8.5	8.1	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.4	8.2	30	3
		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
SE202304.012	LB192192.022		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.3	7.8	30	6
			d8-toluene (Surrogate)	mg/kg	-	8.6	8.0	30	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.7	7.8	30	11
		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 %
LB192325.002	Mercury	mg/kg	0.05	0.22	0.2	70 - 130	112

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192193.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	84
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	85
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	84
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	87
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	86
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	74
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	105

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192193.002		Dichlorvos	mg/kg	0.5	1.6	2	60 - 140	78
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	86
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	84
		Ethion	mg/kg	0.2	1.4	2	60 - 140	69
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192193.002		Naphthalene	mg/kg	0.1	3.8	4	60 - 140	95
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	97
		Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	99
		Phenanthrene	mg/kg	0.1	4.0	4	60 - 140	101
		Anthracene	mg/kg	0.1	3.8	4	60 - 140	95
		Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	92
		Pyrene	mg/kg	0.1	4.0	4	60 - 140	99
		Benzo(a)pyrene	mg/kg	0.1	3.8	4	60 - 140	96
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	73
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192193.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	89

Speciated Phenols in Soil — Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192193.002		Phenol	mg/kg	0.5	1.1	1	70 - 130	109
		2,4-dichlorophenol	mg/kg	0.5	0.8	1	70 - 130	76
		2,4,6-trichlorophenol	mg/kg	0.5	0.8	1	70 - 130	82
		Pentachlorophenol	mg/kg	0.5	0.8	1	70 - 130	81
	Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.8	5	40 - 130	116
		d5-phenol (Surrogate)	mg/kg	-	2.3	2	40 - 130	113

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 %
LB192318.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	105
	Cadmium, Cd	mg/kg	0.3	5.2	5.41	80 - 120	96
	Chromium, Cr	mg/kg	0.5	35	38.31	80 - 120	92
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	106
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	99
	Lead, Pb	mg/kg	1	98	89.9	80 - 120	110
	Zinc, Zn	mg/kg	2	280	273	80 - 120	103

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

Sample Number	Parameter	Units	LOR

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.

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192281.002		Arsenic, As	µg/L	1	19	20	80 - 120	96
		Cadmium, Cd	µg/L	0.1	20	20	80 - 120	100
		Chromium, Cr	µg/L	1	22	20	80 - 120	112
		Copper, Cu	µg/L	1	23	20	80 - 120	113
		Lead, Pb	µg/L	1	20	20	80 - 120	102
		Nickel, Ni	µg/L	1	22	20	80 - 120	108
		Zinc, Zn	µg/L	5	22	20	80 - 120	110

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192193.002		TRH C10-C14	mg/kg	20	41	40	60 - 140	103
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	98
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16	mg/kg	25	40	40	60 - 140	100
		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 %
LB192192.002	Monocyclic	Benzene	mg/kg	0.1	3.9	5	60 - 140	79
	Aromatic	Toluene	mg/kg	0.1	4.3	5	60 - 140	86
		Ethylbenzene	mg/kg	0.1	4.0	5	60 - 140	80
		m/p-xylene	mg/kg	0.2	8.0	10	60 - 140	80
		o-xylene	mg/kg	0.1	4.0	5	60 - 140	79
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.1	10	70 - 130	111
		d8-toluene (Surrogate)	mg/kg	-	11.9	10	70 - 130	119
		Bromofluorobenzene (Surrogate)	mg/kg	-	11.0	10	70 - 130	110

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB192192.002		TRH C6-C10	mg/kg	25	94	92.5	60 - 140	101
		TRH C6-C9	mg/kg	20	83	80	60 - 140	104
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.1	10	70 - 130	111
		Bromofluorobenzene (Surrogate)	mg/kg	-	11.0	10	70 - 130	110
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	69	62.5	60 - 140	111

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 identifer 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(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202297.001	LB192216.004	Mercury	mg/L	0.0001	0.0073	<0.0001	0.008	91

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202303.001	LB192325.004	Mercury	mg/kg	0.05	0.20	<0.05	0.2	93

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202299.001	LB192193.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	-	-
			Alpha BHC	mg/kg	0.1	<0.1	0	-	-
			Lindane	mg/kg	0.1	<0.1	0	-	-
			Heptachlor	mg/kg	0.1	0.2	0	0.2	113
			Aldrin	mg/kg	0.1	0.2	0	0.2	109
			Beta BHC	mg/kg	0.1	<0.1	0	-	-
			Delta BHC	mg/kg	0.1	0.2	0	0.2	106
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	0	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	0	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	0	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Dieldrin	mg/kg	0.2	0.2	0	0.2	108
			Endrin	mg/kg	0.2	0.2	0	0.2	107
			o,p'-DDD	mg/kg	0.1	<0.1	0	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	0	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	0	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	0	-	-
			p,p'-DDT	mg/kg	0.1	0.2	0	0.2	102
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	-	-
			Methoxychlor	mg/kg	0.1	<0.1	0	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	0	-	-
			Isodrin	mg/kg	0.1	<0.1	0	-	-
			Mirex	mg/kg	0.1	<0.1	0	-	-
			Total CLP OC Pesticides	mg/kg	1	1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.162	-	109

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202304.001	LB192193.025		Dichlorvos	mg/kg	0.5	1.6	<0.5	2	80
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.8	<0.5	2	91
			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	1.8	<0.2	2	88
			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	1.5	<0.2	2	75
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	6.7	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR

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 identifer 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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202304.001	LB192193.025		Naphthalene	mg/kg	0.1	4.1	<0.1	4	102
			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	4.2	<0.1	4	105
			Acenaphthene	mg/kg	0.1	4.3	<0.1	4	108
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.3	<0.1	4	108
			Anthracene	mg/kg	0.1	4.2	<0.1	4	104
			Fluoranthene	mg/kg	0.1	4.0	<0.1	4	99
			Pyrene	mg/kg	0.1	4.3	<0.1	4	106
			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	4.1	<0.1	4	102
			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	4.1	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.2	<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	33	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.3	-	75
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	82

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202299.001	LB192193.004		Arochlor 1016	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1260	mg/kg	0.2	0.4	0	0.4	91
			Arochlor 1262	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	0	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.162	-	108

Speciated Phenols in Soil — Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202299.001	LB192193.004		Phenol	mg/kg	0.5	1.1	0.01	1	110
			2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	0	-	-
			3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	0	-	-
			Total Cresol	mg/kg	1.5	<1.5	0	-	-
			2-chlorophenol	mg/kg	0.5	<0.5	0	-	-
			2,4-dimethylphenol	mg/kg	0.5	<0.5	0	-	-
			2,6-dichlorophenol	mg/kg	0.5	<0.5	0	-	-
			2,4-dichlorophenol	mg/kg	0.5	1.0	0	1	96
			2,4,6-trichlorophenol	mg/kg	0.5	1.0	0	1	97
			2-nitrophenol	mg/kg	0.5	<0.5	0	-	-
			4-nitrophenol	mg/kg	1	<1	0	-	-
			2,4,5-trichlorophenol	mg/kg	0.5	0.8	0	-	-
			2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	0	-	-
			Pentachlorophenol	mg/kg	0.5	0.8	0	1	77
			2,4-dinitrophenol	mg/kg	2	<2	0	-	-
			4-chloro-3-methylphenol	mg/kg	2	<2	0	-	-
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	6.2	6.2	-	124
			d5-phenol (Surrogate)	mg/kg	-	2.3	2.28	-	114

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 identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

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%
SE202303.001	LB192318.004	Arsenic, As	mg/kg	1	53	3	50	101
		Cadmium, Cd	mg/kg	0.3	50	<0.3	50	99
		Chromium, Cr	mg/kg	0.5	78	26	50	105
		Copper, Cu	mg/kg	0.5	61	6.9	50	109
		Nickel, Ni	mg/kg	0.5	54	3.0	50	102
		Lead, Pb	mg/kg	1	65	16	50	99
		Zinc, Zn	mg/kg	2	64	9	50	110

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202215.028	LB192281.004	Arsenic, As	µg/L	1	20	-0.013	20	98
		Cadmium, Cd	µg/L	0.1	21	0.002	20	103
		Chromium, Cr	µg/L	1	23	-0.021	20	113
		Copper, Cu	µg/L	1	23	0.004	20	113
		Lead, Pb	µg/L	1	20	0.009	20	102
		Nickel, Ni	µg/L	1	22	-0.011	20	108
		Zinc, Zn	µg/L	5	25	1.753	20	118

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202304.001	LB192193.023		TRH C10-C14	mg/kg	20	51	<20	40	128
			TRH C15-C28	mg/kg	45	49	<45	40	123
			TRH C29-C36	mg/kg	45	<45	<45	40	85
			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	50	<25	40	125
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	50	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	110
			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%
SE202299.001	LB192192.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	4.0	0.01547928127	5	81
			Toluene	mg/kg	0.1	4.5	0.04302104004	5	88
			Ethylbenzene	mg/kg	0.1	4.3	0.01057490679	5	85
			m/p-xylene	mg/kg	0.2	8.6	0.02423790942	10	85
			o-xylene	mg/kg	0.1	4.2	0.01200337445	5	84
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.00152203556	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.6	8.61285419407	10	116
			d8-toluene (Surrogate)	mg/kg	-	12.7	9.05961626819	10	127
			Bromofluorobenzene (Surrogate)	mg/kg	-	11.9	9.10322469365	10	119
		Totals	Total Xylenes	mg/kg	0.3	13	0.03624128387	-	-
			Total BTEX	mg/kg	0.6	26	0	-	-

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE202299.001	LB192192.004		TRH C6-C10	mg/kg	25	97	0.29871817355	92.5	105
			TRH C6-C9	mg/kg	20	86	0.25352037792	80	107
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.6	8.61285419407	10	116
			d8-toluene (Surrogate)	mg/kg	-	12.7	9.05961626819	10	127
			Bromofluorobenzene (Surrogate)	mg/kg	-	11.9	9.10322469365	-	119
		VPH F Bands	Benzene (F0)	mg/kg	0.1	4.0	0.01547928127	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	72	0.29871817355	62.5	114

MATRIX SPIKE DUPLICATES

SE202304 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / 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 x SDL / Mean + 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 identifer 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 relevant report comments for further information.

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

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	Project Name/No:	P1989-1
Address:	3/62 Sandringham Avenue Thornton 2322	Purchase Order No:	494
		Results Required By:	5 day TAT
		Telephone:	0499 151 225
Contact Name:	Malcolm Adrien	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	CL15	8 metals	Hold
BH1 0.4-0.5	30/1/20	1		x		1	x		
BH2 0.4-0.5	↓	2		↓		↓	x		
BH2 0.9-1.0	↓			↓		↓			x
BH2 1.9-2.0	↓			↓		↓			x
BH3 0.3-0.4	↓	3		↓		↓	x		
BH3 1.4-1.5	↓			↓		↓			x
BH4 0.3-0.4	↓	4		↓		↓	x		
BH4 0.7-0.8	↓			↓		↓			x
BH5 0.3-0.4	↓	5		↓		↓	x		
BH5 1.4-1.5	↓			↓		↓			x

SB202304

Relinquished By: [signature]	Date/Time: 30/1	Received By: [signature]	Date/Time 31/01/20 @ 11am
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

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	Project Name/No:	P1989-1
Address:	3/62 Sandringham Avenue Thornton 2322	Purchase Order No:	494
		Results Required By:	5 day TAT
		Telephone:	0499 151 225
Contact Name:	Malcolm Adrien	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	CL15	8 metals	Hold
BH6 0.7-0.8	30/1/20	6		X		1	X		
BH6 1.7-1.8									X
BH7 0.3-0.4		7					X		
BH7 1.5-1.6									X
BH8 0.2-0.3		8					X		
BH8 0.8-0.9									X
BH9 0.3-0.4		9					X		
BH9 1.4-1.5									X
BH10 0.3-0.4		10					X		
BH10 0.9-1.0									X

Relinquished By:	Date/Time: 30/1	Received By:	Date/Time 31/01/20 @ 11~
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

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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	Project Name/No:	P1989-1
Address:	3/62 Sandringham Avenue Thornton 2322	Purchase Order No:	4914
		Results Required By:	5 day TAT.
		Telephone:	0499 151 225
Contact Name:	Malcolm Adrien	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	CL15	8 metals	Hold.
BH11 0.5-0.6	30/1/20	11		x		1	x		
BH11 1.0-1.1									x
BH12 0.3-0.4		12					x		
BH12 1.0-1.1									x
BH12 2.4-2.5									x
DUP1		13						x	
DUP2.									x
Rins	30/1/20	14	x			1		x	

Relinquished By:	Date/Time: 30/1/20 .	Received By:	Date/Time 31/01/20 @ 11~
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes)/ No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

VALLEY CIVILAB
Geotechnical & Environmental Services

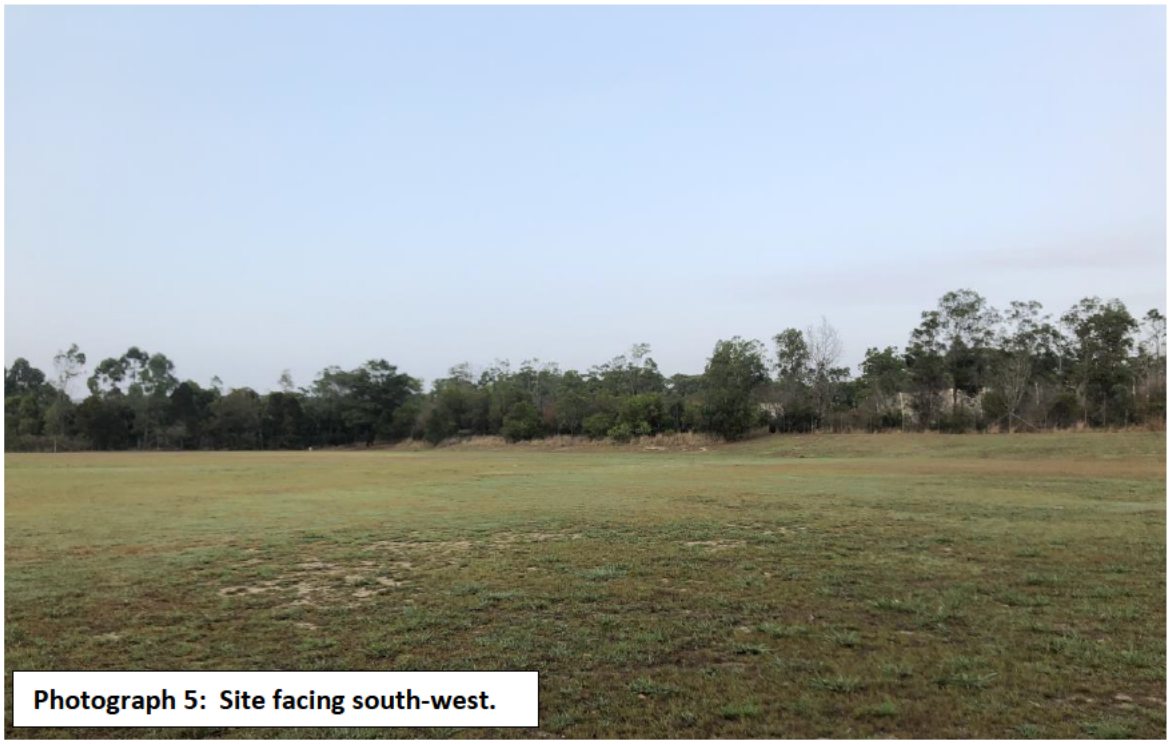
Annex J

Photograph 1: Northern Site Boundary

Photograph 2: Site facing North– Hillsborough Public School

Photograph 3: Site facing East from Western boundary

Photograph 4: Site facing South showing embankment on Western boundary.



Photograph 5: Site facing south-west.

Photograph 6: Far eastern boundary of clearing, Bushland on remainder of Lots 6 and 7.