REPORT TO

RSL LIFECARE LIMITED

ON

PRELIMINARY SITE INVESTIGATION

FOR

PROPOSED SENIORS LIVING DEVELOPMENT

AT

90 VETERANS PARADE, NARRABEEN, NSW

Date: 11 March 2026

Ref: E37444BTrptRev2-PSI

JKEnvironments

www.jkenvironments.com.au

T: +61 2 9888 5000

JK Environments Pty Ltd

ABN 90 633 911 403

dlcs ISO 9001 certified ISO 45001 certified ISO 14001 certified

Report prepared by:



Katrina Taylor
Senior Associate | Environmental Scientist

Report reviewed by:



Vittal Boggaram
Principal | Environmental Engineer

For and on behalf of
JKE
PO BOX 976
NORTH RYDE BC NSW 1670

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Executive Summary

RSL Lifecare Limited ('the client') commissioned JK Environments (JKE) to undertake a Preliminary Site Investigation (PSI) for the proposed seniors living development at 90 Veterans Parade, Narrabeen, NSW ('the site'). The purpose of the PSI is to make a preliminary assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the nominated development area boundaries (referred to as 'the site') as shown on Figure 2 attached in the appendices.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) in regards to contamination and remediation for the project with regards to Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021 (formerly known as SEPP55). JKE have not been provided with a copy of the SEARs at the time of preparing this report.

JKE were also commissioned to undertake and Acid Sulfate Soil (ASS) assessment and Surface and Groundwater Impact assessment (SGIA) for the SEARs. The results of these assessments are presented in separate reports.

A geotechnical investigation was undertaken in conjunction with this PSI by JK Geotechnics (JKG). The results of the investigation are presented in a separate report (project ref: 37436PN). This report should be read in conjunction with the JKG report.

A concept master plan for the renewal of parts of the existing RSL ANZAC Village for seniors housing, comprising:

- Residential accommodation for the purposes of seniors housing, including ancillary uses, supporting a new onsite Gross Floor Area of approximately 72,000m^2;
- A range of planning envelopes across the site accommodating basement levels and heights ranging between one (1) to eight (8) storeys;
- Approximately one thousand, six hundred (1600) new underground and structured car parking spaces, plus street parking;
- Demolition and site preparation works, including tree removal;
- Site landscaping, tree planting and embellishment works;
- Upgraded entries to the site from Lantana Avenue and Veterans Parade and upgraded internal vehicle and pedestrian access and circulation; and
- Utility and services augmentation as required.

Stage 1 Development, detailed approval for the operation and use of the first stage of the concept proposal, comprising:

- Demolition and site preparation works, including tree removal;
- Residential accommodation for the purposes of seniors housing, including ancillary uses, supporting a new onsite Gross Floor Area of approximately 12,700m^2;
- A range of building heights across the site accommodating one basement level, a row of garages, and three different building heights of two (2), five (5) and six (6) storeys;
- One hundred and twenty-two (122) basement car parking spaces, fourteen (14) garage parking spaces, as well as an estimated forty-one (41) surface parking spaces;
- Amendments to existing bushfire asset protect zones to facilitate the development;
- Associated landscape and open space delivery;
- Building identification signage and wayfinding; and
- Services and utility augmentation.

The primary aims of the investigation were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil and groundwater contamination conditions. The objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Assess the current site conditions and use(s) via a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Assess the soil and groundwater contamination conditions via implementation of a preliminary sampling and analysis program;
- Prepare a conceptual site model (CSM);

- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

The scope of work included the following: review of site information, including background and site history information from various sources outlined in the report; preparation of a CSM; design and implementation of a sampling, analysis and quality plan (SAQP); interpretation of the analytical results against the adopted Site Assessment Criteria (SAC); Data Quality Assessment; and preparation of a report including a Tier 1 risk assessment.

Soil sampling was undertaken from 22 boreholes, groundwater sampling from six monitoring wells installed at the site (noting one of these was dry on the day of sampling) and sampling from two surface water features, one onsite and one offsite. The site history information and site walkover inspection identified the following AEC: fill material; agricultural land uses; use of pesticides; and hazardous building materials (former and existing buildings and structures).

The boreholes encountered fill materials to depths of approximately 0.25m to 2.3m below ground level (BGL), underlain by residual soils and sandstone bedrock. The fill contained inclusions of igneous and sandstone gravel, sandstone cobbles, ceramic and terracotta fragments and tile, plastic and cloth fragments, asphaltic concrete and brick fragments, glass, slag, ash and root fibres. No fibre cement fragments (FCF) or suspected asbestos containing material (ACM) was encountered in the fill profiles during fieldwork.

A selection of soil, groundwater and surface water samples were analysed for the CoPC. Carcinogenic polycyclic aromatic hydrocarbons (PAHs) were reported in fill soil that exceeded the health-based SAC and total recoverable hydrocarbons (TRH F3) was reported in fill soil at concentrations that exceeded the ecological SAC. In surface and groundwater, copper, nickel and zinc were reported above the ecological SAC. The SAC elevations are shown on Figure 4.

The PSI has not identified contamination that would preclude the proposed development/use of the site. However, a Detailed Site Investigation (DSI) is required to facilitate development of a Remediation Action Plan (RAP), and remediation will be required to render the site suitable for the proposed development. We recommend the following:

1. Prepare a Sampling, Analysis and Quality Plan (SAQP) for the DSI;
2. Undertake a DSI in accordance with the SAQP; and
3. Develop and implement a RAP based on the combined findings of the PSI and DSI.

At this stage, JKE consider that there is currently no requirement to report any site contamination to the NSW EPA under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015). This will be further evaluated as part of the DSI.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of this report.

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Abbreviations

Asbestos Fines/Fibrous Asbestos	**AF/FA**
Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Below Ground Level	**BGL**
Benzo(a)pyrene Toxicity Equivalent Factor	**BaP TEQ**
Bureau of Meteorology	**BOM**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Before You Dig Australia	**BYDA**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Detailed Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Ecological Screening Level	**ESL**
Environment Protection Authority	**EPA**
Ecological Screening Level	**ESL**
Health Investigation Level(s)	**HIL**
Health Screening Level(s)	**HSL**
JK Environments	**JKE**
JK Geotechnics	**JKG**
Local Environmental Plan	**LEP**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Preliminary Site Investigation	**PSI**
Polycyclic Aromatic Hydrocarbons	**PAH**
Polychlorinated Biphenyls	**PCB**
Per-and Polyfluoroalkyl Substances	**PFAS**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Remediation Action Plan	**RAP**
Sampling, Analysis and Quality Plan	**SAQP**
Secretary's Environmental Assessment Requirements	**SEARs**
State Environmental Planning Policy	**SEPP**
Source, Pathway, Receptor	**SPR**
Standard Sampling Procedure	**SSP**
Standing Water Level	**SWL**
Total Recoverable Hydrocarbons	**TRH**
United States Environmental Protection Agency	**USEPA**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
World Health Organisation	**WHO**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Millivolts	**mV**
Millilitres	**ml or mL**
Milliequivalents	**meq**
micro Siemens per Centimetre	**µS/cm**
Micrograms per Litre	**µg/L**
Milligrams per Kilogram	**mg/kg**
Milligrams per Litre	**mg/L**
Parts Per Million	**ppm**
Percentage weight for weight	**%w/w**
Percentage	**%**

1 INTRODUCTION

RSL Lifecare Limited ('the client') commissioned JK Environments (JKE) to undertake a Preliminary Site Investigation (PSI) for the proposed seniors living development at 90 Veterans Parade, Narrabeen, NSW ('the site'). The purpose of the PSI is to make a preliminary assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the nominated development area boundaries (referred to as 'the site') as shown on Figure 2 attached in the appendices.

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A concept master plan for the renewal of parts of the existing RSL ANZAC Village for seniors housing, comprising:

- Residential accommodation for the purposes of seniors housing, including ancillary uses, supporting a new onsite Gross Floor Area of approximately 72,000sqm;
- A range of planning envelopes across the site accommodating basement levels and heights ranging between one (1) to eight (8) storeys;
- Approximately one thousand, six hundred (1600) new underground and structured car parking spaces, plus street parking;
- Demolition and site preparation works, including tree removal;
- Site landscaping, tree planting and embellishment works;
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- Utility and services augmentation as required.

Stage 1 Development, detailed approval for the operation and use of the first stage of the concept proposal, comprising:

- Demolition and site preparation works, including tree removal;
- Residential accommodation for the purposes of seniors housing, including ancillary uses, supporting a new onsite Gross Floor Area of approximately 12,700sqm;

[1] *State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW) (referred to as SEPP Resilience and Hazards 2021)

- A range of building heights across the site accommodating one basement level, a row of garages, and three different building heights of two (2), five (5) and six (6) storeys;
- One hundred and twenty-two (122) basement car parking spaces, fourteen (14) garage parking spaces, as well as an estimated forty-one (41) surface parking spaces;
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- Services and utility augmentation.

1.2 Aims and Objectives

The primary aims of the investigation were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil and groundwater contamination conditions. The objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
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- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
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- Prepare a conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

1.3 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: EP60697BTrev2) of 31 January 2025 and written acceptance from the client. The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- Preparation of a CSM;
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[2], other guidelines made under or with regards to the

[2] National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).* (referred to as NEPM 2013)

Contaminated Land Management Act (1997)[3] and SEPP Resilience and Hazards 2021. A list of reference documents/guidelines is included in the appendices.

[3] Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

2 SITE INFORMATION

2.1 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	RSL Lifecare Limited
Site Address:	90 Veterans Parade, Narrabeen, NSW (also known as 4 Colooli Road, Narrabeen, NSW)
Lot & Deposited Plan:	Lot 2611 in DP752038, Lot 573 in DP752038, Lot 1 in DP774980, and Lot 1 in DP803645.
Current Land Use:	Seniors housing - retirement living, aged care and ancillary uses
Proposed Land Use:	Continued seniors housing - retirement living, aged care and ancillary use
Local Government Authority (LGA):	Northern Beaches Council
Current Zoning:	SP1: Special Activities; C2: Environmental Conservation; and R2: Low Density Residential.
Site Area (m^2) (approx.):	86,700
RL (AHD in m) (approx.):	18-62
Geographical Location (decimal degrees) (approx. centre of site):	Latitude: -33.721015 Longitude: 151.282587
Site Plans:	Appendix A

2.2 Site Location and Regional Setting

The site is located in a predominantly residential of Narrabeen and is bound by Veterans Parade to the east, Colooli Road to the north and Lantana Avenue to the south. The site is located approximately 300m to the east and 480m to the south of Narrabeen Lagoon as shown on Figure 1.

2.3 Topography

The site is located near the top of a plateau, with two ridgeline features in the north western portion of the site. A gully feature is located in between the ridgeline and drains in a north-westerly direction from the centre of the site into a northern tributary which drains into Narrabeen Lagoon to the west. The site generally slopes north-west and west at approximately 5° with steeper areas closer to the crests of the plateau and ridgelines.

2.4 Site Inspection

A walkover inspection of the site was undertaken by JKE on 14 March 2025. The inspection was limited to accessible areas of the site and immediate surrounds. An internal inspection of buildings was not undertaken. Selected site photographs obtained during the inspection are attached in the appendices. A summary of the inspection findings is outlined in the following subsections:

2.4.1 Current Site Use and/or Indicators of Former Site Use

At the time of the inspection, the site was occupied by RSL Anzac Village which included residential aged care housing, recreational facilities (i.e. inground swimming pool), a second hand shop (Op-Shop), chapel, communal areas, and a preschool (refer to Figure 2).

The village extended into the wider property where additional housing, recreational facilities, a café and other communal areas were also present.

2.4.2 Buildings, Structures and Roads

Buildings and structures across the site were generally of brick or concrete construction with metal and/or tile rooves, built on concrete slab, some with piers to allow for the northern fall of the site. A majority of the structures were of an age indicative of housing hazardous building materials i.e. asbestos containing materials (ACM), lead based paint, and polychlorinated biphenyl (PCB) containing electrical equipment.

Pathways, internal roads and car parks around the site were generally asphaltic or concrete paved.

2.4.3 Boundary Conditions, Soil Stability and Erosion

The site and the wider property were not observed to be securely fenced at the time of the inspection. No evidence of erosion was observed on the site during the inspection.

2.4.4 Presence of Drums/Chemical Storage and Waste

A liquid oil trap was identified in the north of the site (refer to Figure 2 and photographs in appendices). A small amount of surficial staining was noted on the paved surface in front of the trap. Given the size of the trap and the minimal surficial staining observed, these are not considered to be a source of onsite contamination.

Boiler room / Chemical storage (HAZCHEM) areas were identified on the lower ground level of the indoor pool building in the south of the site (refer to Figure 2 and photographs in appendices). Neither of these areas could be internally inspected as they were locked. Given these appear to be associated with the indoor pool, they are considered unlikely to house significant volumes of chemicals that would be a source of onsite contamination.

Clinical waste storage was observed to be stored in appropriate receptacles in a locked area in the north west of the site (refer to Figure 2 and photograph in appendices). General and recyclable waste was observed to be stored in appropriate municipal waste receptacles in numerous areas around the site.

2.4.5 Evidence of Cut and Fill

Fill soils (inclusion of brick fragments, igneous gravels, plastic, etc), were observed in areas of exposed soil on site, generally in sub floor space on the northern side of buildings/structures where the site sloped down towards the lagoon, or, at the interface between paved and landscaped areas. The levels across the site indicated that some cut and fill works would have occurred to construct the existing development.

Several small piles of building rubble (i.e. brick, concrete and asphaltic concrete fragments) were also observed (refer to Figure 2 and photographs in appendices).

2.4.6 Visible or Olfactory Indicators of Contamination (odours, spills etc)

With the exception of the previously discussed fill material, no other visible (e.g. spills, staining) or olfactory (i.e. odours) indicators of contamination were observed during the site inspection.

2.4.7 Drainage and Services

Surface water at the site is expected to infiltrate the unpaved or permeable areas of the site (i.e. lawns and landscaped areas), with excess surface water expected to flow in keeping with the local topography (i.e. generally towards the north to north-west) and/or enter the onsite stormwater drains observed throughout the site which are expected to drain into the regional stormwater system.

2.4.8 Sensitive Environments

A tributary (northern tributary) is located in the central area of the site in an area zoned as C2: Environmental Conservation. A second tributary (western tributary) is located on the wider village property to the south-west of the site, also in an area zoned as C2: Environmental Conservation. These tributaries feed into the Narrabeen Lagoon which itself is located approximately 300m to the west and 400m to the north of the site. These water bodies are considered to be sensitive receptors.

2.4.9 Landscaped Areas and Visible Signs of Plant Stress

Unbuilt and unpaved areas of the site generally comprised landscaped and grass covered areas and included small to large trees, and a range of grasses, shrubs and weeds. During the inspection no evidence of die-back or phyto-toxic shock was observed.

2.5 Surrounding Land Use

During the site inspection, JKE observed the following land uses in the immediate surrounds:

- North – Wider village property, Jamison Park, and Narrabeen Lagoon. JKE note the presence of a decommissioned underground fuel storage tank (UST) located further to the north of the site (see Figure 2). Based on the location and distance of the UST from the site (opposite side of the norther tributary), the UST is not considered to be a potential off-site contamination source;
- South – Residential properties, St Rose Catholic Primary School, with Wheeler Heights Public School beyond;
- East – Residential properties, with Wetherill Street Reserve beyond; and

- West – Wider village property, with Narrabeen Lagoon beyond.

JKE did not observe any land uses in the immediate surrounds that were identified as potential off-site contamination sources for the site.

2.6 Underground Services

The 'Before You Dig Australia' (BYDA) plans were reviewed for the PSI in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway for contamination migration. Major services were not identified that would be expected to act as preferential pathways for contamination migration.

2.7 Section 10.7 Planning Certificate

The section 10.7 (2 and 5) planning certificates were reviewed for the PSI. Copies of the certificates are attached in the appendices. A summary of the relevant information is outlined below:

- The land is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of the CLM Act 1997;
- The land is not the subject of a Site Audit Statement (SAS);
- The land is identified as Acid Sulfate Soils (ASS) Class 2, 3 and 5 on the ASS Map of the Warringah Local Environmental Plan (LEP) 2011;
- The land is identified as being on the Warringah LEP 2011 Landslip Risk Map; and
- The land is not located in a heritage conservation area, however a heritage item is situated on the land (Anzac War Memorial).

JKE note that the ASS risk is mapped on areas of the Lots that are not included in the site. The site itself is not mapped within an ASS risk area. Reference should be made to the ASS assessment report prepared by JKE for additional information.

3 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology

Regional geological information was reviewed for the PSI. The information was sourced from the Lotsearch report attached in the appendices. The report indicates that the site is underlain by Hawkesbury Sandstone, which typically consists of medium to coarse grained quartz sandstone with minor shale and laminite lenses. The map indicates that the Newport Formation is located approximately 6m to the west of the site.

3.2 Acid Sulfate Soil (ASS) Risk and Planning

The site is not located in an ASS risk area according to the risk maps prepared by the Department of Land and Water Conservation.

ASS information presented in the Lotsearch report indicated that the site is not located within an ASS risk area. The westernmost side of the wider property includes Class 2, 3 and 5 risk areas in the lower lying parts adjacent to the lagoon and along the tributary. These risk classes are based on the Warringah Local Environmental Plan (LEP) 2011. Reference should also be made to the JKE ASS assessment report prepared for the SEARs for additional information.

3.3 Hydrogeology

Hydrogeological information was reviewed for the PSI. The information was sourced from the Lotsearch report attached in the appendices. The report indicates that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There was a total of 12 registered bores within the report buffer of 1,000m. In summary:

- The nearest registered bore was located approximately 750m from the site. This was registered for exploration purposes;
- The closest bore registered for water supply was located approximately 755m to the east of the site; and
- The drillers log information from the closest registered bores typically identified fill and/or sandy soil to depths of 0.5-26.6m, underlain by sandstone bedrock. Standing water levels (SWLs) in the bores ranged from 0.69m below ground level (BGL) to 3.6mBGL.

The information reviewed for the PSI indicates that the subsurface conditions at the site are expected to consist of residual soils overlying shallow bedrock. Abstraction and use of groundwater at the site or in the immediate surrounds is not considered to be viable under these conditions. The use of groundwater is not proposed as part of the development. There is a reticulated water supply in the area and consumption of groundwater is not expected to occur.

Considering the local topography and surrounding land features including Narrabeen Lagoon, JKE anticipate groundwater to flow towards the north-west and west.

3.4 Water Bodies

The site location and regional topography indicates that excess surface water flows have the potential to enter the northern tributary, located in the central area of the site. Excess surface on the western portion of the site may also enter the western tributary, located to the south-west of the site. These tributaries feed into the Narrabeen Lagoon which itself is located approximately 300m to the west and 400m to the north of the site and supports a marine ecosystem. All these water bodies are considered to be potential receptors.

4 SITE HISTORY INFORMATION

4.1 Review of Historical Aerial Photographs

Historical aerial photographs were reviewed for the investigation. The information was sourced from the Lotsearch report. JKE has reviewed the photographs and summarised relevant information in the following table:

Table 4-1: Summary of Historical Aerial Photographs

Year	Details
1943	**On-site:** The site generally appeared to be undeveloped coastal scrubland with evidence of unpaved roads and tracks generally observed in the east of the site. **Off-site:** The wider property appeared to include cleared farming land (grazing) to the south-west of the site and several buildings/structures to the north and south of the eastern portion of the site.
1951	**On-site:** Some clearing of the eastern portion of the site was observed. **Off-site:** A cluster of larger buildings was visible to the north of the site on the wider property (consistent with existing layout). Some residential development was also observed to the east and south-east of the site.
1955, 56	The photograph was of poor quality. The site and surrounding features appeared generally similar to the previous photograph.
1961	**On-site:** Clusters of building were visible in the east of the site. **Off-site:** Further buildings and structures were visible on the wider property, generally to the south-east and north of the site, and extensive residential development was visible in the surrounding area.
1965	**On-site:** Further development of the eastern portion of the site was visible, clearing of the scrub and additional buildings present. A new unpaved road was also visible in the south-west of the site. **Off-site:** Further residential development was observed in the surrounding areas.
1970	**On-site:** Extensive onsite development was observed in the central and eastern portions of site (consistent with the existing layout). **Off-site:** Extensive development of the wider property was also visible along the northern boundary of the central portion of the site.
1978	**On-site:** Further development of the eastern portion of the site was visible with new buildings now present in the east and in the north-west portion. **Off-site:** Further development of the wider property was also visible in the north-west.
1982	**On-site:** The site features appeared generally similar to the previous photograph. **Off-site:** The wider property appeared to have been extended further to the north with a cluster of additional buildings now visible.

Year	Details
1986 1991	The site and surrounding features appeared generally similar to the previous photograph.
1991 1994	**On-site:** The site appeared generally similar to the previous photograph. **Off-site:** Further development of the wider property was visible, particularly in the north and to the west.
2005 2014 2024	**On-site:** The site appeared generally similar to the previous photograph. **Off-site:** A new cluster of buildings was visible to the west of the site (consistent with existing).

4.2 Review of Historical Land Title Records

Historical land title records were reviewed for the PSI. The record search was undertaken by InfoTrack. Copies of the title records are attached in the appendices. The title records indicate the following:

- The lots within the site were generally owned by individuals including a farmer (western lot), shopkeeper, printer, journalist, dentist, and solicitor between circa 1914 and 1949;
- Coast Lands Limited owned portions of the eastern side of the site between 1923 and 1928;
- From circa 1941-1949 the lots within the site were owned by either the Commonwealth of Australia (acquired for defence purposes) and/or The War Veterans Home, now RSL Lifecare Limited; and
- From circa 2003 the proprietor of the entirety of the site has been RSL Lifecare Limited.

Ownership of the site identified one individual with the profession of farmer, and historical aerial photographs from the corresponding time (refer to Section 4.1) suggest an agricultural land use such as grazing likely occurred on the wider portion of the corresponding lot. Agricultural activities are considered to be a potentially contaminating activity under Table 1 of the Managing Land Contamination Planning Guidelines SEPP55 Remediation of Land (1998)[4]. The SEPP55 Planning Guidelines still underpin Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021[5] (formerly known as SEPP55).

Given the time since these activities occurred, residual contamination is unlikely, however for completeness these potential land uses have been considered in the CSM.

4.3 SafeWork NSW Records

SafeWork NSW records in relation to the registered storage of dangerous goods were reviewed for the investigation. Copies of relevant documents are attached in the appendices. A summary of the relevant information is provided in the following table:

[4] DUAP/EPA, (1998). *Managing Land Contamination Planning Guidelines, SEPP55 Remediation of Land* (referred to as SEPP55 Planning Guidelines)

[5] *State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW) (referred to as SEPP Resilience and Hazards 2021)

Table 4-2: Summary of SafeWork NSW Records

Record Number	Summary of Licence Details
35/003868	1985 - Initial application for Licence for underground storage tank (UST) for petrol. Licence indicates the UST is approximately 5,000L. No plan was attached to indicate where on the site or wider property this UST was located. 1991 - Renewal notice for the UST indicates the UST to be approximately 10,000L. 1993 - Renewal notice includes a plan of the site and wider property and indicates that the UST was located adjacent to the workshop and laundry on the wider property to the north-east of the northern end of the site. 2001 - Marconi letter indicating that the UST had been filled with an inert solid material, foam.

Based on the provided plan, the decommissioned UST located on the wider property is located approximately 155m cross gradient of the site and is not considered to be an off-site source of contamination.

4.4 NSW EPA and Department of Defence Records

A review of the NSW EPA and Department of Defence databases was undertaken for the PSI. Information from the following databases were sourced from the Lotsearch report:

- Records maintained in relation to contaminated land under Section 58 of the CLM Act 1997;
- Records of sites notified in accordance with the Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[6];
- Licensed activities under the Protection of the Environment Operations Act (1997)[7];
- Sites being investigated under the NSW EPA per-and polyfluoroalkyl substances (PFAS) investigation program;
- Sites being investigated by the Department of Defence for PFAS contamination; and
- Sites being managed by the Department of Defence for PFAS contamination.

The search included the site and surrounding areas in the report buffer. A summary of the information is provided below:

Table 4-3: NSW EPA and Department of Defence Records

Records	On-site	Off-site
Records under Section 58 of the CLM Act 1997	None	None
Records under the Duty to Report Contamination under Section 60 of the CLM Act 1997	None	None

[6] NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997.* (referred to as Duty to Report Contamination)

[7] Protection of the Environment Operations Act 1997 (NSW) (referred to as POEO Act 1997)

Records	On-site	Off-site
Licences under the POEO Act 1997	None	Historical licenses were identified for several areas within the report buffer, including the application of herbicides along waterways to the unnamed tributaries and Narrabeen Lagoon. These activities are considered unlikely to pose a contamination risk to the site or represent and off-site source of contamination.
Records relating to the NSW EPA PFAS Investigation Program	None	None
Records relating to the Department of Defence PFAS management and investigation programs	None	None

4.5 Historical Business Directory and Additional Lotsearch Information

Historical business records and other relevant information were reviewed for the PSI. The information was sourced from the Lotsearch report and summarised in the following table:

Table 4-4: Historical Business Directory and other Records

Records	On-site	Off-site
Historical dry cleaners, motor garages and service stations	None	None
Other historical businesses that could represent potential sources of contamination	None	None
National waste management site database	None	None
National liquid fuel facilities	None	None
Mapped heritage items	Local heritage item, the ANZAC War Memorial is mapped on the site, this item is not considered to have any relevance in the context of the PSI objectives.	Various heritage items were mapped in the report buffer. These are not considered to have any relevance in the context of the PSI objectives.
Mapped ecological constraints	Various ecological items were mapped on the site. These are not considered to have any relevance in the context of the PSI objectives.	Various ecological items were mapped in the report buffer. These are not considered to have any relevance in the context of the PSI objectives.
Mapped naturally occurring asbestos	None	None

4.6 Summary of Site History Information

A time line summary of the historical land uses and activities is presented in the following table. The information presented in the table is based on a weight of evidence assessment of the site history documentation and observations made by JKE.

Table 4-5: Summary of Historical Land Uses / Activities

Year(s)	On-site - Potential Land Use / Activities	Off-site - Potential Land Use / Activities
Circa 1914-1949	• Coastal scrubland and vacant undeveloped land; and • It is also possible that grazing occurred at some point in the west of the site.	• Coastal scrubland, agricultural (grazing); vacant undeveloped land; and residential.
Circa mid-1940s	• Residential (retirement village); • Ongoing construction/demolition of structures; • Filling/earthworks for levelling purposes and installation of services; • Use of pesticides around site and beneath buildings/structures; and • Use and impacts from hazardous building materials in former/existing structures.	• Residential

4.7 Integrity of Site History Information

The majority of the site history information was obtained from government organisations as outlined in the relevant sections of this report. The veracity of the information from these sources is considered to be relatively high. A certain degree of information loss can be expected given the lack of specific land use details over time. JKE has relied upon the Lotsearch report and have not independently verified any information contained within. However, it is noted that the Lotsearch report is generated based on databases maintained by various government agencies and is expected to be reliable.

5 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and the review of site history information. Reference should also be made to the figures attached in the appendices.

A review of the CSM in relation to source, pathway and receptor (SPR) linkages has been undertaken as part of the Tier 1 risk assessment process, as outlined in Section 9.

5.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and CoPC are presented in the following table:

Table 5-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
Fill material – The site appears to have been historically filled to achieve the existing levels. The fill may have been imported from various sources and could be contaminated. Fill material was observed around the site during the site inspection. JKE also note the presence of building/construction rubble located in isolated areas in the west section of the site as shown in Figure 2.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.
Historical agricultural use – The western lot within the site appears to have been used for grazing purposes. This could have resulted in contamination across the site via use of machinery, application of pesticides and building/ demolition of various structures.	Heavy metals, TRH, PAHs, OCPs, PCBs and asbestos JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
Use of pesticides – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals and OCPs
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. These materials may also be present in the existing buildings/ structures on site. These materials may also be present in the stockpiles of building rubble identified on the site during the inspection (refer to Figure 2 and the photographs in the appendices).	Asbestos, lead and PCBs

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 5-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill (or other buried industrial infrastructure) is present, although this is considered to be the least likely mechanism for contamination.
Affected media	Soil has been identified as the potentially affected media. Groundwater has also been assessed for the PSI. The potential for groundwater impacts from historical or current land uses is considered to be relatively low.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, and recreational water users in Narrabeen Lagoon. Ecological receptors include terrestrial organisms and plants within unpaved areas (including any proposed landscaped areas), and marine ecology in Narrabeen Lake/Lagoon. Although the onsite tributary is likely to be freshwater, given the proximity of the lake/lagoon, the primary downgradient water body is considered to be marine.
Potential exposure pathways	Dermal absorption, ingestion and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary/direct contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings. Potential exposure pathways to groundwater (for human receptors) would be via vapour intrusion, or potential primary/secondary contact with groundwater during construction or if groundwater migrates into the tributary and lake/lagoon which is utilised for recreational purposes. Exposure to ecological receptors could also occur in these water bodies.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into proposed buildings or basement (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; • Contact with groundwater during construction activities; and • Migration of groundwater into nearby water bodies, including aquatic ecosystems and recreational water bodies.
Presence of preferential pathways for contaminant movement	Local services (i.e. those not shown on the BYDA plans) such as stormwater pipe trenches could act as preferential pathways for contaminant migration. This could occur through fill soil and/or via groundwater/seepage. This would be dependent on the contaminant type and transport mechanisms.

6 SAMPLING, ANALYSIS AND QUALITY PLAN

6.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.2. The DQOs were prepared with reference to the process outlined in Schedule B2 of NEPM (2013). The seven-step DQO approach for this project is outlined in the following sub-sections.

The DQO process is validated in part by the Data Quality Assurance/Quality Control (QA/QC) Evaluation. The Data (QA/QC) Evaluation is summarised in Section 8.1 and the detailed evaluation is provided in the appendices.

6.1.1 Step 1 - State the Problem

The CSM identified potential sources of contamination/AEC at the site that may pose a risk to human health and the environment. Investigation data is required to assess the contamination status of the site, assess the risks posed by the contaminants in the context of the proposed development/intended land use, and assess whether remediation is required. This information will be considered by the consent authority in exercising its planning functions in relation to the development proposal.

The investigation was constrained in-part, by access limitations associated with the existing structures and client requirements on site. A preliminary intrusive investigation was requested by the client's representatives as the first step.

6.1.2 Step 2 - Identify the Decisions of the Study

The objectives of the investigation are outlined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?
- Are any results above the SAC?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is further investigation/remediation required?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

6.1.3 Step 3 - Identify Information Inputs

The primary information inputs required to address the decisions outlined in Step 2 include the following:

- Site information, including site observations and site history documentation;
- Sampling of potentially affected media, including soil and groundwater;
- Observations of sub-surface variables such as soil type, photo-ionisation detector (PID) concentrations, odours and staining, and groundwater physiochemical parameters;
- Laboratory analysis of soils and groundwater for the CoPC identified in the CSM; and
- Field and laboratory QA/QC data.

6.1.4 Step 4 - Define the Study Boundary

The sampling was confined to the site boundaries as shown in Figure 2 and was limited vertically to a depth of approximately 2m (spatial boundary). The sampling was completed between 11 and 19 March 2025 (temporal boundary). The assessment of potential risk to adjacent land users has been made based on data collected within the site boundary.

Sampling was not undertaken within the existing building footprints due to access constraints.

6.1.5 Step 5 - Develop an Analytical Approach (or Decision Rule)

6.1.5.1 Tier 1 Screening Criteria

The laboratory data will be assessed against relevant Tier 1 screening criteria (referred to as SAC), as outlined in Section 7. Exceedances of the SAC do not necessarily indicate a requirement for remediation or a risk to human health and/or the environment. Exceedances are considered in the context of the CSM and valid SPR-linkages.

For this investigation, the individual results have been assessed as either above or below the SAC. Statistical evaluation of the dataset via calculation of mean values and/or 95% upper confidence limit (UCL) values has not been undertaken due to the spatial distribution of the data and the number of samples submitted for analysis.

6.1.5.2 Field and Laboratory QA/QC

Field QA/QC included analysis of inter-laboratory duplicates, intra-laboratory duplicates, trip spike, trip blank and rinsate samples. Further details regarding the sampling and analysis undertaken, and the acceptable limits adopted, is provided in the Data Quality (QA/QC) Evaluation in the appendices.

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the attached laboratory reports. These criteria were developed and implemented in accordance with the laboratory's National Association of Testing Authorities, Australia (NATA) accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence are reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, JKE typically adopt the most conservative concentration reported (or in some cases, consider the data from the affected sample as an estimate).

6.1.5.3 Appropriateness of Practical Quantitation Limits (PQLs)

The PQLs of the analytical methods are considered in relation to the SAC to confirm that the PQLs are less than the SAC. In cases where the PQLs are greater than the SAC, a discussion of this is provided.

6.1.6 Step 6 – Specify Limits on Decision Errors

To limit the potential for decision errors, a range of quality assurance processes are adopted. A quantitative assessment of the potential for false positives and false negatives in the analytical results is undertaken with reference to Schedule B(3) of NEPM (2013) using the data quality assurance information collected.

Decision errors can be controlled through the use of hypothesis testing. The test can be used to show either that the baseline condition is false or that there is insufficient evidence to indicate that the baseline condition is false. The null hypothesis is an assumption that is assumed to be true in the absence of contrary evidence. For this investigation, the null hypothesis has been adopted which is that, there is considered to be a complete SPR linkage for the CoPC identified in the CSM unless this linkage can be proven not to (or unlikely to) exist. The null hypothesis has been adopted for this investigation.

Quantitative limits on decision errors were not established as the sample plan was not probabilistic.

Data Quality Indicators (DQI) for field and laboratory QA/QC samples are defined in the QA/QC Data Evaluation in the appendices. An assessment of the DQI's was made in relation to precision, accuracy, representativeness, completeness and comparability.

6.1.7 Step 7 - Optimise the Design for Obtaining Data

The most resource-effective design will be used in an optimum manner to achieve the investigation objectives. Adjustment of the investigation design can occur following consultation or feedback from project stakeholders. For this investigation, the design was optimised via consideration of the various lines of evidence used to select the sample locations, the media being sampled, and also by the way in which the data were collected.

The sampling plan and methodology are outlined in the following sub-sections.

6.2 Soil Sampling Plan and Methodology

The soil sampling plan and methodology adopted for this investigation is outlined in the table below:

Table 6-1: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	Samples were collected from 22 locations as shown on the attached Figure 2. Based on the site area (86,680m^2), this number of locations corresponded to a sampling density of approximately one sample per 3,940m^2. The sampling plan was not designed to meet the minimum sampling density for hotspot identification, as outlined in the NSW EPA Sampling Design Part 1 – Application (2022)[8] contaminated land guidelines.
Sampling Plan	The sampling locations were placed on a judgemental sampling plan and were broadly positioned for site coverage, taking into consideration areas that were not easily accessible. This sampling plan was considered suitable to make a preliminary assessment of potential risks associated with the AEC and CoPC identified in the CSM, and assess whether further investigation is warranted.

[8] NSW EPA, (2022). *Sampling design part 1 - application.* (referred to as EPA Sampling Design Guidelines 2022)

Aspect	Input
Set-out and Sampling Equipment	Sampling locations were set out using an electronic rangefinder and/or hand-held GPS unit (with an accuracy of ±0.03m). In-situ sampling locations were checked for underground services by an external contractor prior to sampling. Samples were collected using a drill rig equipped with spiral flight augers (150mm diameter). Soil samples were obtained from a Standard Penetration Test (SPT) split-spoon sampler, and/or directly from the auger.
Sample Collection and Field QA/QC	Soil samples were obtained between 11 and 17 March 2025 in accordance with our standard field procedures. Soil samples were collected from the fill and natural profiles based on field observations. The sample depths are shown on the logs attached in the appendices. Samples were placed in glass jars with plastic caps and teflon seals with minimal headspace. Samples for asbestos analysis were placed in zip-lock plastic bags. During sampling, soil at selected depths was split into primary and duplicate samples for field QA/QC analysis. The field splitting procedure included alternately filling the sampling containers to obtain a representative split sample.
Field Screening	A portable Photoionisation Detector (PID) fitted with a 10.6mV lamp was used to screen the samples for the presence of volatile organic compounds (VOCs). PID screening for VOCs was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. PID calibration records are maintained on file by JKE. The field screening for asbestos quantification included the following: • A representative bulk sample was collected from fill at 1m intervals, or from each distinct fill profile. The quantity of material for each sample varied based on whatever return could be achieved using the auger. The bulk sample intervals are shown on the attached borehole logs; • Each sample was weighed using an electronic scale; • Each bulk sample was passed through a sieve with a 7.1mm aperture and inspected for the presence of fibre cement; • The condition of fibre cement or any other suspected asbestos materials was noted on the field records; and • If observed, any fragments of fibre cement in the bulk sample were collected, placed in a zip-lock bag and assigned a unique identifier. Calculations for asbestos content were undertaken based on the requirements outlined in Schedule B1 of NEPM (2013), as summarised in Section 7.1.
Decontami-nation and Sample Preservation	Sampling personnel used disposable nitrile gloves during sampling activities. Re-usable sampling equipment was decontaminated using Decon and potable water. Soil samples were preserved by immediate storage in an insulated sample container with ice. On completion of the fieldwork, the samples were stored temporarily in fridges in the JKE warehouse before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.

6.3 Surface Water and Groundwater Sampling Plan and Methodology

The groundwater sampling plan and methodology is outlined in the table below:

Table 6-2: Groundwater Sampling Plan and Methodology

Aspect	Input
Sampling Plan	Groundwater monitoring wells were installed in BH2 (MW2), BH5 (MW5), BH9, (MW9), BH19 (MW19) and BH20 (MW20). The wells were positioned to establish baseline groundwater conditions. Considering the topography and the location of the nearest down-gradient water body, MW5, MW9, MW19 and MW20 were considered to be in the up-gradient area of the site and would be expected to provide an indication of groundwater flowing onto (beneath) the site from the south and south-east. MW2 and MW12 were considered to be in the intermediate to down-gradient areas of the site and would be expected to provide an indication of groundwater flowing across (beneath) the site and beyond the down-gradient site boundaries relative to their position. Surface water sample were also obtained from the northern tributary (SW2) and the western tributary (SW1) (refer to Figure 2).
Monitoring Well Installation Procedure	The monitoring well construction details are documented on the appropriate borehole logs attached in the appendices. The monitoring wells were installed to depths of approximately 2.97m to 7.7mBGL. The wells were generally constructed as follows: • 50mm diameter Class 18 PVC (machine slotted screen) was installed in the lower section of the well to intersect groundwater; • 50mm diameter Class 18 PVC casing was installed in the upper section of the well (screw fixed); • A 2mm sand filter pack was used around the screen section for groundwater infiltration; • A hydrated bentonite seal/plug was used on top of the sand pack to seal the well; and • A gatic cover was installed at the surface with a concrete plug to limit the inflow of surface water. The monitoring well installation, including the screen lengths, were considered suitable for assessment of general groundwater quality with regards to Table 5 in Schedule B2 of NEPM 2013.
Monitoring Well Development	The monitoring wells were developed between 14 and 17 March 2025 using a submersible electrical pump/dedicated disposable plastic bailer. Due to the hydrogeological conditions, groundwater inflow into the wells was relatively low, therefore the wells were pumped until they were effectively dry. The field monitoring records and calibration data are attached in the appendices.
Groundwater Sampling	The monitoring wells were allowed to recharge for approximately two to five days after development. Groundwater samples were obtained from all other wells on 19 March 2025. MW2 was dry on the day of sampling. Prior to sampling, the monitoring wells were checked for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) using an inter-phase probe electronic dip meter. The monitoring well head space was checked for VOCs using a calibrated PID unit. The samples were obtained using a peristaltic pump/disposable plastic bailer. During sampling, the following parameters were monitored using calibrated field instruments: • Standing water level (SWL) using an electronic dip meter; and • pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (Eh) using a YSI Multi-probe water quality meter.

Aspect	Input
	Steady state conditions were considered to have been achieved in MW5 and MW19 only. Steady state conditions were considered to have been achieved when the difference in the pH measurements was less than 0.2 units, the difference in conductivity was less than 10%, and when the SWL was not in drawdown. Groundwater samples were obtained directly from the single use PVC tubing and placed in the sample containers. Duplicate samples were obtained by alternate filling of sample containers. This technique was adopted to minimise disturbance of the samples and loss of volatile contaminants associated with mixing of liquids in secondary containers, etc. Groundwater removed from the wells during development and sampling was transported to JKE in jerry cans and stored in holding drums prior to collection by a licensed waste water contractor for off-site disposal. The field monitoring record and calibration data are attached in the appendices.
Decontaminant and Sample Preservation	During development, the pump was flushed between monitoring wells with potable water (single-use tubing was used for each well). The pump tubing was discarded after each sampling event and replaced therefore no decontamination procedure was considered necessary. The samples were preserved with reference to the analytical requirements and placed in an insulated container with ice or ice bricks. On completion of the fieldwork, the samples were temporarily stored in a fridge at the JKE office, before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

6.4 Laboratory Analysis

Samples were analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

Table 6-3: Laboratory Details

Samples	Laboratory	Report Reference
All primary samples and field QA/QC samples including (intra-laboratory duplicates, trip blanks, trip spikes and field rinsate samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	375903, 375903-A and 375991
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	MGC0392 and MGC0429

It is noted that reports 375991 and MGC0429 includes additional soil data relevant to the ASS assessment and report 364347 includes additional groundwater data relevant to the SGIA assessment. These items have not been discussed in this PSI report and are to be reported under a separate cover.

7 SITE ASSESSMENT CRITERIA (SAC)

The SAC were derived from the NEPM 2013 and other guidelines as discussed in the following sub-sections. The guideline values for individual contaminants are presented in the attached report tables and further explanation of the various criteria adopted is provided in the appendices.

7.1 Soil

Soil data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below.

7.1.1 Human Health

- Health Investigation Levels (HILs) for a 'residential with accessible soils, including childcare land use' exposure scenario (HIL-A). These criteria have been adopted to make a preliminary assessment of risks to the most sensitive receptors (i.e. children) and are also considered suitably protective of adults in a high-rise residential aged care facility and in open spaces (given the proposed extent of garden areas around the buildings under the current concept development plan). The land use Type A criteria also account for uncertainty around whether childcare centre land use will occur under the proposed masterplan development scenario;
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). HSLs were calculated based on conservative assumptions including a 'sand' type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)[9]; and
- Asbestos was assessed against the HSL-A criteria. A summary of the asbestos criteria is provided in the table below:

Table 7-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-A criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)[10]. The SAC include the following: • No visible asbestos at the surface/in the top 10cm of soil; • <0.01% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): **% w/w asbestos in soil =** $\frac{\textbf{\% asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$

[9] Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - *Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document*

[10] Western Australian (WA) Department of Health (DoH), (2021). *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. (referred to as WA DoH 2021)

Guideline	Applicability
	However, we are of the opinion that the actual soil volume in a 10L bucket varies considerably due to the presence of voids, particularly when assessing cohesive soils. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows (we note that the units have also converted to grams): **% w/w asbestos in soil =** $\frac{\text{**% asbestos content x bonded ACM (g)**}}{\text{Soil weight (g)}}$

7.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. These have only been applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines[11];
- ESLs were adopted based on the soil type;
- EILs for selected metals were generally calculated based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[12]; and
- Site-specific soil parameters for pH and cation exchange capacity (CEC) were used for EILs for selected metals in BH1 (0.06-0.25m) and BH2 (0.09-0.3m). These data have been tabulated below for reference and were used to select the ACL values presented in Schedule B(1) of NEPM (2013) to sum with the published ABC presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995). This method is also considered to be adequate for the Tier 1 screening.

Table 7-2: Site Specific Soil Parameters

Location	Depth	Material type	pH	CEC
BH1	0.06-0.25m	Fill: Silty sand	9.4	19
BH2	0.09-0.3m	Fill: Silty sand	9.9	22

7.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered.

7.2 Surface and Groundwater

Surface and groundwater data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013), following an assessment of environmental values in accordance with the Guidelines for the Assessment and Management of Groundwater Contamination (2007)[13]. Environmental values for this

[11] Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)

[12] Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

[13] NSW Department of Environment and Conservation, (2007). *Guidelines for the Assessment and Management of Groundwater Contamination.*

investigation include aquatic ecosystems, human uses (incidental contact and recreational water use), and human-health risks in non-use scenarios (vapour intrusion).

7.2.1 Human Health

The NEPM (2013) HSLs were not strictly applicable for this project as in some areas the proposed basement may intersect groundwater and bedrock was encountered at depths shallower than 2m in some areas. On this basis a combination of both HSLs and a site-specific assessment (SSA) for the Tier 1 screening of human health risks posed by volatile contaminants in groundwater were undertaken.

- HSLs for a 'low-high density residential' exposure scenario (HSL-A/HSL-B). HSLs were calculated conservatively based on a 'sand' type and a 2-4m depth to groundwater. These are the most conservative criteria whereby HSLs can be calculated;
- The site-specific assessment (SSA) for the Tier 1 screening of human health risks posed by volatile contaminants in groundwater included a selection of alternative Tier 1 criteria that are considered suitably protective of human health. These criteria are based on drinking water guidelines and have been referred to as HSL-SSA. The criteria are based on the following (as shown in the attached report tables):
    - Australian Drinking Water Guidelines 2011 (updated 2021)[14] for BTEX compounds and selected VOCs;
    - World Health Organisation (WHO) document titled Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality (2008)[15] for petroleum hydrocarbons. We have conservatively adopted the value of 100µg/L for TRH F1 and F2;
    - USEPA Region 9 screening levels for naphthalene (threshold value for tap water); and
    - The use of the laboratory PQLs for other contaminants where there were no Australian guidelines.
- The ADWG 2011 were multiplied by a factor of 10 to assess potential risks associated with incidental/recreational-type exposure to groundwater (e.g. within down-gradient water bodies, or with seepage water in the basement). These have been deemed as 'recreational' SAC; and
- ADWG 2011 criteria were adopted as screening criteria for consumption of groundwater, though we note that groundwater consumption is unlikely to occur.

7.2.2 Environment (Ecological - aquatic ecosystems)

Groundwater Investigation Levels (GILs) for 95% protection of marine species were adopted based on the Default Guideline Values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)[16]. The 99% trigger values were adopted where required to account for bioaccumulation. Low and moderate reliability trigger values were also adopted for some contaminants where high-reliability trigger values don't exist.

[14] National Health and Medical Research Council (NHMRC), (2021). *National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011* (referred to as ADWG 2011)

[15] World Health Organisation (WHO), (2008). *Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality* (referred to as WHO 2008)

[16] Australian and New Zealand Governments (ANZG), (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (referred to as ANZG 2018)

8 RESULTS

8.1 Summary of Data (QA/QC) Evaluation

The data evaluation is presented in the appendices. In summary, JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

8.2 Subsurface Conditions

A summary of the subsurface conditions encountered during the investigation is presented in the following table. Reference should be made to the borehole logs attached in the appendices for further details.

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Pavement	Asphaltic Concrete (AC)/Concrete/Brick pavement was encountered at the surface in BH1, BH2, BH7, BH9, BH18 and BH22. The pavement ranging from approximately 33mm to 360mm in thickness.
Fill	Fill was encountered at the surface or beneath the pavement in all boreholes and extended to depths of approximately 0.25m to 2.3mBGL. Approximate fill depths (recorded as depth from the ground surface to the bottom of the fill layer) are presented on Figure 2. The deepest fill was encountered in BH22 located in the east section of the site. The fill typically comprised gravelly sand, silty sand, silty clay, gravelly silty sand with inclusions of igneous and sandstone gravel, sandstone cobbles, ceramic and terracotta fragments and tile, plastic and cloth fragments, asphaltic concrete and brick fragments, glass, slag, ash and root fibres. Neither odours nor staining were observed in the fill material during fieldwork. No fibre cement fragments (FCF) was encountered in the fill profiles during fieldwork. JKE note that areas of building/construction rubble were located in isolated areas at the site surface. There is potential for hazardous building materials such as FCF to be present in the rubble.
Natural Soil	Natural clayey and sandy residual soils were encountered beneath the fill material in BH15, BH16 and BH20. The natural soils were encountered at depths of between 0.8m and 2.6mBGL. Neither staining nor odours were recorded in the natural soils during fieldwork.
Bedrock	Sandstone bedrock was encountered beneath the fill or natural soils in all locations, from depths of approximately 0.2m to 2.6mBGL. The bedrock extended to the termination depth of these boreholes, to a maximum of 7.84mBGL. Neither staining nor odours were recorded in the bedrock during fieldwork.
Groundwater	Groundwater seepage was encountered in BH14, BH15 and BH17 at depths of approximately 0.6m and 2.8mBGL during drilling. All other boreholes remained dry on completion of drilling and a short time after.

8.3 Field Screening

A summary of the field screening results is presented in the following table:

Table 8-2: Summary of Field Screening

<table>
<tr><th>Aspect</th><th>Details</th></tr>
<tr><td>PID Screening of Soil Samples for VOCs</td><td>PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. The results ranged from 0ppm to 1.3ppm equivalent isobutylene. These results indicate a lack of significant PID detectable VOCs.</td></tr>
<tr><td>Bulk Screening for Asbestos</td><td>The bulk field screening results are summarised in the attached report Table S5. No FCF or Asbestos Containing Material (ACM) was encountered in any of the bulk screening samples. All results were below the SAC.</td></tr>
<tr><td>Groundwater Depth & Flow</td><td>Groundwater seepage was encountered in BH14, BH15 and BH17 at depths of approximately 0.6m and 2.8mBGL during drilling. All other boreholes remained dry on completion of drilling and a short time after.

The relative heights of the ground surface at each monitoring well location were recorded using a Differential GPS (D-GPS) and the relative levels (RLs) of groundwater in each well were calculated based of the SWLs.

<table>
<tr><th>MW reference</th><th>RL (mAHD)</th><th>SWL (m)</th><th>SWL RL (mAHD)</th></tr>
<tr><td>MW2</td><td>31.05</td><td>Well dry</td><td>-</td></tr>
<tr><td>MW5</td><td>42.04</td><td>4.84</td><td>37.20</td></tr>
<tr><td>MW9</td><td>46.25</td><td>5.79</td><td>40.46</td></tr>
<tr><td>MW12</td><td>45.53</td><td>12.47</td><td>33.06</td></tr>
<tr><td>MW19</td><td>57.78</td><td>2.45</td><td>55.33</td></tr>
<tr><td>MW20</td><td>54.18</td><td>3.15</td><td>51.03</td></tr>
</table>

A contour plot was prepared for the groundwater flow direction using Surfer v8.08 (Surface Mapping Program) as shown on Figure 5. Groundwater flow generally occurs in a down gradient direction perpendicular to the groundwater elevation contours. The contour plot indicates that groundwater generally flows towards the gully in the central portion of the site, which is consistent with expectations based on the topography, and down-gradient water bodies.</td></tr>
<tr><td>Groundwater Field Parameters</td><td>Field measurements recorded during sampling were as follows:
- pH ranged from 5.23 to 6.22;
- EC ranged from 261.0µS/cm to 445.4µS/cm;
- Eh ranged from 60.6mV to 143.7mV; and
- DO ranged from 0.61mg/L to 5.89mg/L.

The PID readings in the monitoring well headspace recorded during sampling ranged from 0.8ppm in MW2 to 3ppm in MW20.</td></tr>
<tr><td>LNAPLs petroleum hydrocarbons</td><td>Phase separated product (i.e. LNAPL) was not detected using the interphase probe during groundwater sampling.</td></tr>
</table>

8.4 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 7.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

8.4.1 Human Health and Environmental (Ecological) Assessment

Table 8-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N ^	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	30	9	0	0	-
Cadmium	30	<0.4	0	NSL	-
Chromium (total)	30	89	0	0	-
Copper	30	84	0	0	-
Lead	30	41	0	0	-
Mercury	30	0.3	0	NSL	-
Nickel	30	82	0	0	-
Zinc	30	140	0	0	-
Total PAHs	30	41	0	NSL	-
Benzo(a)pyrene	30	4.6	NSL	0	-
Carcinogenic PAHs (as BaP TEQ)	30	6.9	1	NSL	The reported carcinogenic PAH concentration in fill sample BH13 (0.4- 0.5), exceeded the health-based SAC of 3mg/kg. The concentration was less than 250% of the SAC of 7.5mg/kg.
Naphthalene	30	<1	0	NSL	-
DDT+DDE+DDD	23	<0.1	0	NSL	-
DDT	23	<0.1	NSL	0	-
Aldrin and dieldrin	23	<0.1	0	NSL	-
Chlordane	23	<0.1	0	NSL	-
Heptachlor	23	<0.1	0	NSL	-
Chlorpyrifos (OPP)	23	<0.1	0	NSL	-
PCBs	23	<0.1	0	NSL	-
TRH F1	30	<25	0	0	-
TRH F2	30	<50	0	0	-

Analyte	N ^	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
TRH F3	30	710	0	3	TRH F3 concentrations reported in fill samples BH8 (0-0.1m), BH13 (0.4- 0.5m) and BH18 (0.1-0.2m) of between 310mg/kg and 710mg/kg exceeded the ecological SAC of 300mg/kg.
TRH F4	30	400	0	0	-
Benzene	30	<0.2	0	0	-
Toluene	30	<0.5	0	0	-
Ethylbenzene	30	<1	0	0	-
Xylenes	30	<1	0	0	-
Asbestos (in soil) (%w/w)	22	<0.01 ACM <0.001 AF/FA	0	NA	Asbestos was not detected in any of the soil samples analysed.

Notes:

N: Total number (primary samples)

NSL: No set limit

NL: Not limiting

8.5 Surface and Groundwater Laboratory Results

The surface and groundwater laboratory results were assessed against the SAC presented in Section 7.2. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

Table 8-4: Summary of Surface and Groundwater Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	5	<1	0	0	-
Cadmium	5	<0.1	0	0	-
Chromium (total)	5	2	0	0	-
Copper	5	26	0	5	The copper concentrations of between 2µg/L and 26µg/L reported in MW5, MW9, MW12, SW2, MW19 and the field duplicate WDUP1 exceeded the marine ecological SAC of 1.3µg/L.
Lead	5	<1	0	0	-

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Mercury	5	<0.05	0	0	-
Nickel	5	18	0	2	The nickel concentrations of between 17µg/L and 18µg/L reported in MW12, and MW19 and the field duplicate WDUP1 exceeded the marine ecological SAC of 7µg/L.
Zinc	5	96	0	4	The zinc concentrations of between 16µg/L and 96µg/L reported in MW5, MW9, MW12, and MW19 and the field duplicate WDUP1 exceeded the marine ecological SAC of 15µg/L.
Total PAHs	5	<0.1	0	0	-
Benzo(a)pyrene	5	<0.1	0	0	-
Naphthalene	5	<0.1	0	0	-
TRH F1	5	36	0	NSL	-
TRH F2	5	82	0	NSL	-
TRH F3	5	440	NSL	NSL	-
TRH F4	5	120	NSL	NSL	-
Benzene	5	<1	0	0	-
Toluene	5	<1	0	0	-
Ethylbenzene	5	<1	0	0	-
m+p-Xylene	5	<2	0	0	-
o-Xylene	5	<1	0	0	-
Total Xylenes	5	<2	0	0	-
VOCs Chloroform Bromodichloromethane Dibromochloromethane 1,4-dichlorobenzene	5	 41 14 3 2	 0 0 0 0	 0 0 0 0	-
pH	5	8.2	4	5	The pH of the samples from MW5, MW12, MW19 and MW20 was outside the health-based range of 6.5-8.5 and the pH of the samples from MW5, MW9, MW12, MW19 and MW20 was outside the ecological range of 7 to 8.5.

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
EC	5	490	NSL	NSL	-

Notes:

^: Primary samples

N: Total number

NSL: No set limit

NL: Not limiting

9 DISCUSSION

9.1 Contamination Sources/AEC and Potential for Site Contamination

Based on the scope of work undertaken for this investigation, JKE identified the following potential contamination sources/AEC:

- Imported fill material;
- Historical agricultural land use (grazing);
- Use of pesticides; and
- Hazards building materials (former and existing site structures).

Considering the above, and based on a qualitative assessment of various lines of evidence as discussed throughout this report, JKE is of the opinion that there is a potential for site contamination. The preliminary soil and groundwater data collected for the investigation is discussed further in the following subsection, as part of the Tier 1 risk assessment.

9.2 Tier 1 Risk Assessment and Review of CSM

For a contaminant to represent a risk to a receptor, the following three conditions must be present:

1. Source – The presence of a contaminant;
2. Pathway – A mechanism or action by which a receptor can become exposed to the contaminant; and
3. Receptor – The human or ecological entity which may be adversely impacted following exposure to contamination.

If one of the above components is missing, the potential for adverse risks is relatively low.

9.2.1 Soil

9.2.1.1 Human Health Risk

Carcinogenic PAHs were detected at a concentration that exceeded the health-based SAC in shallow fill soils in one location (BH13, refer to Figure 4). The source of the PAHs is considered likely to be associated with imported fill material containing trace amounts of ash and slag, rather than being associated with onsite activities, as no potential point sources were identified in the area. In the current site configuration, there is not considered to be a potentially complete SPR-linkage to the fill in the vicinity of this location as the exceedance was reported in the deeper fill profile and no detections of PAHs were reported in the overlying fill material.

We anticipate that remediation of carcinogenic PAHs in fill will be required as part of the proposed development so that risks are low and acceptable in the context of the proposed development.

9.2.1.2 Ecological Risk

TRH F3 were detected at concentrations that exceeded the ecological SAC in fill soil at the site (refer to Figure 4). The source of these contaminants is considered likely to be associated with the imported fill

material identified at the site. The laboratory chromatographs were reviewed and were generally inconclusive as to the origin of the TRH. The chromatographs have been attached in Appendix D.

Based on the existing condition of the vegetation (in proximity to the locations) and the fact that the site is situated in an urban setting and is not located in an ecological sensitive area, the potential ecological risks associated with the identified occurrence of TRH are considered to be low. This is to be further assessed as part of the detailed site investigation (DSI) stage so that the assessment of risk is appropriate to the final development scenario.

9.2.1.3 Other CoPC

No ACM/FCF were encountered in the fill material at the site during the field work. Asbestos was not detected in any of the soil samples analysed. However, we note that sampling was completed from boreholes using auger drilling methods (due to site accessibility limitations) which limits the disturbance of the soil and a thorough visual assessment of the fill. Further investigation will be required to assess the potential impact of asbestos on fill at the site. JKE also note the presence of dumped building/construction rubble in isolated areas of the site. The presence of FCF/ACM in these areas has not been assessed.

Elevated concentrations of the remaining CoPC were below the adopted SAC in the soil samples analysed during the PSI.

9.2.2 Groundwater

The groundwater samples from MW5, MW9, MW12, and MW19 and the surface water sample from SW1 encountered concentrations of copper, nickel and zinc above the ecological SAC (refer to Figure 4). The source of these heavy metals in the groundwater is considered likely to be a regional issue for the following reasons:

- Elevated heavy metal concentrations associated with leaking water infrastructure and surface water runoff are typically encountered in urban groundwater (particularly copper, nickel and zinc); and
- Significantly elevated heavy metals concentrations (i.e. above the HILs) were not encountered in the fill soil at the site, therefore fill at the site is not considered to be a point source for groundwater contamination.

Further groundwater assessment is required to better understand the conditions and confirm the risk assessment.

If temporary construction dewatering is required, it is expected that the management of such water would occur in accordance with the regulatory requirements so that no unacceptable construction-phase risks occur.

9.2.2.1 Other CoPC

Elevated concentrations of the other CoPC were not encountered above the adopted SAC in the groundwater samples analysed and therefore are not considered to pose a risk to the receptors at the concentrations reported to date.

Detections of chloroform, bromodichloromethane, dibromochloromethane and 1,4-dichlorobenzene in all groundwater samples and the surface water sample from the western tributary (SW1) are considered likely to be associated with interference from potable water (e.g. leaking pipes/potable water infrastructure). These VOCs within a group of compounds known as trihalomethanes, which are formed as a biproduct of the drinking water chlorination process.

9.3 Decision Statements

The decision statements are addressed below:

Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?

Yes, refer to Section 9.1.

Are any results above the SAC?

Yes.

Do potential risks associated with contamination exist, and if so, what are they?

Yes, there are potential health-based risks associated with carcinogenic PAHs in fill soil. The potential ecological risks associated with TRH F3 in fill soil require further assessment.

Is further investigation/remediation required?

A Detailed (Stage 2) Site Investigation (DSI) will be required. Based on the preliminary data collected for the PSI, we are of the opinion that remediation will be required.

Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

JKE is of the opinion that the site can be made suitable for the proposed development outlined in Section 1.1, subject to further characterisation (via a DSI) and, where required, remediation.

9.4 Data Gaps

An assessment of data gaps is provided in the following table:

Table 9-1: Data Gap Assessment

Data Gap	Assessment
Fill material	Fill ranging in depth from approximately 0.2m to 2.3mBGL was encountered during the investigation. The fill was noted to contain anthropogenic inclusions such as: ceramic and terracotta fragments and tile, plastic and cloth fragments, asphaltic concrete and brick fragments, glass, slag, and ash. Sampling was limited to approximately 23% of the minimum sampling density recommended in the NSW EPA Sampling Design Part 1 – Application (2022) for hotspot

Data Gap	Assessment
	identified, although we note that the sampling plan was not probabilistic. It is also noted that sampling occurred from boreholes which poses limitation for identifying asbestos in fill. Further investigation of the fill will be required to assess the full extent of risks associated with this AEC. It is recommended that additional sampling is undertaken via test pits where access is available. JKE also note that sampling should also be targeted near areas of dumping where there is high potential for encountering asbestos.
Agricultural Land Uses	Minimal fill/soil sampling was undertaken at the site or in the vicinity of this former land use due in part to the preliminary nature of the investigation. Further investigation of the fill/soils within the site will be required to assess the full extent of risks associated with this AEC.
Use of Pesticides	Sampling did not occur beneath or in close proximity to the buildings and structures at the site due in part to the preliminary nature of the investigation. Further investigation of the fill/soils within the site will be required to assess the full extent of risks associated with this AEC.
Hazardous Building Materials	Inclusions in fill soils at the site were indicative of former demolition / construction activities (i.e. brick fragments and concrete rubble), in additional small waste stockpile of building and construction waste was also identified on site. The buildings and structures on the site are of an age indicative of housing hazardous building materials (i.e. asbestos fibre cement and lead paint). Reference should be made to the hazardous building materials register for the site. Further investigation of the fill will be required to assess the full extent of contamination risks on site as noted above.

10 CONCLUSIONS AND RECOMMENDATIONS

The PSI included a review of site history information, a site inspection, soil sampling from 22 boreholes, groundwater sampling from six monitoring wells installed at the site (noting one of these was dry on the day of sampling) and sampling from two onsite surface water features. The site history information and site walkover inspection identified the following AEC: fill material; agricultural land uses; use of pesticides; and hazardous building materials (former and existing buildings and structures).

The boreholes encountered fill materials to depths of approximately 0.25mBGL to 2.3mBGL, underlain by residual soils and sandstone bedrock. The fill contained inclusions of igneous and sandstone gravel, sandstone cobbles, ceramic and terracotta fragments and tile, plastic and cloth fragments, asphaltic concrete and brick fragments, glass, slag, ash and root fibres. No FCF was encountered in the fill profiles during fieldwork.

A selection of soil, groundwater and surface water samples were analysed for the CoPC. Carcinogenic PAHs were reported in fill soil that exceeded the health-based SAC and TRH F3 was reported in fill soil at concentrations that exceeded the ecological SAC. In surface and groundwater, copper, nickel and zinc were reported above the ecological SAC. The SAC elevations are shown on Figure 4.

The PSI has not identified contamination that would preclude the proposed development/use of the site. However, a DSI is required to facilitate development of a RAP, and remediation will be required to render the site suitable for the proposed development. We recommend the following:

1. Prepare a Sampling, Analysis and Quality Plan (SAQP) for the DSI;
2. Undertake a DSI in accordance with the SAQP; and
3. Develop and implement a RAP based on the combined findings of the PSI and DSI.

At this stage, JKE consider that there is currently no requirement to report any site contamination to the NSW EPA under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015). This will be further evaluated as part of the DSI.

JKE consider that the report objectives outlined in Section 1.2 have been addressed.

11 LIMITATIONS

The report limitations are outlined below:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions
Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an investigation report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data
Site investigations identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an investigation indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations
Although information provided by a site investigation can reduce exposure to the risk of the presence of contamination, no environmental site investigation can eliminate the risk. Even a rigorous professional investigation may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Investigations by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Investigation Report

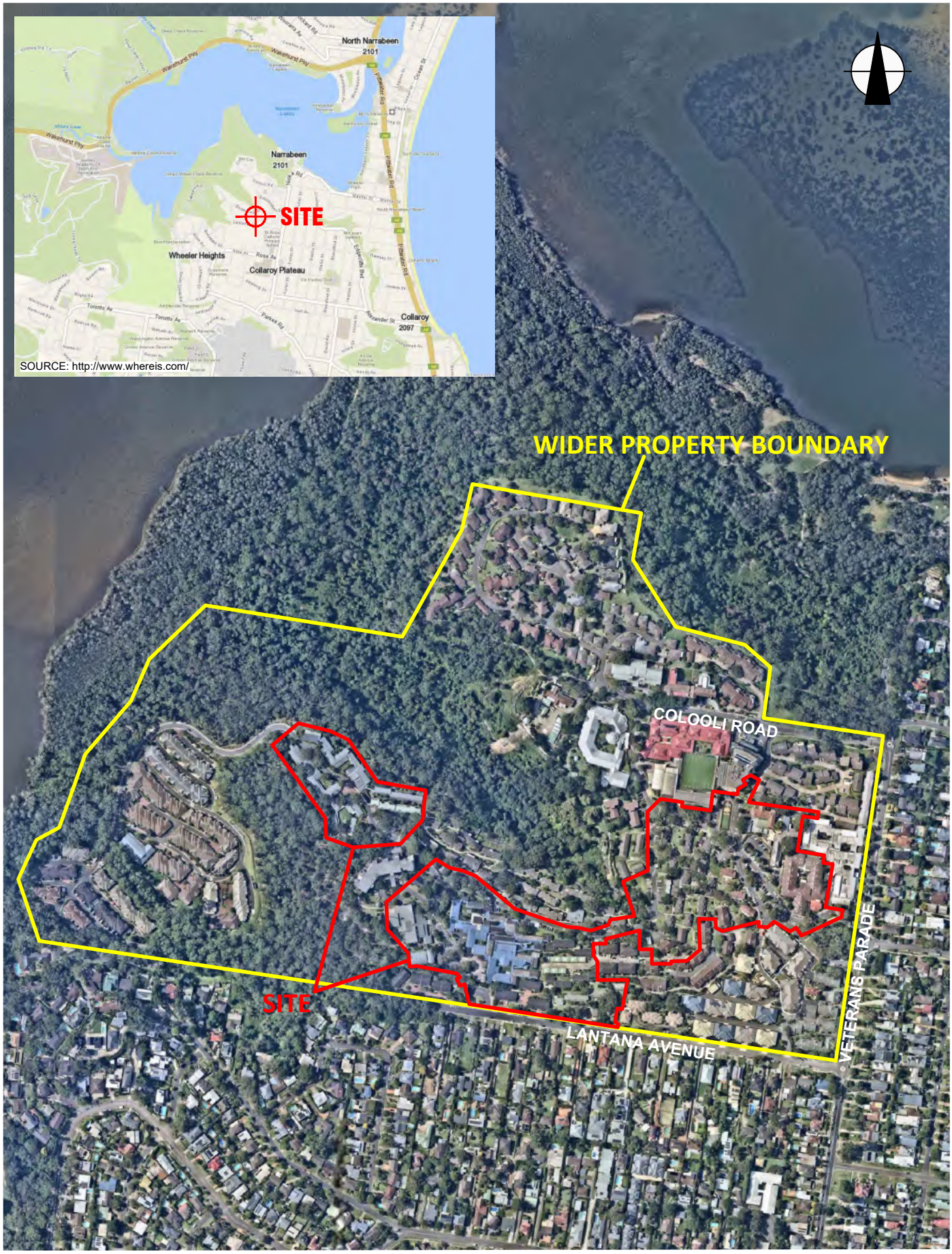
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the investigation. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the investigation. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete investigation should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely

Because an environmental site investigation is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site investigation, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Report Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

This plan should be read in conjunction with the Environmental report.

Title: **SITE LOCATION PLAN**

Location: 90 VETERANS PARADE, NARRABEEN, NSW

Project No: E37444BT

Figure No: 1

JKEnvironments

PLOT DATE: 6/03/2025 9:56:06 AM DWG FILE: K:\SC EIS JOBS\37000'S\E37444BT NARRABEEN\CAD\E37444BT.DWG

© JK ENVIRONMENTS

DUMPED BUILDING / CONSTRUCTION RUBBLE

APPROXIMATE LOCATION OF DECOMMISSIONED UST

COLOOLI ROAD

DUMPED BUILDING / CONSTRUCTION RUBBLE

LIQUID OIL TRAP

CLINICAL WASTE BINS

NORTHERN TRIBUTARY

LITTLE DIGGERS PRESCHOOL

VETERANS PARADE

BUILDING RUBBLE

BOILER ROOM / CHEMICAL STORAGE ARE / HAZCHEM STORE

INDOOR SWIMMING POOL

WESTERN TRIBUTARY

LANTANA AVENUE

LEGEND

APPROXIMATE SITE BOUNDARY

APPROXIMATE WIDER PROPERTY BOUNDARY

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 20 40 60 80 100

SCALE 1:2000 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **SITE FEATURES PLAN**

Location: 90 VETERANS PARADE, NARRABEEN, NSW

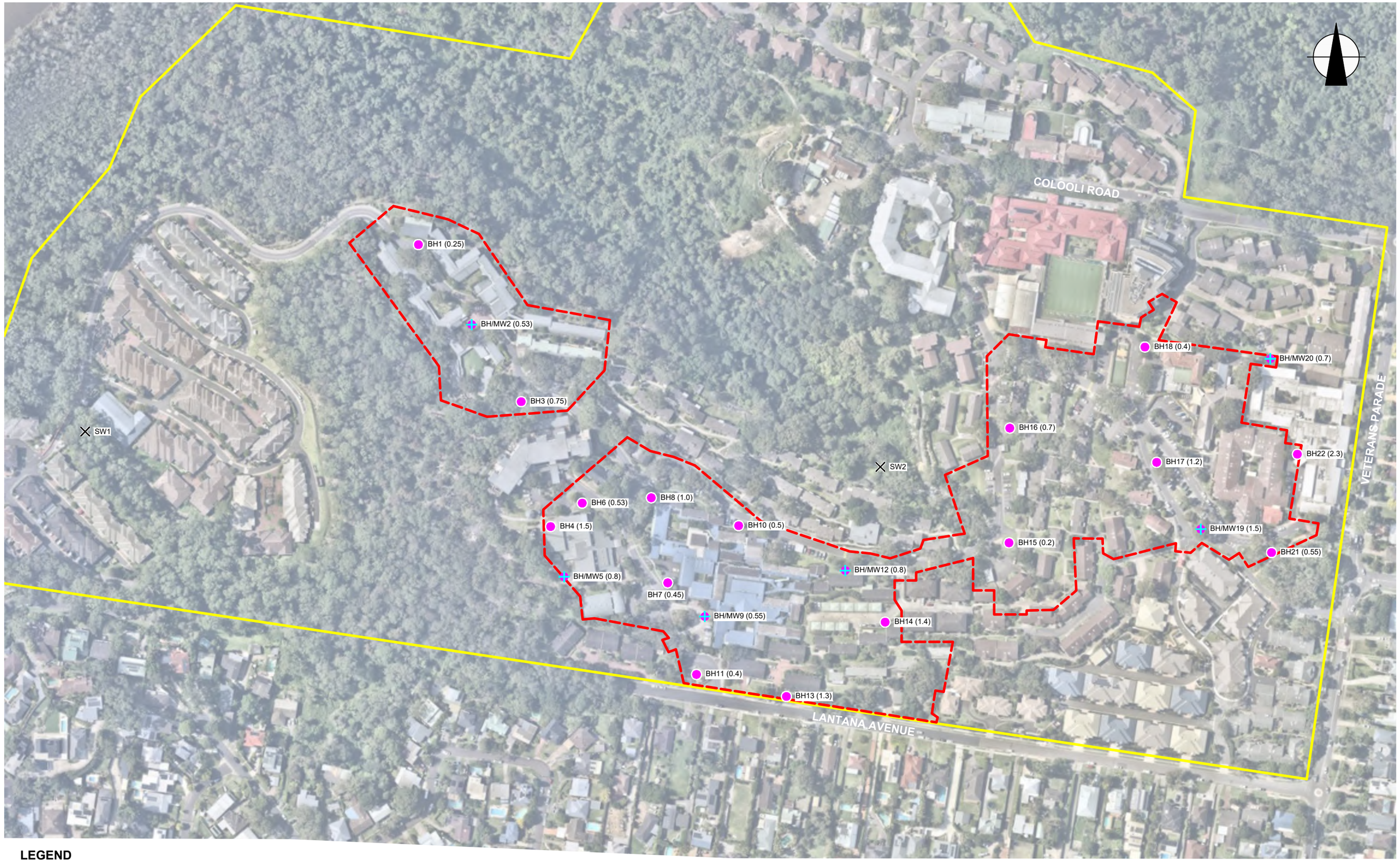
Project No: E37444BT

Figure No: 2

JKEnvironments

PLOT DATE: 23/04/2025 8:37:28 AM DWG FILE: K:\5C EIS JOBS\37000\SIE37444BT NARRABEEN\CAD\E37444BT.DWG

© JK ENVIRONMENTS



LEGEND

— — —	APPROXIMATE SITE BOUNDARY
———	APPROXIMATE WIDER PROPERTY BOUNDARY
BH(Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
SW1	WATER SAMPLE LOCATION AND NUMBER

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 25 50 75 100 125

SCALE 1:2500 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **SAMPLE LOCATION PLAN**

Location: 90 VETERANS PARADE, NARRABEEN, NSW

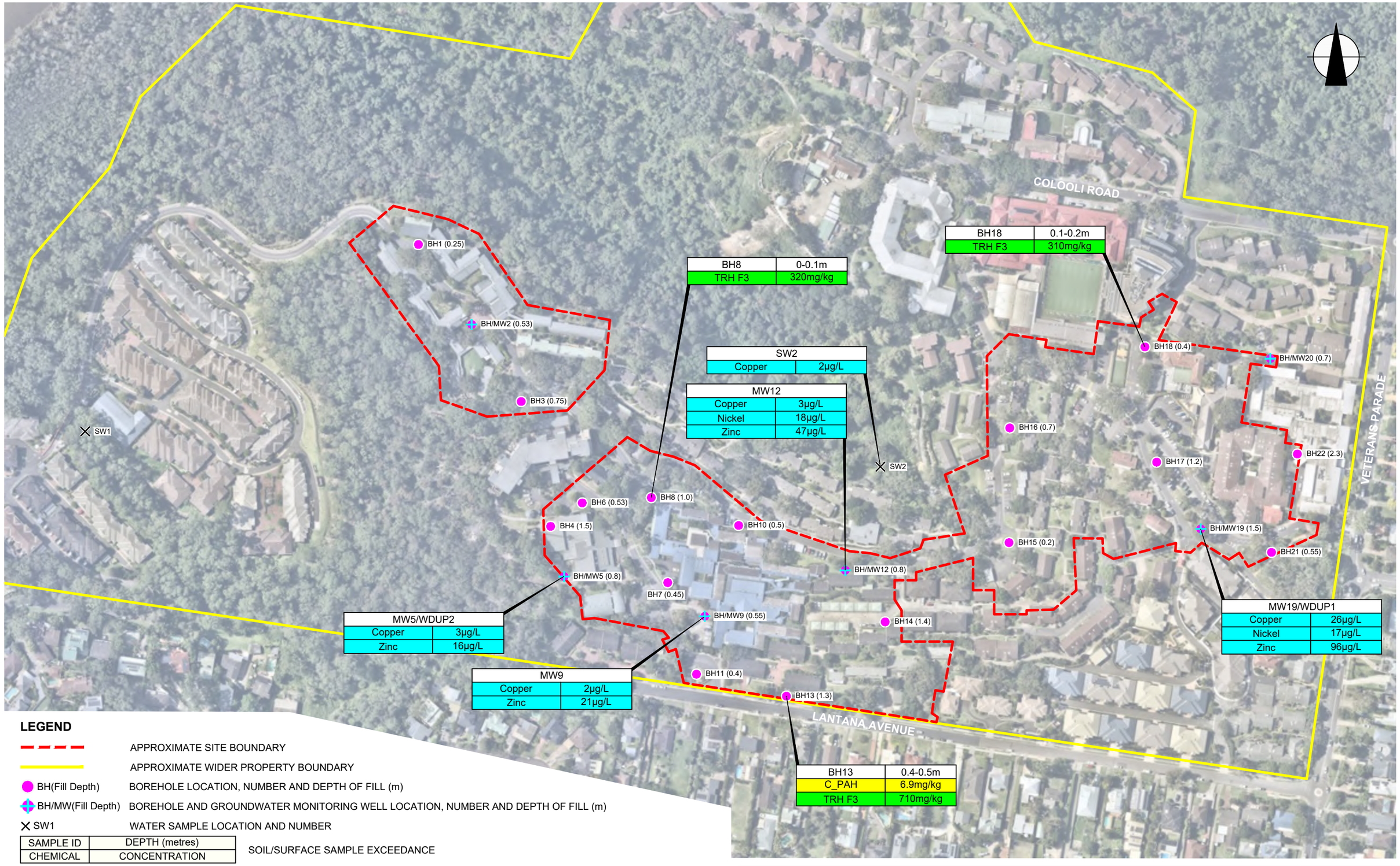
Project No: E37444BT

Figure No: 3

JKEnvironments

PLOT DATE: 23/04/2026 8:37:41 AM DWG FILE: K:\5C EIS JOBS\37000\SIE37444BT NARRABEEN\CAD\E37444BT.DWG

© JK ENVIRONMENTS



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE WIDER PROPERTY BOUNDARY
- BH(Fill Depth) — BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
- BH/MW(Fill Depth) — BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
- SW1 — WATER SAMPLE LOCATION AND NUMBER

SAMPLE ID	DEPTH (metres)
CHEMICAL	CONCENTRATION

SOIL/SURFACE SAMPLE EXCEEDANCE

SAMPLE ID	-
CHEMICAL	CONCENTRATION (µg/L)

GROUNDWATER SAMPLE EXCEEDANCE

- SOIL/SURFACE CONTAMINATION ABOVE SAC FOR HUMAN HEALTH RISK
- SOIL/SURFACE CONTAMINATION ABOVE SAC FOR ECOLOGICAL RISK
- GROUNDWATER CONTAMINATION ABOVE SAC

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 25 50 75 100 125
SCALE 1:2500 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **SAC EXCEEDANCE PLAN**

Location: 90 VETERANS PARADE, NARRABEEN, NSW

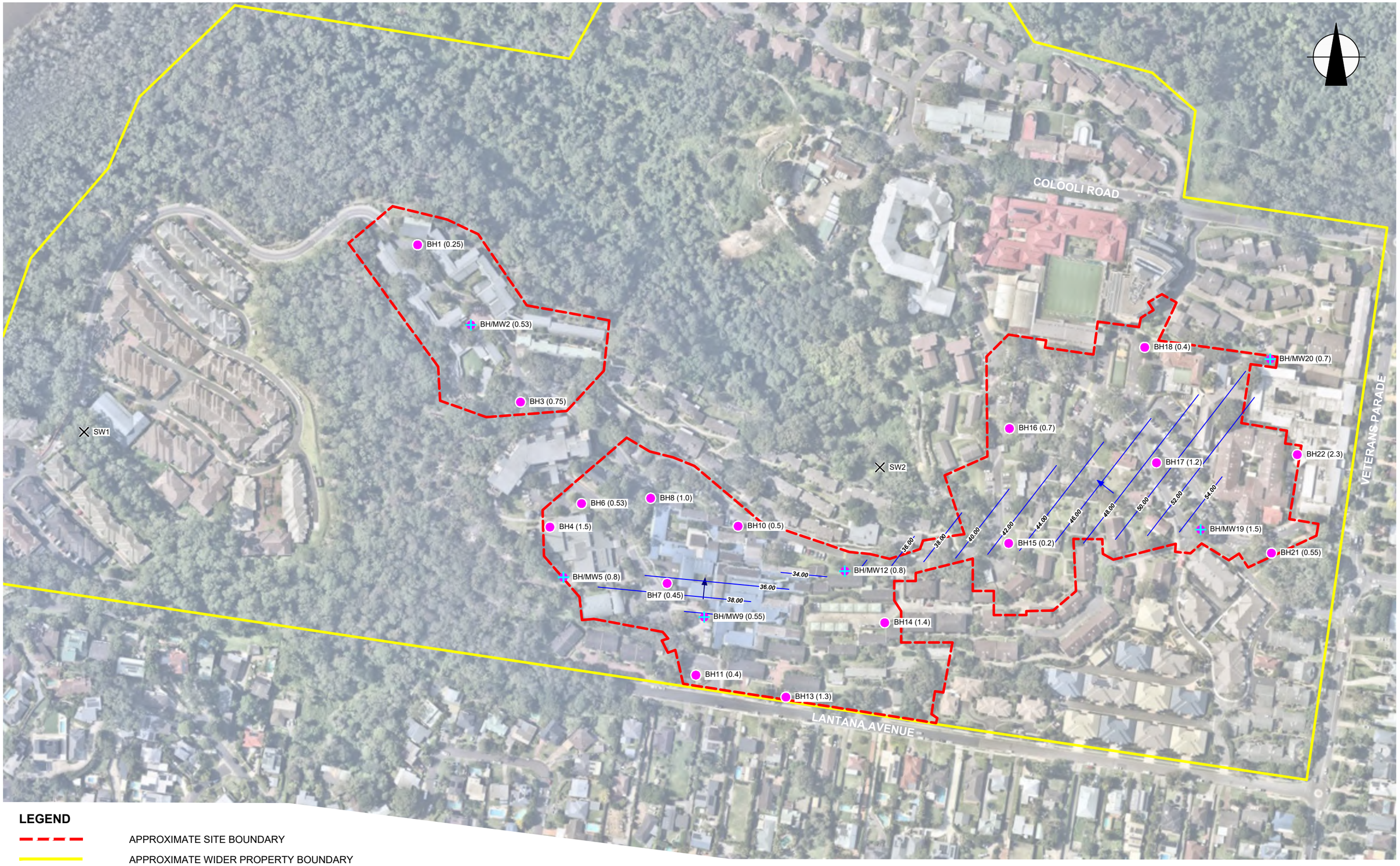
Project No: E37444BT

Figure No: 4

JKEnvironments

PLOT DATE: 23/04/2025 8:37:51 AM DWG FILE: K:\5C EIS JOBS\37000\S\E37444BT NARRABEEN\CAD\E37444BT.DWG

© JK ENVIRONMENTS



LEGEND

— — —	APPROXIMATE SITE BOUNDARY
———	APPROXIMATE WIDER PROPERTY BOUNDARY
BH(Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
SW1	WATER SAMPLE LOCATION AND NUMBER
48.00	GROUNDWATER CONTOUR INTERVALS (m)
→	INFERRED GROUNDWATER FLOW DIRECTION

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 25 50 75 100 125

SCALE 1:2500 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **GROUNDWATER CONTOUR PLOT**

Location: 90 VETERANS PARADE, NARRABEEN, NSW

Project No: E37444BT

Figure No: 5

JKEnvironments

PLOT DATE: 23/04/2025 8:37:58 AM DWG FILE: K:\SC EIS JOBS\37000\SIE37444BT NARRABEEN\CADIE37444BT.DWG

© JK ENVIRONMENTS

Appendix B: Site Information and Site History

Site Photos

Project Ref: E37444BT
Site Address: 90 Veterans Parade, Narrabeen, NSW
Selected Site Photos Dated: 11-14 March 2025



Photograph 1: Example of exposed fill, generally identified on the slope towards to the lagoon on the northern side of the site.



Photograph 2: Clinical waste storage in the north-west of the site.



Photograph 3: Example of dumped building rubble.

Project Ref: E37444BT
Site Address: 90 Veterans Parade, Narrabeen, NSW
Selected Site Photos Dated: 11-14 March 2025

	**Photograph 4:** HAZCHEM Stroe and Chemical store adjacent/beneath swimming pool in south of site.
	**Photograph 5:** Boiler room associated with swimming pool.
	**Photograph 6:** Liquid Oil Trap in north-east of site.

Lotsearch Environmental Risk and Planning Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 10 Mar 2025 14:01:28

Reference: LS075716 EP

Address: 4 Colooli Road, Narrabeen, NSW 2101

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

Dataset Listing

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

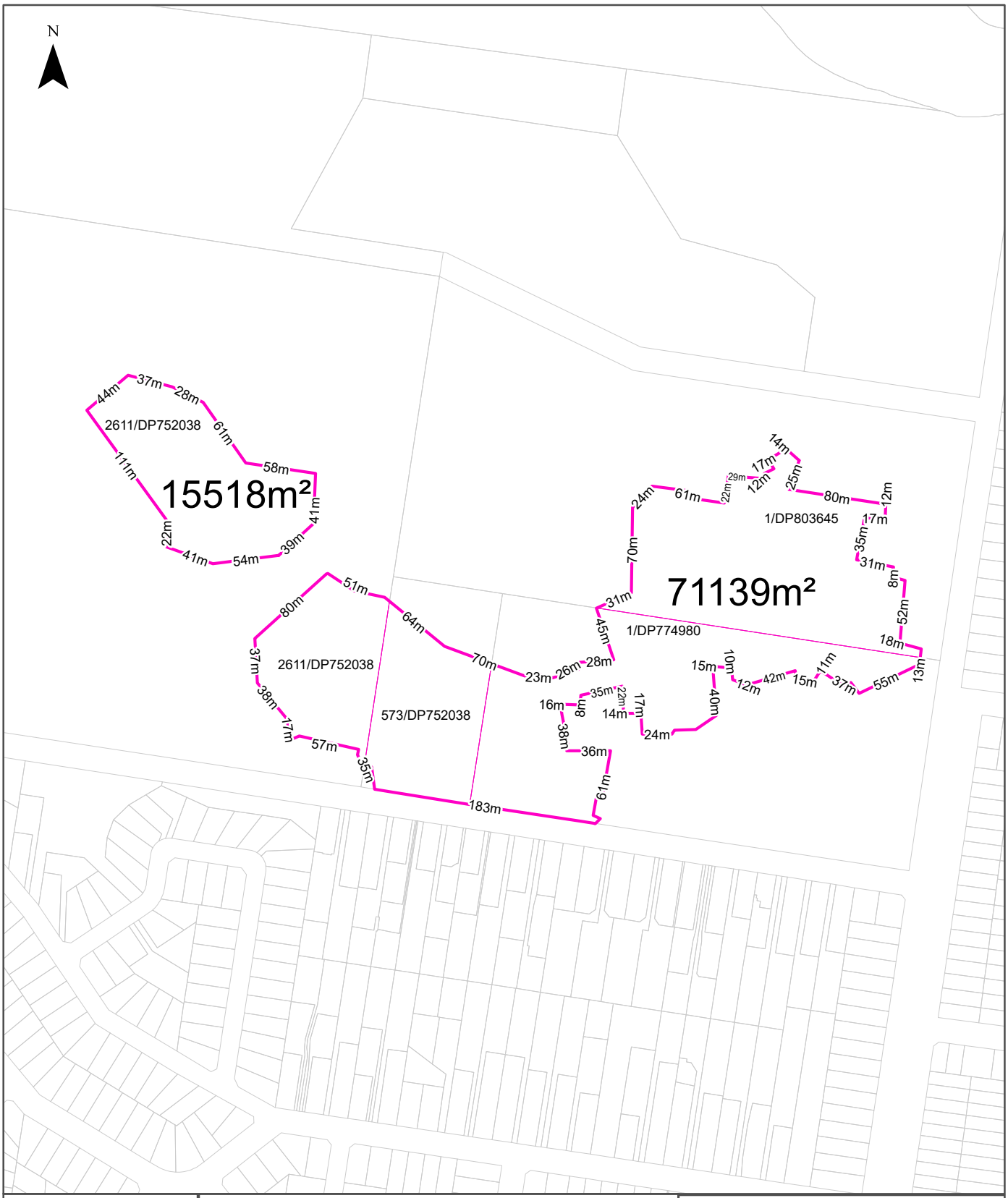
Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	07/03/2025	07/03/2025	Monthly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	21/05/2024	21/05/2024	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority NSW	07/03/2025	11/12/2024	Monthly	1000m	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority NSW	07/03/2025	07/03/2025	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority NSW	21/02/2025	14/07/2021	Quarterly	1000m	0	0	0
Notices under the POEO Act 1997	Environment Protection Authority NSW	20/02/2025	20/02/2025	Monthly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	29/04/2024	29/11/2022	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	16/10/2024	07/09/2020	Annually	1000m	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority NSW	21/02/2025	05/02/2025	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Australian Department of Defence	05/03/2025	28/10/2024	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Australian Department of Defence	05/03/2025	28/10/2024	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	05/03/2025	05/03/2025	Monthly	2000m	0	0	0
Defence Controlled Areas	Australian Department of Defence	23/01/2025	23/01/2025	Quarterly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Australian Department of Defence	18/02/2025	02/09/2022	Quarterly	2000m	0	0	0
National Unexploded Ordnance (UXO)	Australian Department of Defence	23/01/2025	23/01/2025	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority NSW	28/11/2024	15/12/2022	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority NSW	03/02/2025	03/02/2025	Monthly	1000m	0	0	0
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority NSW	03/02/2025	03/02/2025	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority NSW	03/02/2025	03/02/2025	Monthly	1000m	0	3	4
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	0	2
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	11	11
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	20	25
Points of Interest	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	3	47
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Customer Service - Spatial Services	21/02/2025	21/02/2025	Quarterly	1000m	0	3	16
State Forest	Forestry Corporation of NSW	18/12/2024	11/11/2024	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Geoscience Australia	17/04/2024	19/08/2019	Annually	1000m	1	1	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024	NSW Department of Climate Change, Energy, the Environment and Water	12/02/2025	28/06/2024	Quarterly	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	28/05/2024	20/06/2023	Annually	2000m	0	0	88
NSW Seamless Geology Single Layer: Rock Units	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	1	3	18
NSW Seamless Geology Single Layer: Geological Boundaries and Faults	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
NSW Seamless Geology Single Layer: Trendlines	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
NSW Seamless Geology Single Layer: Fold Axes	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Department of Primary Industries and Regional Development	26/04/2024	14/03/2024	Annually	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	15/01/2025	17/02/2011	Annually	1000m	1	1	2
Soil Landscapes of Central and Eastern NSW	NSW Department of Climate Change, Energy, the Environment and Water	18/12/2024	27/07/2020	Annually	1000m	1	2	8
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Housing and Infrastructure	04/02/2025	13/12/2024	Monthly	500m	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	15/01/2025	21/02/2013	Annually	1000m	1	2	3
Dryland Salinity - National Assessment	Australian Bureau of Agricultural and Resource Economics and Sciences	03/06/2024	24/05/2024	Annually	1000m	0	0	0
Mining Subsidence Districts	NSW Department of Customer Service	21/02/2025	21/02/2025	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Primary Industries and Regional Development	04/03/2025	04/03/2025	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Primary Industries and Regional Development	04/03/2025	04/03/2025	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Primary Industries and Regional Development	04/03/2025	04/03/2025	Monthly	1000m	13	13	13
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Housing and Infrastructure	04/02/2025	08/09/2023	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Housing and Infrastructure	04/02/2025	24/01/2025	Monthly	1000m	2	6	35
Commonwealth Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000m	0	0	0
National Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	21/02/2025	17/12/2024	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Housing and Infrastructure	04/02/2025	06/12/2024	Monthly	1000m	1	2	11
Bush Fire Prone Land	NSW Rural Fire Service	13/02/2025	14/11/2024	Monthly	1000m	2	2	3
NSW Native Vegetation Type Map	NSW Department of Climate Change, Energy, the Environment and Water	26/02/2025	08/11/2024	Quarterly	1000m	9	19	100
Ramsar Wetlands of Australia	Australian Department of Climate Change, Energy, the Environment and Water	16/05/2024	11/04/2024	Annually	1000m	0	0	0
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Terrestrial	Australian Department of Climate Change, Energy, The Environment and Water	04/03/2024	30/06/2022	Annually	1000m	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Marine	Australian Department of Climate Change, Energy, The Environment and Water	04/03/2024	30/06/2022	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	0	2	7
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	0	1	10
NSW BioNet Species Sightings	NSW Department of Climate Change, Energy, the Environment and Water	12/02/2025	12/02/2025	Monthly	10000m	-	-	-

Site Diagram

4 Colooli Road, Narrabeen, NSW 2101



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 86656m²

Total Perimeter: 2.47km

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.

Scale: 0 25 50 100 150 200 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 March 2025

Contaminated Land

4 Colooli Road, Narrabeen, NSW 2101

List of NSW contaminated sites notified to EPA

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

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

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Contaminated Land

4 Colooli Road, Narrabeen, NSW 2101

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

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

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

Former Gasworks

Former Gasworks within the dataset buffer:

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

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

Contaminated Land

4 Colooli Road, Narrabeen, NSW 2101

EPA Notices

Penalty Notices, s.91 & s.92 Clean up Notices and s.96 Prevention Notices within the dataset buffer:

Map ID	Number	Type	Name	Address	Status	Issued Date	Act	Offence	Offence Date	Loc Conf	Dist	Dir
N/A	No records in buffer											

NSW EPA Notice Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Waste Management & Liquid Fuel Facilities

4 Colooli Road, Narrabeen, NSW 2101

National Waste Management Facilities Database

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

Map ID	Owner	Name	Address	Management Type	Facility Type	Status	Loc Conf	Dist	Dir
N/A	No records in buffer								

Source: Waste Management Facilities Database
Creative Commons 4.0 © Commonwealth of Australia (Geoscience Australia) 2022

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	Direction
N/A	No records in buffer										

National Liquid Fuel Facilities Data Source: Geoscience Australia
Creative Commons 4.0 © Commonwealth of Australia

PFAS Investigation & Management Programs

4 Colooli Road, Narrabeen, NSW 2101

EPA PFAS Investigation Program

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

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

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

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites and Unexploded Ordnance

4 Colooli Road, Narrabeen, NSW 2101

Defence Controlled Areas (DCA)

Defence Controlled Areas provided by the Department of Defence within the dataset buffer:

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

Defence Controlled Areas, Data Custodian: Department of Defence, Australian Government

Defence 3 Year Regional Contamination Investigation Program (RCIP)

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

National Unexploded Ordnance (UXO)

Sites which have been assessed by the Department of Defence for the potential presence of unexploded ordnance within the dataset buffer:

Site ID	Location Name	Category	Area Description	Additional Information	Commonwealth	Loc Conf	Dist	Dir
N/A	No records in buffer							

National Unexploded Ordnance (UXO), Data Custodian: Department of Defence, Australian Government

EPA Other Sites with Contamination Issues

4 Colooli Road, Narrabeen, NSW 2101

EPA Other Sites with Contamination Issues

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

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

Sites within the dataset buffer:

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

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

EPA Activities

4 Colooli Road, Narrabeen, NSW 2101

Licensed Activities under the POEO Act 1997

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

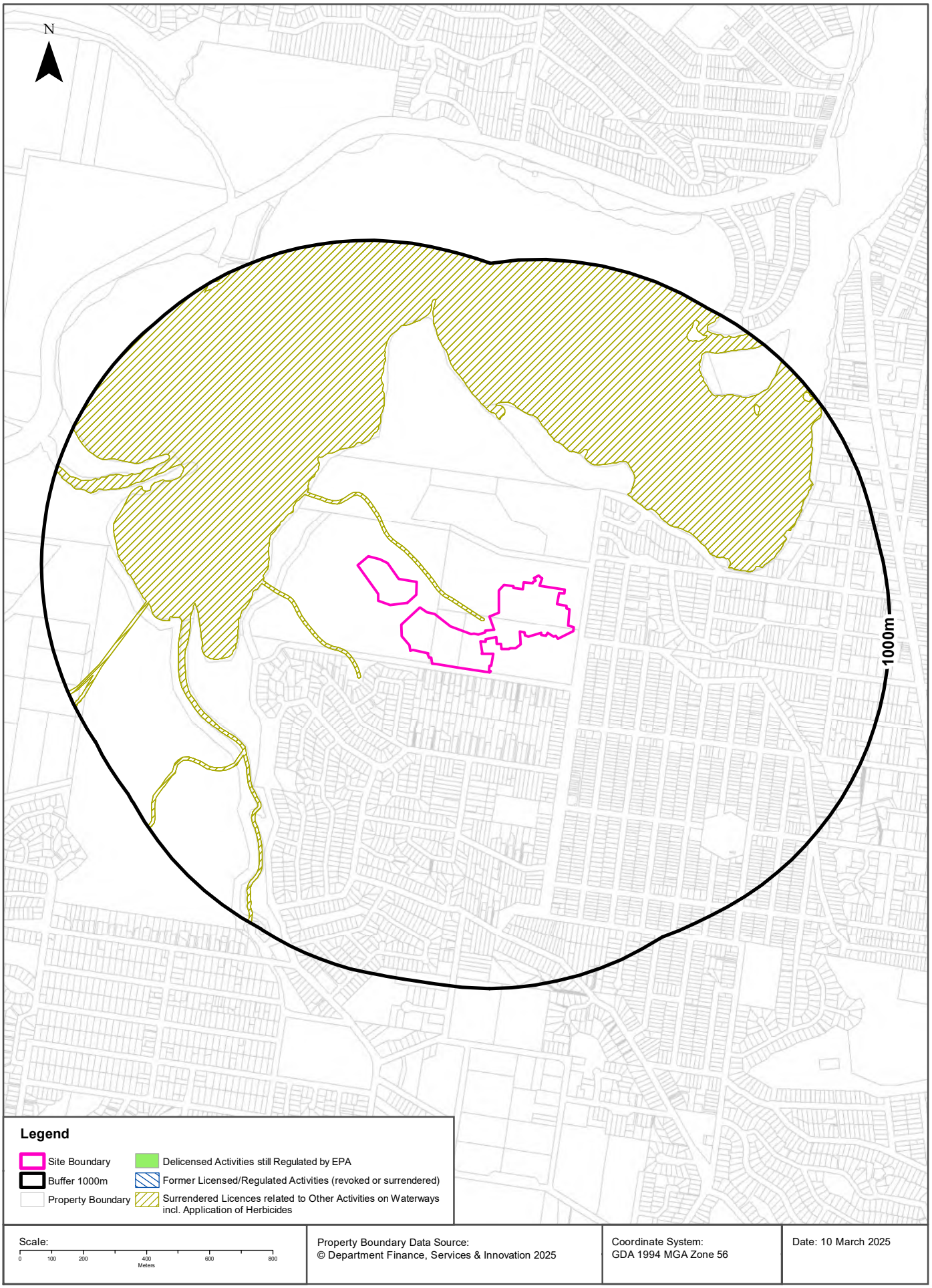
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Delicensed & Former Licensed EPA Activities

4 Colooli Road, Narrabeen, NSW 2101



EPA Activities

4 Colooli Road, Narrabeen, NSW 2101

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

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

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

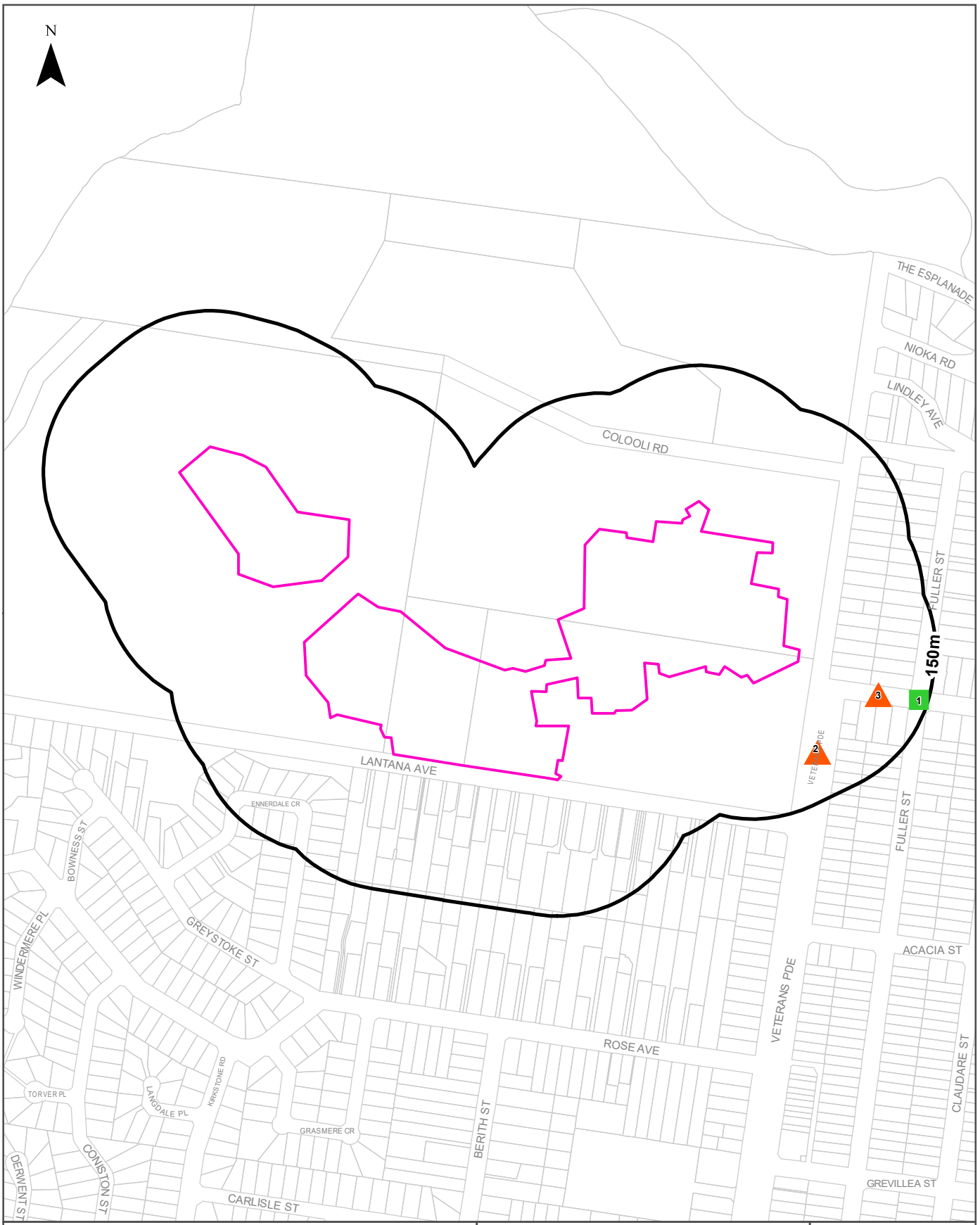
Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	19m	North
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	19m	North
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	19m	North
5462	PITTWATER COUNCIL	WATERWAYS OF THE PITTWATER COUNCIL AREA	Surrendered	17/04/2001	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	996m	North West

Former Licensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Historical Business Directories

4 Colooli Road, Narrabeen, NSW 2101



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 80 160 240 320 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 March 2025

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2025

Historical Business Directories

4 Colooli Road, Narrabeen, NSW 2101

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	Builders & Contractors	Sallows, R. L., Cnr. Edgecliffe Blv, & Fuller St., Collaroy Plateau	55599	1965	Road Intersection	140m	East
	BUILDERS & CONTRACTORS-(M.M.B.A.)	Sallows, J. W. & Son., cnr. Edgecliffe Blv. & Fuller St., COLLAROY PLATEAU	277588	1961	Road Intersection	140m	East

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Business Directory Records 1950-1991
Road or Area Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 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	Motor Garages & Service Stations	Ampol Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2097	97701	1991	Road Match	40m
	MOTOR GARAGES & SERVICE STATIONS.	Plateau Service Centre, Veterans Pde., Collaroy Plateau 2098	65272	1986	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098.	57391	1982	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098	50674	1978	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS.	Plateau Service Centre., Veterans Pde., Collaroy Plateau. 2098	59400	1975	Road Match	40m
	MOTOR ENGINE RECONDITIONERS(M624)	Plateau Service Station., Veterans Pde., Collaroy Plateau	337056	1970	Road Match	40m
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Plateau Service Station., Veterans Pde., Collaroy Plateau	341399	1970	Road Match	40m
3	Builders & Contractors	Smyth, R. J., Edgecliffe Blv., Collaroy Plateau	55630	1965	Road Match	59m
	PAINTERS, PAPERHANGERS/DECORATORS	Benham, W.,, Edgecliff Boulevarde., Collaroy	355912	1961	Road Match	59m
	GRAVEL, SAND/SOIL SUPPLIES	D. & C. Haulage, Edgecliffe Blv., Collaroy Plateau	319889	1961	Road Match	59m
	BUILDERS & CONTRACTORS-(M.M.B.A.)	Smyth, R. J., Edgecliffe Blv., COLLAROY PLATEAU	277638	1961	Road Match	59m

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Dry Cleaners, Motor Garages & Service Stations

4 Colooli Road, Narrabeen, NSW 2101



Legend

- Site Boundary
- Buffer 500m
- 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: 0 140 280 420 560 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 March 2025

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2025

Historical Business Directories

4 Colooli Road, Narrabeen, NSW 2101

Dry Cleaners, Motor Garages & Service Stations 1948-1993 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.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

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

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Dry Cleaners, Motor Garages & Service Stations 1948-1993 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.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

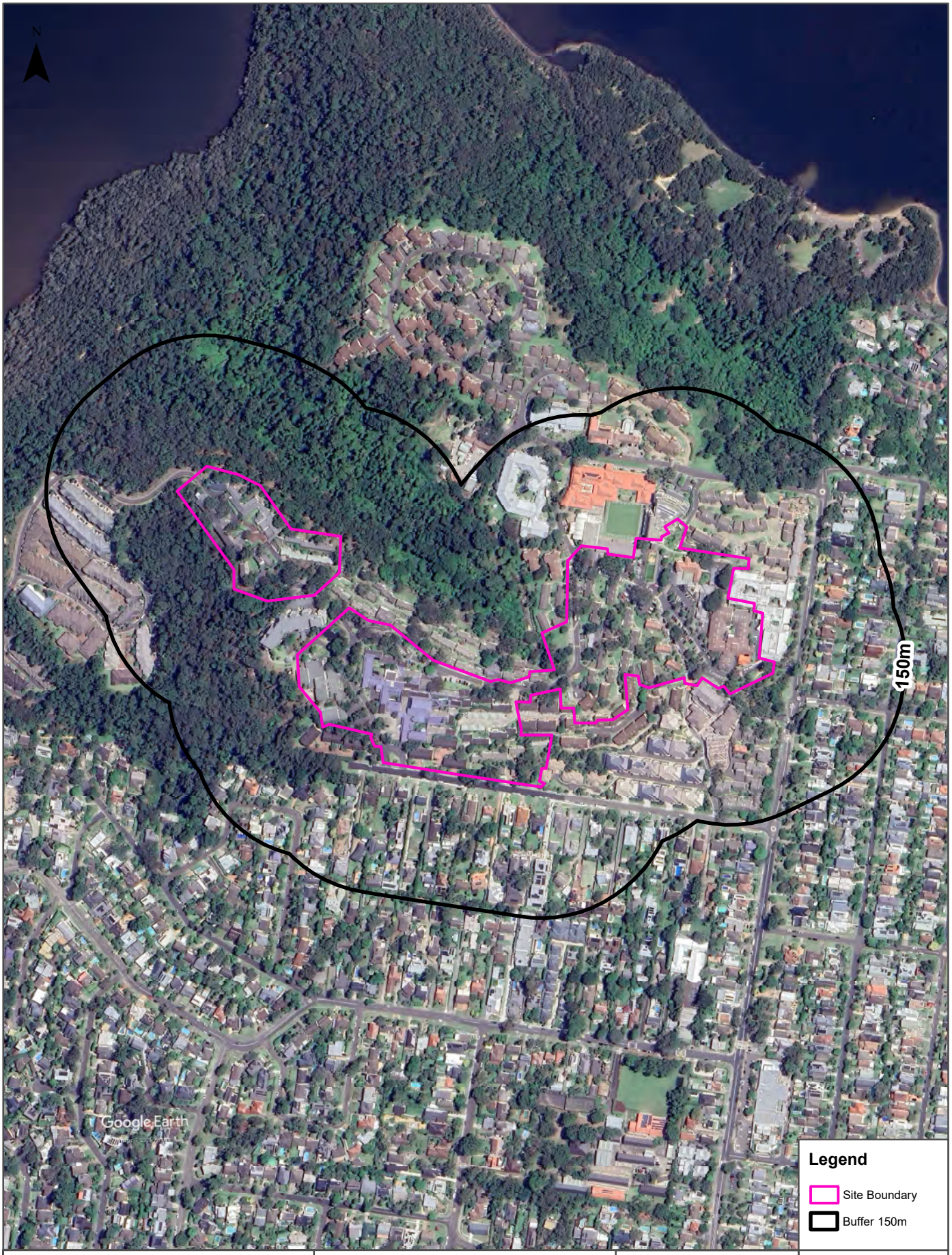
Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	Motor Garages & Service Stations	Ampol Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2097	97701	1991	Road Match	40m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098	5896	1990	Road Match	40m
	MOTOR GARAGE & SERVICE STATIONS.	Ampol Plateau Service Centre, Veterans Pde, Collaroy Plateau. 2098	64382	1989	Road Match	40m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098	53483	1988	Road Match	40m
	MOTOR GARAGES & SERVICE STATIONS.	Plateau Service Centre, Veterans Pde., Collaroy Plateau 2098	65272	1986	Road Match	40m
	MOTOR GARAGES & SERVICE STATIONS.	Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098	45381	1985	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098	33954	1984	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098	65786	1983	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098.	57391	1982	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre., Veterans Pde., Collaroy Plateau 2098	3934	1981	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre., Veterans Pde., Collaroy Plateau. 2098	58675	1980	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre., Veterans Pde., Collaroy Plateau. 2098.	46172	1979	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre, Veterans Pde., Collaroy Plateau. 2098	50674	1978	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Plateau Service Centre., Veterans Pde., Collaroy Plateau. 2098	34736	1976	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS.	Plateau Service Centre., Veterans Pde., Collaroy Plateau. 2098	59400	1975	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS.	Plateau Service Centre., Veterans Pde., Collaroy	7841	1972	Road Match	40m
	MOTOR GARAGES &/OR ENGINEERS.	Plateau Service Centre., Veterans Pde Collaroy	56530	1971	Road Match	40m
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Plateau Service Station., Veterans Pde., Collaroy Plateau	341399	1970	Road Match	40m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Plateau Service Station., Veterans Pde., Collaroy Plateau	47663	1969	Road Match	40m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Plateau Service Station., Veterans Pde., Collaroy Plateau	31097	1968	Road Match	40m
2	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	BP Acacia Service Station., South Creek Rd Wheeler Heights	18278	1972	Road Match	479m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	BP Acacia Service Station., South Creek Rd Wheeler Heights	2691	1971	Road Match	479m
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	BP Acacia Service Station., South Creek Rd., WHEELER HEIGHTS	340865	1970	Road Match	479m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	BP Acacia Service Station., South Creek Rd Wheeler Heights	50868	1969	Road Match	479m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	BP Acacia Service Station., South Creek Rd Wheeler Heights	36950	1968	Road Match	479m

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Aerial Imagery 2024

4 Colooli Road, Narrabeen, NSW 2101



Scale:
0 70 140 210 280
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 March 2025

Aerial Imagery 2014

4 Colooli Road, Narrabeen, NSW 2101



Scale:
0 70 140 210 280
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 March 2025

Aerial Imagery 2005

4 Colooli Road, Narrabeen, NSW 2101



Scale:
0 70 140 210 280
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 March 2025

Aerial Imagery 1994

4 Colooli Road, Narrabeen, NSW 2101



Aerial Imagery 1991

4 Colooli Road, Narrabeen, NSW 2101



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 07 March 2025
0 60 120 180 240 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1986

4 Colooli Road, Narrabeen, NSW 2101



Data Sources: Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 March 2025

Aerial Imagery 1982

4 Colooli Road, Narrabeen, NSW 2101



Aerial Imagery 1978

4 Colooli Road, Narrabeen, NSW 2101



Aerial Imagery 1970

4 Colooli Road, Narrabeen, NSW 2101



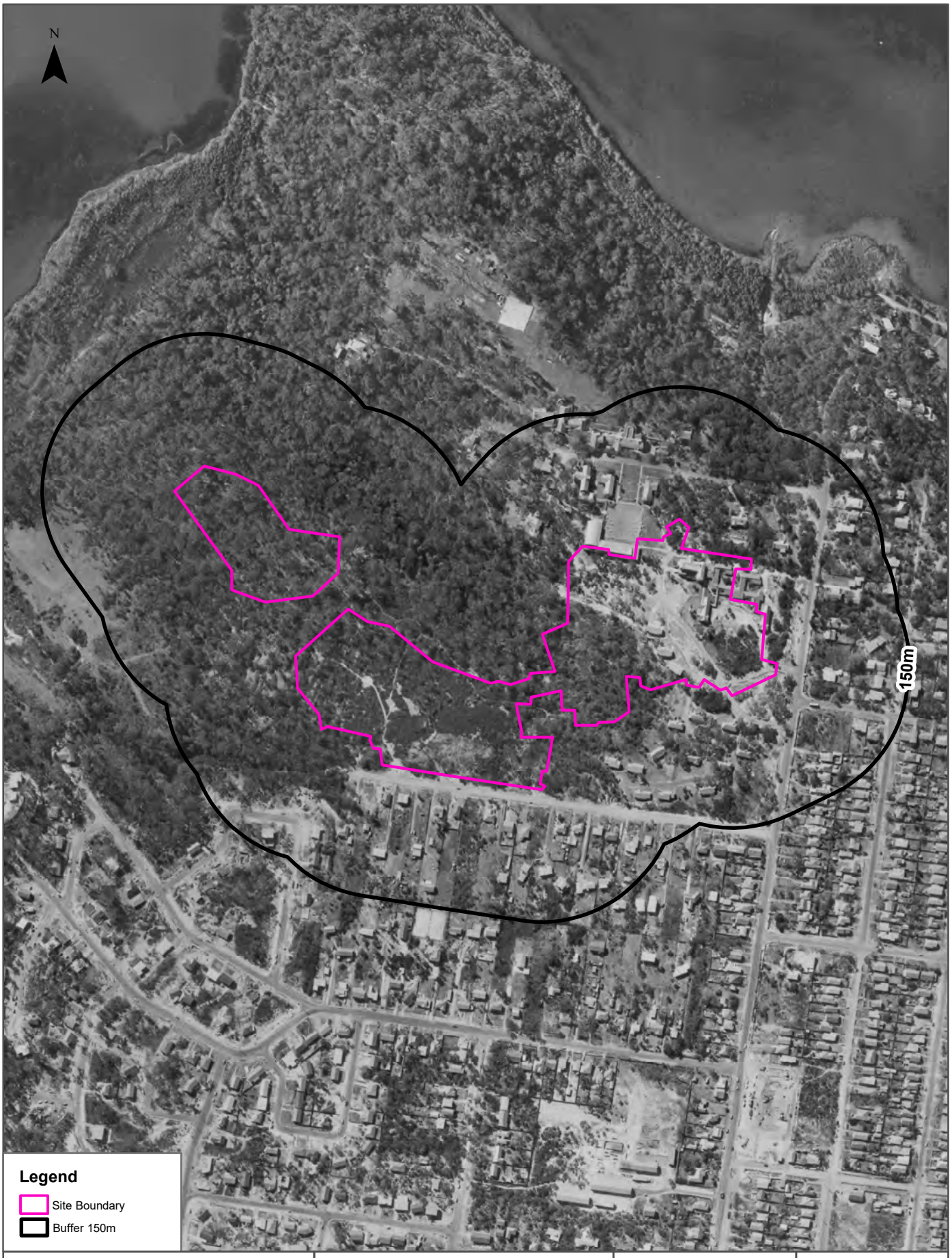
Data Sources: Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 March 2025

Aerial Imagery 1965

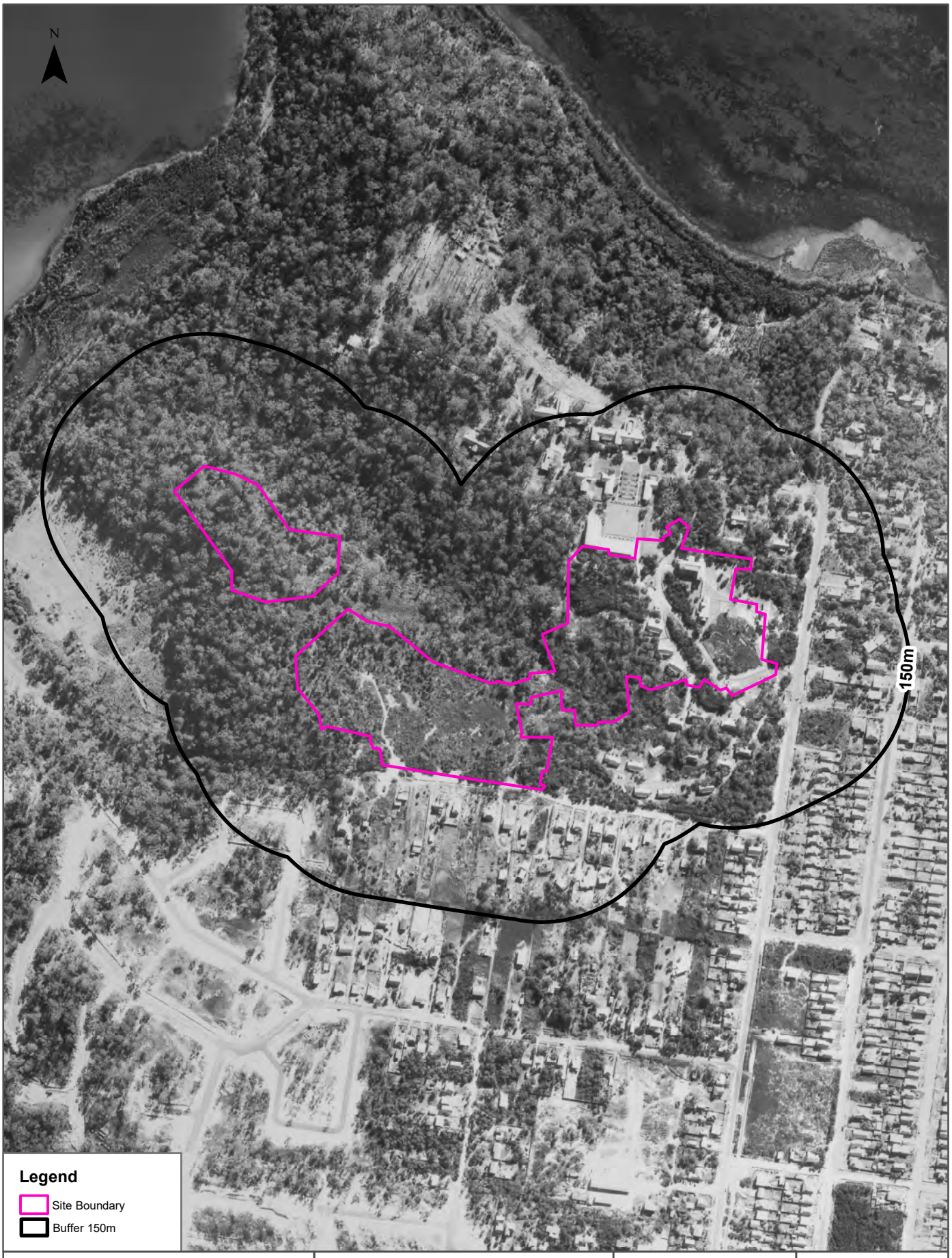
4 Colooli Road, Narrabeen, NSW 2101



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 07 March 2025
0 60 120 180 240 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

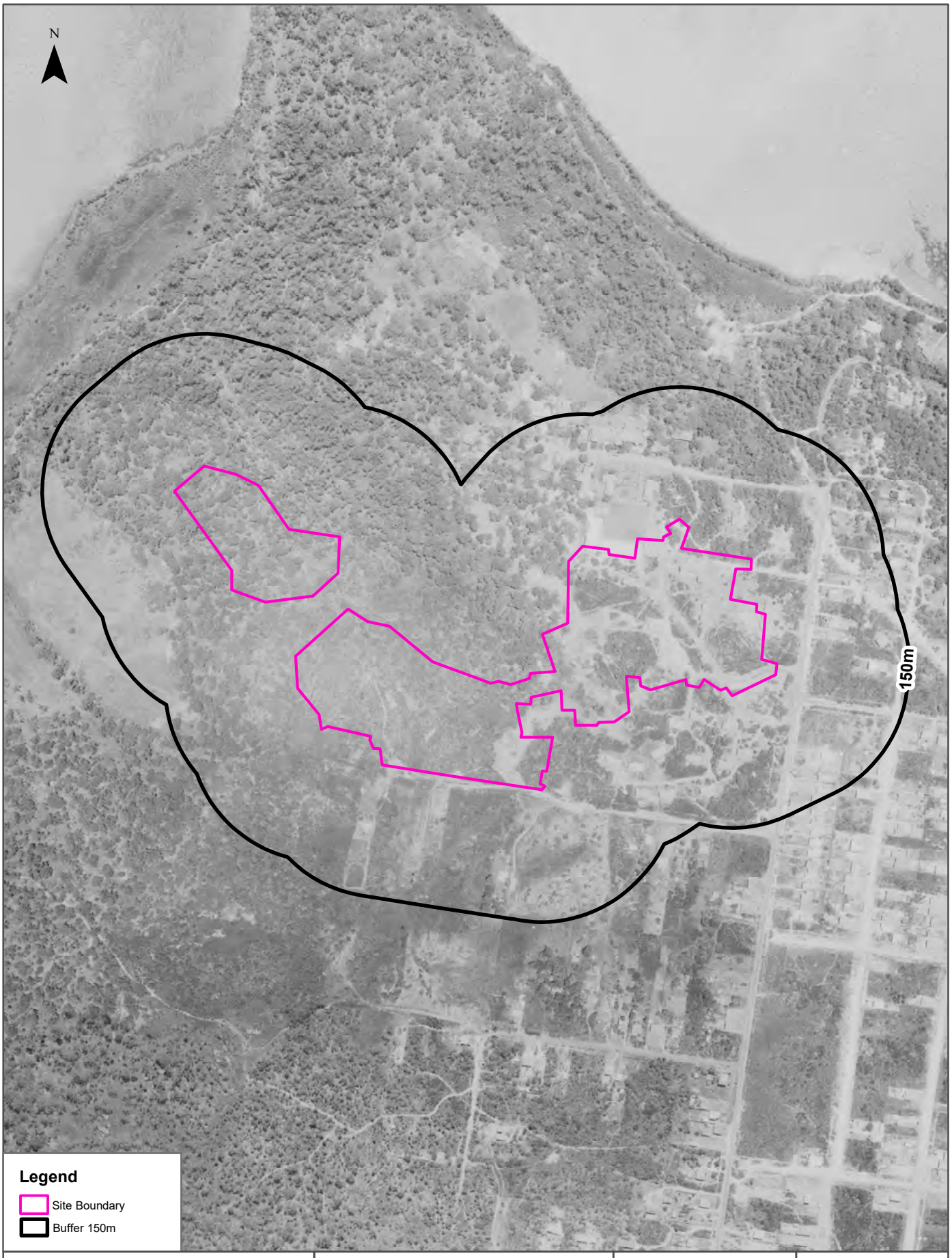
Aerial Imagery 1961

4 Colooli Road, Narrabeen, NSW 2101



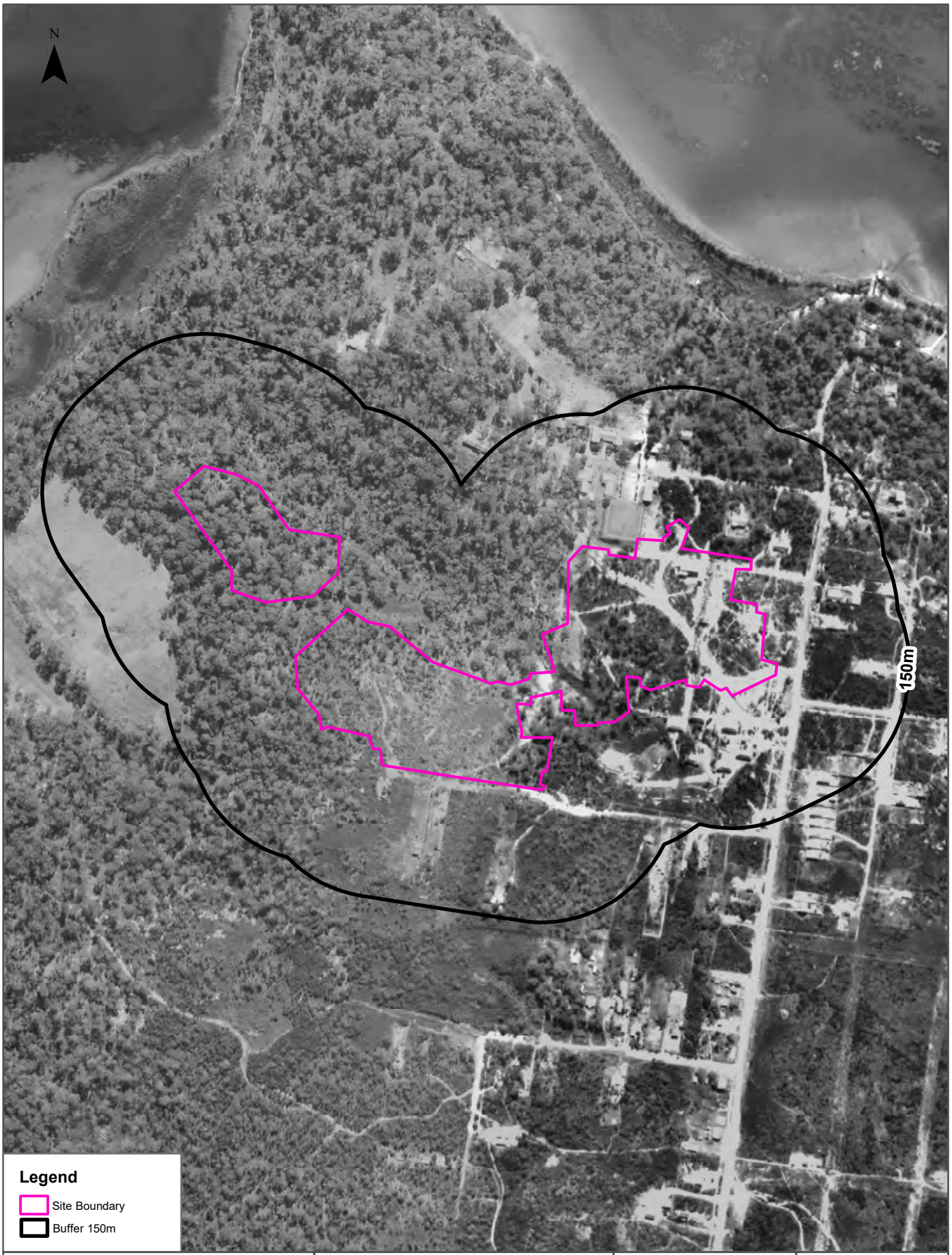
Aerial Imagery 1955, 1956

4 Colooli Road, Narrabeen, NSW 2101



Aerial Imagery 1951

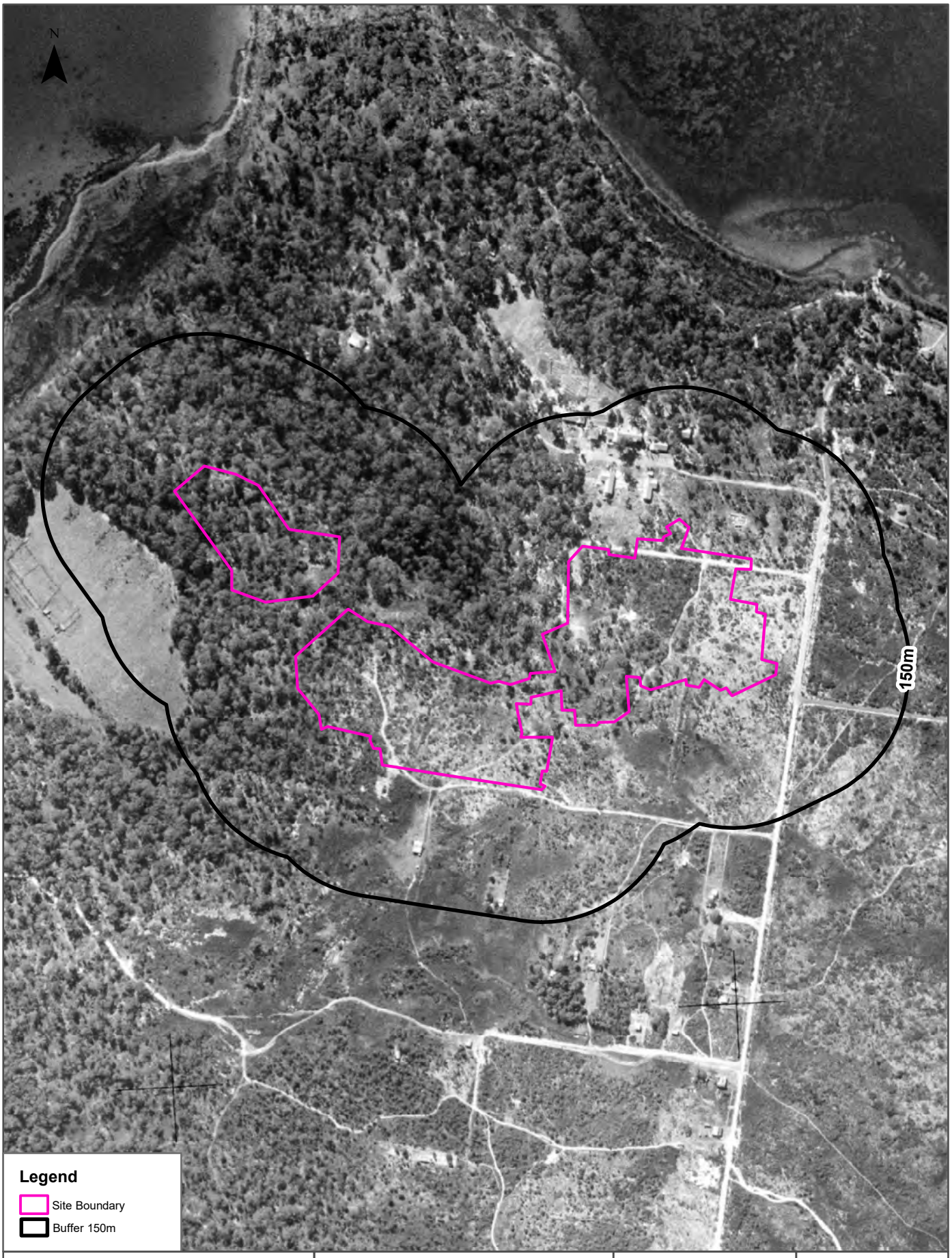
4 Colooli Road, Narrabeen, NSW 2101



Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 07 March 2025
0 60 120 180 240 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1943

4 Colooli Road, Narrabeen, NSW 2101



Historical Map 1975

4 Colooli Road, Narrabeen, NSW 2101



Scale: 0 375 750 Meters 1,125 1,500	Data Sources: NATMAP 1:100,000 Topographic Maps Geoscience Australia	Coordinate System: GDA 1994 MGA Zone 56	Date: 07 March 2025

Historical Map 1936 - 1942

4 Colooli Road, Narrabeen, NSW 2101



Scale: 0 375 750 Meters 1,125 1,500

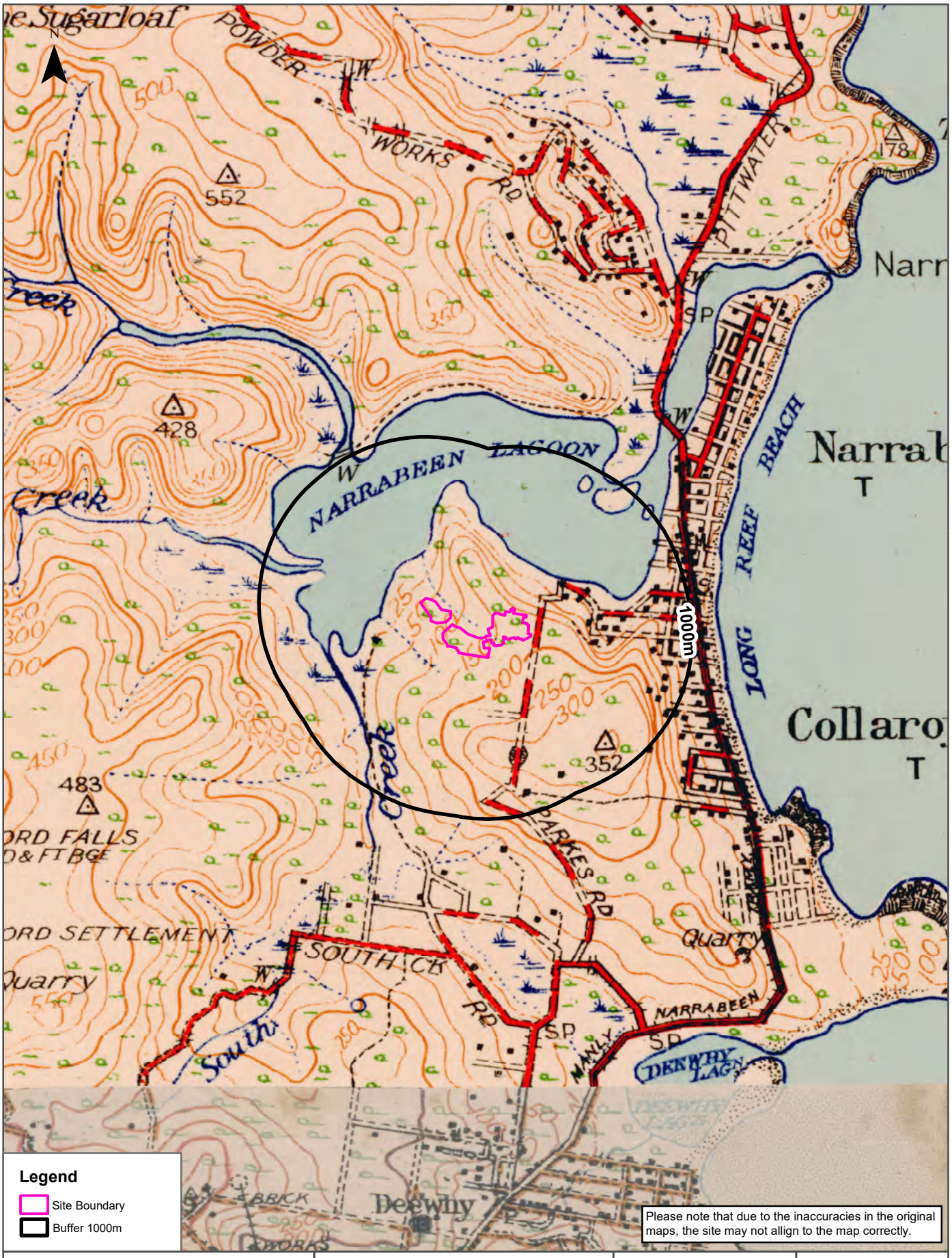
Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 March 2025

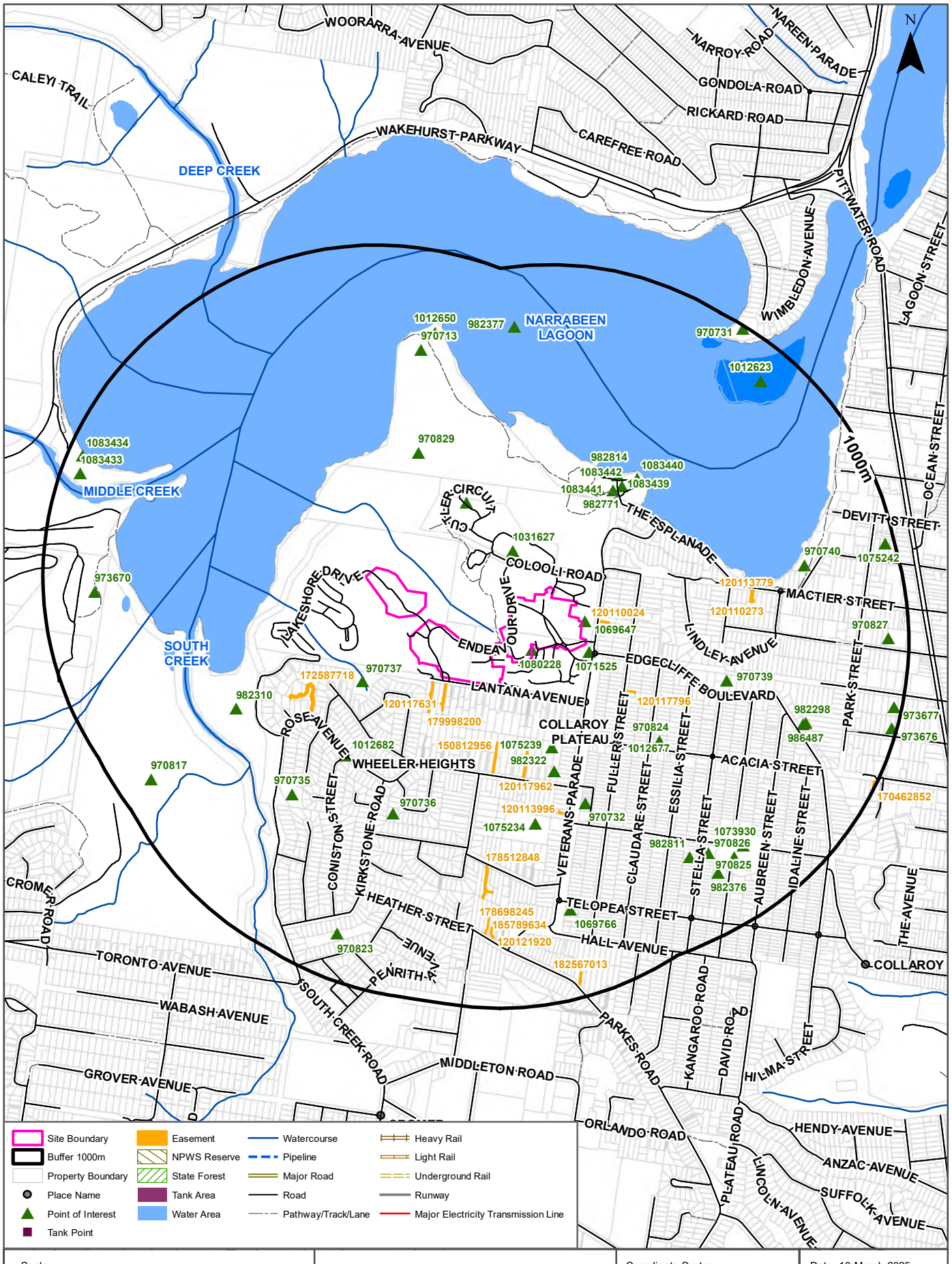
Historical Map 1917 - 1920

4 Colooli Road, Narrabeen, NSW 2101



Topographic Features

4 Colooli Road, Narrabeen, NSW 2101



Topographic Features

4 Colooli Road, Narrabeen, NSW 2101

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1080228	Retirement Village	RSL ANZAC VILLAGE NARRABEEN	1m	East
1069647	Nursing Home	PETER COSGROVE HOUSE	10m	East
1071525	Monument	RSL CENOTAPH	26m	East
1031627	Community Home	RSL ANZAC VILLAGE	143m	North
970737	Park	Park	181m	West
1075239	Primary School	ST ROSE CATHOLIC PRIMARY SCHOOL	250m	South East
1090028	Retirement Village	RSL ANZAC VILLAGE NARRABEEN	310m	North
982322	Place Of Worship	CATHOLIC CHURCH	314m	South East
1012677	Locality	COLLAROY PLATEAU	322m	South East
982771	Community Facility	NARRABEEN LAKES SAILING CLUB	338m	North East
1083441	Picnic Area	Picnic Area	358m	North East
1012682	Suburb	WHEELER HEIGHTS	366m	South West
970829	Park	JAMIESON PARK	377m	North
970824	Place Of Worship	ANGLICAN CHURCH	379m	South East
1083442	Picnic Area	Picnic Area	383m	North East
982814	Boat Ramp	Boat Ramp	392m	North East
1083439	Boat Ramp	Boat Ramp	404m	North East
1083440	Picnic Area	Picnic Area	425m	North East
1075234	Primary School	WHEELER HEIGHTS PUBLIC SCHOOL	440m	South
970732	Post Office	COLLAROY PLATEAU POST OFFICE	449m	South East
970736	Park	GRASMERE RESERVE	450m	South West
970739	Park	EDGAR GORNALL WILDFLOWER GARDENS	451m	East
982310	Park	JAMES WHEELER PLACE RESERVE	552m	West
970735	Park	WINDERMERE PARK	565m	South West
970713	Park	PIPECLAY POINT PARK	689m	North
970740	Park	WHEELER PARK	711m	East
982298	Park	EDGECLIFFE RESERVE	719m	East
986487	Lookout	MCLEAN LOOKOUT	725m	East
1069766	Community Home	PLATEAU VIEW NURSING HOME	728m	South
982811	Place Of Worship	COPTIC CHURCH	735m	South East
970825	Place Of Worship	BAPTIST CHURCH	751m	South East
1012650	Headland	PIPECLAY POINT	752m	North

Map Id	Feature Type	Label	Distance	Direction
1073930	Sports Field	VIC HUXLEY OVAL	793m	South East
970826	Park	PLATEAU PARK	805m	South East
982377	Natural Waterbody	NARRABEEN LAGOON	816m	North
982376	Community Facility	COLLAROY PLATEAU YOUTH COMMUNITY CENTRE	819m	South East
973670	Sports Court	TENNIS COURTS	840m	West
970823	Park	AMBLESIDE RESERVE	859m	South West
1012623	Island	SANCTUARY ISLAND	891m	North East
970817	Golf Course	CROMER GOLF COURSE	894m	West
970827	Place Of Worship	ANGLICAN CHURCH	937m	East
1083433	Picnic Area	Picnic Area	940m	North West
1083434	Picnic Area	Picnic Area	954m	North West
1075242	Primary School	NARRABEEN LAKES PUBLIC SCHOOL	971m	East
973677	Place Of Worship	Place Of Worship	975m	East
973676	Park	HALL RESERVE	985m	East
970731	Park	WIMBLEDON RESERVE	990m	North East

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

4 Colooli Road, Narrabeen, NSW 2101

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

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

Tanks (Points)

What are the Tank Points located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

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

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

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120117631	Primary	Undefined		20m	South West
179998200	Primary	Right of way	3.5m & Var	31m	South West
120110024	Primary	Undefined		59m	East
150812956	Primary	Right of way	4.57, 5, 3.4	175m	South
120117796	Primary	Undefined		195m	East
120117962	Primary	Undefined		220m	South
172587718	Primary	Right of way	Var	319m	West
120113996	Primary	Undefined		428m	South East
120110273	Primary	Undefined		521m	East
120113779	Primary	Undefined		524m	East
178512848	Primary	Right of way	Var.	559m	South
185789634	Primary	Right of way	VAR	714m	South
178698245	Primary	Right of way	4m & var	716m	South
120121920	Primary	Undefined		750m	South
182567013	Primary	Right of way	Variable	922m	South
170462852	Primary	Right of way	4.57 m	989m	East

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

4 Colooli Road, Narrabeen, NSW 2101

State Forest

What State Forest exist within the dataset buffer?

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

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Elevation Contours (m AHD)

4 Colooli Road, Narrabeen, NSW 2101



Hydrogeology & Groundwater

4 Colooli Road, Narrabeen, NSW 2101

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive aquifers of low to moderate productivity	0m	On-site

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Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024

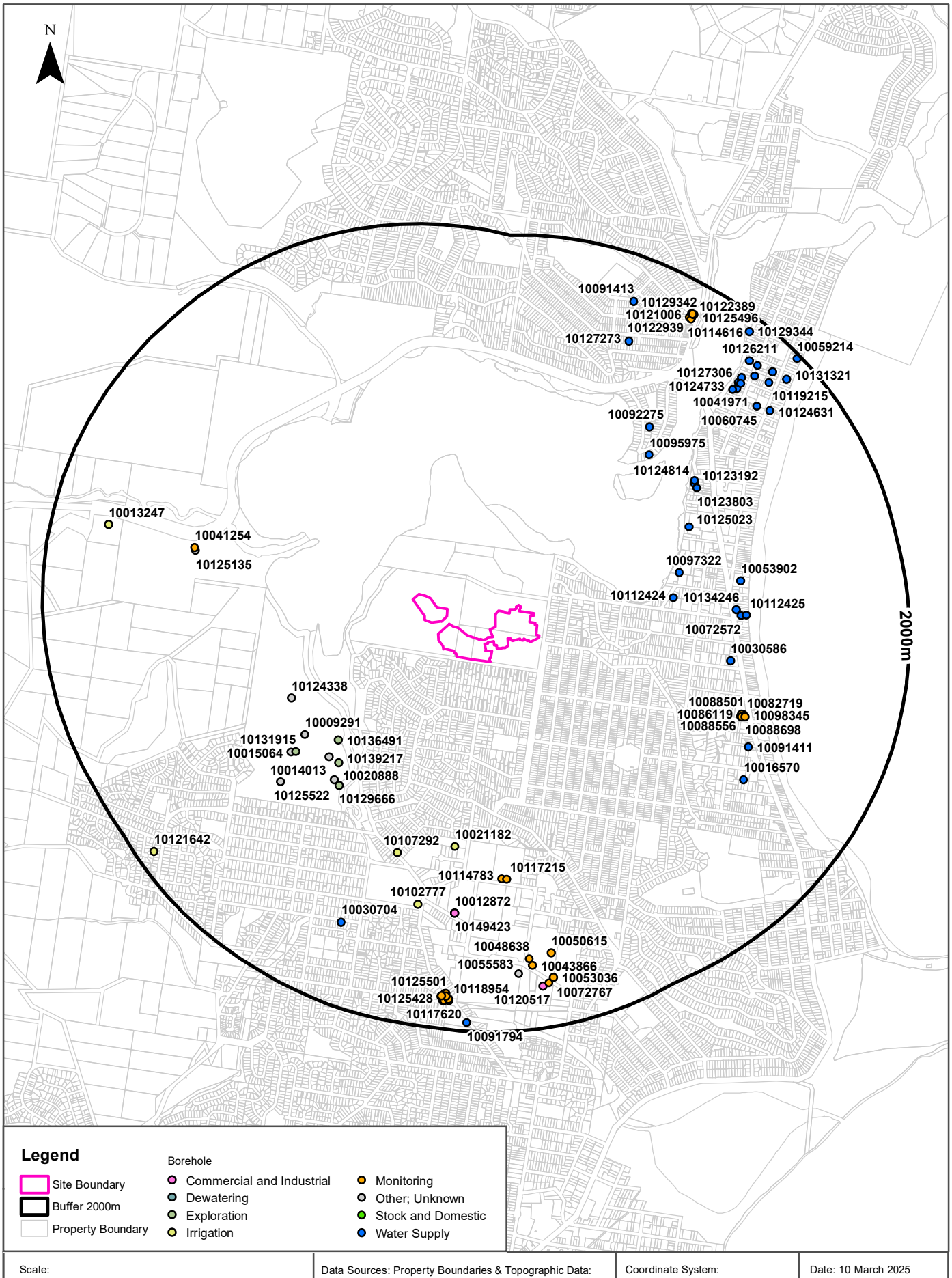
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

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

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024 Data Source : NSW Department of Primary Industries

Groundwater Boreholes

4 Colooli Road, Narrabeen, NSW 2101



Legend

Site Boundary
Buffer 2000m
Property Boundary

Borehole

- Commercial and Industrial
- Dewatering
- Exploration
- Irrigation
- Monitoring
- Other; Unknown
- Stock and Domestic
- Water Supply

Scale: 0 100 200 400 600 800 1,000 1,200 1,400 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 March 2025

Hydrogeology & Groundwater

4 Colooli Road, Narrabeen, NSW 2101

Groundwater Boreholes

Boreholes within the dataset buffer:

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10136491	GW064457	Exploration	Proposed	01/04/1987	19.00		AHD				750m	South West
10112424	GW108000	Water Supply	Functioning	06/03/2006	4.00		AHD		0.100	1.30	753m	East
10097322	GW108852	Water Supply	Functioning	24/04/2007	4.00		AHD		0.500	2.00	818m	East
10139217	GW064458	Exploration	Proposed	01/04/1987	18.00		AHD				834m	South West
10124338	GW111715	Other	Functioning	11/08/2010	90.00		AHD	3.83	5.400	3.60	835m	West
10014013	GW062257	Other	Unknown	01/10/1987	7.80		AHD	Good			849m	South West
10009291	GW062256	Other	Functioning	11/08/1997	18.00		AHD	Good	4.000	0.80	879m	South West
10020888	GW062259	Other	Unknown	01/10/1987	13.00		AHD	Good			920m	South West
10129666	GW064460	Exploration	Proposed	01/04/1987	18.00		AHD				927m	South West
10125023	GW106591	Water Supply	Functioning	07/10/2004	7.00		AHD		0.500	2.00	959m	North East
10131915	GW064459	Exploration	Proposed	01/04/1987	14.00		AHD				972m	South West
10015064	GW062258	Other	Functioning	01/11/1987	16.50		AHD	Good		0.69	994m	South West
10021182	GW021981	Irrigation	Functioning		4.20	33.50	AHD				1015m	South
10030586	GW106015	Water Supply	Functioning	15/03/2004	7.93		AHD		1.000		1044m	East
10095975	GW111135	Water Supply	Functioning	23/08/2008	6.00		AHD	260	0.800	2.00	1058m	North East
10134246	GW108417	Water Supply	Functioning	25/01/2007	8.80		AHD	Good	1.000	6.70	1075m	East
10072572	GW111249	Water Supply	Functioning	17/02/2011	9.00		AHD	273	1.000	6.90	1095m	East
10107292	GW016924	Irrigation	Unknown	01/12/1958	4.20		AHD	Very Good			1107m	South
10123803	GW106095	Water Supply	Functioning	06/05/2004	6.00		AHD		0.500	2.00	1111m	North East
10123192	GW105719	Water Supply	Functioning	10/01/2004	4.00		AHD	Good	0.500	1.50	1117m	North East
10112425	GW108502	Water Supply	Functioning	31/01/2007	8.80		AHD		0.800	6.50	1125m	East
10053902	GW106668	Water Supply	Functioning	07/10/2004	10.50		AHD		0.600	7.30	1128m	East
10124814	GW105718	Water Supply	Functioning	09/01/2004	4.00		AHD	Good	0.500	2.00	1128m	North East
10125522	GW110192	Other	Unknown	02/03/2009	103.00		AHD	0.9	1.600	4.00	1135m	South West
10088556	GW109619	Monitoring	Unknown	05/06/2004	8.30		AHD				1170m	East
10086119	GW109615	Monitoring	Unknown	21/01/2003	10.20		AHD				1171m	East
10088501	GW109616	Monitoring	Unknown	05/06/2004	8.90		AHD				1174m	East
10114783	GW104066	Monitoring	Unknown	24/07/2001	4.00		AHD				1174m	South
10088698	GW109618	Monitoring	Unknown	05/06/2004	8.30		AHD				1177m	East
10117215	GW104067	Monitoring	Unknown	24/07/2001	4.00		AHD				1179m	South

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10082719	GW109617	Monitoring	Unknown	05/06/2004	8.50		AHD				1183m	East
10092275	GW108236	Water Supply	Functioning	30/10/2006	6.00		AHD		1.000	1.20	1187m	North East
10098345	GW109614	Monitoring	Unknown	21/01/2003	8.00		AHD				1193m	East
10125135	GW111449	Other	Proposed	30/08/2010	20.30		AHD	890	3.850	0.72	1199m	West
10041254	GW111738	Monitoring	Functional	24/06/2010	23.00		AHD				1208m	West
10091411	GW107833	Water Supply	Unknown	01/10/2005	4.50		AHD				1278m	East
10016570	GW025547	Water Supply	Unknown	01/04/1965	30.40		AHD				1348m	South East
10102777	GW106686	Irrigation	Unknown	07/09/2005	78.10		AHD	428	0.600	8.60	1354m	South
10012872	GW025535	Commercial and Industrial	Unknown	01/08/1964	20.70		AHD				1371m	South
10149423	GW019372	Commercial and Industrial	Unknown	01/01/1962	106.30		AHD	Good			1371m	South
10127273	GW109675	Water Supply	Unknown	01/01/2005	4.00		AHD			1.50	1544m	North East
10030704	GW106395	Water Supply	Functioning	28/09/2004	2.50		AHD				1563m	South West
10050615	GW113001	Monitoring	Functional	01/10/2010	7.50		AHD				1608m	South
10124733	GW109061	Water Supply	Unknown	16/07/2008	5.50		AHD	305	0.800	2.10	1618m	North East
10048638	GW113002	Monitoring	Functional	01/10/2010	7.50		AHD				1620m	South
10041971	GW108581	Water Supply	Functioning	26/03/2007	4.50		AHD	Good	1.000	16.00	1638m	North East
10060745	GW105544	Water Supply	Unknown	22/09/2004	14.00		AHD	245	0.800	9.60	1644m	North East
10043866	GW113003	Monitoring	Functional	30/09/2010	7.50		AHD				1656m	South
10127306	GW108525	Water Supply	Functioning	21/01/2007	5.50		AHD		1.000	2.00	1666m	North East
10128271	GW111430	Water Supply	Functioning	03/05/2011	4.80		AHD	230	1.000	1.20	1670m	North East
10124631	GW109034	Water Supply	Unknown	14/07/2008	14.50		AHD				1681m	North East
10013247	GW022166	Irrigation	Unknown	01/04/1964	7.60		AHD	Poor			1689m	West
10055583	GW108314	Other	Unknown	10/01/2005	78.00		AHD	300	8.000	5.00	1694m	South
10127573	GW108027	Water Supply	Functioning	14/06/2006	5.00		AHD		1.000	1.70	1698m	North East
10053036	GW113004	Monitoring	Functional	01/10/2010	7.50		AHD				1739m	South
10121332	GW111684	Water Supply	Functioning	07/02/2012	9.60		AHD	193	1.000	7.20	1751m	North East
10091413	GW109109	Water Supply	Unknown	23/07/2008	6.00		AHD	260	0.900	1.00	1755m	North East
10072767	GW113005	Monitoring	Functional	01/10/2010	7.50		AHD				1765m	South
10120517	GW032018	Commercial and Industrial	Unknown	01/05/1967	9.10		AHD	Excellent			1775m	South
10119215	GW109181	Water Supply	Unknown	08/08/2008	20.00		AHD	480	1.000	15.00	1780m	North East
10126211	GW111300	Water Supply	Functioning	21/08/2007	6.00		AHD	good	0.500	3.00	1793m	North East
10122939	GW111043	Monitoring	Unknown	11/05/2010	5.00		AHD			2.00	1802m	North East
10121431	GW107732	Water Supply	Functioning	22/12/2005	15.00		AHD	286	0.800	10.00	1804m	North East
10129136	GW113580	Monitoring	Functional	11/12/2008	5.00		AHD				1806m	South
10127918	GW113579	Monitoring	Functional	11/12/2008	5.00		AHD				1807m	South

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10114616	GW111042	Monitoring	Unknown	11/05/2010	5.00		AHD			2.00	1808m	North East
10121006	GW111041	Monitoring	Unknown	11/05/2010	5.00		AHD			2.00	1808m	North East
10125501	GW113575	Monitoring	Functional	16/04/2007	6.00		AHD				1810m	South
10118954	GW113567	Monitoring	Functional	08/06/2004	6.20		AHD				1819m	South
10136310	GW113569	Monitoring	Functional	08/06/2004	7.00		AHD				1821m	South
10136604	GW113576	Monitoring	Functional	17/04/2007	6.00		AHD				1823m	South
10125428	GW113568	Monitoring	Functional	08/06/2004	5.50		AHD				1828m	South
10122389	GW114585	Monitoring	Functional	04/04/2011	4.00		AHD				1829m	North East
10129342	GW114584	Monitoring	Functional	04/04/2011	4.00		AHD				1829m	North East
10125496	GW114586	Monitoring	Functional	05/04/2011	4.00		AHD				1831m	North East
10129559	GW113573	Monitoring	Functional	16/04/2007	5.50		AHD				1834m	South
10088075	GW108727	Water Supply	Functioning	25/03/2007	10.00		AHD	270	1.000	9.00	1835m	North East
10123308	GW113574	Monitoring	Functional	17/04/2007	6.00		AHD				1837m	South
10128254	GW113578	Monitoring	Functional	11/12/2008	6.00		AHD				1837m	South
10134630	GW113570	Monitoring	Functional	09/06/2004	6.50		AHD				1838m	South
10126196	GW113577	Monitoring	Functional	17/04/2007	6.00		AHD				1843m	South
10117620	GW113571	Monitoring	Functional	11/05/2007	6.00		AHD				1846m	South
10125690	GW113572	Monitoring	Functional	11/05/2007	6.00		AHD				1846m	South
10131321	GW114840	Water Supply	Functioning	11/03/2015	11.00		AHD			9.00	1861m	North East
10121642	GW024073	Irrigation	Functioning		4.80		AHD				1905m	South West
10129344	GW106479	Water Supply	Functioning	20/10/2004	5.00		AHD		1.000	1.20	1917m	North East
10091794	GW070268	Water Supply	Unknown	24/06/1992	11.00		AHD	Good			1954m	South
10059214	GW107181	Water Supply	Functioning	07/07/2005	12.00		AHD		0.800	10.00	1978m	North East

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

Hydrogeology & Groundwater

4 Colooli Road, Narrabeen, NSW 2101

Driller's Logs

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

NGIS Bore ID	Drillers Log	Distance	Direction
10112424	0.00m-4.00m sand 4.00m-8.00m clay	753m	East
10097322	0.00m-0.30m topsoil 0.30m-3.20m sand, brown 3.20m-4.00m sand, grey	818m	East
10124338	0.00m-0.50m TOPSOIL 0.50m-24.00m SANDSTONE YELLOW 24.00m-46.00m SANDSTONE GREY 46.00m-48.00m SHALE 48.00m-52.00m SANDSTONE 52.00m-54.00m SHALE 54.00m-64.00m SANDSTONE GREY 64.00m-66.00m SHALE 66.00m-90.00m SANDSTONE GREY	835m	West
10014013	0.00m-0.50m Topsoil Water Supply 0.50m-1.50m Sand Silty Water Supply 1.50m-3.00m Sand Grey Water Supply 3.00m-3.50m Clay Soft Silty Water Supply 3.50m-7.80m Sand Grey Water Supply	849m	South West
10009291	0.00m-1.10m TOP SOIL 1.10m-2.80m SAND 2.80m-6.50m CLAY AND SILTY SAND 6.50m-18.00m SAND YELLOW W.B. 18.00m-20.30m SAND SILTY YELLOW 20.30m-26.60m CLAY AND SAND BLACK 26.60m-27.80m SHALE 27.80m-36.00m SANDSTONE GREY WITH BANDS OF SHALE	879m	South West
10020888	0.00m-0.56m Topsoil 0.56m-2.00m Sand White 2.00m-5.00m Sand Grey Coarse Water Bearing 5.00m-8.70m Clay Black Grey Water Bearing 8.70m-13.00m Sand Silty Water Bearing 13.00m-14.00m Sand Very Silty	920m	South West
10125023	0.00m-0.30m topsoil 0.30m-1.20m sand, grily 1.20m-2.50m mud, brown 2.50m-4.00m sand, silty brown 4.00m-5.00m sand, grey 5.00m-5.50m mud, grey 5.50m-7.00m sand, yellow	959m	North East
10015064	0.00m-0.95m Topsoil 0.95m-9.25m Mud Soft Silty 9.25m-16.00m Sand White Water Supply 16.00m-16.50m Clay Grey Soft Water Supply	994m	South West
10030586	0.00m-7.93m sand, unconsolidated with small stones and sea shells	1044m	East
10095975	0.00m-0.20m TOPSOIL 0.20m-0.40m UNKNOWN 0.40m-2.00m SAND WHITE 2.00m-4.00m SAND 4.00m-5.00m SOIL BLACK / SAND 5.00m-6.00m SAND GREY	1058m	North East
10134246	0.00m-8.80m Sand, beach	1075m	East
10072572	0.00m-0.20m TOPSOIL 0.20m-1.00m SAND GOLDEN 1.00m-3.00m SAND FINE YELLOW 3.00m-6.00m SAND AND SHELLS COARSE 6.00m-7.00m SAND COMPACTED 7.00m-9.00m SANDS AND SHELLS COMPACTED	1095m	East
10107292	0.00m-1.82m Soil Sandy 1.82m-4.26m Sand Water Supply	1107m	South
10123803	0.00m-0.30m topsoil 0.30m-1.50m sand, brown 1.50m-3.00m mud 3.00m-5.00m SAND, SITY BROWN 5.00m-6.00m SAND, GOOD YELLOW	1111m	North East

NGIS Bore ID	Drillers Log	Distance	Direction
10123192	0.00m-0.30m topsoil 0.30m-1.00m sand, grey 1.00m-1.50m mud, marine 1.50m-4.00m sand, silty grey with shells	1117m	North East
10112425	0.00m-5.00m Sand 5.00m-8.80m Sand, compressed	1125m	East
10053902	0.00m-15.00m sand	1128m	East
10124814	0.00m-0.30m topsoil 0.30m-1.00m sand. grey 1.00m-1.50m mud, 1.50m-4.00m siltysand, grey with shells	1128m	North East
10125522	0.00m-16.00m BLACK SAND 16.00m-18.00m SAND BROWN 18.00m-24.00m SAND GREY 24.00m-30.00m SHALE 30.00m-84.00m SANDSTONE GREY 84.00m-103.00m SHALE,SANDSTONE BANDS	1135m	South West
10114783	0.00m-0.30m TOPSOIL,SANDY CLAY 0.30m-0.70m SAND,MEDIUM GRAINED 0.70m-1.50m SAND,BROWN 1.50m-2.50m CLAYEY SAND 2.50m-4.00m CLAYEY SAND,VERY STIFF,BROWN	1174m	South
10117215	0.00m-0.30m TOPSOIL 0.30m-1.50m SAND 1.50m-4.00m CLAYEY SAND	1179m	South
10092275	0.00m-0.20m topsoil 0.20m-6.00m sand	1187m	North East
10098345	0.00m-0.10m CONCRETE 0.10m-1.50m SAND 1.50m-6.20m SAND,LIGHT BROWN 6.20m-8.00m SANDY CLAY,CLAYEY SAND	1193m	East
10125135	0.00m-0.25m TOPSOIL 0.25m-1.00m SAND YELLOW 1.00m-4.00m SAND GREY SILTY 4.00m-10.50m CLAYEY SILT,SILTY CLAY 10.50m-12.30m SILTY SAND, FINE GRAINED,BROWN TO YELLOW 12.30m-14.50m TRACE OF FINE TO MEDIUM GRAINED GRAVEL 14.50m-15.50m AS AVOBE WITH COARSE GRAVEL 15.50m-19.30m TRACE OF CLAY,SOME FINE TO COARSE GRAINED GRAVEL 19.30m-20.30m CLAY,HIGH PLASTICITY,PALE GREY	1199m	West
10041254	0.00m-0.25m TOPSOIL,SILTY CLAYEY SAND 0.25m-1.00m FILL, SAND,COARSE GRAINED 1.00m-3.00m SILTY SAND CLAYEY FINE GRAINED,D/GREY 3.00m-5.40m SILT CLAYEY,SAND 5.40m-10.00m SILTY CLAY,DARK GREY 10.00m-12.50m SAND,FINE GRAINED,PALE GREY 12.50m-14.00m GRAVELLY SAND 14.00m-19.50m SAND CLAYEY,FINE GRAINED 19.50m-23.00m CLAY,HIGH PLASTICITY,DARK GREY	1208m	West
10091411	0.00m-4.50m sand, old sand bunes	1278m	East
10016570	0.00m-1.52m Clay Sandy 1.52m-7.01m Clay 7.01m-7.62m Sand 7.62m-12.19m Clay Sandy 12.19m-19.20m Sandstone 19.20m-20.72m Shale 20.72m-30.48m Sandstone	1348m	South East

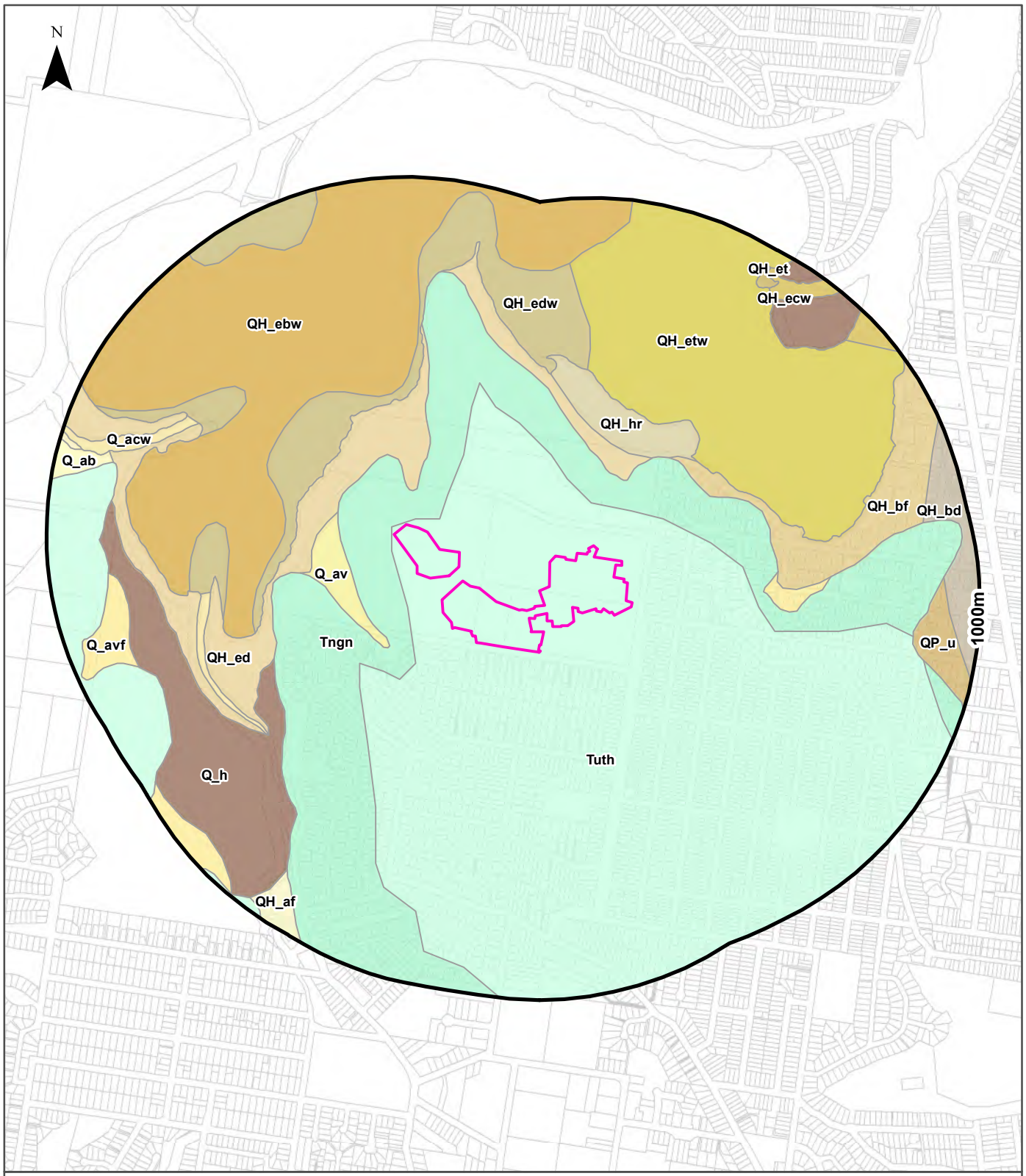
NGIS Bore ID	Drillers Log	Distance	Direction
10102777	0.00m-3.20m BROWN/GREY SANDY CLAY 3.20m-5.20m GREY CLAY HARD 5.20m-6.50m GREY SANDY CLAY 6.50m-9.00m GREY CLAY (DENSE) 9.00m-9.70m GREY SAND/QUARTZ 9.70m-10.70m BROWN SANDY CLAY 10.70m-15.30m BLACK PEAT CLAY 15.30m-17.00m WHITE SAND AND QUARTZ 17.00m-18.30m GREY CLAY/PEAT 18.30m-18.90m GREY SANDSTONE WEATHERED 18.90m-22.80m GREY SANDY CLAY 22.80m-26.00m GREY SANDSTONE 26.00m-26.50m GREY CLAY 26.50m-28.60m GREY SANDSTONE 28.60m-30.20m BLACK SHALE 30.20m-33.30m GREY SANDSTONE COARSE GRAIN 33.30m-35.00m GREY SANDSTONE 35.00m-41.30m GREY SANDSTONE/GREY SHALE 41.30m-41.90m BLACK SANDSTONE/GREY CLAY 41.90m-43.00m BLACK SANDSTONE COARSE GRAIN 43.00m-43.30m BLACK SANDSTONE FRACTURED 43.30m-48.10m BLACK SANDSTONE 48.10m-49.10m BLACK SANDSTONE/PYRITE FRACTURED 49.10m-65.70m GREY SANDSTONE/SHALE BANDS 65.70m-65.80m GREY SILTSTONE/QUARTZ 65.80m-67.70m GREY SILTSTONE 67.70m-69.80m GREY SANDSTONE/GREY SHALE 69.80m-70.00m GREY SANDSTONE FRACTURED 70.00m-78.10m GREY SANDSTONE	1354m	South
10012872	0.00m-0.61m Sand Dry 0.61m-0.99m Peat 0.99m-1.22m Sand 1.22m-2.74m Sand Yellow Clayey 1.22m-2.74m Gravel Some Fine 2.74m-3.35m Sand Clayey 3.35m-4.57m Sand Clayey 4.57m-6.40m Sand Grey Clayey Coarse 6.40m-10.97m Peat 10.97m-11.58m Sand Coarse 10.97m-11.58m Gravel Some Small Water Supply 11.58m-11.73m Clay Stiff 11.73m-12.50m Peat 12.50m-13.41m Peat Sandy 13.41m-14.02m Sand Peaty Water Supply 14.02m-14.63m Sand Wood Coarse Water Supply 14.63m-17.37m Sand Coarse 14.63m-17.37m Gravel Some Fine Water Supply 17.37m-20.73m Gravel Small Fine Water Supply 17.37m-20.73m Sand Coarse 20.73m-20.74m Peat	1371m	South
10149423	0.00m-1.21m Sand 1.21m-13.10m Sand Silt Water Supply 13.10m-15.24m Clay 15.24m-25.60m Sand Silt 25.60m-27.43m Clay 27.43m-28.65m Sand 28.65m-30.48m Clay 30.48m-31.69m Sandstone 31.69m-33.52m Shale 33.52m-36.57m Sandstone 36.57m-39.62m Shale 39.62m-48.76m Sandstone 39.62m-48.76m Clay Bands 48.76m-53.34m Shale Sandy 53.34m-57.91m Sandstone 53.34m-57.91m Clay Bands 57.91m-71.62m Shale Sandy 71.62m-81.07m Sandstone Hard 81.07m-84.73m Shale 84.73m-103.02m Sandstone 103.02m-103.63m Shale 103.63m-105.15m Sandstone Water Supply 105.15m-106.37m Shale	1371m	South
10030704	0.00m-0.30m topsoil 0.30m-1.50m fill, sandstone 1.50m-2.50m clay, grey sandy	1563m	South West
10041971	0.00m-1.00m Topsoil 1.00m-1.60m Sand, grey 1.60m-3.00m Sand, Topsoil, tree roots 3.00m-4.50m Sand, shells	1638m	North East
10060745	0.00m-10.00m SAND 10.00m-11.00m HARD COMPACTED SAND 11.00m-14.00m SAND	1644m	North East

NGIS Bore ID	Drillers Log	Distance	Direction
10127306	0.00m-2.00m Topsoil 2.00m-4.00m Sand, grey 4.00m-5.50m Sand, yellow	1666m	North East
10128271	0.00m-0.80m TOPSOIL 0.80m-1.00m SAND GREY 1.00m-1.20m SAND DARK 1.20m-1.50m SAND REDDISH 1.50m-3.00m SHELLS AND SAND 3.00m-3.50m SAND WEATHERED 3.50m-3.80m (UNKNOWN) 3.80m-4.80m SAND AND SHELLS	1670m	North East
10013247	0.00m-5.48m Soil Black 5.48m-7.62m Sand Water Supply	1689m	West
10055583	0.00m-1.00m SAND/CLAY 1.00m-18.00m SAND MEDIUM 18.00m-20.00m SAND,QUARTZ 20.00m-24.00m BLACK CLAY 24.00m-28.00m SAND, QUARTZ 28.00m-78.00m SANDSTONE/SHALE	1694m	South
10127573	0.00m-1.00m rubble 1.00m-2.00m sand, brown 2.00m-5.00m sand, grey	1698m	North East
10121332	0.00m-0.40m TOPSOIL 0.40m-2.40m SANDS GOLDEN REDISH 2.40m-3.20m SANDS GOLDEN 3.20m-4.00m SANDSTONE ,SANDS 4.00m-6.00m COMPACTED SANDS VERY HARD 6.00m-9.60m SANDS,GOLDEN, HARD,COMPACTED	1751m	North East
10120517	0.00m-9.14m Sand Water Supply	1775m	South
10126211	0.00m-0.30m TOPSOIL 0.30m-3.00m SAND DARK GREY 3.00m-6.00m SAND BROWN	1793m	North East
10122939	0.00m-1.00m FILL 1.00m-3.00m SAND, DARK BROWN,MOIST 3.00m-5.00m SAND SATURATED,DARK BROWN	1802m	North East
10121431	0.00m-15.00m sand	1804m	North East
10114616	0.00m-1.00m FILL 1.00m-3.00m SAND,DARK,BROWN,MOIST 3.00m-5.00m SAND SATURATED,DARK,BROWN	1808m	North East
10121006	0.00m-1.00m FILL 1.00m-3.00m SAND DARK BROWN,MOIST 3.00m-5.00m SAND SATURATED,DARK BROWN	1808m	North East
10122389	0.00m-0.25m CONCRETE 0.25m-0.50m SAND,MINOR GRAVEL 0.50m-1.00m SAND M/GRAINED,LOOSE,MOIST,DARK BROWN 1.00m-3.00m SAND,M/GRAINED,LOOSE,MOIST TO WET 3.00m-4.00m SAND,M/GRAINED LOOSE SATURATED BROWN BLACK	1829m	North East
10129342	0.00m-0.15m CONCRETE 0.15m-0.50m GRAVELLY SAND,COARSE GRAINED GRAVEL 0.50m-1.00m SAND MEDIUM GRAINED,LOOSE,MOIST DARK BTOWN 1.00m-2.00m SAND FINE GRAINED,LOOSE MOIST BROWN 2.00m-3.00m SAND MED.GRAINED,LOOSE MOIST BROWN 3.00m-4.00m SAND MED. GRAINED,LOOSE,WET BROWN	1829m	North East
10125496	0.00m-0.20m CONCRETE 0.20m-0.50m GRAVELLY SAND,FINE GRAINED,LOOSE,MOIST 0.50m-1.00m SAND FINE GRAINED, LOOSE,MOIST,L/BROWN 1.00m-2.80m SAND FINE GRAINED,LOOSE,MOIST 2.80m-4.00m SAND,FINE GRAINED,LOOSE,WET,DARK BROWN	1831m	North East
10088075	0.00m-2.00m topsoil 2.00m-10.00m sand,	1835m	North East
10121642	0.00m-4.87m Pipe Clay Nominal Water Supply 0.00m-4.87m Sandy Nominal	1905m	South West
10129344	0.00m-5.00m sand	1917m	North East
10059214	0.00m-12.00m sand	1978m	North East

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

Geology

4 Colooli Road, Narrabeen, NSW 2101



Legend

Linear Geological Structures and Boundaries

Site Boundary	Trendline	Marker Bed	Miscellaneous Boundary
Report Buffer	Fold Axis	Faulted Boundary	Water/Coastline Boundary
Property Boundary	Geological Boundary	Shear Zone or Schist Zone Boundary	State/Territory Border

Scale: 0 100 200 400 600 800 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 March 2025

Geology

4 Colooli Road, Narrabeen, NSW 2101

Geological Units

Geological units within the dataset buffer:

Code	Unit Name	Description	Stratigraphy	Age Range	Dominant Lithology	Dist	Dir
Tuth	Hawkesbury Sandstone	Medium- to coarse-grained quartz sandstone displaying small- to large-scale, high-angle cross-bedding; minor shale and laminite lenses.	/Ungrouped Triassic units//Hawkesbury Sandstone//	Anisian (base) to Anisian (top)	Sandstone	0m	On-site
Tngn	Newport Formation	Interbedded laminite, shale and sandstone; white quartz to quartz-lithic, very fine- to medium-grained sandstone; minor shale breccia and pebble polymictic conglomerate (at base of sandstone units); minor red clays.	/Narrabeen Group/Gosford Subgroup/Newport Formation//	Middle Triassic (base) to Middle Triassic (top)	Siliciclastic sedimentary rock	6m	West
QH_ed	Estuarine fluvial delta front	Very fine- to fine-grained (sporadically medium-grained) lithic-quartz sand (fluvially-deposited), silt, clay, shell material.	/Estuarine deposits//Estuarine fluvial delta front//	Holocene (base) to Now (top)	Clastic sediment	99m	West
Q_av	Alluvial valley deposits	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	/Alluvium//Alluvial valley deposits//	Quaternary (base) to Now (top)	Clastic sediment	152m	West
QH_edw	Estuarine fluvial delta front (subaqueous)	Very fine- to fine-grained (sporadically medium-grained) lithic-quartz sand (fluvially-deposited), silt, clay, shell material.	/Estuarine deposits//Estuarine fluvial delta front/Estuarine fluvial delta front (subaqueous)/	Holocene (base) to Now (top)	Clastic sediment	265m	North
QH_hr	Anthropogenic deposits - reclaimed estuarine areas	Natural surface elevation raised by placement of fill over former estuarine swamps and subaqueous estuarine margins (supratidal to subtidal zone); estuarine banks and islands formed from dredge spoil.	/Anthropogenic deposits//Anthropogenic deposits - reclaimed estuarine areas//	Holocene (base) to Now (top)	Anthropogenic material	284m	North East
QH_bf	Coastal deposits - backbarrier flat facies	Fine- to medium-grained quartz-lithic sand with carbonate and humic components (marine-deposited), indurated sand, silt, clay, gravel, organic mud, peat.	/Coastal deposits//Coastal deposits - backbarrier flat facies//	Holocene (base) to Now (top)	Sand	310m	East
QH_ebw	Estuarine basin and bay (subaqueous)	Clay, silt, shell, very fine- to fine-grained lithic-quartz (± carbonate) sand (fluvially- and/or marine-deposited).	/Estuarine deposits//Estuarine basin and bay/Estuarine basin and bay (subaqueous)/	Holocene (base) to Now (top)	Clastic sediment	315m	North West
QH_etw	Estuarine tidal delta flat (subaqueous)	Fine- to medium-grained lithic-carbonate-quartz sand (marine-deposited), silt, clay, shell material, polymictic gravel.	/Estuarine deposits//Estuarine tidal-delta flat/Estuarine tidal delta flat (subaqueous)/	Holocene (base) to Now (top)	Clastic sediment	359m	North East
Q_avf	Alluvial fan deposits	Fluvially-deposited quartz-lithic sand, silt, gravel, clay.	/Alluvium//Alluvial valley deposits/Alluvial fan deposits/	Quaternary (base) to Now (top)	Clastic sediment	380m	East
Q_h	Anthropogenic deposits	Anthropocene deposits varying from large man-made clasts (concrete blocks to building demolition rubble) to quarried natural boulders, with interstitial sand-sized to clay matrix.	/Anthropogenic deposits////	Quaternary (base) to Now (top)	Anthropogenic material	479m	South West
Q_acw	Alluvial channel deposits - subaqueous	Fluvially deposited sand, gravel, silt, clay.	/Alluvium//Alluvial channel deposits/Alluvial channel deposits - subaqueous/	Quaternary (base) to Now (top)	Clastic sediment	554m	West
QP_u	Pleistocene undifferentiated regolith	Clay, silt, fluvial and marine sand.	/Pleistocene undifferentiated regolith////	Pleistocene (base) to Now (top)	Clastic sediment	813m	East
Q_ab	Alluvial backswamp deposits	Organic-rich mud, peat, silt, clay.	/Alluvium//Alluvial backswamp deposits//	Quaternary (base) to Now (top)	Organic rich sediment	834m	West
QH_af	Alluvial floodplain deposits	Silt, very fine- to medium-grained lithic to quartz-rich sand, clay.	/Alluvium//Alluvial floodplain deposits//	Holocene (base) to Now (top)	Clastic sediment	842m	South West

Code	Unit Name	Description	Stratigraphy	Age Range	Dominant Lithology	Dist	Dir
QH_ecw	Estuarine channel deposits (subaqueous)	Fine- to medium-grained lithic-carbonate-quartz sand (marine-deposited), silt, clay, shell, gravel.	/Estuarine deposits//Estuarine channel deposits/Estuarine channel deposits (subaqueous)/	Holocene (base) to Now (top)	Clastic sediment	861m	North East
QH_bd	Coastal deposits - dune facies	Marine-deposited and aeolian-reworked coastal sand dunes.	/Coastal deposits//Coastal deposits - dune facies//	Holocene (base) to Now (top)	Sand	868m	East
QH_et	Estuarine tidal-delta flat	Fine- to medium-grained lithic-carbonate-quartz sand (marine-deposited), silt, clay, shell material, polymictic gravel.	/Estuarine deposits//Estuarine tidal-delta flat//	Holocene (base) to Now (top)	Clastic sediment	882m	North East

Geology

4 Colooli Road, Narrabeen, NSW 2101

Linear Geological Structures

Fault and shear or schist zone boundaries within the dataset buffer:

Map ID	Boundary Type	Feature Description	Fault Dip Angle	Fault Dip Direction	Dist	Dir
NA	No records in buffer					

Trendlines within the dataset buffer:

Map ID	Feature Description	Observation Method	Structure Name	Dist	Dir
NA	No records in buffer				

Fold axes within the dataset buffer:

Map ID	Feature Description	Observation Method	Structure Name	Dist	Dir
NA	No records in buffer				

Marker beds within the dataset buffer:

Map ID	Feature Description	Rock Unit Description	Dist	Dir
NA	No records in buffer			

Geological Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development
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Naturally Occurring Asbestos Potential

4 Colooli Road, Narrabeen, NSW 2101

Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

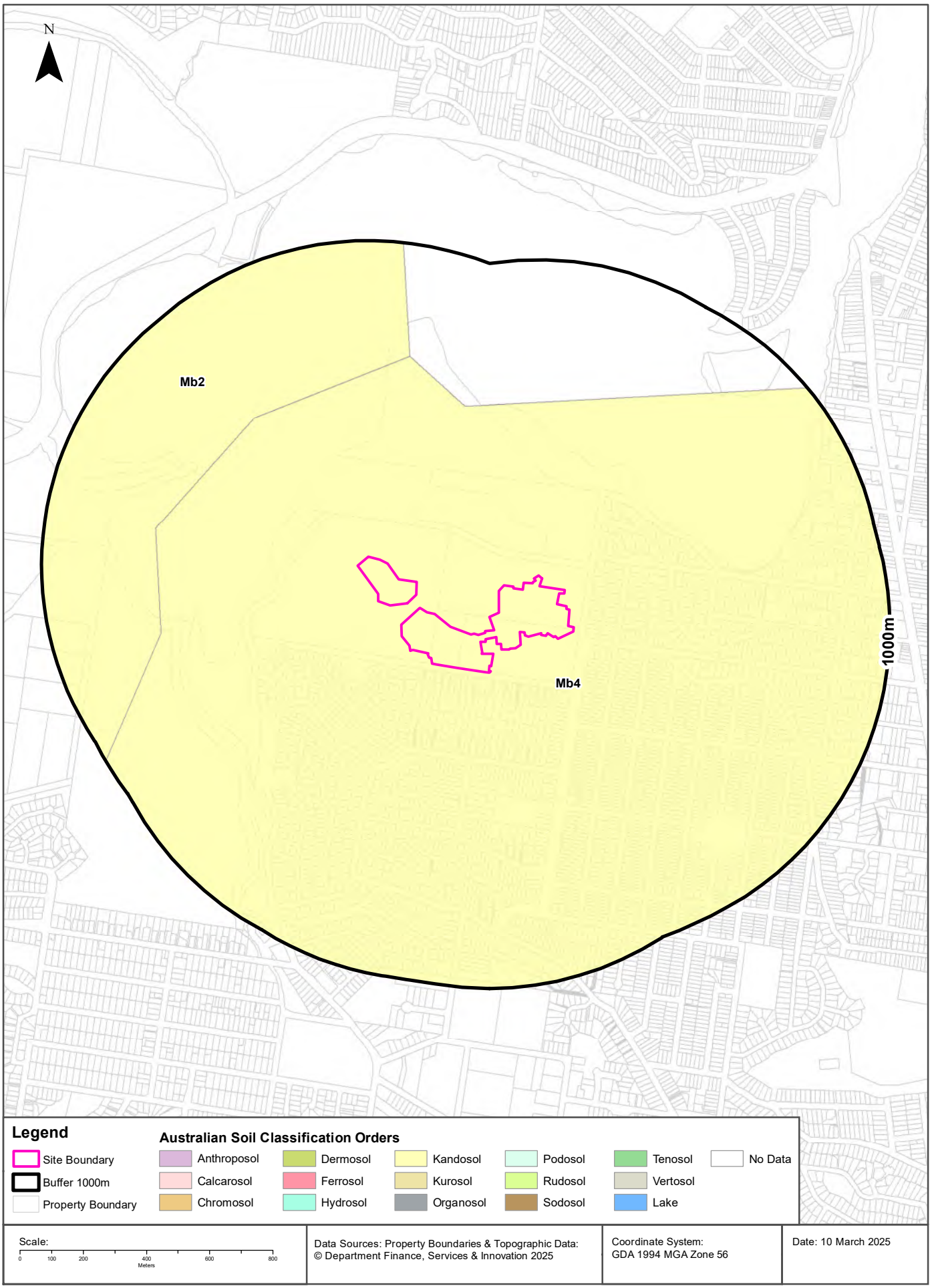
Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Naturally Occurring Asbestos Potential Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

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Atlas of Australian Soils

4 Colooli Road, Narrabeen, NSW 2101



Soils

4 Colooli Road, Narrabeen, NSW 2101

Atlas of Australian Soils

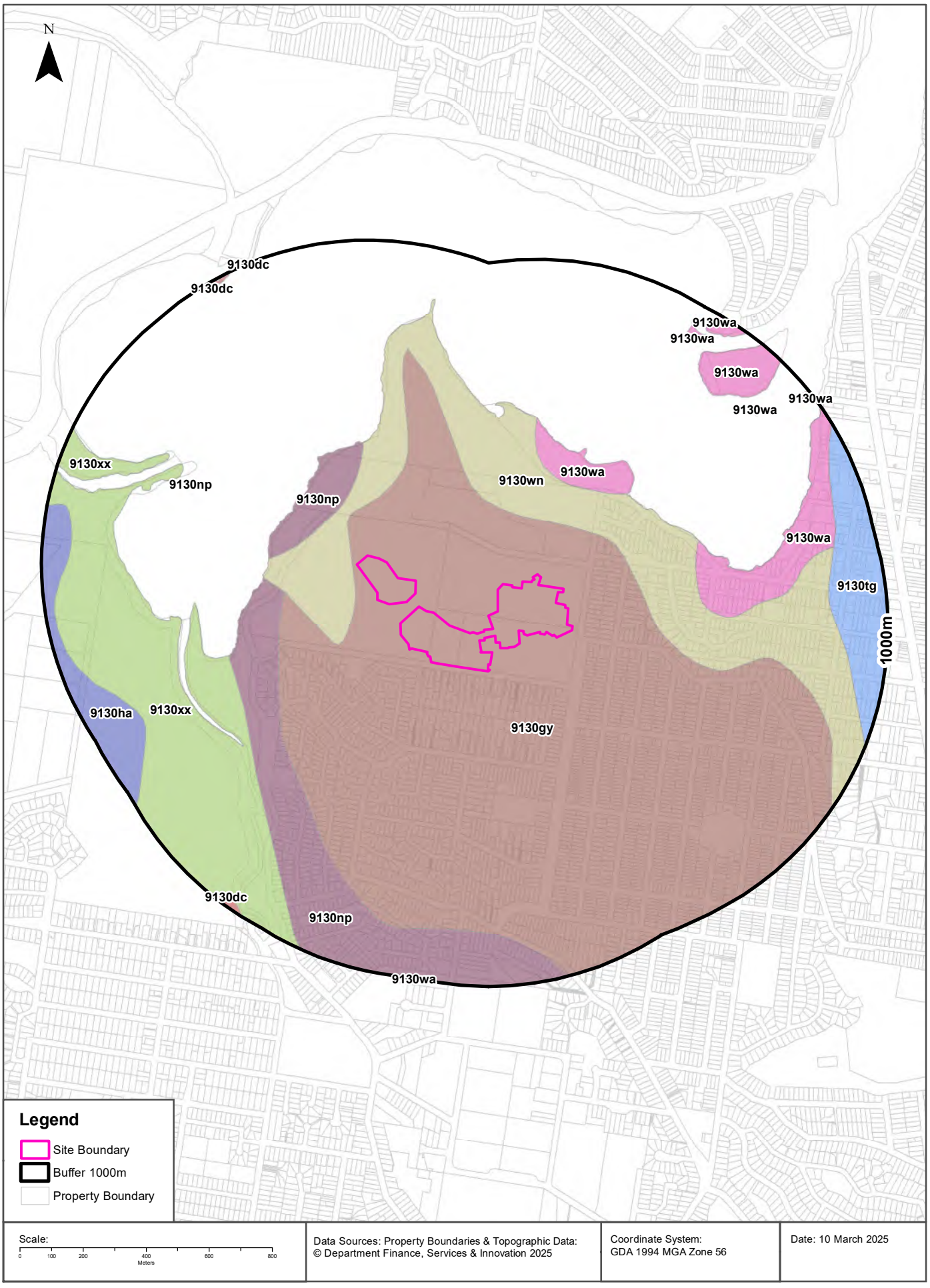
Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Mb4	Kandosol	Coastal complex: chief soils are acid yellow leached earths (Gn2.74) and (Gn2.34), hard acidic yellow mottled soils (Dy3.41), and hard acidic red soils (Dr2.21). This unit includes headlands and rugged coastal areas of unit Mb2; ridges and slopes of unit Tb35; low-lying coastal areas of unit Cb27; and some swampy areas.	0m	On-site
Mb2	Kandosol	Dissected sandstone plateau of moderate to strong relief with sandstone pillars, ledges, and slabs-- level to undulating ridges, irregularly benched slopes, steep ridges, cliffs, canyons, narrow sandy valleys: chief soils are (i) on areas of gentle to moderate relief, acid yellow leached earths (Gn2.74) and (Gn2.34) and acid leached yellow earths (Gn2.24)- sometimes these soils contain ironstone gravel; and (ii) on, or adjacent to, areas of strong relief, siliceous sands (Uc1.2), leached sands (Uc2.12) and (Uc2.2), and shallow forms of the above (Gn2) soils. Associated are: (i) on flat to gently undulating remnants of the original plateau surface, leached sands (Uc2.3), siliceous sands (Uc1.2), sandy earths (Uc5.22), and (Gn2) soils as for (i) above (these areas are in part comparable with unit Cb29); (ii) on flat ironstone gravelly remnants of the original plateau surface, (Gn2) soils as for unit Mb5(i); (iii) on gently undulating ridges where interbedded shales are exposed, shallow, often stony (Dy3.41), (Dr2.21), and related soils similar to unit Tb35; (iv) narrow valleys of (Uc2.3) soils flanked by moderate slopes of (Dy3.41) soils; (v) escarpments of steep hills with shallow (Dy) and (Dr) soils between sandstone pillars; and (vi) shallow (Um) soils, such as (Um6.21) on steep hills of basic rocks. As mapped, minor areas of units Mg20, Mm1, and Mw8 are included. Data are limited.	542m	North West

Atlas of Australian Soils Data Source: CSIRO
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Soil Landscapes of Central and Eastern NSW

4 Colooli Road, Narrabeen, NSW 2101



Soils

4 Colooli Road, Narrabeen, NSW 2101

Soil Landscapes of Central and Eastern NSW

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

Soil Code	Name	Distance	Direction
9130gy	Gymea	0m	On-site
9130wn	Watagan	16m	North East
9130np	Newport	169m	North West
9130wa	Warriewood	302m	North East
9130xx	Disturbed Terrain	500m	West
9130tg	Tuggerah	815m	East
9130ha	Hawkesbury	834m	West
9130dc	Deep Creek	973m	South West

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment
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Acid Sulfate Soils

4 Colooli Road, Narrabeen, NSW 2101



Acid Sulfate Soils

4 Colooli Road, Narrabeen, NSW 2101

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		

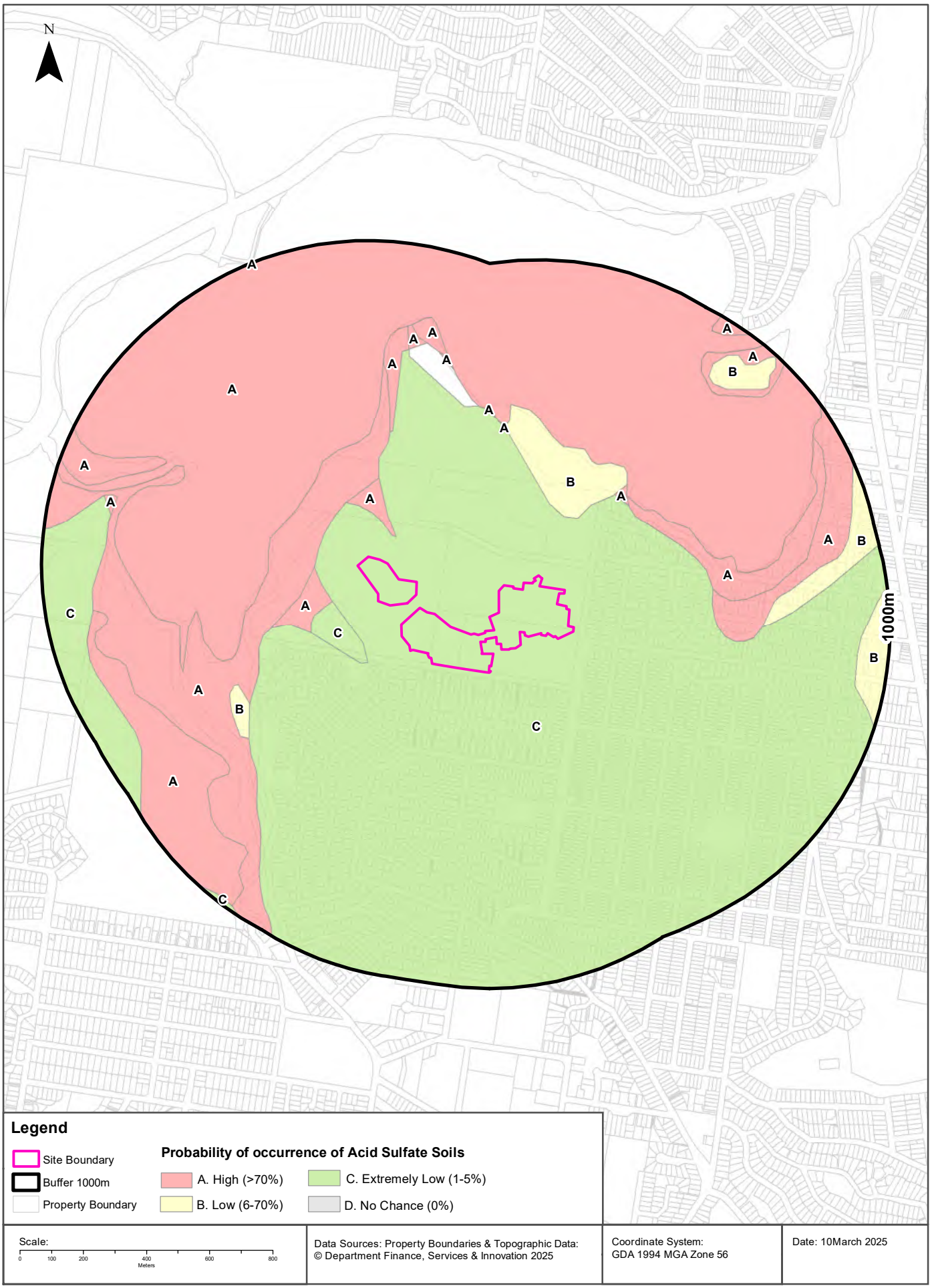
If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	EPI Name	Distance	Direction
N/A				

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Atlas of Australian Acid Sulfate Soils

4 Colooli Road, Narrabeen, NSW 2101



Acid Sulfate Soils

4 Colooli Road, Narrabeen, NSW 2101

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance	Direction
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m	On-site
A	High Probability of occurrence. >70% chance of occurrence.	86m	North West
B	Low Probability of occurrence. 6-70% chance of occurrence.	204m	North East

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
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Dryland Salinity

4 Colooli Road, Narrabeen, NSW 2101

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		

Dryland Salinity Data Source : National Land and Water Resources Audit
The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.
In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Mining

4 Colooli Road, Narrabeen, NSW 2101

Mining Subsidence Districts

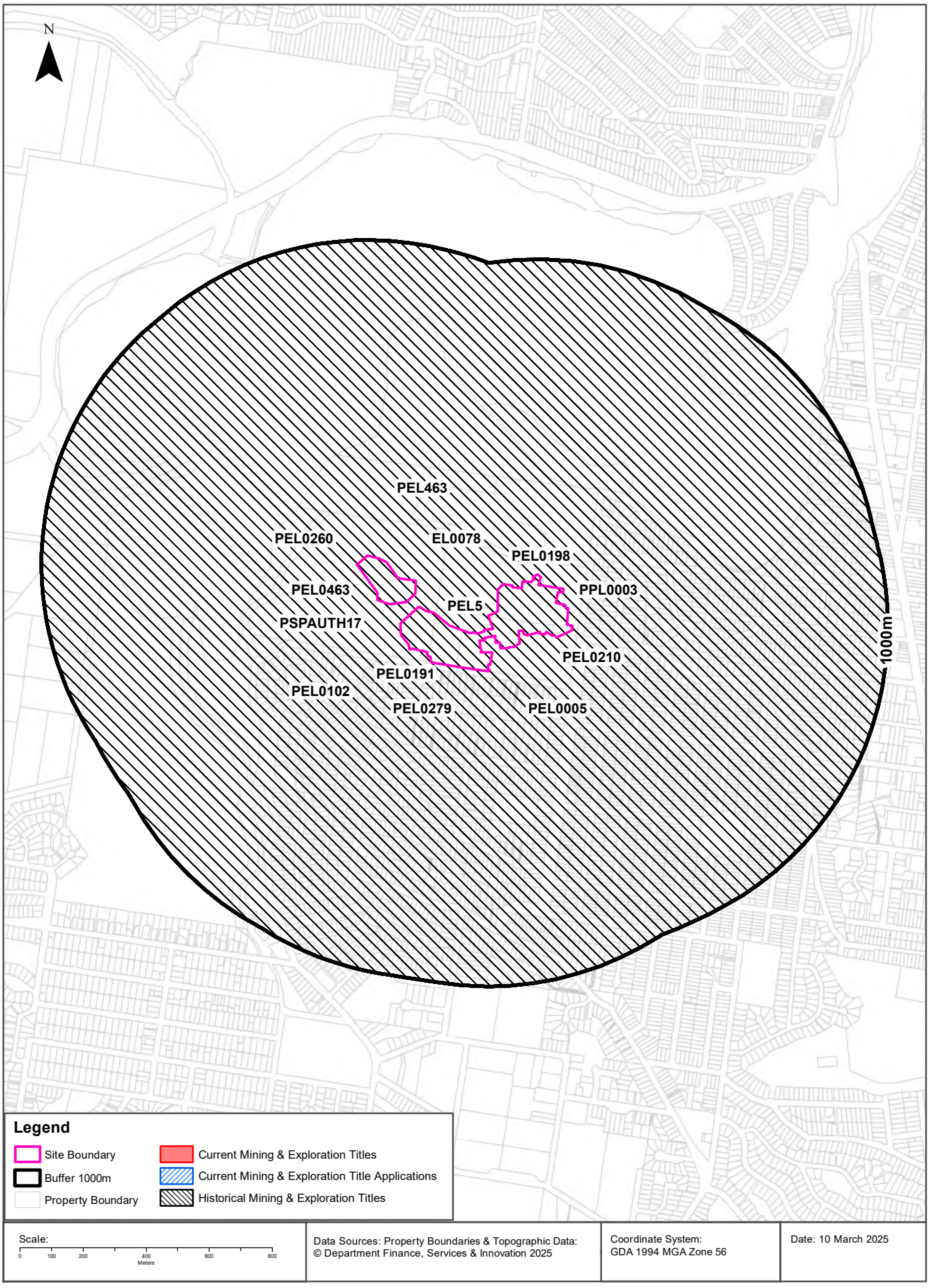
Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

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

4 Colooli Road, Narrabeen, NSW 2101



Mining

4 Colooli Road, Narrabeen, NSW 2101

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

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

Current Mining & Exploration Titles Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

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Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

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

Current Mining & Exploration Title Applications Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

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Mining

4 Colooli Road, Narrabeen, NSW 2101

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL0463	DART ENERGY (APOLLO) PTY LTD	20091010	20150603	PETROLEUM	Petroleum	0m	On-site
PPL0003	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL0102	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL0279	THE ELECTRICITY COMMISSION OF NSW (TRADING AS PACIFIC POWER)	19910504	19931111	PETROLEUM	Petroleum	0m	On-site
PEL0260	NORTH BULLI COLLIERIES PTY LTD, AGL PETROLEUM OPERATIONS PTY LTD, THE AUSTRALIAN GAS LIGHT CO.	19810909	19930803	PETROLEUM	Petroleum	0m	On-site
EL0078	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	19670201	19680201	MINERALS		0m	On-site
PSPAUTH17	MACQUARIE ENERGY PTY LTD	20070803	20080703	PETROLEUM	Petroleum	0m	On-site
PEL463	DART ENERGY (APOLLO) PTY LTD	20081022	20130227	MINERALS		0m	On-site
PEL5	AGL UPSTREAM INVESTMENTS PTY LIMITED	19931111	20011210	MINERALS		0m	On-site
PEL0005	AGL UPSTREAM INVESTMENTS PTY LIMITED	19931111	20150403	PETROLEUM	Petroleum	0m	On-site
PEL0191	NORTHWEST OIL AND MINERALS CO NL			PETROLEUM	Petroleum	0m	On-site
PEL0198	JOHN STREVENS (TERRIGAL) NL			PETROLEUM	Petroleum	0m	On-site
PEL0210	THE AUSTRALIAN GAS LIGHT COMPANY (AGL), NORTH BULLI COLLIERIES PTY LTD			PETROLEUM	Petroleum	0m	On-site

Historical Mining & Exploration Titles Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

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State Environmental Planning Policy

4 Colooli Road, Narrabeen, NSW 2101

State Significant Precincts

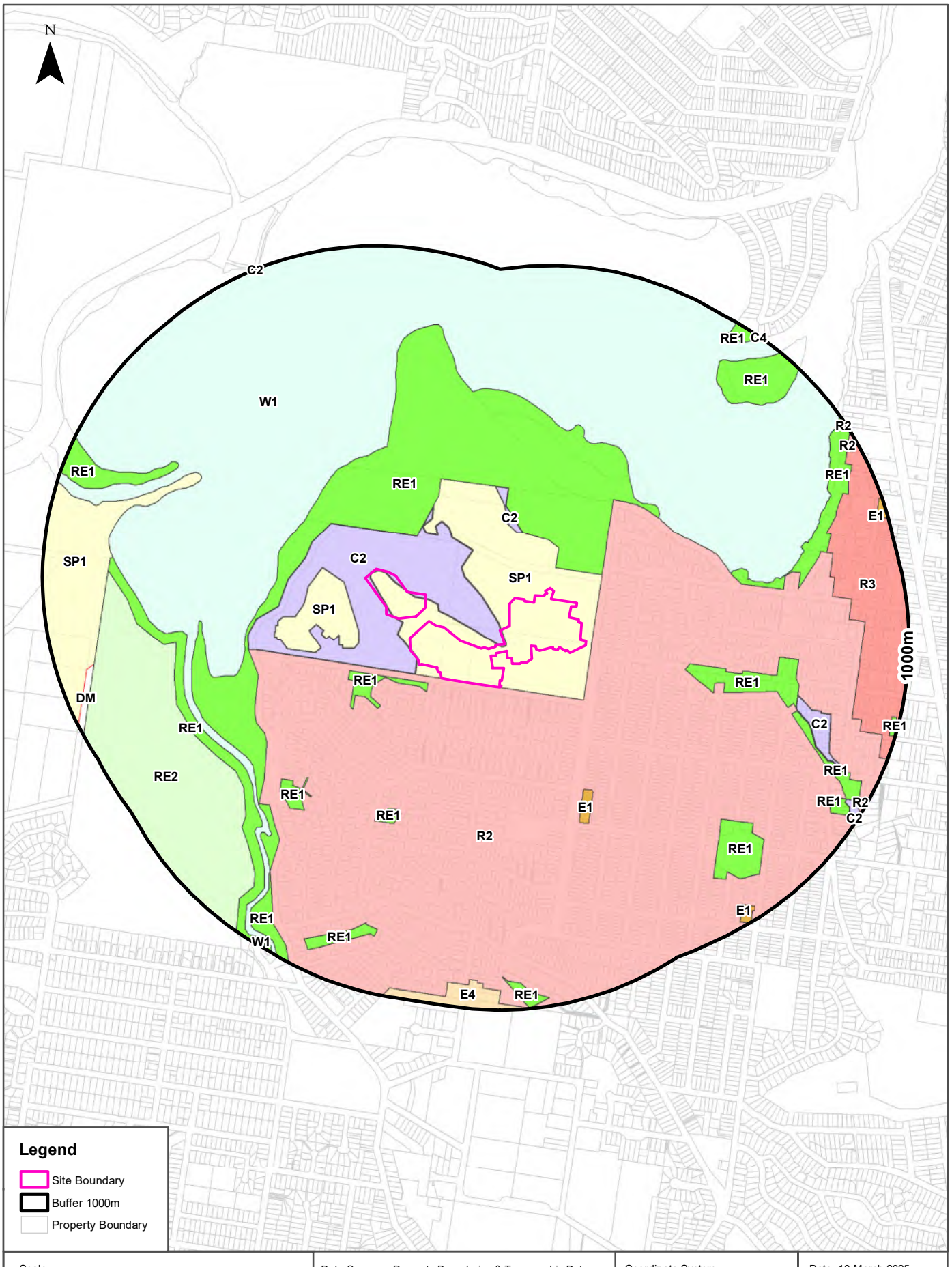
What SEPP State Significant Precincts exist within the dataset buffer?

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

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EPI Planning Zones

4 Colooli Road, Narrabeen, NSW 2101



Environmental Planning Instrument

4 Colooli Road, Narrabeen, NSW 2101

Land Zoning

What EPI Land Zones exist within the dataset buffer?

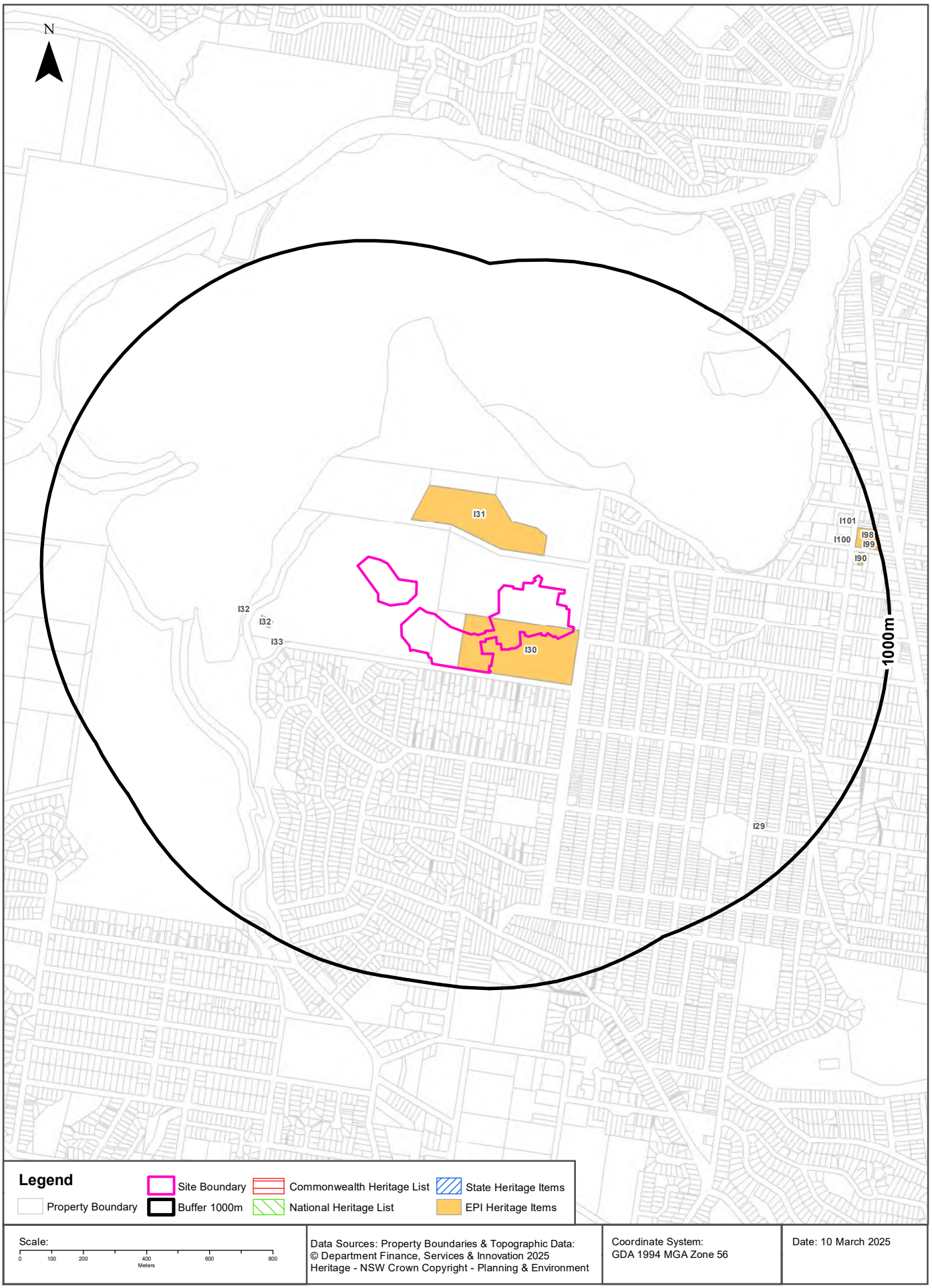
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
SP1	Special Activities		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	0m	On-site
C2	Environmental Conservation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	0m	On-site
R2	Low Density Residential		Warringah Local Environmental Plan 2011	24/05/2024	24/05/2024	24/05/2024	Warringah Local Environmental Plan 2011 (Map Amendment No 4)	0m	South East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	46m	West
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	65m	North
SP1	Special Activities		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	68m	West
C2	Environmental Conservation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	193m	North
W1	Natural Waterways		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	260m	North
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	315m	East
E1	Local Centre		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	408m	South East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	428m	South West
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	483m	East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	489m	South West
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	580m	South West
SP1	Special Activities		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	595m	West
RE2	Private Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	619m	West
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	672m	East
C2	Environmental Conservation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	673m	East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	675m	North West

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	682m	South East
R3	Medium Density Residential		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	773m	East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	780m	North East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	791m	South West
DM	Deferred Matter		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	882m	West
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	886m	South East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	896m	South
E4	General Industrial		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	909m	South
C2	Environmental Conservation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	934m	South East
E1	Local Centre		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	937m	South East
RE1	Public Recreation		Pittwater Local Environmental Plan 2014	14/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	941m	North East
R2	Low Density Residential		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	959m	North East
E1	Local Centre		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	964m	East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	21/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	972m	East
C4	Environmental Living		Pittwater Local Environmental Plan 2014	14/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	991m	North East
C2	Environmental Conservation		Pittwater Local Environmental Plan 2014	14/04/2023	26/04/2023	24/05/2024	Map Amendment No 3	996m	North West

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Heritage Items

4 Colooli Road, Narrabeen, NSW 2101



Heritage

4 Colooli Road, Narrabeen, NSW 2101

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?

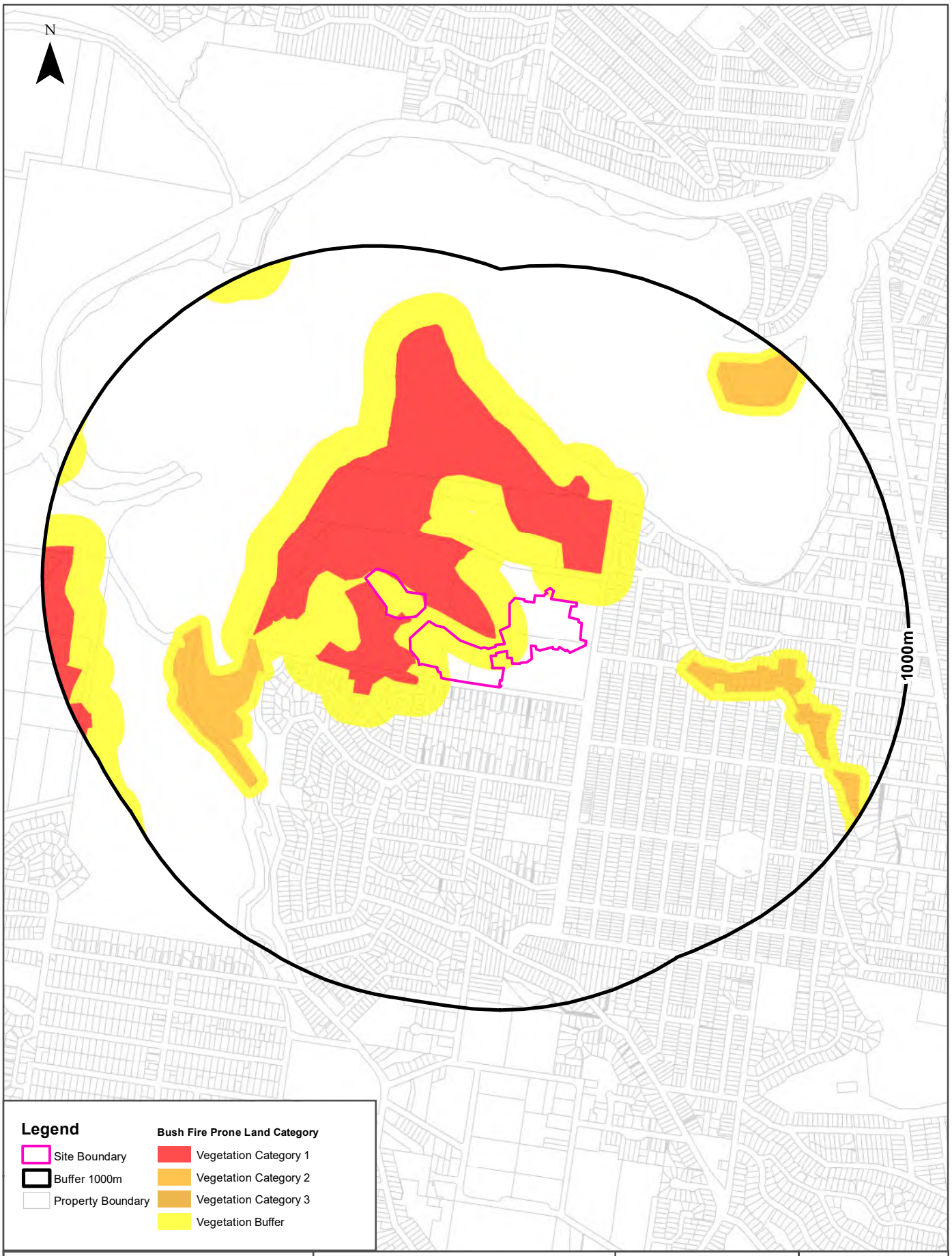
Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I30	ANZAC War Memorial	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	0m	On-site
I31	Building known as Legacy Park	Item - General	Local	Warringah Local Environmental Plan 2011	30/05/2014	30/05/2014	30/06/2017	65m	North
I32	Ruins of Wheeler Homestead, War Veterans Home	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	321m	West
I33	James Wheeler Grave	Item - Landscape	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	341m	West
I32	Ruins of Wheeler Homestead, War Veterans Home	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	382m	West
I29	Elevated Reservoir	Item - General	Local	Warringah Local Environmental Plan 2011	30/06/2017	30/06/2017	30/06/2017	828m	South East
I90	House known as 'Lemville'	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	918m	East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I98	Memorial known as 'SS Collaroy Memorial'	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	923m	East
I101	Sandstone Memorial	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	923m	East
I99	School Administration Building	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	923m	East
I100	Main School Building	Item - General	Local	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	30/06/2017	923m	East

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Natural Hazards - Bush Fire Prone Land

4 Colooli Road, Narrabeen, NSW 2101



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2025. Property Boundaries: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 March 2025

Natural Hazards

4 Colooli Road, Narrabeen, NSW 2101

Bush Fire Prone Land

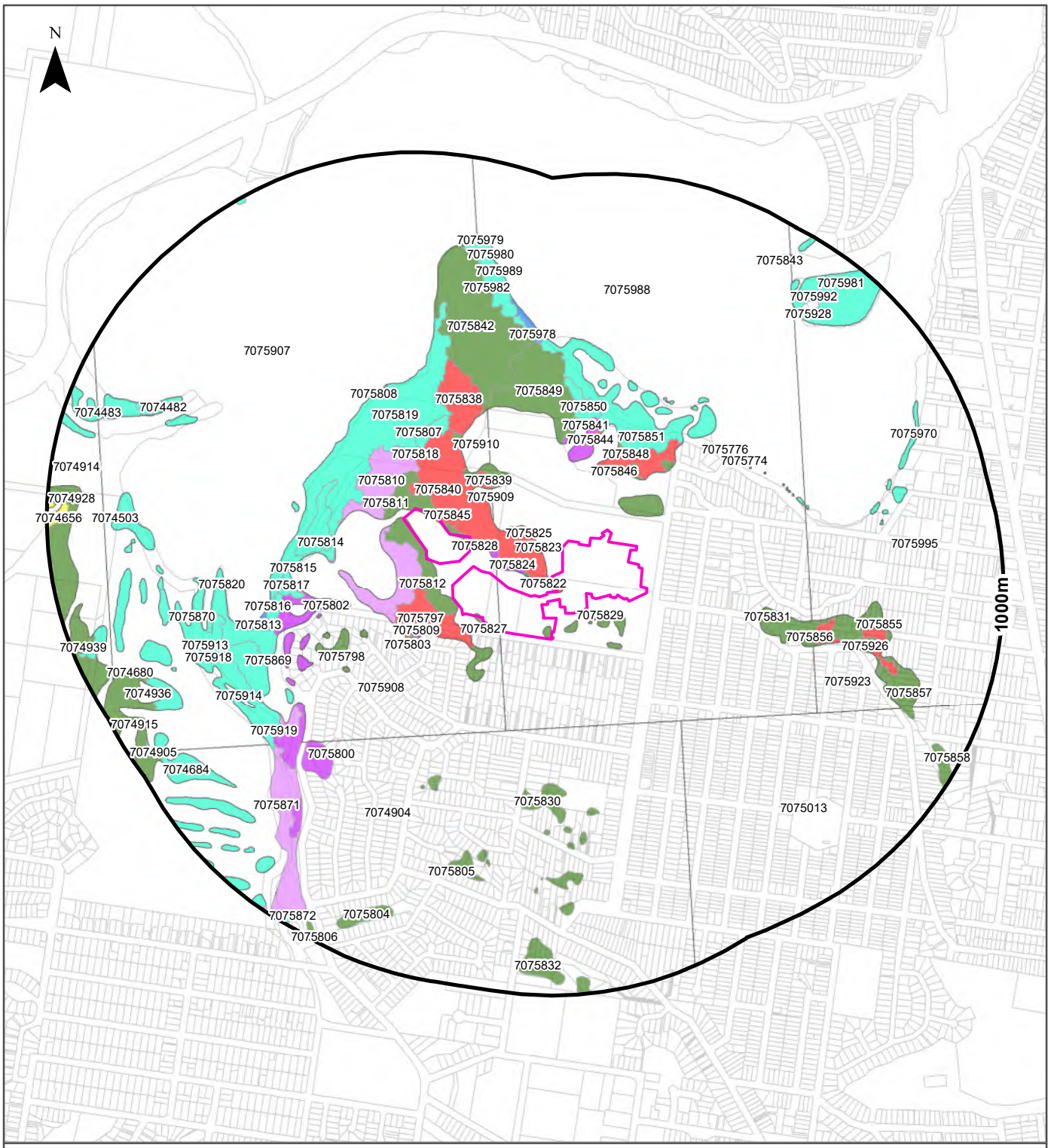
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Category 1	0m	On-site
Vegetation Buffer	0m	On-site
Vegetation Category 2	318m	East

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

Ecological Constraints - Vegetation & Ramsar Wetlands

4 Colooli Road, Narrabeen, NSW 2101



Site Boundary
ReportBuffer
Property Boundary
Ramsar Wetland

Native Vegetation

Alpine Complex
Arid Shrublands (Acacia sub-formation)
Arid Shrublands (Chenopod sub-formation)
Dry Sclerophyll Forests (Shrub/grass sub-formation)
Dry Sclerophyll Forests (Shrubby sub-formation)
Forested Wetlands
Freshwater Wetlands
Grasslands
Grassy Woodlands
Heathlands
Rainforests
Saline Wetlands
Semi-arid Woodlands (Grassy sub-formation)
Semi-arid Woodlands (Shrubby sub-formation)
Wet Sclerophyll Forests (Grassy sub-formation)
Wet Sclerophyll Forests (Shrubby sub-formation)
Non vegetated
Unattributed
Not classified
Other

Scale: 0 100 200 400 600 800 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 March 2025

Ecological Constraints

4 Colooli Road, Narrabeen, NSW 2101

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
7075811	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
7075812	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Bloodwood Shrub Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
7075827	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Northern Sydney Scribbly Gum Woodland	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
7075828	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	0m	On-site
7075830	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
7075840	Rainforests	(Rainforests) Sydney Coastal Foreshores Gully Rainforest	Northern Warm Temperate Rainforests	0m	On-site
7075845	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	0m	On-site
7075908	Not classified	(Not classified) Not classified	Not classified	0m	On-site
7075988	Not classified	(Not classified) Not classified	Not classified	0m	On-site
7075797	Rainforests	(Rainforests) Sydney Coastal Foreshores Gully Rainforest	Northern Warm Temperate Rainforests	20m	West
7075810	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Hunter Coast Lowland Spotted Gum Moist Forest	Northern Hinterland Wet Sclerophyll Forests	21m	North West
7075822	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	21m	North East
7075824	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	33m	North West
7075829	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Northern Sydney Scribbly Gum Woodland	Sydney Coastal Dry Sclerophyll Forests	36m	East
7075826	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	38m	North East
7075823	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	62m	North
7075849	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Bloodwood Shrub Forest	Sydney Coastal Dry Sclerophyll Forests	70m	North
7075909	Not classified	(Not classified) Not classified	Not classified	78m	North West
7075825	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	91m	North
7075803	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Bloodwood Shrub Forest	Sydney Coastal Dry Sclerophyll Forests	101m	West
7075821	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	110m	North
7075819	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	122m	North West
7075809	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	123m	West

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
7075839	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	132m	North
7075818	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	148m	North West
7075801	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	152m	South West
7075910	Not classified	(Not classified) Not classified	Not classified	153m	North
7075846	Rainforests	(Rainforests) Sydney Coastal Foreshores Gully Rainforest	Northern Warm Temperate Rainforests	159m	North East
7075807	Forested Wetlands	(Forested Wetlands) Coastal Alluvial Bangalay Forest	Coastal Floodplain Wetlands	168m	North West
7075837	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	185m	North
7075814	Forested Wetlands	(Forested Wetlands) Northern Paperbark-Swamp Mahogany Saw-sedge Forest	Coastal Swamp Forests	202m	West
7075848	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Bloodwood Shrub Forest	Sydney Coastal Dry Sclerophyll Forests	209m	North East
7075841	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	212m	North
7075851	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	226m	North East
7075838	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	233m	North
7075844	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	243m	North East
7074904	Not classified	(Not classified) Not classified	Not classified	249m	South
7075802	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	270m	South West
7075907	Not classified	(Not classified) Not classified	Not classified	276m	North West
7075847	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Bloodwood Shrub Forest	Sydney Coastal Dry Sclerophyll Forests	311m	North East
7075850	Forested Wetlands	(Forested Wetlands) Coastal Alluvial Bangalay Forest	Coastal Floodplain Wetlands	311m	North
7075831	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Gully Forest	Sydney Coastal Dry Sclerophyll Forests	323m	East
7075815	Forested Wetlands	(Forested Wetlands) Northern Paperbark-Swamp Mahogany Saw-sedge Forest	Coastal Swamp Forests	333m	West
7075808	Saline Wetlands	(Saline Wetlands) Samphire Saltmarsh	Saltmarshes	335m	North West
7075842	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Foothills Apple Forest	Sydney Coastal Dry Sclerophyll Forests	339m	North
7075911	Not classified	(Not classified) Not classified	Not classified	345m	North West
7075817	Forested Wetlands	(Forested Wetlands) Coastal Alluvial Bangalay Forest	Coastal Floodplain Wetlands	350m	West
7075798	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Illawarra North-Pittwater Bangalay Moist Forest	Northern Hinterland Wet Sclerophyll Forests	351m	West
7075916	Not classified	(Not classified) Not classified	Not classified	361m	West
7075013	Not classified	(Not classified) Not classified	Not classified	365m	South East
7075775	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Sydney Enriched Sandstone Moist Forest	North Coast Wet Sclerophyll Forests	367m	North East
7075776	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Bloodwood Shrub Forest	Sydney Coastal Dry Sclerophyll Forests	367m	North East
7075774	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	371m	North East
7075816	Forested Wetlands	(Forested Wetlands) Northern Paperbark-Swamp Mahogany Saw-sedge Forest	Coastal Swamp Forests	402m	West

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
7075970	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	451m	East
7075995	Not classified	(Not classified) Not classified	Not classified	454m	East
7075856	Rainforests	(Rainforests) Sydney Coastal Foreshores Gully Rainforest	Northern Warm Temperate Rainforests	459m	East
7075813	Freshwater Wetlands	(Freshwater Wetlands) Estuarine Reedland	Coastal Freshwater Lagoons	462m	West
7075820	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	470m	West
7075857	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Foreshores Forest	Sydney Coastal Dry Sclerophyll Forests	488m	East
7075923	Not classified	(Not classified) Not classified	Not classified	489m	East
7075869	Forested Wetlands	(Forested Wetlands) Northern Paperbark-Swamp Mahogany Saw-sedge Forest	Coastal Swamp Forests	509m	West
7075870	Forested Wetlands	(Forested Wetlands) Sydney Creekflat Swamp Mahogany-Paperbark Forest	Coastal Floodplain Wetlands	524m	West
7075799	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Illawarra North-Pittwater Bangalay Moist Forest	Northern Hinterland Wet Sclerophyll Forests	529m	South West
7075800	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Illawarra North-Pittwater Bangalay Moist Forest	Northern Hinterland Wet Sclerophyll Forests	533m	South West
7075978	Freshwater Wetlands	(Freshwater Wetlands) Estuarine Reedland	Coastal Freshwater Lagoons	557m	North
7075982	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	567m	North
7075855	Rainforests	(Rainforests) Sydney Coastal Foreshores Gully Rainforest	Northern Warm Temperate Rainforests	613m	East
7075919	Not classified	(Not classified) Not classified	Not classified	613m	South West
7075926	Not classified	(Not classified) Not classified	Not classified	613m	East
7075871	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Illawarra North-Pittwater Bangalay Moist Forest	Northern Hinterland Wet Sclerophyll Forests	628m	South West
7075914	Not classified	(Not classified) Not classified	Not classified	634m	West
7074483	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	642m	North West
7075913	Not classified	(Not classified) Not classified	Not classified	653m	West
7075912	Not classified	(Not classified) Not classified	Not classified	666m	West
7075918	Not classified	(Not classified) Not classified	Not classified	668m	West
7075805	Wet Sclerophyll Forests (Grassy sub-formation)	(Wet Sclerophyll Forests (Grassy sub-formation)) Illawarra North-Pittwater Bangalay Moist Forest	Northern Hinterland Wet Sclerophyll Forests	683m	South
7075989	Not classified	(Not classified) Not classified	Not classified	702m	North
7074684	Forested Wetlands	(Forested Wetlands) Northern Paperbark-Swamp Mahogany Saw-sedge Forest	Coastal Swamp Forests	722m	West
7074482	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak-Mangrove Forest	Coastal Floodplain Wetlands	728m	North West
7075980	Freshwater Wetlands	(Freshwater Wetlands) Estuarine Reedland	Coastal Freshwater Lagoons	729m	North
7075979	Freshwater Wetlands	(Freshwater Wetlands) Estuarine Reedland	Coastal Freshwater Lagoons	767m	North
7075981	Forested Wetlands	(Forested Wetlands) Estuarine Swamp Oak Twig-rush Forest	Coastal Floodplain Wetlands	788m	North East
7075928	Not classified	(Not classified) Not classified	Not classified	800m	North East
7074503	Rainforests	(Rainforests) Sydney Coastal Lilly Pilly-Palm Gallery Rainforest	Northern Warm Temperate Rainforests	807m	West
7075804	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Gully Forest	Sydney Coastal Dry Sclerophyll Forests	826m	South West
7074936	Not classified	(Not classified) Not classified	Not classified	836m	West
7074680	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Gully Forest	Sydney Coastal Dry Sclerophyll Forests	837m	West

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
7075832	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Gully Forest	Sydney Coastal Dry Sclerophyll Forests	838m	South
7074914	Not classified	(Not classified) Not classified	Not classified	839m	West
7075992	Not classified	(Not classified) Not classified	Not classified	857m	North East
7075843	Not classified	(Not classified) Not classified	Not classified	896m	North East
7074928	Not classified	(Not classified) Not classified	Not classified	927m	West
7074905	Not classified	(Not classified) Not classified	Not classified	933m	South West
7074915	Not classified	(Not classified) Not classified	Not classified	938m	West
7074656	Heathlands	(Heathlands) Woronora Plateau Heath-Mallee	Sydney Coastal Heaths	940m	West
7075858	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Sandstone Gully Forest	Sydney Coastal Dry Sclerophyll Forests	946m	East
7075806	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Sydney Coastal Enriched Sandstone Forest	Sydney Coastal Dry Sclerophyll Forests	948m	South West
7074939	Not classified	(Not classified) Not classified	Not classified	955m	West
7075872	Forested Wetlands	(Forested Wetlands) Northern Paperbark-Swamp Mahogany Saw-sedge Forest	Coastal Swamp Forests	963m	South West

Native Vegetation Type Map : NSW Department of Planning and Environment 2022

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Ecological Constraints

4 Colooli Road, Narrabeen, NSW 2101

Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

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

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

Ecological Constraints

4 Colooli Road, Narrabeen, NSW 2101

Collaborative Australian Protected Areas Database - Terrestrial

Protected areas in terrestrial environments identified by the CAPAD within the dataset buffer:

Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Collaborative Australian Protected Areas Database - Marine

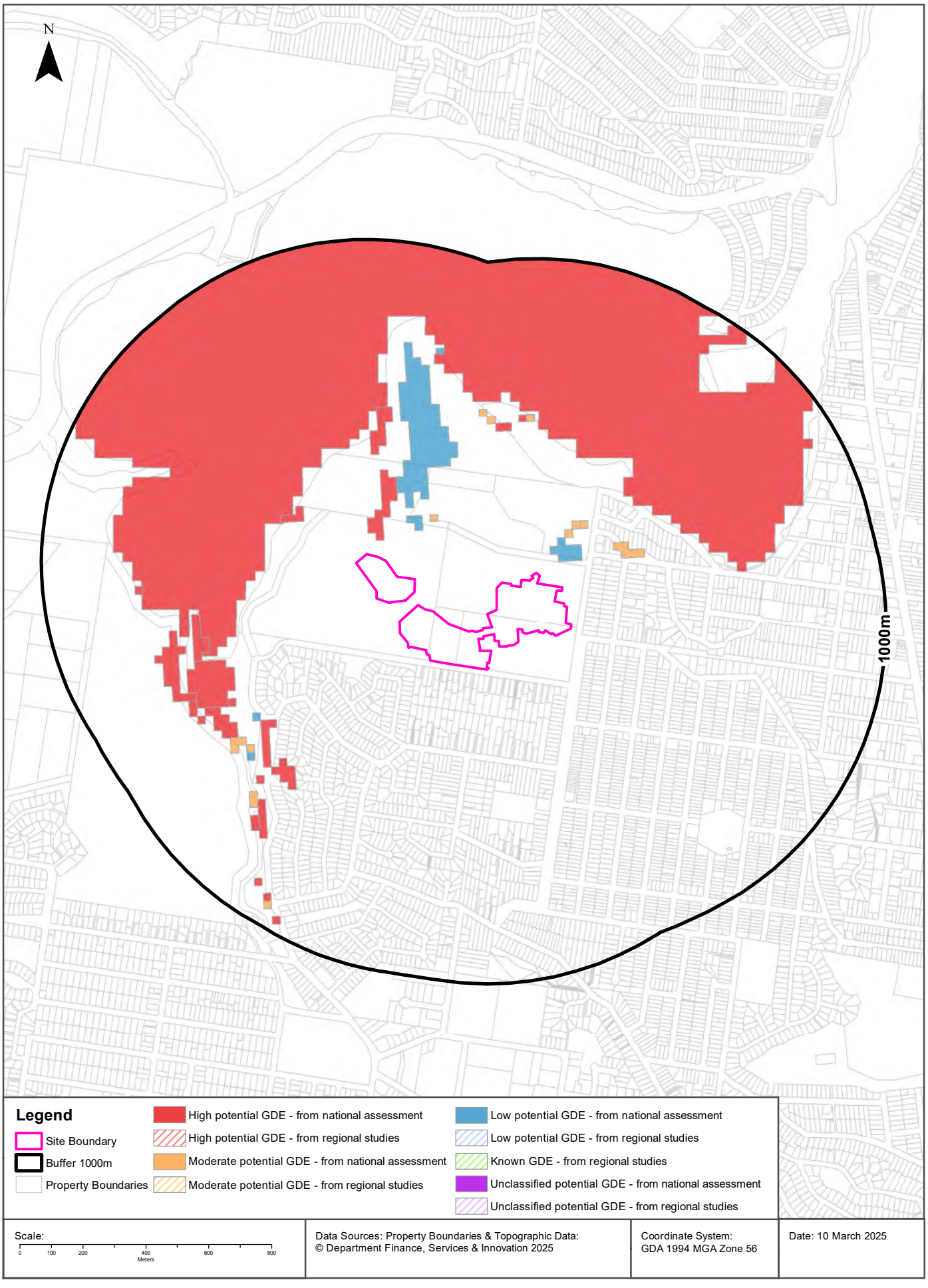
Protected areas in marine environments identified by the CAPAD within the dataset buffer:

Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Source: Collaborative Australian Protected Areas Database (CAPAD) 2022
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Ecological Constraints - Groundwater Dependent Ecosystems Atlas

4 Colooli Road, Narrabeen, NSW 2101



Ecological Constraints

4 Colooli Road, Narrabeen, NSW 2101

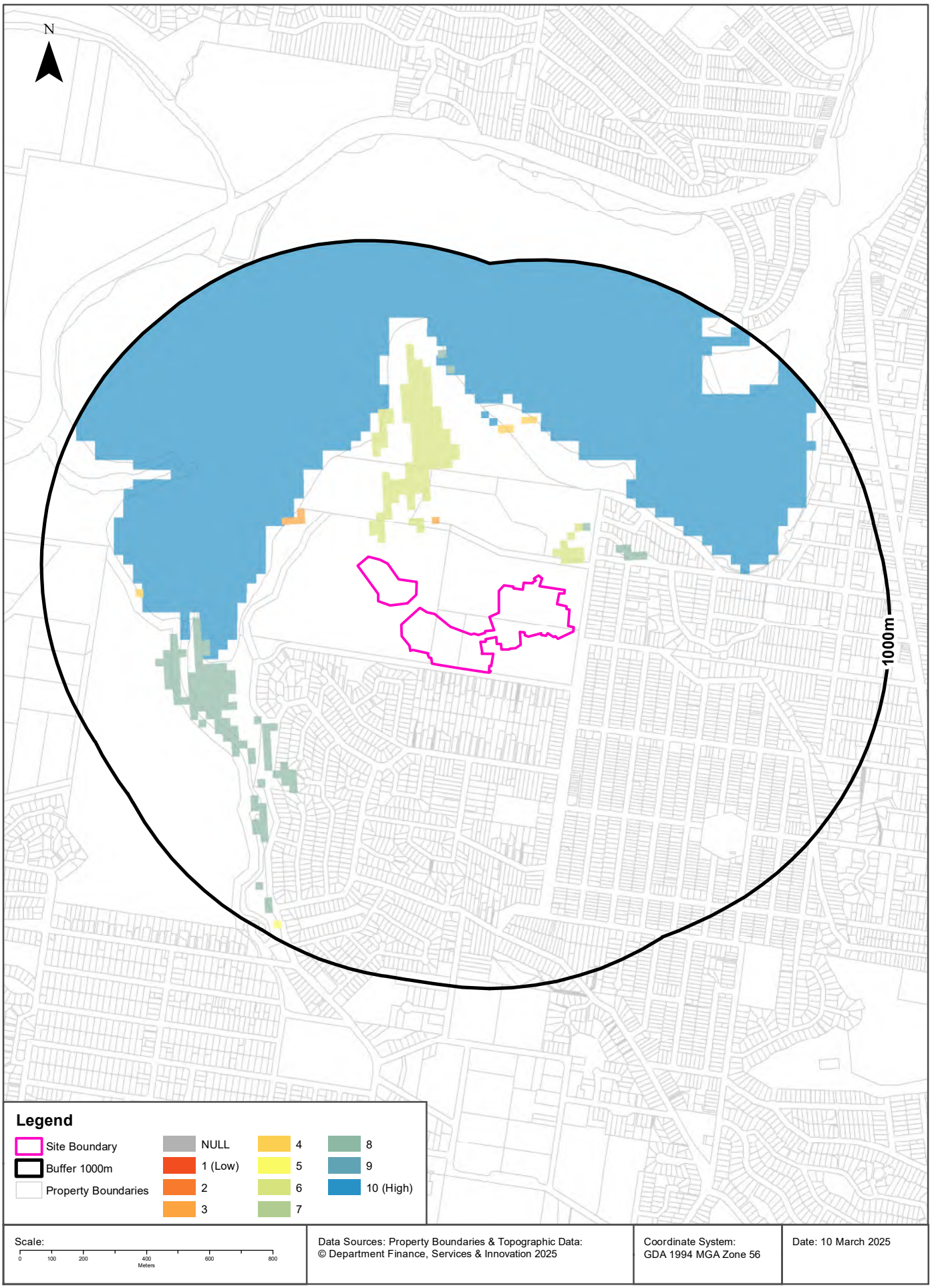
Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	High potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	48m	North West
Terrestrial	Low potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	73m	North East
Terrestrial	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	143m	North East
Aquatic	High potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Wetland		254m	North
Terrestrial	High potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Unconsolidated sedimentary	504m	West
Terrestrial	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Unconsolidated sedimentary	590m	South West
Terrestrial	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation		919m	North

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

4 Colooli Road, Narrabeen, NSW 2101



Ecological Constraints

4 Colooli Road, Narrabeen, NSW 2101

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	6	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	48m	North West
Terrestrial	3	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	186m	North
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	194m	North East
Aquatic	10	Deeply dissected sandstone plateaus.	Wetland		254m	North
Terrestrial	4	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	460m	North
Terrestrial	10	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	493m	North
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation	Unconsolidated sedimentary	504m	West
Terrestrial	4	Deeply dissected sandstone plateaus.	Vegetation	Unconsolidated sedimentary	683m	West
Terrestrial	10	Deeply dissected sandstone plateaus.	Vegetation		919m	North
Terrestrial	5	Deeply dissected sandstone plateaus.	Vegetation	Unconsolidated sedimentary	942m	South West

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology
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Ecological Constraints

4 Colooli Road, Narrabeen, NSW 2101

NSW BioNet Species Sightings

Species sightings from the NSW BioNet Repository that have either a state or federal conservation status, or a sensitivity status, and are within 10 km of the site:
Note: This data does not include NSW Category 1 sensitive species.

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Heleioporus australiacus	Giant Burrowing Frog	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Not Sensitive	Endangered	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Anous stolidus	Common Noddy	Not Sensitive	Not Listed	Not Listed	CAMBA;JAMBA
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Category 2	Critically Endangered	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Not Sensitive	Vulnerable	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna grisea	Sooty Shearwater	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Ardenna pacifica	Wedge-tailed Shearwater	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris alba	Sanderling	Not Sensitive	Vulnerable	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris canutus	Red Knot	Not Sensitive	Not Listed	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Not Sensitive	Critically Endangered	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris tenuirostris	Great Knot	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Category 3	Endangered	Endangered	
Animalia	Aves	Calonectris leucomelas	Streaked Shearwater	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calyptorhynchus banksii banksii	Red-tailed Black-Cockatoo (coastal subspecies)	Category 2	Critically Endangered	Not Listed	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Category 2	Vulnerable	Not Listed	
Animalia	Aves	Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	Category 2	Vulnerable	Vulnerable	
Animalia	Aves	Charadrius leschenaultii	Greater Sand-plover	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Charadrius mongolus	Lesser Sand-plover	Not Sensitive	Vulnerable	Endangered	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Chlidonias leucopterus	White-winged Black Tern	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Cinclosoma castanotum	Chestnut Quail-thrush	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Cuculus optatus	Oriental Cuckoo	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Diomedea exulans	Wandering Albatross	Not Sensitive	Endangered	Vulnerable	
Animalia	Aves	Esacus magnirostris	Beach Stone-curlew	Not Sensitive	Critically Endangered	Not Listed	
Animalia	Aves	Eudyptula minor	Little Penguin	Not Sensitive	Endangered Population	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Fregata ariel	Lesser Frigatebird	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Gygis alba	White Tern	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Not Sensitive	Endangered	Critically Endangered	
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Macronectes giganteus	Southern Giant Petrel	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Macronectes halli	Northern Giant-Petrel	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Sensitive	Critically Endangered	Critically Endangered	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA;JAMBA

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Oxyura australis	Blue-billed Duck	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pachycephala olivacea	Olive Whistler	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Phaethon rubricauda	Red-tailed Tropicbird	Not Sensitive	Vulnerable	Not Listed	CAMBA;JAMBA
Animalia	Aves	Philomachus pugnax	Ruff	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pterodroma leucoptera leucoptera	Gould's Petrel	Not Sensitive	Vulnerable	Endangered	
Animalia	Aves	Pterodroma nigripennis	Black-winged Petrel	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pterodroma solandri	Providence Petrel	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Puffinus assimilis	Little Shearwater	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Stercorarius longicaudus	Long-tailed Jaeger	Not Sensitive	Not Listed	Not Listed	CAMBA;JAMBA
Animalia	Aves	Stercorarius parasiticus	Arctic Jaeger	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stercorarius pomarinus	Pomarine Jaeger	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sterna hirundo	Common Tern	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Not Sensitive	Endangered	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Sula leucogaster	Brown Booby	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Thalassarche cauta	Shy Albatross	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Thalassarche chrysostoma	Grey-headed Albatross	Not Sensitive	Not Listed	Endangered	
Animalia	Aves	Thalassarche melanophris	Black-browed Albatross	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Thalasseus bergii	Crested Tern	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Thinornis cucullatus cucullatus	Eastern Hooded Dotterel	Not Sensitive	Critically Endangered	Vulnerable	
Animalia	Aves	Todiramphus chloris	Collared Kingfisher	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa incana	Wandering Tattler	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Sensitive	Endangered	Endangered	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Xenus cinereus	Terek Sandpiper	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Gastropoda	Pommerhelix duralensis	Dural Land Snail	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Arctocephalus forsteri	New Zealand Fur-seal	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Arctocephalus pusillus doriferus	Australian Fur-seal	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Balaenoptera musculus	Blue Whale	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Not Sensitive	Vulnerable	Endangered	
Animalia	Mammalia	Dugong dugon	Dugong	Not Sensitive	Endangered	Not Listed	
Animalia	Mammalia	Eubalaena australis	Southern Right Whale	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Macrotis lagotis	Bilby	Not Sensitive	Extinct	Vulnerable	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Notamacropus parma	Parma Wallaby	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Nyctophilus bifax	Eastern Long-eared Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Perameles nasuta	Long-nosed Bandicoot	Not Sensitive	Endangered Population	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	Not Sensitive	Endangered	Vulnerable	
Animalia	Mammalia	Petrogale xanthopus	Yellow-footed Rock-wallaby	Not Sensitive	Endangered	Vulnerable	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Phoniscus papuensis	Golden-tipped Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Physeter macrocephalus	Sperm Whale	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Pseudomys hermannsburgensis	Sandy Inland Mouse	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Sensitive	Not Listed	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Not Sensitive	Vulnerable	Vulnerable	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Antaresia stimsoni	Stimson's Python	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Cacophis harriettae	White-crowned Snake	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Reptilia	Cyclodomorphus melanops elongatus	Mallee Slender Blue-tongue Lizard	Not Sensitive	Endangered	Not Listed	
Animalia	Reptilia	Dermochelys coriacea	Leatherback Turtle	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Diplodactylus platyurus	Eastern Fat-tailed Gecko	Not Sensitive	Endangered	Not Listed	
Animalia	Reptilia	Eretmochelys imbricata	Hawksbill Turtle	Not Sensitive	Not Listed	Vulnerable	
Animalia	Reptilia	Hemiaspis damelii	Grey Snake	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Myuchelys bellii	Western Sawshelled Turtle, Bell's Turtle	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue-tongued Lizard	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Uvidicolus sphyrurus	Border Thick-tailed Gecko	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Reptilia	Varanus rosenbergi	Rosenberg's Goanna	Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Acacia terminalis subsp. Eastern Sydney	Sunshine wattle	Not Sensitive	Endangered	Endangered	
Plantae	Flora	Baeckea kandos		Category 3	Endangered	Endangered	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Category 3	Vulnerable	Not Listed	
Plantae	Flora	Chamaesyce psammogeton	Sand Spurge	Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Darwinia biflora		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Epacris purpurascens var. purpurascens		Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Euphrasia collina subsp. muelleri	Mueller's Eyebright	Not Sensitive	Endangered	Endangered	
Plantae	Flora	Genoplesium baueri	Bauer's Midge Orchid	Category 2	Endangered	Endangered	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Category 3	Endangered	Not Listed	
Plantae	Flora	Grevillea caleyi	Caley's Grevillea	Category 3	Critically Endangered	Critically Endangered	
Plantae	Flora	Haloragodendron lucasii		Not Sensitive	Endangered	Endangered	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Hibbertia puberula		Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Hibbertia superans		Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Category 3	Not Listed	Extinct	
Plantae	Flora	Kunzea rupestris		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Lasiopetalum joyceae		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Leptospermum deanei		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Sensitive	Not Listed	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Microtis angusii	Angus's Onion Orchid	Category 2	Endangered	Endangered	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Category 3	Endangered	Endangered	
Plantae	Flora	Persoonia laxa		Not Sensitive	Extinct	Extinct	
Plantae	Flora	Persoonia pauciflora	North Rothbury Persoonia	Category 3	Critically Endangered	Critically Endangered	
Plantae	Flora	Pimelea curviflora var. curviflora		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Prostanthera densa	Villous Mint-bush	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Prostanthera marifolia	Seaforth Mintbush	Category 3	Critically Endangered	Critically Endangered	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Not Sensitive	Critically Endangered	Critically Endangered	
Plantae	Flora	Senecio spathulatus	Coast Groundsel	Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Not Sensitive	Vulnerable	Not Listed	

Source: NSW BioNet Species Sightings

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Location Confidences

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

LC Code	Location Confidence
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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

Land Title Records

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

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

Summary of Owners Report

Address: - 4 Colooli Road, Narrabeen, NSW

Description: - Lots 573 & 2611 D.P. 752038, Lot 1 D.P. 774980 & Lot 1 D.P. 803645.

As regards Lot 2611 D.P. 752038 (Retirement Village)

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
29.06.1928 (1928 to 1945)	James Wheeler (Farmer)	Volume 4162 Folio 143
12.12.1945 (1945 to 1949)	Alice Ann Wheeler (Widow) Alan George Wheeler (Shopkeeper) (Transmission Application not investigated)	Volume 4162 Folio 143
29.04.1949	Resumed for Extension of War Veterans Home and also reserved from Sale or lease.	Volume 4162 Folio 143 Now Crown Land
15.07.1949	Dedicated for Site of War Veterans' Home Extension	Gazette
03.06.1959 (1959 to date)	# The War Veterans' Home (Grant as the site of War Veterans' Home) Intervening name change, now # RSL Lifecare Limited	Volume 7715 Folio 94 No 2611/752038

# Denotes Current Registered Proprietor

Leases: -

- 12.04.1983 (T428206) to Sydney County Council, of Substation premises No. 1230, together with a right of way and easement for electricity purposes, affects part of the land in Volume 7715 Folio 94 (? Affecting) – expires 31.12.2000.
- 04.01.2005 (AA560049) surrendered 08.04.2013 – not investigated.

Easements: -

- 03.03.2009 (AE332801 & D.P. 1126086) Easement for Electricity and other purposes (E) in D.P. 1126086.
- 03.03.2009 (AE332801 & D.P. 1126086) Right of Carriageway (R) in D.P. 1126086.
- 24.07.2009 (D.P. 1141242) Right of Access 2.5 metres wide and variable width.

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

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

As regards Lot 1 D.P. 774980 (Retirement Village)

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
	As regards the part numbered (1) on the attached Cadastral Records Enquiry Report	
20.03.1923 (1923 to 1928)	Coast Lands Limited	Volume 2352 Folio 147
31.01.1928 (1928 to 1948)	Eric Campbell (Solicitor) Cecil Hawthorne (Accountant)	Volume 2352 Folio 147
	As regards the part numbered (2) on the attached Cadastral Records Enquiry Report	
14.12.1926 (1926 to 1928)	Coast Lands Limited	Volume 3358 Folio 248
31.01.1928 (1928 to 1948)	Eric Campbell (Solicitor) Cecil Hawthorne (Accountant)	Volume 3358 Folio 248
	As regards the part numbered (3) on the attached Cadastral Records Enquiry Report	
09.03.1926 (1926 to 1944)	Charles William Burton (Printer)	Volume 2987 Folio 113
17.10.1944 (1944 to 1948)	Lillian Veronica Myrtle Smith (Married Woman)	Volume 2987 Folio 113
	Continued as regards the whole of Lot 1 D.P. 774980	
23.08.1948	Resumed for Extension of War Veterans Home and also reserved from Sale or lease.	Volume 2352 Folio 147, Volume 3358 Folio 248 & Volume 2987 Folio 113 Now Crown Land
26.11.1948	Dedicated for Site of War Veterans' Home Extension	Gazette
03.06.1959 (1959 to date)	# The War Veterans' Home (Grant as the site of War Veterans' Home) Intervening name change, now # RSL Lifecare Limited	Volume 7715 Folio 94 No 1/774980

# Denotes Current Registered Proprietor

Easements: - NIL

Leases: -

- 12.04.1983 (T428206) to Sydney County Council, of Substation premises No. 1230, together with a right of way and easement for electricity purposes, affects part of the land in Volume 7715 Folio 94 (? Affecting) – expires 31.12.2000.
- 06.06.1989 (Y344046) expired due to effluxion of time – not investigated.

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

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

As regards Lot 573 D.P. 752038 (Retirement Village)

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
17.02.1914 (1914 to 1923)	Alfred Gregory Yewen (Journalist)	Volume 2454 Folio 122
12.11.1923 (1923 to 1946)	Margaret Alice Yewen (Widow) (Transmission Application not investigated)	Volume 2454 Folio 122 Now Volume 5343 Folio 123
26.11.1946 (1946 to 1989)	The War Veterans' Home	Volume 5343 Folio 123
02.06.1989 (1989 to 2019)	RSL Veterans Retirement Villages	Volume 5343 Folio 123 Now 573/752038
21.03.2019 (2019 to date)	# RSL Lifecare Limited	573/752038

# Denotes Current Registered Proprietor

Leases: -

- 02.06.1989 (Y344066 & D.P. 120307) to Sydney County Council, of Substation premises No. 15744, together with a right of way and easement for electricity purposes, affects part of the land in Volume 7715 Folio 94 – expires 31.12.2000.
- 04.01.2005 (AA560049) surrendered 08.04.2013 – not investigated.

Easements: -

- 03.03.2009 (AE332801 & D.P. 1126086) Right of Carriageway (R) in D.P. 1126086.

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

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

As regards Lot 1 D.P. 803645 (Retirement Village)

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
	As regards the part numbered (4) on the attached Cadastral Records Enquiry Report	
17.02.1914 (1914 to 1923)	Alfred Gregory Yewen (Journalist)	Volume 2454 Folio 122
12.11.1923 (1923 to 1941)	Margaret Alice Yewen (Widow) (Transmission Application not investigated)	Volume 2454 Folio 122 Now Volume 5343 Folio 123
	As regards the part numbered (5) on the attached Cadastral Records Enquiry Report	
29.07.1922 (1922 to 1922)	Mary Jane Kirkpatrick (Married Woman)	Volume 2987 Folio 133
27.10.1922 (1922 to 1941)	Geroge Edwards (Dentist)	Volume 2987 Folio 133
	As regards the part numbered (6) on the attached Cadastral Records Enquiry Report	
08.06.1922 (1922 to 1928)	Maurice Joseph Corkery (Storekeeper)	Volume 3322 Folio 108
31.01.1928 (1928 to 1941)	Eric Campbell (Solicitor) Cecil Hawthorne (Accountant)	Volume 3322 Folio 108
	As regards the part numbered (7) on the attached Cadastral Records Enquiry Report	
20.03.1923 (1923 to 1928)	Coast Lands Limited	Volume 2352 Folio 147
31.01.1928 (1928 to 1941)	Eric Campbell (Solicitor) Cecil Hawthorne (Accountant)	Volume 2352 Folio 147
	Continued as regards the whole of Lot 1 D.P. 803465	
18.09.1941 (1941 to 2003)	Commonwealth of Australia (Acquired for Defence purposes)	Volume 5343 Folio 123, Volume 3322 Folio 108, Volume 2987 Folio 133 & Volume 2352 Folio 147 Then Volume 5409 Folio 167 Now 1/803645
12.06.2003 (2003 to date)	# RSL Veterans Retirement Villages Now # RSL Lifecare Limited	1/803645

# Denotes Current Registered Proprietor

Easements: -

- 22.02.2005 (AB182515) Easement for Electricity Substation purposes 2.1 wide.
- 25.10.2005 (AB827062) Easement for Electricity Substation purposes 2.76 wide.

Continued over for leases.

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

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

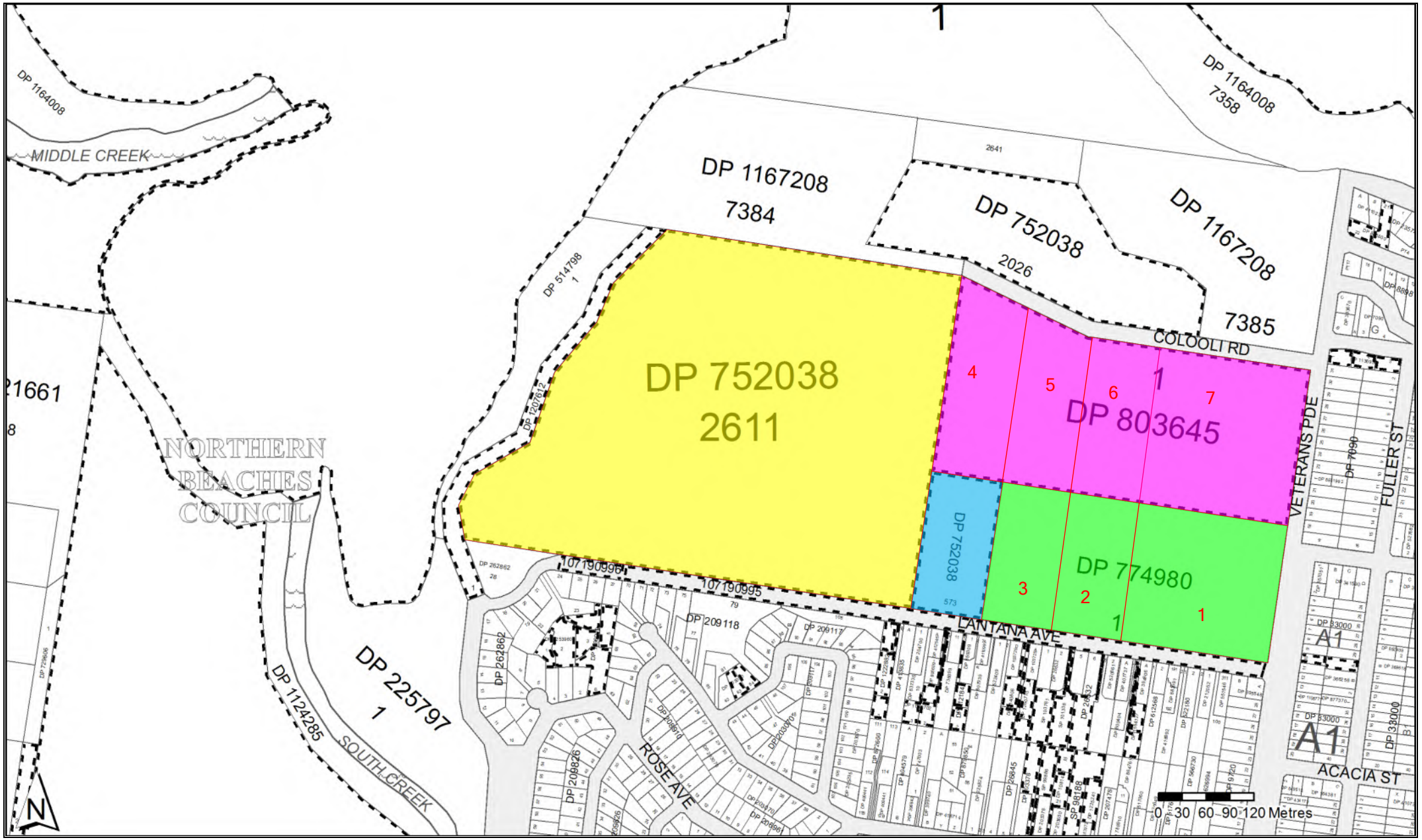
Leases: -

- 17.03.1987 (W761354 & D.P. 117529)) to Sydney County Council, of Substation premises No. 15979, together with a right of way and easement for electricity purposes, affects part of the land in Volume 7715 Folio 94 – expires 31.12.2004.
- 04.01.2005 (AA560049) surrendered 08.04.2013 – not investigated.
- 25.10.1994 (U732603) – expired, not investigated.
- (AB502102 & D.P. 1079167) to Ausgrid of Substation premises No. 15979, together with a right of way and easement for electricity purposes – expires 31.12.2029.
    - Lessee now Alpha Distribution Ministerial Holding Corporation
    - 28.02.2017 (AK 971351) Lease of Lease to Blue Asset Partner Pty Ltd, Eric Alpha Asset Corporation 1 Pty Ltd, Eric Alpha Asset Corporation 2 Pty Ltd, Eric Alpha Asset Corporation 3 Pty Ltd Eric Alpha Asset Corporation 4 Pty Ltd .
    - 28.02.2017 (AK 971352) Sub Lease to Blue Op Partner Pty Ltd, Eric Alpha Operator Corporation 1 Pty Ltd, Eric Alpha Operator Corporation 2 Pty Ltd, Eric Alpha Operator Corporation 3 Pty Ltd Eric Alpha Operator Corporation 4 Pty Ltd.
- 26.11.2013 (AH558551 to AH558553) concurrent leases to Collaroy Plateau Preschool Services Pty Ltd, of premises – expires 03.02.2028.
- 18.11.2019 (AP562431) to Collaroy Plateau Preschool Services Pty Ltd, of premises with outdoor playground – expires 03.02.2033.

Yours Sincerely
Mark Groll
28 March 2025

Cadastral Records Enquiry Report : Lot 2611 DP 752038

Locality : NARRABEEN
Parish : MANLY COVE
LGA : NORTHERN BEACHES
County : CUMBERLAND



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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

Req:R031063 /Doc:CP 07843-2030 P /Rev:27-Nov-2012 /NSW LRS /Prt:27-Mar-2025 21:16 /Seq:1 of 1
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NOTATION PLAN

(Original Plan not in this Department).

PLAN MICROFILMED

NO ADDITIONS OR AMENDMENTS TO BE MADE

Papers { L.S. 43 514
P. 48. 4844.

Warringah Shire

PLAN OF

Part of Portion 1299 ~~and~~; Part of the Land in Application 25969,
Proposed to be resumed under Section 197 Crown Lands Consolidation Act 1913 for Addition to War Veterans' Home; Part C. T. Vol. 4162, Fol. 143.

Parish of Manly Cove County of Cumberland

Land District of Metropolitan Land Board District of Sydney

Resumed under Sec. 197. Gaz. 29.4.49 ~~R.fm 9.6.49~~ Revoked 15.7.49

(1) Dedicated for War Veterans Home Extension. Gaz. 15.7.49 Grant Issued to The War Veterans' Home. Pks 56:6248
Portion No. 2611 adopted for area shown by red edge 13-9-57. Pt consolidated area 77a 3r 36.8 see also C1209, C6034-2030

C.6034.2030 2026

Ms. 164 Sy. Sh. 7 L.F.

"Jamieson Park"

R.7438 for Public Recreation, Notified 6th October 1888.

War Veteran's Home, Dedicated 21st April 1944. 11a. 2r. 11p.

Colooli Road 66 feet Wide

Remains of Peg fd

Peg fd 231 3/4

A 90° 13' 30" 1223' 3" B

1848·86

2611

Ref mark fd

Ms. 139 Sy.

Lagoon

Part Por. 1299

Road

Remains of Peg fd

C. 688. 690
C. 452. 690
Ms. 164 Sy. Sh. 7 L.F.

572

Plan in D. 83074.

817' 6 1/4"

2106·82

1390' 6"

Acquired by the Commonwealth for Defence Purposes, Gaz. 18.3.41.

R.P. Appln. 25969 & 31404

Proposed road 66 feet wide – not established

Peg fd

Narrabeen Creek

R.P. Appln. 31404

Pt Por. 1299

66 feet wide

Road

(1)

James Wheeler (Grantee).

Pt R.P. Appln. 25969

5a. 1r. 1p.

Peg fd

C.1209.2030.L.F.

573

180° 15'

50a. 2r. 38p.

A. G. Yewen.

50 ac. (Grant).

R. 6272. 1603 (Surveyed 1899)

Wood and Fibro Cottage

C.I. Shed

3a. 2r.

South

Rock mk fd

D

270° 14' 40" Remains of old fence 1867' 4 1/2"

2829·39

Remains of Peg fd

206° 9' 30" to Large N. Fd on Rock 18·8"

C 3a. 3r. 24p.

Lantana Avenue 66 Feet Wide

C.1209.2030.L.F.

C.1209.2030.L.F.

J. Wheeler's Grave

C. 555. 690. Ms. 164 Sy. Sh. 5 L.F.

1313'

590	589	588	DP 8438 585
S. R. Howe	E. Blackwell	A. P. & L. Hanlon	C. B. Fletcher
3a. 3r. 24p.	7a. 1r. 8p.	5a. 3r. 16p.	3a. 0r. 13p.

James Wheeler.
Pt R. P. Appln. 25969

15 ac.

For Deed purposes lengths of boundaries have been converted to links as shown in red hereon.

I CERTIFY that this is a CORRECT COPY of the original plan of survey and of all notations thereon now relevant, I being the officer having the custody thereof.

J. S. Mowll

Officer-in-Charge, General Drafting Branch 27th Oct 1948

Computed Area: 2210331 sq. Ft.

Azimuth taken from BC

Field Book LD 1578 Pages ——

Reference to Traverse

Line	Bearing	Distance	
1	347° 55' 40"	139 10 1/4	211·96
2	19° 05	141 3 1/2	214·02
3	50° 31' 40"	259 1"	392·55
4	12° 30·	306 8"	464·68
5	30° 55' 40"	264 4 1/2"	400·57
6	16° 05'	179 9 1/2"	272·38
7	36° 16' 30"	313 6 1/2"	475·1

Reference to Corners

	Bearing	From	Under	No. on Tree
A	Numbered	Peg at	Cor	/A
B	Numbered	Peg at	Cor	/B
C	Numbered	Peg at	Cor	/C
D	Rock Mark	at	Cor	/D

Reference Marks

A	90° 13' 30"	G.I. Pipe	1' 6 1/2"
B	197° 31' 40"	G.I. Pipe	1' 6"
C	0° 15	G.I. Pipe	1' 6"
D	90° 14' 40"	G.I. Pipe	1' 6"

NOTATION PLAN

7843. 2030

Scale 300 Feet to an Inch

C7843 2030

DECLARATION

I William Archer Pike of Sydney
a surveyor registered under the Surveyors Act 1929 do hereby solemnly and sincerely declare
(a) that all boundaries and measurements shown on this plan are correct
(b) that all survey marks found and relevant physical objects on or adjacent to the boundaries are correctly represented
(c) that all physical objects indicated actually exist in the positions shown.
(d) that the whole of the material facts in relation to the land are correctly represented
(e) that the survey represented in this plan has been made in accordance with the Survey Practice Regulations 1933
(f) by me ~~(or under my supervision)~~ the manner and extent of which is as required by the Survey Practice Regulations 1933 and
that the survey was completed on 2nd July 1948 and the reference marks have been placed as shown hereon.
And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act 1900.

Subscribed and declared before me at Sydney this 9th day of July 1948

Signature W. A. Pike

Transmitted to the District Surveyor with my letter of 9th July 1948

Checked and Checked

Examined and

Plotted

7843 2030

InfoTrack
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M.G.A

SEE SHEET 2
DIAGRAM 2

2611
D.P. 752038
(I209 2030)

573
D.P. 752038
(I209 2030)

1
D.P. 803645

1
D.P. 774080

SURVEYING REGULATION 2006 CLAUSE 61(2)					
MARK	M.G.A. CO-ORDINATES		ZONE	CLASS	ORDER
	EASTING	NORTHING			
P.M. 3991	341 316.920	6 267 208.618	56	B	2
P.M. 44900	340 846.125	6 267 129.656	56	B	2
S.S.M. 38114	341 046.334	6 267 084.131	56	B	2
SOURCE : DEPARTMENT OF LANDS DATE: JAN 2008 COMBINED SCALE FACTOR 0.999906					

(E) PROPOSED EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 2 WIDE & 5.3 WIDE

(R) PROPOSED RIGHT OF WAY 4 WIDE & 5.3 WIDE

SEE SHEET 2
DIAGRAM 1

'X' PM 44900 FD
295°59'10" 7.825 TO CNR
(D.P. 1072855)

'Y' S.S.M. 38114 FD

PEG FD

R.M.D.H.&W. IN KERB FD. 11.05 306°44'40" (D.P. 1072855)

R.M.D.H.&W. IN KERB FD. 5.44 202°22'20" (D.P. 1072855)

PARADE

VETERANS

LANTANA AVENUE

(20.115 WIDE)

(40.235 & 20.115 WIDE)

Surveyor: DOUGLAS LACHLAN MACLEAN Date of Survey: 16 JANUARY 2008 Surveyor's Ref: 31542DP-1	PLANS OF PROPOSED EASEMENT FOR ELECTRICITY AND OTHER PURPOSES AND PROPOSED RIGHT OF WAY WITHIN LOT 2611 D.P. 752038 & PROPOSED RIGHT OF WAY WITHIN LOT 573 D.P. 752038	LGA: WARRINGAH Locality: NARRABEEN Subdivision No: Lengths are in metres. Reduction Ratio 1:600	Registered 21.5.2008	DP1126086

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 Table of mm

MPR 2013 EnergyAustralia's Ref: S 17557

EnergyAustralia_Sect07(TS)

Req:R031065 /Doc:DP 1126086 P /Rev:03-Jun-2008 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:16 /Seq:2 of 3
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ENERGY AUSTRALIA
ELECTRICITY SUBSTATION
No. 16931

R.M.D.H.&W. IN KERB
2.375
6.065

M.G.A.

DIAGRAM 1

ENERGY AUSTRALIA
ELECTRICITY SUBSTATION
No. 16919

BRICK FACE WALL

R.M. DH&W IN KB

R.M.D.H.&W. IN KERB FD
305°44'40"
(D.P. 1072855)

R.M.D.H.&W. IN KERB FD 5.44
20°22'20"
(D.P. 1072855)

PEG FD 295°59'10" (D.P. 1072855) 7.825

PM 44900 FD

282°48'38" 205.339
282°48'38" 205.352
M.G.A. GROUND SURVEY

LANTANA (20.115 WIDE) AVENUE

DIAGRAM 2

(E) PROPOSED EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 2 WIDE & 5.3 WIDE

(R) PROPOSED RIGHT OF WAY 4 WIDE & 5.3 WIDE

Surveyor: DOUGLAS LACHLAN MACLEAN Date of Survey: 16 JANUARY 2008 Surveyor's Ref: 31542DP-1	PLANS OF PROPOSED EASEMENT FOR ELECTRICITY AND OTHER PURPOSES AND PROPOSED RIGHT OF WAY WITHIN LOT 2611 D.P. 752038 & PROPOSED RIGHT OF WAY WITHIN LOT 573 D.P. 752038	LGA: WARRINGAH Locality: NARRABEEN Subdivision No: Lengths are in metres. Reduction Ratio 1:200	Registered 21.5.2008	DP1126086

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 Table of mm

EnergyAustralia's Ref: S 17557

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DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 2 sheets

EnergyAustralia_Sept07(TC)

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

DP1126086

* OFFICE USE ONLY

Registered: 21.5.2008

Title System: TORRENS

Purpose: PROPOSED EASEMENT

PLANS OF PROPOSED EASEMENT FOR ELECTRICITY AND OTHER PURPOSES AND PROPOSED RIGHT OF WAY WITHIN LOT 2611 D.P. 752038 & PROPOSED RIGHT OF WAY WITHIN LOT 573 D.P. 752038

LGA: WARRINGAH
Locality: NARRABEEN
Parish: MANLY COVE
County: CUMBERLAND

APPROVED: M. R. Riddell
Survey Manager, EnergyAustralia

Use PLAN FORM 6A
for additional certificates, signatures, seals and statements

Crown Lands NSW/Western Lands Office 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 Certificate No. .....

File No. .....

* Delete whichever is inapplicable

Surveying Regulation, 2006

I, DOUGLAS LACHLAN MACLEAN
of DEGOTARDI, SMITH AND PARTNERS 11/19-23 BRIDGE STREET, PYMBLE NSW 2073
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

8 FEBRUARY 2008

The survey relates to PROPOSED EASEMENT, RIGHTS OF WAY AND CONNECTIONS
(here specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

Signature ..... *Dated:* 02/04/08
Surveyor registered under the ***Surveying Act, 2002***

Datum Line : 'X' - 'Y'
Type: Urban / ~~Rural~~

Plans used in the preparation of survey/compilation

D.P. 1072855
D.P. 774980
D.P. 803645
1209-2030
7843-2030

(if insufficient space use Plan Form 6A annexure sheet)

SURVEYOR'S REFERENCE: 31542DP/1

EnergyAustralia's Ref: S 17557

PLAN FORM 2

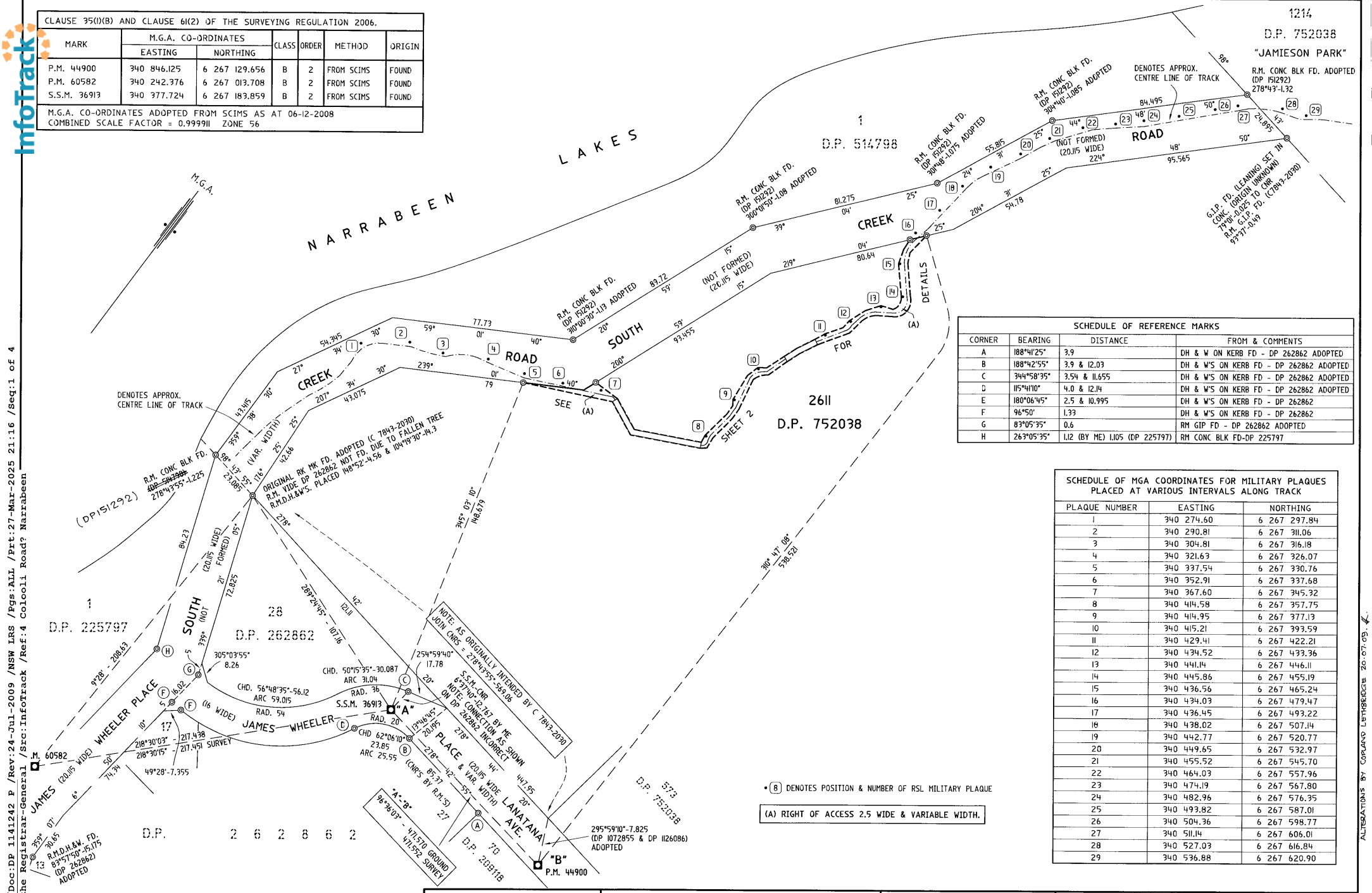
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Sheet 1 of 2 sheets

CLAUSE 35(1)(B) AND CLAUSE 61(2) OF THE SURVEYING REGULATION 2006.

MARK	M.G.A. CO-ORDINATES EASTING	M.G.A. CO-ORDINATES NORTHING	CLASS	ORDER	METHOD	ORIGIN
P.M. 44900	340 846.125	6 267 129.656	B	2	FROM SCIMS	FOUND
P.M. 60582	340 242.376	6 267 013.708	B	2	FROM SCIMS	FOUND
S.S.M. 36913	340 377.724	6 267 183.859	B	2	FROM SCIMS	FOUND

M.G.A. CO-ORDINATES ADOPTED FROM SCIMS AS AT 06-12-2008
COMBINED SCALE FACTOR = 0.999911 ZONE 56



SCHEDULE OF REFERENCE MARKS

CORNER	BEARING	DISTANCE	FROM & COMMENTS
A	188°41'25"	3.9	DH & W ON KERB FD - DP 262862 ADOPTED
B	188°42'55"	3.9 & 12.03	DH & W'S ON KERB FD - DP 262862 ADOPTED
C	344°58'35"	3.54 & 11.655	DH & W'S ON KERB FD - DP 262862 ADOPTED
D	115°41'10"	4.0 & 12.14	DH & W'S ON KERB FD - DP 262862 ADOPTED
E	180°06'45"	2.5 & 10.995	DH & W'S ON KERB FD - DP 262862
F	96°50'	1.33	DH & W'S ON KERB FD - DP 262862
G	83°05'35"	0.6	RM GIP FD - DP 262862 ADOPTED
H	263°05'35"	1.12 (BY ME) 1.105 (DP 225797)	RM CONC BLK FD-DP 225797

SCHEDULE OF MGA COORDINATES FOR MILITARY PLAQUES PLACED AT VARIOUS INTERVALS ALONG TRACK

PLAQUE NUMBER	EASTING	NORTHING
1	340 274.60	6 267 297.84
2	340 290.81	6 267 311.06
3	340 304.81	6 267 316.18
4	340 321.63	6 267 326.07
5	340 337.54	6 267 330.76
6	340 352.91	6 267 337.68
7	340 367.60	6 267 345.32
8	340 414.58	6 267 357.75
9	340 414.95	6 267 377.13
10	340 415.21	6 267 393.59
11	340 429.41	6 267 422.21
12	340 434.52	6 267 433.36
13	340 441.14	6 267 446.11
14	340 445.86	6 267 455.19
15	340 436.56	6 267 465.24
16	340 434.03	6 267 479.47
17	340 436.45	6 267 493.22
18	340 438.02	6 267 507.14
19	340 442.77	6 267 520.77
20	340 449.65	6 267 532.97
21	340 455.52	6 267 545.70
22	340 464.03	6 267 557.96
23	340 474.19	6 267 567.80
24	340 482.96	6 267 576.35
25	340 493.82	6 267 587.01
26	340 504.36	6 267 598.77
27	340 511.14	6 267 606.01
28	340 527.03	6 267 616.84
29	340 536.88	6 267 620.90

Surveyor: COPLAND C. LETHBRIDGE
Date of Survey: 25-02-2009
Surveyor's Ref: 16377 EASE

PLAN OF RIGHT OF ACCESS 2.5 WIDE & VARIABLE WIDTH WITHIN PART OF LOT 2611 IN D.P. 752038

L.G.A: WARRINGAH
Locality: NARRABEEN
Subdivision No: 10727
Lengths are in metres Reduction Ratio 1:1000

Registered 24-7-2009

DP1141242 P

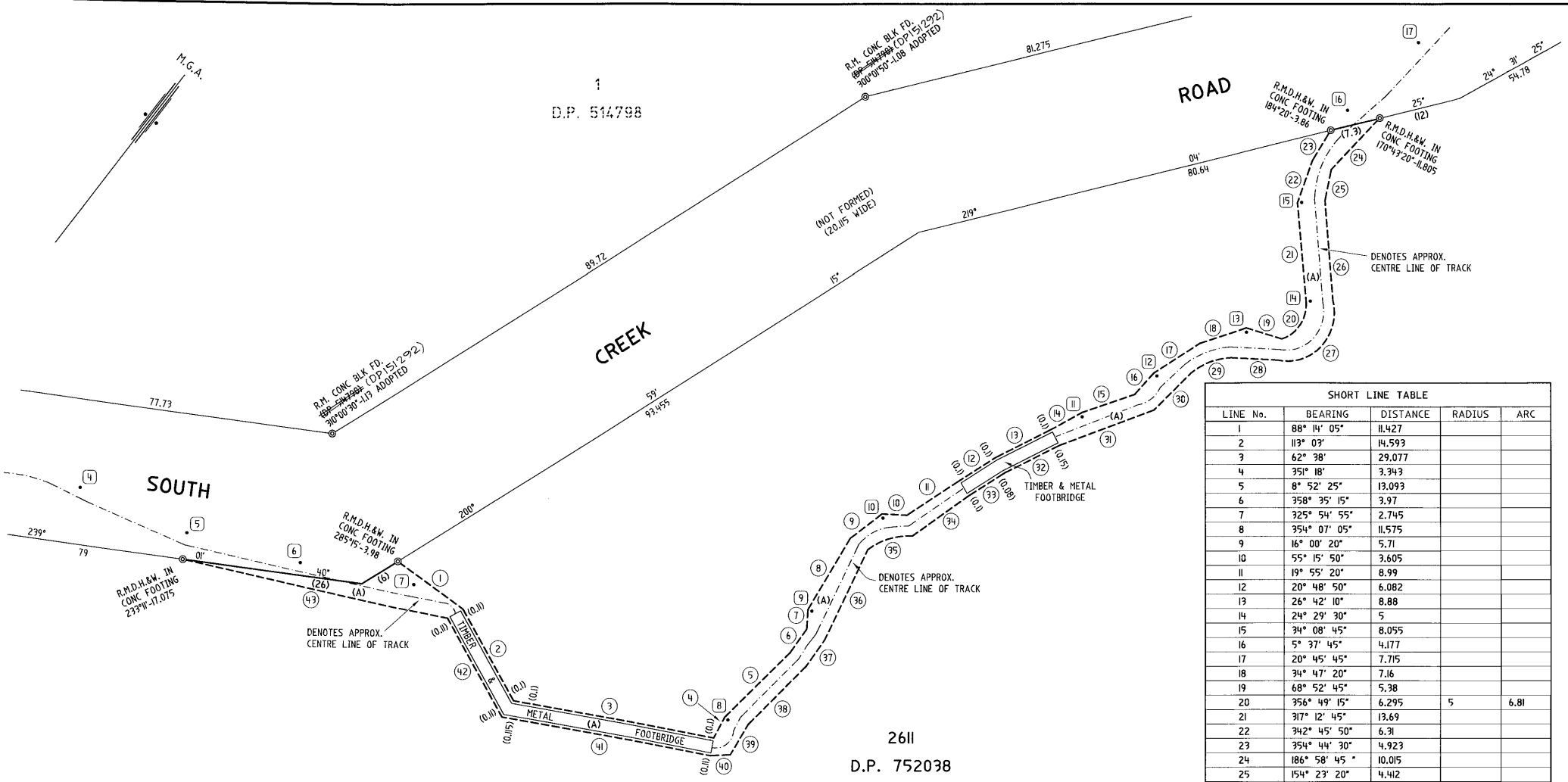
ALTERATIONS BY COPLAND LETHBRIDGE 20.07.09

InfoTrack
Req:R031064 /Doc:DP 1141242 P /Rev:24-Jul-2009 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:16 /Seq:1 of 4
© Office of the Registrar-General /Src:InfoTrack /Ref:4 Colooli Road? Narrabeen

10 20 30 40 50 Table of mm 90 100 110 120 130 140

PLAN FORM 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION



• [8] DENOTES POSITION & NUMBER OF RSL MILITARY PLAQUE

(A) RIGHT OF ACCESS 2.5 WIDE & VARIABLE WIDTH.

SHORT LINE TABLE

LINE No.	BEARING	DISTANCE	RADIUS	ARC
1	88° 14' 05"	11.427		
2	113° 03'	14.593		
3	62° 38'	29.077		
4	351° 18'	3.343		
5	8° 52' 25"	13.093		
6	358° 35' 15"	3.97		
7	325° 54' 55"	2.745		
8	354° 07' 05"	11.575		
9	16° 00' 20"	5.71		
10	55° 15' 50"	3.605		
11	19° 55' 20"	8.99		
12	20° 48' 50"	6.082		
13	26° 42' 10"	8.88		
14	24° 29' 30"	5		
15	34° 08' 45"	8.055		
16	5° 37' 45"	4.177		
17	20° 45' 45"	7.715		
18	34° 47' 20"	7.16		
19	68° 52' 45"	5.38		
20	356° 49' 15"	6.295	5	6.81
21	317° 12' 45"	13.69		
22	342° 45' 50"	6.31		
23	354° 44' 30"	4.923		
24	186° 58' 45 "	10.015		
25	154° 23' 20"	4.412		
26	137° 42' 50"	13.745		
27	185° 55' 10"	11.567	6.8	13.83
28	235° 23' 50"	6.925		
29	212° 00' 30"	6.15	10	6.25
30	188° 52' 05"	7.503		
31	212° 39' 30"	14.51		
32	206° 41' 25"	8.847		
33	200° 48' 55"	5.982		
34	197° 51' 55"	9.834		
35	216° 05' 45"	6.665	10	6.795
36	168° 47' 25"	13.933		
37	178° 24' 05"	4.523		
38	188° 21' 40"	11.688		
39	173° 57' 30"	4.942		
40	229° 17' 15"	2.9		
41	242° 38' 00"	30.233		
42	293° 03' 00"	15.77		
43	243° 58' 20"	38.82		

Surveyor: COPLAND C. LETHBRIDGE Date of Survey: 25-02-2009 Surveyor's Ref: 16377 EASE	PLAN OF RIGHT OF ACCESS 2.5 WIDE & VARIABLE WIDTH WITHIN PART OF LOT 2611 IN D.P. 752038	L.G.A: WARRINGAH Locality: NARRABEEN Subdivision No: 10727 Lengths are in metres Reduction Ratio 1:400	Registered 24-7-2009	DP1141242

ALTERATIONS BY COPLAND LETHBRIDGE 20-07-09

Req:R031064 /Doc:DP 1141242 P /Rev:24-Jul-2009 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:16 /Seq:2 of 4
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10 20 30 40 50 Table of mm 90 100 110 120 130 140

Req:R031064 /Doc:DP 1141242 P /Rev:24-Jul-2009 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:16 /Seq:3 of 4
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DEPOSITED PLAN ADMINISTRATION SHEET

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

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919, IT IS INTENDED TO CREATE:

1. RIGHT OF ACCESS 2.5 WIDE & VARIABLE WIDTH

Use PLAN FORM 6A
for additional certificates, signatures, seals and statements

Crown Lands NSW/Western Lands Office Approval

I.....in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown herein 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..EASEMENT..... set out herein
(insert 'subdivision' or 'new road')

.....
* Authorised Person/~~General Manager/Accredited Certifier~~

Consent Authority: WARRINGAH COUNCIL
Date of Endorsement: 5-5-2009
Accreditation no: .....
Subdivision Certificate no: 10727
File no: SC 9699

* Delete whichever is inapplicable.

*

DP1141242 S

*

Registered: 24-7-2009
Title System: TORRENS
Purpose: EASEMENT

PLAN OF RIGHT OF ACCESS 2.5 WIDE & VARIABLE WIDTH WITHIN PART OF LOT 2611 IN DP 752038

LGA: WARRINGAH
Locality: NARRABEEN
Parish: MANLY COVE
County: CUMBERLAND

Surveying Regulation, 2006

I, COPLAND C LETHBRIDGE
of BEE & LETHBRIDGE PTY LTD (PH: 9451 6757)
a surveyor registered under the *Surveying Act, 2002*, certify that the survey represented in this plan is accurate, has been made in accordance with the *Surveying Regulation, 2006* and was completed on: 25TH FEBRUARY 2009

The survey relates to EASEMENT & CONNECTIONS
(specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

Signature .....*Dated: 25/02/09*
Surveyor registered under the Surveying Act, 2002

Datum Line: "A" – "B"
Type: Urban/~~Rural~~

Plans used in the preparation of survey/~~compilation~~
C7843-2030 225797 262862 81404
514798 75969 1072855 1126086
151292

(if insufficient space use Plan Form 6A annexure sheet)

SURVEYOR'S REFERENCE: 16377 EASE

* OFFICE USE ONLY

Req:R031064 /Doc:DP 1141242 P /Rev:24-Jul-2009 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:16 /Seq:4 of 4
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DEPOSITED PLAN ADMINISTRATION SHEET

PLAN OF RIGHT OF ACCESS 2.5 WIDE & VARIABLE WIDTH WITHIN PART OF LOT 2611 IN DP 752038

* DP1141242 *

Registered: 24-7-2009

* OFFICE USE ONLY

Subdivision Certificate No: 10727 Date of Endorsement: 5-5-2009

EXECUTION

EXECUTED by **RSL LIFECARE LIMITED**)
(ACN 000 048 957) in accordance with)
section 127 of the Corporations Act:)

X .....
Signature of director

.....
Signature of director/secretary

WILLIAM RIDDINGTON
Name (please print)

RON THOMPSON
Name (please print)

.....
Authorised Person – Warringah Council

SURVEYOR'S REFERENCE: 16377 EASE

Req:R036525 /Doc:DL AB182515 /Rev:23-Feb-2005 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 15:52 /Seq:1 of 5
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Form: 01TG
Release: 1
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TRANSFER GRANTING EASEMENT

New South Wales
Real Property Act 1900

AB182515S

PRIVACY NOTE: this information is legally required and will become part of the public record

(A) **TORRENS TITLE**

Servient Tenement	Dominant Tenement
1/803645	An Easement in gross pursuant to s88A of the Conveyancing Act 1919

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODE
48T	LLPN : 123819E CITYLINK Reference: BP/RSC:04 2874 /EA - RSL VET'S	TG

(C) **TRANSFEROR**

RSL VETERANS' RETIREMENT VILLAGES LIMITED
ABN:43 000 048 957

(D) The transferor acknowledges receipt of the consideration of $ 1.00

and transfers and grants

(E) **DESCRIPTION OF EASEMENT**

AN EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES MORE PARTICULARLY DESCRIBED IN ANNEXURE "A"

out of the servient tenement and appurtenant to the dominant tenement.

(F) Encumbrances (if applicable):

(G) **TRANSFEREE**

ENERGYAUSTRALIA
ABN: 67 505 337 385

DATE 26/12/04

(H)

Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the corporation named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.

Corporation: RSL VETERANS' RETIREMENT VILLAGES LIMITED
Authority: section 127 of the Corporations Law

FOR AND ON BEHALF OF RSL VETERANS RETIREMENT VILLAGES LIMITED.

Signature of authorised person:
Name of authorised person: RODERICK DAVID WHITE
Office held: DIRECTOR

Signature of authorised person:
Name of authorised person: RON THOMPSON
Office held: COMPANY SECRETARY AND CHIEF EXECUTIVE OFFICER

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:
Name of witness: WARWICK WEEKLEY
Address of witness: 570 George Street
SYDNEY NSW 2000

Certified correct for the purposes of the Real Property Act 1900 by the person(s) named below who signed this instrument pursuant to the power of attorney specified.

Signature of attorney:
Attorney's name: GRANT KENNETH GREENESMITH
Signing on behalf of: EnergyAustralia
Power of attorney Book: 4368
-No.: 61

All handwriting must be in block capitals.

LAND AND PROPERTY INFORMATION NSW

CT - 12465 4/11

Req:R036525 /Doc:DL AB182515 /Rev:23-Feb-2005 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 15:52 /Seq:2 of 5
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ANNEXURE "A" REFERRED TO IN TRANSFER GRANTING EASEMENT MADE THE 20 DAY OF December 2004 BETWEEN RSL VETERANS' RETIREMENT VILLAGES LIMITED AS TRANSFEROR and ENERGYAUSTRALIA AS TRANSFEREE

An EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES affecting that part of the servient tenement shown as "PROPOSED EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 2.1 WIDE" on the plan annexed and marked "B" (hereinafter referred to as the said land) on the following terms:-

1. EnergyAustralia shall have full right leave liberty and licence for its agents servants and workmen with or without tools materials plant and other equipment and vehicles to enter upon the said land at all times of the night and day to install erect construct dismantle repair replace renew and maintain upon the said land plant electricity conductors wires cables transformers and other equipment for the transmission or storage of electric current or for associated purposes and carry out such construction work as to effectively establish a substation for the supply and/or distribution of electricity.

2. AND TOGETHER WITH full right leave liberty and licence to cut and trim tree roots branches or other growths and foliage which now or at any time hereafter may overhang or encroach on or are now growing or may grow in or on the said land.

3. AND PROVIDED THAT except where EnergyAustralia its agents, servants and workmen in the course of exercising its rights hereunder removes damages breaks down or destroys any existing fence or fences on the said land EnergyAustralia shall not be under any obligation or in any way be bound to erect place or maintain any fence or fences on the boundaries or any other part or parts of the servient tenement.

4. AND the Transferor doth hereby for itself and the other owner or owners from time to time of the servient tenement covenant with EnergyAustralia that it will not do or knowingly suffer to be done any act or thing which may injure or damage the said plant, electricity conductors wires cables transformers and other equipment for the transmission or storage of electric current within the said land or interfere with the free flow of electric current over or along the said land AND that if any such damage or injury be done or interference be made the Transferor will forthwith pay the cost to EnergyAustralia of properly and substantially repairing and making good all such injury or damage and restoring the free flow of electric current as aforesaid.

5. AND for the consideration aforesaid EnergyAustralia doth hereby covenant with the Transferor its successors and assigns that it will save harmless and indemnify it or them from and against any and all loss and damage whatsoever occasioned by the negligent use or abuse of electric current or cables and other apparatus for the transmission of electric current or of the rights hereby created by any person or persons employed by or acting or claiming under EnergyAustralia and that EnergyAustralia will at its own cost and charge pay for all damage and injury arising to the Transferor or to any person or persons in consequence of any breach or non-observance of this covenant.

SIGNED FOR AND ON BEHALF OF
RSL VETERANS' RETIREMENT VILLAGES
LIMITED

Director

CHIEF EXECUTIVE OFFICER AND COMPANY SECRETARY

SIGNED FOR AND ON BEHALF OF
ENERGYAUSTRALIA

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Req:R036525 /Doc:DL AB182515 /Rev:23-Feb-2005 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 15:52 /Seq:3 of 5
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6. AND FURTHER the Transferor doth hereby for itself and the other owner or owners from time to time of the servient tenement covenant with EnergyAustralia that it will not without the consent of EnergyAustralia alter or permit to be altered the existing levels of the said land nor will it without the like consent erect or permit to be erected any structure on above or below the said land.

SIGNED FOR AND ON BEHALF OF
RSL VETERANS RETIREMENT VILLAGES
LIMITED

ROD WHITE

RON THOMPSON
CHIEF EXECUTIVE OFFICER AND COMPANY SECRETARY

RON THOMPSON

SIGNED FOR AND ON BEHALF OF
ENERGYAUSTRALIA

3 of 4

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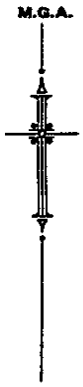
L.G.A. WARRINGAH
LOCALITY: COLLAROY PLATEAU

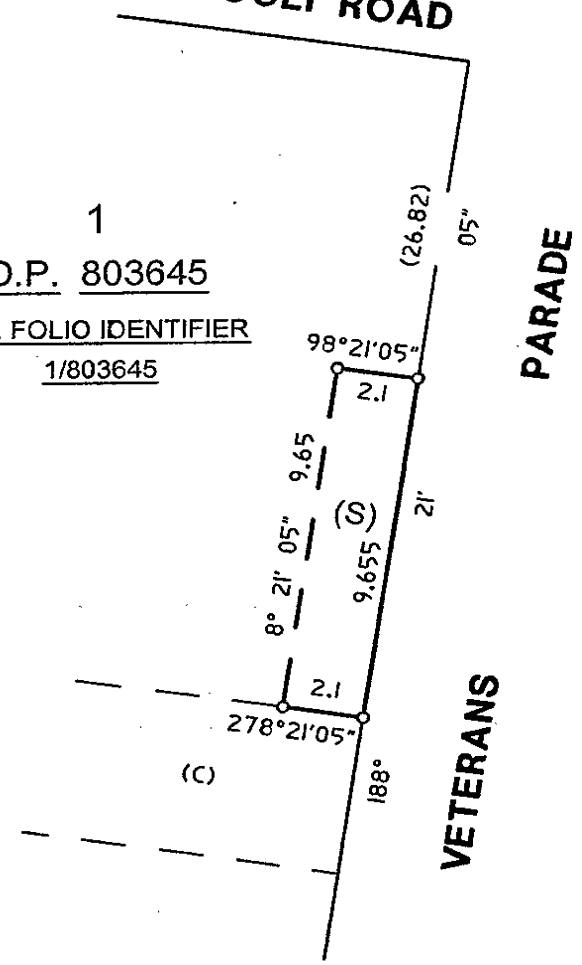
PLAN

SHOWING PROPOSED EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES WITHIN C.T. FOLIO IDENTIFIER 1/803645

PARISH OF MANLY COVE - COUNTY OF CUMBERLAND

REDUCTION RATIO 1:200





(S) PROPOSED EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 2.1 WIDE

(C) PROPOSED RIGHT OF WAY AND EASEMENT FOR ELECTRICITY PURPOSES 4.41 WIDE (VIDE DP 1025879)

M.J. CASTELLETTI
REG.'D SURVEYOR

09-AUGUST-2004

SIGNATURES AND SEALS OF PARTIES

THIS IS THE PLAN MARKED ..... REFERRED TO IN .....

THIS PAGE IS THE PLAN MARKED 'B' REFERRED TO IN THE TRANSFER GRANTING EASEMENT MADE BETWEEN RSL VETERANS' RETIREMENT VILLAGES LIMITED AS TRANSFEROR AND ENERGYAUSTRALIA AS TRANSFEREE

SIGNED FOR & ON BEHALF OF THE TRANSFEROR
NOEL THOMPSON
.....
ROD WHITE
.....

SIGNED FOR & ON BEHALF OF THE TRANSFEREE
.....
.....

M:\cmw\EnergyAustralia\eaplan.doc(cmw)

GARVIN MORGAN & Co. / REFERENCE No. 9769
SUBSTATION No. 16785

FILE '2004M7100(1202) Comp'

S.15865

4 4 4

Req:R036525 /Doc:DL AB182515 /Rev:23-Feb-2005 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 15:52 /Seq:5 of 5
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Combining personalised service with online speed

AB182515

LEGALINK
LEGAL SUPPORT SOLUTIONS

The Law Society Building
Level 8, 170 Phillip Street
Sydney NSW 2000 DX 1239 SYDNEY
Phone: 02 9230 6900 or 1800 802 627
Fax: 02 9223 8215
Website: www.legalink.com.au
ABN: 35 099 032 596

Land and property Information
1 Prince Alfred Street
Sydney NSW 2000.

Dear Sir/Madam

RE: AB182515

We hereby authorise the use of certificate of title 1/803645 for the registration of transfer granting easement AB 182515.

If you have any questions please do not hesitate to me on my direct line, 9230 6927.

Yours faithfully,

Leah Ricci

RELODGED
17 FEB 2005
TIME:

Req:R036526 /Doc:DL AB827062 /Rev:28-Oct-2005 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 15:52 /Seq:1 of 3
© Office of the Registrar-General /Src:InfoTrack /Ref:4 Colooli Road? Narrabeen

Form: 01TG
Release: 1
www.lpi.nsw.gov.au

TRANSFER GRANTING EASEME

New South Wales
Real Property Act 1900

AB827062N

PRIVACY NOTE: this information is legally required and will become part of the public record

(A) **TORRENS TITLE**

Servient Tenement	Dominant Tenement
1/803645	An Easement in gross pursuant to s88A of the Conveyancing Act 1919

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODE
48T	LLPN : 123819E CITYLINK Reference: BP:RSC:052813 BP | RSC | RSL.	TG

$77.25 + fee paid

(C) **TRANSFEROR**

RSL VETERANS' RETIREMENT VILLAGES LIMITED
ABN:43 000 048 957

(D) The transferor acknowledges receipt of the consideration of $ 1.00

and transfers and grants

(E) **DESCRIPTION OF EASEMENT**

AN EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES MORE PARTICULARLY DESCRIBED IN ANNEXURE "A"

out of the servient tenement and appurtenant to the dominant tenement.

(F) Encumbrances (if applicable):

(G) **TRANSFEREE**

ENERGYAUSTRALIA
ABN: 67 505 337 385

DATE 7/10/05

(H)

Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the corporation named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.

Corporation: RSL VETERANS' RETIREMENT VILLAGES LIMITED
Authority: section 127 of the Corporations Act 2001

Signature of authorised person:
Name of authorised person: W.J. Riddington
Office held: DIRECTOR

Signature of authorised person:
Name of authorised person: Ronald Thompson
Office held: COMPANY SECRETARY

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:
Name of witness: WARWICK WEEKLEY
Address of witness: 570 George Street
SYDNEY NSW 2000

Certified correct for the purposes of the Real Property Act 1900 by the person(s) named below who signed this instrument pursuant to the power of attorney specified.

Signature of attorney:
Attorney's name: GRANT KENNETH GREENE-SMITH
Signing on behalf of: EnergyAustralia
Power of attorney-Book: 4368
-No.: 61

Signed by 1245

Req:R036526 /Doc:DL AB827062 /Rev:28-Oct-2005 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 15:52 /Seq:2 of 3
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ANNEXURE "A" REFERRED TO IN TRANSFER GRANTING EASEMENT MADE THE 7 DAY OF October 2005 BETWEEN RSL VETERANS' RETIREMENT VILLAGES LIMITED AS TRANSFEROR and ENERGYAUSTRALIA AS TRANSFEREE

AN EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES affecting that part of the servient tenement shown as "PROPOSED EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 2.76 WIDE" on the plan annexed and marked "B" (hereinafter referred to as the said land) on the following terms:-

1. EnergyAustralia shall have full right leave liberty and licence for its agents servants and workmen with or without tools materials plant and other equipment and vehicles to enter upon the said land at all times of the night and day to install erect construct dismantle repair replace renew and maintain upon the said land plant electricity conductors wires cables transformers and other equipment for the transmission or storage of electric current or for associated purposes and carry out such construction work as to effectively establish a substation for the supply and/or distribution of electricity.

2. AND TOGETHER WITH full right leave liberty and licence to cut and trim tree roots branches or other growths and foliage which now or at any time hereafter may overhang or encroach on or are now growing or may grow in or on the said land.

3. AND PROVIDED THAT except where EnergyAustralia its agents, servants and workmen in the course of exercising its rights hereunder removes damages breaks down or destroys any existing fence or fences on the said land EnergyAustralia shall not be under any obligation or in any way be bound to erect place or maintain any fence or fences on the boundaries or any other part or parts of the servient tenement.

4. AND the Transferor for itself and the other owner or owners from time to time of the servient tenement covenant with EnergyAustralia that it will not do or knowingly suffer to be done any act or thing which may injure or damage the said plant, electricity conductors wires cables transformers and other equipment for the transmission or storage of electric current within the said land or interfere with the free flow of electric current over or along the said land AND that if any such damage or injury be done or interference be made the Transferor will forthwith pay the cost to EnergyAustralia of properly and substantially repairing and making good all such injury or damage and restoring the free flow of electric current as aforesaid.

5. AND for the consideration aforesaid EnergyAustralia doth hereby covenant with the Transferor its successors and assigns that it will save harmless and indemnify it or them from and against any and all loss and damage whatsoever occasioned by the negligent use or abuse of electric current or cables and other apparatus for the transmission of electric current or of the rights hereby created by any person or persons employed by or acting or claiming under EnergyAustralia and that EnergyAustralia will at its own cost and charge pay for all damage and injury arising to the Transferor or to any person or persons in consequence of any breach or non-observance of this covenant.

SIGNED FOR AND ON BEHALF OF
RSL VETERANS' RETIREMENT VILLAGES
LIMITED

Co. Secretary/Director

SIGNED FOR AND ON BEHALF OF
ENERGYAUSTRALIA

052813\annx A.doc(VAT)

Req:R036526 /Doc:DL AB827062 /Rev:28-Oct-2005 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 15:52 /Seq:3 of 3
© Office of the Registrar-General /Src:InfoTrack /Ref:4 Colooli Road? Narrabeen

L.G.A: WARRINGAH

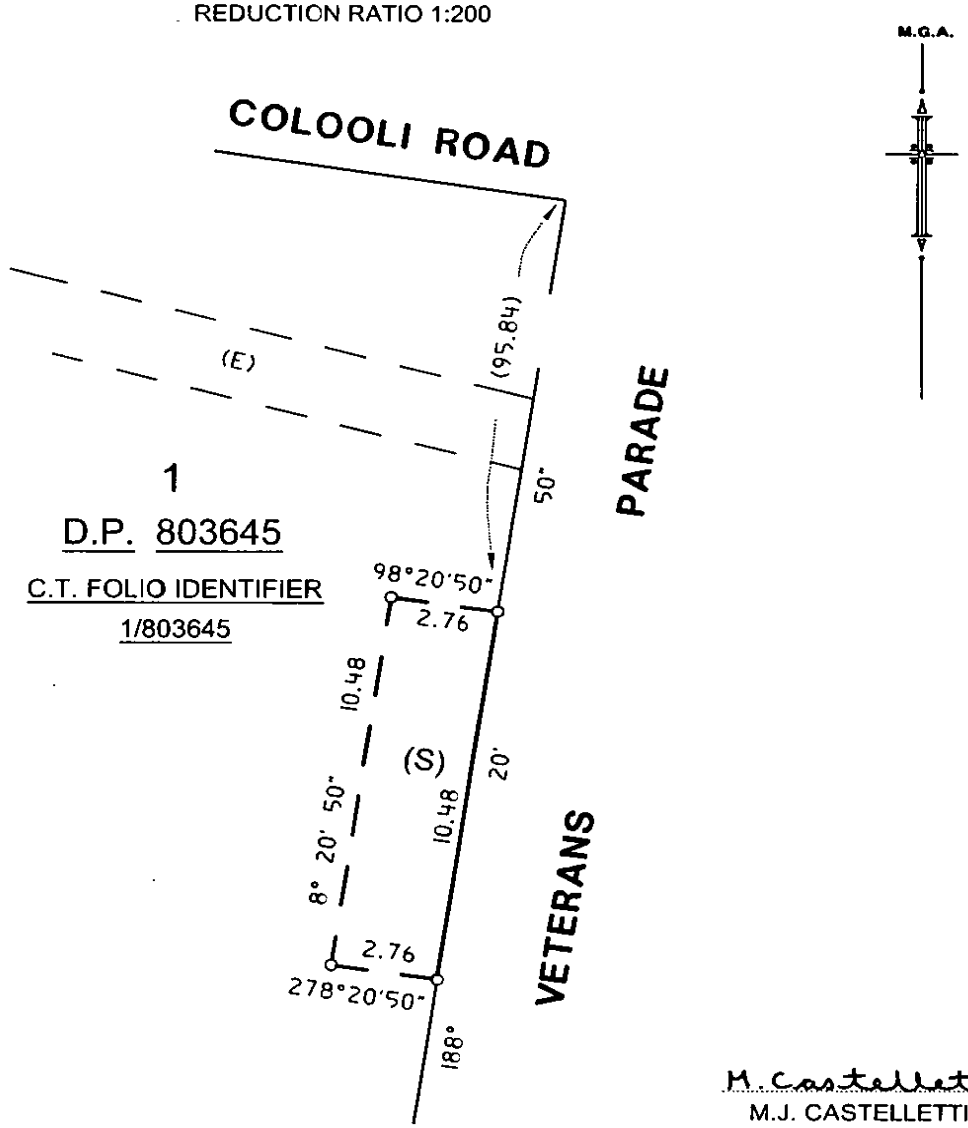
LOCALITY: COLLAROY PLATEAU

PLAN

SHOWING PROPOSED EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES WITHIN C.T. FOLIO IDENTIFIER 1/803645

PARISH OF MANLY COVE - COUNTY OF CUMBERLAND

REDUCTION RATIO 1:200



(S) PROPOSED EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 2.76 WIDE

(E) PROPOSED EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE AND 3.82 WIDE (VIDE DP1079167)

M.Castelletti

M.J. CASTELLETTI

REG.'D SURVEYOR

15-JULY-2005

SIGNATURES AND SEALS OF PARTIES

THIS IS THE PLAN MARKED ..... REFERRED TO IN .....

THIS PAGE IS THE PLAN MARKED 'B' REFERRED TO IN THE TRANSFER GRANTING EASEMENT MADE BETWEEN RSL VETERANS' VILLAGES LIMITED AS TRANSFEROR AND ENERGYAUSTRALIA AS TRANSFEREE

SIGNED FOR & ON BEHALF OF THE TRANSEROR

.....

.....

SIGNED FOR & ON BEHALF OF THE TRANSFEREE

.....

.....

4/4

Req:R032651 /Doc:CP 01209-2030 P /Rev:29-Nov-2012 /NSW LRS /Prt:28-Mar-2025 10:15 /Seq:1 of 1
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PLAN

of Portions 568 to 654 656 657 and 659 to 805 in the
Exclusive of 637-712

PARISH OF MANLY COVE

Co OF CUMBERLAND

MEASURED FOR SALE

Scale

Sale at Information Bureau Dept of Lands, 7th Dec 1909 Country Lots

Sale 7th Dec 1909

Schedule

Sale Completed Vide Al 15 581

Sale Compd Vide Al 13 3689

Annulled 7th Nov 1912

Sale Completed Vide Al 12 3422

Sale Completed Vide Al 12 3221

Sale Completed Vide Al 12 9231

do do do Al 14 811

Al 14 11734

do do Al 15 8461

Sale Completed Vide Al 12 8446

do do Al 13525

Sale Completed Vide Al 12 12423

Sale Completed Vide Al 14 90

Sale Completed Vide Al 13 13526

Sale Completed Vide Al 11 7685

Sale Completed Vide Al 12 3619

do do do 14 11736

Sale Completed Vide Al 10 2943

Sale Completed Vide Al 14 1045

Sale Completed Vide Al 13 3688

AC 13 3657

Al 13 8153

Al 15 7137

Sale Completed Vide Al 15 1534

Sale Completed Vide Al 10 11254

Sale Completed Vide Al 13 13557

Sale Completed Vide Al 13 3685

Sale Completed Vide Al 12 1157

Sale Completed Vide Al 12 2646

Sale Completed Vide Al 12 1157

Sale Completed Vide Al 13 3683

Sale Completed Vide Al 14 10439

Sale Completed Vide Al 14 10439

Sale Completed Vide Al 13 13558

Sale Completed Vide Al 13 16494

Annulled 3rd 21st May 1913. Annulling reversed 13th May 1913. Sale Completed Vide Al 14 10439

Sale Completed Vide Al 13 16491

Sale Completed Vide Al 13 16494

Sale Completed Vide Al 13 16494

Sale Completed Vide Al 13 16494

Req:R031101 /Doc:DL F982613 /Rev:18-Jun-2013 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:44 /Seq:1 of 3
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F 982613

O.H.M.S. Crown Instrument not liable to registration fee

J. Palmer
for the Under Secretary for Lands

CONVEYANCING ACTS, 1919-1943

REAL PROPERTY ACT, 1900

NOTICE OF RESUMPTION OF LAND SUBJECT TO THE PROVISIONS OF THE REAL PROPERTY ACT, 1900

I FRANCIS HAROLD HAWKINS Minister for Lands DO HEREBY CERTIFY that the copy Gazette Notification hereunto annexed is a true copy of the Gazette Notification contained in the Government Gazette of the twenty ninth day of April one thousand nine hundred and forty nine declaring that the land therein described being the land mentioned in the Schedule hereunder written has been resumed AND I REQUEST that you will deal with and give effect to the said Notification as if the same were a Memorandum of Transfer of the land therein described duly executed under the Real Property Act, 1900 and I FRANCIS HAROLD HAWKINS Minister for Lands HEREBY CERTIFY that this instrument is correct for the purposes of the Real Property Act, 1900

SCHEDULE

Portion	Parish	County	Part or Whole	Certificate of Title	
				Volume	Folio
part 1299	Manly Cove	Cumberland	Part	4162	143

DATED this ——— first day of December ——— in the year of Our Lord one thousand nine hundred and fifty three

SIGNED by the said FRANCIS HAROLD HAWKINS

in the presence of

K. Jenkins J.P.

F. H. Hawkins.

MINISTER FOR LANDS

THE REGISTRAR GENERAL

SYDNEY.

Req:R031101 /Doc:DL F982613 /Rev:18-Jun-2013 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:44 /Seq:2 of 3
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F 982613

Gaz 29.4.49 page 1218.

NOTIFICATION OF RESUMPTION OF LAND UNDER SECTION 197 OF THE CROWN LANDS CONSOLIDATION ACT, 1913. - PROCLAMATION.

IT is hereby notified and declared by His Excellency the Governor, acting with the advice of the Executive Council, that the land described hereunder has been resumed under section 197 of the Crown Lands Consolidation Act, 1913, for extension of War Veterans' Home at Narrabeen, and in accordance with the provisions of the said section has become reserved from sale and lease until further notified.

Agrees with Gazette
30.5.49

Signed and sealed at Sydney, this 28th day of April, 1949.

(L.S.) J. NORTHCOTT, Governor.

By His Excellency's Command,

W.F. SHEAHAN, Minister for Lands.

GOD SAVE THE KING!

SCHEDULE.

Parish Manly Cove, county Cumberland, Land District of Metropolitan, Warringah Shire, 50 acres 2 roods 38 perches, being the part of portion 1,299 east of South Creek road, shown on plan Ms. 12,915 Sy. P.49-860.

This is the copy Gazette Notification referred to in the annexed Certificate

Witness K. Jenkins J.P.

Req:R031101 /Doc:DL F982613 /Rev:18-Jun-2013 /NSW LRS /Pgs:ALL /Prt:27-Mar-2025 21:44 /Seq:3 of 3
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LODGED by J. Palmer.

Officer in Charge,

Deeds Branch,

Department of Lands,

Sydney.

No.

NOTICE OF RESUMPTION

APB 30/5/56

Particulars entered in Register Book,

Vol. 4162	Fol. 143	P

the 31st.

day of May 1956.

at ~~minutes~~ 12

o'clock ~~in the~~ noon

REGISTRAR-GENERAL
NEW SOUTH WALES

J. Potts

REGISTRAR GENERAL

LAND REGISTRY SERVICES Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

26/3/2025 2:06PM

FOLIO: 2611/752038

First Title(s): VOL 7715 FOL 94
Prior Title(s): VOL 7715 FOL 94

Recorded	Number	Type of Instrument	C.T. Issue
18/5/1988	DP752038	DEPOSITED PLAN	FOLIO CREATED EDITION 1
21/10/1988		AMENDMENT: TITLE DIAGRAM	
17/2/1997	2841555	CHANGE OF NAME	EDITION 2
27/8/1997		AMENDMENT: LOCAL GOVT AREA	
15/9/2004	DP1072855	DEPOSITED PLAN	
14/12/2004	AB157257	APPLICATION FOR REPLACEMENT CERTIFICATE OF TITLE	EDITION 3
4/1/2005	AA560049	LEASE	EDITION 4
31/5/2007	AD48465	CHANGE OF NAME	
31/5/2007	AD48466	REQUEST	EDITION 5
22/11/2007	AD583656	CAVEAT	
21/5/2008	DP1126086	DEPOSITED PLAN	
3/3/2009	AE332801	TRANSFER GRANTING EASEMENT	EDITION 6
26/3/2009	AE576419	CAVEAT	
24/7/2009	DP1141242	DEPOSITED PLAN	EDITION 7
4/6/2010	AF536297	REQUEST	
25/11/2010	AF899343	DEPARTMENTAL DEALING	
3/6/2011	AG274706	CAVEAT	
15/11/2011	AG616554	CAVEAT	
8/4/2013	AH641131	SURRENDER OF LEASE	EDITION 8
23/3/2022	AQ445845	REJECTED - LEASE	

END OF PAGE 1 - CONTINUED OVER

SEARCH DATE
26/3/2025 2:06PM

FOLIO: 2611/752038 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
23/3/2022	AQ445846	REJECTED - LEASE	
23/3/2022	AQ445847	REJECTED - LEASE	
23/3/2022	AQ445848	REJECTED - LEASE	
23/3/2022	AR984758	DEPARTMENTAL DEALING	EDITION 9

*** END OF SEARCH ***

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Received: 26/03/2025 14:06:53

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 2611/752038

SEARCH DATE	TIME	EDITION NO	DATE
26/3/2025	2:05 PM	9	23/3/2022

LAND

LOT 2611 IN DEPOSITED PLAN 752038
AT COLLAROY PLATEAU
LOCAL GOVERNMENT AREA NORTHERN BEACHES
PARISH OF MANLY COVE COUNTY OF CUMBERLAND
(FORMERLY KNOWN AS PORTION 2611)
TITLE DIAGRAM CROWN PLAN 7843.2030

FIRST SCHEDULE

RSL LIFECARE LIMITED (CN AD48465)

SECOND SCHEDULE (10 NOTIFICATIONS)

---

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)

2 AF536297 THE LAND ABOVE DESCRIBED IS USED AS A RETIREMENT VILLAGE UNDER THE RETIREMENT VILLAGES ACT 1999 KNOWN AS RSL ANZAC VILLAGE RETIREMENT VILLAGE

3 AD48466 ORDER OF COURT

4 AE332801 EASEMENT FOR ELECTRICITY AND OTHER PURPOSES AFFECTING THE PART SHOWN DESIGNATED (E) IN DP1126086

5 AE332801 RIGHT OF CARRIAGEWAY AFFECTING THE PART SHOWN DESIGNATED (R) IN DP1126086

* 6 AE576419 CAVEAT BY ENERGYAUSTRALIA

7 DP1141242 RIGHT OF ACCESS 2.5 METRE(S) WIDE & VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN DP1141242

8 THE LAND IS A RESERVE WITHIN THE MEANING OF PART 5 OF THE CROWN LANDS ACT 1989 AND THERE ARE RESTRICTIONS ON TRANSFER AND OTHER DEALINGS IN THE LAND UNDER THAT ACT, WHICH MAY REQUIRE CONSENT OF THE MINISTER.

* 9 AG274706 CAVEAT BY AUSGRID

* 10 AG616554 CAVEAT BY AUSGRID

NOTATIONS

REFER ALL DEALINGS TO COMMERCIAL LEASES

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

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Received: 26/03/2025 14:05:56

Req:R032797 /Doc:DL D884998 /Rev:24-Oct-2013 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 10:29 /Seq:1 of 3
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O.H.M.S.

AUG 30 3 00 1948

Crown Instrument not liable to registration fee.

J. Palmer O.H.M.S.
for Under Secretary for Lands

£1-10-0

CONVEYANCING ACT, 1919-1930.
REAL PROPERTY ACT, 1900.

3018/48

Notice of Resumption of Land subject to the provisions of the Real Property Act, 1900.

I, WILLIAM FRANCIS SHEAHAN, Minister for Lands, DO HEREBY CERTIFY that the copy *Gazette* Notification hereunto annexed is a true copy of the *Gazette* Notification contained in the *Government Gazette* of the twenty third day of April one thousand nine hundred and forty eight, declaring that the land therein described, being the land mentioned in the Schedule hereunder written, has been resumed. AND I REQUEST that you will deal with and give effect to the said Notification as if the same were a Memorandum of Transfer of the land therein described duly executed under the Real Property Act, 1900, and I, WILLIAM FRANCIS SHEAHAN, Minister for Lands, HEREBY CERTIFY that this instrument is correct for the purposes of the Real Property Act, 1900.

~~And I further certify that I was appointed by the Minister for Lands in writing under Seal to sign all certificates of this character on behalf of the said Minister for Lands, and that I have received no notice or information of the revocation of such appointment.~~

SCHEDULE.

Portion	Parish	County	Part or Whole	Volume	Folio
574	Manly Cove	Cumberland	Whole	2987	113
575	" "	"	"	3358	248
576	" "	"	Part	2352	147 P.C.
577	" "	"	Part	2352	147

3.3.24
3.3.24

Lge B66747

DATED this Seventeenth day of August, in the year of Our Lord one thousand nine hundred and forty eight.

SIGNED by the said WILLIAM FRANCIS SHEAHAN in the presence of J. McDonnell Jr.

W. Sheahan
MINISTER FOR LANDS

THE REGISTRAR GENERAL, SYDNEY.

G 41587—B

Sydney: Alfred Henry Pettifer, Acting Government Printer—1948.

Req:R032797 /Doc:DL D884998 /Rev:24-Oct-2013 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 10:29 /Seq:2 of 3
© Office of the Registrar-General /Src:InfoTrack /Ref:4 Colooli Road? Narrabeen

NOTIFICATION OF RESUMPTION OF LAND UNDER SECTION 197 OF THE CROWN LANDS CONSOLIDATION ACT, 1913. - PROCLAMATION.

IT is hereby notified and declared by His Excellency the Governor, acting with the advice of the Executive Council, that the land described hereunder has been resumed under section 197 of the Crown Lands Consolidation Act, 1913, for purposes of extension of the War Veterans' Home at Narrabeen, and in accordance with the provisions of the said section has become reserved from sale and lease until further notified. P. 48-1,931.

Signed and sealed at Sydney, this 22nd day of April, 1948.

(L.S.) J. NORTHCOTT, Governor.

By His Excellency's Command, GEO. WEIR.

GOD SAVE THE KING!

SCHEDULE.

Parish Manly Cove, county Cumberland, Land District of Metropolitan, 15 acres 2 roods 27 perches, being portions 574, 575, 576 and 577. Plan C. 1,209, 2,030.

This is the copy *Gazette* Notification referred to in the annexed Certificate.

Witness J.McDonell. J.P.

Lodged by Lands Department, (Deeds Branch)
Bridge Street,
Sydney.

No. D884998.

LODGED by
Officer-in-Charge,
Roads Branch,
Department of Lands,
Sydney.

NOTICE OF RESUMPTION.

Pors. 574 to 577 inclus.
Lantana Ave, Pladeau St,
Shire Warringah
Ph.: Manly Cove
Co.: Cumberland

His Most Gracious Majesty
King George the Sixth

Particulars entered in Register Book, 5.

Vol. ~~2352~~, Fol. 147,
" 2987 " 118,
" 3358 " 248, &
& on mortgage 3616192

the 23rd
day of May 1949.
at ~~minutes~~ 12
o'clock ~~in the~~ noon.

Registrar General.

Req:R032797 /Doc:DL D884998 /Rev:24-Oct-2013 /NSW LRS /Pgs:ALL /Prt:28-Mar-2025 10:29 /Seq:3 of 3
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LAND REGISTRY SERVICES Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

26/3/2025 2:08PM

FOLIO: 1/774980

First Title(s): VOL 7715 FOL 94
Prior Title(s): VOL 7715 FOL 94

Recorded	Number	Type of Instrument	C.T. Issue
18/5/1988	DP774980	DEPOSITED PLAN	FOLIO CREATED EDITION 1
6/6/1989	Y344046	LEASE	EDITION 2
17/2/1997	2841555	CHANGE OF NAME	
17/2/1997	2841556	LEASE	EDITION 3
9/5/1997	3050566	REQUEST	EDITION 4
27/8/1997		AMENDMENT: LOCAL GOVT AREA	
6/11/2003	AA135056	APPLICATION FOR REPLACEMENT CERTIFICATE OF TITLE	EDITION 5
28/3/2007	AD21302	DEPARTMENTAL DEALING TO UPLIFT CT	EDITION 6
31/5/2007	AD48465	CHANGE OF NAME	
31/5/2007	AD48466	REQUEST	EDITION 7
31/5/2007	AD155616	DEPARTMENTAL DEALING	EDITION 8
4/6/2010	AF536297	REQUEST	
23/11/2010	AF892510	DEPARTMENTAL DEALING	
1/12/2016	AK963567	POSITIVE COVENANT	
1/12/2016	AK963568	RESTRICTION ON USE OF LAND BY/VESTED IN PRESCRIBED AUTHORITY	
7/9/2020	AQ334106	POSITIVE COVENANT	
7/9/2020	AQ334107	RESTRICTION ON USE OF LAND BY/VESTED IN PRESCRIBED AUTHORITY	
23/3/2022	AR984758	DEPARTMENTAL DEALING	EDITION 9
17/10/2024	AU450455	RESTRICTION ON USE OF LAND BY/VESTED IN PRESCRIBED	

END OF PAGE 1 - CONTINUED OVER

SEARCH DATE
26/3/2025 2:08PM

FOLIO: 1/774980 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
		AUTHORITY	
17/10/2024	AU450456	POSITIVE COVENANT	EDITION 10

*** END OF SEARCH ***

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Received: 26/03/2025 14:08:29

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/774980

SEARCH DATE	TIME	EDITION NO	DATE
26/3/2025	2:08 PM	10	17/10/2024

LAND

LOT 1 IN DEPOSITED PLAN 774980
AT COLLAROY PLATEAU
LOCAL GOVERNMENT AREA NORTHERN BEACHES
PARISH OF MANLY COVE COUNTY OF CUMBERLAND
TITLE DIAGRAM DP774980

FIRST SCHEDULE

RSL LIFECARE LIMITED (CN AD48465)

SECOND SCHEDULE (11 NOTIFICATIONS)

---

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 AF536297 THE LAND ABOVE DESCRIBED IS USED AS A RETIREMENT VILLAGE UNDER THE RETIREMENT VILLAGES ACT 1999 KNOWN AS RSL ANZAC VILLAGE RETIREMENT VILLAGE
3 3050566 POSITIVE COVENANT
4 AD48466 ORDER OF COURT
5 THE LAND IS A RESERVE WITHIN THE MEANING OF PART 5 OF THE CROWN LANDS ACT 1989 AND THERE ARE RESTRICTIONS ON TRANSFER AND OTHER DEALINGS IN THE LAND UNDER THAT ACT, WHICH MAY REQUIRE CONSENT OF THE MINISTER.
6 AK963567 POSITIVE COVENANT
7 AK963568 RESTRICTION(S) ON THE USE OF LAND
8 AQ334106 POSITIVE COVENANT
9 AQ334107 RESTRICTION(S) ON THE USE OF LAND
10 AU450455 RESTRICTION(S) ON THE USE OF LAND
11 AU450456 POSITIVE COVENANT

NOTATIONS

REFER ALL DEALINGS TO COMMERCIAL LEASES

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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Received: 26/03/2025 14:08:01

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

26/3/2025 2:10PM

FOLIO: 573/752038

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 5343 FOL 123

Recorded	Number	Type of Instrument	C.T. Issue
19/1/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
5/7/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
15/3/1991		AMENDMENT: TITLE DIAGRAM	
17/2/1997	2841555	CHANGE OF NAME	EDITION 1
9/5/1997	3050566	REQUEST	EDITION 2
27/8/1997		AMENDMENT: LOCAL GOVT AREA	
22/7/1998	5144117	MORTGAGE	EDITION 3
15/9/2004	DP1072855	DEPOSITED PLAN	
4/1/2005	AA560049	LEASE	EDITION 4
31/5/2007	AD48465	CHANGE OF NAME	EDITION 5
21/5/2008	DP1126086	DEPOSITED PLAN	
3/3/2009	AE332801	TRANSFER GRANTING EASEMENT	EDITION 6
4/6/2010	AF536297	REQUEST	
8/4/2013	AH641131	SURRENDER OF LEASE	EDITION 7
21/3/2019	AP84841	APPLICATION TO RECORD A NEW REGISTERED PROPRIETOR	EDITION 8
3/4/2019	AP161962	DISCHARGE OF MORTGAGE	EDITION 9
23/3/2022	AR984758	DEPARTMENTAL DEALING	EDITION 10

*** END OF SEARCH ***

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Received: 26/03/2025 14:10:12

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 573/752038

SEARCH DATE	TIME	EDITION NO	DATE
26/3/2025	2:09 PM	10	23/3/2022

LAND

LOT 573 IN DEPOSITED PLAN 752038
LOCAL GOVERNMENT AREA NORTHERN BEACHES
PARISH OF MANLY COVE COUNTY OF CUMBERLAND
(FORMERLY KNOWN AS PORTION 573)
TITLE DIAGRAM CROWN PLAN 1209.2030

FIRST SCHEDULE

RSL LIFECARE LIMITED (CN AD48465)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 AF536297 THE LAND ABOVE DESCRIBED IS USED AS A RETIREMENT VILLAGE UNDER THE RETIREMENT VILLAGES ACT 1999 KNOWN AS RSL ANZAC VILLAGE RETIREMENT VILLAGE
3 3050566 POSITIVE COVENANT
4 AE332801 RIGHT OF CARRIAGEWAY AFFECTING THE PART SHOWN DESIGNATED (R) IN DP1126086

NOTATIONS

REFER ALL DEALINGS TO COMMERCIAL LEASES

UNREGISTERED DEALINGS: NIL

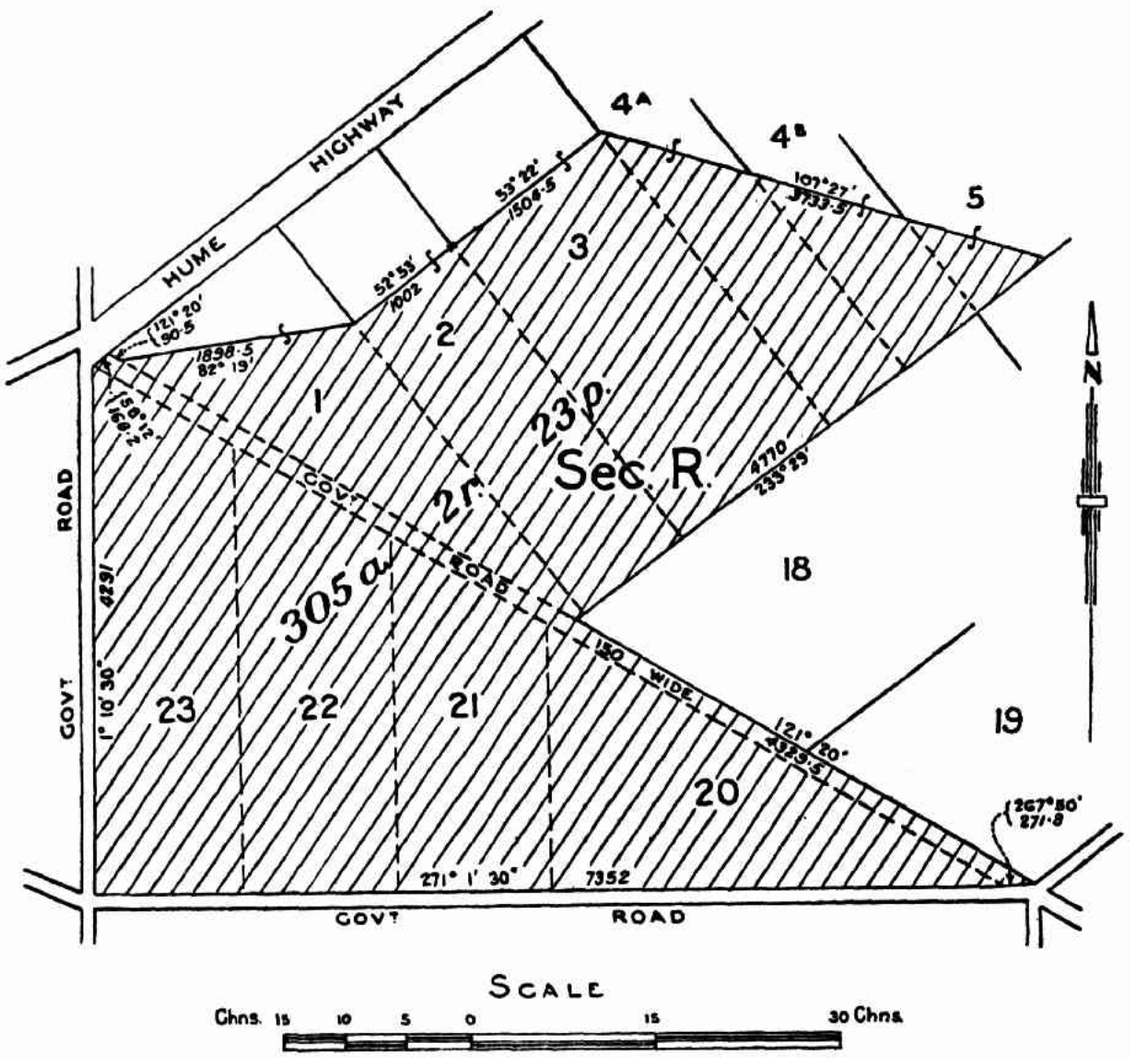
*** END OF SEARCH ***

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Received: 26/03/2025 14:09:46

bearing 121 degrees 20 minutes 90.5 links, thence by lines bearing 82 degrees 19 minutes 1,898.5 links, 52 degrees 53 minutes 1,002.0 links, 53 degrees 22 minutes 1,504.5 links, and 107 degrees 27 minutes 3,733.5 links, thence by part of the south-eastern boundary of Crown allotment 5, section R, and the south-eastern boundaries of Crown allotments 4B, 4A, 3, 2 and 1, section R, bearing 233 degrees 29 minutes 4,770 links, thence by the south-western boundaries of Crown allotments 18 and 19, section R, bearing 121 degrees 20 minutes 4,329.5 links, thence by a line across the Government road aforesaid bearing 267 degrees 50 minutes 271.8 links, thence by the south-western boundaries of Crown allotments 20, 21, 22 and 23, section R, bearing 271 degrees 1 minute 30 seconds 7,352 links, thence by the north-western boundary of Crown allotment 23, section R aforesaid, bearing 1 degree 10 minutes 30 seconds 4,291 links to the point of commencement.



COMMONWEALTH OF AUSTRALIA.

The *Lands Acquisition Act* 1906-1936.

NOTIFICATION OF THE ACQUISITION OF LAND BY THE COMMONWEALTH.

IT is hereby notified and declared by His Excellency the Governor-General acting with the advice of the Federal Executive Council, that the land hereunder described has been acquired by the Commonwealth under the *Lands Acquisition Act* 1906-1936, for the following public purpose, namely: Defence purposes at Narrabeen, New South Wales.—(C.L.7540.)

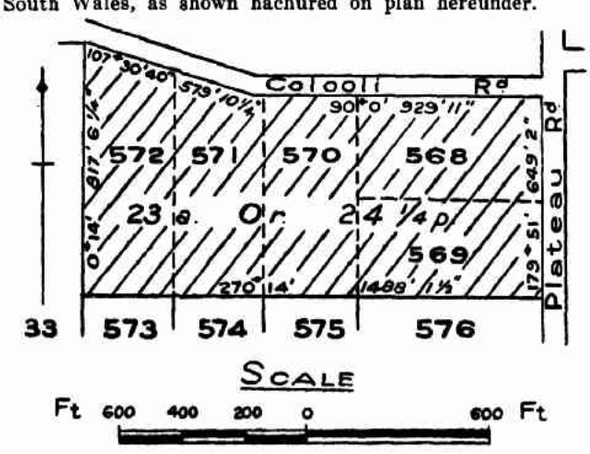
Dated this twelfth day of September, One thousand nine hundred and forty-one.

GOWRIE
Governor-General.

By His Excellency's Command,
ALLAN McDONALD
for Minister of State for the Interior.

DESCRIPTION OF LAND REFERRED TO.

All that piece of land containing an area of 23 acres 24¼ perches more or less being portions 568 to 572 inclusive, Parish of Manly Cove, County of Cumberland, State of New South Wales, as shown hachured on plan hereunder.



National Library of Australia http://nla.gov.au/nla.news-page25060715

LAND REGISTRY SERVICES Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

26/3/2025 2:09PM

FOLIO: 1/803645

First Title(s): VOL 1041 FOL 138 VOL 1182 FOL 77
VOL 2352 FOL 147 VOL 2454 FOL 122
Prior Title(s): VOL 5409 FOL 167

Recorded	Number	Type of Instrument	C.T. Issue
6/7/1990	DP803645	DEPOSITED PLAN	FOLIO CREATED EDITION 1
25/10/1994	U732603	LEASE	EDITION 2
8/12/1994	U853308	DEPARTMENTAL DEALING	EDITION 3
27/8/1997		AMENDMENT: LOCAL GOVT AREA	
29/3/2001	DP1025879	DEPOSITED PLAN	
15/11/2001	DP1035602	DEPOSITED PLAN	
18/9/2002	8966230	REQUEST	EDITION 4
12/6/2003	9561164	TRANSFER	EDITION 5
30/6/2003	9744004	REQUEST	EDITION 6
21/2/2005	DP1079167	DEPOSITED PLAN	
22/2/2005	AB182515	TRANSFER GRANTING EASEMENT	EDITION 7
15/6/2005	AB502102	LEASE	EDITION 8
25/10/2005	AB827062	TRANSFER GRANTING EASEMENT	EDITION 9
31/5/2007	AD48465	CHANGE OF NAME	EDITION 10
14/8/2008	AE117742	REQUEST	
4/6/2010	AF536297	REQUEST	
26/11/2013	AH558551	LEASE	
26/11/2013	AH558552	LEASE	
26/11/2013	AH558553	LEASE	EDITION 11
11/3/2015	AJ323750	DEPARTMENTAL DEALING	

END OF PAGE 1 - CONTINUED OVER

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
26/3/2025 2:09PM

FOLIO: 1/803645 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
23/3/2015	AJ71566	CHANGE OF NAME	
28/2/2017	AK971351	LEASE	
28/2/2017	AK971352	SUB-LEASE	
28/2/2017	AK971502	MORTGAGE OF LEASE	
28/2/2017	AK971571	CHANGE OF NAME	
28/2/2017	AM50962	DEPARTMENTAL DEALING	
18/11/2019	AP562431	LEASE	EDITION 12
23/3/2022	AR984758	DEPARTMENTAL DEALING	EDITION 13

*** END OF SEARCH ***

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Received: 26/03/2025 14:09:09

Req:R020783 /Doc:DL 9561164 /Rev:13-Jun-2003 /NSW LRS /Pgs:ALL /Prt:26-Mar-2025 14:09 /Seq:1 of 2
© Office of the Registrar-General /Src:InfoTrack /Ref:4 Colooli Road? Narrabeen

(1)

9561164J

Form: 01T
Licence: 01-11-027
Licensee: Blake Dawson Waldron

TRANSFER

New South Wales
Real Property Act 1900

Leave this space clear. Affix additional pages to the top left-hand corner.

PRIVACY NOTE: this information is legally required and will become part of the public record

STAMP DUTY — Office of State Revenue use only

NEW SOUTH WALES DUTY
17-04-2003 0001348858-001
SECTION 275-TRANSFER
NO DUTY PAYABLE

(A) **TORRENS TITLE** — If appropriate, specify the part transferred
Folio Identifier 1/803645

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODES
124E	LEGAL PARALEGAL SUP[illegible] LTO BOX [illegible] Reference (optional): J.MACQL-926343	T TW (Sheriff)

(C) **TRANSFEROR** — COMMONWEALTH OF AUSTRALIA

(D) **CONSIDERATION** — The transferor acknowledges receipt of the consideration of $ 525,000.00 and as regards
(E) **ESTATE** — the land specified above transfers to the transferee an estate in fee simple.
(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable): 1. 2. 3.

(H) **TRANSFEREE** — RSL VETERANS' RETIREMENT VILLAGES LIMITED, ACN 000 048 957

(I) **TENANCY:**

DATE 24 / 12 / 2002
dd mm yyyy

(J) See annexure for execution.

DP 1025879

Request to merge - not taken up EB SM4 NOTES REMAIN DP1025879 & DP1035602

Req:R020783 /Doc:DL 9561164 /Rev:13-Jun-2003 /NSW LRS /Pgs:ALL /Prt:26-Mar-2025 14:09 /Seq:2 of 2
© Office of the Registrar-General /Src:InfoTrack /Ref:4 Colooli Road? Narrabeen

ANNEXURE TO TRANSFER DATED BETWEEN COMMONWEALTH OF AUSTRALIA AND RSL VETERANS' RETIREMENT VILLAGES LIMITED

SIGNED for and on behalf of
COMMONWEALTH OF AUSTRALIA
by:
BARRY JACKSON
Branch Manager
Property Management Branch
Department of Finance & Administration
Position No. 073
in the presence of:

Signature of witness

JULIE SCOTT DOYLE

Name of witness

lvl 5, Block B, Treasury Building
Parkes Place West, Parkes ACT

Delegate of the Attorney General

Barry Jackson
Assistant Secretary
Department of Finance and Administration
Position No. 0073

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature

Signatory's name

Transferee's solicitor

(R. F. MILES)
Solicitor

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/803645

SEARCH DATE	TIME	EDITION NO	DATE
26/3/2025	2:08 PM	13	23/3/2022

LAND

LOT 1 IN DEPOSITED PLAN 803645
AT COLLAROY PLATEAU
LOCAL GOVERNMENT AREA NORTHERN BEACHES
PARISH OF MANLY COVE COUNTY OF CUMBERLAND
TITLE DIAGRAM DP803645

FIRST SCHEDULE

RSL LIFECARE LIMITED (CN AD48465)

SECOND SCHEDULE (9 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)

2 AF536297 THE LAND ABOVE DESCRIBED IS USED AS A RETIREMENT VILLAGE UNDER THE RETIREMENT VILLAGES ACT 1999 KNOWN AS RSL ANZAC VILLAGE RETIREMENT VILLAGE

3 8966230 RESTRICTION AS TO USER (S.88E(3) CONVEYANCING ACT, 1919)

4 AB182515 EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 2.1 WIDE AFFECTING THE PART SHOWN SO BURDENED IN PLAN WITH AB182515

5 AB502102 LEASE TO AUSGRID (SEE AJ71566) OF SUBSTATION NO 15979 SHOWN DESIGNATED (P) IN DP1079167 TOGETHER WITH RIGHT OF WAY AND EASEMENT OVER ANOTHER PART OF THE LAND ABOVE DESCRIBED SHOWN IN DESIGNATED (R) (E) IN DP1079167. EXPIRES: 31/12/2029.

AK971351 LEASE OF LEASE AB502102 TO BLUE ASSET PARTNER PTY LTD, ERIC ALPHA ASSET CORPORATION 1 PTY LTD, ERIC ALPHA ASSET CORPORATION 2 PTY LTD, ERIC ALPHA ASSET CORPORATION 3 PTY LTD & ERIC ALPHA ASSET CORPORATION 4 PTY LTD EXPIRES: SEE DEALING. CLAUSE 2.3 (b) (ii).

AK971352 LEASE OF LEASE AK971351 TO BLUE OP PARTNER PTY LTD, ERIC ALPHA OPERATOR CORPORATION 1 PTY LTD, ERIC ALPHA OPERATOR CORPORATION 2 PTY LTD, ERIC ALPHA OPERATOR CORPORATION 3 PTY LTD & ERIC ALPHA OPERATOR CORPORATION 4 PTY LTD EXPIRES: SEE DEALING. CLAUSE 12.1

AK971502 MORTGAGE OF LEASE AK971351 TO ANZ FIDUCIARY SERVICES PTY LTD

END OF PAGE 1 - CONTINUED OVER

SECOND SCHEDULE (9 NOTIFICATIONS) (CONTINUED)

	AK971571	CHANGE OF NAME AFFECTING LEASE AB502102 LESSEE NOW ALPHA DISTRIBUTION MINISTERIAL HOLDING CORPORATION
6	AB827062	EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 2.76 WIDE AFFECTING THE PART SHOWN SO BURDENED IN PLAN WITH AB827062
7	AH558552	LEASE TO COLLAROY PLATEAU PRESCHOOL SERVICES PTY LTD OF THE PREMISES SHOWN CROSS HATCHED TOGETHER WITH THE PARTS SHOWN HATCHED IN PLANS (PAGES 55 AND 56) WITH AH558551. COMMENCES: 4/2/2018. EXPIRES: 3/2/2023.
8	AH558553	LEASE TO COLLAROY PLATEAU PRESCHOOL SERVICES PTY LTD OF THE PREMISES SHOWN CROSS HATCHED TOGETHER WITH THE PARTS SHOWN HATCHED IN PLANS (PAGES 55 AND 56) WITH AH558551. COMMENCES: 4/2/2023. EXPIRES: 3/2/2028.
9	AP562431	LEASE TO COLLAROY PLATEAU PRESCHOOL SERVICES PTY LTD OF THE PRESCHOOL PREMISES TOGETHER WITH AN OUTDOOR PLAYGROUND SHOWN HATCHED AND CROSS-HATCHED IN PLAN WITH AH558551. COMMENCES: 4/2/2028. EXPIRES: 3/2/2033.

NOTATIONS

REFER ALL DEALINGS TO COMMERCIAL LEASES

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

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Section 10.7 Certificates

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Eis & Jk Group
115 Wicks Road
MACQUARIE PARK NSW 2113

Reference: E37444BT 2611
Date: 28/03/2025
Certificate No. ePLC2025/02351

Address of Property: Lot 1/ Veterans Parade NARRABEEN NSW 2101
Description of Property: Lot 2611 DP 752038

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

(1) The name of each environmental planning instrument and development control plan that applies to the carrying out of development on the land:

(a) Local Environmental Plan

Warringah Local Environmental Plan 2011

(b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing) 2021
State Environmental Planning Policy (Industry and Employment) 2021
State Environmental Planning Policy (Planning Systems) 2021
State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021
State Environmental Planning Policy (Primary Production) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021
State Environmental Planning Policy (Resources and Energy) 2021
State Environmental Planning Policy (Sustainable Buildings) 2022
State Environmental Planning Policy (Transport and Infrastructure) 2021

(c) Development Control Plans

Warringah Development Control Plan 2011

(2) Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument and draft development control plan, which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on the land.

(a) Draft Local Environmental Plans

(b) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Cultural)

(c) Draft Development Control Plans

2. Zoning and land use under relevant planning instruments

The following matters for each environmental planning instrument or draft environmental planning instrument that includes the land in a zone, however described—

(1) Zoning and land use under relevant Local Environmental Plans

(a), (b)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone SP1 Special Activities

1 Objectives of zone

• To provide for special land uses that are not provided for in other zones.

• To provide for sites with special natural characteristics that are not provided for in other zones.

• To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.

2 Permitted without consent

Nil

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Aquaculture; Environmental protection works

4 Prohibited

Any development not specified in item 2 or 3

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone C2 Environmental Conservation

1 Objectives of zone

• To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.

• To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

• To protect and enhance the quality and character of visually sensitive areas and preserve significant natural landforms in their natural state.

• To manage development in areas having steep sloping topography or that are subject to any potential landslip.

• To manage water quality in significant water catchment areas.

• To ensure that development, by way of its type, design and location, complements and enhances the natural environment in environmentally sensitive areas.

2 Permitted without consent

Nil

3 Permitted with consent

Environmental protection works; Oyster aquaculture; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Local distribution premises; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 3

(c) Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(d) Minimum land dimensions

The *Warringah Local Environmental Plan 2011* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(e) Outstanding biodiversity value

The land is not in an area of outstanding biodiversity value under the *Biodiversity Conservation Act 2016*

(f) Conservation areas

The land is not in a heritage conservation area.

(g) Item of environmental heritage

A heritage item is situated on the land as identified in Schedule 5 of the *Warringah Local Environmental Plan 2011*.

(2) Zoning and land use under draft Local Environmental Plans

For any proposed changes to zoning and land use, see Part 1.2 (a)
Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

3. Contribution plans

(1) The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contributions plans.

Northern Beaches Section 7.12 Contributions Plan 2024 - in force 19 October 2024.

(2) If the land is in a region within the meaning of the Act, Division 7.1, Subdivision 4 - the name of the region, and the name of the Ministerial planning order in which the region is identified.

Housing and Productivity Contribution
The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2024 applies.

(3) If the land is in a special contributions area to which a continued 7.23 determination applies, the name of the area.

Nil

4. Complying Development

If the land is land on which complying development may or may not be carried out under each of the complying development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A(1)(c)–(e), (2), (3) or (4), 1.18(1)(c3) or 1.19.

Part 3 Housing Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.
High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the

relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Acid Sulfate Soils Class 2

For the purposes of clause 1.19 (1) (c) and (5) (c), complying development may not be carried out on that part of the land identified under *Warringah Local Environmental Plan 2011* as identified on the Acid Sulfate Soils Map as being Class 2.

Part 3A Rural Housing Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Acid Sulfate Soils Class 2

For the purposes of clause 1.19 (1) (c) and (5) (c), complying development may not be carried out on that part of the land identified under *Warringah Local Environmental Plan 2011* as identified on the Acid Sulfate Soils Map as being Class 2.

Part 3B Low Rise Housing Diversity Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Acid Sulfate Soils Class 2

For the purposes of clause 1.19 (1) (c) and (5) (c), complying development may not be carried out on that part of the land identified under *Warringah Local Environmental Plan 2011* as identified on the Acid Sulfate Soils Map as being Class 2.

Part 3C Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

Part 3D Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Part 4 Housing Alterations Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.
High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 4A General Development Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.
High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 5 Industrial and Business Alterations Code

Proximity Area for Coastal Wetlands
For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.
High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the

land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 5A Industrial and Business Buildings Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Acid Sulfate Soils Class 2

For the purposes of clause 1.19 (1) (c) and (5) (c), complying development may not be carried out on that part of the land identified under *Warringah Local Environmental Plan 2011* as identified on the Acid Sulfate Soils Map as being Class 2.

Part 5B Container Recycling Facilities Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 6 Subdivisions Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the

land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 7 Demolition Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 8 Fire Safety Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2*.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 9 Agritourism and Farm Stay Accommodation Code

Proximity Area for Coastal Wetlands

For the purposes of clause 1.17A (1)(e), complying development may not be carried out as the land is within an environmentally sensitive area being the proximity area for coastal wetlands under

State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 2.

High Biodiversity Significance

For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Heritage Item

For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Acid Sulfate Soils Class 2

For the purposes of clause 1.19 (1) (c) and (5) (c), complying development may not be carried out on that part of the land identified under *Warringah Local Environmental Plan 2011* as identified on the Acid Sulfate Soils Map as being Class 2.

(4) Complying Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No complying codes are varied under this clause in relation to the land.

5. Exempt Development

If the land is land on which exempt development may or may not be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.16(1)(b1)–(d) or 1.16A.

Part 2 Exempt Development Codes

Exempt Development under the Exempt Development Codes may be carried out on all of the land.

(4) Exempt Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No exempt development codes are varied under this clause in relation to the land.

6. Affected building notices and building product rectification orders

(a) There is not an affected building notice of which the council is aware that is in force in respect of the land.

(b) There is a 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

(c) There is not a 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.

In this section—

affected building notice has the same meaning the *Building Products (Safety) Act 2017, Part 4*.

building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

7. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

8. Road widening and road realignment

(a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.

(b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.

(c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

9. Flood related development controls

(1) The land is within the flood planning area and subject to flood related development controls.

(2) The land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

In this section—

flood planning area has the same meaning as in the Flood Risk Management Manual.

Flood Risk Management Manual means the Flood Risk Management Manual, ISBN 978-1-923076-17-4, published by the NSW Government in June 2023.

probable maximum flood has the same meaning as in the Flood Risk Management Manual.

10. Council and other public authority policies on hazard risk restriction

(a) Council has adopted policies that restrict the development of the land because of the likelihood of land slip, bush fire, tidal inundation, subsidence, acid sulfate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding (for flooding – see 9). The identified hazard or risk, if any, are listed below:

Acid Sulfate Soils-Class 2
This land is identified as Acid Sulfate Soils Class 2 on the Acid Sulfate Soils Map of the *Warringah Local Environmental Plan 2011* (WLEP 2011). Restrictions apply to the carrying out of works on this land under Clause 6.1 of the WLEP 2011.
Acid Sulfate Soils-Class 3
This land is identified as Acid Sulfate Soils Class 3 on the Acid Sulfate Soils Map of the *Warringah Local Environmental Plan 2011* (WLEP 2011). Restrictions apply to the carrying out of works on this land under Clause 6.1 of the WLEP 2011.
Acid Sulfate Soils-Class 5
This land is identified as Acid Sulfate Soils Class 5 on the Acid Sulfate Soils Map of the *Warringah Local Environmental Plan 2011* (WLEP 2011). Restrictions apply to the carrying out of works on this land under Clause 6.1 of the WLEP 2011.
Land Slip Risk Map - Area E
The land is identified as being on the *Warringah Local Environmental Plan 2011* - Landslip Risk

Map as Area E. Restrictions apply to the carrying out of works on this land under Clause 6.4 (Development on Sloping Land) of the *Warringah Local Environmental Plan 2011* and section E10 (Landslip Risk) of the Warringah Development Control Plan 2011.

(b) The following information applies to any policy as 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 a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Bush Fire Prone Land
This land is identified on a Bush Fire Prone Land map certified by the Commissioner of the NSW Rural Fire Service as being bush fire prone land. The requirements of the NSW Rural Fire Service document Planning for Bush Fire Protection apply to this land. For further information please contact the Northern Beaches District NSW Rural Fire Service.

11. Bush fire prone land

Some of the land is bush fire prone land.

12. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

13. Mine Subsidence

The land is not declared to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961*.

14. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 10 of the *Environmental Planning and Assessment Regulation 2021* and Schedule 7 of the *Environmental Planning & Assessment Act 1997 No 203*.

15. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

16. Biodiversity Stewardship Sites

The Council has not been notified by the Biodiversity Conservation Trust that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

17. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

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

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

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

The owner of the land (or any previous owner) has not 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).

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 1 January 2011.

20. Western Sydney Aerotropolis

Under State Environmental Planning Policy (Precincts – Western Parkland City) 2021, Chapter 4 the land is –

(a) not in an ANEF or ANEC contour of 20 or greater, as referred to in that Chapter, section 4.17, or

(b) not shown on the Lighting Intensity and Wind Shear Map, or

(c) not shown on the Obstacle Limitation Surface Map, or

(d) not in the "public safety area" on the Public Safety Area Map, or

(e) not in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the Wildlife Buffer Zone Map.

21. Development consent conditions for seniors housing

No condition of development consent granted after 11 October 2007 in relation to the land applies to the property that are of the kind set out in that Policy, section 88(2) of *State Environmental Planning Policy (Housing) 2021*.

22. Site compatibility certificate and conditions for affordable rental housing

(1) There is not a current site compatibility certificate of which the council is aware, in respect of proposed development on the land.

(2) No condition of development consent in relation to the land applies to the property that are of the kind set out in section 21(1) or 40(1) of *State Environmental Planning Policy (Housing) 2021*.

(3) No condition of development consent in relation to the land applies to the property that are of the kind set out in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009*.

23. Water or sewerage services

No water or sewerage services are, or are to be, provided to the land under the *Water Industry Competition Act 2006*.

Additional matters under the Contaminated Land Management Act 1997

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:

(a) the land to which the certificate relates is not significantly contaminated land within the meaning of that Act

(b) the land to which the certificate relates is not subject to a management order within the meaning of that Act

(c) the land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of that Act

(d) the land to which the certificate relates is not subject to an ongoing maintenance order within the meaning of that Act

(e) the land to which the certificate relates is not the subject of a site audit statement

If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

The following is information provided in good faith under the provisions of Section 10.7(5) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149) and lists relevant matters affecting the land of which Council is aware. The Council shall not incur any liability in respect of any such advice.

Persons relying on this certificate should read the environmental planning instruments referred to in this certificate.

Company title subdivision

Clause 2.6 of the *Pittwater Local Environmental Plan 2014*, *Warringah Local Environmental Plan 2011* or *Manly Local Environmental Plan 2013* provides that land may not be subdivided except with the consent of the Council. This includes subdivision by way of company title schemes. Persons considering purchasing property in the Northern Beaches local government area the subject of a company title scheme are advised to check that the land has been subdivided with the consent of the Council.

District planning

Under the Greater Sydney Regional Plan – A Metropolis of Three Cities 2018, the Greater Sydney Commission sets a planning framework for a metropolis of three cities across Greater Sydney which reach across five Districts. Northern Beaches is located within the 'Eastern Harbour City' area and is in the North District which forms a large part of the Eastern Harbour City. The North District Plan sets out planning priorities and actions for the growth of the North District, including Northern Beaches. Northern Beaches Council's Local Strategic Planning Statement gives effect to the District Plan based on local characteristics and opportunities and Council's own priorities in the community. The Local Strategic Planning Statement came into effect on 26 March 2020.

Council resolution to amend environmental planning instrument

The following instrument or resolution of Council proposes to vary the provisions of an environmental planning instrument, other than as referred to in the Planning Certificate – Part 2:

Planning Proposal – new consolidated LEP
Applies to land: All land within the Northern Beaches LGA.
Outline: The new LEP will:

- Replace and harmonise planning controls in the four existing LEPs (Pittwater LEP 2014, Manly LEP 2013, Warringah LEP 2011 and Warringah LEP 2000).
- Introduce new controls to better respond to the community's aspirations and strategic priorities for the Northern Beaches.

Council resolution: 17 June 2024

Draft Voluntary Planning Agreement

Nil

Additional information applying to the land

Additional information, if any, relating to the land the subject of this certificate:

Geotechnical Planning Controls
Council is currently undertaking a study to review geotechnical planning controls across the Local Government Area. Information from a draft study indicates geotechnical considerations may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps. Council's Development Engineering & Certification team can be contacted for further information.

Protection of waterways and riparian land policy
The Protection of Waterways and Riparian Land Policy No. PL 740 (former Warringah LGA) is applicable to the land.

General information

Flood
Information available to Council indicates some properties within the catchments of Middle Harbour may be flood affected. This includes parts of the suburbs of Belrose, Davidson, Frenchs Forest, Forestville and Killarney Heights. It is important to note this information may be used by Council for development assessment purposes. Please contact Floodplain Planning team at Northern Beaches Council for further information.

Threatened Species
Many Threatened Ecological Communities (TECs) identified under Schedule 2 of the *NSW Biodiversity Conservation Act 2016* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* are found within the Northern Beaches LGA.
TEC mapping for this property can be viewed via the NSW Government's SEED Portal by searching for 'Threatened Ecological Communities Greater Sydney' in the database catalogue and selecting 'Show on SEED Map'.
Records of threatened flora and fauna are available from the NSW Government's Atlas of NSW Wildlife database: <http://www.bionet.nsw.gov.au>.
Council's Biodiversity & Planning team can also be contacted to determine whether any site-specific information is available for this property.

Bush fire
Certain development may require further consideration under section Section 4.14 or section Section 4.46 of the *Environmental Planning and Assessment Act 1979*, and section 100B of the *Rural Fires Act, 1997* with respect to bush fire matters. Contact NSW Rural Fire Service for further information.

Aboriginal heritage
Many Aboriginal objects are found within the Local Government Area. It is prudent for the purchaser of land to make an enquiry with NSW Environment and Heritage as to whether any known Aboriginal objects are located on the subject land or whether the land has been declared as an Aboriginal place under the *National Parks and Wildlife Act 1974* (NSW). The carrying out of works may be prevented on land which is likely to significantly affect an Aboriginal object or Aboriginal place.
For information relating to Aboriginal sites and objects across NSW, contact: Aboriginal Heritage Information Management System (AHIMS) on (02) 9873 8500 or email ahims@environment.nsw.gov.au <mailto:ahims@environment.nsw.gov.au>.
Alternatively, visit <https://www2.environment.nsw.gov.au/topics/heritage/search-heritage-databases/aboriginal-heritage-information-management-system>

Coastal erosion
Information available to Council indicates coastal erosion may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps of the Warringah coastline. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Coastal hazards
Information available to Council indicates properties within the suburb of Cottage Point may be affected by coastal hazards. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Climate Change
Recent evidence indicates that climate change as a result of global warming is occurring much more rapidly than previously expected. Climate change will vary in its effects across Australia. As well as affecting homes, climate change may affect infrastructure, commercial and industrial buildings and other physical assets. Climate change may affect coastal areas, in particular, through sea-level rise, increased temperatures, and changed storm events. The effects of climate change may impact on the future use and development potential of the land that is the subject of this certificate.



Scott Phillips
Chief Executive Officer
28/03/2025

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Eis & Jk Group
115 Wicks Road
MACQUARIE PARK NSW 2113

Reference: E37444BT 1
Date: 28/03/2025
Certificate No. ePLC2025/02353

Address of Property: Lot 1/ Veterans Parade NARRABEEN NSW 2101
Description of Property: Lot 1 DP 774980

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

(1) The name of each environmental planning instrument and development control plan that applies to the carrying out of development on the land:

(a) Local Environmental Plan

Warringah Local Environmental Plan 2011

(b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing) 2021
State Environmental Planning Policy (Industry and Employment) 2021
State Environmental Planning Policy (Planning Systems) 2021
State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021
State Environmental Planning Policy (Primary Production) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021
State Environmental Planning Policy (Resources and Energy) 2021
State Environmental Planning Policy (Sustainable Buildings) 2022
State Environmental Planning Policy (Transport and Infrastructure) 2021

(c) Development Control Plans

Warringah Development Control Plan 2011

(2) Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument and draft development control plan, which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on the land.

(a) Draft Local Environmental Plans

(b) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Cultural)

(c) Draft Development Control Plans

2. Zoning and land use under relevant planning instruments

The following matters for each environmental planning instrument or draft environmental planning instrument that includes the land in a zone, however described—

(1) Zoning and land use under relevant Local Environmental Plans

(a), (b)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone SP1 Special Activities

1 Objectives of zone

• To provide for special land uses that are not provided for in other zones.

• To provide for sites with special natural characteristics that are not provided for in other zones.

• To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.

2 Permitted without consent

Nil

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Aquaculture; Environmental protection works

4 Prohibited

Any development not specified in item 2 or 3

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone C2 Environmental Conservation

1 Objectives of zone

• To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.

• To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

• To protect and enhance the quality and character of visually sensitive areas and preserve significant natural landforms in their natural state.

• To manage development in areas having steep sloping topography or that are subject to any potential landslip.

• To manage water quality in significant water catchment areas.

• To ensure that development, by way of its type, design and location, complements and enhances the natural environment in environmentally sensitive areas.

2 Permitted without consent

Nil

3 Permitted with consent

Environmental protection works; Oyster aquaculture; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Local distribution premises; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 3

(c) Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(d) Minimum land dimensions

The *Warringah Local Environmental Plan 2011* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(e) Outstanding biodiversity value

The land is not in an area of outstanding biodiversity value under the *Biodiversity Conservation Act 2016*

(f) Conservation areas

The land is not in a heritage conservation area.

(g) Item of environmental heritage

A heritage item is situated on the land as identified in Schedule 5 of the *Warringah Local Environmental Plan 2011*.

(2) Zoning and land use under draft Local Environmental Plans

For any proposed changes to zoning and land use, see Part 1.2 (a)
Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

3. Contribution plans

(1) The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contributions plans.

Northern Beaches Section 7.12 Contributions Plan 2024 - in force 19 October 2024.

(2) If the land is in a region within the meaning of the Act, Division 7.1, Subdivision 4 - the name of the region, and the name of the Ministerial planning order in which the region is identified.

Housing and Productivity Contribution
The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2024 applies.

(3) If the land is in a special contributions area to which a continued 7.23 determination applies, the name of the area.

Nil

4. Complying Development

If the land is land on which complying development may or may not be carried out under each of the complying development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A(1)(c)–(e), (2), (3) or (4), 1.18(1)(c3) or 1.19.

Part 3 Housing Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 3A Rural Housing Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 3B Low Rise Housing Diversity Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 3C Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

Part 3D Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Part 4 Housing Alterations Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 4A General Development Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 5 Industrial and Business Alterations Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 5A Industrial and Business Buildings Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 5B Container Recycling Facilities Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 6 Subdivisions Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 7 Demolition Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 8 Fire Safety Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

Part 9 Agritourism and Farm Stay Accommodation Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.
Heritage Item
For the purposes of clause 1.17A (1) (d) (iii) complying development may not be carried out on that part of the land that comprises the heritage item listed in *Warringah Local Environmental Plan 2011* (WLEP2011). Where a heritage item listed in WLEP2011 does not comprise the whole of the relevant land, the restriction under (1) (d) applies only to that part of the land that is described in WLEP2011 Schedule 5 Environmental Heritage.

(4) Complying Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No complying codes are varied under this clause in relation to the land.

5. Exempt Development

If the land is land on which exempt development may or may not be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.16(1)(b1)–(d) or 1.16A.

Part 2 Exempt Development Codes

Exempt Development under the Exempt Development Codes may be carried out on all of the land.

(4) Exempt Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No exempt development codes are varied under this clause in relation to the land.

6. Affected building notices and building product rectification orders

(a) There is not an affected building notice of which the council is aware that is in force in respect of the land.

(b) There is a 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

(c) There is not a 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.

In this section—

affected building notice has the same meaning the *Building Products (Safety) Act 2017, Part 4*.

building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

7. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

8. Road widening and road realignment

(a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.

(b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.

(c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

9. Flood related development controls

(1) The land is not within the flood planning area and subject to flood related development controls.

(2) The land or part of the land is not between the flood planning area and the probable maximum flood and subject to flood related development controls.

In this section—

flood planning area has the same meaning as in the Flood Risk Management Manual.

Flood Risk Management Manual means the Flood Risk Management Manual, ISBN 978-1-923076-17-4, published by the NSW Government in June 2023.

probable maximum flood has the same meaning as in the Flood Risk Management Manual.

10. Council and other public authority policies on hazard risk restriction

(a) Council has adopted policies that restrict the development of the land because of the likelihood of land slip, bush fire, tidal inundation, subsidence, acid sulfate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding (for flooding – see 9). The identified hazard or risk, if any, are listed below:

Land Slip Risk Map - Area E
The land is identified as being on the *Warringah Local Environmental Plan 2011* - Landslip Risk Map as Area E. Restrictions apply to the carrying out of works on this land under Clause 6.4 (Development on Sloping Land) of the *Warringah Local Environmental Plan 2011* and section E10 (Landslip Risk) of the Warringah Development Control Plan 2011.

(b) The following information applies to any policy as 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 a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Bush Fire Prone Land
This land is identified on a Bush Fire Prone Land map certified by the Commissioner of the NSW Rural Fire Service as being bush fire prone land. The requirements of the NSW Rural Fire Service document Planning for Bush Fire Protection apply to this land. For further information please contact the Northern Beaches District NSW Rural Fire Service.

11. Bush fire prone land

Some of the land is bush fire prone land.

12. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

13. Mine Subsidence

The land is not declared to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961*.

14. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 10 of the *Environmental Planning and Assessment Regulation 2021* and Schedule 7 of the *Environmental Planning & Assessment Act 1997 No 203*.

15. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

16. Biodiversity Stewardship Sites

The Council has not been notified by the Biodiversity Conservation Trust that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

17. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

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

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

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

The owner of the land (or any previous owner) has not 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).

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 1 January 2011.

20. Western Sydney Aerotropolis

Under State Environmental Planning Policy (Precincts – Western Parkland City) 2021, Chapter 4 the land is –

(a) not in an ANEF or ANEC contour of 20 or greater, as referred to in that Chapter, section 4.17, or

(b) not shown on the Lighting Intensity and Wind Shear Map, or

(c) not shown on the Obstacle Limitation Surface Map, or

(d) not in the "public safety area" on the Public Safety Area Map, or

(e) not in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the Wildlife Buffer Zone Map.

21. Development consent conditions for seniors housing

No condition of development consent granted after 11 October 2007 in relation to the land applies to the property that are of the kind set out in that Policy, section 88(2) of *State Environmental Planning Policy (Housing) 2021*.

22. Site compatibility certificate and conditions for affordable rental housing

(1) There is not a current site compatibility certificate of which the council is aware, in respect of proposed development on the land.

(2) No condition of development consent in relation to the land applies to the property that are of the kind set out in section 21(1) or 40(1) of *State Environmental Planning Policy (Housing) 2021*.

(3) No condition of development consent in relation to the land applies to the property that are of the kind set out in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009*.

23. Water or sewerage services

No water or sewerage services are, or are to be, provided to the land under the *Water Industry Competition Act 2006*.

Additional matters under the Contaminated Land Management Act 1997

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:

(a) the land to which the certificate relates is not significantly contaminated land within the meaning of that Act

(b) the land to which the certificate relates is not subject to a management order within the meaning of that Act

(c) the land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of that Act

(d) the land to which the certificate relates is not subject to an ongoing maintenance order within the meaning of that Act

(e) the land to which the certificate relates is not the subject of a site audit statement

If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

The following is information provided in good faith under the provisions of Section 10.7(5) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149) and lists relevant matters affecting the land of which Council is aware. The Council shall not incur any liability in respect of any such advice.

Persons relying on this certificate should read the environmental planning instruments referred to in this certificate.

Company title subdivision

Clause 2.6 of the *Pittwater Local Environmental Plan 2014*, *Warringah Local Environmental Plan 2011* or *Manly Local Environmental Plan 2013* provides that land may not be subdivided except with the consent of the Council. This includes subdivision by way of company title schemes. Persons considering purchasing property in the Northern Beaches local government area the subject of a company title scheme are advised to check that the land has been subdivided with the consent of the Council.

District planning

Under the Greater Sydney Regional Plan – A Metropolis of Three Cities 2018, the Greater Sydney Commission sets a planning framework for a metropolis of three cities across Greater Sydney which reach across five Districts. Northern Beaches is located within the 'Eastern Harbour City' area and is in the North District which forms a large part of the Eastern Harbour City. The North District Plan sets out planning priorities and actions for the growth of the North District, including Northern Beaches. Northern Beaches Council's Local Strategic Planning Statement gives effect to

the District Plan based on local characteristics and opportunities and Council's own priorities in the community. The Local Strategic Planning Statement came into effect on 26 March 2020.

Council resolution to amend environmental planning instrument

The following instrument or resolution of Council proposes to vary the provisions of an environmental planning instrument, other than as referred to in the Planning Certificate – Part 2:

Planning Proposal – new consolidated LEP
Applies to land: All land within the Northern Beaches LGA.
Outline: The new LEP will:

- Replace and harmonise planning controls in the four existing LEPs (Pittwater LEP 2014, Manly LEP 2013, Warringah LEP 2011 and Warringah LEP 2000).
- Introduce new controls to better respond to the community's aspirations and strategic priorities for the Northern Beaches.

Council resolution: 17 June 2024

Draft Voluntary Planning Agreement

Nil

Additional information applying to the land

Additional information, if any, relating to the land the subject of this certificate:

Geotechnical Planning Controls
Council is currently undertaking a study to review geotechnical planning controls across the Local Government Area. Information from a draft study indicates geotechnical considerations may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps. Council's Development Engineering & Certification team can be contacted for further information.

Protection of waterways and riparian land policy
The Protection of Waterways and Riparian Land Policy No. PL 740 (former Warringah LGA) is applicable to the land.

General information

Flood
Information available to Council indicates some properties within the catchments of Middle Harbour may be flood affected. This includes parts of the suburbs of Belrose, Davidson, Frenchs Forest, Forestville and Killarney Heights. It is important to note this information may be used by Council for development assessment purposes. Please contact Floodplain Planning team at Northern Beaches Council for further information.

Threatened Species
Many Threatened Ecological Communities (TECs) identified under Schedule 2 of the *NSW Biodiversity Conservation Act 2016* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* are found within the Northern Beaches LGA.

TEC mapping for this property can be viewed via the NSW Government's SEED Portal by searching for 'Threatened Ecological Communities Greater Sydney' in the database catalogue and selecting 'Show on SEED Map'.
Records of threatened flora and fauna are available from the NSW Government's Atlas of NSW Wildlife database: <http://www.bionet.nsw.gov.au>.
Council's Biodiversity & Planning team can also be contacted to determine whether any site-specific information is available for this property.

Bush fire
Certain development may require further consideration under section Section 4.14 or section Section 4.46 of the *Environmental Planning and Assessment Act 1979*, and section 100B of the *Rural Fires Act, 1997* with respect to bush fire matters. Contact NSW Rural Fire Service for further information.

Aboriginal heritage
Many Aboriginal objects are found within the Local Government Area. It is prudent for the purchaser of land to make an enquiry with NSW Environment and Heritage as to whether any known Aboriginal objects are located on the subject land or whether the land has been declared as an Aboriginal place under the *National Parks and Wildlife Act 1974* (NSW). The carrying out of works may be prevented on land which is likely to significantly affect an Aboriginal object or Aboriginal place.
For information relating to Aboriginal sites and objects across NSW, contact: Aboriginal Heritage Information Management System (AHIMS) on (02) 9873 8500 or email ahims@environment.nsw.gov.au <mailto:ahims@environment.nsw.gov.au>.
Alternatively, visit <https://www2.environment.nsw.gov.au/topics/heritage/search-heritage-databases/aboriginal-heritage-information-management-system>

Coastal erosion
Information available to Council indicates coastal erosion may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps of the Warringah coastline. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Coastal hazards
Information available to Council indicates properties within the suburb of Cottage Point may be affected by coastal hazards. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Climate Change
Recent evidence indicates that climate change as a result of global warming is occurring much more rapidly than previously expected. Climate change will vary in its effects across Australia. As well as affecting homes, climate change may affect infrastructure, commercial and industrial buildings and other physical assets. Climate change may affect coastal areas, in particular, through sea-level rise, increased temperatures, and changed storm events. The effects of climate change may impact on the future use and development potential of the land that is the subject of this certificate.



Scott Phillips
Chief Executive Officer
28/03/2025

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Eis & Jk Group
115 Wicks Road
MACQUARIE PARK NSW 2113

Reference: E37444BT 1.1
Date: 28/03/2025
Certificate No. ePLC2025/02354

Address of Property: Lot 1/ Veterans Parade NARRABEEN NSW 2101
Description of Property: Lot 1 DP 803645

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

(1) The name of each environmental planning instrument and development control plan that applies to the carrying out of development on the land:

(a) Local Environmental Plan

Warringah Local Environmental Plan 2011

(b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing) 2021
State Environmental Planning Policy (Industry and Employment) 2021
State Environmental Planning Policy (Planning Systems) 2021
State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021
State Environmental Planning Policy (Primary Production) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021
State Environmental Planning Policy (Resources and Energy) 2021
State Environmental Planning Policy (Sustainable Buildings) 2022
State Environmental Planning Policy (Transport and Infrastructure) 2021

(c) Development Control Plans

Warringah Development Control Plan 2011

(2) Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument and draft development control plan, which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on the land.

(a) Draft Local Environmental Plans

(b) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Cultural)

(c) Draft Development Control Plans

2. Zoning and land use under relevant planning instruments

The following matters for each environmental planning instrument or draft environmental planning instrument that includes the land in a zone, however described—

(1) Zoning and land use under relevant Local Environmental Plans

(a), (b)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone SP1 Special Activities

1 Objectives of zone

• To provide for special land uses that are not provided for in other zones.

• To provide for sites with special natural characteristics that are not provided for in other zones.

• To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.

2 Permitted without consent

Nil

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Aquaculture; Environmental protection works

4 Prohibited

Any development not specified in item 2 or 3

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone C2 Environmental Conservation

1 Objectives of zone

• To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.

• To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

• To protect and enhance the quality and character of visually sensitive areas and preserve significant natural landforms in their natural state.

• To manage development in areas having steep sloping topography or that are subject to any potential landslip.

• To manage water quality in significant water catchment areas.

• To ensure that development, by way of its type, design and location, complements and enhances the natural environment in environmentally sensitive areas.

2 Permitted without consent

Nil

3 Permitted with consent

Environmental protection works; Oyster aquaculture; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Local distribution premises; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 3

(c) Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(d) Minimum land dimensions

The *Warringah Local Environmental Plan 2011* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(e) Outstanding biodiversity value

The land is not in an area of outstanding biodiversity value under the *Biodiversity Conservation Act 2016*

(f) Conservation areas

The land is not in a heritage conservation area.

(g) Item of environmental heritage

The land does not contain an item of environmental heritage.

(2) Zoning and land use under draft Local Environmental Plans

For any proposed changes to zoning and land use, see Part 1.2 (a)
Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

3. Contribution plans

(1) The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contributions plans.

Northern Beaches Section 7.12 Contributions Plan 2024 - in force 19 October 2024.

(2) If the land is in a region within the meaning of the Act, Division 7.1, Subdivision 4 - the name of the region, and the name of the Ministerial planning order in which the region is identified.

Housing and Productivity Contribution
The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2024 applies.

(3) If the land is in a special contributions area to which a continued 7.23 determination applies, the name of the area.

Nil

4. Complying Development

If the land is land on which complying development may or may not be carried out under each of the complying development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A(1)(c)–(e), (2), (3) or (4), 1.18(1)(c3) or 1.19.

Part 3 Housing Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 3A Rural Housing Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 3B Low Rise Housing Diversity Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the

land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 3C Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

Part 3D Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Part 4 Housing Alterations Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 4A General Development Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 5 Industrial and Business Alterations Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 5A Industrial and Business Buildings Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 5B Container Recycling Facilities Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 6 Subdivisions Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 7 Demolition Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 8 Fire Safety Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 9 Agritourism and Farm Stay Accommodation Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

(4) Complying Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No complying codes are varied under this clause in relation to the land.

5. Exempt Development

If the land is land on which exempt development may or may not be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.16(1)(b1)–(d) or 1.16A.

Part 2 Exempt Development Codes

Exempt Development under the Exempt Development Codes may be carried out on all of the land.

(4) Exempt Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No exempt development codes are varied under this clause in relation to the land.

6. Affected building notices and building product rectification orders

(a) There is not an affected building notice of which the council is aware that is in force in respect of the land.

(b) There is a 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

(c) There is not a 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.

In this section—

affected building notice has the same meaning the *Building Products (Safety) Act 2017, Part 4*.

building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

7. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

8. Road widening and road realignment

(a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.

(b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.

(c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

9. Flood related development controls

(1) The land is not within the flood planning area and subject to flood related development controls.

(2) The land or part of the land is not between the flood planning area and the probable maximum flood and subject to flood related development controls.

In this section—

flood planning area has the same meaning as in the Flood Risk Management Manual.

Flood Risk Management Manual means the Flood Risk Management Manual, ISBN 978-1-923076-17-4, published by the NSW Government in June 2023.

probable maximum flood has the same meaning as in the Flood Risk Management Manual.

10. Council and other public authority policies on hazard risk restriction

(a) Council has adopted policies that restrict the development of the land because of the likelihood of land slip, bush fire, tidal inundation, subsidence, acid sulfate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding (for flooding – see 9). The identified hazard or risk, if any, are listed below:

Acid Sulfate Soils-Class 5
This land is identified as Acid Sulfate Soils Class 5 on the Acid Sulfate Soils Map of the *Warringah Local Environmental Plan 2011* (WLEP 2011). Restrictions apply to the carrying out of works on this land under Clause 6.1 of the WLEP 2011.
Land Slip Risk Map - Area E
The land is identified as being on the *Warringah Local Environmental Plan 2011* - Landslip Risk Map as Area E. Restrictions apply to the carrying out of works on this land under Clause 6.4 (Development on Sloping Land) of the *Warringah Local Environmental Plan 2011* and section E10 (Landslip Risk) of the Warringah Development Control Plan 2011.

(b) The following information applies to any policy as 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 a

planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Bush Fire Prone Land
This land is identified on a Bush Fire Prone Land map certified by the Commissioner of the NSW Rural Fire Service as being bush fire prone land. The requirements of the NSW Rural Fire Service document Planning for Bush Fire Protection apply to this land. For further information please contact the Northern Beaches District NSW Rural Fire Service.

11. Bush fire prone land

Some of the land is bush fire prone land.

12. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

13. Mine Subsidence

The land is not declared to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961*.

14. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 10 of the *Environmental Planning and Assessment Regulation 2021* and Schedule 7 of the *Environmental Planning & Assessment Act 1997 No 203*.

15. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

16. Biodiversity Stewardship Sites

The Council has not been notified by the Biodiversity Conservation Trust that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

17. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

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

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

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

The owner of the land (or any previous owner) has not 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).

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 1 January 2011.

20. Western Sydney Aerotropolis

Under State Environmental Planning Policy (Precincts – Western Parkland City) 2021, Chapter 4 the land is –

(a) not in an ANEF or ANEC contour of 20 or greater, as referred to in that Chapter, section 4.17, or

(b) not shown on the Lighting Intensity and Wind Shear Map, or

(c) not shown on the Obstacle Limitation Surface Map, or

(d) not in the "public safety area" on the Public Safety Area Map, or

(e) not in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the Wildlife Buffer Zone Map.

21. Development consent conditions for seniors housing

A condition of development consent granted after 11 October 2007 in relation to the land applies to the property that are of the kind set out in that Policy, section 88(2) of *State Environmental Planning Policy (Housing) 2021*.

22. Site compatibility certificate and conditions for affordable rental housing

(1) There is not a current site compatibility certificate of which the council is aware, in respect of proposed development on the land.

(2) No condition of development consent in relation to the land applies to the property that are of the kind set out in section 21(1) or 40(1) of *State Environmental Planning Policy (Housing) 2021*.

(3) No condition of development consent in relation to the land applies to the property that are of the kind set out in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009*.

23. Water or sewerage services

No water or sewerage services are, or are to be, provided to the land under the *Water Industry Competition Act 2006*.

Additional matters under the Contaminated Land Management Act 1997

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:

(a) the land to which the certificate relates is not significantly contaminated land within the meaning of that Act

(b) the land to which the certificate relates is not subject to a management order within the meaning of that Act

(c) the land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of that Act

(d) the land to which the certificate relates is not subject to an ongoing maintenance order within the meaning of that Act

(e) the land to which the certificate relates is not the subject of a site audit statement

If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

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Persons relying on this certificate should read the environmental planning instruments referred to in this certificate.

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Under the Greater Sydney Regional Plan – A Metropolis of Three Cities 2018, the Greater Sydney Commission sets a planning framework for a metropolis of three cities across Greater Sydney which reach across five Districts. Northern Beaches is located within the 'Eastern Harbour City' area and is in the North District which forms a large part of the Eastern Harbour City. The North District Plan sets out planning priorities and actions for the growth of the North District, including Northern Beaches. Northern Beaches Council's Local Strategic Planning Statement gives effect to the District Plan based on local characteristics and opportunities and Council's own priorities in the community. The Local Strategic Planning Statement came into effect on 26 March 2020.

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Applies to land: All land within the Northern Beaches LGA.
Outline: The new LEP will:

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- Introduce new controls to better respond to the community's aspirations and strategic priorities for the Northern Beaches.

Council resolution: 17 June 2024

Draft Voluntary Planning Agreement

Nil

Additional information applying to the land

Additional information, if any, relating to the land the subject of this certificate:

Geotechnical Planning Controls
Council is currently undertaking a study to review geotechnical planning controls across the Local Government Area. Information from a draft study indicates geotechnical considerations may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps. Council's Development Engineering & Certification team can be contacted for further information.

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The Protection of Waterways and Riparian Land Policy No. PL 740 (former Warringah LGA) is applicable to the land.

General information

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Information available to Council indicates some properties within the catchments of Middle Harbour may be flood affected. This includes parts of the suburbs of Belrose, Davidson, Frenchs Forest, Forestville and Killarney Heights. It is important to note this information may be used by Council for development assessment purposes. Please contact Floodplain Planning team at Northern Beaches Council for further information.

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For information relating to Aboriginal sites and objects across NSW, contact: Aboriginal Heritage Information Management System (AHIMS) on (02) 9873 8500 or email ahims@environment.nsw.gov.au <mailto:ahims@environment.nsw.gov.au>.
Alternatively, visit <https://www2.environment.nsw.gov.au/topics/heritage/search-heritage-databases/aboriginal-heritage-information-management-system>

Coastal erosion
Information available to Council indicates coastal erosion may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps of the Warringah coastline. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Coastal hazards

Information available to Council indicates properties within the suburb of Cottage Point may be affected by coastal hazards. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Climate Change

Recent evidence indicates that climate change as a result of global warming is occurring much more rapidly than previously expected. Climate change will vary in its effects across Australia. As well as affecting homes, climate change may affect infrastructure, commercial and industrial buildings and other physical assets. Climate change may affect coastal areas, in particular, through sea-level rise, increased temperatures, and changed storm events. The effects of climate change may impact on the future use and development potential of the land that is the subject of this certificate.



Scott Phillips
Chief Executive Officer
28/03/2025

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Eis & Jk Group
115 Wicks Road
MACQUARIE PARK NSW 2113

Reference: E37444BT 573
Date: 28/03/2025
Certificate No. ePLC2025/02355

Address of Property: Lot 1/ Veterans Parade NARRABEEN NSW 2101
Description of Property: Lot 573 DP 752038

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

(1) The name of each environmental planning instrument and development control plan that applies to the carrying out of development on the land:

(a) Local Environmental Plan

Warringah Local Environmental Plan 2011

(b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing) 2021
State Environmental Planning Policy (Industry and Employment) 2021
State Environmental Planning Policy (Planning Systems) 2021
State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021
State Environmental Planning Policy (Primary Production) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021
State Environmental Planning Policy (Resources and Energy) 2021
State Environmental Planning Policy (Sustainable Buildings) 2022
State Environmental Planning Policy (Transport and Infrastructure) 2021

(c) Development Control Plans

Warringah Development Control Plan 2011

(2) Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument and draft development control plan, which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on the land.

(a) Draft Local Environmental Plans

(b) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Cultural)

(c) Draft Development Control Plans

2. Zoning and land use under relevant planning instruments

The following matters for each environmental planning instrument or draft environmental planning instrument that includes the land in a zone, however described—

(1) Zoning and land use under relevant Local Environmental Plans

(a), (b)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone SP1 Special Activities

1 Objectives of zone

• To provide for special land uses that are not provided for in other zones.

• To provide for sites with special natural characteristics that are not provided for in other zones.

• To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.

2 Permitted without consent

Nil

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Aquaculture; Environmental protection works

4 Prohibited

Any development not specified in item 2 or 3

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone C2 Environmental Conservation

1 Objectives of zone

• To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.

• To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

• To protect and enhance the quality and character of visually sensitive areas and preserve significant natural landforms in their natural state.

• To manage development in areas having steep sloping topography or that are subject to any potential landslip.

• To manage water quality in significant water catchment areas.

• To ensure that development, by way of its type, design and location, complements and enhances the natural environment in environmentally sensitive areas.

2 Permitted without consent

Nil

3 Permitted with consent

Environmental protection works; Oyster aquaculture; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Local distribution premises; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 3

(c) Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Nil

(d) Minimum land dimensions

The *Warringah Local Environmental Plan 2011* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(e) Outstanding biodiversity value

The land is not in an area of outstanding biodiversity value under the *Biodiversity Conservation Act 2016*

(f) Conservation areas

The land is not in a heritage conservation area.

(g) Item of environmental heritage

The land does not contain an item of environmental heritage.

(2) Zoning and land use under draft Local Environmental Plans

For any proposed changes to zoning and land use, see Part 1.2 (a)
Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

3. Contribution plans

(1) The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contributions plans.

Northern Beaches Section 7.12 Contributions Plan 2024 - in force 19 October 2024.

(2) If the land is in a region within the meaning of the Act, Division 7.1, Subdivision 4 - the name of the region, and the name of the Ministerial planning order in which the region is identified.

Housing and Productivity Contribution
The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2024 applies.

(3) If the land is in a special contributions area to which a continued 7.23 determination applies, the name of the area.

Nil

4. Complying Development

If the land is land on which complying development may or may not be carried out under each of the complying development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A(1)(c)–(e), (2), (3) or (4), 1.18(1)(c3) or 1.19.

Part 3 Housing Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 3A Rural Housing Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 3B Low Rise Housing Diversity Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the

land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 3C Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

Part 3D Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Part 4 Housing Alterations Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 4A General Development Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 5 Industrial and Business Alterations Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 5A Industrial and Business Buildings Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 5B Container Recycling Facilities Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 6 Subdivisions Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 7 Demolition Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 8 Fire Safety Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

Part 9 Agritourism and Farm Stay Accommodation Code

High Biodiversity Significance
For the purposes of clause 1.17A (1) (e), complying development may not be carried out as the land is within an environmentally sensitive area being land identified in the WLEP2011 as being of high biodiversity significance.

(4) Complying Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No complying codes are varied under this clause in relation to the land.

5. Exempt Development

If the land is land on which exempt development may or may not be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.16(1)(b1)–(d) or 1.16A.

Part 2 Exempt Development Codes

Exempt Development under the Exempt Development Codes may be carried out on all of the land.

(4) Exempt Development Codes varied under Clause 1.12 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

No exempt development codes are varied under this clause in relation to the land.

6. Affected building notices and building product rectification orders

(a) There is not an affected building notice of which the council is aware that is in force in respect of the land.

(b) There is a 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

(c) There is not a 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.

In this section—

affected building notice has the same meaning the *Building Products (Safety) Act 2017, Part 4*.

building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

7. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

8. Road widening and road realignment

(a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.

(b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.

(c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

9. Flood related development controls

(1) The land is not within the flood planning area and subject to flood related development controls.

(2) The land or part of the land is not between the flood planning area and the probable maximum flood and subject to flood related development controls.

In this section—

flood planning area has the same meaning as in the Flood Risk Management Manual.

Flood Risk Management Manual means the Flood Risk Management Manual, ISBN 978-1-923076-17-4, published by the NSW Government in June 2023.

probable maximum flood has the same meaning as in the Flood Risk Management Manual.

10. Council and other public authority policies on hazard risk restriction

(a) Council has adopted policies that restrict the development of the land because of the likelihood of land slip, bush fire, tidal inundation, subsidence, acid sulfate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding (for flooding – see 9). The identified hazard or risk, if any, are listed below:

Land Slip Risk Map - Area E
The land is identified as being on the *Warringah Local Environmental Plan 2011* - Landslip Risk Map as Area E. Restrictions apply to the carrying out of works on this land under Clause 6.4 (Development on Sloping Land) of the *Warringah Local Environmental Plan 2011* and section E10 (Landslip Risk) of the Warringah Development Control Plan 2011.

(b) The following information applies to any policy as 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 a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Bush Fire Prone Land
This land is identified on a Bush Fire Prone Land map certified by the Commissioner of the NSW Rural Fire Service as being bush fire prone land. The requirements of the NSW Rural Fire Service document Planning for Bush Fire Protection apply to this land. For further information please contact the Northern Beaches District NSW Rural Fire Service.

11. Bush fire prone land

Some of the land is bush fire prone land.

12. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

13. Mine Subsidence

The land is not declared to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961*.

14. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 10 of the *Environmental Planning and Assessment Regulation 2021* and Schedule 7 of the *Environmental Planning & Assessment Act 1997 No 203*.

15. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

16. Biodiversity Stewardship Sites

The Council has not been notified by the Biodiversity Conservation Trust that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

17. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

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

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

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

The owner of the land (or any previous owner) has not 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).

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 1 January 2011.

20. Western Sydney Aerotropolis

Under State Environmental Planning Policy (Precincts – Western Parkland City) 2021, Chapter 4 the land is –

(a) not in an ANEF or ANEC contour of 20 or greater, as referred to in that Chapter, section 4.17, or

(b) not shown on the Lighting Intensity and Wind Shear Map, or

(c) not shown on the Obstacle Limitation Surface Map, or

(d) not in the "public safety area" on the Public Safety Area Map, or

(e) not in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the Wildlife Buffer Zone Map.

21. Development consent conditions for seniors housing

No condition of development consent granted after 11 October 2007 in relation to the land applies to the property that are of the kind set out in that Policy, section 88(2) of *State Environmental Planning Policy (Housing) 2021*.

22. Site compatibility certificate and conditions for affordable rental housing

(1) There is not a current site compatibility certificate of which the council is aware, in respect of proposed development on the land.

(2) No condition of development consent in relation to the land applies to the property that are of the kind set out in section 21(1) or 40(1) of *State Environmental Planning Policy (Housing) 2021*.

(3) No condition of development consent in relation to the land applies to the property that are of the kind set out in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009*.

23. Water or sewerage services

No water or sewerage services are, or are to be, provided to the land under the *Water Industry Competition Act 2006*.

Additional matters under the Contaminated Land Management Act 1997

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:

(a) the land to which the certificate relates is not significantly contaminated land within the meaning of that Act

(b) the land to which the certificate relates is not subject to a management order within the meaning of that Act

(c) the land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of that Act

(d) the land to which the certificate relates is not subject to an ongoing maintenance order within the meaning of that Act

(e) the land to which the certificate relates is not the subject of a site audit statement

If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

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- Introduce new controls to better respond to the community's aspirations and strategic priorities for the Northern Beaches.

Council resolution: 17 June 2024

Draft Voluntary Planning Agreement

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Additional information applying to the land

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Threatened Species
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Bush fire
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For information relating to Aboriginal sites and objects across NSW, contact: Aboriginal Heritage Information Management System (AHIMS) on (02) 9873 8500 or email ahims@environment.nsw.gov.au <mailto:ahims@environment.nsw.gov.au>.
Alternatively, visit <https://www2.environment.nsw.gov.au/topics/heritage/search-heritage-databases/aboriginal-heritage-information-management-system>

Coastal erosion
Information available to Council indicates coastal erosion may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps of the Warringah coastline. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Coastal hazards
Information available to Council indicates properties within the suburb of Cottage Point may be affected by coastal hazards. For further information, please contact Council's Coast and Catchment team on 1300 434 434.

Climate Change

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Scott Phillips
Chief Executive Officer
28/03/2025

SafeWork NSW Records

Katrina Taylor

From: Licensing <licensing@safework.nsw.gov.au>
Sent: Monday, 7 April 2025 9:33 AM
To: Katrina Taylor
Subject: SafeWork NSW: 01067244 –Site Search application – Result found [thread::hQ-EG8EcfMuN08qxcq7uIXw::]

This message originated outside the JKG network. If this looks to be from a staff member, it is likely to be malicious (spam/phish attack). Do not click links of open attachments unless you recognise the sender and know the content is safe.

Security Classification: Sensitive Personal
Please do not amend the subject line of this email

Dear Katrina

Re: Site Search for Schedule 11 Hazardous Chemicals on premises Application – Result found

I refer to your application for a Site Search for Schedule 11 Hazardous Chemicals on premises, received by SafeWork NSW on 7th March 2025 for the following site: 4 Colooli Road Narrabeen NSW 2101 & Veterans Pde, Narrabeen, NSW, 2101.

Please find attached copies of the documents that SafeWork NSW holds on record number 35/003868 relating to the storage of Hazardous Chemicals at the above-mentioned premises.

If you have any questions, please contact SafeWork NSW using one of the following options, quoting the SafeWork NSW enquiry reference number 01067244:

- Email: licensing@safework.nsw.gov.au
- Phone: 13 10 50

Kind regards

May Neill
Licensing Representative
SafeWork NSW | SafeWork Licensing
p- 13 10 50
e- licensing@safework.nsw.gov.au | safework.nsw.gov.au
Level 3, 32 Mann Street, Gosford, NSW 2250

35-003868.pdf

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LICENCE No. | VOL

35/003868

N.S.W. GOVERNMENT DEPARTMENT OF INDUSTRIAL RELATIONS

DANGEROUS GOODS BRANCH

FILE SCANNED
DATE 29 OCT 1991 BY BT DISK NAME DGSA
18/9/92

WAR VETERANS HOME

WCA - Unclassified
Recfind File 35/003868
WorkCover Authority of NSW
Custodian Licensing Unit - OHS
Created 1/01/1975

HEALTH & SAFETY MANAGEMENT - LICENSING - Dangerous Goods Keeping Licence 35/003868 - Narrabeen, Veterans Pde

INSPECTION DISTRICT NO. .....

.....

P/A

LICENCE No. | VOL

35/003868

GOVERNMENT PRINTER IN AUSTRALIA L.O. 1265

RECEIVED
27 NOV 2001
WORKCOVER NEW SOUTH WALES
SERVICE CENTRE

Marconi Commerce Systems Australia Limited
ACN: 000 020 799
12-38 Talavera Road
North Ryde NSW 2113

PO Box 63
North Ryde NSW 1670
Australia

Telephone: +61 (0) 2 9888 4888
Fax: +61 (0) 2 9887 3854

WorkCover Authority
The Chief Inspector of Dangerous Goods
Locked Bag 10
SYDNEY NSW 2000

Contractor's Certificate
Abandonment of Underground Tanks

Marconi Commerce Systems Aust Ltd hereby certifies that the tanks referred to in the Schedule of this Certificate have been taken out of service by the following method:

1 ~~Removal of tank/s to an approved place.~~
2 Filling with an inert solid material, foam.
(Delete as applicable)

The procedure has been carried out under the provisions of the Dangerous Goods Act, 1975, and Section 9.8.13 of Australian Standard 1940-1993 and acceptance of the Chief Inspection of Dangerous Goods.

Owner of Premises: RSL Veterans Retirement Village

Address of Premises: Veterans Parade

~~Collaroy~~ Narrabeen.

SCHEDULE

1 only Tank 10000 Litre Capacity

Dated this 19th day of November 2001.

35/ 00 3868

Marconi Commerce Systems Aust Ltd
Authorised Officer

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Telephone (02) 370 5000 ALL MAIL TO LOCKED BAG 10, CLARENCE STREET SYDNEY 2000

Reference

WORKCOVER NEW SOUTH WALES

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

RECEIVED 17 APR SCIENCE & SERVICES

DECLARATION: *Please renew licence number 35/003868 to 1997. I confirm that all the licence details shown below are correct (amend if necessary).*

M. J. CORRIGAN 15 · 4 · 96

(Signature) *(Please print name)* *(Date signed)*

for: WAR VETERANS' HOME INCORPORATED

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section (Level 3)
Locked Bag 10
P O CLARENCE STREET 2000

Details of licence on 1 April 1996

Licence Number 35/003868 **Expiry Date** 10/05/96

Licensee WAR VETERANS' HOME INCORPORATED ACN 000 048 957
RSL RETIREMENT VILLAGES

Postal Address BOX 56 P O, NARRABEEN 2101

Licensee Contact Murray Corrigan Ph. 982 6666 Fax. 982 6604 9982 9982

Premises Licensed to Keep Dangerous Goods
VETERANS PDE
NARRABEEN 2101

RECEIVED MAIL ROOM 19 APR 1996 WORKCOVER NEW SOUTH WALES

Nature of Site PRIVATE DWELLING **Major Supplier of Dangerous Goods** SHELL

Emergency Contact for this Site J B Carroll ph. 982 6666

Site staffing 24 hrs 7 days

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
P1	UNDERGROUND TANK	Class 3 UN 1203 PETROL	10000 L 9000 L

DATE -7 MAY 1996 ENTERED

BJ

Licences are issued, for a specified site, if control of a site is transferred (by way of sale or lease or otherwise), the person who held the licence concerned immediately before the transfer must, within 7 days after the transfer, notify the Chief Inspector. This notification must be in writing and must specify the date on which the transfer was effected and the name and address of the transferee.

Dangerous Goods are divided into classes and an explanation is shown below. Certain dangerous goods may be kept without a licence, providing the quantity of the goods does not exceed the amount specified in the exemptions listed below.

EXPLANATION OF DANGEROUS GOODS AND THEIR CLASSES

1.1 Blasting explosives (including detonators).
1.4 Safety cartridges
2.1 Flammable gases (e.g. L.P.Gas, acetylene).
2.2 Non flammable, non toxic gases (e.g. liquid oxygen, liquid nitrogen).
2.3 Poisonous Gases (e.g. chlorine, anhydrous ammonia)
3 Flammable liquids (e.g. any or all of petrol, kerosene, solvents, methylated spirits).
C1 Combustible liquids (e.g. distillate, diesel fuel, heating oil).
4 Flammable solids (e.g. nitro cellulose, sodium metal, calcium carbide).
5.1 Oxidising substances (e.g. pool chlorine, ammonium nitrate).
5.2 Organic peroxides (e.g. dibenzoyl peroxide)
6.1 (a) Poisons (e.g. sodium cyanide, some pesticides);
(b) Harmful substances (e.g. sodium fluorosilicate, some pesticides).
6.2 Infectious substances
7 Radioactive substances (storage of Class 7 is NOT covered by the Dangerous Goods Act, 1975).
8 Corrosives (e.g. hydrochloric acid, sulphuric acid, sodium hydroxide, sodium hypochlorite).

EXEMPTIONS FROM LICENCE

1. *Acetylene*: Storage of 60 cu.m or less of acetylene per premises (i.e. up to and including 8 x "G" class cylinders, the most common size of acetylene cylinder).
2. *Class C1-Distillate, Diesel Fuel, Heating Oil*: Storage of 50,000 litres or less per tank.
3. *Petrol and other class 3 packaging group I & II dangerous goods* : Storage of 100 litres or less per premises.
4. *Kerosene and other class 3 packaging group III dangerous goods* : Storage of 1,000 litres or less per premises when stored aboveground.
5. *Class 6 - Poisonous Substances* : Packaging group I not more than 10L/kg, packaging group II not more than 100L/kg, packaging group III not more than 1000L/kg,
6. *Class 8 - Corrosive Substances* : Packaging group I not more than 50L/kg, packaging group II not more than 500L/kg, packaging group III not more than 1000L/kg,

Please contact the WorkCover Authority ☎ (02) 370 5187 for further exemptions.

OTHER WORKCOVER AUTHORITY OFFICES - Advice on Dangerous Goods* can also be obtained from the following offices.

	☎		☎
GOSFORD	(043) 24 3384		
NEWCASTLE	(049) 21 2900	HURSTVILLE	(02) 598 3366
ORANGE	(063) 61 7070	LINDFIELD	(02) 936 3000
PORT MACQUARIE	(065) 84 1188	LIVERPOOL	(02) 827 8600
WAGGA WAGGA	(069) 21 8766	PARRAMATTA	(02) 841 8550
WOLLONGONG	(042) 22 7333		

*** Dangerous Goods licensing enquiries to Scientific Services Branch ☎ (02) 370 5187**

03 APR 1995

Reference

WORKCOVER AUTHORITY

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: *Please renew licence number 35/003868 to 1996. I confirm that all the licence details shown below are correct (amend if necessary).*

M. J. CORRIGAN 31.3.95

(Signature) *(Please print name)* *(Date signed)*

for: WAR VETERANS' HOME INCORPORATED

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover Authority
Dangerous Goods Licensing Section (Level 3)
Locked Bag 10
P O CLARENCE STREET 2000

Details of licence on 29 March 1995

Licence Number 35/003868 **Expiry Date** 10/05/95

Licensee WAR VETERANS' HOME INCORPORATED ACN 000 048 957
RSL RETIREMENT VILLAGES

Postal Address BOX 56 P O, NARRABEEN 2101

Licensee Contact ~~Mark Lofley~~ MURRAY CORRIGAN Ph. 982 6666 Fax. 982 6604

Premises Licensed to Keep Dangerous Goods
VETERANS PDE
NARRABEEN 2101

RECEIVED
3 - APR 1995
SCIENTIFIC SERVICES BRANCH

Nature of Site PRIVATE DWELLING **Major Supplier of Dangerous Goods** SHELL

Emergency Contact for this Site J B Carroll ph. 982 6666

Site staffing 24 hrs 7 days

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
P1	UNDERGROUND TANK	Class 3 UN 1203 PETROL	10000 L 9000 L

DATA
10 APR 1995
ENTERED
11 APR 1995

Licences are issued, for a specified site, if control of a site is transferred (by way of sale or lease or otherwise), the person who held the licence concerned immediately before the transfer must, within 7 days after the transfer, notify the Chief Inspector. This notification must be in writing and must specify the date on which the transfer was effected and the name and address of the transferee.

Dangerous Goods are divided into classes and an explanation is shown below. Certain dangerous goods may be kept without a licence, providing the quantity of the goods does not exceed the amount specified in the exemptions listed below.

EXPLANATION OF DANGEROUS GOODS AND THEIR CLASSES

1.1 Blasting explosives (including detonators).
1.4 Safety cartridges
2.1 Flammable gases (e.g. L.P.Gas, acetylene).
2.2 Non flammable, non toxic gases (e.g. liquid oxygen, liquid nitrogen).
2.3 Poisonous Gases (e.g. chlorine, anhydrous ammonia)
3 Flammable liquids (e.g. any or all of petrol, kerosene, solvents, methylated spirits).
C1 Combustible liquids (e.g. distillate, diesel fuel, heating oil).
4 Flammable solids (e.g. nitro cellulose, sodium metal, calcium carbide).
5.1 Oxidising substances (e.g. pool chlorine, ammonium nitrate).
5.2 Organic peroxides (e.g. dibenzoyl peroxide)
6.1 (a) Poisons (e.g. sodium cyanide, some pesticides);
(b) Harmful substances (e.g. sodium fluorosilicate, some pesticides).
6.2 Infectious substances
7 Radioactive substances (storage of Class 7 is NOT covered by the Dangerous Goods Act, 1975).
8 Corrosives (e.g. hydrochloric acid, sulphuric acid, sodium hydroxide, sodium hypochlorite).

EXEMPTIONS FROM LICENCE

1. *Acetylene*: Storage of 60 cu.m or less of acetylene per premises (i.e. up to and including 8 x "G" class cylinders, the most common size of acetylene cylinder).
2. *Class C1-Distillate, Diesel Fuel, Heating Oil*: Storage of 50,000 litres or less per tank.
3. *Petrol and other class 3 packaging group I & II dangerous goods* : Storage of 100 litres or less per premises.
4. *Kerosene and other class 3 packaging group III dangerous goods* : Storage of 1,000 litres or less per premises when stored aboveground.
5. *Class 6 - Poisonous Substances* : Packaging group I not more than 10L/kg, packaging group II not more than 100L/kg, packaging group III not more than 1000L/kg,
6. *Class 8 - Corrosive Substances* : Packaging group I not more than 50L/kg, packaging group II not more than 500L/kg, packaging group III not more than 1000L/kg,

Please contact the WorkCover Authority ☎ (02) 370 5187 for further exemptions.

OTHER WORKCOVER AUTHORITY OFFICES - Advice on Dangerous Goods* can also be obtained from the following offices.

	☎		☎
GOSFORD	(043) 24 3384		
NEWCASTLE	(049) 21 2900	HURSTVILLE	(02) 598 3366
ORANGE	(063) 61 7070	LINDFIELD	(02) 936 3000
PORT MACQUARIE	(065) 84 1188	LIVERPOOL	(02) 827 8600
WAGGA WAGGA	(069) 21 8766	PARRAMATTA	(02) 841 8550
WOLLONGONG	(042) 22 7333		

*** Dangerous Goods licensing enquiries to Scientific Services Branch ☎ (02) 370 5187**

Reference

WORKCOVER AUTHORITY

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: *Please renew licence number 35/003868 to 1995. I confirm that all the licence details shown below are correct (amend if necessary).*

Jeffrey Bruce CARROLL 26/4/94

(Signature) *(Please print name)* *(Date signed)*

for: WAR VETERANS' HOME INCORCORATED

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover Authority
Dangerous Goods Licensing Section (Level 3)
Locked Bag 10
P O CLARENCE STREET 2000

RECEIVED IN
12 MAY 1994
RECORDS MANAGEMENT UNIT

SCIENTIFIC SERVICES BRANCH
- 2 MAY 1994
DANGEROUS GOODS

Details of licence on 11 April 1994

Licence Number 35/003868 **Expiry Date** 10/05/94

Licensee WAR VETERANS' HOME INCORCORATED ACN 000 048 957
RSL RETIREMENT VILLAGES P

Postal Address BOX 56 P O, NARRABEEN 2101

Licensee Contact Mark Lofley Ph. 982 6666 Fax. 982 6604

Premises Licensed to Keep Dangerous Goods
VETERANS PDE
NARRABEEN 2101

Nature of Site PRIVATE DWELLING **Major Supplier of Dangerous Goods** SHELL

Emergency Contact for this Site J B Carroll ph. 982 6666

Site staffing 24 hrs 7 days

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
P1	UNDERGROUND TANK	Class 3	10000 L
		UN 1203 PETROL	9000 L

Sent 9/5/94 BH

Licences are issued, for a specified site, if control of a site is transferred (by way of sale or lease or otherwise), the person who held the licence concerned immediately before the transfer must, within 7 days after the transfer, notify the Chief Inspector. This notification must be in writing and must specify the date on which the transfer was effected and the name and address of the transferee.

Dangerous Goods are divided into classes and an explanation is shown below. Certain dangerous goods may be kept without a licence, providing the quantity of the goods does not exceed the amount specified in the exemptions listed below.

EXPLANATION OF DANGEROUS GOODS AND THEIR CLASSES

1.1 Blasting explosives (including detonators).
1.4 Safety cartridges
2.1 Flammable gases (e.g. L.P.Gas, acetylene).
2.2 Non flammable, non toxic gases (e.g. liquid oxygen, liquid nitrogen).
2.3 Poisonous Gases (e.g. chlorine, anhydrous ammonia)
3 Flammable liquids (e.g. any or all of petrol, kerosene, solvents, methylated spirits).
C1 Combustible liquids (e.g. distillate, diesel fuel, heating oil).
4 Flammable solids (e.g. nitro cellulose, sodium metal, calcium carbide).
5.1 Oxidising substances (e.g. pool chlorine, ammonium nitrate).
5.2 Organic peroxides (e.g. dibenzoyl peroxide)
6.1 (a) Poisons (e.g. sodium cyanide, some pesticides);
(b) Harmful substances (e.g. sodium fluorosilicate, some pesticides).
6.2 Infectious substances
7 Radioactive substances (storage of Class 7 is NOT covered by the Dangerous Goods Act, 1975).
8 Corrosives (e.g. hydrochloric acid, sulphuric acid, sodium hydroxide, sodium hypochlorite).

EXEMPTIONS FROM LICENCE

1. *Acetylene*: Storage of 60 cu.m or less of acetylene per premises (i.e. up to and including 8 x "G" class cylinders, the most common size of acetylene cylinder).
2. *Class C1-Distillate, Diesel Fuel, Heating Oil*: Storage of 50,000 litres or less per tank.
3. *Petrol and other class 3 packaging group I & II dangerous goods* : Storage of 100 litres or less per premises.
4. *Kerosene and other class 3 packaging group III dangerous goods* : Storage of 1,000 litres or less per premises when stored aboveground.
5. *Class 6 - Poisonous Substances* : Packaging group I not more than 10L/kg, packaging group II not more than 100L/kg, packaging group III not more than 1000L/kg
6. *Class 8 - Corrosive Substances* : Packaging group I not more than 50L/kg, packaging group II not more than 500L/kg, packaging group III not more than 1000L/kg

Please contact the WorkCover Authority ☎ (02) 370 5187 for further exemptions.

OTHER WORKCOVER AUTHORITY OFFICES - Advice on Dangerous Goods* can also be obtained from the following offices.

	☎		☎
GOSFORD	(043) 24 3384		
NEWCASTLE	(049) 21 2900	HURSTVILLE	(02) 580 0366
ORANGE	(063) 61 7070	LINDFIELD	(02) 930 3000
PORT MACQUARIE	(065) 84 1188	LIVERPOOL	(02) 827 8600
WAGGA WAGGA	(069) 23 0692	PARRAMATTA	(02) 841 8550
WOLLONGONG	(042) 26 9033		

*** Dangerous Goods licensing enquiries to Scientific Services Branch ☎ (02) 370 5187**

THE NEW SOUTH WALES GOVERNMENT
Putting people first by managing better

PART A

SCIENTIFIC SERVICES BRANCH
DANGEROUS GOODS

WorkCover Authority

LICENCE TO KEEP DANGEROUS GOODS

(Dangerous Goods Act 1975)

Application for new licence, amendment or transfer

Expiry: 10.5.94

1. Name of applicant — ACN
   WAR VETERANS HOME | * 000 048 957

2. Site to be licensed
   No | Street
   | VETERANS PARADE
   Suburb/Town | Postcode
   NARRABEEN | 2101

DATA
16 JUN 1993
ENTERED

3. Previous licence number (if known) 3500 3868

4. Nature of site RETIREMENT VILLAGE NVL

5. Emergency contact on site:
   Phone | Name
   * 982 6666 | * J. B. CARROLL.

6. Site staffing: Hours per day * 24 HOURS Days per week * 7 DAYS

7. Major supplier of dangerous goods * SHELL AUSTRALIA

8. If new site or significant modification
   Plan stamped by: | Accredited consultant's name: | Date stamped

9. Number of dangerous goods depots at site ONE

10. Trading name or occupier's name
    * RSL RETIREMENT VILLAGES - WAR VETERANS HOME

11. Postal address of applicant | Suburb/Town | Postcode
    * PO BOX 56 - NARRABEEN | NARRABEEN | 2101

12. Contact for licence enquiries:
    Phone | Fax | Name
    * 982 6666 | * 982 6604 | * MARK LOFLEY

I certify that the details contained in this application (or the accompanying computer disk) are true and correct

13. Signature of applicant | Date 7/6/93

sent 16/6/93

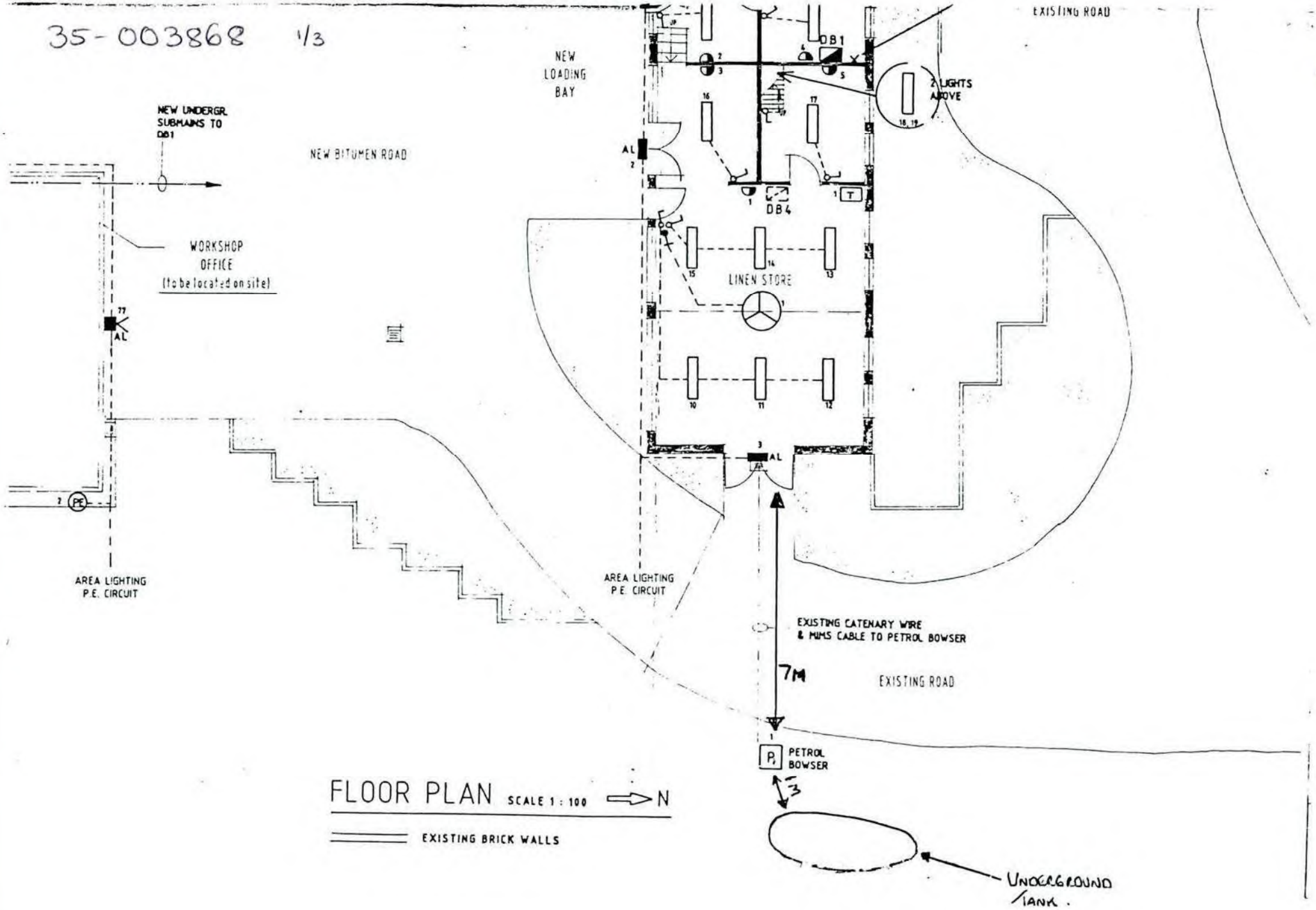
Please complete attached site sketch, depot listing and check sheet (if required) and return to WorkCover Authority in envelope provided.

Form DG1

Site Sketch

Please carefully read the instructions in Part B of the guide before sketching the site.

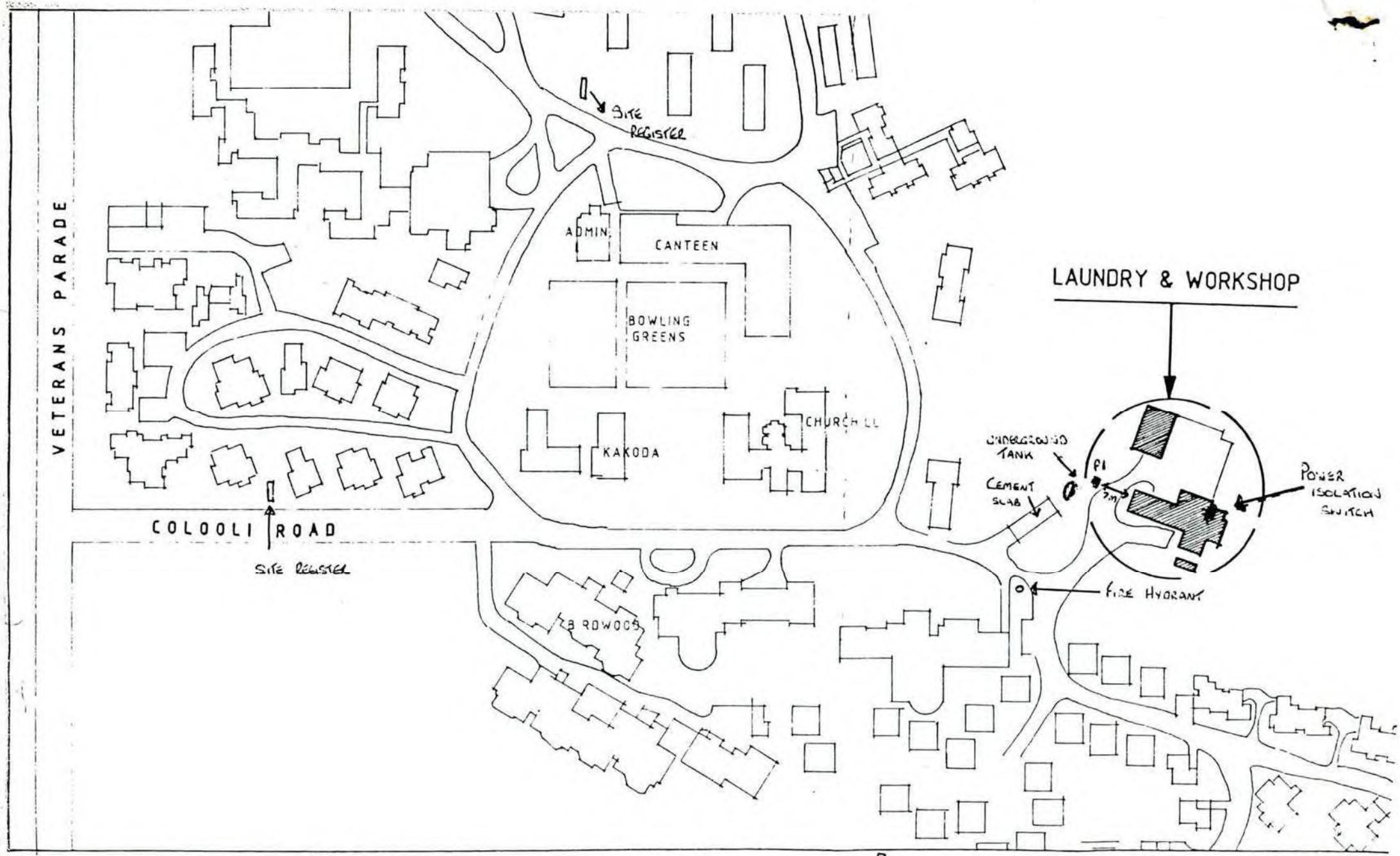
35-003868 1/3



FLOOR PLAN SCALE 1 : 100 ⇨ N

EXISTING BRICK WALLS

35-003868 2/3



LOCALITY PLAN N.T.S.

PART C 35-003868 **CHEMICAL STORAGE**

Complete 1 section per depot

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
* P1	UNDERGROUND TANK	3 PG II	10 000 LITRES.

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
X 1203	PETROL	3	II	3A1	UNLEADED PETROL	9000	L

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Complete 1 section per depot

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity

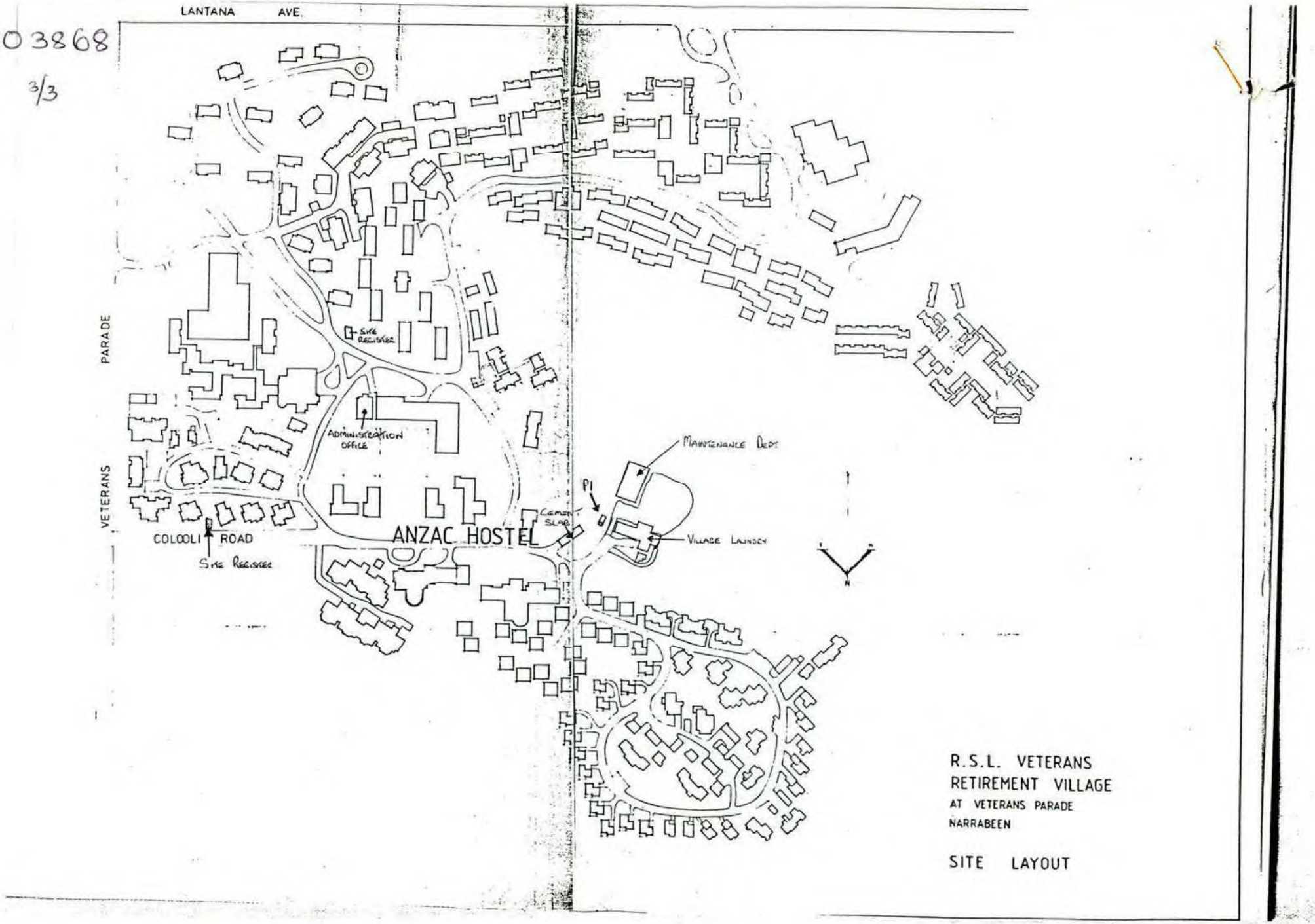
UN number	Shipping name	Pkg. Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m^3

Depot number	Type of depot	Class	Licensed maximum storage capacity

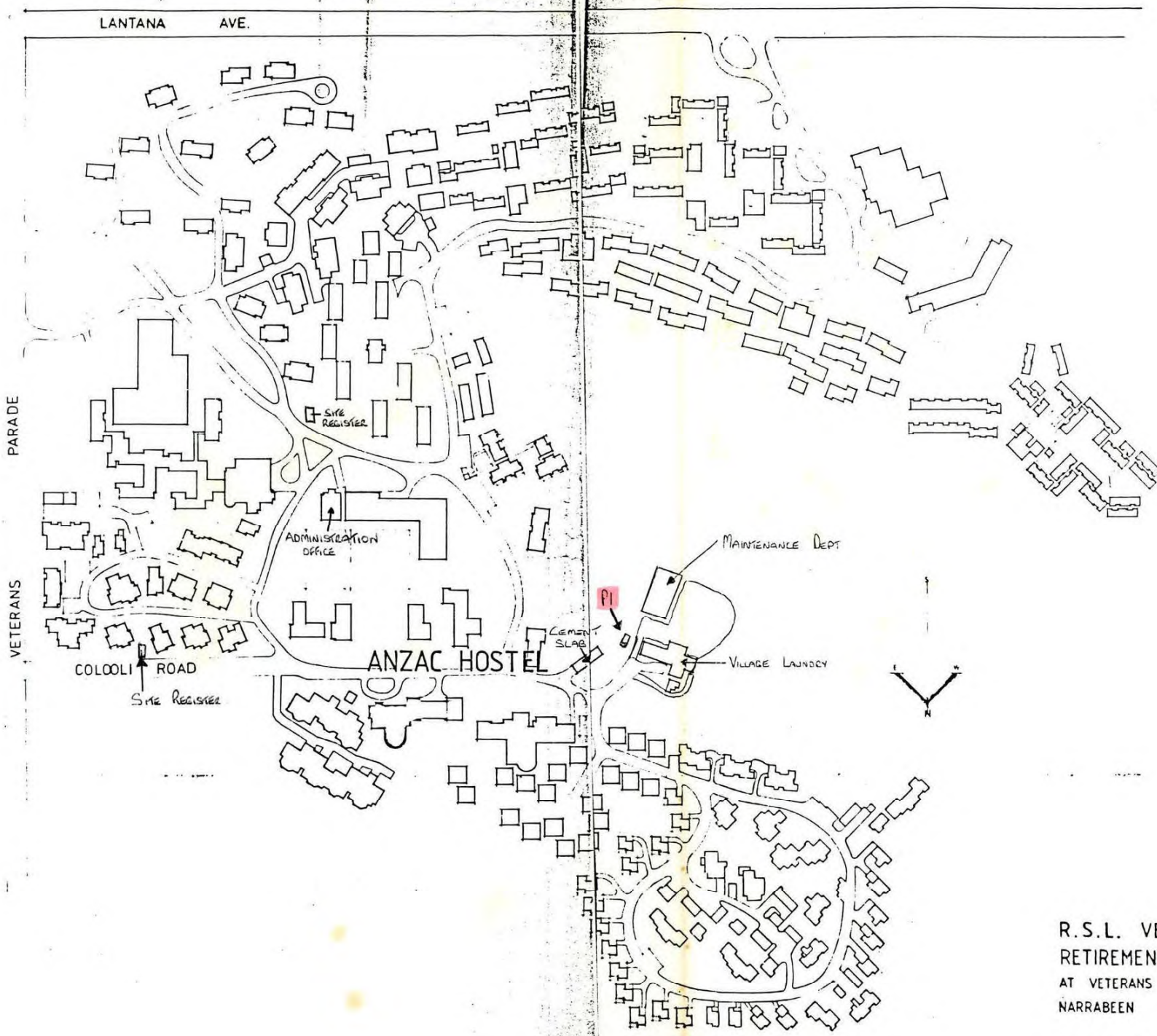
UN number	Shipping name	Pkg. Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m^3

35-003868

3/3


LANTANA AVE.
VETERANS PARADE
SITE REGISTER
ADMINISTRATION OFFICE
MAINTENANCE DEPT
PI
CEMENT SLAB
VILLAGE LAUNDRY
ANZAC HOSTEL
COLOOLI ROAD
SITE REGISTER
R.S.L. VETERANS
RETIREMENT VILLAGE
AT VETERANS PARADE
NARRABEEN
SITE LAYOUT

35- 003868 3/3



R.S.L. VETERANS
RETIREMENT VILLAGE
AT VETERANS PARADE
NARRABEEN

SITE LAYOUT

[redacted]

26 APR 1991

Reference

WORKCOVER AUTHORITY

Dangerous Goods Section
Locked Mail Bag 2 P O, ROSEBERY NSW 2018
Ph. (02) 287 6239 OR (02) 287 6237

Licensee

WAR VETERANS' HOME INCORCORATED

VETERANS PDE
NARRABEEN 2101

17 APR 1991

DANGEROUS GOODS BRANCH
7 MAY 1991

Dear Sir/Madam,

RE **APPLICATION FOR RENEWAL** OF LICENCE FOR THE KEEPING OF DANGEROUS GOODS

Our records indicate you hold licence number 35/003868 for keeping dangerous goods at VETERANS PDE
NARRABEEN 2101.

Details of depots at site.

Depot No.	Depot type	Goods stored in depot	Quantity kg/litres/no.
1	UNDERGROUND TANK	FLAMMABLE LIQUIDS	10 000
~~2~~	~~ABOVEGROUND TANK~~	~~FLAMMABLE GASES~~	~~400~~

n/a

Data Entered
09 Dec 91

This licence is now due for renewal. **TO RENEW YOUR LICENCE.** Please carefully check the details shown in this letter and make any required corrections. Then, **SIGN and DATE** the declaration below and return this letter to the WorkCover Authority, Dangerous Goods Section. **Fees for these licences have been abolished. DO NOT SEND ANY MONIES.**

Declaration: I wish to renew this licence to 15/05/92. I certify that the licence details shown in this letter are correct.

....
(Signature) *(Date)* 7/5/91

If you do not wish to renew the licence. Please provide the Dangerous Goods Section with a signed statement giving the reason why it is not to be renewed. If you have sold/vacated the site please provide the name and address of the new owner/occupier so we may contact them.

Yours faithfully

Chief Inspector of Dangerous Goods.

Dangerous Goods are divided into classes and an explanation is shown hereunder. Certain dangerous goods may be kept without a licence, providing the quantity of the goods does not exceed the amount specified in the exemptions listed below.

EXPLANATION OF DANGEROUS GOODS AND THEIR CLASSES

1.1 Blasting explosives (including detonators).
1.4 Safety cartridges and/or fireworks.
2.1 Flammable gases (e.g. L.P.G. or acetylene).
2.2, 2.3 Poison/cryogenic gases (e.g. ammonia, chlorine, liquid oxygen).
3.1, 3.2 Flammable liquids (e.g. any or all of, petrol, kerosene, methylated spirits, solvents).
3.3 Combustible liquids (e.g. distillate, diesel fuel, heating oil).
4 Flammable solids (e.g. nitro cellulose).
5 Oxidising substances (e.g. pool chlorine, ammonium nitrate).
6.1 (a) Poisons (e.g. sodium cyanide, pesticides);
(b) Harmful substances (e.g. sodium fluorosilicate, pesticides, lead acetate).
6.2 Infectious substances (e.g. bacterial cultures).
7 Radioactive substances (storage of Class 7 is NOT covered by the Dangerous Goods Act, 1975).
8 Corrosives (e.g. hydrochloric acid, sulphuric acid, sodium hydroxide and sodium hypochlorite).

EXPLANATION OF DEPOT TYPES

Aboveground Tank	Aboveground or semi-buried tank.
Bulk Solids	Depot for bulk solid goods.
Cylinder Store	Gas cylinder store or decanting cylinders.
Magazine	External or internal explosive magazine.
Premises	Storage of safety cartridges in original packages.
Receptacle	Portable explosive receptacle (max qty 50kg).
Roofed Store	Roofed store of packaged dangerous goods includes flammable liquid cabinets and drum stores.
Roofless Store	Roofless store of packaged dangerous goods includes drum stores.
Underground tank	Underground tank

EXEMPTIONS FROM LICENCE

1. *Acetylene*: Storage of 60 cu.m or less of acetylene per premises(i.e. up to and including 8 x "G" class cylinders, the most common size of acetylene cylinder).
2. *Distillate, Diesel Fuel, Heating Oil*: Storage of 50,000 litres or less per tank.
3. *Petrol*: Storage of 100 litres or less per premises.
4. *Kerosene*: Storage of 1,000 litres or less per premises when stored aboveground.
5. *All dangerous goods of classes 6 and 8*: any quantity.

PLEASE CONTACT THE WORKCOVER AUTHORITY, DANGEROUS GOODS SECTION FOR FURTHER EXEMPTIONS

WorkCover Authority of N.S.W.
Locked Bag 2 Post Office
Rosebery NSW 2018

1990

APPLICATION FOR RENEWAL OF
LICENCE FOR THE KEEPING OF DANGEROUS GOODS
UNDER AND SUBJECT TO THE PROVISIONS OF THE
DANGEROUS GOODS ACT, 1975
AND REGULATIONS THEREUNDER.

DETAILS OF CURRENT LICENCE WHICH EXPIRES ON 15/05/90

Summary of goods on site { Flammable Liquid

1 depot(s) on site (only details of first 6 listed)

DEPOT NO.	DEPOT TYPE	GOODS STORED IN DEPOT	QUANTITY KG/LITRES/NO.
1	U/G Tank	Flammable Liquid	~~10,000~~ 5,000
2	A/G Tank	Flammable Gases	~~3,000~~ 3,000
3			
4			
5			
6			

WORKCOVER AUTHORITY 400 8 NOV 1990 DISTINGUISHING LETTER

TO RENEW YOUR LICENCE

PLEASE CAREFULLY CHECK THE DETAILS SHOWN AND MAKE ANY REQUIRED CORRECTIONS. THE SIGNED AND DATED NOTICE IS THEN TO BE RETURNED, WITH PAYMENT (IF ANY), TO THE DANGEROUS GOODS SECTION, AT THE ABOVE ADDRESS.

For enquiries Ph (02) 287 6252 Fax (02) 662 2834

(Signature)..... (Date) 5/11/90

LICENSEE OR REGISTERED HOLDER

WAR VETERANS' HOME INCORPORATED
"VETERANS PDE"
NARRABEEN 2101

Data Entered
4 Apr 91

PREMISES TO BE LICENSED OR REGISTERED IF NOT AS ABOVE

"VETERANS PDE"
NARRABEEN 2101

Amount Payable
$ 0.00

35/003868 LICENCE/REG. No.

15/ 5/1991 Next EXPIRY DATE

Form DG1

DEPARTMENT OF INDUSTRIAL RELATIONS

LICENCE No.

DANGEROUS GOODS ACT, 1975

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE) FOR THE KEEPING OF DANGEROUS GOODS

Application is hereby made for– *a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: $10.00 per Depot for new licence. $10.00 for amendment or transfer.

Name of Applicant in full (see over)	WAR VETERANS HOME LTD.
Trading name or occupier's name (if any)	
Postal address	Postcode
Address of the premises including street number (if any)	VETERANS PARADE COLLAROY Postcode 2097
Nature of premises (see over)	RETIREMENT VILLAGE
Telephone number of applicant	STD Code Number

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods: Product being stored	C & C Office use only
1	Underground tank	5000	PETROL 3.1	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Has site plan been approved? Yes ~~No~~ If yes, no plans required. If no, please attach site plan.

Have premises previously been licensed? Yes ~~No~~ If yes, state name of previous occupier.

Name of company supplying flammable liquid (if any)

Signature of applicant ..... Date 19-1-85

For external explosives magazine(s), please fill in side 2.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, George E Brooks being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

Signature of Inspector ..... Date 19.7.85

Licence No. 35.003868-

For each external explosives magazine, supply the following additional information

1. (a) Construction of
   (i) Walls (ii) Roof (iii) Shade roof (iv) Door(s) (v) Lock(s) (vi) Lining (vii) Lightning conductor
   (b) Internal dimensions (mm)
2. Special attention is directed to the necessity for filling in accurately the distances from each of the undermentioned places, irrespective of the quantity of Explosives intended to be kept. If any of the "Protected Places or Protected Works" specified below, are not within a radius of 3 km of the Magazine, place the word NIL against such place or works.

PROTECTED PLACES or PROTECTED WORKS	Distance in metres from magazine to nearest works or place	
	Not occupied or used by applicant	Occupied or used by applicant
Public place		
Waterway used for navigation		
Reservoir (public or private)		
River or sea wall		
Bridge		
Dock, wharf, pier or jetty		
Any furnace, kiln, forge or fire for manufacturing purposes or for the use of any boiler, engine, or machine		
Aboveground water main or water supply channel		
Electrical power transmission line		
Radio or television transmitter		
Shop		
Store or warehouse		
Factory		
Other building or timber yard in which any person is employed or engaged in any trade, business or profession		
Magazine or premises licensed for the keeping of explosives		
Depot for other dangerous goods		
Railway, tramway or aerodrome		
Any dwelling house		
Any church, chapel, college, school or theatre		
Hospital		
Government or public building		
Any other building or structure in or about which persons are usually present or from time to time assemble		

FORM DG1

EXPLANATORY NOTES

1. Name of applicant in full: Full name(s) including given name(s) or holding company name (if any) must be supplied.
2. Nature of premises: State whether premises are a dwelling, service station, fuel storage depot, general store, farm, mine site, etc.
3. Type of depot: Describe depot as "aboveground tank", "underground tank", "magazine", "roofless package store", "roofed package store", "cylinder store" (or where not more than two LPG decanting cylinders each of a capacity not exceeding 50 kg are kept) "decanting cylinders". For safety cartridges describe as "in original packages".
4. If space is insufficient for depot particulars, attach a separate list.
5. For each magazine supply additional information above.
6. A site plan of the premises showing the position(s) of the depot(s) with distances from protected works and public places is to be attached.
7. The completed form and site plan accompanied by the prescribed fee ($10 per depot) should be forwarded to:

Chief Inspector,
Dangerous Goods Branch,
Department of Industrial Relations
Box 847, P.O.,
Darlinghurst, N.S.W. 2010
(6th Floor, 1 Oxford Street).

FAILURE TO ANSWER ALL QUESTIONS WILL RESULT IN A DELAY IN THE ISSUE OF YOUR LICENCE

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Appendix C: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration
ACM:	Asbestos Containing Material
ADWG:	AustralianDrinking Water Guidelines
AF:	Asbestos Fines
ANZG	Australian and New Zealand Guidelines
B(a)P:	Benzo(a)pyrene
CEC:	Cation Exchange Capacity
CRC:	Cooperative Research Centre
CT:	Contaminant Threshold
EILs:	Ecological Investigation Levels
ESLs:	Ecological Screening Levels
FA:	Fibrous Asbestos
GIL:	Groundwater Investigation Levels
GSW:	General Solid Waste
HILs:	Health Investigation Levels
HSLs:	Health Screening Levels
HSL-SSA:	Health Screening Level-SiteSpecific Assessment
kg/L	kilograms per litre
NA:	Not Analysed
NC:	Not Calculated
NEPM:	National Environmental Protection Measure
NHMRC:	National Health and Medical Research Council
NL:	Not Limiting
NSL:	No Set Limit
OCP:	Organochlorine Pesticides
OPP:	Organophosphorus Pesticides
PAHs:	Polycyclic Aromatic Hydrocarbons
%w/w:	weight per weight
ppm:	Parts per million
PCBs:	Polychlorinated Biphenyls
PCE:	Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
pH_{KCL} :	pH of filtered 1:20, 1M KCL extract, shaken overnight
pH_{ox} :	pH of filtered 1:20 1M KCl after peroxide digestion
PQL:	Practical Quantitation Limit
RS:	Rinsate Sample
RSL:	Regional Screening Levels
RSW:	Restricted Solid Waste
SAC:	Site Assessment Criteria
SCC:	Specific Contaminant Concentration
S_{Cr}:	Chromium reducible sulfur
S_{POS}:	Peroxide oxidisable Sulfur
SSA:	Site Specific Assessment
SSHSLs:	Site Specific Health Screening Levels
TAA:	Total Actual Acidity in 1M KCL extract titrated to pH6.5
TB:	Trip Blank
TCA:	1,1,1 Trichloroethane (methyl chloroform)
TCE:	Trichloroethylene (Trichloroethene)
TCLP:	Toxicity Characteristics Leaching Procedure
TPA:	Total Potential Acidity, 1M KCL peroxide digest
TS:	Trip Spike
TRH:	Total Recoverable Hydrocarbons
TSA:	Total Sulfide Acidity (TPA-TAA)
UCL:	Upper Level Confidence Limit on Mean Value
USEPA	United States Environmental Protection Agency
VOCC:	Volatile Organic Chlorinated Compounds
WHO:	World Health Organisation

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also refered to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

Site specific ABC values for specific metals have been adopted.

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.

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TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0.06-0.25	F: Gravelly Sand	<4	<0.4	**69**	**31**	**8**	**0.2**	**67**	**42**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH1 - [LAB_DUP]	0.06-0.25	Lab Duplicate	<4	<0.4	**72**	**22**	**6**	<0.1	**62**	**32**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH1	0.25-0.4	Sandstone	<4	<0.4	**36**	**11**	**14**	**0.1**	**21**	**24**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH1 - [LAB_DUP]	0.25-0.4	Lab Duplicate	<4	<0.4	**37**	**10**	**14**	<0.1	**21**	**24**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0.09-0.3	F: Silty Gravelly Sand	<4	<0.4	**89**	**28**	**12**	<0.1	**82**	**120**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH3	0-0.2	F: Silty Sand	**6**	<0.4	**9**	**7**	**16**	<0.1	**3**	**29**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH4	0-0.2	F: Silty Clay	**6**	<0.4	**19**	**84**	**41**	**0.2**	**12**	**140**	**0.05**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH4	0.4-0.5	F: Gravelly Silty Sand	<4	<0.4	**3**	**2**	**11**	<0.1	<1	**2**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH4	0.9-1.0	F: Gravelly Silty Sand	<4	<0.4	**4**	<1	**8**	<0.1	<1	<1	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH5	0-0.1	F: Silty Sand	<4	<0.4	**6**	**14**	**11**	<0.1	**4**	**21**	**0.56**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH6	0-0.2	F: Gravelly Silty Sand	<4	<0.4	**10**	**23**	**15**	<0.1	**8**	**75**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH7	0.1-0.2	F: Silty Sand	**5**	<0.4	**5**	**15**	**8**	<0.1	**13**	**15**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH8	0-0.1	F: Silty Sand	<4	<0.4	**4**	**7**	**20**	<0.1	**2**	**18**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH8	0.4-0.5	F: Silty Sand	<4	<0.4	**1**	**1**	**7**	<0.1	<1	**3**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH9	0.1-0.3	F: Silty Sand	<4	<0.4	**3**	**1**	**9**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH10	0-0.1	F: Silty Sand	<4	<0.4	**3**	**9**	**8**	<0.1	**2**	**12**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH10 - [LAB_DUP]	0-0.1	Lab Duplicate	<4	<0.4	**5**	**13**	**13**	<0.1	**3**	**24**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH10 - [TRIPLICATE]	0-0.1	Lab Triplicate	<4	<0.4	**3**	**9**	**10**	<0.1	**2**	**12**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH11	0-0.1	F: Silty Sand	<4	<0.4	**6**	**3**	**11**	<0.1	**2**	**13**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH12	0-0.1	F: Silty Sand	<4	<0.4	**5**	**7**	**16**	<0.1	**7**	**26**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH13	0-0.1	F: Silty Sand	<4	<0.4	**6**	**8**	**26**	<0.1	**4**	**110**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH13	0.4-0.5	F: Silty Sand	<4	<0.4	**13**	**20**	**14**	**0.3**	**9**	**20**	**41**	**6.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH14	0-0.1	F: Silty Sand	<4	<0.4	**6**	**14**	**7**	<0.1	**3**	**24**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH14	1-1.2	F: Silty Sand	<4	<0.4	**3**	<1	**5**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH15	0-0.1	F: Silty Sand	<4	<0.4	**3**	**9**	**8**	<0.1	**3**	**20**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH16	0-0.1	F: Silty Sand	<4	<0.4	**2**	**4**	**9**	<0.1	<1	**8**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH17	0-0.1	F: Silty Sand	<4	<0.4	**3**	**7**	**33**	<0.1	**1**	**41**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH18	0.1-0.2	F: Gravelly Sand	<4	<0.4	**37**	**49**	**33**	<0.1	**11**	**48**	**1.5**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH18	0.4-0.5	Sandstone	<4	<0.4	**4**	<1	**3**	<0.1	<1	<1	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH19	0-0.1	F: Silty Sand	**9**	<0.4	**19**	**16**	**15**	<0.1	**2**	**19**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH20	0-0.1	F: Silty Sand	<4	<0.4	**3**	**6**	**10**	<0.1	**2**	**34**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH20 - [LAB_DUP]	0-0.1	Lab Duplicate	<4	<0.4	**4**	**6**	**10**	<0.1	**2**	**33**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH21	0-0.1	F: Silty Sand	<4	<0.4	**4**	**3**	**11**	<0.1	**2**	**15**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH22	0.36-0.45	F: Silty Sand	<4	<0.4	**25**	**20**	**26**	<0.1	**18**	**37**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH22	0.6-0.8	F: Silty Sand	<4	<0.4	**4**	**3**	**6**	<0.1	**2**	**11**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP1	BH3 (0-0.2)	F: Silty Sand	<4	<0.4	**5**	**5**	**13**	<0.1	**2**	**21**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP2	BH6 (0-0.2)	F: Gravelly Silty Sand	<4	<0.4	**19**	**16**	**14**	<0.1	**16**	**41**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP3	BH5 (0-0.1)	F: Silty Sand	<4	<0.4	**7**	**9**	**11**	<0.1	**3**	**20**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP4	BH8 (0-0.1)	F: Silty Sand	<4	<0.4	**6.2**	**7.1**	**21**	<0.1	**4.7**	**21**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
Total Number of Samples			39	39	39	39	39	39	39	39	38	38	30	30	30	30	30	30	30	30	30	22
Maximum Value			9	<PQL	89	84	41	0.3	82	140	41	6.9	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**
Asbestos Detected — **Detected**

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TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH1	0.06-0.25	F: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH1 - [LAB_DUP]	0.06-0.25	Lab Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
BH1	0.25-0.4	Sandstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH1 - [LAB_DUP]	0.25-0.4	Lab Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
BH2	0.09-0.3	F: Silty Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH3	0-0.2	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH4	0-0.2	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH4	0.4-0.5	F: Gravelly Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH4	0.9-1.0	F: Gravelly Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH5	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH6	0-0.2	F: Gravelly Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH7	0.1-0.2	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
BH8	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH8	0.4-0.5	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH9	0.1-0.3	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH10	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH10 - [LAB_DUP]	0-0.1	Lab Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
BH11	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH12	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH13	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH13	0.4-0.5	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH14	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH14	1-1.2	F: Silty Sand	1m to <2m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH15	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH16	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH17	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH18	0.1-0.2	F: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH18	0.4-0.5	Sandstone	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH19	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
BH20	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH20 - [LAB_DUP]	0-0.1	Lab Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
BH21	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
BH22	0.36-0.45	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
BH22	0.6-0.8	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
SDUP1	BH3 (0-0.2)	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP2	BH6 (0-0.2)	F: Gravelly Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
SDUP3	BH5 (0-0.1)	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP4	BH8 (0-0.1)	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples					38	38	38	38	38	38	38	30
Maximum Value					<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**
The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH1	0.06-0.25	F: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1 - [LAB_DUP]	0.06-0.25	Lab Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1	0.25-0.4	Sandstone	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1 - [LAB_DUP]	0.25-0.4	Lab Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH2	0.09-0.3	F: Silty Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH3	0-0.2	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4	0-0.2	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4	0.4-0.5	F: Gravelly Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4	0.9-1.0	F: Gravelly Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH5	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH6	0-0.2	F: Gravelly Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH7	0.1-0.2	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH8	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH8	0.4-0.5	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH9	0.1-0.3	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH10	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH10 - [LAB_DUP]	0-0.1	Lab Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH11	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH12	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH13	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH13	0.4-0.5	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH14	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH14	1-1.2	F: Silty Sand	1m to <2m	Sand	70	240	0.5	220	NL	60	NL
BH15	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH16	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH17	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH18	0.1-0.2	F: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH18	0.4-0.5	Sandstone	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH19	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH20	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH20 - [LAB_DUP]	0-0.1	Lab Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH21	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH22	0.36-0.45	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH22	0.6-0.8	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP1	BH3 (0-0.2)	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP2	BH6 (0-0.2)	F: Gravelly Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP3	BH5 (0-0.1)	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP4	BH8 (0-0.1)	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3

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TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			RESIDENTIAL, PARKLAND & PUBLIC OPEN SPACE			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH1	0.06-0.25	Coarse	<25	<50	<100	**100**
BH1 - [LAB_DUP]	0.06-0.25	Coarse	<25	<50	<100	**150**
BH1	0.25-0.4	Coarse	<25	<50	<100	<100
BH1 - [LAB_DUP]	0.25-0.4	Coarse	<25	<50	<100	<100
BH2	0.09-0.3	Coarse	<25	<50	**100**	**190**
BH3	0-0.2	Coarse	<25	<50	**100**	**110**
BH4	0-0.2	Coarse	<25	<50	**170**	**140**
BH4	0.4-0.5	Coarse	<25	<50	<100	<100
BH4	0.9-1.0	Coarse	<25	<50	<100	<100
BH5	0-0.1	Coarse	<25	<50	<100	<100
BH6	0-0.2	Coarse	<25	<50	<100	<100
BH7	0.1-0.2	Coarse	<25	<50	<100	<100
BH8	0-0.1	Coarse	<25	<50	**320**	**270**
BH8	0.4-0.5	Coarse	<25	<50	**100**	**100**
BH9	0.1-0.3	Coarse	<25	<50	<100	<100
BH10	0-0.1	Coarse	<25	<50	**130**	**180**
BH10 - [LAB_DUP]	0-0.1	Coarse	<25	<50	**130**	**170**
BH11	0-0.1	Coarse	<25	<50	<100	**140**
BH12	0-0.1	Coarse	<25	<50	<100	<100
BH13	0-0.1	Coarse	<25	<50	<100	<100
BH13	0.4-0.5	Coarse	<25	<50	**710**	**400**
BH14	0-0.1	Coarse	<25	<50	<100	<100
BH14	1-1.2	Coarse	<25	<50	<100	<100
BH15	0-0.1	Coarse	<25	<50	<100	<100
BH16	0-0.1	Coarse	<25	<50	**150**	<100
BH17	0-0.1	Coarse	<25	<50	**300**	**270**
BH18	0.1-0.2	Coarse	<25	<50	**310**	**320**
BH18	0.4-0.5	Coarse	<25	<50	<100	<100
BH19	0-0.1	Coarse	<25	<50	**220**	**170**
BH20	0-0.1	Coarse	<25	<50	**140**	**180**
BH20 - [LAB_DUP]	0-0.1	Coarse	<25	<50	**140**	**170**
BH21	0-0.1	Coarse	<25	<50	**210**	**250**
BH22	0.36-0.45	Coarse	<25	<50	<100	<100
BH22	0.6-0.8	Coarse	<25	<50	<100	<100
SDUP1	BH3 (0-0.2)	Coarse	<25	<50	**150**	**190**
SDUP2	BH6 (0-0.2)	Coarse	<25	<50	<100	<100
SDUP3	BH5 (0-0.1)	Coarse	<25	<50	<100	**160**
SDUP4	BH8 (0-0.1)	Coarse	<25	<50	**170**	<100
Total Number of Samples			38	38	38	38
Maximum Value			<PQL	<PQL	710	400

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Soil Texture	C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
BH1	0.06-0.25	Coarse	700	1000	2500	10000
BH1 - [LAB_DUP]	0.06-0.25	Coarse	700	1000	2500	10000
BH1	0.25-0.4	Coarse	700	1000	2500	10000
BH1 - [LAB_DUP]	0.25-0.4	Coarse	700	1000	2500	10000
BH2	0.09-0.3	Coarse	700	1000	2500	10000
BH3	0-0.2	Coarse	700	1000	2500	10000
BH4	0-0.2	Coarse	700	1000	2500	10000
BH4	0.4-0.5	Coarse	700	1000	2500	10000
BH4	0.9-1.0	Coarse	700	1000	2500	10000
BH5	0-0.1	Coarse	700	1000	2500	10000
BH6	0-0.2	Coarse	700	1000	2500	10000
BH7	0.1-0.2	Coarse	700	1000	2500	10000
BH8	0-0.1	Coarse	700	1000	2500	10000
BH8	0.4-0.5	Coarse	700	1000	2500	10000
BH9	0.1-0.3	Coarse	700	1000	2500	10000
BH10	0-0.1	Coarse	700	1000	2500	10000
BH10 - [LAB_DUP]	0-0.1	Coarse	700	1000	2500	10000
BH11	0-0.1	Coarse	700	1000	2500	10000
BH12	0-0.1	Coarse	700	1000	2500	10000
BH13	0-0.1	Coarse	700	1000	2500	10000
BH13	0.4-0.5	Coarse	700	1000	2500	10000
BH14	0-0.1	Coarse	700	1000	2500	10000
BH14	1-1.2	Coarse	700	1000	2500	10000
BH15	0-0.1	Coarse	700	1000	2500	10000
BH16	0-0.1	Coarse	700	1000	2500	10000
BH17	0-0.1	Coarse	700	1000	2500	10000
BH18	0.1-0.2	Coarse	700	1000	2500	10000
BH18	0.4-0.5	Coarse	700	1000	2500	10000
BH19	0-0.1	Coarse	700	1000	2500	10000
BH20	0-0.1	Coarse	700	1000	2500	10000
BH20 - [LAB_DUP]	0-0.1	Coarse	700	1000	2500	10000
BH21	0-0.1	Coarse	700	1000	2500	10000
BH22	0.36-0.45	Coarse	700	1000	2500	10000
BH22	0.6-0.8	Coarse	700	1000	2500	10000
SDUP1	BH3 (0-0.2)	Coarse	700	1000	2500	10000
SDUP2	BH6 (0-0.2)	Coarse	700	1000	2500	10000
SDUP3	BH5 (0-0.1)	Coarse	700	1000	2500	10000
SDUP4	BH8 (0-0.1)	Coarse	700	1000	2500	10000

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TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		82,000	62,000	85,000	120,000	1,100	120,000	85,000	130,000	29,000	
Site Use		**Intrusive Maintenance Worker - DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH1	0.06-0.25	<25	<50	<100	**100**	<0.2	<0.5	<1	<1	<1	0
BH1 - [LAB_DUP]	0.06-0.25	<25	<50	<100	**150**	<0.2	<0.5	<1	<1	<1	-
BH1	0.25-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH1 - [LAB_DUP]	0.25-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
BH2	0.09-0.3	<25	<50	**100**	**190**	<0.2	<0.5	<1	<1	<1	0
BH3	0-0.2	<25	<50	**100**	**110**	<0.2	<0.5	<1	<1	<1	0
BH4	0-0.2	<25	<50	**170**	**140**	<0.2	<0.5	<1	<1	<1	0
BH4	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH4	0.9-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH5	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH6	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH7	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.1**
BH8	0-0.1	<25	<50	**320**	**270**	<0.2	<0.5	<1	<1	<1	0
BH8	0.4-0.5	<25	<50	**100**	**100**	<0.2	<0.5	<1	<1	<1	0
BH9	0.1-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH10	0-0.1	<25	<50	**130**	**180**	<0.2	<0.5	<1	<1	<1	0
BH10 - [LAB_DUP]	0-0.1	<25	<50	**130**	**170**	<0.2	<0.5	<1	<1	<1	-
BH11	0-0.1	<25	<50	<100	**140**	<0.2	<0.5	<1	<1	<1	0
BH12	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH13	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH13	0.4-0.5	<25	<50	**710**	**400**	<0.2	<0.5	<1	<1	<1	0
BH14	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH14	1-1.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH15	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH16	0-0.1	<25	<50	**150**	<100	<0.2	<0.5	<1	<1	<1	0
BH17	0-0.1	<25	<50	**300**	**270**	<0.2	<0.5	<1	<1	<1	0
BH18	0.1-0.2	<25	<50	**310**	**320**	<0.2	<0.5	<1	<1	<1	0
BH18	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH19	0-0.1	<25	<50	**220**	**170**	<0.2	<0.5	<1	<1	<1	**0.1**
BH20	0-0.1	<25	<50	**140**	**180**	<0.2	<0.5	<1	<1	<1	0
BH20 - [LAB_DUP]	0-0.1	<25	<50	**140**	**170**	<0.2	<0.5	<1	<1	<1	-
BH21	0-0.1	<25	<50	**210**	**250**	<0.2	<0.5	<1	<1	<1	**0.1**
BH22	0.36-0.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.1**
BH22	0.6-0.8	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
SDUP1	BH3 (0-0.2)	<25	<50	**150**	**190**	<0.2	<0.5	<1	<1	<1	-
SDUP2	BH6 (0-0.2)	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
SDUP3	BH5 (0-0.1)	<25	<50	<100	**160**	<0.2	<0.5	<1	<1	<1	-
SDUP4	BH8 (0-0.1)	<25	<50	**170**	<100	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples		38	38	38	38	38	38	38	38	38	30
Maximum Value		<PQL	<PQL	710	400	<PQL	<PQL	<PQL	<PQL	<PQL	0.1

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

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TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-A: Residential with garden/accessible soils; children's day care centers; preschools; and primary schools

FIELD DATA															LABORATORY DATA										
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	FA and AF Estimation %(w/w)
SAC			**No**					**0.01**			**0.001**			**0.001**											**0.01**	**0.001**
11/03/2025	BH1	0.055-0.25	No	<10L	226	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH1	0.06-0.25	901.82	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
11/03/2025	BH2	0.09-0.53	No	<10L	216	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH2	0.09-0.3	1196.83	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
11/03/2025	BH3	0-0.2	No	10L	1,040	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH3	0-0.2	658.34	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
11/03/2025	BH3	0.2-0.75	No	<10L	300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/03/2025	BH4	0-0.2	No	10L	1,041	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH4	0-0.2	444.77	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
11/03/2025	BH4	0.2-0.4	No	<10L	60	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/03/2025	BH4	0.4-1	No	<10L	302	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/03/2025	BH4	1-1.5	No	<10L	200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/03/2025	BH5	0-0.1	No	<10L	1,910	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH5	0-0.1	872.03	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/03/2025	BH5	0.1-0.8	No	<10L	76	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/03/2025	BH6	0-0.2	No	10L	1,165	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH6	0-0.2	723.62	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/03/2025	BH6	0.2-0.53	No	<10L	90	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	375903	BH7	0.1-0.2	784.39	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/03/2025	BH8	0-0.1	No	10L	1,058	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH8	0-0.1	662.1	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/03/2025	BH8	0.1-1	No	<10L	335	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	375903	BH9	0.1-0.3	776.49	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/03/2025	BH10	0-0.2	No	10L	1,257	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH10	0-0.1	722.75	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/03/2025	BH10	0.2-0.5	No	<10L	385	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/03/2025	BH11	0-0.1	No	10L	1,151	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH11	0-0.1	687.8	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/03/2025	BH11	0.1-0.4	No	<10L	310	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/03/2025	BH12	0-0.1	No	10L	1,129	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH12	0-0.1	683.13	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/03/2025	BH12	0.1-0.8	No	<10L	587	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/03/2025	BH13	0-0.2	No	10L	1,201	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH13	0-0.1	653.37	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/03/2025	BH13	0.2-1.3	No	<10L	389	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/03/2025	BH14	0-0.1	No	10L	1,293	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH14	0-0.1	772.18	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/03/2025	BH14	0.1-0.95	No	10L	1,066	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/03/2025	BH15	0-0.2	No	10L	1,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH15	0-0.1	783.19	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/03/2025	BH16	0-0.2	No	10L	1,222	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH16	0-0.1	806.43	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/03/2025	BH16	0.2-0.7	No	<10L	314	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/03/2025	BH17	0-0.1	No	10L	1,135	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH17	0-0.1	673.45	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/03/2025	BH17	0.1-0.7	No	<10L	330	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/03/2025	BH17	0.7-1.2	No	<10L	140	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/03/2025	BH18	0.033-0.4	No	<10L	647	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH18	0.1-0.2	895.01	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/03/2025	BH19	0-0.1	No	10L	1,080	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH19	0-0.1	683.99	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/03/2025	BH19	0.1-0.6	No	<10L	311	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/03/2025	BH19	0.6-1.5	No	<10L	200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/03/2025	BH20	0-0.1	No	10L	1,047	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH20	0-0.1	749.25	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/03/2025	BH20	0.1-0.7	No	<10L	740	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/03/2025	BH21	0-0.1	No	10L	1,080	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH21	0-0.1	756.69	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
17/03/2025	BH22	0.5-1	No	<10L	700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	375903	BH22	0.36-0.45	827.38	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
17/03/2025	BH22	1-2	No	<10L	625	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Concentration above the SAC **VALUE**

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TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																		
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																			
BH1	0.06-0.25	F: Gravelly Sand	Coarse	**9.4**	**19**	NA	<4	**69**	**31**	**8**	**67**	**42**	<1	<0.1	<25	<50	<100	**100**	<0.2	<0.5	<1	<1	<0.05
BH1 - [LAB_DUP]	0.06-0.25	Lab Duplicate	Coarse	**9.4**	**19**	NA	<4	**72**	**22**	**6**	**62**	**32**	<1	<0.1	<25	<50	<100	**150**	<0.2	<0.5	<1	<1	<0.05
BH1	0.25-0.4	Sandstone	Coarse	NA	NA	NA	<4	**36**	**11**	**14**	**21**	**24**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH1 - [LAB_DUP]	0.25-0.4	Lab Duplicate	Coarse	NA	NA	NA	<4	**37**	**10**	**14**	**21**	**24**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH2	0.09-0.3	F: Silty Gravelly Sand	Coarse	**9.9**	**22**	NA	<4	**89**	**28**	**12**	**82**	**120**	<1	<0.1	<25	<50	**100**	**190**	<0.2	<0.5	<1	<1	<0.05
BH3	0-0.2	F: Silty Sand	Coarse	NA	NA	NA	**6**	**9**	**7**	**16**	**3**	**29**	<1	<0.1	<25	<50	**100**	**110**	<0.2	<0.5	<1	<1	<0.05
BH4	0-0.2	F: Silty Clay	Coarse	NA	NA	NA	**6**	**19**	**84**	**41**	**12**	**140**	<1	<0.1	<25	<50	**170**	**140**	<0.2	<0.5	<1	<1	**0.05**
BH4	0.4-0.5	F: Gravelly Silty Sand	Coarse	NA	NA	NA	<4	**3**	**2**	**11**	<1	**2**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH4	0.9-1.0	F: Gravelly Silty Sand	Coarse	NA	NA	NA	<4	**4**	<1	**8**	<1	<1	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH5	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**6**	**14**	**11**	**4**	**21**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
BH6	0-0.2	F: Gravelly Silty Sand	Coarse	NA	NA	NA	<4	**10**	**23**	**15**	**8**	**75**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH7	0.1-0.2	F: Silty Sand	Coarse	NA	NA	NA	**5**	**5**	**15**	**8**	**13**	**15**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH8	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**4**	**7**	**20**	**2**	**18**	<1	<0.1	<25	<50	**320**	**270**	<0.2	<0.5	<1	<1	<0.05
BH8	0.4-0.5	F: Silty Sand	Coarse	NA	NA	NA	<4	**1**	**1**	**7**	<1	**3**	<1	NA	<25	<50	**100**	**100**	<0.2	<0.5	<1	<1	<0.05
BH9	0.1-0.3	F: Silty Sand	Coarse	NA	NA	NA	<4	**3**	**1**	**9**	<1	**2**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH10	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**3**	**9**	**8**	**2**	**12**	<1	<0.1	<25	<50	**130**	**180**	<0.2	<0.5	<1	<1	<0.05
BH10 - [LAB_DUP]	0-0.1	Lab Duplicate	Coarse	NA	NA	NA	<4	**5**	**13**	**13**	**3**	**24**	<1	<0.1	<25	<50	**130**	**170**	<0.2	<0.5	<1	<1	<0.05
BH10 - [TRIPLICATE]	0-0.1	Lab Triplicate	Coarse	NA	NA	NA	<4	**3**	**9**	**10**	**2**	**12**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH11	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**6**	**3**	**11**	**2**	**13**	<1	<0.1	<25	<50	<100	**140**	<0.2	<0.5	<1	<1	<0.05
BH12	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**5**	**7**	**16**	**7**	**26**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH13	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**6**	**8**	**26**	**4**	**110**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH13	0.4-0.5	F: Silty Sand	Coarse	NA	NA	NA	<4	**13**	**20**	**14**	**9**	**20**	<1	NA	<25	<50	**710**	**400**	<0.2	<0.5	<1	<1	**4.6**
BH14	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**6**	**14**	**7**	**3**	**24**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH14	1-1.2	F: Silty Sand	Coarse	NA	NA	NA	<4	**3**	<1	**5**	<1	**2**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH15	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**3**	**9**	**8**	**3**	**20**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH16	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**2**	**4**	**9**	<1	**8**	<1	<0.1	<25	<50	**150**	<100	<0.2	<0.5	<1	<1	<0.05
BH17	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**3**	**7**	**33**	**1**	**41**	<1	<0.1	<25	<50	**300**	**270**	<0.2	<0.5	<1	<1	<0.05
BH18	0.1-0.2	F: Gravelly Sand	Coarse	NA	NA	NA	<4	**37**	**49**	**33**	**11**	**48**	<1	<0.1	<25	<50	**310**	**320**	<0.2	<0.5	<1	<1	**0.1**
BH18	0.4-0.5	Sandstone	Coarse	NA	NA	NA	<4	**4**	<1	**3**	<1	<1	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH19	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	**9**	**19**	**16**	**15**	**2**	**19**	<1	<0.1	<25	<50	**220**	**170**	<0.2	<0.5	<1	<1	<0.05
BH20	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**3**	**6**	**10**	**2**	**34**	<1	<0.1	<25	<50	**140**	**180**	<0.2	<0.5	<1	<1	<0.05
BH20 - [LAB_DUP]	0-0.1	Lab Duplicate	Coarse	NA	NA	NA	<4	**4**	**6**	**10**	**2**	**33**	<1	<0.1	<25	<50	**140**	**170**	<0.2	<0.5	<1	<1	<0.05
BH21	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**4**	**3**	**11**	**2**	**15**	<1	<0.1	<25	<50	**210**	**250**	<0.2	<0.5	<1	<1	<0.05
BH22	0.36-0.45	F: Silty Sand	Coarse	NA	NA	NA	<4	**25**	**20**	**26**	**18**	**37**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.09**
BH22	0.6-0.8	F: Silty Sand	Coarse	NA	NA	NA	<4	**4**	**3**	**6**	**2**	**11**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP1	BH3 (0-0.2)	F: Silty Sand	Coarse	NA	NA	NA	<4	**5**	**5**	**13**	**2**	**21**	<1	<0.1	<25	<50	**150**	**190**	<0.2	<0.5	<1	<1	<0.05
SDUP2	BH6 (0-0.2)	F: Gravelly Silty Sand	Coarse	NA	NA	NA	<4	**19**	**16**	**14**	**16**	**41**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
SDUP3	BH5 (0-0.1)	F: Silty Sand	Coarse	NA	NA	NA	<4	**7**	**9**	**11**	**3**	**20**	<1	<0.1	<25	<50	<100	**160**	<0.2	<0.5	<1	<1	<0.05
SDUP4	BH8 (0-0.1)	F: Silty Sand	Coarse	NA	NA	NA	<4	**6.2**	**7.1**	**21**	**4.7**	**21**	<1	<0.1	<25	<50	**170**	<100	<0.2	<0.5	<1	<3	<0.05
Total Number of Samples				3	3	0	39	39	39	39	39	39	38	30	38	38	38	38	38	38	38	38	38
Maximum Value				9.9	22	NA	9	89	84	41	82	140	<PQL	<PQL	<PQL	<PQL	710	400	<PQL	<PQL	<PQL	<PQL	4.6

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Soil Texture	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH1	0.06-0.25	F: Gravelly Sand	Coarse	9.4	19	NA	100	200	240	1300	280	820	170	180	180	120	300	2800	50	85	70	105	20
BH1 - [LAB_DUP]	0.06-0.25	Lab Duplicate	Coarse	9.4	19	NA	100	200	240	1300	280	820	170	180	180	120	300	2800	50	85	70	105	20
BH1	0.25-0.4	Sandstone	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH1 - [LAB_DUP]	0.25-0.4	Lab Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH2	0.09-0.3	F: Silty Gravelly Sand	Coarse	9.9	22	NA	100	200	250	1300	360	1100	170	180	180	120	300	2800	50	85	70	105	20
BH3	0-0.2	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH4	0-0.2	F: Silty Clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH4	0.4-0.5	F: Gravelly Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH4	0.9-1.0	F: Gravelly Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH5	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH6	0-0.2	F: Gravelly Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH7	0.1-0.2	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH8	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH8	0.4-0.5	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH9	0.1-0.3	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH10	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH10 - [LAB_DUP]	0-0.1	Lab Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH10 - [TRIPLICATE]	0-0.1	Lab Triplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	--	--	--	--	--	--	--	--	--	--	--
BH11	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH12	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH13	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH13	0.4-0.5	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH14	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH14	1-1.2	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH15	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH16	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH17	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH18	0.1-0.2	F: Gravelly Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH18	0.4-0.5	Sandstone	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH19	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH20	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH20 - [LAB_DUP]	0-0.1	Lab Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH21	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH22	0.36-0.45	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH22	0.6-0.8	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
SDUP1	BH3 (0-0.2)	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
SDUP2	BH6 (0-0.2)	F: Gravelly Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
SDUP3	BH5 (0-0.1)	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
SDUP4	BH8 (0-0.1)	F: Silty Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20

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TABLE Q1
SOIL QA/QC SUMMARY

| | | | TRH C6 - C10 | TRH >C10-C16 | TRH >C16-C34 | TRH >C34-C40 | Benzene | Toluene | Ethylbenzene | m+p-xylene | o-Xylene | Naphthalene | Acenaphthylene | Acenaph-thene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benzo(a)anthracene | Chrysene | Benzo(b,j+k)fluoranthene | Benzo(a)pyrene | Indeno(1,2,3-c,d)pyrene | Dibenzo(a,h)anthra-cene | Benzo(g,h,i)perylene | HCB | alpha- BHC | gamma- BHC | beta- BHC | Heptachlor | delta- BHC | Aldrin | Heptachlor Epoxide | Gamma- Chlordane | alpha- chlordane | Endosulfan I | pp- DDE | Dieldrin | Endrin | pp- DDD | Endosulfan II | pp- DDT | Endrin Aldehyde | Endosulfan Sulphate | Methoxychlor | Azinphos-methyl (Guthion | Bromophos-ethyl | Chlorpyrifos | Chlorpyrifos-methyl | Diazinon | Dichlorvos | Dimethoate | Ethion | Fenitrothion | Malathion | Parathion | Ronnel | Total PCBS | Arsenic | Cadmium | Chromium | Copper | Lead | Mercury | Nickel | Zinc |
|---|---|---

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ADWG: AustralianDrinking Water Guidelines
ANZG Australian and New Zealand Guidelines
B(a)P: Benzo(a)pyrene
CRC: Cooperative Research Centre
ESLs: Ecological Screening Levels
GIL: Groundwater Investigation Levels
HILs: Health Investigation Levels
HSLs: Health Screening Levels
HSL-SSA: Health Screening Level-SiteSpecific Assessment
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSL: Regional Screening Levels
SAC: Site Assessment Criteria
SSA: Site Specific Assessment
SSHSLs Site Specific Health Screening Levels
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Agency
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

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TABLE G1
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO ECOLOGICAL GILs SAC
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	ANZG 2018 Marine Waters	SAMPLES												
			MW5	MW5 - LAB DUP	MW9	MW12	MW12 - LAB DUP	MW19	MW20	MW20 - LAB DUP	SW1	SW2	SW2 - LAB DUP	WDUP1	WDUP2
Inorganic Compounds and Parameters															
pH		7 - 8.5	6.2	[NT]	6.8	5.8	[NT]	5.9	5.9	[NT]	7.5	8.2	[NT]	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	**200**	[NT]	**390**	**370**	[NT]	**320**	**210**	[NT]	**230**	**490**	[NT]	NA	NA
Turbidity (NTU)		NSL	**2**	[NT]	**240**	**99**	[NT]	**69**	**150**	[NT]	**0.5**	**0.2**	[NT]	NA	NA
Metals and Metalloids															
Arsenic (As III)	1	2.3	<1	[NT]	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1
Cadmium	0.1	0.7	<0.1	[NT]	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Chromium (SAC for Cr III adopted)	1	27	<1	[NT]	**2**	**1**	**1**	<1	<1	NA	<1	**1**	NA	<1	<1
Copper	1	1.3	**3**	[NT]	**2**	**3**	**3**	**26**	<1	NA	**1**	**2**	NA	**26**	**3**
Lead	1	4.4	<1	[NT]	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1
Total Mercury (inorganic)	0.05	0.1	<0.05	<0.05	<0.05	<0.05	[NT]	<0.05	<0.05	NA	<0.05	<0.05	NA	<0.05	<0.05
Nickel	1	7	**2**	[NT]	**2**	**18**	**18**	**17**	**2**	NA	<1	<1	NA	**17**	**1.8**
Zinc	1	15	**16**	[NT]	**21**	**47**	**46**	**96**	**7**	NA	**6**	**6**	NA	**94**	**1.6**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)															
Benzene	1	500	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Toluene	1	180	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Ethylbenzene	1	5	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
m+p-xylene	2	75	<2	<2	<2	<2	NA	<2	<2	NA	<2	<2	NA	<2	<2
o-xylene	1	350	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Total xylenes	2	NSL	<2	<2	<2	<2	NA	<2	<2	NA	<2	<2	NA	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs															
Dichlorodifluoromethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Chloromethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Vinyl Chloride	10	100	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Bromomethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Chloroethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Trichlorofluoromethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
1,1-Dichloroethene	1	700	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Trans-1,2-dichloroethene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1-dichloroethane	1	250	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Cis-1,2-dichloroethene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromochloromethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Chloroform	1	370	**40**	**38**	**28**	**10**	NA	**5**	**19**	NA	**2**	<1	NA	**5**	**41**
2,2-dichloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dichloroethane	1	1900	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,1-trichloroethane	1	270	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1-dichloropropene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Cyclohexane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Carbon tetrachloride	1	240	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Benzene	1	500	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Dibromomethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dichloropropane	1	900	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Trichloroethene	1	330	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromodichloromethane	1	NSL	**14**	**13**	**9**	<1	NA	**1**	**3**	NA	<1	<1	NA	**1**	**13**
trans-1,3-dichloropropene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
cis-1,3-dichloropropene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,2-trichloroethane	1	1900	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Toluene	1	180	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,3-dichloropropane	1	1100	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Dibromochloromethane	1	NSL	**3**	**3**	**2**	<1	NA	<1	<1	NA	<1	<1	NA	<1	**2.9**
1,2-dibromoethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Tetrachloroethene	1	70	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Chlorobenzene	1	55	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Ethylbenzene	1	5	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromoform	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
m+p-xylene	2	75	<2	<2	<2	<2	NA	<2	<2	NA	<2	<2	NA	<2	<2
Styrene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,2,2-tetrachloroethane	1	400	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
o-xylene	1	350	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,3-trichloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Isopropylbenzene	1	30	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromobenzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
n-propyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
2-chlorotoluene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
4-chlorotoluene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Tert-butyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,3-dichlorobenzene	1	260	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Sec-butyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,4-dichlorobenzene	1	60	**2**	**1**	**1**	**2**	NA	**2**	**2**	NA	<1	<1	NA	**2**	**1.5**
4-isopropyl toluene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dichlorobenzene	1	160	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
n-butyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,4-trichlorobenzene	1	20	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Hexachlorobutadiene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,3-trichlorobenzene	1	3	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Polycyclic Aromatic Hydrocarbons (PAHs)															
Naphthalene	0.2	50	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Phenanthrene	0.1	0.6	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Anthracene	0.1	0.01	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Fluoranthene	0.1	1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**
GIL >PQL	Red

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TABLE G2
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO HUMAN CONTACT GILs
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	Recreational (10 x NHMRC ADWG)	SAMPLES												
			MW5	MW5 - LAB DUP	MW9	MW12	MW12 - LAB DUP	MW19	MW20	MW20 - LAB DUP	SW1	SW2	SW2 - LAB DUP	WDUP1	WDUP2
Inorganic Compounds and Parameters															
pH		6.5 - 8.5	6.2	[NT]	6.8	5.8	[NT]	5.9	5.9	[NT]	7.5	8.2	[NT]	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	**200**	[NT]	**390**	**370**	[NT]	**320**	**210**	[NT]	**230**	**490**	[NT]	NA	NA
Turbidity (NTU)		NSL	**2**	[NT]	**240**	**99**	[NT]	**69**	**150**	[NT]	**0.5**	**0.2**	[NT]	NA	NA
Metals and Metalloids															
Arsenic (As III)	1	100	<1	[NT]	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1
Cadmium	0.1	20	<0.1	[NT]	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Chromium (total)	1	500	<1	[NT]	**2**	**1**	**1**	<1	<1	NA	<1	**1**	NA	<1	<1
Copper	1	20000	**3**	[NT]	**2**	**3**	**3**	**26**	<1	NA	**1**	**2**	NA	**26**	**3**
Lead	1	100	<1	[NT]	<1	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1
Total Mercury (inorganic)	0.05	10	<0.05	<0.05	<0.05	<0.05	[NT]	<0.05	<0.05	NA	<0.05	<0.05	NA	<0.05	<0.05
Nickel	1	200	**2**	[NT]	**2**	**18**	**18**	**17**	**2**	NA	<1	<1	NA	**17**	**1.8**
Zinc	1	30000	**16**	[NT]	**21**	**47**	**46**	**96**	**7**	NA	**6**	**6**	NA	**94**	**1.6**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)															
Benzene	1	10	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Toluene	1	8000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Ethylbenzene	1	3000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
m+p-xylene	2	NSL	<2	<2	<2	<2	NA	<2	<2	NA	<2	<2	NA	<2	<2
o-xylene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Total xylenes	2	6000	<2	<2	<2	<2	NA	<2	<2	NA	<2	<2	NA	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs															
Dichlorodifluoromethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Chloromethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Vinyl Chloride	10	3	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Bromomethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Chloroethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
Trichlorofluoromethane	10	NSL	<10	<10	<10	<10	NA	<10	<10	NA	<10	<10	NA	<10	<10
1,1-Dichloroethene	1	300	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Trans-1,2-dichloroethene	1	600	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1-dichloroethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Cis-1,2-dichloroethene	1	600	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromochloromethane	1	2500	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Chloroform	1		**40**	**38**	**28**	**10**	NA	**5**	**19**	NA	**2**	**<1**	NA	**5**	**41**
2,2-dichloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dichloroethane	1	30	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,1-trichloroethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1-dichloropropene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Cyclohexane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Carbon tetrachloride	1	30	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Benzene	1	10	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Dibromomethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dichloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Trichloroethene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromodichloromethane	1	NSL	**14**	**13**	**9**	<1	NA	**1**	**3**	NA	<1	<1	NA	**1**	**13**
trans-1,3-dichloropropene	1	1000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
cis-1,3-dichloropropene	1	1000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,2-trichloroethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Toluene	1	8000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,3-dichloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Dibromochloromethane	1	NSL	**3**	**3**	**2**	<1	NA	<1	<1	NA	<1	<1	NA	<1	**2.9**
1,2-dibromoethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Tetrachloroethene	1	500	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Chlorobenzene	1	3000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Ethylbenzene	1	3000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromoform	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
m+p-xylene	2	NSL	<2	<2	<2	<2	NA	<2	<2	NA	<2	<2	NA	<2	<2
Styrene	1	300	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,1,2,2-tetrachloroethane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
o-xylene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,3-trichloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Isopropylbenzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Bromobenzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
n-propyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
2-chlorotoluene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
4-chlorotoluene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Tert-butyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,3-dichlorobenzene	1	200	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Sec-butyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,4-dichlorobenzene	1	400	**2**	**1**	**1**	**2**	NA	**2**	**2**	NA	<1	<1	NA	**2**	**1.5**
4-isopropyl toluene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dichlorobenzene	1	15000	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
n-butyl benzene	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,4-trichlorobenzene	1	300	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
1,2,3-trichlorobenzene	1		<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Hexachlorobutadiene	1	7	<1	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1
Polycyclic Aromatic Hydrocarbons (PAHs)															
Naphthalene	0.2	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Phenanthrene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Fluoranthene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**
GIL >PQL — Red

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TABLE G4
GROUNDWATER LABORATORY RESULTS COMPARED TO HSLs
All data in µg/L unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	
PQL - Envirolab Services				10	50	1	1	1	2	1	PID
NEPM 2013 - Land Use Category				**HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL**							
Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**								
MW5	4.84	4m to <8m	Sand	**36**	<50	<1	<1	<1	<2	<1	1.4
MW5 - LAB DUP	4.84	4m to <8m	Sand	**34**	NA	<1	<1	<1	<2	<1	-
MW9	5.79	4m to <8m	Sand	**23**	**82**	<1	<1	<1	<2	<1	2.5
MW12	2.47	2m to <4m	Sand	<10	**71**	<1	<1	<1	<2	<1	1.8
MW12 - LAB DUP	2.47	2m to <4m	Sand	NA	NA	NA	NA	NA	NA	NA	-
MW19	2.45	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	2.4
MW20	3.15	2m to <4m	Sand	<10	**64**	<1	<1	<1	<2	<1	3
MW20 - LAB DUP	3.15	2m to <4m	Sand	NA	NA	NA	NA	NA	NA	NA	-
SW1	surface	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	-
SW2	surface	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	-
SW2 - LAB DUP	surface	2m to <4m	Sand	NA	NA	NA	NA	NA	NA	NA	-
WDUP1	2.45	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	NA
WDUP2	4.84	4m to <8m	Sand	**26**	<50	<1	<1	<1	<2	<3	NA
Total Number of Samples				10	9	10	10	10	10	10	5
Maximum Value				36	82	<PQL	<PQL	<PQL	<PQL	<PQL	3

Concentration above the SAC **VALUE**
Site specific assesment (SSA) required **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the Groundwater Assessment Criteria Table below

HSL GROUNDWATER ASSESSMENT CRITERIA

Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
MW5	4.84	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL
MW5 - LAB DUP	4.84	4m to <8m	Sand	1000	NA	800	NL	NL	NL	NL
MW9	5.79	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL
MW12	2.47	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
MW12 - LAB DUP	2.47	2m to <4m	Sand	NA	NA	NA	NA	NA	NA	NA
MW19	2.45	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
MW20	3.15	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
MW20 - LAB DUP	3.15	2m to <4m	Sand	NA	NA	NA	NA	NA	NA	NA
SW1	surface	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
SW2	surface	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
SW2 - LAB DUP	surface	2m to <4m	Sand	NA	NA	NA	NA	NA	NA	NA
WDUP1	2.45	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
WDUP2	4.84	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL

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TABLE Q2
GROUNDWATER QA/QC SUMMARY

		TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD	*10*	*50*	*100*	*100*	*1*	*1*	*1*	*2*	*1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
	PQL Envirolab VIC	*10*	*50*	*100*	*100*	*1.0*	*1.0*	*1.0*	*2.0*	*1.0*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1*	*0.1*	*1*	*1*	*1*	*0.05*	*1*	*1*
Intra	MW19	<10	<50	360	120	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	26	<1	<0.05	17	96
laboratory	WDUP1	<10	<50	390	120	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	26	<1	<0.05	17	94
duplicate	MEAN	nc	nc	375	120	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	26	nc	nc	17	95
	RPD %	nc	nc	8%	0%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	nc	nc	0%	2%
Inter	MW5	36	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	3	<1	<0.05	2	16
laboratory	WDUP2	27	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	3	<1	<0.05	1.8	1.6
duplicate	MEAN	31.5	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	3	nc	nc	1.9	8.8
	RPD %	29%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	nc	nc	11%	164%
Field	TB-W1	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	<1	<1	<0.05	<1	<1
Blank	18/03/2025																																
Trip	TS-W1	-	-	-	-	115%	113%	115%	115%	115%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Spike	18/03/2025																																

Result outside of QA/QC acceptance criteria Value

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Appendix D: Borehole Logs

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BOREHOLE LOG

Borehole No. 1

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 29.65 m

Date: 11/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION									-	ASPHALTIC CONCRETE: 55mm.t	D			SCREEN: 2.26kg(<10L), 0.055-0.25m, NO FCF
									-	FILL: Gravelly sand, fine to medium grained, grey, fine to coarse grained igneous gravel.	DW	M		HAWKESBURY SANDSTONE
						29				SANDSTONE: fine to medium grained, light grey and orange brown.				MODERATE 'TC' BIT RESISTANCE
							1			END OF BOREHOLE AT 0.40 m				'TC' BIT REFUSAL
						28								
							2							
						27								
							3							
						26								
							4							
						25								
							5							
						24								
							6							
						23								

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BOREHOLE LOG

Borehole No. 2

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 31.05 m

Date: 11/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■					31				CONCRETE: 90mm.t				
									-	FILL: Gravelly sand, fine to medium grained, grey brown, fine to coarse grained igneous gravel.	M			SCREEN: 2.16kg(<10L), 0.09-0.53m, NO FCF
					N=SPT 5/ 30mm REFUSAL				-	SANDSTONE: fine to medium grained, orange brown.	DW	M		HAWKESBURY SANDSTONE MODERATE TO HIGH 'TC' BIT RESISTANCE
						30	1			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 2.97m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 2.97 TO 1.0m. CASING 0m TO 1.0m. 2mm SAND FILTER PACK 2.97m TO 0.7m. BENTONITE SEAL 0.7m TO 0m. COMPLETED WITH A CONCRETED GATIC COVER.
						29	2							
						28	3							
						27	4							
						26	5							
						25	6							

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CORED BOREHOLE LOG

Borehole No. 2

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN | **Core Size:** NMLC | **R.L. Surface:** 31.05 m

Date: 11/3/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK305 | **Bearing:** N/A | **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		31			START CORING AT 0.97m						
85% RETURN		30	1		NO CORE 0.23m						
					SANDSTONE: fine to medium grained, orange brown.	MW	M	1.0			Hawkesbury Sandstone
		29	2		SANDSTONE: fine to medium grained, light grey.			0.60 0.60 0.60 0.70		(2.26m) CS, 0°, 60 mm.t (2.53m) CS, 0°, 5 mm.t (2.58m) XWS, 0°, 125 mm.t (2.82m) CS, 0°, 10 mm.t	
		28	3		END OF BOREHOLE AT 2.97 m						
		27	4								
		26	5								
		25	6								

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BOREHOLE LOG

Borehole No. 3 **1 / 1**

SDUP1: 0-0.2m

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 38.55 m

Date: 11/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION					N > 15 8,15/ 50mm REFUSAL	38				FILL: Silty sand, fine to medium grained, grey brown, trace of ceramic and terracotta fragments and root fibres.	M			SCREEN: 10.4kg, 0-0.2m, NO FCF SCREEN: 3.0kg(<10L), 0.2-0.75m, NO FCF
							1		-	SANDSTONE: fine to medium grained, light grey.	DW	VL - L		HAWKESBURY SANDSTONE
										END OF BOREHOLE AT 1.05 m		M - H		VERY LOW TO LOW 'TC' BIT RESISTANCE HIGH RESISTANCE 'TC' BIT REFUSAL
						37	2							
						36	3							
						35	4							
						34	5							
						33	6							
						32								

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BOREHOLE LOG

Borehole No. 4 1 / 2

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 43.67 m

Date: 11/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										FILL: Silty clay, low plasticity, grey, trace of fine to coarse grained igneous gravel, and root fibres.	D			MULCH COVER
														SCREEN: 10.41kg, 0-0.2m, NO FCF
					N = 14 5,7,7	43				FILL: Gravelly silty sand, light grey, fine to coarse grained sandstone gravel, trace of root fibres.				SCREEN: 0.6kg(,10L), 0.2-0.4m, NO FCF
							1							APPEARS WELL COMPACTED
														SCREEN: 3.02kg(<10L), 0.4-1.0m, NO FCF
														SCREEN: 2.0kg(<10L), 1-1.5m, NO FCF
					N=SPT 4/ 140mm REFUSAL	42			-	SANDSTONE: fine to medium grained, light grey.	DW	M		HAWKESBURY SANDSTONE
							2			REFER TO CORED BOREHOLE LOG				MODERATE TO HIGH 'TC' BIT RESISTANCE
						41								'TC' BIT REFUSAL
							3							
						40								
							4							
						39								
							5							
						38								
							6							
						37								

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CORED BOREHOLE LOG

Borehole No. 4 **2 / 2**

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Core Size:** NMLC **R.L. Surface:** 43.67 m

Date: 11/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		42			START CORING AT 1.87m						
95% RETURN		41	2		SANDSTONE: fine to medium grained, light grey.	FR	M	0.30, 0.60, 0.50, 0.80, 0.60, 0.90, 1.0		(3.30m) J, 65°, Ir, R, Fe Sn	Hawkesbury Sandstone
		40	3								
		39	4								
		38	5		END OF BOREHOLE AT 4.95 m						
		37	6								
		36	7								

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BOREHOLE LOG

Borehole No. 5 1 / 2

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 42.11 m

Date: 12/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■			■	N > 11 14,11/ 10mm REFUSAL	42				FILL: Silty sand, fine to medium grained, grey, with fine to coarse grained igneous and sandstone gravel, trace of slag and root fibres.	D			SCREEN: 19.1kg, 0-0.1m, NO FCF SCREEN: 0.76kg(<10L), 0.1-0.8m, NO FCF
	■			■					-	SANDSTONE: fine to medium grained, light grey.	DW	M		HAWKESBURY SANDSTONE
						41	1			REFER TO CORED BOREHOLE LOG				MODERATE 'TC' BIT RESISTANCE 'TC' BIT REFUSAL GROUNDWATER MONITORING WELL INSTALLED TO 7.7m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 7.7m TO 1.7m. CASING 0m TO 1.7m. 2mm SAND FILTER PACK 7.7m TO 1.4m. BENTONITE SEAL 1.4m TO 0m. COMPLETED WITH A CONCRETED GATIC COVER.
						40	2							
						39	3							
						38	4							
						37	5							
						36	6							

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CORED BOREHOLE LOG

Borehole No. 5 **2 / 2**

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Core Size:** NMLC **R.L. Surface:** 42.11 m

Date: 12/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		41			START CORING AT 1.17m						
10% RETURN					NO CORE 0.33m						
		40	2		SANDSTONE: fine to medium grained, light grey.	SW	M	0.60, 0.50, 0.60			Hawkesbury Sandstone
		39	3			FR		0.60, 0.90		(2.52m) Be, 0°, P, R, Fe Sn	
		38	4					1.0, 1.0			
					NO CORE 0.10m						
60% RETURN			5		SANDSTONE: fine to medium grained, light grey.	FR	M	0.80			
		37			Extremely weathered sandstone: sandy CLAY, low plasticity, light grey.	XW	VSt			(5.06-5.75m) HP: 280, 350, 360 kPa	
			6		SANDSTONE: fine to medium grained, light grey.	FR	M	0.70, 0.60		(5.77m) J, 80°, Ir, R, Cn	
		36						1.3			
		35	7					0.80, 0.70			
					END OF BOREHOLE AT 7.70 m						

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BOREHOLE LOG

Borehole No. 6 **1 / 1**

SDUP2: 0-0.2m

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 43.88 m

Date: 12/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	■			■						FILL: Gravelly silty sand, fine to medium grained, grey, fine to coarse grained igneous gravel, trace of slag and root fibres.	D			GRASS COVER SCREEN: 11.65kg, 0-0.2m, NO FCF
				■	N=SPT 3/ 120mm REFUSAL				-	SANDSTONE: fine to medium grained, light grey.	DW	M		SCREEN: 0.9kg(<10L), 0.2-0.53m, NO FCF
						43	1			END OF BOREHOLE AT 0.80 m				HAWKESBURY SANDSTONE MODERATE TO HIGH 'TC' BIT RESISTANCE 'TC' BIT REFUSAL
						42	2							
						41	3							
						40	4							
						39	5							
						38	6							
						37								

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BOREHOLE LOG

Borehole No. 7

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 45.81 m

Date: 17/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION						45	0		-	ASPHALTIC CONCRETE: 35mm.t	M			
										FILL: Silty sand, fine to medium grained, grey and brown, with fine to coarse grained igneous and sandstone gravel, trace of root fibres.				
									-		DW	VL		HAWKESBURY SANDSTONE
										FILL: Silty sand, fine to medium grained, orange brown.		M - H		
						44	1			SANDSTONE: fine to medium grained, orange brown and light grey.				LOW 'TC' BIT RESISTANCE
										END OF BOREHOLE AT 0.80 m				MODERATE TO HIGH RESISTANCE
						43	2							'TC' BIT REFUSAL
						42	3							
						41	4							
						40	5							
						39	6							

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BOREHOLE LOG

Borehole No. 8 **1 / 1**

SDUP4: 0-0.1m

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 42.13 m

Date: 12/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION					N > 8 5,8/ 50mm REFUSAL	42				FILL: Silty sand, fine to medium grained, grey, with fine to coarse grained igneous and sandstone gravel, trace of ash, slag and root fibres.	D			GRASS COVER SCREEN: 10.58kg, 0-0.1m, NO FCF APPEARS WELL COMPACTED SCREEN: 3.35kg(<10L), 0.1-1.0m, NO FCF
						41	1		SP	SANDSTONE: fine to medium grained, light grey.	DW	M		HAWKESBURY SANDSTONE
										END OF BOREHOLE AT 1.30 m				MODERATE TO HIGH 'TC' BIT RESISTANCE 'TC' BIT REFUSAL
						40	2							
						39	3							
						38	4							
						37	5							
						36	6							

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BOREHOLE LOG

Borehole No. 9

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 46.25 m

Date: 17/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■					46				CONCRETE: 90mm.t				7mm DIA. REINFORCEMENT, 60mm TOP COVER
									-	FILL: Silty sand, fine to medium grained, grey brown, trace of root fibres.	M			
				■	N=SPT 7/ 100mm REFUSAL				-	SANDSTONE: fine to medium grained, light grey.	DW	L - M		HIGH 'TC' BIT RESISTANCE
						45	1			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 6.34m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 6.34m TO 1.34m. CASING 0m TO 1.34m. 2mm SAND FILTER PACK 6.34m TO 1.3m. BENTONITE SEAL 1.3m TO 0m. COMPLETED WITH A CONCRETED GATIC COVER.
						44	2							
						43	3							
						42	4							
						41	5							
						40	6							

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CORED BOREHOLE LOG

Borehole No. 9 **2 / 2**

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Core Size:** NMLC **R.L. Surface:** 46.25 m

Date: 17/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		46			START CORING AT 0.94m						
			1		NO CORE 0.29m						
85% RETURN		45			SANDSTONE: fine to medium grained, light grey.	FR	L - M	0.20			Hawkesbury Sandstone
		44	2					0.30			
								0.20			
			3					0.30			
		43					M	0.40			
			4					0.60			
		42						0.60		(4.55m) J, 60°, Ir, R, Fe Sn (4.60m) CS, 0°, 25 mm.t (4.72m) CS, 0°, 8 mm.t	
			5					0.30		(4.92m) Be, 0°, Ir, R, Fe Sn	
		41						0.40			
								0.30			
		40	6					0.70			
					END OF BOREHOLE AT 6.34 m						

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BOREHOLE LOG

Borehole No. 10

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 42.40 m

Date: 13/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						42				FILL: Silty sand, fine to medium grained, grey, with fine to coarse grained sandstone gravel, trace of root fibres.	M			SCREEN: 12.57kg, 0-0.2m NO FCF SCREEN: 3.85kg(<10L), 0.2-0.5m, NO FCF
							1		-	SANDSTONE: fine to medium grained, light grey.	DW	L - M		HAWKESBURY SANDSTONE MODERATE 'TC' BIT RESISTANCE
						41	2			REFER TO CORED BOREHOLE LOG				
						40	3							
						39	4							
						38	5							
						37	6							
						36								

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CORED BOREHOLE LOG

Borehole No. 10

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN | **Core Size:** NMLC | **R.L. Surface:** 42.40 m

Date: 13/3/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK305 | **Bearing:** N/A | **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 1.26m						
85% RETURN		41	1		SANDSTONE: fine to medium grained, light grey.	SW	L - M	0.20, 0.20, 0.70		(1.26m) XWS, 0°, 10 mm.t; (1.37m) Be, 5°, P, R, Fe Sn; (1.58m) CS, 0°, 90 mm.t	Hawkesbury Sandstone
							M - H	1.1			
		40	2					1.1			
								1.5		(2.71m) Be, 0°, Ir, R, Fe Sn	
		39	3					1.3		(3.18m) J, 70°, Ir, R, Fe Sn	
								1.3		(3.88m) J, 70°, Ir, R, Fe Sn	
		38	4					1.1		(4.25m) J, 75°, Ir, R, Fe Sn	
					SANDSTONE: fine to medium grained, orange brown.			0.70, 1.7, 1.1			
		37	5		NO CORE 0.69m						
			6		SANDSTONE: fine to medium grained, light grey and orange brown.	SW	M - H	1.4		(6.41m) CS, 0°, 15 mm.t; (6.59m) J, 45°, Ir, R, Cn	Hawkesbury Sandstone
		36						1.7			
			7					2.4		(7.32m) J, 75°, Ir, R, Cn	
		35						1.1		(7.78m) J, 40°, P, R	
					END OF BOREHOLE AT 7.84 m						

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BOREHOLE LOG

Borehole No. 11

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 46.60 m

Date: 12/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION						46	0			FILL: Silty sand, fine to medium grained, grey brown, with fine to coarse grained igneous and sandstone gravel, trace of plastic fragments, ash, slag and root fibres.	D			SCREEN: 11.51kg, 0-0.1m, NO FCF
									-		DW	M		SCREEN: 3.1kg(<10L), 0.1-0.4m, NO FCF
										SANDSTONE: fine to medium grained, light grey.				HAWKESBURY SANDSTONE
							1							MODERATE 'TC' BIT RESISTANCE
						45				END OF BOREHOLE AT 1.00 m				'TC' BIT REFUSAL
							2							
						44								
							3							
						43								
							4							
						42								
							5							
						41								
							6							
						40								

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BOREHOLE LOG

Borehole No. 12

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 45.54 m

Date: 13/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						45				FILL: Silty sand, fine to medium grained, grey, with fine to coarse grained sandstone gravel, trace of fine to coarse grained sandstone cobbles and plastic fragments.	M			SCREEN: 11.29kg, 0-0.1m, NO FCF SCREEN: 5.87kg(<10L), 0.1-0.8m, NO FCF
									-	SANDSTONE: fine to medium grained, light grey.	DW	M - H		HAWKESBURY SANDSTONE
						44	1			REFER TO CORED BOREHOLE LOG				MODERATE 'TC' BIT RESISTANCE GROUNDWATER MONITORING WELL INSTALLED TO 3.86m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.86m TO 1.06m. CASING 0m TO 1.06m. 2mm SAND FILTER PACK 3.86m TO 1.0m. BENTONITE SEAL 1.0m TO 0m. COMPLETED WITH A CONCRETED GATIC COVER.
						43	2							
						42	3							
						41	4							
						40	5							
						39	6							

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CORED BOREHOLE LOG

Borehole No. 12

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN | **Core Size:** NMLC | **R.L. Surface:** 45.54 m

Date: 13/3/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK305 | **Bearing:** N/A | **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		45	1		START CORING AT 1.00m						
100% RETURN		44	1		NO CORE 0.28m						
		44	2		SANDSTONE: fine to medium grained, light grey.	FR	M - H	1.1		(1.40m) Be, P, R, Fe Sn	Hawkesbury Sandstone
								1.0			
							L - M	0.70		(2.14m) CS, 10 mm.t	
		43	2					0.020			
								0.30		(2.46m) CS, 15 mm.t	
							M				
		42	3					0.70			
								1.0			
								0.90			
		41	4		END OF BOREHOLE AT 3.86 m						
		40	5								
		39	6								

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BOREHOLE LOG

Borehole No. 13

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 51.42 m

Date: 12/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING					N = 26 16,15,11	51	1			FILL: Silty sand, fine to medium grained, grey brown, with fine to coarse grained igneous and sandstone gravel, trace of terracotta and glass fragments, ash, slag and root fibres.	D			SCREEN: 12.01kg, 0-0.2m, NO FCF
										FILL: Silty sand, fine to medium grained, grey, with fine to coarse grained igneous and sandstone gravel, trace of asphalt, glass, plastic and cloth fragments, ash and slag.				APPEARS WELL COMPACTED SCREEN: 3.89kg(<10L), 0.2-1.3m, NO FCF
						50	2		-	SANDSTONE: fine to medium grained, light grey.	DW	VL - L		HAWKESBURY SANDSTONE
										Extremely Weathered sandstone: sandy CLAY, low plasticity, light grey.	XW	Hd		LOW 'TC' BIT RESISTANCE SOIL RESISTANCE
						49				SANDSTONE: fine to medium grained, orange brown.	DW	M		MODERATE TO HIGH RESISTANCE
							3			REFER TO CORED BOREHOLE LOG				
						48	4							
						47	5							
						46	6							
						45								

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CORED BOREHOLE LOG

Borehole No. 13

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN | **Core Size:** NMLC | **R.L. Surface:** 51.42 m

Date: 12/3/25 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK305 | **Bearing:** N/A | **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		49			START CORING AT 2.60m						
100% RETURN		48	3		SANDSTONE: fine to medium grained, orange brown and light grey.	SW	M	0.50, 0.90, 0.80, 1.5, 0.80		(2.67m) Be, 0°, Ir, R, Fe Sn	Hawkesbury Sandstone
		47	4							(4.42m) CS, 0°, 30 mm t	
		46	5		NO CORE 1.00m						Hawkesbury Sandstone
					SANDSTONE: fine to medium grained, light grey and brown, massive.	SW	H	1.1			
					END OF BOREHOLE AT 5.68 m						
		45	6								
		44	7								
		43	8								

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BOREHOLE LOG

Borehole No. 14

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN

Method: HAND AUGER / SPIRAL AUGER

R.L. Surface: 44.40 m

Date: 13/3/25 TO 17/3/25

Datum: AHD

Plant Type: JK305

Logged/Checked By: T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
ON COMPLETION						44				FILL: Silty sand, fine to medium grained, grey and brown, with fine to coarse grained igneous and sandstone gravel, trace of brick, concrete terracotta, ceramic, tile and plastic fragments, ash, root fibers and sandstone cobbles.	D			SCREEN: 12.93kg, 0-0.1m, NO FCF
					N = 14 11,7,7		1				W			SCREEN: 10.66kg, 0.1-0.95m, NO FCF
						43			-	SANDSTONE: fine to medium grained, light grey.	DW	H		HAWKESBURY SANDSTONE
					N=SPT 3/ 0mm REFUSAL		2			END OF BOREHOLE AT 1.50 m				HIGH 'TC' RESISTANCE 'TC' BIT REFUSAL
						42	3							
						41	4							
						40	5							
						39	6							
						38								

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BOREHOLE LOG

Borehole No. 15 1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** HAND AUGER / SPIRAL AUGER **R.L. Surface:** 44.01 m

Date: 13/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
										FILL: Silty sand, fine to medium grained, grey, with fine to coarse grained sandstone gravel, trace of root fibres.				SCREEN: 11.5kg, 0-0.2m, NO FCF
									-		DW	L - M		HAWKESBURY SANDSTONE
										SANDSTONE: fine to medium grained, light grey.				MODERATE 'TC' BIT RESISTANCE
										Extremely Weathered sandstone: sandy CLAY, low plasticity, light grey, fine to medium grained sand.	XW	(Hd)		SOIL RESISTANCE
						43	1				DW	L - M		MODERATE RESISTANCE
										SANDSTONE: fine to medium grained, light grey.				
					N > 30 11,14,16/ 30mm REFUSAL					Extremely Weathered sandstone: sandy CLAY, low plasticity, light grey, fine to medium grained sand.	XW	(VSt)	280 310 300	SOIL RESISTANCE
						42	2							
ON COMPLETION										SANDSTONE: fine to medium grained, light grey.	DW	VL - L M - H		LOW RESISTANCE MODERATE TO HIGH RESISTANCE
						41	3							
										END OF BOREHOLE AT 3.50 m				TC' BIT REFUSAL
						40	4							
						39	5							
						38	6							

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BOREHOLE LOG

Borehole No. 16
1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN
Method: HAND AUGER / SPIRAL AUGER
R.L. Surface: 45.07 m
Date: 14/3/25
Datum: AHD
Plant Type: JK305
Logged/Checked By: T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION						45				FILL: Silty sand, fine to medium grained, grey, trace of fine to coarse grained sandstone gravel, and root fibres.	D			SCREEN: 12.22kg, 0-0.2m, NO FCF SCREEN: 3.14(<10L), 0.2-0.7m, NO FCF
									CL	Sandy CLAY: low plasticity, light grey.	w<PL	(VSt)		RESIDUAL
						44	1		-	SANDSTONE: fine to medium grained, light grey.	DW	L		HAWKESBURY SANDSTONE LOW 'TC' BIT RESISTANCE
												M		HIGH RESISTANCE
										END OF BOREHOLE AT 1.40 m				'TC' BIT REFUSAL
						43	2							
						42	3							
						41	4							
						40	5							
						39	6							

JK 9.02.4 LIB:GLB Log JK AUGERHOLE - MASTER 37436PN NARRABEEN.GPJ <<DrawingFile>> 30/04/2025 12:36 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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BOREHOLE LOG

Borehole No. 17

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN

Method: HAND AUGER / SPIRAL AUGER

R.L. Surface: 54.14 m

Date: 14/3/25

Datum: AHD

Plant Type: JK305

Logged/Checked By: T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION						54				FILL: Silty sand, fine to medium grained, grey, trace of fine to coarse grained sandstone gravel, and root fibres.	D			SCREEN: 11.35kg, 0-0.1m, NO FCF SCREEN: 3.3kg(<10L), 0.1-0.7m, NO FCF
							1			FILL: Silty sand, fine to medium grained, light grey.				POSSIBLY NATURAL SCREEN: 1.4kg(<10L), 0.7-1.2m, NO FCF
						53			-	SANDSTONE: fine to medium grained, light grey.	DW	M		HAWKESBURY SANDSTONE
										END OF BOREHOLE AT 1.50 m				LOW TO MODERATE 'TC' BIT RESISTANCE HIGH RESISTANCE 'TC' BIT REFUSAL
						52	2							
						51	3							
						50	4							
						49	5							
						48	6							

JK 9.02.4 LIB:GLB Log JK AUGERHOLE - MASTER 37436PN NARRABEEN.GPJ <<DrawingFile>> 30/04/2025 12:37 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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BOREHOLE LOG

Borehole No. 18

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 52.46 m

Date: 14/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION									-	ASPHALTIC CONCRETE: 33mm.t FILL: Gravelly sand, fine to medium grained, grey brown, fine to coarse grained igneous and sandstone gravel, ceramic and asphalt fragments.	D			SCREEN: 6.47kg(10L), 0.033-0.4m, NO FCF
						52			-	SANDSTONE: fine to medium grained, orange brown and light grey.	DW	L - M		HAWKESBURY SANDSTONE MODERATE 'TC' BIT RESISTANCE
							1			Extremely Weathered sandstone: sandy CLAY, low plasticity, light grey.	XW	(Hd)		SOIL RESISTANCE
						51				SANDSTONE: fine to medium grained, light grey.	DW	M		TOO FRIABLE FOR HP TESTING MODERATE TO HIGH RESISTANCE
							2			END OF BOREHOLE AT 1.90 m				'TC' BIT REFUSAL
						50	3							
						49	4							
						48	5							
						47	6							
						46								

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BOREHOLE LOG

Borehole No. 19

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 57.79 m

Date: 14/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						57	1			FILL: Silty sand, fine to medium grained, grey brown, trace of fine to coarse grained igneous and sandstone gravel, asphalt fragments and root fibres.	D			HAND AUGER TO 1.0m DEPTH SCREEN: 10.8kg, 0-0.1m, NO FCF
										FILL: Silty sand, fine to medium grained, grey, trace of root fibres.				POSSIBLY NATURAL SCREEN: 3.11kg(<10L), 0.1-0.6m, NO FCF SCREEN: 2.0kg(<10L), 0.6-1.5m, NO FCF
					N=SPT 3/ 150mm REFUSAL	56	2		-	SANDSTONE: fine to medium grained, light grey, with extremely weathered sandstone bands.	DW	VL - L L - M		HAWKESBURY SANDSTONE LOW TO MODERATE 'TC' BIT RESISTANCE HIGH RESISTANCE WITH VERY LOW BANDS MODERATE TO HIGH RESISTANCE
						55 54 53 52 51	3 4 5 6			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 5.38m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 5.38m TO 1.88m. CASING 0m TO 1.88m. 2mm SAND FILTER PACK 5.38m TO 1.8m. BENTONITE SEAL 1.8m TO 0m. COMPLETED WITH A CONCRETED GATIC COVER.

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CORED BOREHOLE LOG

Borehole No. 19 **2 / 2**

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Core Size:** NMLC **R.L. Surface:** 57.79 m

Date: 14/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ VL 0.1 L 0.3 M 1 H 3 VH 10 EH	DEFECT DETAILS SPACING (mm) 600 200 60 20 DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific / General	Formation
					START CORING AT 2.73m					Hawkesbury Sandstone
75% RETURN		55	3		SANDSTONE: fine to medium grained, light grey. NO CORE 1.20m	SW	L	0.10		
		54	4		SANDSTONE: fine to medium grained, light grey.	FR	L - M	0.30 0.30 0.30 0.30		Hawkesbury Sandstone
		53	5							
		52	6		END OF BOREHOLE AT 5.38 m					
		51	7							
		50	8							
		49								

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BOREHOLE LOG

Borehole No. 20

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 54.12 m

Date: 14/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING						54				FILL: Silty sand, fine to medium grained, grey brown, with fine to coarse grained igneous and sandstone gravel, trace of ceramic, tile, glass and plastic fragments.	D			SCREEN: 10.47kg, 0-0.1m, NO FCF SCREEN: 7.4kg(<10L), 0.1-0.7m, NO FCF
							1		SP	SAND: fine to coarse grained, orange brown.	D			RESIDUAL
						53			-	SANDSTONE: fine to medium grained, light grey and orange brown, with extremely weathered bands.	DW	VL - L		HAWKESBURY SANDSTONE BANDED LOW TO MODERATE 'TC' BIT RESISTANCE
							2			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 4.08m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 4.08m TO 1.38m. CASING 0m TO 1.38m. 2mm SAND FILTER PACK 4.08m TO 1.3m. BENTONITE SEAL 1.3m TO 0m. COMPLETED WITH A CONCRETED GATIC COVER.
						52								
							3							
						51								
							4							
						50								
							5							
						49								
							6							
						48								

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CORED BOREHOLE LOG

Borehole No. 20 **2 / 2**

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Core Size:** NMLC **R.L. Surface:** 54.12 m

Date: 14/3/25 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** T.F./N.E.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ VL -0.1, L -0.3, M -1, H -3, VH -10, EH	DEFECT DETAILS SPACING (mm) 600, 200, 60, 20	DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific / General	Formation
		53			START CORING AT 1.66m						Hawkesbury Sandstone
75% RETURN		52	2		SANDSTONE: fine to medium grained, light grey, massive. NO CORE 0.67m	HW	VL			(1.74m) CS, 0°, 90 mm.t	Hawkesbury Sandstone
		51	3		SANDSTONE: fine to medium grained, light grey, massive.	FR	L - M	0.30, 0.50, 0.40, 0.050		(3.59m) CS, 0°, 60 mm.t	Hawkesbury Sandstone
		50	4		END OF BOREHOLE AT 4.08 m						
		49	5								
		48	6								
		47	7								

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BOREHOLE LOG

Borehole No. 21

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 61.32 m

Date: 17/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION						61				FILL: Silty sand, fine to medium grained, brown and grey, with fine to coarse grained sandstone gravel, trace of root fibres.	D			GRASS COVER SCREEN: 10.8kg, 0-0.1m, NO FCF
					N=SPT 10/ 80mm REFUSAL				-	SANDSTONE: fine to medium grained, light grey.	DW	M - H		HIGH 'TC' BIT RESISTANCE
										END OF BOREHOLE AT 0.75 m				'TC' BIT REFUSAL
						60	1							
						59	2							
						58	3							
						57	4							
						56	5							
						55	6							

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BOREHOLE LOG

Borehole No. 22

1 / 1

Client: RSL LIFECARE LIMITED

Project: PROPOSED RSL ANZAC VILLAGE RENEWAL

Location: 4 COLOOLI ROAD, NARRABEEN, NSW

Job No.: 37436PN **Method:** SPIRAL AUGER **R.L. Surface:** 60.42 m

Date: 17/3/25 **Datum:** AHD

Plant Type: JK305 **Logged/Checked By:** T.F./N.E.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION									-	PAVERS: 130mm.t CONCRETE: 230mm.t				
						60			-	FILL: Silty sand, fine to medium grained, with fine to coarse grained igneous and sandstone gravel, trace of asphalt fragments.	D			HAND AUGER TO 1.05m DEPTH SCREEN: 7.0kg(<10L), 0.5-1.0m, NO FCF
							1			FILL: Silty sand, fine to medium grained, grey brown, with fine to coarse grained igneous and sandstone gravel, trace of concrete, tile and asphalt fragments, and sandstone cobbles.				APPEARS WELL COMPACTED SCREEN: 6.25kg(10L), 1.0-2.0m, NO FCF
					N = 25 7,8,17	59								
							2							
						58			-	SANDSTONE: fine to medium grained, orange brown.	DW	VL M		HAWKESBURY SANDSTONE LOW 'TC' BIT RESISTANCE HIGH RESISTANCE 'TC' BIT REFUSAL
										END OF BOREHOLE AT 2.50 m				
							3							
						57								
							4							
						56								
							5							
						55								
							6							
						54								

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ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 *'Geotechnical Site Investigations'*. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

  N = 13
  4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

  N > 30
  15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'N_c' on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL


FILL


TOPSOIL


CLAY (CL, CI, CH)


SILT (ML, MH)


SAND (SP, SW)


GRAVEL (GP, GW)


SANDY CLAY (CL, CI, CH)


SILTY CLAY (CL, CI, CH)


CLAYEY SAND (SC)


SILTY SAND (SM)


GRAVELLY CLAY (CL, CI, CH)


CLAYEY GRAVEL (GC)


SANDY SILT (ML, MH)


PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK


CONGLOMERATE


SANDSTONE


SHALE/MUDSTONE


SILTSTONE


CLAYSTONE


COAL


LAMINITE


LIMESTONE


PHYLLITE, SCHIST


TUFF


GRANITE, GABBRO


DOLERITE, DIORITE


BASALT, ANDESITE


QUARTZITE

OTHER MATERIALS


BRICKS OR PAVERS


CONCRETE


ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $Cu > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_U = \frac{D_{60}}{D_{10}} \qquad and \qquad C_C = \frac{(D_{30})^2}{D_{10}\, D_{60}}$$

Where D_{10}, D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

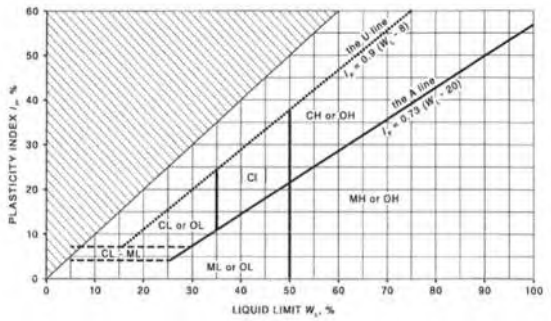
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

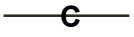
3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.
		Extent of borehole/test pit collapse shortly after drilling/excavation.
		Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	w > PL $w \approx$ PL w < PL $w \approx$ LL w > LL	Moisture content estimated to be greater than plastic limit. Moisture content estimated to be approximately equal to plastic limit. Moisture content estimated to be less than plastic limit. Moisture content estimated to be near liquid limit. Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D M W	DRY – runs freely through fingers. MOIST – does not run freely but no free water visible on soil surface. WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS S F St VSt Hd Fr ( )	VERY SOFT – unconfined compressive strength ≤ 25kPa. SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa. FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa. STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa. VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa. HARD – unconfined compressive strength > 400kPa. FRIABLE – strength not attainable, soil crumbles. Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)	VL L MD D VD ( )	**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)** VERY LOOSE ≤ 15 / 0 – 4 LOOSE > 15 and ≤ 35 / 4 – 10 MEDIUM DENSE > 35 and ≤ 65 / 10 – 30 DENSE > 65 and ≤ 85 / 30 – 50 VERY DENSE > 85 / > 50 Bracketed symbol indicates estimated density based on ease of drilling or other assessment.

Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: *'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'*. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Appendix E: Laboratory Report(s) & COC Documents

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 375903

Client Details

Client	JK Environments
Attention	Katrina Taylor
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E37444BT, Narrabeen, NSW**
Number of Samples	70 Soil, 1 Water
Date samples received	18/03/2025
Date completed instructions received	18/03/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	26/03/2025
Date of Issue	26/03/2025

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Nyovan Moonean
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist
Liam Timmins, Organics Supervisor
Lucy Zhu, Asbestos Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-10
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH4
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	81	82	83	84

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		375903-13	375903-16	375903-19	375903-21	375903-25
Your Reference	UNITS	BH5	BH6	BH7	BH8	BH9
Depth		0-0.1	0-0.2	0.1-0.2	0-0.1	0.1-0.3
Date Sampled		12/03/2025	11/03/2025	17/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	82	82	82	79	83

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		375903-26	375903-29	375903-31	375903-34	375903-38
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		13/03/2025	12/03/2025	13/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	81	76	85	81

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		375903-40	375903-41	375903-43	375903-47	375903-51
Your Reference	UNITS	BH14	BH15	BH16	BH17	BH18
Depth		1-1.2	0-0.1	0-0.1	0-0.1	0.1-0.2
Date Sampled		17/03/2025	13/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	79	82	86	87

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		375903-53	375903-58	375903-62	375903-64	375903-67
Your Reference	UNITS	BH19	BH20	BH21	BH22	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0.36-0.45	-
Date Sampled		14/03/2025	14/03/2025	17/03/2025	17/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	86	84	87	84

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		375903-68	375903-70	375903-71
Your Reference	UNITS	SDUP3	TB	TS
Depth		-	-	-
Date Sampled		12/03/2025	11/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	[NA]
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	99%
Toluene	mg/kg	<0.5	<0.5	97%
Ethylbenzene	mg/kg	<1	<1	98%
m+p-xylene	mg/kg	<2	<2	97%
o-Xylene	mg/kg	<1	<1	98%
Naphthalene	mg/kg	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	84	85	74

svTRH (C10-C40) in Soil						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-10
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH4
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	120	120	160	<100
Total +ve TRH (C10-C36)	mg/kg	<50	120	120	160	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	100	100	170	<100
TRH >C_{34} -C_{40}	mg/kg	100	190	110	140	<100
Total +ve TRH (>C10-C40)	mg/kg	100	300	210	310	<50
Surrogate o-Terphenyl	%	96	93	86	94	87

svTRH (C10-C40) in Soil						
Our Reference		375903-13	375903-16	375903-19	375903-21	375903-25
Your Reference	UNITS	BH5	BH6	BH7	BH8	BH9
Depth		0-0.1	0-0.2	0.1-0.2	0-0.1	0.1-0.3
Date Sampled		12/03/2025	11/03/2025	17/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	340	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	340	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	320	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	270	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	590	<50
Surrogate o-Terphenyl	%	90	93	85	87	90

svTRH (C10-C40) in Soil						
Our Reference		375903-26	375903-29	375903-31	375903-34	375903-38
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		13/03/2025	12/03/2025	13/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	140	100	110	<100	<100
Total +ve TRH (C10-C36)	mg/kg	140	100	110	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	130	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	180	140	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	310	140	<50	<50	<50
Surrogate o-Terphenyl	%	91	87	91	84	86

svTRH (C10-C40) in Soil						
Our Reference		375903-40	375903-41	375903-43	375903-47	375903-51
Your Reference	UNITS	BH14	BH15	BH16	BH17	BH18
Depth		1-1.2	0-0.1	0-0.1	0-0.1	0.1-0.2
Date Sampled		17/03/2025	13/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	22/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	190	120
TRH C_{29} - C_{36}	mg/kg	<100	<100	170	250	290
Total +ve TRH (C10-C36)	mg/kg	<50	<50	170	440	420
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	150	300	310
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	270	320
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	150	570	640
Surrogate o-Terphenyl	%	97	85	106	99	97

svTRH (C10-C40) in Soil						
Our Reference		375903-53	375903-58	375903-62	375903-64	375903-67
Your Reference	UNITS	BH19	BH20	BH21	BH22	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0.36-0.45	-
Date Sampled		14/03/2025	14/03/2025	17/03/2025	17/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	22/03/2025	22/03/2025	22/03/2025	22/03/2025	22/03/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	110	<100	<100
TRH C_{29} - C_{36}	mg/kg	220	140	210	<100	160
Total +ve TRH (C10-C36)	mg/kg	220	140	320	<50	160
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	220	140	210	<100	150
TRH >C_{34} -C_{40}	mg/kg	170	180	250	<100	190
Total +ve TRH (>C10-C40)	mg/kg	390	320	460	<50	340
Surrogate o-Terphenyl	%	95	100	101	94	99

svTRH (C10-C40) in Soil			
Our Reference		375903-68	375903-70
Your Reference	UNITS	SDUP3	TB
Depth		-	-
Date Sampled		12/03/2025	11/03/2025
Type of sample		Soil	Soil
Date extracted	-	19/03/2025	19/03/2025
Date analysed	-	22/03/2025	22/03/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	110	<100
Total +ve TRH (C10-C36)	mg/kg	110	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	160	<100
Total +ve TRH (>C10-C40)	mg/kg	160	<50
Surrogate o-Terphenyl	%	96	104

PAHs in Soil						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-10
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH4
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Naphthalene	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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.1	<0.05	<0.05	0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	104	93	98	106	97

PAHs in Soil						
Our Reference		375903-13	375903-16	375903-19	375903-21	375903-25
Your Reference	UNITS	BH5	BH6	BH7	BH8	BH9
Depth		0-0.1	0-0.2	0.1-0.2	0-0.1	0.1-0.3
Date Sampled		12/03/2025	11/03/2025	17/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Naphthalene	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	0.2	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.2	<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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.56	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	97	88	98	99	99

PAHs in Soil						
Our Reference		375903-26	375903-29	375903-31	375903-34	375903-38
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		13/03/2025	12/03/2025	13/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Naphthalene	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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	108	98	94	100	100

PAHs in Soil						
Our Reference		375903-40	375903-41	375903-43	375903-47	375903-51
Your Reference	UNITS	BH14	BH15	BH16	BH17	BH18
Depth		1-1.2	0-0.1	0-0.1	0-0.1	0.1-0.2
Date Sampled		17/03/2025	13/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Naphthalene	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	0.3
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
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	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	1.5
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	103	103	108	112	118

PAHs in Soil						
Our Reference		375903-53	375903-58	375903-62	375903-64	375903-67
Your Reference	UNITS	BH19	BH20	BH21	BH22	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0.36-0.45	-
Date Sampled		14/03/2025	14/03/2025	17/03/2025	17/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Naphthalene	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	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.09	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	0.4	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	103	122	116	118	107

PAHs in Soil			
Our Reference		375903-68	375903-70
Your Reference	UNITS	SDUP3	TB
Depth		-	-
Date Sampled		12/03/2025	11/03/2025
Type of sample		Soil	Soil
Date extracted	-	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	106	111

Organochlorine Pesticides in soil						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-13
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0-0.1
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	12/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	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 +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	68	67	65	73	72

Organochlorine Pesticides in soil						
Our Reference		375903-16	375903-19	375903-21	375903-25	375903-26
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.2	0.1-0.2	0-0.1	0.1-0.3	0-0.1
Date Sampled		11/03/2025	17/03/2025	12/03/2025	17/03/2025	13/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	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 +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	69	73	71	77	72

Organochlorine Pesticides in soil						
Our Reference		375903-29	375903-31	375903-34	375903-38	375903-40
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	1-1.2
Date Sampled		12/03/2025	13/03/2025	12/03/2025	17/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	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 +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	71	72	69	76	75

Organochlorine Pesticides in soil						
Our Reference		375903-41	375903-43	375903-47	375903-51	375903-53
Your Reference	UNITS	BH15	BH16	BH17	BH18	BH19
Depth		0-0.1	0-0.1	0-0.1	0.1-0.2	0-0.1
Date Sampled		13/03/2025	14/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	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 +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	73	85	90	87	89

Organochlorine Pesticides in soil						
Our Reference		375903-58	375903-62	375903-64	375903-67	375903-68
Your Reference	UNITS	BH20	BH21	BH22	SDUP1	SDUP3
Depth		0-0.1	0-0.1	0.36-0.45	-	-
Date Sampled		14/03/2025	17/03/2025	17/03/2025	11/03/2025	12/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	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 +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	88	88	89	125	121

Organophosphorus Pesticides in Soil						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-13
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0-0.1
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	12/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	68	67	65	73	72

Organophosphorus Pesticides in Soil						
Our Reference		375903-16	375903-19	375903-21	375903-25	375903-26
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.2	0.1-0.2	0-0.1	0.1-0.3	0-0.1
Date Sampled		11/03/2025	17/03/2025	12/03/2025	17/03/2025	13/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	69	73	71	77	72

Organophosphorus Pesticides in Soil						
Our Reference		375903-29	375903-31	375903-34	375903-38	375903-40
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	1-1.2
Date Sampled		12/03/2025	13/03/2025	12/03/2025	17/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	71	72	69	76	75

Organophosphorus Pesticides in Soil						
Our Reference		375903-41	375903-43	375903-47	375903-51	375903-53
Your Reference	UNITS	BH15	BH16	BH17	BH18	BH19
Depth		0-0.1	0-0.1	0-0.1	0.1-0.2	0-0.1
Date Sampled		13/03/2025	14/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	73	85	90	87	89

Organophosphorus Pesticides in Soil						
Our Reference		375903-58	375903-62	375903-64	375903-67	375903-68
Your Reference	UNITS	BH20	BH21	BH22	SDUP1	SDUP3
Depth		0-0.1	0-0.1	0.36-0.45	-	-
Date Sampled		14/03/2025	17/03/2025	17/03/2025	11/03/2025	12/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	88	88	89	125	121

PCBs in Soil						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-13
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0-0.1
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	12/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	70	64	68	71	71

PCBs in Soil						
Our Reference		375903-16	375903-19	375903-21	375903-25	375903-26
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.2	0.1-0.2	0-0.1	0.1-0.3	0-0.1
Date Sampled		11/03/2025	17/03/2025	12/03/2025	17/03/2025	13/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	68	70	68	71	68

PCBs in Soil						
Our Reference		375903-29	375903-31	375903-34	375903-38	375903-40
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	1-1.2
Date Sampled		12/03/2025	13/03/2025	12/03/2025	17/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	68	68	66	67	70

PCBs in Soil						
Our Reference		375903-41	375903-43	375903-47	375903-51	375903-53
Your Reference	UNITS	BH15	BH16	BH17	BH18	BH19
Depth		0-0.1	0-0.1	0-0.1	0.1-0.2	0-0.1
Date Sampled		13/03/2025	14/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	68	79	79	79	83

PCBs in Soil						
Our Reference		375903-58	375903-62	375903-64	375903-67	375903-68
Your Reference	UNITS	BH20	BH21	BH22	SDUP1	SDUP3
Depth		0-0.1	0-0.1	0.36-0.45	-	-
Date Sampled		14/03/2025	17/03/2025	17/03/2025	11/03/2025	12/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	82	79	78	107	102

Acid Extractable metals in soil						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-10
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH4
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Arsenic	mg/kg	<4	<4	6	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	69	89	9	19	3
Copper	mg/kg	31	28	7	84	2
Lead	mg/kg	8	12	16	41	11
Mercury	mg/kg	0.2	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	67	82	3	12	<1
Zinc	mg/kg	42	120	29	140	2

Acid Extractable metals in soil						
Our Reference		375903-13	375903-16	375903-19	375903-21	375903-25
Your Reference	UNITS	BH5	BH6	BH7	BH8	BH9
Depth		0-0.1	0-0.2	0.1-0.2	0-0.1	0.1-0.3
Date Sampled		12/03/2025	11/03/2025	17/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Arsenic	mg/kg	<4	<4	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	10	5	4	3
Copper	mg/kg	14	23	15	7	1
Lead	mg/kg	11	15	8	20	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	8	13	2	<1
Zinc	mg/kg	21	75	15	18	2

Acid Extractable metals in soil						
Our Reference		375903-26	375903-29	375903-31	375903-34	375903-38
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		13/03/2025	12/03/2025	13/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	3	6	5	6	6
Copper	mg/kg	9	3	7	8	14
Lead	mg/kg	8	11	16	26	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	2	7	4	3
Zinc	mg/kg	12	13	26	110	24

Acid Extractable metals in soil						
Our Reference		375903-40	375903-41	375903-43	375903-47	375903-51
Your Reference	UNITS	BH14	BH15	BH16	BH17	BH18
Depth		1-1.2	0-0.1	0-0.1	0-0.1	0.1-0.2
Date Sampled		17/03/2025	13/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	3	3	2	3	37
Copper	mg/kg	<1	9	4	7	49
Lead	mg/kg	5	8	9	33	33
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	3	<1	1	11
Zinc	mg/kg	2	20	8	41	48

Acid Extractable metals in soil						
Our Reference		375903-53	375903-58	375903-62	375903-64	375903-67
Your Reference	UNITS	BH19	BH20	BH21	BH22	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0.36-0.45	-
Date Sampled		14/03/2025	14/03/2025	17/03/2025	17/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Arsenic	mg/kg	9	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	3	4	25	5
Copper	mg/kg	16	6	3	20	5
Lead	mg/kg	15	10	11	26	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	2	2	18	2
Zinc	mg/kg	19	34	15	37	21

Acid Extractable metals in soil				
Our Reference		375903-68	375903-70	375903-72
Your Reference	UNITS	SDUP3	TB	BH10 - [TRIPLICATE]
Depth		-	-	0-0.1
Date Sampled		12/03/2025	11/03/2025	13/03/2025
Type of sample		Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	7	3	3
Copper	mg/kg	9	<1	9
Lead	mg/kg	11	3	10
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	3	<1	2
Zinc	mg/kg	20	3	12

Moisture						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-10
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH4
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Moisture	%	5.3	27	20	27	8.4

Moisture						
Our Reference		375903-13	375903-16	375903-19	375903-21	375903-25
Your Reference	UNITS	BH5	BH6	BH7	BH8	BH9
Depth		0-0.1	0-0.2	0.1-0.2	0-0.1	0.1-0.3
Date Sampled		12/03/2025	11/03/2025	17/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Moisture	%	10	13	4.8	10	16

Moisture						
Our Reference		375903-26	375903-29	375903-31	375903-34	375903-38
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		13/03/2025	12/03/2025	13/03/2025	12/03/2025	17/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Moisture	%	15	15	18	11	16

Moisture						
Our Reference		375903-40	375903-41	375903-43	375903-47	375903-51
Your Reference	UNITS	BH14	BH15	BH16	BH17	BH18
Depth		1-1.2	0-0.1	0-0.1	0-0.1	0.1-0.2
Date Sampled		17/03/2025	13/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Moisture	%	17	19	5.2	5.8	9.5

Moisture						
Our Reference		375903-53	375903-58	375903-62	375903-64	375903-67
Your Reference	UNITS	BH19	BH20	BH21	BH22	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0.36-0.45	-
Date Sampled		14/03/2025	14/03/2025	17/03/2025	17/03/2025	11/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Moisture	%	8.7	6.9	19	9.4	11

Moisture			
Our Reference		375903-68	375903-70
Your Reference	UNITS	SDUP3	TB
Depth		-	-
Date Sampled		12/03/2025	11/03/2025
Type of sample		Soil	Soil
Date prepared	-	19/03/2025	19/03/2025
Date analysed	-	20/03/2025	20/03/2025
Moisture	%	10	2.9

Asbestos ID - soils NEPM - ASB-001						
Our Reference		375903-1	375903-3	375903-6	375903-9	375903-13
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.06-0.25	0.09-0.3	0-0.2	0-0.2	0-0.1
Date Sampled		11/03/2025	11/03/2025	11/03/2025	11/03/2025	12/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Sample mass tested	g	901.82	1,196.83	658.34	444.77	872.03
Sample Description	-	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001						
Our Reference		375903-16	375903-19	375903-21	375903-25	375903-26
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.2	0.1-0.2	0-0.1	0.1-0.3	0-0.1
Date Sampled		11/03/2025	17/03/2025	12/03/2025	17/03/2025	13/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Sample mass tested	g	723.62	784.39	662.1	776.49	722.75
Sample Description	-	Brown coarse-grained soil & rocks	Brown sandy soil	Brown sandy soil	Grey fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001						
Our Reference		375903-29	375903-31	375903-34	375903-38	375903-41
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH15
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		12/03/2025	13/03/2025	12/03/2025	17/03/2025	13/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Sample mass tested	g	687.8	683.13	653.37	772.18	783.19
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001						
Our Reference		375903-43	375903-47	375903-51	375903-53	375903-58
Your Reference	UNITS	BH16	BH17	BH18	BH19	BH20
Depth		0-0.1	0-0.1	0.1-0.2	0-0.1	0-0.1
Date Sampled		14/03/2025	14/03/2025	14/03/2025	14/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Sample mass tested	g	806.43	673.45	895.01	683.99	749.25
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001			
Our Reference		375903-62	375903-64
Your Reference	UNITS	BH21	BH22
Depth		0-0.1	0.36-0.45
Date Sampled		17/03/2025	17/03/2025
Type of sample		Soil	Soil
Date analysed	-	25/03/2025	25/03/2025
Sample mass tested	g	756.69	827.38
Sample Description	-	Brown sandy soil	Beige coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–
FA and AF Estimation*	g	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001
Asbestos comments	-	Nil	Nil

vTRH(C6-C10)/BTEXN in Water		
Our Reference	UNITS	375903-69
Your Reference		FR1-Auger
Depth		-
Date Sampled		12/03/2025
Type of sample		Water
Date extracted	-	21/03/2025
Date analysed	-	24/03/2025
TRH C_6 - C_9	µg/L	47
TRH C_6 - C_{10}	µg/L	49
TRH C_6 - C_{10} less BTEX (F1)	µg/L	49
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	96

svTRH (C10-C40) in Water		
Our Reference	UNITS	375903-69
Your Reference		FR1-Auger
Depth		-
Date Sampled		12/03/2025
Type of sample		Water
Date extracted	-	19/03/2025
Date analysed	-	21/03/2025
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	96

PAHs in Water		
Our Reference	UNITS	375903-69
Your Reference		FR1-Auger
Depth		-
Date Sampled		12/03/2025
Type of sample		Water
Date extracted	-	19/03/2025
Date analysed	-	21/03/2025
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	74

Metals in Waters - Acid extractable		
Our Reference		375903-69
Your Reference	UNITS	FR1-Auger
Depth		-
Date Sampled		12/03/2025
Type of sample		Water
Date prepared	-	21/03/2025
Date analysed	-	21/03/2025
Arsenic - Total	mg/L	<0.05
Cadmium - Total	mg/L	<0.01
Chromium - Total	mg/L	<0.01
Copper - Total	mg/L	0.3
Lead - Total	mg/L	<0.03
Mercury - Total	mg/L	<0.0005
Nickel - Total	mg/L	<0.02
Zinc - Total	mg/L	<0.02

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE#1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF relative to the sample mass tested) NOTE#2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	375903-3
Date extracted	-			19/03/2025	1	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			24/03/2025	1	24/03/2025	24/03/2025		24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	101	95
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	101	95
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	93	89
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	98	90
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	104	98
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	105	98
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	104	96
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	81	1	86	83	4	86	80

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	375903-62
Date extracted	-			[NT]	26	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			[NT]	26	24/03/2025	24/03/2025		24/03/2025	24/03/2025
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	26	<25	<25	0	101	91
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	26	<25	<25	0	101	91
Benzene	mg/kg	0.2	Org-023	[NT]	26	<0.2	<0.2	0	97	87
Toluene	mg/kg	0.5	Org-023	[NT]	26	<0.5	<0.5	0	98	87
Ethylbenzene	mg/kg	1	Org-023	[NT]	26	<1	<1	0	102	93
m+p-xylene	mg/kg	2	Org-023	[NT]	26	<2	<2	0	103	94
o-Xylene	mg/kg	1	Org-023	[NT]	26	<1	<1	0	101	92
Naphthalene	mg/kg	1	Org-023	[NT]	26	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	26	81	85	5	87	78

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	58	19/03/2025	19/03/2025		[NT]	[NT]
Date analysed	-			[NT]	58	24/03/2025	24/03/2025		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	58	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	58	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	58	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	58	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	58	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	58	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	58	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	58	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	58	86	79	8	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	375903-3
Date extracted	-			19/03/2025	1	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			21/03/2025	1	21/03/2025	21/03/2025		21/03/2025	21/03/2025
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	78
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	89	73
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	111
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	78
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	89	73
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	100	150	40	100	111
Surrogate o-Terphenyl	%		Org-020	100	1	96	90	6	109	93

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	375903-62
Date extracted	-			[NT]	26	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			[NT]	26	21/03/2025	21/03/2025		22/03/2025	22/03/2025
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	26	<50	<50	0	90	102
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	26	<100	<100	0	77	104
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	26	140	130	7	100	128
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	26	<50	<50	0	90	102
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	26	130	130	0	77	104
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	26	180	170	6	100	128
Surrogate o-Terphenyl	%		Org-020	[NT]	26	91	91	0	101	101

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	58	19/03/2025	19/03/2025		[NT]	[NT]
Date analysed	-			[NT]	58	22/03/2025	22/03/2025		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	58	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	58	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	58	140	140	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	58	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	58	140	140	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	58	180	170	6	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	58	100	96	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	375903-3
Date extracted	-			19/03/2025	1	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			21/03/2025	1	21/03/2025	21/03/2025		21/03/2025	21/03/2025
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	81
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	70
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	72
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	0.1	0	82	75
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	78
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	82
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	96
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	78	78
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	107	1	104	101	3	87	79

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	375903-62
Date extracted	-			[NT]	26	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			[NT]	26	21/03/2025	21/03/2025		21/03/2025	21/03/2025
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	80	82
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	72	72
Fluorene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	74	74
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	82	84
Anthracene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	86	84
Pyrene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	84	87
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	94	92
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	26	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	26	<0.05	<0.05	0	78	74
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	26	108	98	10	90	97

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	58	19/03/2025	19/03/2025		[NT]	[NT]
Date analysed	-			[NT]	58	21/03/2025	21/03/2025		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	58	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	58	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	58	122	110	10	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	375903-3
Date extracted	-			19/03/2025	1	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			21/03/2025	1	21/03/2025	21/03/2025		21/03/2025	21/03/2025
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	84
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	80
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	78
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	82
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	88
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	74
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	86
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	76
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	86
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	82
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	132	1	68	69	1	76	65

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	375903-62
Date extracted	-			[NT]	26	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			[NT]	26	21/03/2025	21/03/2025		21/03/2025	21/03/2025
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	82	84
HCB	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	78	82
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	62	64
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	88	86
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	102	98
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	78	82
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	94	100
Endrin	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	82	70
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	84	96
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	76	78
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	26	72	70	3	81	85

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	58	19/03/2025	19/03/2025		[NT]	[NT]
Date analysed	-			[NT]	58	21/03/2025	21/03/2025		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	58	88	84	5	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	375903-3
Date extracted	-			19/03/2025	1	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			21/03/2025	1	21/03/2025	21/03/2025		21/03/2025	21/03/2025
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	92
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	82
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	90
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	94
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	90
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	76
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	78
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	132	1	68	69	1	76	65

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	375903-62
Date extracted	-			[NT]	26	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			[NT]	26	21/03/2025	21/03/2025		21/03/2025	21/03/2025
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	92	92
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	88	90
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	108	122
Malathion	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	98	100
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	94	90
Fenthion	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	94	100
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	76	92
Phosalone	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	26	72	70	3	81	85

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	58	19/03/2025	19/03/2025		[NT]	[NT]
Date analysed	-			[NT]	58	21/03/2025	21/03/2025		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	58	88	84	5	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	375903-3
Date extracted	-			19/03/2025	1	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			21/03/2025	1	21/03/2025	21/03/2025		21/03/2025	21/03/2025
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	90	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	109	1	70	68	3	75	66

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	375903-62
Date extracted	-			[NT]	26	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			[NT]	26	21/03/2025	21/03/2025		21/03/2025	21/03/2025
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	26	<0.1	<0.1	0	87	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	26	68	68	0	74	74

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	58	19/03/2025	19/03/2025		[NT]	[NT]
Date analysed	-			[NT]	58	21/03/2025	21/03/2025		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	58	82	80	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	375903-3
Date prepared	-			19/03/2025	1	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			20/03/2025	1	20/03/2025	20/03/2025		20/03/2025	20/03/2025
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	118	110
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	110	88
Chromium	mg/kg	1	Metals-020	<1	1	69	72	4	112	103
Copper	mg/kg	1	Metals-020	<1	1	31	22	34	114	118
Lead	mg/kg	1	Metals-020	<1	1	8	6	29	110	93
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.2	<0.1	67	113	113
Nickel	mg/kg	1	Metals-020	<1	1	67	62	8	112	100
Zinc	mg/kg	1	Metals-020	<1	1	42	32	27	115	72

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	375903-62
Date prepared	-			[NT]	26	19/03/2025	19/03/2025		19/03/2025	19/03/2025
Date analysed	-			[NT]	26	20/03/2025	20/03/2025		20/03/2025	20/03/2025
Arsenic	mg/kg	4	Metals-020	[NT]	26	<4	<4	0	111	116
Cadmium	mg/kg	0.4	Metals-020	[NT]	26	<0.4	<0.4	0	104	102
Chromium	mg/kg	1	Metals-020	[NT]	26	3	5	50	106	109
Copper	mg/kg	1	Metals-020	[NT]	26	9	13	36	107	110
Lead	mg/kg	1	Metals-020	[NT]	26	8	13	48	104	104
Mercury	mg/kg	0.1	Metals-021	[NT]	26	<0.1	<0.1	0	110	110
Nickel	mg/kg	1	Metals-020	[NT]	26	2	3	40	106	106
Zinc	mg/kg	1	Metals-020	[NT]	26	12	24	67	109	108

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	58	19/03/2025	19/03/2025		[NT]	[NT]
Date analysed	-			[NT]	58	20/03/2025	20/03/2025		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	58	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	58	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	58	3	4	29	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	58	6	6	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	58	10	10	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	58	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	58	2	2	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	58	34	33	3	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Date analysed	-			24/03/2025	[NT]	[NT]	[NT]	[NT]	24/03/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	91	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	91	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate Toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			19/03/2025	[NT]	[NT]	[NT]	[NT]	19/03/2025	[NT]
Date analysed	-			20/03/2025	[NT]	[NT]	[NT]	[NT]	20/03/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	132	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	132	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	111	[NT]
Surrogate o-Terphenyl	%		Org-020	95	[NT]	[NT]	[NT]	[NT]	140	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			19/03/2025	[NT]	[NT]	[NT]	[NT]	19/03/2025	[NT]
Date analysed	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	81	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	75	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	77	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	77	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Date analysed	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	110	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	106	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	104	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	113	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	105	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	106	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 375903-26 for Pb & Zn. Therefore a triplicate result has been issued as laboratory sample number 375903-72.

vTRH & BTEXN in Water NEPM - TRH C6-C9/C6-C10 Results are positive (or in part positive) due to the presence of THMs within the sample.

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E37444BT, Narrabeen, NSW
Envirolab Reference	375903
Date Sample Received	18/03/2025
Date Instructions Received	18/03/2025
Date Results Expected to be Reported	26/03/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	70 Soil, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	On Hold
BH1 -0.06-	✓	✓	✓	✓	✓	✓	✓	✓					
BH1-0.25-0.4													✓
BH2-0.09-0.3	✓	✓	✓	✓	✓	✓	✓	✓					
BH2-0.4-0.5													✓
BH2-0.9-1.0													✓
BH3-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓					
BH3-0.4-0.5													✓
BH3-0.9-1.0													✓
BH4-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓					
BH4-0.4-0.5	✓	✓	✓				✓						
BH4-0.9-1.0													✓
BH4-1.51-1.6													✓
BH5-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH5-0.4-0.5													✓
BH5-0.8-1.0													✓
BH6-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓					
BH6-0.4-0.5													✓
BH6-0.7-0.8													✓
BH7-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓					
BH7-0.3-0.4													✓
BH8-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH8-0.4-0.5													✓
BH8-0.9-1.0													✓
BH8-1.1-1.2													✓
BH9-0.1-0.3	✓	✓	✓	✓	✓	✓	✓	✓					
BH10 -0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH10-0.3-0.5													✓
BH10-0.9-1.0													✓
BH11-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH11-0.4-0.5													✓
BH12-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH12-0.4-0.5													✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	On Hold
BH12-0.9-1.0													✓
BH13-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH13-0.4-0.5													✓
BH13-0.8-1.0													✓
BH13-1.4-1.5													✓
BH14-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH14-0.4-0.5													✓
BH14-1-1.2	✓	✓	✓	✓	✓	✓	✓						
BH15-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH15-0.4-0.5													✓
BH16-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH16-0.3-0.4													✓
BH16-0.7-0.8													✓
BH16-0.8-0.9													✓
BH17-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH17-0.4-0.5													✓
BH17-0.9-1.0													✓
BH17-1.3-1.4													✓
BH18-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓					
BH18-0.4-0.5													✓
BH19-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH19-0.4-0.5													✓
BH19-0.9-1.0													✓
BH19-1.4-1.5													✓
BH19-1.9-2.0													✓
BH20-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH20-0.5-0.6													✓
BH20-0.9-1.0													✓
BH20-1.4-1.5													✓
BH21-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH21-0.2-0.4													✓
BH22-0.36-0.45	✓	✓	✓	✓	✓	✓	✓	✓					

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	On Hold
BH22-0.6-0.8													✓
BH22-1.3-1.5													✓
SDUP1	✓	✓	✓	✓	✓	✓	✓						
SDUP3	✓	✓	✓	✓	✓	✓	✓						
FR1-Auger									✓	✓	✓	✓	
TB	✓	✓	✓				✓						
TS	✓												

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E37444BT Date Results Required: STANDARD Page: 1 of 3	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Katrina Taylor ktaylor@jkenvironments.com.au

Location:	Narrabeen, NSW	Sample Preserved in Esky on Ice
Sampler:	LR/ VR	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#6	#3	Asbestos detection	BTEX							
11/03/2025	1	BH1	0.06-0.25	G, A	0	F: Gravelly Sand	X											
11/03/2025	2	BH1	0.25-0.4	G, A	0	Sandstone												
11/03/2025	3	BH2	0.09-0.3	G, A	0	F: Silty Gravelly Sand	X											
11/03/2025	4	BH2	0.4-0.5	G, A	0	Sandstone												
11/03/2025	5	BH2	0.9-1.0	G, A	0.2	Sandstone												
11/03/2025	6	BH3	0-0.2	G, A	0	F: Silty Sand	X											
11/03/2025	7	BH3	0.4-0.5	G, A	0	F: Silty Sand												
11/03/2025	8	BH3	0.9-1.0	G, A	0	Sandstone												
11/03/2025	9	BH4	0-0.2	G, A	0	F: Silty Clay	X											
11/03/2025	10	BH4	0.4-0.5	G, A	0	F: Gravelly Silty Sand			X									
11/03/2025	11	BH4	0.9-1.0	G, A	0	F: Gravelly Silty Sand												
11/03/2025	12	BH4	1.51-1.6	G	0	Sandstone												
12/03/2025	13	BH5	0-0.1	G, A	0	F: Silty Sand	X											
12/03/2025	14	BH5	0.4-0.5	G, A	0	F: Silty Sand												
12/03/2025	15	BH5	0.8-1.0	G, A	0	Sandstone												
11/03/2025	16	BH6	0-0.2	G, A	0	F: Gravelly Silty Sand	X											
11/03/2025	17	BH6	0.4-0.5	G, A	0	F: Gravelly Silty Sand												
11/03/2025	18	BH6	0.7-0.8	G	0	Sandstone												
17/03/2025	19	BH7	0.1-0.2	G, A	0.1	F: Silty Sand	X											
17/03/2025	20	BH7	0.3-0.4	G, A	0	F: Silty Sand												
12/03/2025	21	BH8	0-0.1	G, A	0	F: Silty Sand	X											
12/03/2025	22	BH8	0.4-0.5	G, A	0	F: Silty Sand												
12/03/2025	23	BH8	0.9-1.0	G, A	0	F: Silty Sand												
12/03/2025	24	BH8	1.1-1.2	G	0	Sandstone												
17/03/2025	25	BH9	0.1-0.3	G, A	0	F: Silty Sand	X											

ENVIROLAB GROUP

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 375903
Date Received: 18/3/25
Time Received: 1700
Received By: CW
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
AD	18/03/25	1:30PM		

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD	JKE Job Number: E37444BT	JKEnvironments
12 ASHLEY STREET		REAR OF 115 WICKS ROAD
CHATSWOOD NSW 2067		MACQUARIE PARK, NSW 2113
P: (02) 99106200	Date Results Required: STANDARD	P: 02-9888 5000 F: 02-9888 5001
F: (02) 99106201		Attention: Katrina Taylor
Attention: Aileen	Page: 2 of 3	ktaylor@jkenvironments.com.au

Location:	Narrabeen, NSW	Sample Preserved in Esky on Ice
Sampler:	LR/ VR	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#6	#3	Asbestos detection	BTEX							
13/03/2025	26	BH10	0-0.1	G, A	0	F: Silty Sand	X											
13/03/2025	27	BH10	0.3-0.5	G, A	0	F: Silty Sand												
13/03/2025	28	BH10	0.9-1.0	G	0	Sandstone												
12/03/2025	29	BH11	0-0.1	G, A	0	F: Silty Sand	X											
12/03/2025	30	BH11	0.4-0.5	G, A	0	Sandstone												
13/03/2025	31	BH12	0-0.1	G, A	0	F: Silty Sand	X											
13/03/2025	32	BH12	0.4-0.5	G, A	0	F: Silty Sand												
13/03/2025	33	BH12	0.9-1.0	G, A	0.2	Sandstone												
12/03/2025	34	BH13	0-0.1	G, A	0	F: Silty Sand	X											
12/03/2025	35	BH13	0.4-0.5	G, A	0	F: Silty Sand												
12/03/2025	36	BH13	0.8-1.0	G, A	0	F: Silty Sand												
12/03/2025	37	BH13	1.4-1.5	G	0	Sandstone												
	38	BH14	0-0.1	G, A	0	F: Silty Sand	X											
	39	BH14	0.4-0.5	G, A	0	F: Silty Sand												
17/03/2025	40	BH14	1-1.2	G, A	0	F: Silty Sand		X										
13/03/2025	41	BH15	0-0.1	G, A	0	F: Silty Sand	X											
13/03/2025	42	BH15	0.4-0.5	G, A	0.2	Sandstone												
14/03/2025	43	BH16	0-0.1	G, A	0	F: Silty Sand	X											
14/03/2025	44	BH16	0.3-0.4	G, A	0	F: Silty Sand												
14/03/2025	45	BH16	0.7-0.8	G	0.1	Sandy Clay												
14/03/2025	46	BH16	0.8-0.9	G, A	0	Sandstone												
14/03/2025	47	BH17	0-0.1	G, A	0	F: Silty Sand	X											
14/03/2025	48	BH17	0.4-0.5	G, A	0	F: Silty Sand												
14/03/2025	49	BH17	0.9-1.0	G, A	0	F: Silty Sand												
14/03/2025	SC	BH17	1.3-1.4	G	1.3	Sandstone												

Remarks (comments/detection limits required):	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	375903 18/3/25

Relinquished By:	Date:	Time:	Received By:	Date:

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E37444BT Date Results Required: STANDARD Page: 3 of 3	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Katrina Taylor ktaylor@jkenvironments.com.au

Location:	Narrabeen, NSW	Sample Preserved in Esky on Ice
Sampler:	LR/ VR	Tests Required

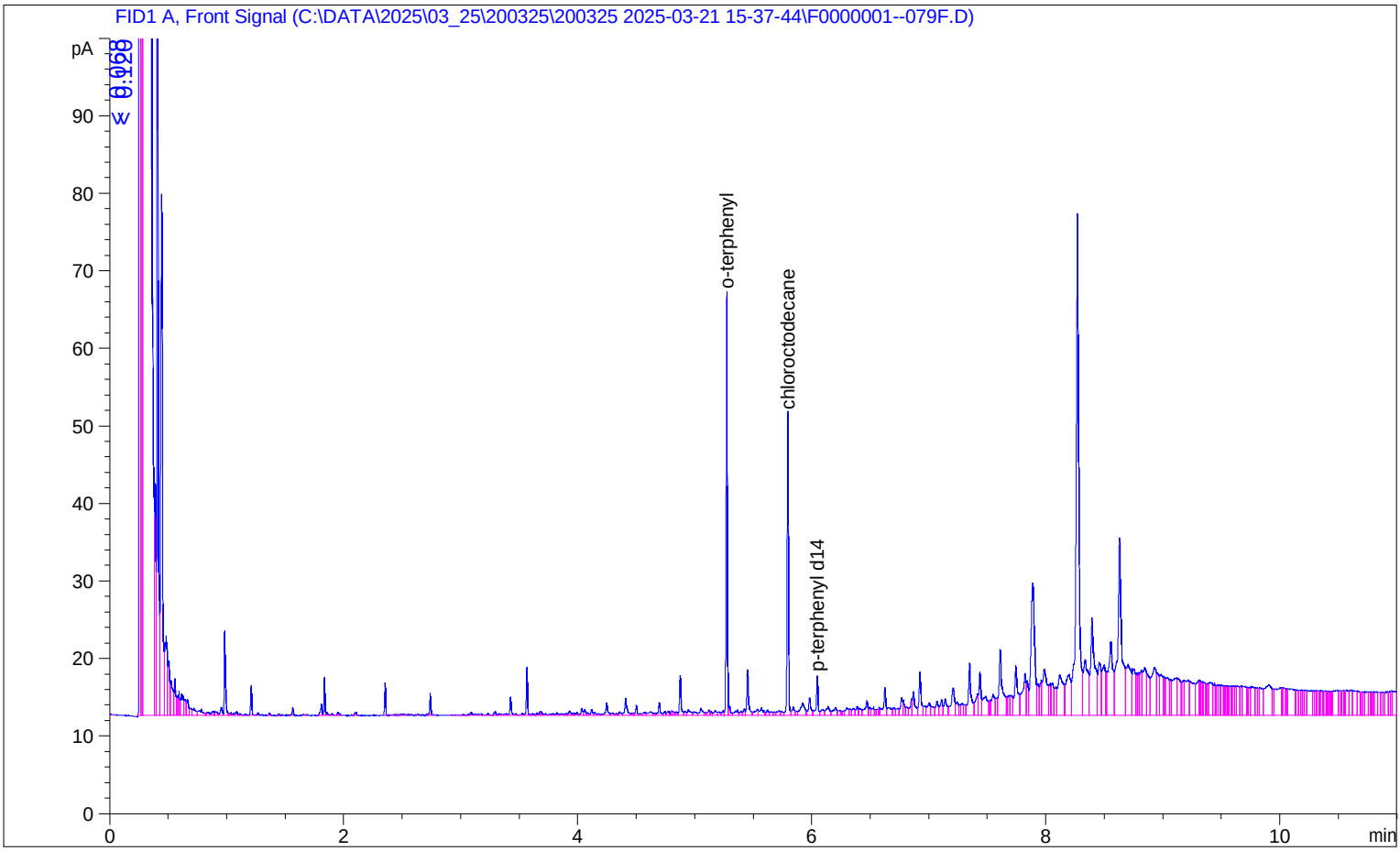
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#6	#3	Asbestos detection	BTEX							
14/03/2025	51	BH18	0.1-0.2	G, A	0	F: Gravelly Sand	X											
14/03/2025	52	BH18	0.4-0.5	G, A	0	Sandstone												
14/03/2025	53	BH19	0-0.1	G, A	0.1	F: Silty Sand	X											
14/03/2025	54	BH19	0.4-0.5	G, A	0	F: Silty Sand												
14/03/2025	55	BH19	0.9-1.0	G, A	0	F: Silty Sand												
14/03/2025	56	BH19	1.4-1.5	G, A	0	F: Silty Sand												
14/03/2025	57	BH19	1.9-2.0	G	1.5	Sandstone												
14/03/2025	58	BH20	0-0.1	G, A	0	F: Silty Sand	X											
14/03/2025	59	BH20	0.5-0.6	G, A	0	F: Silty Sand												
14/03/2025	60	BH20	0.9-1.0	G	0	Sand												
14/03/2025	61	BH20	1.4-1.5	G	0	Sandstone												
17/03/2025	62	BH21	0-0.1	G, A	0.1	F: Silty Sand	X											
17/03/2025	63	BH21	0.2-0.4	G, A	0.2	F: Silty Sand												
17/03/2025	64	BH22	0.36-0.45	G, A	0.1	F: Silty Sand	X											
17/03/2025	65	BH22	0.6-0.8	G, A	0	F: Silty Sand												
17/03/2025	66	BH22	1.3-1.5	G, A	0.1	F: Silty Sand												
11/03/2025	67	SDUP1	-	G	-	Duplicate		X										
11/03/2025	S/O	SDUP2	-	G	-	Duplicate		X	Please send to Melbourne Envirolab									
12/03/2025	68	SDUP3	-	G	-	Duplicate		X										
12/03/2025	S/O	SDUP4	-	G	-	Duplicate		X	Please send to Melbourne Envirolab									
12/03/2025	69	FR1-Auger	-	#3	-	Field Rinsate			X									
11/03/2025	70	TB	-	V	-	Trip Blank			X									
11/03/2025	71	TS	-	V	-	Trip Spike					X							

Remarks (comments/detection limits required):	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	375988 18/3/25

Relinquished By:	Date:	Time:	Received By:	Date:
AD	18/03/25	1:30PM	CW	

Data File C:\DATA\2025\03_25\200325\200325 2025-03-21 15-37-44\F0000001--079F.D
Sample Name: s375903-21

```
==========================================================================
Acq. Operator   : SYSTEM                          Seq. Line :  79
Sample Operator : SYSTEM
Acq. Instrument : GC6                             Location :   17  (F)
Injection Date  : 21-Mar-25 8:04:26 PM                 Inj :   1
                                                 Inj Volume : 1 µl
Acq. Method     : C:\DATA\2025\03_25\200325\200325 2025-03-21 15-37-44\NEPM JPW H2 V7 50C
                  star_Front onlyt.M
Last changed    : 21-Mar-25 2:31:55 PM by SYSTEM
Analysis Method : C:\00 METHODS\2025\03_25\200325-F-PROCESSING.M
Last changed    : 24-Mar-25 9:42:17 AM by SYSTEM
                  (modified after loading) (Current integration events modified)
Method Info     : FAST TPH WITH 15M HP5 COLUMNS
```




```
==========================================================================
                      External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      21-Mar-25 10:04:28 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

Data File C:\DATA\2025\03_25\200325\200325 2025-03-21 15-37-44\F0000001--079F.D
Sample Name: s375903-21

RetTime [min]	Type		Area [pA*s]	Amt/Area	Amount [mg/L]	Grp	Name
5.273	FF		38.44268	2.25265e-1	8.65980		o-terphenyl
5.794	FF	I	31.25543	2.65507e-1	8.29855		chloroctodecane
6.045	FF	I	5.15365	2.32647e-1	1.19898		p-terphenyl d14

Totals : 18.15733

==========

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [mg/L]
TRH C10-C14	1.387	3.714	20.36073	4.8962
NEPM >C10-C16	1.971	4.403	24.81245	5.9667
TRH C15-C28	3.714	7.425	163.54652	41.5918
NEPM >C16-C34	4.403	8.512	532.78921	135.4947
TRH C29-C36	7.425	8.867	528.01540	140.6908
NEPM >C34-C40	8.512	9.978	419.05934	111.6592

Totals : 440.2994

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

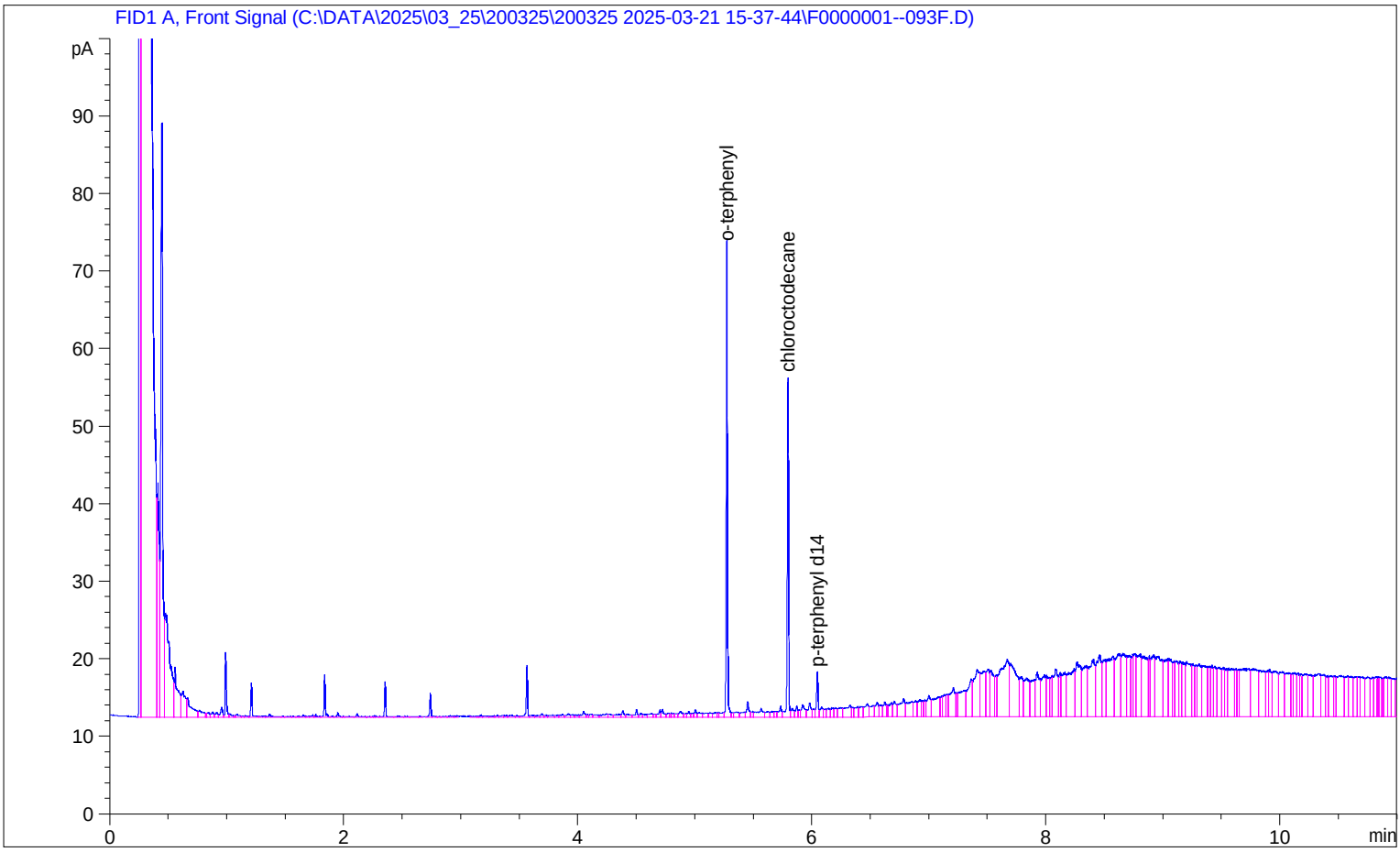
Name	Total Area [pA*s]	Amount [mg/L]
TRH C10-C14	20.36073	4.8962
NEPM >C10-C16	24.81245	5.9667
TRH C15-C28	163.54652	41.5918
NEPM >C16-C34	532.78921	135.4947
TRH C29-C36	528.01540	140.6908
NEPM >C34-C40	419.05934	111.6592
o-terphenyl	38.44268	8.6598
chloroctodecane	31.25543	8.2985
p-terphenyl d14	5.15365	1.1990

Totals : 458.4567

*** End of Report ***

Data File C:\DATA\2025\03_25\200325\200325 2025-03-21 15-37-44\F0000001--093F.D
Sample Name: s375903-51

```
==========================================================================
Acq. Operator   : SYSTEM                          Seq. Line :  93
Sample Operator : SYSTEM
Acq. Instrument : GC6                             Location :   31  (F)
Injection Date  : 21-Mar-25 11:56:01 PM                Inj :   1
                                                 Inj Volume : 1 µl
Acq. Method     : C:\DATA\2025\03_25\200325\200325 2025-03-21 15-37-44\NEPM JPW H2 V7 50C
                  star_Front onlyt.M
Last changed    : 21-Mar-25 2:31:55 PM by SYSTEM
Analysis Method : C:\00 METHODS\2025\03_25\200325-F-PROCESSING.M
Last changed    : 24-Mar-25 9:00:45 AM by SYSTEM
Method Info     : FAST TPH WITH 15M HP5 COLUMNS
```




```
==========================================================================
                    External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      21-Mar-25 10:04:28 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area     Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                [mg/L]
-------|------|----------|----------|----------|--|-----------------
  5.273 VV       43.02176 2.25265e-1    9.69131    o-terphenyl
  5.795 VV   I   34.31169 2.65507e-1    9.11001    chloroctodecane
```

Data File C:\DATA\2025\03_25\200325\200325 2025-03-21 15-37-44\F0000001--093F.D
Sample Name: s375903-51

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [mg/L]	Grp	Name
6.045	VV	I 5.78224	2.32647e-1	1.34522		p-terphenyl d14

Totals : 20.14654

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Summed Peaks Report

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Signal 1: FID1 A, Front Signal

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [mg/L]
TRH C10-C14	1.387	3.714	28.89777	6.9491
NEPM >C10-C16	1.971	4.403	33.90167	8.1524
TRH C15-C28	3.714	7.425	240.21125	61.0886
NEPM >C16-C34	4.403	8.512	604.13075	153.6377
TRH C29-C36	7.425	8.867	542.49806	144.5497
NEPM >C34-C40	8.512	9.978	601.08024	160.1590

Totals : 534.5365

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Final Summed Peaks Report

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Signal 1: FID1 A, Front Signal

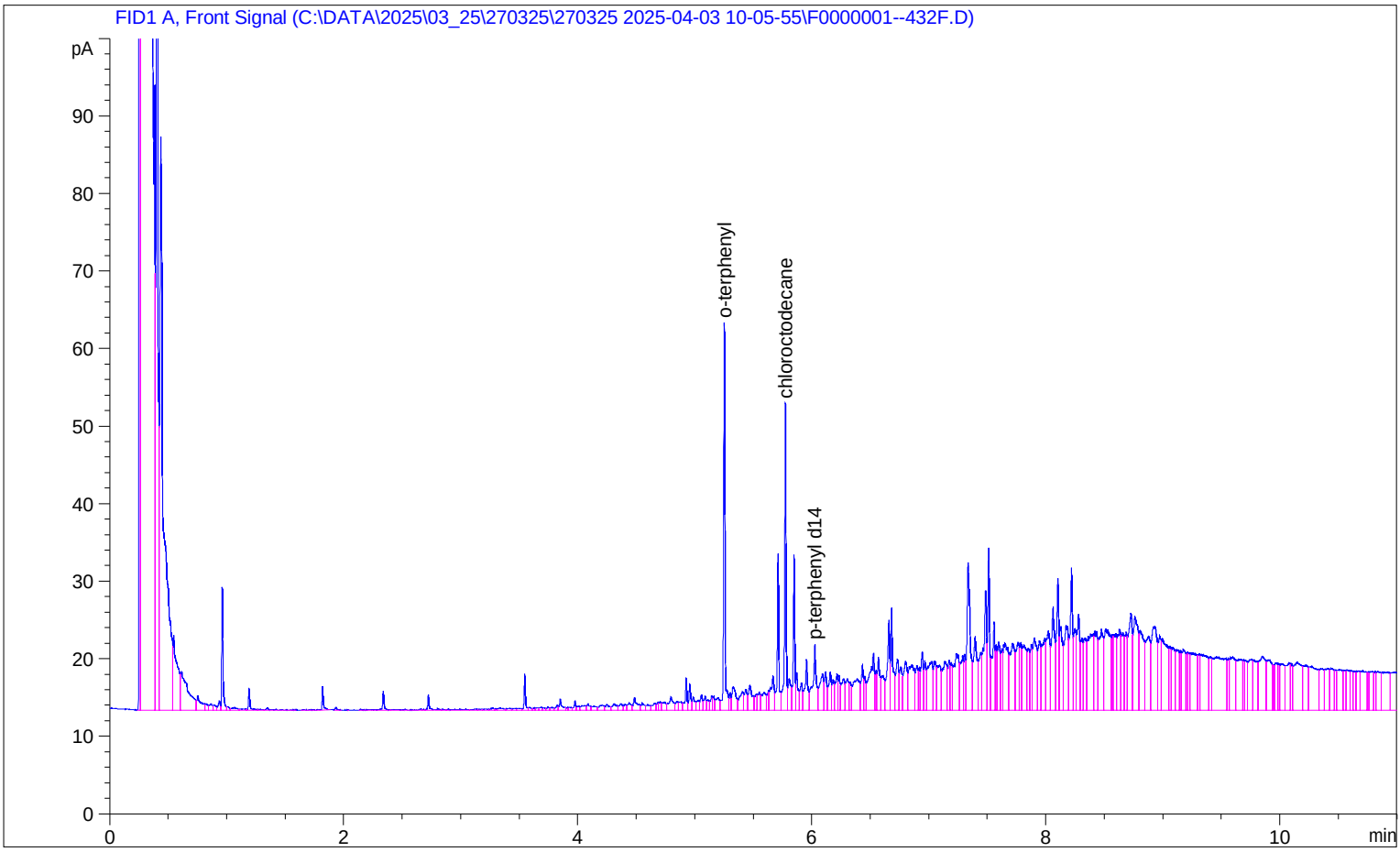
Name	Total Area [pA*s]	Amount [mg/L]
TRH C10-C14	28.89777	6.9491
NEPM >C10-C16	33.90167	8.1524
TRH C15-C28	240.21125	61.0886
NEPM >C16-C34	604.13075	153.6377
TRH C29-C36	542.49806	144.5497
NEPM >C34-C40	601.08024	160.1590
o-terphenyl	43.02176	9.6913
chloroctodecane	34.31169	9.1100
p-terphenyl d14	5.78224	1.3452

Totals : 554.6831

*** End of Report ***

Data File C:\DATA\2025\03_25\270325\270325 2025-04-03 10-05-55\F0000001--432F.D
Sample Name: s375903-a-35 rr

```
==========================================================================
Acq. Operator   : SYSTEM                          Seq. Line : 432
Sample Operator : SYSTEM
Acq. Instrument : GC6                              Location :   24  (F)
Injection Date  : 03-Apr-25 3:28:00 PM                  Inj :   1
                                                 Inj Volume : 1 µl
Acq. Method     : C:\DATA\2025\03_25\270325\270325 2025-04-03 10-05-55\NEPM JPW H2 V7 50C
                  start.M
Last changed    : 18-Mar-25 2:22:46 PM by SYSTEM
Analysis Method : C:\00 METHODS\2025\03_25\270325-F-PROCESSING.M
Last changed    : 03-Apr-25 3:42:22 PM by SYSTEM
Method Info     : FAST TPH WITH 15M HP5 COLUMNS
```




```
==========================================================================
                    External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      28-Mar-25 9:48:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                 [mg/L]
-------|------|----------|----------|----------|--|-----------------
  5.251 VV       42.58114 2.22308e-1    9.46613    o-terphenyl
  5.773 VV   I   35.33957 2.69686e-1    9.53059    chloroctodecane
```

Data File C:\DATA\2025\03_25\270325\270325 2025-04-03 10-05-55\F0000001--432F.D
Sample Name: s375903-a-35 rr

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [mg/L]	Grp	Name
6.025	VV	I 18.04786	2.43703e-1	4.39831		p-terphenyl d14

Totals : 23.39503

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Summed Peaks Report

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Signal 1: FID1 A, Front Signal

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [mg/L]
TRH C10-C14	1.370	3.720	21.19019	5.2154
NEPM >C10-C16	1.970	4.410	39.20783	9.6500
TRH C15-C28	3.721	7.440	640.35303	167.1321
NEPM >C16-C34	4.411	8.520	1246.18677	325.2547
TRH C29-C36	7.441	8.870	802.65168	218.0692
NEPM >C34-C40	8.521	9.990	667.30000	181.2961

Totals : 906.6176

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Final Summed Peaks Report

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Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [mg/L]
TRH C10-C14	21.19019	5.2154
NEPM >C10-C16	39.20783	9.6500
TRH C15-C28	640.35303	167.1321
NEPM >C16-C34	1246.18677	325.2547
TRH C29-C36	802.65168	218.0692
NEPM >C34-C40	667.30000	181.2961
o-terphenyl	42.58114	9.4661
chloroctodecane	35.33957	9.5306
p-terphenyl d14	18.04786	4.3983

Totals : 930.0127

*** End of Report ***

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 375903-A

Client Details

Client	JK Environments
Attention	Katrina Taylor
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E37444BT, Narrabeen, NSW**
Number of Samples	Additional analysis
Date samples received	18/03/2025
Date completed instructions received	26/03/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	03/04/2025
Date of Issue	03/04/2025

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Diego Bigolin, Inorganics Supervisor
Giovanni Agosti, Group Technical Manager
Liam Timmins, Organics Supervisor
Steven Luong, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		375903-A-2	375903-A-11	375903-A-22	375903-A-35	375903-A-52
Your Reference	UNITS	BH1	BH4	BH8	BH13	BH18
Depth		0.25-0.4	0.9-1.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	12/03/2025	12/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2025	28/03/2025	28/03/2025	28/03/2025	28/03/2025
Date analysed	-	31/03/2025	31/03/2025	31/03/2025	31/03/2025	31/03/2025
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	124	105	115	120	116

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		375903-A-65
Your Reference	UNITS	BH22
Depth		0.6-0.8
Date Sampled		17/03/2025
Type of sample		Soil
Date extracted	-	28/03/2025
Date analysed	-	31/03/2025
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	119

svTRH (C10-C40) in Soil						
Our Reference		375903-A-2	375903-A-11	375903-A-22	375903-A-35	375903-A-52
Your Reference	UNITS	BH1	BH4	BH8	BH13	BH18
Depth		0.25-0.4	0.9-1.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	12/03/2025	12/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2025	28/03/2025	28/03/2025	28/03/2025	28/03/2025
Date analysed	-	31/03/2025	31/03/2025	31/03/2025	31/03/2025	31/03/2025
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	360	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	120	480	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	120	840	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	100	710	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	100	400	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	200	1,100	<50
Surrogate o-Terphenyl	%	87	81	81	95	82

svTRH (C10-C40) in Soil		
Our Reference		375903-A-65
Your Reference	UNITS	BH22
Depth		0.6-0.8
Date Sampled		17/03/2025
Type of sample		Soil
Date extracted	-	28/03/2025
Date analysed	-	31/03/2025
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	80

PAHs in Soil						
Our Reference		375903-A-2	375903-A-11	375903-A-22	375903-A-35	375903-A-52
Your Reference	UNITS	BH1	BH4	BH8	BH13	BH18
Depth		0.25-0.4	0.9-1.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	12/03/2025	12/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	28/03/2025	28/03/2025	28/03/2025	28/03/2025	28/03/2025
Date analysed	-	31/03/2025	31/03/2025	31/03/2025	31/03/2025	31/03/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.9	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.6	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	7.5	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	7.6	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	3.2	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	2.6	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	6.4	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	4.6	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	2.6	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	3.4	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	41	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	6.9	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	6.9	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	6.9	<0.5
Surrogate p-Terphenyl-d14	%	93	92	95	120	99

PAHs in Soil		
Our Reference		375903-A-65
Your Reference	UNITS	BH22
Depth		0.6-0.8
Date Sampled		17/03/2025
Type of sample		Soil
Date extracted	-	28/03/2025
Date analysed	-	02/04/2025
Naphthalene	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+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	112

Acid Extractable metals in soil						
Our Reference		375903-A-2	375903-A-11	375903-A-22	375903-A-35	375903-A-52
Your Reference	UNITS	BH1	BH4	BH8	BH13	BH18
Depth		0.25-0.4	0.9-1.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	12/03/2025	12/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/03/2025	28/03/2025	28/03/2025	28/03/2025	28/03/2025
Date analysed	-	28/03/2025	28/03/2025	28/03/2025	28/03/2025	28/03/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	36	4	1	13	4
Copper	mg/kg	11	<1	1	20	<1
Lead	mg/kg	14	8	7	14	3
Mercury	mg/kg	0.1	<0.1	<0.1	0.3	<0.1
Nickel	mg/kg	21	<1	<1	9	<1
Zinc	mg/kg	24	<1	3	20	<1

Acid Extractable metals in soil		
Our Reference		375903-A-65
Your Reference	UNITS	BH22
Depth		0.6-0.8
Date Sampled		17/03/2025
Type of sample		Soil
Date prepared	-	28/03/2025
Date analysed	-	28/03/2025
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	4
Copper	mg/kg	3
Lead	mg/kg	6
Mercury	mg/kg	<0.1
Nickel	mg/kg	2
Zinc	mg/kg	11

Moisture						
Our Reference		375903-A-2	375903-A-11	375903-A-22	375903-A-35	375903-A-52
Your Reference	UNITS	BH1	BH4	BH8	BH13	BH18
Depth		0.25-0.4	0.9-1.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		11/03/2025	11/03/2025	12/03/2025	12/03/2025	14/03/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/03/2025	28/03/2025	28/03/2025	28/03/2025	28/03/2025
Date analysed	-	31/03/2025	31/03/2025	31/03/2025	31/03/2025	31/03/2025
Moisture	%	3.4	6.8	6.0	6.5	5.2

Moisture		
Our Reference		375903-A-65
Your Reference	UNITS	BH22
Depth		0.6-0.8
Date Sampled		17/03/2025
Type of sample		Soil
Date prepared	-	28/03/2025
Date analysed	-	31/03/2025
Moisture	%	7.7

Misc Inorg - Soil			
Our Reference		375903-A-1	375903-A-3
Your Reference	UNITS	BH1	BH2
Depth		0.06-0.25	0.09-0.3
Date Sampled		11/03/2025	11/03/2025
Type of sample		Soil	Soil
Date prepared	-	31/03/2025	31/03/2025
Date analysed	-	31/03/2025	31/03/2025
pH 1:5 soil:water	pH Units	9.4	9.9

CEC			
Our Reference		375903-A-1	375903-A-3
Your Reference	UNITS	BH1	BH2
Depth		0.06-0.25	0.09-0.3
Date Sampled		11/03/2025	11/03/2025
Type of sample		Soil	Soil
Date prepared	-	03/04/2025	03/04/2025
Date analysed	-	03/04/2025	03/04/2025
Exchangeable Ca	meq/100g	14	17
Exchangeable K	meq/100g	0.3	0.2
Exchangeable Mg	meq/100g	4.3	3.7
Exchangeable Na	meq/100g	0.5	1.3
Cation Exchange Capacity	meq/100g	19	22

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	375903-A-11
Date extracted	-			28/03/2025	2	28/03/2025	28/03/2025		28/03/2025	28/03/2025
Date analysed	-			31/03/2025	2	31/03/2025	31/03/2025		31/03/2025	31/03/2025
TRH C_6 - C_9	mg/kg	25	Org-023	<25	2	<25	<25	0	94	120
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	2	<25	<25	0	94	120
Benzene	mg/kg	0.2	Org-023	<0.2	2	<0.2	<0.2	0	99	126
Toluene	mg/kg	0.5	Org-023	<0.5	2	<0.5	<0.5	0	96	122
Ethylbenzene	mg/kg	1	Org-023	<1	2	<1	<1	0	94	120
m+p-xylene	mg/kg	2	Org-023	<2	2	<2	<2	0	91	117
o-Xylene	mg/kg	1	Org-023	<1	2	<1	<1	0	94	121
Naphthalene	mg/kg	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	98	2	124	120	3	107	123

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	375903-A-11
Date extracted	-			28/03/2025	2	28/03/2025	28/03/2025		28/03/2025	28/03/2025
Date analysed	-			31/03/2025	2	31/03/2025	31/03/2025		31/03/2025	31/03/2025
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	2	<50	<50	0	123	104
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	2	<100	<100	0	117	105
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	2	<100	<100	0	129	94
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	2	<50	<50	0	123	104
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	2	<100	<100	0	117	105
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	2	<100	<100	0	129	94
Surrogate o-Terphenyl	%		Org-020	96	2	87	88	1	106	81

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	375903-A-11
Date extracted	-			28/03/2025	2	28/03/2025	28/03/2025		28/03/2025	28/03/2025
Date analysed	-			31/03/2025	2	31/03/2025	31/03/2025		31/03/2025	31/03/2025
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	82	88
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	78	84
Fluorene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	60	62
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	84	86
Anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	70	72
Pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	68	72
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	68	72
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	2	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	2	<0.05	<0.05	0	62	76
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	95	2	93	100	7	101	94

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	375903-A-11
Date prepared	-			28/03/2025	2	28/03/2025	28/03/2025		28/03/2025	28/03/2025
Date analysed	-			28/03/2025	2	28/03/2025	28/03/2025		28/03/2025	28/03/2025
Arsenic	mg/kg	4	Metals-020	<4	2	<4	<4	0	104	104
Cadmium	mg/kg	0.4	Metals-020	<0.4	2	<0.4	<0.4	0	97	95
Chromium	mg/kg	1	Metals-020	<1	2	36	37	3	98	96
Copper	mg/kg	1	Metals-020	<1	2	11	10	10	104	104
Lead	mg/kg	1	Metals-020	<1	2	14	14	0	100	99
Mercury	mg/kg	0.1	Metals-021	<0.1	2	0.1	<0.1	0	111	105
Nickel	mg/kg	1	Metals-020	<1	2	21	21	0	100	99
Zinc	mg/kg	1	Metals-020	<1	2	24	24	0	101	100

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			31/03/2025	[NT]	[NT]	[NT]	[NT]	31/03/2025	[NT]
Date analysed	-			31/03/2025	[NT]	[NT]	[NT]	[NT]	31/03/2025	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			03/04/2025	[NT]	[NT]	[NT]	[NT]	03/04/2025	[NT]
Date analysed	-			03/04/2025	[NT]	[NT]	[NT]	[NT]	03/04/2025	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

PAHs in Soil - The PQL for 375903-A-35 has been raised due to the sample matrix thereby requiring a dilution.

MISC_INORG_DRY: pH
Samples were out of the recommended holding time for this analysis.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E37444BT, Narrabeen, NSW
Envirolab Reference	375903-A
Date Sample Received	18/03/2025
Date Instructions Received	26/03/2025
Date Results Expected to be Reported	03/04/2025

Sample Condition

Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	Additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Misc Inorg - Soil	CEC	On Hold
BH1 -0.06-0.25					✓	✓	
BH1-0.25-0.4	✓	✓	✓	✓			
BH2-0.09-0.3					✓	✓	
BH2-0.4-0.5							✓
BH2-0.9-1.0							✓
BH3-0-0.2							✓
BH3-0.4-0.5							✓
BH3-0.9-1.0							✓
BH4-0-0.2							✓
BH4-0.4-0.5							✓
BH4-0.9-1.0	✓	✓	✓	✓			
BH4-1.51-1.6							✓
BH5-0-0.1							✓
BH5-0.4-0.5							✓
BH5-0.8-1.0							✓
BH6-0-0.2							✓
BH6-0.4-0.5							✓
BH6-0.7-0.8							✓
BH7-0.1-0.2							✓
BH7-0.3-0.4							✓
BH8-0-0.1							✓
BH8-0.4-0.5	✓	✓	✓	✓			
BH8-0.9-1.0							✓
BH8-1.1-1.2							✓
BH9-0.1-0.3							✓
BH10 -0-0.1							✓
BH10-0.3-0.5							✓
BH10-0.9-1.0							✓
BH11-0-0.1							✓
BH11-0.4-0.5							✓
BH12-0-0.1							✓
BH12-0.4-0.5							✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Misc Inorg - Soil	CEC	On Hold
BH12-0.9-1.0							✓
BH13-0-0.1							✓
BH13-0.4-0.5	✓	✓	✓	✓			
BH13-0.8-1.0							✓
BH13-1.4-1.5							✓
BH14-0-0.1							✓
BH14-0.4-0.5							✓
BH14-1-1.2							✓
BH15-0-0.1							✓
BH15-0.4-0.5							✓
BH16-0-0.1							✓
BH16-0.3-0.4							✓
BH16-0.7-0.8							✓
BH16-0.8-0.9							✓
BH17-0-0.1							✓
BH17-0.4-0.5							✓
BH17-0.9-1.0							✓
BH17-1.3-1.4							✓
BH18-0.1-0.2							✓
BH18-0.4-0.5	✓	✓	✓	✓			
BH19-0-0.1							✓
BH19-0.4-0.5							✓
BH19-0.9-1.0							✓
BH19-1.4-1.5							✓
BH19-1.9-2.0							✓
BH20-0-0.1							✓
BH20-0.5-0.6							✓
BH20-0.9-1.0							✓
BH20-1.4-1.5							✓
BH21-0-0.1							✓
BH21-0.2-0.4							✓
BH22-0.36-0.45							✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Misc Inorg - Soil	CEC	On Hold
BH22-0.6-0.8	✓	✓	✓	✓			
BH22-1.3-1.5							✓
SDUP1							✓
SDUP3							✓
FR1-Auger							✓
TB							✓
TS							✓
BH10 - [TRIPLICATE]-0-0.1							✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Geoff Weir

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Wednesday, 26 March 2025 7:20 PM
To: Anna Bui; Envirolab Sydney Sample Receipt; Organics NSW
Subject: Re: Results for Registration 375903 E37444BT, Narrabeen, NSW

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Anna,

Thanks for picking this up. I meant the lower sample at each location, apologies.

375903-A

Re 3/4.

BH4 (0.9-1.0) -11
BH8 (0.4-0.5) - 22
BH13 (0.4-0.5)- 36
BH18 (0.4-0.5)- 52

Get Outlook for Android

Regards
Katrina Taylor
Senior Associate | Environmental Scientist
NSW Licensed Asbestos Assessor

T: +61 2 9888 5000
D: +61 418 481 628
E: KTaylor@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

This email and any attachments are confidential and may be privileged in which case neither is intended to be waived. If you have received this message in error, please notify us and remove it from your system. It is your responsibility to check any attachments for viruses and defects before opening or sending them on. At the Company's discretion we may send a paper copy for confirmation. In the event of any discrepancy between paper and electronic versions the paper version is to take precedence.

From: Anna Bui <ABui@envirolab.com.au>
Sent: Wednesday, March 26, 2025 6:33:11 PM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>; Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>; Organics NSW <OrganicsNSW@envirolab.com.au>
Subject: RE: Results for Registration 375903 E37444BT, Narrabeen, NSW

This message originated outside the JKG network. If this looks to be from a staff member, it is likely to be malicious (spam/phish attack). Do not click links of open attachments unless you recognise the sender and know the content is safe.

Hi Katrina,

We've already done combo 6AN for:

#9 - BH4 (0-0.2)
#21 - BH8 (0-0.1)
#34 - BH13 (0-0.1)
#51 - BH18 (0.1-0.2)

Let me know how you'd like to proceed.

@Organics NSW chromatograms for #21,51 please

Kind Regards,

Anna Bui | Customer Service | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E ABui@envirolab.com.au | **W** www.envirolab.com.au

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Samples will be analysed per our T&C's.

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Wednesday, 26 March 2025 5:38 PM
To: Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>
Subject: FW: Results for Registration 375903 E37444BT, Narrabeen, NSW

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Good afternoon,

Please schedule the following analysis on standard TA:
BH1 (0.06-0.25) – pH & CEC – 1
BH1 (0.25-0.4) - #3 – 2
BH2 (0.09-0.3) – pH & CEC – 3
BH4 (0-0.2) - #3 – 9 Ⓐ
BH8 (0-0.1) - #3 – 21 Ⓐ
BH13 (0-0.1) - #3 – 34 Ⓐ
BH18 (0.1-0.2) - #3 – 51 Ⓐ.
BH18 (0.4-0.5) - #3 – 52
BH22 (0.6-0.8) - #3 – 65.

Can I also get the chromatograph and an interpretation of TRH F3 in the following samples:
BH8 (0-0.1)
BH18 (0.1-0.2)

Thanks so much.

Regards
Katrina Taylor
Senior Associate | Environmental Scientist
NSW Licensed Asbestos Assessor

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Certificate of Analysis MGC0392

Client Details

Client	JK Environments
Contact	Katrina Taylor
Address	115 Wicks Road, Macquarie Park, NSW, 2113

Sample Details

Your Reference	E37444BT
Number of Samples	2 Soil
Date Samples Received	20/03/2025
Date Instructions Received	20/03/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Results Requested by	26/03/2025
Date of Issue	25/03/2025

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Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By	Chris De Luca, Lab Manager Maggie Hu, Organics Supervisor Tara White, Metals Supervisor
Laboratory Manager	Chris De Luca

Certificate of Analysis MGC0392

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MGC0392-01	SDUP2	Soil	11/03/2025	20/03/2025
MGC0392-02	SDUP4	Soil	12/03/2025	20/03/2025

Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
TRH C6-C9	mg/kg	25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0
Total Xylene	mg/kg	3.0	<3.0	<3.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%		*63.7*	*66.3*

Semi-volatile TRH (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
TRH C10-C14	mg/kg	50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100
TRH C29-C36	mg/kg	100	<100	190
Total +ve TRH C10-C36	mg/kg	50	<50	190
TRH >C10-C16	mg/kg	50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	170
TRH >C34-C40 (F4)	mg/kg	100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	170
Surrogate o-Terphenyl	%		*87.2*	*86.7*

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
Naphthalene	mg/kg	0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		*97.7*	*95.4*

Organochlorine Pesticides (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
alpha-BHC	mg/kg	0.10	<0.10	<0.10
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10
beta-BHC	mg/kg	0.10	<0.10	<0.10
gamma-BHC	mg/kg	0.10	<0.10	<0.10
delta-BHC	mg/kg	0.10	<0.10	<0.10
Heptachlor	mg/kg	0.10	<0.10	<0.10
Aldrin	mg/kg	0.10	<0.10	<0.10
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10
trans-Chlordane	mg/kg	0.10	<0.10	<0.10
cis-Chlordane	mg/kg	0.10	<0.10	<0.10
Endosulfan I	mg/kg	0.10	<0.10	<0.10
4,4'-DDE	mg/kg	0.10	<0.10	<0.10
Dieldrin	mg/kg	0.10	<0.10	<0.10
Endrin	mg/kg	0.10	<0.10	<0.10
4,4'-DDD	mg/kg	0.10	<0.10	<0.10
Endosulfan II	mg/kg	0.10	<0.10	<0.10
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10
4,4'-DDT	mg/kg	0.10	<0.10	<0.10
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10
Endrin ketone	mg/kg	0.10	<0.10	<0.10
Methoxychlor	mg/kg	0.10	<0.10	<0.10
Mirex	mg/kg	0.10	<0.10	<0.10
Total +ve DDT+DDD+DDE	mg/kg	0.10	<0.10	<0.10
Total +ve Aldrin + Dieldrin	mg/kg	0.10	<0.10	<0.10
Total +ve OCP	mg/kg	0.10	<0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*81.3*	*82.7*

Organophosphorus Pesticides (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
Dichlorvos	mg/kg	0.10	<0.10	<0.10
Dimethoate	mg/kg	0.10	<0.10	<0.10
Diazinon	mg/kg	0.10	<0.10	<0.10
Chlorpyrifos-methyl	mg/kg	0.10	<0.10	<0.10
Ronnel	mg/kg	0.10	<0.10	<0.10
Fenitrothion	mg/kg	0.10	<0.10	<0.10
Malathion	mg/kg	0.10	<0.10	<0.10
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10
Parathion	mg/kg	0.10	<0.10	<0.10
Bromophos-ethyl	mg/kg	0.10	<0.10	<0.10
Ethion	mg/kg	0.10	<0.10	<0.10
Coumaphos	mg/kg	0.10	<0.10	<0.10
Disulfoton	mg/kg	0.10	<0.10	<0.10
Fenamiphos	mg/kg	0.10	<0.10	<0.10
Fenthion	mg/kg	0.10	<0.10	<0.10
Methidathion	mg/kg	0.10	<0.10	<0.10
Mevinphos	mg/kg	0.10	<0.10	<0.10
Parathion-methyl	mg/kg	0.10	<0.10	<0.10
Phorate	mg/kg	0.10	<0.10	<0.10
Phosalone	mg/kg	0.10	<0.10	<0.10
Azinphos-methyl	mg/kg	0.10	<0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*81.3*	*82.7*

Polychlorinated Biphenyls (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
Aroclor 1016	mg/kg	0.10	<0.10	<0.10
Aroclor 1221	mg/kg	0.10	<0.10	<0.10
Aroclor 1232	mg/kg	0.10	<0.10	<0.10
Aroclor 1242	mg/kg	0.10	<0.10	<0.10
Aroclor 1248	mg/kg	0.10	<0.10	<0.10
Aroclor 1254	mg/kg	0.10	<0.10	<0.10
Aroclor 1260	mg/kg	0.10	<0.10	<0.10
Total +ve PCB (1016-1260)	mg/kg	0.10	<0.10	<0.10
Surrogate 2-Fluorobiphenyl	%		*86.0*	*87.1*

Acid Extractable Metals (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
Arsenic	mg/kg	4.0	<4.0	<4.0
Cadmium	mg/kg	0.40	<0.40	<0.40
Chromium	mg/kg	1.0	19	6.2
Copper	mg/kg	1.0	16	7.1
Mercury	mg/kg	0.10	<0.10	<0.10
Nickel	mg/kg	1.0	16	4.7
Lead	mg/kg	1.0	14	21
Zinc	mg/kg	1.0	41	21

Certificate of Analysis MGC0392

Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	MGC0392-01	MGC0392-02
Your Reference			SDUP2	SDUP4
Date Sampled			11/03/2025	12/03/2025
Moisture	%	0.10	13	9.1

Method Summary

Method ID	Methodology Summary
INORG-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-021/022/025_PCB	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
ORG-022	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_OC	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volume measurements are not covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary MGC0392

Client Details

Client	JK Environments
Your Reference	E37444BT
Date Issued	25/03/2025

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary MGC0392

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN | Soil	1	11/03/2025	21/03/2025	25/03/2025	Yes
	2	12/03/2025	21/03/2025	25/03/2025	Yes
sTRH | Soil	1	11/03/2025	21/03/2025	25/03/2025	Yes
	2	12/03/2025	21/03/2025	25/03/2025	Yes
PAH | Soil	1	11/03/2025	21/03/2025	24/03/2025	Yes
	2	12/03/2025	21/03/2025	24/03/2025	Yes
OCP | Soil	1	11/03/2025	21/03/2025	24/03/2025	Yes
	2	12/03/2025	21/03/2025	24/03/2025	Yes
OPP (21 list) | Soil	1	11/03/2025	21/03/2025	24/03/2025	Yes
	2	12/03/2025	21/03/2025	24/03/2025	Yes
PCB | Soil	1	11/03/2025	21/03/2025	24/03/2025	Yes
	2	12/03/2025	21/03/2025	24/03/2025	Yes
Metals | Soil	1	11/03/2025	21/03/2025	25/03/2025	Yes
	2	12/03/2025	21/03/2025	25/03/2025	Yes
Metals-Hg | Soil	1	11/03/2025	21/03/2025	25/03/2025	Yes
	2	12/03/2025	21/03/2025	25/03/2025	Yes
Moisture | Soil	1	11/03/2025	21/03/2025	24/03/2025	Yes
	2	12/03/2025	21/03/2025	24/03/2025	Yes

Outliers: Matrix Spike

METALS-020|Acid Extractable Metals (Soil)| Batch BGC3564

Sample ID	Analyte	% Limits	% Recovery
BGC3564-MS1#	Zinc	70 - 130	##[1]

Quality Control MGC0392

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BGC3565

Analyte	Units	PQL	Blank	DUP1 BGC3565-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC3565-MS2#
TRH C6-C9	mg/kg	25	<25	<25 | <25 | [NA]	79.1	82.4
TRH C6-C10	mg/kg	25	<25	<25 | <25 | [NA]	80.6	82.9
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25 | <25 | [NA]	[NA]	[NA]
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]	79.9	84.2
Toluene	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	81.8	86.0
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	88.9	94.8
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]	102	107
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	92.7	97.8
Total Xylene	mg/kg	3.0	<3.0	<3.0 | <3.0 | [NA]	[NA]	[NA]
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	*%*		*68.1*	*68.7 | 67.6*	*68.3*	*69.4*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020|Semi-volatile TRH (Soil) | Batch BGC3566

Analyte	Units	PQL	Blank	DUP1 BGC3566-DUP1# Samp | QC | RPD %	DUP2 BGC3566-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3566-MS1#
TRH C10-C14	mg/kg	50	<50	<50 | <50 | [NA]		105	105
TRH C15-C28	mg/kg	100	<100	<100 | <100 | [NA]		94.3	96.7
TRH C29-C36	mg/kg	100	<100	<100 | <100 | [NA]		106	97.2
TRH >C10-C16	mg/kg	50	<50	<50 | <50 | [NA]		84.4	85.4
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 | <100 | [NA]		97.3	99.5
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 | <100 | [NA]		94.0	87.4
Surrogate o-Terphenyl	*%*		*88.5*	*86.5 | 86.5*		*100*	*95.8*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022_PAH|Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGC3566

Analyte	Units	PQL	Blank	DUP1 BGC3566-DUP1# Samp | QC | RPD %	DUP2 BGC3566-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3566-MS2#
Naphthalene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		90.6	93.2
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		93.1	95.3
Fluorene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		79.0	81.8
Phenanthrene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		91.1	93.0
Anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		92.7	93.2
Pyrene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		96.1	97.3
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		91.4	93.1
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20 | <0.20 | [NA]		[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050 | <0.050 | [NA]		88.9	91.0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate p-Terphenyl-D14	*%*		*97.0*	*95.8 | 92.0*		*90.9*	*89.4*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGC0392

ORG-022_OC|Organochlorine Pesticides (Soil) | Batch BGC3566

Analyte	Units	PQL	Blank	DUP1 BGC3566-DUP1# Samp | QC | RPD %	DUP2 BGC3566-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3566-MS2#
alpha-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		72.2	74.0
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
beta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		93.2	98.5
gamma-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
delta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Heptachlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		97.4	95.8
Aldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		99.6	100
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		77.2	77.8
trans-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
cis-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan I	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDE	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		86.2	87.2
Dieldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		81.4	82.9
Endrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		66.7	67.5
4,4'-DDD	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		103	102
Endosulfan II	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDT	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		68.4	68.7
Endrin ketone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methoxychlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mirex	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*79.1*	*81.3 | 81.3*		*79.3*	*81.1*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022|Organophosphorus Pesticides (Soil) | Batch BGC3566

Analyte	Units	PQL	Blank	DUP1 BGC3566-DUP1# Samp | QC | RPD %	DUP2 BGC3566-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3566-MS2#
Dichlorvos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		69.2	66.6
Dimethoate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Diazinon	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Chlorpyrifos-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		73.3	74.2
Ronnel	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		77.9	78.6
Fenitrothion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		78.8	81.0
Malathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		85.5	87.8
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		75.7	77.5
Parathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		89.4	92.3
Bromophos-ethyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Ethion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		77.9	79.2
Coumaphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Disulfoton	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fenamiphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fenthion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methidathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mevinphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Parathion-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Phorate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Phosalone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Azinphos-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*79.1*	*81.3 | 81.3*		*79.3*	*81.1*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGC0392

ORG-021/022/025_PCB | Polychlorinated Biphenyls (Soil) | Batch BGC3566

Analyte	Units	PQL	Blank	DUP1 BGC3566-DUP1# Samp | QC | RPD %	DUP2 BGC3566-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3566-MS2#
Aroclor 1016	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1221	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1232	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1242	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1248	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1254	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1260	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
PCB C103	mg/kg			0.00 | 0.00 | [NA]		118	123
Surrogate 2-Fluorobiphenyl	*%*		*83.6*	*85.8 | 86.4*		*85.9*	*87.7*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Soil) | Batch BGC3564

Analyte	Units	PQL	Blank	DUP1 BGC3564-DUP1# Samp | QC | RPD %	DUP2 BGC3564-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3564-MS1#
Arsenic	mg/kg	4.0	<4.0	4.02 | 4.09 | [NA]		97.7	108
Cadmium	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		96.1	94.0
Chromium	mg/kg	1.0	<1.0	26.6 | 26.0 | 2.31		97.6	106
Copper	mg/kg	1.0	<1.0	19.0 | 19.2 | 1.14		93.8	111
Lead	mg/kg	1.0	<1.0	12.9 | 13.6 | 5.00		94.9	95.4
Mercury	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		102	80.2
Nickel	mg/kg	1.0	<1.0	12.2 | 12.1 | 0.965		94.3	96.1
Zinc	mg/kg	1.0	<1.0	26.8 | 27.6 | 2.80		96.0	##[1]

Analyte	Units	PQL	Blank	DUP3 BGC3564-DUP3# Samp | QC | RPD %	DUP4 BGC3564-DUP4# Samp | QC | RPD %	LCS %
Arsenic	mg/kg	4		<4.0 | <4.0 | [NA]		[NA]
Cadmium	mg/kg	0.4		<0.40 | <0.40 | [NA]		[NA]
Chromium	mg/kg	1		25.7 | 28.5 | 10.4		[NA]
Copper	mg/kg	1		16.6 | 18.6 | 11.5		[NA]
Lead	mg/kg	1		13.4 | 14.9 | 11.0		[NA]
Mercury	mg/kg	0.1		<0.10 | <0.10 | [NA]		[NA]
Nickel	mg/kg	1		11.2 | 12.0 | 7.04		[NA]
Zinc	mg/kg	1		18.9 | 20.0 | 6.06		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008 | Inorganics - Moisture (Soil) | Batch BGC3561

Analyte	Units	PQL	Blank	DUP1 BGC3561-DUP1# Samp | QC | RPD %	DUP2 BGC3561-DUP2# Samp | QC | RPD %	LCS %
Moisture	%	0.1		3.89 | 3.87 | 0.515	3.45 | 3.84 | 10.7	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Sample Receipt Advice MGC0392

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your Reference	E37444BT
Envirolab Reference	MGC0392
Date Sample Received	20/03/2025
Date Instructions Received	20/03/2025
Date Final Results Expected	26/03/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	2 Soil
Turnaround Time	4 Days
Temperatures / Cooling Methods	23.9°C Ice Pack

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Chris De Luca

Phone	03 9763 2500
Email	cdeluca@envirolab.com.au

Tianna Milburn

Phone	03 9763 2500
Email	tmilburn@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MGC0392

Analysis Grid

The • indicates the testing you have requested. ***THIS IS NOT A REPORT OF THE RESULTS.***

	Combination 6	Moisture
MGC0392-01 Soil | 11/03/2025 SDUP2	•	•
MGC0392-02 Soil | 12/03/2025 SDUP4	•	•

Suite Details

Suite Name	Suite Analyses
Combination 6 |Soil	vTRH&MBTEXN, sTRH, PAH, OCP, OPP (21 list), PCB, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: **E37444BT** Date Results Required: **STANDARD** Page: **3 of 3**	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: **Katrina Taylor** ktaylor@jkenvironments.com.au

Location:	**Narrabeen, NSW**	Sample Preserved in Esky on Ice
Sampler:	**LR/ VR**	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#6	#3	Asbestos detection	BTEX							
14/03/2025	51	BH18	0.1-0.2	G, A	0	F: Gravelly Sand	X											
14/03/2025	52	BH18	0.4-0.5	G, A	0	Sandstone												
14/03/2025	53	BH19	0-0.1	G, A	0.1	F: Silty Sand	X											
14/03/2025	54	BH19	0.4-0.5	G, A	0	F: Silty Sand												
14/03/2025	55	BH19	0.9-1.0	G, A	0	F: Silty Sand												
14/03/2025	56	BH19	1.4-1.5	G, A	0	F: Silty Sand												
14/03/2025	57	BH19	1.9-2.0	G	1.5	Sandstone												
14/03/2025	58	BH20	0-0.1	G, A	0	F: Silty Sand	X											
14/03/2025	59	BH20	0.5-0.6	G, A	0	F: Silty Sand												
14/03/2025	60	BH20	0.9-1.0	G	0	Sand												
14/03/2025	61	BH20	1.4-1.5	G	0	Sandstone												
17/03/2025	62	BH21	0-0.1	G, A	0.1	F: Silty Sand	X											
17/03/2025	63	BH21	0.2-0.4	G, A	0.2	F: Silty Sand												
17/03/2025	64	BH22	0.36-0.45	G, A	0.1	F: Silty Sand	X											
17/03/2025	65	BH22	0.6-0.8	G, A	0	F: Silty Sand												
17/03/2025	66	BH22	1.3-1.5	G, A	0.1	F: Silty Sand												
11/03/2025	67	SDUP1	-	G	-	Duplicate		X										
1 11/03/2025	S/O	SDUP2	-	G	-	Duplicate		X	Please send to Melbourne Envirolab									
12/03/2025	68	SDUP3	-	G	-	Duplicate		X										
2 12/03/2025	S/O	SDUP4	-	G	-	Duplicate		X	Please send to Melbourne Envirolab									
12/03/2025	69	FR1-Auger	-	#3	-	Field Rinsate			X									
11/03/2025	70	TB	-	V	-	Trip Blank			X									
11/03/2025	71	TS	-	V	-	Trip Spike					X							

Remarks (comments/detection limits required):	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	375903 18/3/25

Relinquished By:	Date:	Time:	Received By:	Date:
AD	18/03/25	1:30PM	CW	

Relinquished by ELS SYD
O.WILCOX.
19/3/25

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: MA10392
Date Received: 20/3/25
Time Received: 11:20
Received By: ZJ
Temp: Cool/Ambient 23.9
Cooling: Ice/Icepack
Security: Intact/Broken/None

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 375991

Client Details

Client	JK Environments
Attention	Katrina Taylor
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E37444BT, Narrabeen**
Number of Samples	10 Water
Date samples received	19/03/2025
Date completed instructions received	19/03/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	26/03/2025
Date of Issue	26/03/2025

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Greta Petzold, Operation Manager
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager
Priya Samarawickrama, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date Extracted	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Date Analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	40	28	10	5	19
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	14	9	<1	1	3
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	3	2	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	2	1	2	2	2
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	101	99	101	100	103
Surrogate Toluene-d8	%	99	99	101	99	100
Surrogate 4-Bromofluorobenzene	%	97	96	98	96	96

VOCs in water				
Our Reference		375991-6	375991-7	375991-8
Your Reference	UNITS	SW1	SW2	WDUP1
Date Sampled		19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water
Date Extracted	-	21/03/2025	21/03/2025	21/03/2025
Date Analysed	-	24/03/2025	24/03/2025	24/03/2025
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	2	<1	5
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1

VOCs in water				
Our Reference	UNITS	375991-6	375991-7	375991-8
Your Reference		SW1	SW2	WDUP1
Date Sampled		19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water
Bromoform	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	2
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	100	99	101
Surrogate Toluene-d8	%	99	99	100
Surrogate 4-Bromofluorobenzene	%	97	95	100

vTRH(C6-C10)/BTEXN in Water						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	µg/L	35	22	<10	<10	<10
TRH C_6 - C_{10}	µg/L	36	23	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	36	23	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	101	99	101	100	103
Surrogate Toluene-d8	%	99	99	101	99	100
Surrogate 4-Bromofluorobenzene	%	97	96	98	96	96

vTRH(C6-C10)/BTEXN in Water						
Our Reference		375991-6	375991-7	375991-8	375991-9	375991-10
Your Reference	UNITS	SW1	SW2	WDUP1	TB-W1	TS-W1
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	115%
Toluene	µg/L	<1	<1	<1	<1	113%
Ethylbenzene	µg/L	<1	<1	<1	<1	115%
m+p-xylene	µg/L	<2	<2	<2	<2	115%
o-xylene	µg/L	<1	<1	<1	<1	115%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	100	99	101	100	100
Surrogate Toluene-d8	%	99	99	100	100	100
Surrogate 4-Bromofluorobenzene	%	97	95	100	98	98

svTRH (C10-C40) in Water						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Date analysed	-	22/03/2025	22/03/2025	22/03/2025	22/03/2025	22/03/2025
TRH C_{10} - C_{14}	µg/L	<50	70	71	<50	54
TRH C_{15} - C_{28}	µg/L	<100	180	100	180	230
TRH C_{29} - C_{36}	µg/L	<100	150	<100	260	300
Total +ve TRH (C10-C36)	µg/L	<50	400	170	440	590
TRH >C_{10} - C_{16}	µg/L	<50	82	71	<50	64
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	82	71	<50	64
TRH >C_{16} - C_{34}	µg/L	<100	280	130	360	440
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	120	120
Total +ve TRH (>C10-C40)	µg/L	<50	370	200	480	630
Surrogate o-Terphenyl	%	103	98	118	95	91

svTRH (C10-C40) in Water					
Our Reference		375991-6	375991-7	375991-8	375991-9
Your Reference	UNITS	SW1	SW2	WDUP1	TB-W1
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Date analysed	-	22/03/2025	22/03/2025	22/03/2025	22/03/2025
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	3,900	<100	200	<100
TRH C_{29} - C_{36}	µg/L	4,300	<100	260	<100
Total +ve TRH (C10-C36)	µg/L	8,200	<50	460	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	7,400	140	390	<100
TRH >C_{34} - C_{40}	µg/L	1,400	<100	120	<100
Total +ve TRH (>C10-C40)	µg/L	8,800	140	510	<50
Surrogate o-Terphenyl	%	118	102	96	98

PAHs in Water						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	98	87	82	85	79

PAHs in Water					
Our Reference		375991-6	375991-7	375991-8	375991-9
Your Reference	UNITS	SW1	SW2	WDUP1	TB-W1
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Date analysed	-	24/03/2025	24/03/2025	24/03/2025	24/03/2025
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	90	81	85	90

All metals in water-dissolved						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Aluminium-Dissolved	µg/L	180	40	90	70	50
Silver-Dissolved	µg/L	<1	<1	<1	<1	<1
Antimony-Dissolved	µg/L	<1	<1	<1	<1	<1
Barium-Dissolved	µg/L	8	6	9	8	7
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Boron-Dissolved	µg/L	<20	60	40	50	30
Cobalt-Dissolved	µg/L	1	4	70	22	8
Iron-Dissolved	µg/L	80	110	1,600	1,100	2,300
Lithium-Dissolved	µg/L	<1	2	<1	1	<1
Manganese-Dissolved	µg/L	20	40	77	38	140
Molybdenum-Dissolved	µg/L	1	10	2	9	4
Selenium-Dissolved	µg/L	<1	<1	<1	<1	<1
Strontium-Dissolved	µg/L	23	47	66	42	59
Uranium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium-Dissolved	µg/L	1	1	<1	<1	<1
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	2	1	<1	<1
Copper-Dissolved	µg/L	3	2	3	26	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	2	2	18	17	2
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	16	21	47	96	7

All metals in water-dissolved				
Our Reference		375991-6	375991-7	375991-8
Your Reference	UNITS	SW1	SW2	WDUP1
Date Sampled		19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water
Date prepared	-	20/03/2025	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025
Aluminium-Dissolved	µg/L	<10	40	[NA]
Silver-Dissolved	µg/L	<1	<1	[NA]
Antimony-Dissolved	µg/L	<1	<1	[NA]
Barium-Dissolved	µg/L	18	16	[NA]
Beryllium-Dissolved	µg/L	<0.5	<0.5	[NA]
Boron-Dissolved	µg/L	<20	30	[NA]
Cobalt-Dissolved	µg/L	<1	<1	[NA]
Iron-Dissolved	µg/L	150	50	[NA]
Lithium-Dissolved	µg/L	<1	1	[NA]
Manganese-Dissolved	µg/L	<5	<5	[NA]
Molybdenum-Dissolved	µg/L	<1	1	[NA]
Selenium-Dissolved	µg/L	<1	<1	[NA]
Strontium-Dissolved	µg/L	70	160	[NA]
Uranium-Dissolved	µg/L	<0.5	<0.5	[NA]
Vanadium-Dissolved	µg/L	<1	3	[NA]
Arsenic-Dissolved	µg/L	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	1	<1
Copper-Dissolved	µg/L	1	2	26
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	<1	17
Lead-Dissolved	µg/L	<1	<1	<1
Zinc-Dissolved	µg/L	6	6	94

HM in water - total		
Our Reference		375991-9
Your Reference	UNITS	TB-W1
Date Sampled		19/03/2025
Type of sample		Water
Date prepared	-	21/03/2025
Date analysed	-	21/03/2025
Arsenic-Total	µg/L	<1
Cadmium-Total	µg/L	<0.1
Chromium-Total	µg/L	<1
Copper-Total	µg/L	<1
Lead-Total	µg/L	<1
Mercury-Total	µg/L	<0.05
Nickel-Total	µg/L	<1
Zinc-Total	µg/L	<1

Metals in Waters - Acid extractable						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Phosphorus - Total	mg/L	<0.05	0.1	<0.05	<0.05	0.08

Metals in Waters - Acid extractable			
Our Reference		375991-6	375991-7
Your Reference	UNITS	SW1	SW2
Date Sampled		19/03/2025	19/03/2025
Type of sample		Water	Water
Date prepared	-	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	20/03/2025
Phosphorus - Total	mg/L	<0.05	<0.05

Miscellaneous Inorganics						
Our Reference	UNITS	375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference		MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Electrical Conductivity	µS/cm	200	390	370	320	210
pH	pH Units	6.2	6.8	5.8	5.9	5.9
Acidity as $CaCO_3$	mg/L	26	<5	34	44	45
Redox Potential*	mV	140	124	136	115	91
Dissolved Oxygen*	mg/L	5.0	5.8	4.9	4.1	5.4
Turbidity	NTU	2.0	240	99	69	150
Total Dissolved Solids (grav)	mg/L	120	200	200	140	120
Total Suspended Solids	mg/L	16	510	260	170	520
Total Organic Carbon	mg/L	3	4	6	4	7
Sodium Adsorption Ratio	-	1.4	3.4	2.2	3.9	1.7
Silica (Reactive - SiO_2)	mg/L	8.2	8.7	7.9	9.4	5.3
Ammonia as N in water	mg/L	0.067	0.091	0.097	0.064	0.28
Nitrate as N in water	mg/L	0.32	0.78	0.14	0.13	0.17
Nitrite as N in water	mg/L	0.050	0.10	0.021	0.26	0.019
NOx as N in water	mg/L	0.4	0.88	0.2	0.4	0.2
Total Nitrogen in water	mg/L	0.4	1.0	0.5	0.5	0.5
TKN in water	mg/L	<0.1	0.1	0.3	<0.1	0.3
Phosphate as P in water	mg/L	0.03	0.03	0.02	0.03	0.02
Organic Nitrogen as N	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2

Miscellaneous Inorganics			
Our Reference		375991-6	375991-7
Your Reference	UNITS	SW1	SW2
Date Sampled		19/03/2025	19/03/2025
Type of sample		Water	Water
Date prepared	-	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	20/03/2025
Electrical Conductivity	µS/cm	230	490
pH	pH Units	7.5	8.2
Acidity as $CaCO_3$	mg/L	10	<5
Redox Potential*	mV	88	60
Dissolved Oxygen*	mg/L	4.7	5.8
Turbidity	NTU	0.5	0.2
Total Dissolved Solids (grav)	mg/L	140	270
Total Suspended Solids	mg/L	14	<5
Total Organic Carbon	mg/L	4	7
Sodium Adsorption Ratio	-	0.76	0.94
Silica (Reactive - SiO_2)	mg/L	6.5	16
Ammonia as N in water	mg/L	0.049	0.049
Nitrate as N in water	mg/L	0.16	0.38
Nitrite as N in water	mg/L	0.008	0.005
NOx as N in water	mg/L	0.2	0.4
Total Nitrogen in water	mg/L	0.3	0.5
TKN in water	mg/L	0.1	0.1
Phosphate as P in water	mg/L	0.02	0.064
Organic Nitrogen as N	mg/L	<0.2	<0.2

Ion Balance						
Our Reference		375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference	UNITS	MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/03/2025	24/03/2025	20/03/2025	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	24/03/2025	20/03/2025	20/03/2025	20/03/2025
Calcium - Dissolved	mg/L	9.4	11	14	4	17
Potassium - Dissolved	mg/L	3	6.1	4	2	4
Sodium - Dissolved	mg/L	18	50	38	50	28
Magnesium - Dissolved	mg/L	2	3	5	3	2
Hardness (calc) equivalent $CaCO_3$	mg/L	31	40	54	24	49
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	19	41	18	29	26
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	19	41	18	29	26
Sulphate, SO4	mg/L	15	55	43	38	22
Chloride, Cl	mg/L	40	66	61	48	30
Ionic Balance	%	-9.0	-10	-2.0	0	12

Ion Balance			
Our Reference		375991-6	375991-7
Your Reference	UNITS	SW1	SW2
Date Sampled		19/03/2025	19/03/2025
Type of sample		Water	Water
Date prepared	-	20/03/2025	20/03/2025
Date analysed	-	20/03/2025	20/03/2025
Calcium - Dissolved	mg/L	20	56
Potassium - Dissolved	mg/L	2	4
Sodium - Dissolved	mg/L	14	28
Magnesium - Dissolved	mg/L	4	5.4
Hardness (calc) equivalent $CaCO_3$	mg/L	65	160
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	58	150
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	58	150
Sulphate, SO4	mg/L	10	28
Chloride, Cl	mg/L	30	47
Ionic Balance	%	-5.0	-4.0

Microbiologocal Testing						
Our Reference	UNITS	375991-1	375991-2	375991-3	375991-4	375991-5
Your Reference		MW5	MW9	MW12	MW19	MW20
Date Sampled		19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
Type of sample		Water	Water	Water	Water	Water
Date of testing	-	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
E. coli	cfu/100mL	<10	<1,000 NBO	<1,000 NBO	<1,000	>30,000 NBO
Thermotolerant Coliforms	cfu/100mL	<10	<1,000 NBO	<1,000 NBO	<1,000	>30,000 NBO

Microbiologocal Testing			
Our Reference	UNITS	375991-6	375991-7
Your Reference		SW1	SW2
Date Sampled		19/03/2025	19/03/2025
Type of sample		Water	Water
Date of testing	-	20/03/2025	20/03/2025
E. coli	cfu/100mL	<100	200
Thermotolerant Coliforms	cfu/100mL	<100	1,000

Method ID	Methodology Summary
Ext-008	Subcontracted to Sonic Food & Water Testing. NATA Accreditation No. 4034.
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-005	Acidity - determined titrimetrically in accordance with APHA latest Edition, 2310-B.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-035	Analysed using an electrode. Please note that the results for water analyses are indicative only, samples are ideally analysed on collection.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-079	TOC determined using a TOC analyser using the combustion method. Dissolved requires filtering prior to determination. Analysis using APHA latest edition 5310B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Inorg-112	Dissolved Oxygen using membrane electrode. Note this analysis should ideally be carried out immediately after sampling.
INORG-120	Reactive Silica (SiO2) determined colorimetrically. Waters samples are filtered on receipt prior to analysis.

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Metals-020	Calcium and Magnesium analysed by ICP-AES and SAR calculated.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date Extracted	-			21/03/2025	1	21/03/2025	24/03/2025		21/03/2025	[NT]
Date Analysed	-			24/03/2025	1	24/03/2025	25/03/2025		24/03/2025	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	93	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	40	38	5	93	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	91	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	93	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	91	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	99	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	14	13	7	95	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	90	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	3	3	0	96	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	92	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	91	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	90	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	2	1	67	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	1	101	102	1	102	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	99	99	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	1	97	94	3	101	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			21/03/2025	1	21/03/2025	24/03/2025		21/03/2025	[NT]
Date analysed	-			24/03/2025	1	24/03/2025	25/03/2025		24/03/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	35	32	9	91	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	36	34	6	91	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	91	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	90	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	92	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	91	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	90	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	1	101	102	1	102	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	99	99	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	1	97	94	3	101	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Date analysed	-			22/03/2025	[NT]	[NT]	[NT]	[NT]	22/03/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	103	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Date analysed	-			24/03/2025	[NT]	[NT]	[NT]	[NT]	24/03/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	81	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	375991-2
Date prepared	-			21/03/2025	1	20/03/2025	20/03/2025		21/03/2025	20/03/2025
Date analysed	-			21/03/2025	1	20/03/2025	20/03/2025		21/03/2025	20/03/2025
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	180	[NT]		92	[NT]
Silver-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		96	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		90	[NT]
Barium-Dissolved	µg/L	1	Metals-022	<1	1	8	[NT]		99	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	[NT]		104	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	1	<20	[NT]		106	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	1	[NT]		100	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	1	80	[NT]		99	[NT]
Lithium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		86	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	20	[NT]		101	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	1	[NT]		94	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		93	[NT]
Strontium-Dissolved	µg/L	1	Metals-022	<1	1	23	[NT]		94	[NT]
Uranium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	[NT]		91	[NT]
Vanadium-Dissolved	µg/L	1	Metals-022	<1	1	1	[NT]		103	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		92	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		93	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		103	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	3	[NT]		99	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	113	72
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	[NT]		99	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		93	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	16	[NT]		100	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	375991-4
Date prepared	-			[NT]	3	20/03/2025	20/03/2025		[NT]	20/03/2025
Date analysed	-			[NT]	3	20/03/2025	20/03/2025		[NT]	20/03/2025
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	3	90	80	12	[NT]	104
Silver-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	88
Antimony-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	71
Barium-Dissolved	µg/L	1	Metals-022	[NT]	3	9	9	0	[NT]	100
Beryllium-Dissolved	µg/L	0.5	Metals-022	[NT]	3	<0.5	<0.5	0	[NT]	112
Boron-Dissolved	µg/L	20	Metals-022	[NT]	3	40	40	0	[NT]	119
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	3	70	70	0	[NT]	98
Iron-Dissolved	µg/L	10	Metals-022	[NT]	3	1600	1500	6	[NT]	#
Lithium-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	90
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	3	77	77	0	[NT]	100
Molybdenum-Dissolved	µg/L	1	Metals-022	[NT]	3	2	2	0	[NT]	88
Selenium-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	92
Strontium-Dissolved	µg/L	1	Metals-022	[NT]	3	66	63	5	[NT]	92
Uranium-Dissolved	µg/L	0.5	Metals-022	[NT]	3	<0.5	<0.5	0	[NT]	87
Vanadium-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	101
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	91
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	3	<0.1	<0.1	0	[NT]	94
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	3	1	1	0	[NT]	100
Copper-Dissolved	µg/L	1	Metals-022	[NT]	3	3	3	0	[NT]	99
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	3	<0.05	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	3	18	18	0	[NT]	96
Lead-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	93
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	3	47	46	2	[NT]	89

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Date analysed	-			21/03/2025	[NT]	[NT]	[NT]	[NT]	21/03/2025	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Copper-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Lead-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/03/2025	[NT]	[NT]	[NT]	[NT]	20/03/2025	[NT]
Date analysed	-			20/03/2025	[NT]	[NT]	[NT]	[NT]	20/03/2025	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	375991-1
Date prepared	-			20/03/2025	1	20/03/2025	20/03/2025		20/03/2025	20/03/2025
Date analysed	-			20/03/2025	1	20/03/2025	20/03/2025		20/03/2025	20/03/2025
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	200	[NT]		100	[NT]
pH	pH Units		Inorg-001	[NT]	1	6.2	[NT]		101	[NT]
Acidity as $CaCO_3$	mg/L	5	Inorg-005	<5	1	26	[NT]		111	[NT]
Redox Potential*	mV		Inorg-035	[NT]	1	140	[NT]		289	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	<0.1	1	5.0	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	2.0	[NT]		89	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	120	120	0	102	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	16	[NT]		92	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	<1	1	3	[NT]		91	[NT]
Sodium Adsorption Ratio	-	0.01	Metals-020	<0.01	1	1.4	[NT]		102	[NT]
Silica (Reactive - SiO_2)	mg/L	0.1	INORG-120	<0.1	1	8.2	7.9	4	107	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.067	0.079	16	90	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.32	0.32	0	95	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.050	0.048	4	109	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.4	0.3	29	97	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.4	[NT]		80	86
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	<0.1	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.03	0.03	0	120	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	<0.2	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	375991-2
Date prepared	-			[NT]	3	20/03/2025	20/03/2025		[NT]	20/03/2025
Date analysed	-			[NT]	3	20/03/2025	20/03/2025		[NT]	20/03/2025
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	3	370	[NT]		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	3	5.8	[NT]		[NT]	[NT]
Acidity as $CaCO_3$	mg/L	5	Inorg-005	[NT]	3	34	[NT]		[NT]	[NT]
Redox Potential*	mV		Inorg-035	[NT]	3	136	[NT]		[NT]	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	[NT]	3	4.9	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	3	99	[NT]		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	[NT]	3	200	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	3	260	280	7	[NT]	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	[NT]	3	6	[NT]		[NT]	83
Sodium Adsorption Ratio	-	0.01	Metals-020	[NT]	3	2.2	[NT]		[NT]	[NT]
Silica (Reactive - SiO_2)	mg/L	0.1	INORG-120	[NT]	3	7.9	[NT]		[NT]	124
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	3	0.097	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	3	0.14	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	3	0.021	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	3	0.2	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	3	0.5	[NT]		[NT]	83
TKN in water	mg/L	0.1	Inorg-062	[NT]	3	0.3	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	3	0.02	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	3	<0.2	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	375991-3
Date prepared	-			[NT]	5	20/03/2025	20/03/2025		[NT]	20/03/2025
Date analysed	-			[NT]	5	20/03/2025	20/03/2025		[NT]	20/03/2025
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	5	210	[NT]		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	5	5.9	[NT]		[NT]	[NT]
Acidity as $CaCO_3$	mg/L	5	Inorg-005	[NT]	5	45	[NT]		[NT]	[NT]
Redox Potential*	mV		Inorg-035	[NT]	5	91	[NT]		[NT]	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	[NT]	5	5.4	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	5	150	[NT]		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	[NT]	5	120	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	5	520	[NT]		[NT]	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	[NT]	5	7	[NT]		[NT]	[NT]
Sodium Adsorption Ratio	-	0.01	Metals-020	[NT]	5	1.7	1.7	0	[NT]	[NT]
Silica (Reactive - SiO_2)	mg/L	0.1	INORG-120	[NT]	5	5.3	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	5	0.28	[NT]		[NT]	92
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	5	0.17	[NT]		[NT]	83
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	5	0.019	[NT]		[NT]	111
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	5	0.2	[NT]		[NT]	88
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	5	0.5	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	5	0.3	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	5	0.02	[NT]		[NT]	95
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	5	<0.2	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	7	20/03/2025	20/03/2025		[NT]	[NT]
Date analysed	-			[NT]	7	20/03/2025	20/03/2025		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	7	490	[NT]		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	7	8.2	[NT]		[NT]	[NT]
Acidity as $CaCO_3$	mg/L	5	Inorg-005	[NT]	7	<5	[NT]		[NT]	[NT]
Redox Potential*	mV		Inorg-035	[NT]	7	60	[NT]		[NT]	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	[NT]	7	5.8	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	7	0.2	[NT]		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	[NT]	7	270	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	7	<5	[NT]		[NT]	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	[NT]	7	7	7	0	[NT]	[NT]
Sodium Adsorption Ratio	-	0.01	Metals-020	[NT]	7	0.94	[NT]		[NT]	[NT]
Silica (Reactive - SiO_2)	mg/L	0.1	INORG-120	[NT]	7	16	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	7	0.049	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	7	0.38	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	7	0.005	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	7	0.4	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	7	0.5	0.5	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	7	0.1	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	7	0.064	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	7	<0.2	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	375991-2
Date prepared	-			20/03/2025	1	20/03/2025	20/03/2025		20/03/2025	20/03/2025
Date analysed	-			20/03/2025	1	20/03/2025	20/03/2025		20/03/2025	20/03/2025
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	9.4	[NT]		97	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	3	[NT]		93	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	18	[NT]		99	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	2	[NT]		92	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	31	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	19	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	19	[NT]		111	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	15	16	6	94	94
Chloride, Cl	mg/L	1	Inorg-081	<1	1	40	41	2	94	93
Ionic Balance	%		Inorg-040	[NT]	1	-9.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	375991-6
Date prepared	-			[NT]	5	20/03/2025	20/03/2025		[NT]	20/03/2025
Date analysed	-			[NT]	5	20/03/2025	20/03/2025		[NT]	20/03/2025
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	17	17	0	[NT]	101
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	4	4	0	[NT]	93
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	28	28	0	[NT]	88
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	2	2	0	[NT]	96
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	5	49	49	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	26	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	26	[NT]		[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	5	22	[NT]		[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	5	30	[NT]		[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	5	12	[NT]		[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

All metals in water-dissolved - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

TDS: Samples#1,1d were performed via calculation (TDS=Electrical conductivity*0.6) due low EC values.

Microbiology analysed by Sonic Food & Water Testing. Report No. W2506373
NBO: The presence of competing background organisms in the sample may have reduced the count.
The time between collection and the commencement of testing should not exceed 24 hours. Samples tested outside this time may have their results compromised

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E37444BT, Narrabeen
Envirolab Reference	375991
Date Sample Received	19/03/2025
Date Instructions Received	19/03/2025
Date Results Expected to be Reported	26/03/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	10 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	All metals in water-dissolved	HM in water - total	Metals in Waters -Acid extractable	Electrical Conductivity	pH	Acidity as CaCO3	Redox Potential*	Dissolved Oxygen*	Turbidity	Total Dissolved Solids(grav)	Total Suspended Solids	Total Organic Carbon	Sodium Adsorption Ratio	Silica (Reactive - SiO2)	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Total Nitrogen in water	TKN in water	Phosphate as P in water	Organic Nitrogen as N	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl
MW5	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW9	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW12	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW19	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW20	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SW1	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SW2	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WDUP1	✓	✓	✓	✓	✓																																
TB-W1		✓	✓	✓		✓																															
TS-W1		✓																																			

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	Ionic Balance	Microbiologocal Testing
MW5	✓	✓
MW9	✓	✓
MW12	✓	✓
MW19	✓	✓
MW20	✓	✓
SW1	✓	✓
SW2	✓	✓
WDUP1		
TB-W1		
TS-W1		

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt. Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD	JKE Job Number: E37444BT	JKEnvironments
12 ASHLEY STREET		REAR OF 115 WICKS ROAD
CHATSWOOD NSW 2067		MACQUARIE PARK, NSW 2113
P: (02) 99106200	Date Results Required: STANDARD	P: 02-9888 5000 F: 02-9888 5001
F: (02) 99106201		Attention: ktaylor@jkenvironments.com.au
Attention: Aileen	Page: 1 of 1	

Location:	Narrabeen	Sample Preserved in Esky on Ice
Sampler:	VR/CB	Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Alkalinity suite + Acidity	EC, pH, reddox, DO	Turbidity	TDS, TSS, TOC, SAR	Ionic balance, including hardness	#3	VOCs	Additional metals: Al, Ag, Sb, Ba, Be, B, Co, Fe, Li, Mn, Mo, Se, Sr, U, V	Silica (reactive) - dissolved silica	Nutrient suite	Faecal coliforms + Escherichia (E) coli	BTEX
19/03/2025	1	MW5	##	1.4	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	2	MW9	##	2.5	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	3	MW12	##	1.8	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	4	MW19	##	2.4	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	5	MW20	##	3	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	6	SW1	##	-	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	7	SW2	##	-	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	8	WDUP1	Amber, HCl vial, PVC, Nitric Acid,	-	Duplicate						X	X					
19/03/2025	9/8	WDUP2	Amber, HCl vial, PVC, Nitric Acid,	-	Duplicate						X	X	Please send to Mgb envirolab				
19/03/2025	9	TB-W1	Amber, HCl vial, [redacted], Nitric Acid,	-	Trip Blank						X						
19/03/2025	10	TS-W1	HCl vials	-	Trip Spike												X

Remarks (comments/detection limits required):	Sample Containers: ## Each sample includes: x2 amber bottles, x4 HCl preserved glass vials, x1-2 unpreserved plastic bottles, x2 nitric acid preserved bottles (1 is field filtered), x1 sulphuric acid preserved bottle and x1 sterile container,

Relinquished By:	Date:	Time:	Received By:	Date:
CB	19/03/25	1450	ELS SYD	19/3/25

ENVIROLAB GROUP

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 378991

Date Received: 19/3/25
Time Received: ~~1613~~ 1450
Received By: CL
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Certificate of Analysis MGC0429

Client Details

Client	JK Environments
Contact	Katrina Taylor
Address	115 Wicks Road, Macquarie Park, NSW, 2113

Sample Details

Your Reference	E37444BT
Number of Samples	1 Water
Date Samples Received	21/03/2025
Date Instructions Received	21/03/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Results Requested by	27/03/2025
Date of Issue	27/03/2025

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Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By	Maggie Hu, Organics Supervisor Tara White, Metals Supervisor
Laboratory Manager	Chris De Luca

Certificate of Analysis MGC0429

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MGC0429-01	WDUP2	Water	19/03/2025	21/03/2025

Volatile Organic Compounds - Fumigants (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
2,2-Dichloropropane	µg/L	1.0	<1.0
1,2-Dichloropropane	µg/L	1.0	<1.0
cis-1,3-Dichloropropene	µg/L	1.0	<1.0
trans-1,3-Dichloropropene	µg/L	1.0	<1.0
1,2-Dibromoethane	µg/L	1.0	<1.0

Volatile Organic Compounds - MAH (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
Benzene	µg/L	1.0	<1.0
Toluene	µg/L	1.0	<1.0
Ethylbenzene	µg/L	1.0	<1.0
meta+para Xylene	µg/L	2.0	<2.0
Styrene	µg/L	1.0	<1.0
ortho-Xylene	µg/L	1.0	<1.0
Isopropylbenzene	µg/L	1.0	<1.0
n-Propylbenzene	µg/L	1.0	<1.0
1,3,5-Trimethylbenzene	µg/L	1.0	<1.0
tert-Butylbenzene	µg/L	1.0	<1.0
1,2,4-Trimethylbenzene	µg/L	1.0	<1.0
sec-Butylbenzene	µg/L	1.0	<1.0
4-Isopropyltoluene	µg/L	1.0	<1.0
n-Butyl benzene	µg/L	1.0	<1.0

Volatile Organic Compounds - Halogenated Aliphatics (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
Dichlorodifluoromethane (Freon-12)	µg/L	10	<10
Chloromethane	µg/L	10	<10
Vinyl chloride	µg/L	10	<10
Bromomethane	µg/L	10	<10
Chloroethane	µg/L	10	<10
Trichlorofluoromethane (Freon-11)	µg/L	10	<10
1,1-Dichloroethene	µg/L	1.0	<1.0
trans-1,2-Dichloroethene	µg/L	1.0	<1.0
1,1-Dichloroethane	µg/L	1.0	<1.0
cis-1,2-Dichloroethene	µg/L	1.0	<1.0
Bromochloromethane	µg/L	1.0	<1.0
Chloroform	µg/L	1.0	41
1,1,1-Trichloroethane	µg/L	1.0	<1.0
1,1-Dichloropropene	µg/L	1.0	<1.0
Carbon Tetrachloride	µg/L	1.0	<1.0
1,2-Dichloroethane	µg/L	1.0	<1.0
Trichloroethene	µg/L	1.0	<1.0
Dibromomethane	µg/L	1.0	<1.0
Bromodichloromethane	µg/L	1.0	13
1,1,2-Trichloroethane	µg/L	1.0	<1.0
1,3-Dichloropropane	µg/L	1.0	<1.0
Tetrachloroethene	µg/L	1.0	<1.0
Dibromochloromethane	µg/L	1.0	2.9
1,1,1,2-Tetrachloroethane	µg/L	1.0	<1.0
Bromoform	µg/L	1.0	<1.0
1,1,2,2-Tetrachloroethane	µg/L	1.0	<1.0
1,2,3-Trichloropropane	µg/L	1.0	<1.0
1,2-Dibromo-3-chloropropane	µg/L	1.0	<1.0
Hexachlorobutadiene	µg/L	1.0	<1.0

Volatile Organic Compounds - Halogenated Aromatics (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
Chlorobenzene	µg/L	1.0	<1.0
Bromobenzene	µg/L	1.0	<1.0
2-Chlorotoluene	µg/L	1.0	<1.0
4-Chlorotoluene	µg/L	1.0	<1.0
1,3-Dichlorobenzene	µg/L	1.0	<1.0
1,4-Dichlorobenzene	µg/L	1.0	1.5
1,2-Dichlorobenzene	µg/L	1.0	<1.0
1,2,4-Trichlorobenzene	µg/L	1.0	<1.0
1,2,3-Trichlorobenzene	µg/L	1.0	<1.0

Volatile Organic Compounds - Other VOCs (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
Cyclohexane	µg/L	1.0	<1.0

Volatile Organic Compounds - Surrogates (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
Surrogate Dibromofluoromethane	%		*99.1*
Surrogate Toluene-D8	%		*100*
Surrogate 4-Bromofluorobenzene	%		*99.2*

Volatile TRH and BTEX (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
TRH C6-C9	µg/L	10	22
TRH C6-C10	µg/L	10	27
TRH C6-C10 less BTEX (F1)	µg/L	10	26
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0
Benzene	µg/L	1.0	<1.0
Toluene	µg/L	1.0	<1.0
Ethylbenzene	µg/L	1.0	<1.0
meta+para Xylene	µg/L	2.0	<2.0
ortho-Xylene	µg/L	1.0	<1.0
Total Xylene	µg/L	3.0	<3.0
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0
Surrogate Dibromofluoromethane	%		*99.1*
Surrogate Toluene-D8	%		*100*
Surrogate 4-Bromofluorobenzene	%		*99.2*

Semi-volatile TRH (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	100	<100
TRH C29-C36	µg/L	100	<100
Total +ve TRH C10-C36	µg/L	50	<50
TRH >C10-C16	µg/L	50	<50
TRH >C10-C16 less Naphthalene F2	µg/L	50	<50
TRH >C16-C34 (F3)	µg/L	100	<100
TRH >C34-C40 (F4)	µg/L	100	<100
Total +ve TRH >C10-C40	µg/L	50	<50
Surrogate o-Terphenyl	%		*73.8*

Polycyclic Aromatic Hydrocarbons (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
Naphthalene	µg/L	0.10	<0.10
Acenaphthylene	µg/L	0.10	<0.10
Acenaphthene	µg/L	0.10	<0.10
Fluorene	µg/L	0.10	<0.10
Phenanthrene	µg/L	0.10	<0.10
Anthracene	µg/L	0.10	<0.10
Fluoranthene	µg/L	0.10	<0.10
Pyrene	µg/L	0.10	<0.10
Benzo(a)anthracene	µg/L	0.10	<0.10
Chrysene	µg/L	0.10	<0.10
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20
Benzo(a)pyrene	µg/L	0.10	<0.10
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.10	<0.10
Total +ve PAH	µg/L	0.10	<0.10
Surrogate p-Terphenyl-D14	%		*92.7*

Dissolved Low Level Metals (Water)

Envirolab ID	Units	PQL	MGC0429-01
Your Reference			WDUP2
Date Sampled			19/03/2025
Arsenic	µg/L	1.0	<1.0
Cadmium	µg/L	0.10	<0.10
Chromium	µg/L	1.0	<1.0
Copper	µg/L	1.0	3.0
Mercury	µg/L	0.050	<0.050
Nickel	µg/L	1.0	1.8
Lead	µg/L	1.0	<1.0
Zinc	µg/L	1.0	16

Method Summary

Method ID	Methodology Summary
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Soils are extracted with Methanol, diluted and analysed by purge and trap GC-MS.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volume measurements are not covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary MGC0429

Client Details

Client	JK Environments
Your Reference	E37444BT
Date Issued	27/03/2025

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary MGC0429

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Fumigants | Water	1	19/03/2025	25/03/2025	27/03/2025	Yes
VOC - MAH | Water	1	19/03/2025	25/03/2025	27/03/2025	Yes
Halogenated Aliphatics | Water	1	19/03/2025	25/03/2025	27/03/2025	Yes
Halogenated Aromatics | Water	1	19/03/2025	25/03/2025	27/03/2025	Yes
Other VOC | Water	1	19/03/2025	25/03/2025	27/03/2025	Yes
VOC - Surrogates | Water	1	19/03/2025	25/03/2025	27/03/2025	Yes
vTRH&MBTEXN | Water	1	19/03/2025	25/03/2025	27/03/2025	Yes
sTRH | Water	1	19/03/2025	24/03/2025	27/03/2025	Yes
PAH | Water	1	19/03/2025	24/03/2025	26/03/2025	Yes
Dissolved Metals (LL) | Water	1	19/03/2025	24/03/2025	26/03/2025	Yes
Dissolved Metals (LL)-Hg | Water	1	19/03/2025	24/03/2025	26/03/2025	Yes

Outliers: Matrix Spike

ORG-020|Semi-volatile TRH (Water)| Batch BGC3709

Sample ID	Analyte	% Limits	% Recovery
BGC3709-MS1#	TRH >C34-C40 (F4)	60 - 140	##[1]

ORG-022_PAH|Polycyclic Aromatic Hydrocarbons (Water)| Batch BGC3709

Sample ID	Analyte	% Limits	% Recovery
BGC3709-MS2#	Naphthalene	60 - 140	##[1]
BGC3709-MS2#	p-Terphenyl-D14	60 - 140	##[2]

Quality Control MGC0429

ORG-023|Volatile Organic Compounds - Fumigants (Water) | Batch BGC4211

Analyte	Units	PQL	Blank	DUP1 BGC4211-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC4211-MS1#
2,2-Dichloropropane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,2-Dichloropropane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	99.5	97.5
cis-1,3-Dichloropropene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	94.8	93.1
trans-1,3-Dichloropropene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	91.9	89.7
1,2-Dibromoethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	97.4	97.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023_F1_TOT|Volatile Organic Compounds - MAH (Water) | Batch BGC4211

Analyte	Units	PQL	Blank	DUP1 BGC4211-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC4211-MS1#
Benzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	98.4	97.7
Toluene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	103	103
Ethylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	104	103
meta+para Xylene	µg/L	2.0	<2.0	<2.0 | <2.0 | [NA]	105	104
Styrene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
ortho-Xylene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	105	104
Isopropylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
n-Propylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,3,5-Trimethylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
tert-Butylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,2,4-Trimethylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
sec-Butylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
4-Isopropyltoluene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
n-Butyl benzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGC0429

ORG-023|Volatile Organic Compounds - Halogenated Aliphatics (Water) | Batch BGC4211

Analyte	Units	PQL	Blank	DUP1 BGC4211-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC4211-MS1#
Dichlorodifluoromethane (Freon-12)	µg/L	10	<10	<10 | <10 | [NA]	[NA]	[NA]
Chloromethane	µg/L	10	<10	<10 | <10 | [NA]	[NA]	[NA]
Vinyl chloride	µg/L	10	<10	<10 | <10 | [NA]	[NA]	[NA]
Bromomethane	µg/L	10	<10	<10 | <10 | [NA]	[NA]	[NA]
Chloroethane	µg/L	10	<10	<10 | <10 | [NA]	[NA]	[NA]
Trichlorofluoromethane (Freon-11)	µg/L	10	<10	<10 | <10 | [NA]	[NA]	[NA]
1,1-Dichloroethene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
trans-1,2-Dichloroethene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,1-Dichloroethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	100	101
cis-1,2-Dichloroethene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Bromochloromethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Chloroform	µg/L	1.0	<1.0	5.26 | 5.22 | 0.721	104	103
1,1,1-Trichloroethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	102	102
1,1-Dichloropropene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Carbon Tetrachloride	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,2-Dichloroethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	100	98.9
Trichloroethene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	119	102
Dibromomethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Bromodichloromethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	96.2	94.9
1,1,2-Trichloroethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,3-Dichloropropane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Tetrachloroethene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	106	104
Dibromochloromethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	92.7	91.0
1,1,1,2-Tetrachloroethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Bromoform	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	86.6	86.3
1,1,2,2-Tetrachloroethane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,2,3-Trichloropropane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,2-Dibromo-3-chloropropane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Hexachlorobutadiene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023|Volatile Organic Compounds - Halogenated Aromatics (Water) | Batch BGC4211

Analyte	Units	PQL	Blank	DUP1 BGC4211-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC4211-MS1#
Chlorobenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Bromobenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
2-Chlorotoluene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
4-Chlorotoluene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,3-Dichlorobenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,4-Dichlorobenzene	µg/L	1.0	<1.0	1.40 | 1.37 | [NA]	103	102
1,2-Dichlorobenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
1,2,4-Trichlorobenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	102	104
1,2,3-Trichlorobenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023|Volatile Organic Compounds - Other VOCs (Water) | Batch BGC4211

Analyte	Units	PQL	Blank	DUP1 BGC4211-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC4211-MS1#
Cyclohexane	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	107	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGC0429

ORG-023|Volatile Organic Compounds - Surrogates (Water) | Batch BGC4211

Analyte	Units	PQL	Blank	DUP1 BGC4211-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC4211-MS1#
Surrogate Dibromofluoromethane	*%*		*100*	*101 | 101*	*98.2*	*98.7*
Surrogate Toluene-D8	*%*		*98.5*	*100 | 99.8*	*101*	*101*
Surrogate 4-Bromofluorobenzene	*%*		*100*	*98.9 | 101*	*99.2*	*99.1*

Analyte	Units	PQL	Blank	LCS %	Spike % MGC0429-01
Surrogate Dibromofluoromethane	*%*			*100*	*98.1*
Surrogate Toluene-D8	*%*			*101*	*101*
Surrogate 4-Bromofluorobenzene	*%*			*98.5*	*98.6*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023_F1_TOT|Volatile TRH and BTEX (Water) | Batch BGC4211

Analyte	Units	PQL	Blank	DUP1 BGC4211-DUP1# Samp | QC | RPD %	LCS %	Spike % MGC0429-01
TRH C6-C9	µg/L	10	<10	<10 | <10 | [NA]	103	108
TRH C6-C10	µg/L	10	<10	<10 | <10 | [NA]	99.4	96.4
TRH C6-C10 less BTEX (F1)	µg/L	10	<10	<10 | <10 | [NA]	[NA]	[NA]
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Benzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	111	112
Toluene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	113	117
Ethylbenzene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	114	116
meta+para Xylene	µg/L	2.0	<2.0	<2.0 | <2.0 | [NA]	113	116
ortho-Xylene	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	112	115
Total Xylene	µg/L	3.0	<3.0	<3.0 | <3.0 | [NA]	[NA]	[NA]
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	<1.0 | <1.0 | [NA]	[NA]	[NA]
Surrogate Dibromofluoromethane	*%*		*100*	*101 | 101*	*100*	*98.1*
Surrogate Toluene-D8	*%*		*98.5*	*100 | 99.8*	*101*	*101*
Surrogate 4-Bromofluorobenzene	*%*		*100*	*98.9 | 101*	*98.5*	*98.6*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020|Semi-volatile TRH (Water) | Batch BGC3709

Analyte	Units	PQL	Blank	DUP1 BGC3709-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC3709-MS1#
TRH C10-C14	µg/L	50	<50	64.7 | 139 | [NA]	97.3	85.2
TRH C15-C28	µg/L	100	<100	304 | <100 | [NA]	92.1	76.2
TRH C29-C36	µg/L	100	<100	<100 | <100 | [NA]	117	86.6
TRH >C10-C16	µg/L	50	<50	58.2 | 130 | [NA]	78.3	66.7
TRH >C16-C34 (F3)	µg/L	100	<100	330 | <100 | [NA]	95.8	80.7
TRH >C34-C40 (F4)	µg/L	100	<100	<100 | <100 | [NA]	120	##[1]
Surrogate o-Terphenyl	*%*		*88.1*	*130 | 67.8*	*104*	*75.1*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGC0429

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Water) | Batch BGC3709

Analyte	Units	PQL	Blank	DUP1 BGC3709-DUP1# Samp | QC | RPD %	LCS %	Spike % BGC3709-MS2#
Naphthalene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	81.6	##[1]
Acenaphthylene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	[NA]	[NA]
Acenaphthene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	78.7	92.0
Fluorene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	78.6	88.0
Phenanthrene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	87.6	65.5
Anthracene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	[NA]	[NA]
Fluoranthene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	99.8	124
Pyrene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	111	134
Benzo(a)anthracene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	[NA]	[NA]
Chrysene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	107	102
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20	<0.20 | <0.20 | [NA]	[NA]	[NA]
Benzo(a)pyrene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	64.5	90.0
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	[NA]	[NA]
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	[NA]	[NA]
Benzo(g,h,i)perylene	µg/L	0.10	<0.10	<0.10 | <0.10 | [NA]	[NA]	[NA]
Surrogate p-Terphenyl-D14	*%*		*91.8*	*88.3 | 94.7*	*108*	*##[2]*

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGC3851

Analyte	Units	PQL	Blank	DUP1 BGC3851-DUP1# Samp | QC | RPD %	DUP2 BGC3851-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3851-MS1#
Mercury	µg/L	0.050	<0.050	<0.050 | <0.050 | [NA]	<0.050 | <0.050 | [NA]	95.2	126

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGC3853

Analyte	Units	PQL	Blank	DUP1 BGC3853-DUP1# Samp | QC | RPD %	DUP2 BGC3853-DUP2# Samp | QC | RPD %	LCS %	Spike % BGC3853-MS1#
Arsenic	µg/L	1.0	<1.0	<5.0 | <5.0 | [NA]	<5.0 | <5.0 | [NA]	103	99.5
Cadmium	µg/L	0.10	<0.10	<0.50 | 0.750 | [NA] [3]	<0.50 | <0.50 | [NA]	104	93.4
Chromium	µg/L	1.0	<1.0	<5.0 | <5.0 | [NA]	<5.0 | <5.0 | [NA]	103	102
Copper	µg/L	1.0	<1.0	<5.0 | <5.0 | [NA]	<5.0 | <5.0 | [NA]	102	88.4
Lead	µg/L	1.0	<1.0	<5.0 | <5.0 | [NA]	<5.0 | <5.0 | [NA]	97.8	90.2
Nickel	µg/L	1.0	<1.0	<5.0 | <5.0 | [NA]	6.60 | 6.05 | [NA]	104	92.9
Zinc	µg/L	1.0	<1.0	<5.0 | <5.0 | [NA]	78.3 | 80.0 | 2.15	102	91.3

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is outside routine acceptance criteria (60-140%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[2]	Surrogate recovery was outside routine acceptance criteria (60-140%) due to sample matrix effects. This may be due to the presence of carbon and/or other artefacts. An acceptable recovery was achieved for the LCS surrogates.
[3]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Sample Receipt Advice MGC0429

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your Reference	E37444BT
Envirolab Reference	MGC0429
Date Sample Received	21/03/2025
Date Instructions Received	21/03/2025
Date Final Results Expected	27/03/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	1 Water
Turnaround Time	4 Days
Temperatures / Cooling Methods	20.0°C Ice Pack

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Chris De Luca

Phone 03 9763 2500
Email cdeluca@envirolab.com.au

Tianna Milburn

Phone 03 9763 2500
Email tmilburn@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MGC0429

Analysis Grid

The • indicates the testing you have requested. ***THIS IS NOT A REPORT OF THE RESULTS.***

	Combination 3 (D)	VOC Suite
MGC0429-01 Water | 19/03/2025 WDUP2	•	•

Suite Details

Suite Name	Suite Analyses
Combination 3 (D) |Water	vTRH&MBTEXN, sTRH, PAH, As - Dissolved (LL), Cd - Dissolved (LL), Cr - Dissolved (LL), Cu - Dissolved (LL), Hg - Dissolved, Ni - Dissolved (LL), Pb - Dissolved (LL), Zn - Dissolved (LL)
VOC Suite |Water	Fumigants, VOC - MAH, Halogenated Aliphatics, Halogenated Aromatics, Other VOC, VOC - Surrogates

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E37444BT Date Results Required: STANDARD Page: 1 of 1	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: ktaylor@jkenvironments.com.au

Location:	Narrabeen	Sample Preserved in Esky on Ice																
Sampler:	VR/CB	Tests Required																
Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Alkalinity suite + Acidity	EC, pH, reddox, DO	Turbidity	TDS, TSS, TOC, SAR	Ionic balance, including hardness	#3	VOCs	Additional metals: Al, Ag, Sb, Ba, Be, B, Co, Fe, Li, Mn, Mo, Se, Sr, U, V	Silica (reactive) - dissolved silica	Nutrient suite	Faecal coliforms + Escherichia (E) coli	BTEX
19/03/2025	1	MW5	##	1.4	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	2	MW9	##	2.5	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	3	MW12	##	1.8	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	4	MW19	##	2.4	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	5	MW20	##	3	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	6	SW1	##	-	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	7	SW2	##	-	Water	X	X	X	X	X	X	X	X	X	X	X	
19/03/2025	8	WDUP1	Amber, HCl vial, PVC, Nitric Acid,	-	Duplicate						X	X					
19/03/2025	S/C	WDUP2	Amber, HCl vial, PVC, Nitric Acid,	-	Duplicate						X	X	Please send to Melb Envirolab				
19/03/2025	9	TB-W1	Amber, HCl vial, [redacted], Nitric Acid,	-	Trip Blank						X						
19/03/2025	10	TS-W1	HCl vials	-	Trip Spike												X

Remarks (comments/detection limits required):	Sample Containers:
	## Each sample includes: x2 amber bottles, x4 HCl preserved glass vials, x1-2 unpreserved plastic bottles, x2 nitric acid preserved bottles (1 is field filtered), x1 sulphuric acid preserved bottle and x1 sterile container,

Relinquished By:	Date:	Time:	Received By:	Date:
CB	19/03/25	1450	ELS SYD	19/3/25

Relinquished by Tony Trinh
of ELS Syd. on 20/03/25 11:37am

ENVIROLAB GROUP
Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: [redacted]MGC0429
Date Received: [redacted]03/25
Time Received: [redacted]
Received By: [redacted]
Temp: Cool/Ambient 20.0
Cooling: Ice/Icepack
Security: Intact/Broken/None

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 379991
Date Received: 19/3/25
Time Received: ~~1615~~ 1450
Received By: CK
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Appendix F: Report Explanatory Notes

QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)[17] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[18]. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit*" (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handing and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

[17] US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)

[18] Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{\text{(Spike Sample Result – Sample Result) x 100}}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$

Appendix G: Data (QA/QC) Evaluation

Data (QA/QC) Evaluation

A. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in Section 6.1 of this report. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

1. Field and Laboratory Considerations

The quality of the analytical data produced for this project has been considered in relation to the following:

- Sample collection, storage, transport and analysis;
- Laboratory PQLs;
- Field QA/QC results; and
- Laboratory QA/QC results.

2. Field QA/QC Samples and Analysis

The results for the field QA/QC samples are detailed in the laboratory summary tables (Tables Q1 to Table Q2 inclusive) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report. A summary of the field QA/QC samples collected and analysed for this investigation is provided in the following table:

Sample Type	Number Analysed	Frequency (of Sample Type)
Intra-laboratory duplicates Soil Groundwater	 1 1	 Approximately 7% of primary samples Approximately 29% of primary samples
Inter-laboratory duplicates Soil Groundwater	 1 1	 As above As above
Trip spikes Soil Water	 1 1	One of each media for the investigation to demonstrate adequacy of preservation, storage and transport methods
Trip blanks Soil Water	 1 1	One of each media for the investigation to demonstrate adequacy of storage and transport methods
Rinsate (soil SPT)	1	One for the investigation to demonstrate adequacy of decontamination methods

3. Data Assessment Criteria

JKE adopted the following criteria for assessing the field and laboratory QA/QC analytical results:

Field Duplicates

Acceptable targets for precision of field duplicates in this report will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field/Trip Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils and published drinking water guidelines for waters.

Trip Spikes

Acceptable targets for trip spike samples in this report will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the laboratory reports. These criteria were developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the acceptable limits adopted by the primary laboratory (Envirolab) is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics;
- 60-140% recovery acceptable for organics; and
- 10-140% recovery acceptable for VOCs.

Surrogate Spikes

- 60-140% recovery acceptable for general organics; and
- 10-140% recovery acceptable for VOCs.

Method Blanks

- All results less than PQL.

B. DATA EVALUATION

1. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance with our standard sampling procedures. Field sampling procedures were designed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997.

Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times generally in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies.

Envirolab noted that the asbestos results were reported to be consistent with the recommendations in NEPM (2013), however this level of reporting is outside the scope of their NATA accreditation. In the absence of other available analytical methods for asbestos, this was found to be acceptable for the purpose of this investigation.

Review of the project data also indicated that:

- COC documentation was adequately maintained;
- Sample receipt advice documentation was provided for all sample batches;
- All analytical results were reported; and
- Consistent units were used to report the analysis results.

There were several holding time exceedances for pH analysis as reported in laboratory report 375903-A. Given the samples were kept on ice, in a fridge at the JKE office or in the laboratory prior to analysis and all reports indicate the samples were received in good order, JKE is of the opinion that this is not significant, and it does not affect the quality of the dataset as a whole or the outcome of the investigation.

2. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC, with the exception of the anthracene PQL for groundwater analysis which was greater than the ecological SAC. In light of the PAH concentrations reported for soil and groundwater, JKE is of the opinion that this is not significant, and it does not affect the quality of the dataset as a whole or the outcome of the investigation.

3. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. RPD non-conformances were reported for some analytes as discussed below:

- Elevated RPDs were reported for TRH F3 and F4, arsenic, chromium, copper, nickel and zinc in SDUP1/BH3 (0-0.2m);
- Elevated RPDs were reported for several PAH compounds and copper in SDUP3/BH5 (0-0.1m);
- Elevated RPDs were reported for chromium, copper, nickel and zinc in SDUP2/BH6 (0-0.2m);
- Elevated RPDs were reported for TRH F3 and F4, chromium and nickel in SDUP4/BH8 (0-0.1m); and
- Elevated RPDs were reported for zinc in WDUP2/MW5.

Values outside the acceptable limits have been attributed to sample heterogeneity and the difficulties associated with obtaining homogenous duplicate samples of heterogeneous matrices. Where applicable, the higher duplicate value has been adopted as a conservative measure (see attached report tables), so there have been no adverse effects on the risk assessment process.

Field/Trip Blanks

During the investigation, one soil and one water trip blank was placed in the esky during sampling and transported back to the laboratory.

The soil trip blank analysis results were all less than the PQLs with the exception of chromium, lead and zinc with reported concentrations of 3mg/kg, 3mg/kg and 2mg/kg. Low level metals concentrations are typical in washed sand which is utilised as blank material. In JKE's experience, the concentrations reported were consistent with background concentrations in a sand matrix and were not indicative of cross-contamination. On this basis, cross contamination between samples that may have significance for data validity did not occur.

The results of the trip blank water were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

Rinsates

With the exception of TRH F1 and copper, all other results were less than the PQLs. The detectable concentration of light fraction TRH is attributed to trihalomethanes as per Envirolab report 375903. Low level metals concentrations (particularly copper), are typical in potable water which is utilised as blank material.

Trip Spikes

The results for the soil trip spike ranged from 97% to 99% and indicated that field preservation methods were appropriate.

The results for the water trip spike ranged from 113% to 115% and indicated that field preservation methods were appropriate.

4. Laboratory QA/QC

The analytical methods implemented by the laboratory were performed in accordance with their NATA accreditation and were consistent with Schedule B(3) of NEPM (2013). The frequency of data reported for the laboratory QA/QC (i.e. duplicates, spikes, blanks, LCS) was considered to be acceptable for the purpose of this investigation. A review of the laboratory QA/QC data identified the following minor non-conformances:

Envirolab report 375903

- The laboratory RPD acceptance criteria was exceeded for lead and zinc in one sample, therefore a triplicate result was issued.

Envirolab report 375903-A

- The PQL for PAHs was raised due to the sample matrix thereby requiring a dilution.

Envirolab report 375991

- Percent recovery was not applicable due to the high concentration of the heavy metal element/s in the sample/s. However, an acceptable recovery was obtained for the LCS; and
- Other comments in the report were not related to analysis for the PSI.

Envirolab report MGC0392

- Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.

Envirolab report MGC0429

- Spike recovery is outside routine acceptance criteria (60-140%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS;
- Surrogate recovery was outside routine acceptance criteria (60-140%) due to sample matrix effects. This may have be due to the presence of carbon and/or other artefacts. An acceptable recovery was achieved for the LCS surrogates; and
- Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.

C. DATA QUALITY SUMMARY

JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor, and were not considered to be indicative of systematic sampling or analytical errors. On this basis, these non-conformances are not considered to materially impact the report findings.

There was only one groundwater monitoring event undertaken for the investigation. On this basis there is some uncertainty around the representativeness of the groundwater data, particularly during different climatic conditions and after wet/dry periods. However, given the low contaminant concentrations reported, the site history and the surrounding land uses, this is not considered to alter the conclusions of the investigation.

Appendix H: Field Work Documents

JKEnvironments

Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Environmental Services for SEARS	Well No.:	MW2
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m):	2.97m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development Bailer	SWL – Before (m):	2.8m
Date:	12.3.25	Time – Before:	2:42pm
Undertaken By:	LR	SWL – After (m):	Dry
Total Vol. Removed:	0.25	Time – After:	2:49Pm
PID Reading (ppm):	1.4		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0.25L	2.8	26.4	1.05	175.1	6.56	21.8
-	-	-	-	-	-	-
			Well effectively Dry			

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used:

YSI 1

Well pumped Dry

Tested By:	LR
Date Tested:	12.3.25
Checked By:	KF
Date:	21.3.25

Remarks:

- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

JKEnvironments

Client:	RSL Lifecare Ltd	**Job No.:**	E37444BT
Project:	Environmental Services for SEARS	**Well No.:**	MW5
Location:	4 Colooli Road, Narrabeen, NSW	**Depth (m):**	7.7m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development	**SWL – Before (m):**	4.61m
Date:	12.3.25	**Time – Before:**	3:10pm
Undertaken By:	LR	**SWL – After (m):**	Dry
Total Vol. Removed:	19L	**Time – After:**	3:32pm
PID Reading (ppm):	2.8		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0.5	4.61	23.2	7.45	264.6	9.53	38.0
5	-	21.5	7.87	246.5	9.75	35.9
10	-	21.0	8.04	244.7	9.84	34.5
15	-	20.7	8.13	245.4	10.02	21.9
19	Dry	21.1	7.64	245.9	8.50	19.0
—	—	—	—	—	—	—
		Well effectively Dry				

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used: YSI 1

Well pumped Dry

Tested By:	LR
Date Tested:	12.3.25
Checked By:	KT
Date:	21.3.25

Remarks:

- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

JKEnvironments

Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Environmental Services for SEARS	Well No.:	MW9
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m):	6.35m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Bail. Pump	SWL – Before (m):	2.14m
Date:	17/03/25	Time – Before:	3.40pm
Undertaken By:	VR	SWL – After (m):	DRY
Total Vol. Removed:	15 Litres	Time – After:	4.05pm
PID Reading (ppm):	5.4		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
Bailer		27.7	3.3	412.0	7.00	229.1
5 Litres	4.25	25.8	1.2	297.3	6.56	219.5
10		26.4	2.3	366.1	6.60	218.3
15 L		26.6	2.1	274.8	6.45	212.1

Comments: Odours (YES / (NO)) NAPL/PSH (YES / (NO)) Sheen (YES / (NO)) Steady State Achieved (YES / (NO))

YSI Used: YSI 4

Pumped until dry.

Tested By:	VR
Date Tested:	17/03/25
Checked By:	KT
Date:	21.3.25

Remarks:

- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

JKEnvironments

Client:	RSL Lifecare Ltd	**Job No.:** E37444BT	
Project:	Environmental Services for SEARS	**Well No.:**	MW12
Location:	4 Colooli Road, Narrabeen, NSW	**Depth (m):**	3.86m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development	**SWL – Before (m):**	2.1m
Date:	14.3.25	**Time – Before:**	2:06pm
Undertaken By:	LR	**SWL – After (m):**	Dry
Total Vol. Removed:	10L	**Time – After:**	2:15pm
PID Reading (ppm):	3.4		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0.5	2.1m	23.3	1.29	355.3	6.09	33.0
5	"	21.7	0.82	320.1	6.16	34.7
10	"	22.5	4.20	325.2	6.23	64.1
—	—	—	—	—	—	—

Comments: Odours (YES / (NO)), NAPL/PSH (YES / (NO)), Sheen (YES / (NO)) Steady State Achieved (YES / (NO))

YSI Used:

YSI 1

Well pumped dry.

Tested By:	LR	**Remarks:**
Date Tested:	14.3.25	- Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown - Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry
Checked By:	KT	
Date:	21.3.25	

JKEnvironments

Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Environmental Services for SEARS	Well No.:	MW19
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m):	5.38m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development	SWL – Before (m):	2.12m
Date:	14.3.25	Time – Before:	2:49pm
Undertaken By:	LR	SWL – After (m):	Dry
Total Vol. Removed:	15L	Time – After:	3:03pm
PID Reading (ppm):	0.5		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0.5m	2.12	25.8	1.88	519	7.31	51.5
5	–	23.8	0.51	470.2	7.52	47.9
10	–	24.0	0.23	419.3	7.52	38.7
15	–	24.4	0.47	547	7.46	38.4
~~20~~	—	—	—	—	—	—
			Well pumped Dry			

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used: YSI

Well pumped dry

Tested By:	LR
Date Tested:	14.3.25
Checked By:	KF
Date:	21.3.25

Remarks:
- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

JKEnvironments

Client:	RSL Lifecare Ltd	**Job No.:**	E37444BT
Project:	Environmental Services for SEARS	**Well No.:**	MW20
Location:	4 Colooli Road, Narrabeen, NSW	**Depth (m):**	4.08m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development	**SWL – Before (m):**	1.13m
Date:	14.3.25	**Time – Before:**	3:35pm
Undertaken By:	LR	**SWL – After (m):**	DRY
Total Vol. Removed:	10L	**Time – After:**	3:47pm
PID Reading (ppm):	3.3		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	SWL	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0.5m	1.13	27.6	3.72	372.2	6.88	76.0
5	-	26.9	2.70	438.6	6.94	93.0
10	-	25.7	2.91	343.5	6.83	89.0
-	-	-	-	-	-	-
			Well effectively Dry			

Comments:Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used:

YSI

Well pumped dry

Tested By:	LR
Date Tested:	14.3.25
Checked By:	RT
Date:	21.3.25

Remarks:

- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

JKEnvironments

PID FIELD CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Environmental Services for SEARS		
Location:	4 Colooli Road, Narrabeen, NSW		
Job	E37444BT		
PID			
Make: Honeywell	Model: Rae +	Unit: Pid3	Date of last factory calibration: 19/2/25
Date of calibration: 12.3.25		Name of Calibrator: LR	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: 100.1 ppm		Error in measured reading: ± 0.1	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make: Honeywell	Model: Rae +	Unit: Pid 3	Date of last factory calibration: 19/2/25
Date of calibration: 14.3.25		Name of Calibrator: LR	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: 100.2 ppm		Error in measured reading: ± 0.2	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ±	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ±	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ±	ppm
Measured reading Acceptable (Yes/No):			

JKEnvironments

WATER QUALITY METER CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Environmental Services for SEARS		
Location:	4 Colooli Road, Narrabeen, NSW		
Job Number:	E37444BT		
DISSOLVED OXYGEN			
Make:	Professional Series	Model:	YSI 1
Date of calibration:	12.3.25	Name of Calibrator:	LR
Span value: 70% to 130%			
Measured value:	108.8%		
Measured reading Acceptable (Yes/No):			
pH			
Make:	Professional Series	Model:	YSI 1
Date of calibration:	12.3.25	Name of Calibrator:	LR
Buffer 1: Theoretical pH = 7.01± 0.01		Expiry date: 9/25	Lot No: DH 1309Z4
Buffer 2: Theoretical pH = 4.01± 0.01		Expiry date: 8/25	Lot No: CP250624
Measured reading of Buffer 1:	7.01		
Measured reading of Buffer 2:	4.00		
Slope:	–	Measured reading Acceptable (Yes/No):	
EC			
Make:	Professional Series	Model:	YSI 1
Date:	12.3.25	Name of Calibrator: LR	Temperature: 22 °C
Calibration solution:	Ravi's singhla	Expiry date: 07/25	Lot No: IC19548
Theoretical conductivity at temperature (see solution container):		1332	µS/cm
Measured conductivity:	1332 µS/cm	Measured reading Acceptable (Yes/No):	
REDOX			
Make:	Professional Series	Model:	YSI 1
Date of calibration:	12.3.25	Name of Calibrator:	LR
Calibration solution:	ORP Test Solution	Expiry date: 07/25	Lot No: 9759
Theoretical redox value:	240mV		
Measured redox reading:	240.5 mV	Measured reading Acceptable (Yes/No):	

JKEnvironments

PID FIELD CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Environmental Services for SEARS		
Location:	4 Colooli Road, Narrabeen, NSW		
Job	E37444BT		
PID			
Make: Rae Systems	Model: PGM7350	Unit: PID2	Date of last factory calibration: 21/01/25
Date of calibration: 14/03/25		Name of Calibrator: VR	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: 101.4 ppm		Error in measured reading: ± 1.4	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ±	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ±	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ±	ppm
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ±	ppm
Measured reading Acceptable (Yes/No):			

JKEnvironments

WATER QUALITY METER CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Environmental Services for SEARS		
Location:	4 Colooli Road, Narrabeen, NSW		
Job Number:	E37444BT		
DISSOLVED OXYGEN			
Make:	Professional Series	Model:	YSI 1
Date of calibration:	14.3.25	Name of Calibrator:	LR
Span value: 70% to 130%			
Measured value:	106.7%		
Measured reading Acceptable (Yes/No):			
pH			
Make:	Professional Series	Model:	YSI 1
Date of calibration:	14.3.25	Name of Calibrator:	LR
Buffer 1: Theoretical pH = 7.01± 0.01		Expiry date: 9/25	Lot No: DH130924
Buffer 2: Theoretical pH = 4.01± 0.01		Expiry date: 8/25	Lot No: CP250624
Measured reading of Buffer 1:	7.04		
Measured reading of Buffer 2:	4.00		
Slope:	–	Measured reading Acceptable (Yes/No):	
EC			
Make:	Professional Series	Model:	YSI 1
Date:	14.3.25	Name of Calibrator:	LR
Temperature:	25 °C		
Calibration solution:	Rowe Scientific	Expiry date: 7/25	Lot No: IC19548
Theoretical conductivity at temperature (see solution container):	1413 µS/cm		
Measured conductivity:	1403 µS/cm	Measured reading Acceptable (Yes/No):	
REDOX			
Make:	Professional Series	Model:	YSI 1
Date of calibration:	14/3/25	Name of Calibrator:	LR
Calibration solution:	ORP 7681 Solution	Expiry date: 7/25	Lot No: 9759
Theoretical redox value:	240mV		
Measured redox reading:	239.6 mV	Measured reading Acceptable (Yes/No):	

JKEnvironments

WATER QUALITY METER CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Environmental Services for SEARS		
Location:	4 Colooli Road, Narrabeen, NSW		
Job Number:	E37444BT		
DISSOLVED OXYGEN			
Make: YSI		Model: YSI 4	
Date of calibration: 17/03/25		Name of Calibrator: VR	
Span value: 70% to 130%			
Measured value: 92%			
Measured reading Acceptable (Yes/No):			
pH			
Make: YSI		Model: YSI 4	
Date of calibration: 17/03/25		Name of Calibrator: VR	
Buffer 1: Theoretical pH = 7.01± 0.01		Expiry date: 07/25	Lot No: CB 3110
Buffer 2: Theoretical pH = 4.01± 0.01		Expiry date: 06/25	Lot No: CB 2665
Measured reading of Buffer 1: 7.00			
Measured reading of Buffer 2: 4.00			
Slope: NA		Measured reading Acceptable (Yes/No):	
EC			
Make: YSI		Model: YSI 4	
Date: 17/3/25	Name of Calibrator: VR		Temperature: 30 °C
Calibration solution: Ionic Scientific		Expiry date: 07/25	Lot No: CW230524
Theoretical conductivity at temperature (see solution container):		1548 µS/cm	
Measured conductivity: 1542 µS/cm		Measured reading Acceptable (Yes/No):	
REDOX			
Make: YSI		Model: YSI 4	
Date of calibration: 17/3/25		Name of Calibrator: VR	
Calibration solution: ORP Manual		Expiry date: 07/25	Lot No: 9759
Theoretical redox value:	240mV		
Measured redox reading: 242.9 mV		Measured reading Acceptable (Yes/No):	

JKEnvironments

Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Environmental Services for SEARS	Well No.:	MW2
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m):	2.97m

WELL FINISH

X	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Dev Pump / Bailer	SWL – Before:	DRY
Date:	19/03/25	Time – Before:	7.55am
Undertaken By:	VR	Total Vol Removed:	—
Pump Program No:	Bailer	PID (ppm):	0.8ppm

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
			DRY.					

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)
Sampling Containers Used: x glass amber, x BTEX vials, x HNO3 plastic, x H2SO4 plastic, x unpreserved plastic
YSI used: YSI 4 DRY.

Tested By: VR	Remarks:
Date Tested: 19/03/25	- Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Checked By: KT	
Date: 21.3.25	

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Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Environmental Services for SEARS	Well No.:	MW5
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m):	7.7.

WELL FINISH

X	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Peri Pump	SWL – Before:	4.84m
Date:	19/03/25	Time – Before:	8.32am
Undertaken By:	VR	Total Vol Removed:	9L
Pump Program No:	low flow	PID (ppm):	1.4

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
Bailer	4.90m	0.7L		21.1	4.1	283.4	4.96	141.0
8.43am/3mins.	5.07m	2L	flowrate reduced	20.3	5.1	282.1	5.49	140.1
8.46am/6mins	5.10m	3L		20.4	4.8	268.7	5.30	130.7
8.49 /9mins	5.11m	4L		20.4	4.7	265.6	5.26	126.8
8.52 /12mins	5.12m	5L	flow rate reduced	20.5	4.6	264.3	5.27	121.6
8.55 /15mins	5.12m	6L		20.6	4.4	262.9	5.27	116.7
8.58 /18mins	5.11m	7L		20.6	4.4	262.6	5.23	115.1
9.01 /21mins	5.11m	8L		20.6	4.6	261.7	5.23	113.0
9.04 /24mins	5.11m	9L		20.7	4.3	261.0	5.23	111.2
			Steady State achieved					
			Started Sampling					

Comments: Odours ~~(YES~~ / NO), NAPL/PSH (~~YES~~ / NO), Sheen (YES / NO), Steady State Achieved (YES / ~~NO~~)
Sampling Containers Used: 4 x glass amber, 8 x BTEX vials, 3 x HNO3 plastic, 1 x H2SO4 plastic, 3 x unpreserved plastic + 1 x Sterile jar.
YSI used:
YSI 4

WQUP2

Tested By: VR	Remarks:
Date Tested: 19/03/25	- Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Checked By: KT	
Date: 21.3.25	

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Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Proposed Seniors Living Development	Well No.:	MW9
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m):	6.2

WELL FINISH

X	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Peri pump / bailer	SWL – Before:	5.79
Date:	19/03/25	Time – Before:	12 pm
Undertaken By:	CB	Total Vol Removed:	0.35L
Pump Program No:	/	PID (ppm):	2.5

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0	5.92	0.25	pump lowest setting	23.8	4.32	344.0	5.96	149.7
4	5.96	0.35		27.7	4.04	46.9	5.88	130.6
			started sampling & running out of water					

Comments: Odours (YES / (NO)) NAPL/PSH (YES / (NO)) Sheen (YES / (NO)) Steady State Achieved (YES / (NO))

Sampling Containers Used: 2x glass amber, 4x BTEX vials, 2x HNO3 plastic, 1x H2SO4 plastic, 1x unpreserved plastic + micro jar

YSI used: 1

Tested By:	CB
Date Tested:	19/03/25
Checked By:	KT
Date:	21.3.25

Remarks:

- Steady state conditions
- difference in the pH less than 0.2 units, difference in conductivity less than 10% and SWL stable/not in drawdown

JKEnvironments

Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Environmental Services for SEARS	Well No.:	MW12
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m):	3.86m

WELL FINISH

X	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Peri Pump.	SWL – Before:	2.47m
Date:	19/03/25	Time – Before:	10.44am
Undertaken By:	VR	Total Vol Removed:	Approx 3L
Pump Program No:	low flow	PID (ppm):	1.8

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
Bailes /	2.58m	0.5L		21.7	2.8	431.4	4.99	101.1
10.56am/3mins	2.75m	1L		21.6	2.9	436.7	5.73	87.6
10.59 /6mins	2.92m	1.5L	flow rate reduced	22.0	3.1	433.9	5.59	65.8
11.02 /9mins	2.96m	2L		22.2	3.3	437.5	5.50	60.0
11.05 /12mins	3.00m	2.5L		22.4	1.5	445.4	5.61	60.6
			→ Started Sampling.					
			Steady State was not achieved but started					
			sampling due to limited groundwater in the					
			well.					

Comments: Odours (~~YES~~ / NO); NAPL/PSH (~~YES~~ / NO); Sheen (~~YES~~ / NO); Steady State Achieved (~~YES~~ / NO)
Sampling Containers Used: x glass amber, x BTEX vials, x HNO3 plastic, x H2SO4 plastic, x unpreserved plastic
YSI used:
YSI 4 Cloudy / High Silt load Final SWL = 3.51m

Tested By: VR
Date Tested: 19/03/25
Checked By: KT
Date: 21.3.25

Remarks:
- Steady state conditions
- difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown

JKEnvironments

Client:	RSL Lifecare Ltd	**Job No.:**	E37444BT
Project:	Proposed Seniors Living Development	**Well No.:**	MW19
Location:	4 Colooli Road, Narrabeen, NSW	**Depth (m):**	5.38

WELL FINISH

X	**Gatic Cover**		**Standpipe**		**Other (describe)**

WELL PURGE DETAILS:

Method:	Peri-pump	**SWL – Before:**	2.45
Date:	19/03/25	**Time – Before:**	10 am
Undertaken By:	CB	**Total Vol Removed:**	3.1
Pump Program No:	/	**PID (ppm):**	2.4

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0	2.73	0.5		23.6	2.09	329.0	5.37	117.7
4	2.80	1.0		23.7	1.72	314.8	5.39	120.2
8	2.85	1.5		23.8	1.57	316.1	5.37	131.5
12	2.93	2.0	pump slowed	23.8	1.42	315.4	5.34	137.4
16	2.95	2.3		24.1	1.02	314.9	5.35	136.6
20	2.95	2.5		24.0	0.78	313.8	5.34	138.8
24	2.95	2.7		24.0	0.70	314.1	5.34	142.9
28	2.95	2.9		24.0	0.59	314.7	5.35	143.4
32	2.95	3.1		24.1	0.61	315.4	5.35	143.7
			started sampling steady state ✓					

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Sampling Containers Used: 2x glass amber, 4x BTEX vials, 2x HNO3 plastic, 1 x H2SO4 plastic, 2 x unpreserved plastic + micro jar

YSI used: Luxon PI #3 + 2v + pvc

Tested By:	CB
Date Tested:	19/03/25
Checked By:	KF
Date:	21.3.25

Remarks:
- Steady state conditions
- difference in the pH less than 0.2 units, difference in conductivity less than 10% and SWL stable/not in drawdown

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Client:	RSL Lifecare Ltd	Job No.:	E37444BT
Project:	Proposed Seniors Living Development	Well No.:	MW20
Location:	4 Colooli Road, Narrabeen, NSW	Depth (m): 3.78	4.08m

WELL FINISH

X	Gatic Cover		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Peri-pump	SWL – Before:	3.15m
Date:	19/03/25	Time – Before:	8am
Undertaken By:	CB	Total Vol Removed:	0.6L
Pump Program No:	lowest setting	PID (ppm):	30

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
0	3.25	0.2	pump lowest setting	24.2	5.42	265.2	6.47	144.6
4	3.28	0.3		23.4	5.99	419.9	6.17	-5.3
8	3.30	0.4		23.1	5.99	358.9	6.21	-1.2
12	3.31	0.5		22.8	6.01	336.7	6.22	1.1
16	3.33	0.6		22.5	5.97	313.2	6.23	1.1
20	3.35	0.7		22.4	5.89	313.9	6.22	0.9
			started sampling					
			fear of running out					
			of water					

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Slight sulphur smell

Sampling Containers Used: 2x glass amber, 4x BTEX vials, 2 x HNO3 plastic, 1 x H2SO4 plastic, 2 x unpreserved plastic + micro jar

YSI used: 1

Tested By:	CB
Date Tested:	19/03/25
Checked By:	KT
Date:	21.3.25

Remarks:

- Steady state conditions
- difference in the pH less than 0.2 units, difference in conductivity less than 10% and SWL stable/not in drawdown

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WATER QUALITY METER CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Proposed Seniors Living Development		
Location:	4 Colooli Road, Narrabeen, NSW		
Job Number:	E37444BT		
DISSOLVED OXYGEN			
Make: VSI 1		Model: /	
Date of calibration: 17/03/25		Name of Calibrator: CB	
Span value: 70% to 130%			
Measured value: 100.5			
Measured reading Acceptable (Yes/No):			
pH			
Make: VSI 1		Model:	
Date of calibration: 17/03/25		Name of Calibrator: CB	
Buffer 1: Theoretical pH = 7.01± 0.01		Expiry date: 9/25	Lot No: DH130924
Buffer 2: Theoretical pH = 4.01± 0.01		Expiry date: 8/25	Lot No: CP250624
Measured reading of Buffer 1: 7.01			
Measured reading of Buffer 2: 4.07			
Slope: /		Measured reading Acceptable (Yes/No):	
EC			
Make: VSI 4		Model: /	
Date: 17/03/25	Name of Calibrator: CB		Temperature: 22.7 °C
Calibration solution: AR- Conductivity Solution		Expiry date: 07/25	Lot No: CB130824
Theoretical conductivity at temperature (see solution container): 1359 µS/cm			
Measured conductivity: 1355 µS/cm		Measured reading Acceptable (Yes/No):	
REDOX			
Make: VSI 7		Model: /	
Date of calibration: Hanna Instruments		Name of Calibrator: CB	
Calibration solution: 17/03/25		Expiry date: 9/25	Lot No: 0675
Theoretical redox value: 240mV			
Measured redox reading: 240.2 mV		Measured reading Acceptable (Yes/No):	

JKEnvironments

WATER QUALITY METER CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Environmental Services for SEARS		
Location:	4 Colooli Road, Narrabeen, NSW		
Job Number:	E37444BT		
DISSOLVED OXYGEN			
Make: YSI		Model: YSI 4	
Date of calibration: 19/03/25		Name of Calibrator: VR	
Span value: 70% to 130%			
Measured value: 99%			
Measured reading Acceptable (Yes/No):			
pH			
Make: YSI		Model: YSI 4	
Date of calibration: 19/03/25		Name of Calibrator: VR	
Buffer 1: Theoretical pH = 7.01± 0.01		Expiry date: 07/25	Lot No: CB3110
Buffer 2: Theoretical pH = 4.01± 0.01		Expiry date: 08/25	Lot No: CB2665
Measured reading of Buffer 1: 7.04			
Measured reading of Buffer 2: 4.01			
Slope:		Measured reading Acceptable (Yes/No):	
EC			
Make: YSI		Model: YSI 4	
Date: 19/03/25	Name of Calibrator: VR		Temperature: 23 °C
Calibration solution: Rowe Scientific		Expiry date: 07/25	Lot No: CW230524
Theoretical conductivity at temperature (see solution container): 1359 µS/cm			
Measured conductivity: 1353 µS/cm		Measured reading Acceptable (Yes/No):	
REDOX			
Make: YSI		Model: YSI 4	
Date of calibration: 19/03/25		Name of Calibrator: VR	
Calibration solution: Hanna 240 ORP		Expiry date: 09/25	Lot No: 0675
Theoretical redox value: 240mV			
Measured redox reading: 240.8 mV		Measured reading Acceptable (Yes/No):	

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PID FIELD CALIBRATION FORM

Client:	RSL Lifecare Ltd		
Project:	Proposed Seniors Living Development		
Location:	4 Colooli Road, Narrabeen, NSW		
Job	E37444BT		
PID			
Make: Honeywell	Model: MiniRAE Lite	Unit: PID 4	Date of last factory calibration: 28/01/25
Date of calibration: 14/03/25		Name of Calibrator: CB	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: 100.0 ppm		Error in measured reading: ± 0 ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make: Honeywell	Model: MiniRAE Lite	Unit: PID 4	Date of last factory calibration: 28/01/25
Date of calibration: 17/03/25		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: 100.5 ppm		Error in measured reading: ± 0.5 ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make: RAE Systems	Model: PGM7350	Unit: PID2	Date of last factory calibration: 25/01/25
Date of calibration: 18/03/25		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: 100.1 ppm		Error in measured reading: ± 0.1 ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ± ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration:	100.0 ppm
Measured reading: ppm		Error in measured reading: ± ppm	
Measured reading Acceptable (Yes/No):			

Appendix I: Guidelines and Reference Documents

Australian and New Zealand Governments (ANZG), (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia

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Olszowy, H., Torr, P., and Imray, P., (1995). Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

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