Preliminary Site Investigation

235 Grose Vale Road, North Richmond, NSW

Prepared for: St John of God Health Care Inc C/- Johnstaff NSW Pty Ltd
EP1494.001 16 November 2020

APPROVED COMPANY ISO 9001 Quality Management Systems QMS Certification Services

APPROVED COMPANY AS/NZS 4801 OH&S Management Systems QMS Certification Services

APPROVED COMPANY ISO 14001 Environmental Management Systems QMS Certification Services

EP RISK

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235 Grose Vale Road, North Richmond, NSW

St John of God Health Care Inc C/- Johnstaff NSW Pty Ltd
235 Grose Vale Road,
North Richmond, NSW 2754

16 November 2020

Our Ref: EP1494.001

LIMITATIONS

This Preliminary Site Investigation was conducted on the behalf of St John of God Health Care Inc C/- Johnstaff NSW Pty Ltd for the purpose/s stated in **Section 1**.

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It is not possible in a Preliminary Site Investigation to present all data, which could be of interest to all readers of this report. Readers are referred to any referenced investigation reports for further data.

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QUALITY CONTROL

Version	Author	Date	Reviewer	Date	Quality Review	Date
v1	N McGuire	31/01/20	P Simpson	31/01/20	P Simpson	31/01/20
v2	P Simpson	16/11/20	P Simpson	16/11/20	P Simpson	16/11/20

DOCUMENT CONTROL

Version	Date	Reference	Submitted to
v1	31/01/20	EP1494.001	St John of God Health Care Inc c / - Johnstaff NSW Pty Ltd
v2	16/11/20	EP1494.001	St John of God Health Care Inc c / - Johnstaff NSW Pty Ltd

Executive Summary

Introduction

EP Risk Management Pty Ltd ('EP Risk') was engaged by St John of God Health Care Inc ('SJGHC') to undertake a Preliminary Site Investigation ('PSI') at the proposed 'St John of God Richmond Redevelopment' ('Proposed Development') at a property located at 235 Grose Vale Road, North Richmond, NSW ('the Site').

Site History Review and Site inspection

Based upon a review of the site history information, the Site is believed to have operated as a hospital since around 1952. The hospital has had significant upgrades since it's opening and majority of the construction took place in the 1970's and 1980's.

The main infrastructure observed during the site inspection included:

- A number of buildings across the Site utilised for various purposes including accommodation, treatment clinics, dining areas, cafes, places of worship, maintenance facilities, monasteries;
- A number of recreational facilities including tennis courts, a pool and a small golf course;
- A large visitors carpark;
- The Battle of Richmond Hill Memorial Garden, a place of aboriginal cultural heritage significance located in the north east portion of the Site;
- A single walled steel (approximately 2,000 L) above ground diesel storage tank contained within a bunded area;
- Chemical storage area used to store pesticides, herbicides and fertilisers. Two liquified petroleum gas ('LPG') storage tanks;
- A large underground water storage tank used to store reclaimed water for irrigation adjacent to the Admin Building;
- Four above ground fire hydrant water storage tanks adjacent to the visitors carpark; and
- A large above ground reclaimed water storage tank adjacent to the maintenance shed.

Fieldwork Investigations

Fieldwork investigations comprised a total of 13 boreholes advanced to a maximum depth of 3.0 m below ground level ('BGL') or prior refusal. Samples were collected and selectively analysed for the contaminants of potential concern ('COPC'). The soil lithology at the Site generally comprised FILL/TOPSOIL overlying natural residual sandy clay in the northern portion and weathered shale in the southern portion.

Analytical Testing Results

The results of the analytical testing indicated that the concentrations of COPC were below the commercial / industrial adopted criteria. A fragment of bonded asbestos was detected in soil in BH7 however the concentration of asbestos in soil was below the adopted commercial / industrial criteria.

Conclusions and Recommendations

Based on the results of the site history, site inspection, and analytical testing, the Site is considered to present a low risk of contamination. EP Risk considers that the Site is suitable for commercial / industrial land use subject to the implementation of an unexpected finds protocol during construction of the Proposed Development.

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1 Introduction

1.1 Overview

EP Risk Management Pty Ltd ('EP Risk') was engaged by St John of God Health Care Inc ('SJGHC') to undertake a Preliminary Site Investigation ('PSI') at the proposed 'St John of God Richmond Redevelopment' ('Proposed Development') at a property located at 235 Grose Vale Road, North Richmond, NSW ('the Site'). The Site is contained within Lot 11 in Deposited Plan ('DP') 1134453 as shown on **Figure 1**.

It is understood that the Proposed Development includes the upgrade and expansion St John of God Richmond Hospital comprising demolition of a portion of the existing facilities; upgrading of existing facilities to contemporary, best-practice standards; and construction of new facilities including an increase in capacity from 88 to 112 beds.

The PSI has been prepared in accordance with the State Environmental Planning Policy No. 55 – Remediation of land ('SEPP 55') for a development application for the Proposed Development.

1.2 Objectives

The purpose of the PSI is to assess whether any contaminating activities are likely to have occurred at the Site or on nearby properties which may present a potential risk to human or ecological receptors associated with the Proposed Development.

1.3 Scope of Work

The scope of work completed to achieve the objectives comprised of:

- Desktop Study: review of the Site history based upon:
    - Council and regulatory records;
    - Historical and current land title records;
    - Historical aerial photographs;
    - Geological and hydrological information including soil and acid sulphate soil maps;
    - A review of council Section 10.7 planning certificates; and
    - A review of NSW Environmental Protection Authority ('NSW EPA') records and notices.
- A site inspection to observe on-site and off-site conditions.
- Identification of areas and contaminants of potential concern ('CoPC') for the Site based upon historical land uses.
- Prepare a PSI report summarising historical and analytical findings in accordance with:
    - National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended April 2013 ('ASC NEPM 2013').
    - Office of Environment and Heritage ('OEH') (2011) Guideline for Consultants Reporting on Contaminated Sites.
    - State Environmental Planning Policy No. 55, Remediation of Land (SEPP, 2018).

1.4 Site Identification

The Site Identification details are presented in **Table 1**.

Table 1 – Site Identification

Item	Description
Address	235 Grose Vale Road, North Richmond, NSW (**Figure 1**)
Legal description	Lot 11 in Deposited Plan 1134453.
Area	Approximately 9.8 Hectares
Municipality	Hawkesbury City Council ('Council')
Zoning	Hawkesbury Local Environmental Plan ('LEP') 2012 identifies the Site as zoned RU1 Primary Production.

2 Methodology

The PSI was conducted in accordance with:

- Australian Standard AS4482.1-2005: *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*.
- Australian Standard AS4482.1-1999: *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances*.
- Friebel, E & Nadebaum, P 2011, *Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document*, CRC Care Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia ('CRC CARE 2011').
- National Environment Protection Council: ('NEPC') (1999) *National Environment Protection (Assessment of Site Contamination) Measure*, as amended April 2013 ('ASC NEPM 2013').
- NSW Environment Protection Authority (EPA) (1995) *Sampling Design Guidelines*.
- NSW EPA (2015) *Guidelines on the Duty to Report Contamination under the* Contaminated Land Management Act 1997.
- NSW EPA (2017) *Guidelines for the NSW Auditor Scheme (3rd Edition)* (NSW Auditor Guidelines).
- NSW OEH (2011) *Contaminated Sites, Guidelines for Consultants Reporting on Contaminated Sites*.
- State Environmental Planning Policy No. 55 – Remediation of Land ('SEPP 55').
- United State Environment Protection Agency ('USEPA') (2006) *Guidance on Systematic Planning Using the Data Quality Objectives Process, ref: EPA QA/G-4*.

3 Site Condition and Surrounding Environment

Most of the information provided in the following sections was obtained from Lotsearch Environmental Risk and Planning Report (2019). A copy of the Lotsearch (2019) report is provided as **Appendix A**.

3.1 Current Land Use and Layout

EP Risk undertook a site inspection on the 16th December 2019 comprising of a site walkover and visual assessment. The general site features and infrastructure observed during the inspection are presented in the photo log provided as **Appendix B**. The general site features are discussed in more detail below.

The Site is currently operating as a mental health care hospital and the following site features were observed:

- A number of buildings across the Site utilised for various purposes including accommodation, treatment clinics, dining areas, cafes, places of worship, maintenance facilities, monasteries;
- A number of recreational facilities including tennis courts, a pool and a small golf course;
- A large visitors carpark;
- The Battle of Richmond Hill Memorial Garden, a place of aboriginal cultural heritage significance located in the north east portion of the Site;
- A single walled steel (approximately 2,000 L) above ground diesel storage tank contained within a bunded area;
- Chemical storage area used to store pesticides, herbicides and fertilisers. Two liquified petroleum gas ('LPG') storage tanks;
- A large underground water storage tank used to store reclaimed water for irrigation adjacent to the Admin Building;
- Four large above ground fire hydrant water storage tanks adjacent to the visitors carpark; and
- A large above ground reclaimed water storage tank adjacent to the maintenance shed.

3.2 Surrounding Land Use

Based off the Maitland City Council Local Environmental Plan 2011, the Site is located within an area zoned as R1 General Residential and RU2 Rural Landscape. As of the 30h of September 2019, surrounding land uses comprised of:

- **North**: The land immediately north of the Site across Grose Vale Road consists of cleared land zoned R2 Low Density Residential.
- **South**: The land adjacent to the southern boundary of the Site consists of a rural property zoned RU1 Primary Production and is predominately used for farming cattle and rural/residential properties.
- **East**: The land adjacent to the eastern boundary of the Site consists of a rural property zoned RU1 Primary Production followed by the Hawkesbury River.
- **West**: The land adjacent to the western boundary of the Site consists of rural properties zoned RU1 Primary Production and is predominately used for farming cattle and rural/residential properties.

A plan showing the Environmental Planning Instrument Land Zones on the Site and adjacent properties is provided within the Lotsearch (2019) Report in **Appendix A**.

3.3 Topography and Drainage

Topographically the Site is situated on Richmond Hill which sits approximately 65 m to 70 m above the Australian Height Datum ('m AHD'). The access driveway into the Site and the majority of the onsite buildings are situated at the crest of Richmond Hill with moderate to steep slopes surrounding the Site. The topography of the surrounding area is hilly to undulating with moderate to steep slopes. The south east portion of the Site is bounded by very steep to extreme slopes (approximately 35 degrees to 55 degrees).

It is assumed that surface water overland flow from the south east portion of the Site will runoff into the stormwater network and eventually outfall at the south eastern boundary of the Site at the foot of Richmond Hill.

Surface water in the north east portion of the Site would likely run north east towards an unnamed gully offsite running east towards Hawkesbury River. It is assumed that the runoff would migrate towards the Hawkesbury River approximately 250 m south east of the Site.

A plan showing the topographical contours of the Site is provided within the Lotsearch (2019) Report in **Appendix A**.

3.4 Geology

Based on the information contained in the NSW Department of Industry, Resources and Energy 1:100,000 Penrith Geological Map, the Site is predominately underlain by Middle Triassic aged Ashfield Shale comprising dark grey to black claystone-siltstone and fine sandstone-siltstone laminate. The north west portion of the Site is underlain by Bringelly Shale and Minchinbury Sandstone. There are no geological structures or faults located on the site or within the 1 km buffer around the Site.

3.5 Soil Landscapes

Based on the soil landscapes data sourced from the NSW OEH (Lotsearch, 2019) the Site is located within the Luddenham Erosional soil landscapes. It is expected that the underlying soil would comprise of residual or colluvial soils derived from the weathering of the underlying Middle Triassic deposits.

3.6 Natural Occurring Asbestos Potential

No reported naturally occurring asbestos potential has been identified within 1 km of the Site.

3.7 Hydrogeology

A search of the NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation undertaken by Lotsearch (2019) indicated that there were no registered groundwater bores located at the Site and 26 registered groundwater bores located within a 2 km buffer of the Site. The authorised purpose of the bores was reported to be 'domestic', 'stock', 'irrigation' or 'unknown'. The depth of bores ranged from 16 metres below ground level ('m BGL') to 126 m BGL. Further details of the lithology encountered during installation of the groundwater bores are provided in the Lotsearch (2019) report provided as **Appendix A**.

Review of the Hydrogeology Map of Australia, Lotsearch (2019) reported that aquifers within the dataset buffer are porous, extensive aquifers with low to moderate productivity. The Site is not located within any groundwater dependant ecosystems ('GDEs'). GDEs identified within a 1 km radius of the Site consisted of moderate to high potential Terrestrial and aquatic GDE's. A map showing the locations of the GDE's is provided in the Lotsearch (2019) report provided as **Appendix A.**

3.8 Acid Sulfate Soil

The Site is located on class 5 acid sulfate soil land. The CSIRO Atlas of Australian Acid Sulfate Soils identifies the Site to be within an area of extremely low probability of occurrence (1-5%) to low probability of occurrence (6-70%) of acid sulfate soils.

3.9 Dryland Salinity

A search of the National Land and Water Resources Audit undertaken by Lotsearch (2019) indicated that there is a moderate dryland salinity potential across the Site.

3.10 Mining Subsidence

The Site is not located within the any proclaimed mine subsidence district.

3.11 Regulatory Searches

A summary of the regulatory searches performed by Lotsearch (2019) are summarised in **Table 2**.

Table 2 – Regulatory Searches

Search	Results
State Environmental Planning Precincts ('SEPP') State Significant Precincts	No SEPP State Significant Precincts have been identified at or within 1 km of the Site.
Contaminated Sites Notified to the NSW EPA	No records within 1 km of the Site.
Contaminated Land: Records of Notice	No contaminated land records of notices have been identified within 1 km of the Site.
Former Gasworks	No former gasworks have been identified within 1 km of the Site.
NSW EPA per- and poly-fluoroalkyl substances ('PFAS') Investigation Program	No sites under the NSW PFAS Investigation Program were identified within 1 km of the Site.
Waste Management Facilities	No records of waste management facilities were reported at or within 1 km of the Site.
Underground petroleum storage system ('UPSS') Sensitive Zones	The Site is located within an UPSS regulated sensitive zone.
Defence 3 Year Regional Contamination Investigation Program	The site has not been assessed as part of the defence 3-year regional contamination investigation program.

3.12 Licensed Activities Under the Protection of the Environment Operations Act 1997

A summary of the licensed activities under the *Protection of the Environment Operations Act 1997* ('POEO Act') being undertaken within 1 km of the Site is provided in **Table 3**.

Table 3 – Licensed Activities Under the POEO Act

EPL[1]	Organisation	Activity	Distance from Site
5425	Sydney Water Corporation – North Richmond Water Filtration Plant	Miscellaneous licensed to discharge to waters at any time.	830 m north east

The Licensed activities presented in **Table 3** are not considered to present a significant risk to human health or ecological receptors due to the nature of the activities and / or the separation distance.

3.13 Delicensed Activities Still Regulated by the NSW EPA

There are no delicensed activities still regulated by the NSW EPA within the 1 km buffer.

3.14 Former Licensed Activities under the POEO Act, now Surrendered

Former licensed activities under the POEO Act, now surrendered identified within 1 km of the Site are provided in **Table 4.**

Table 4 – Former licensed activities under the POEO Act, now surrendered

Licence No.	Organisation	Location	Activity	Distance from Site
4653	Luhrmann Environment Management Pty Ltd	Waterways throughout NSW	Application of herbicides	20 m (within waterways/gullies surrounding the Site)
4838	Robert Orchard			
6630	Sydney Weed and Pest Management Pty Ltd			
13070	Sydney Water Corporation	Agnes Banks and Londenderry, NSW	Sewage treatment processing by small plants	156 m, south east

The former licensed activities presented are not considered to impact the Site based on the activities and separation distance from the Site.

[1] EPL – environment protection license

3.15 Planning Certificate

3.15.1 Lot 11 DP 1134453

The Hawkesbury LEP 2012 identifies the land on which the Site is located is zoned as **RU1 – Primary Production**. A copy of the planning certificate under section 10.7 of the Environmental Planning and Assessment Act 1979 ('EP&A Act') ('s10.7 Certificate') for the Site is provided in **Appendix D**.

Based upon a review of information provided in the s10.7 Certificate, the following additional information for Lot 11 DP 1134453 was provided:

- The Land is not within a mine subsidence district and the land is not affected by a policy adopted by Council that restrict the development of land because of the likelihood of land slip or subsidence.
- The land is not affected by any road widening or road alignment.
- The Lot is affected by a policy adopted by Council that restrict the development of land because of the likelihood of acid sulfate soils.
- The land is not affected by any proposed acquisition of land.
- The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.
- A portion of the Site is classified as bush fire prone land.
- Council has not been notified that a residential premise erected on this land has been identified in the NSW Fair Trading Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

The following matters are prescribed by Section 59 (2) of the CLM Act 1997:

- The land is not declared to be significantly contaminated land.
- The land is not subject to a management order or approved voluntary management proposal.
- The land is not subject to an ongoing maintenance order.
- The land is not subject to a site audit statement ('SAS').

4 Site History

The site history sources utilised during the review include:

- Historical aerial photography.
- Historical title deed search.
- Historical business directories.

4.1 Review of Historical Aerial Photos

Aerial photographs of the Site for the years: 1961, 1970, 1982, 1991, 2007, 2014, 2018, 2019 were reviewed, and a summary is provided in **Table 5**. Copies of photos are contained within the Lotsearch report in **Appendix A**.

Table 5 – Historical Aerial Photograph Review

Year	Description
1961	**Site:** The Site is cleared with multiple buildings on the eastern portion including Belmont House, the Monastery, St Augustine's, and the Stables. **Surrounds:** The surrounding area consists of undulating to hilly cleared landscape with a few rural / residential properties.
1970	**Site:** The Pool and Chapel have been constructed. **Surrounds:** The land surrounding the Site has remained largely unchanged.
1982	**Site:** The Tennis Courts, Lodge, St Pauls Building, CTC Unit, Back of House Building, a visitor's carpark, pump shed and internal roads connecting the buildings have been constructed. **Surrounds:** The land surrounding the Site has remained largely unchanged.
1991	**Site:** The Admin Building and Xavier's Building have been constructed. **Surrounds:** The land surrounding the Site has remained largely unchanged except for the development of a stud farm at a property to the south.
2007	**Site:** The maintenance shed has been constructed. **Surrounds:** The land surrounding the Site has remained largely unchanged.
2014	**Site:** The Battle of Richmond Hill Memorial has been constructed. **Surrounds:** The land surrounding the Site has remained largely unchanged.
2018	**Site:** The Site has remained largely unchanged. **Surrounds:** The land surrounding the Site has remained largely unchanged.
2019	**Site:** The Site has remained largely unchanged. **Surrounds:** The land surrounding the Site has remained largely unchanged.

4.2 Historical Title Deed Search

4.2.1 Lot 11 DP 1134453

Based upon a review of historical title information for the site dated the 13th of December 2019, St John of God Health Care Inc have been identified as the current proprietors of Lot 11 DP1134453 since 2009. Prior to this The Trustees of the Hospitaller Brothers of St John of God owned the Site since 1952. Prior to 1952 the titles were transferred 3 times and owners included graziers Phillip Charley (1928-1937) and Clifford Grahame (1937-1951) and widow Mildred Macdonald (1951 -1952).

The historical title deed search documents for the site are attached as **Appendix E**.

4.3 Review of Historical Business Directories

Based upon a review of 1950, 1961, 1970, 1982, 1986 and 1991 historical business directories provided by Lotsearch (2019), the Site was listed as the Hospital of St John of God in the 1970 business directories.

4.4 Summary of Site History

Based upon a review of the site history information, the Site is believed to have operated as a hospital since around 1952, the hospital has had significant upgrades since it's opening and majority of the construction took place in the 1970's and 1980's.

5 Preliminary Conceptual Site Model

5.1 Potentially Contaminating Activities and Chemicals of Potential Concern

Based on the site inspection and review of historical records, the following activities have occurred at the Site which may have resulted in the potential for contamination. These activities and associated contaminants of potential concern ('COPC') are presented in **Table 6**.

Table 6 – Potentially Contaminating Activities and Contaminants of Potential Concern

Potentially Contaminating Activities	Area of Site	Evidence	COPC	Potential Concern?
Demolition of structures potentially containing asbestos	Entire Site	Site history and inspection	Asbestos	Based on the Site history, majority of the onsite buildings were built in the 1970's and 1980's and therefore asbestos containing materials may be present. Subsurface pits containing
Importation of potentially contaminated fill material	Entire Site	Site history and inspection	Heavy metals / TRH / BTEXN / PAH / PCB asbestos.	Based on the Site inspection minimal filling has been undertaken and the fill generally comprised pavement materials or re-worked natural materials and therefore presents a low risk.
Operation of above ground diesel tank.	Chemical storage area	Site inspection	TRH / BTEXN / PAH	Based on the site inspection an above ground diesel fuel tank was observed which presents a medium risk to the area immediately surrounding the tanks.
Chemical storage area	Chemical storage area	Site inspection	TRH, BTEXN, PAH, OCP, OPP	Based on the site inspection an above ground diesel fuel tank was observed which presents a medium risk to the area immediately surrounding the tanks.

5.2 Potentially Impacted Media

Based on the site inspection and review of historical records the media most likely to have been impacted (if any) would be soil.

Groundwater is likely to be found as ephemeral perched water at the contact of residual soil and shallow bedrock and within more permeable zones and fractures in the bedrock. Given the presence of shallow impermeable soil and bedrock and the presence of groundwater at deeper depths, groundwater is unlikely to be impacted based upon the nature of potentially contaminating activities at the Site.

5.3 Sensitive Receptors

Sensitive receptors identified at and near the Site were considered to be:

Current

- Current commercial/industrial users at the Site (ASC NEPM 2013 health investigation levels ('HIL') D and health screening levels ('HSL') D – Commercial/industrial).
- Terrestrial fauna and flora at the Site and on adjoining land (ASC NEPM Ecological investigation levels ('EILs') and Ecological screening levels ('ESLs')).

Future (Proposed Development)

- Current commercial/industrial users at the Site (ASC NEPM 2013 health investigation levels ('HIL') D and health screening levels ('HSL') D – Commercial/industrial).
- Future construction and sub-surface maintenance workers at the Site (ASC NEPM 2013 HIL D and HSL D – commercial/industrial; CRC CARE 2011 Direct contact and intrusive maintenance workers HSLs and Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench)).
- Terrestrial fauna and flora at the Site and on adjoining land (ASC NEPM Ecological investigation levels ('EILs') and Ecological screening levels ('ESLs')).

6 Sampling and Analysis

6.1 Data Quality Objectives

To assess whether an appropriate sampling strategy was adopted for the Assessment, EP Risk adopted the data quality objectives ('DQOs') planning process as:

- Recommended in the ASC NEPM 2013.
- Required within the NSW EPA (2017), *Guidelines for the NSW Site Auditors Scheme (3rd edition)*.
- With consideration to technical details outlined in US EPA (2006) *Guidance on Systematic Planning Using the Data Quality Objectives Process, ref: EPA QA/G-4* and AS 4482.1-2005 *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*.

State the Problem

The PSI was required to assess whether any contaminating activities are likely to have occurred at the Site which may present a risk to the Proposed Development and to provide a preliminary assessment of the nature and extent of any contamination (if present) and likelihood of contamination.

Identify the Decision

To assess the soil conditions at the Site, the following decisions need to be addressed:

- Are there any unacceptable risks to likely future onsite receptors from impacted soil during or after development?
- Are there any aesthetic concerns in fill soil present at the site?
- Is there sufficient information to provide preliminary characterisation of the nature and extent of any contamination that may be present at the Site that is associated with the historical land use?
- Is there sufficient information to provide characterisation of the nature and extent of any contamination at the Site.
- Is a detailed site investigation ('DSI') required?

Identify Inputs into the Decision

The inputs required to make the decision include the following:

- Site history investigation.
- Environmental data as collected by sampling and analysis and site observations made during this investigation;
- Assessment criteria to be achieved on the Site as based on the Proposed Development and project objectives, as defined by the Tier 1 assessment criteria nominated in **Section 7**;
- Confirmation that data generated by sampling and analysis are of an acceptable quality to allow reliable comparison to adopted assessment criteria as undertaken by assessment of quality assurance / quality control ('QA/QC') as per the data quality indicators ('DQIs') established in **Section 6.2**.

Define the Boundaries of the Study

The spatial boundaries of the PSI comprised Lot 11 in DP 1134453 with a maximum proposed depth for the investigation has been set at 3.0 m BGL with the approximate boundaries identified in **Figure 1**.

Due to the project objectives, seasonality will not be assessed as part of this investigation. Data will therefore be representative of the timing and duration of the current investigation.

Develop a Decision Rule to Identify the Decision

1. ***Are there any unacceptable risks to likely future onsite receptors from impacted soils during development?***

   The nature and extent of soil impacts will be assessed, and soil analytical data will be compared against Tier 1 EPA endorsed criteria. Statistical analyses of the data in accordance with relevant guidance documents will be undertaken, if appropriate, to facilitate the decisions. The following statistical criteria will be adopted with respect to soils: Either: the reported concentrations are all below the site criteria; Or: the average site concentration for each analyte must be below the adopted site criterion; no single analyte concentration exceeds 250% of the adopted site criterion; and the standard deviation of the results must be less than 50% of the site criteria.

   And: the 95% upper confidence limit ('UCL_{mean}') of the average concentration for each analyte (calculated for samples collected from consistent soil horizons, stratigraphy or material types must be below the adopted site criterion. If the statistical criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks, the decision is No. Otherwise, the decision is Yes.

2. ***Are there any aesthetics issues in fill soils at the site?***

   If there are any unacceptable staining, odours or significant amounts of anthropogenic fill materials the answer to the decision is Yes. Otherwise, the answer to the decision is No.

3. ***Is a DSI required?***

   Is the answer to any of the above decisions Yes? If yes, a DSI may be required to be developed.

   If no, a DSI may not be required.

4. ***Is there sufficient information to provide a preliminary assessment of any soil contamination that may be present at the Site, associated with the historical land use?***

   If the data set meets the established DQIs and QA/QC the decision is Yes, otherwise the decision is no.

Specify Acceptable Limits of Decision Errors

The acceptable limits were as follows:

I. Individual or 95% UCL_{mean} concentrations to be below the adopted criteria or background concentrations.

II. 95% of the data must satisfy the data quality indicators ('DQIs') which were determined for completeness, representativeness, precision and accuracy of both field and laboratory data. Therefore, the limit on the decision error was 5% that a conclusive statement may be incorrect.

III. A comprehensive quality assurance/quality control ('QA/QC') program was undertaken including representative sampling and sampling at an appropriate density for the purpose of the investigation.

The acceptable limit of error for sampling techniques and laboratory analysis was defined by the DQIs as follows:

Data Representativeness

Expresses the accuracy and precision with which sample data represents an environmental condition. Data representativeness was achieved by the collection of samples at an appropriate pattern and density as well as consistent and repeatable sampling techniques and procedures.

Completeness

Refers to, the percentage of data that can be considered valid data. Sufficient data was required to enable an assessment of the Decision Rules.

Comparability

A qualitative comparison of the confidence with which one data set can be compared to another. This was achieved through consistent sampling and analytical testing and reporting techniques.

Precision

A measure of the reproducibility of on measurements under a given set of conditions. The relative percent difference (RPD) has been adopted to assess the precision of data between duplicate sample pairs according to the following equation.

$$RPD\% = \frac{[\mathrm{Cp} - \mathrm{Cd}]}{\mathrm{Cp} + \mathrm{Cd}} \times 200$$

Where:
Cp = Primary sample
Cd = Duplicate Sample

An acceptance criterion of ±50% for field duplicates and triplicates. However, it should be noted that exceedances of these criteria are common for heterogeneous soil or fill or for low analyte concentrations.

Accuracy

A measure of the bias in the analytical results and can often be attributed to field contamination; insufficient preservation or sample preparation; or inappropriate analytical techniques. Accuracy of the analytical data is assessed by consideration of laboratory control samples and laboratory spikes.

Optimise the Design for Obtaining Data

A targeted and systematic sampling pattern was designed based on the desktop study revealing potential contaminating activities. A comprehensive suite of COPC was selectively adopted for the assessment to provide characterisation of the status of soil at the Site. The adopted sampling approach is consistent with AS4482.1 (2005).

6.2 Data Quality Indicators

The DQOs, requirements and indicators for the assessment are presented in **Table 7**.

Table 7 – DQO, Requirements and Indicators

DQO	Requirement	DQI
Precision		
Standard operating procedures appropriate and complied with	The sampling methods comply with industry standards and guidelines	Meet requirement
Intra-laboratory duplicates	1 per 20 samples	RPDs < 50%
Inter-laboratory duplicates	1 per 20 samples	RPDs < 50%
Laboratory duplicates	Minimum of 1 per batch per analyte	RPDs < 50%
Accuracy		
Laboratory matrix spikes	1 per batch per volatile/semi-volatile analyte	Recoveries 50% to 150%
Laboratory surrogate spikes	1 per volatile/semi-volatile analyte sample (as appropriate)	Recoveries 70% to 130%
Laboratory control samples	At least 1 per batch per analyte tested for	Result < laboratory reporting limit
Representativeness		
Sampling methodology - preservation	Appropriate for the sample type and analytes	Meet requirement
Samples extracted and analysed within holding times	Specific to each analyte	Meet requirement
Field equipment calibration	All field equipment calibrated, and calibration records provided.	Meet requirement
Laboratory method blanks	At least 1 per batch per analyte tested for	Result < laboratory reporting limit
Trip blanks	1 per lab batch for volatile analytes	Result < laboratory reporting limit
Trip spikes	1 per lab batch for volatile analytes	Recoveries 60-100%
Rinsate	1 per lab batch for volatile analytes	Result < laboratory reporting limit
Comparability		
Sampling approach	Consistent for each sample	Meet requirement
Analysis methodology	Consistent methodology for each sample	Meet requirement
Handling conditions and sampler	Consistent for each sample	Meet requirement
Field observations and analytical	Field observations to support analytical results	Meet requirement

Table 7 – DQO, Requirements and Indicators		
DQO	**Requirement**	**DQI**
Consistent laboratory reporting limit	Consistent between primary and secondary laboratories	Meet requirement
Completeness		
Sampling staff	Consistent sampling staff used.	Meet requirement
Laboratory accreditation	NATA Accredited laboratory for methods used	Meet requirement
Accredited methods	NATA accredited methods used appropriate for each analyte.	Meet requirement
ASC NEPM (2013) lab methods	Lab methods consistent with the ASC NEPM (2013).	Meet requirement
Laboratory reporting limit	Laboratory reporting limit consistent and appropriate	Meet requirement
Consistent weather / field conditions	Consistent	Meet requirement
Chain of custody documentation	Appropriately completed	Meet requirement
Field sampling documentation	Appropriately completed	Meet requirement

6.3 Sampling and Analysis Methodology

Sampling Methodology

The methodology for soil sampling was outlined as follows:

1. Soil samples were collected from 12 soil bore locations.
2. Boreholes were advanced to a maximum depth of 3.0 m BGL.
3. Soils were logged for type, colour, texture, other characteristics and indications of contamination as presented in the bore logs attached as **Appendix F.**
4. All sampling equipment was decontaminated with phosphate free detergent and a dedicated pair of nitrile gloves was used for each sample to prevent cross contamination.
5. All samples were screened with a photoionisation detector ('PID'), with calibration certificates attached as **Appendix G**.
6. Sufficient samples were collected and placed into laboratory prepared sampling jars with a unique sample ID added to the label on each jar.
7. The sample jars were preserved on ice immediately after sampling and during shipment to the laboratories. The laboratory chain of custody documentation was completed and accompanied the samples during shipment.

The sampling locations are presented in **Figure 2**.

6.4 Analytical Testing

EP Risk used Eurofins Global and ALS Services as the primary and secondary laboratories, both of which are NATA registered for the required analysis. The laboratory analysis was undertaken in accordance with **Table 8**.

Table 8 – Analytical Testing of Primary Samples

Media	Sampling Locations	Number of Analysis[2]
Soil	12	• Heavy metals / TRH / BTEXN / PAH – 12 • OCP / OPP/ PCB – 6 • NEPM Screen for soil classification (iron, total organic carbon, cation exchange capacity, % clay and pH) – 1 • Asbestos (NEPM 2013) w/w% – 2

6.5 Field and Laboratory Quality Assurance and Quality Control (QA/QC)

An assessment of the field and laboratory DQI results is presented in **Table 9**.

Table 9 – DQI Results Summary

Parameter	Requirement	Objective Met
Precision		
Standard operating procedures appropriate and complied with	The sampling methods comply with industry standards and guidelines.	Yes
Field duplicates	• 1 per 20 samples; and • RPDs < 50%.	Yes Yes
Field triplicates	• 1 per 20 samples; and • RPDs < 50%.	Yes Yes
Laboratory duplicates	• Minimum of 1 per batch per analyte; • RPDs < 50%; and • >10%, laboratory specified.	Yes Yes Yes
Accuracy		
Laboratory matrix spikes	• 1 per batch per volatile/semi-volatile analyte; and • Recoveries >70% to 130%.	Yes Yes
Laboratory surrogate spikes	• 1 per volatile/semi-volatile analyte sample (as appropriate); and • Recoveries 70% to 130%.	Yes Yes
Laboratory control samples	• At least 1 per batch for analyte tested; and • 70-130%.	Yes Yes
Representativeness		
Sample collection - preservation	Appropriate for the sample type and analytes.	Yes
Field equipment calibration	All field equipment calibrated, and calibration records provided.	Yes

[2] Excluding duplicates and triplicates.

Table 9 – DQI Results Summary		
Parameter	**Requirement**	**Objective Met**
Decontamination procedures	All sampling equipment to be decontaminated between each sample.	Yes
Holding times	Samples extracted and analysed within laboratory prescribed holding times.	Yes
Trip blanks	• 1 per field batch for volatile analytes; and • Result < laboratory reporting limit.	Yes Yes
Trip spikes	• 1 per field batch for volatile analytes; and • Recoveries 70-130%.	Yes Yes
Rinsate	• 1 per field batch for volatile analytes; and • Result < laboratory reporting limit.	Yes Yes
Laboratory Method Blanks	• At least 1 per batch per analyte tested for; and • Result < laboratory reporting limit	Yes Yes
Completeness		
Sample logs and groundwater field sheets	Provided	Yes
Chain of custody	Provided	Yes
Sample receipt acknowledgement	Provided	Yes
Laboratory reports	Provided	Yes
Comparability		
Sampling staff	Consistent sampling staff used.	Yes
Laboratory accreditation	NATA accredited laboratory for methods used.	Yes
Accredited methods	NATA accredited methods used appropriate for each analyte.	Yes
ASC NEPM (2013) lab methods	Lab methods consistent with the ASC NEPM (2013).	Yes
Laboratory reporting limit consistent and appropriate	Meet Requirement	Yes
Consistent weather / field conditions	Consistent	Yes

On the basis of the information provided in **Table 9**, EP Risk considers that the DQIs for the project have been met and the data is appropriate for the purposes of this assessment.

7 Environmental Quality Criteria

7.1 Soil Criteria

For the purposes of assessing the results of analytical testing of soils at the Site, the following guidelines were considered:

- ASC NEPM 2013.
- NSW EPA Auditor Guidelines (2017).
- Friebel, E & Nadebaum, P 2011, *Health Screening Levels for Petroleum Hydrocarbons in soil and Groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10*, CRC CARE, Adelaide, Australia.

EP Risk has adopted the ASC NEPM 2013 Tier 1 Guidelines in accordance with NSW EPA (2017). In accordance with the decision-making process for assessing urban redevelopment sites (Appendix A, NSW EPA, 2017), soil concentrations were compared against the following soil investigation levels ('SILs'):

- **Health-based Criteria for the current and proposed land use**: ASC NEPM (2013) HILs and HSLs for commercial/industrial land use and the CRC Care (2011) HSLs for intrusive maintenance worker (shallow trench) and direct contact.
- **Ecological Criteria**: The ASC NEPM (2013) EILs and ESLs for commercial/industrial land use have been adopted for the Site based on the current and proposed site use.
- **Management Limits**: ASC NEPM 2013 management limits are based upon the physical properties of petroleum hydrocarbons to form observable light non-aqueous phase liquid ('LNAPL'); create fire and explosion hazards or penetrate or damage underground services. The management limits for commercial/industrial land use based on coarse/fine soil have been adopted.
- **Aesthetics**: The consultant should also consider the need for remediation based on the 'aesthetic' contamination as outlined in Schedule B (1) of the ASC NEPM 2013 that states that *'there are no numeric Aesthetic Guidelines however site assessment requires balanced consideration of the quality, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity*'. Soil odour, discolouration and the presence of anthropogenic materials will need to be assessed during the assessment.

The adopted soil criteria for the site are presented in **Table 10**.

Table 10 – Adopted Soil Criteria

Guidelines	COPC	Adopted Criteria
ASC NEPM 2013	Heavy metals/OCP/OPP/PCB /asbestos	HIL D (commercial/industrial).
	Heavy metals/OCP/PAH	EILs (commercial/industrial <2m).
	TRH and BTEXN	Vapour intrusion HSL D (commercial/industrial); 0-<1m/1-<2m; sand. 0-<1m/1-<2m; clay. ESLs (commercial/industrial); <2m.
	TRH	Management limits (commercial/industrial); coarse/fine soil.

Table 10 – Adopted Soil Criteria		
Guidelines	**COPC**	**Adopted Criteria**
Friebel, E & Nadebaum, 2011	TRH and BTEXN	Direct contact and intrusive maintenance workers HSLs Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench)

The proposed development is contained within areas of the Site with minimal access to soil and the proposed development is considered to be primarily commercial/industrial with minimal access to soil. Therefore, based on the current and proposed future land use, EP Risk has adopted the HILs, HSLs, EILs and ESLs for a commercial/industrial land use setting.

8 Results

8.1 Field Observations

The soil lithology in the southern portion of the Site generally comprised:

- FILL comprising of gravelly silty SAND/Sandy CLAY encountered from the surface; overlying
- Weathered Shale encountered from 0.5 to 1.0 m BGL; overlying

The soil lithology in the northern portion of the Site generally comprised:

- TOPSOIL comprising of sandy SILT encountered from the surface; overlying
- Sandy Silty CLAY – dry, medium to high plasticity, residual. Encountered from 0.2 m BGL to greater than 3.0 m BGL.

Groundwater was encountered in the underlying bedrock at depths between 6.5 to 7.5 m BGL.

8.2 Soil Vapour Screening

No signs of visual staining or odours were observed in all other sample collection with PID readings <1 ppm.

8.3 Analytical Testing – Soil

The results of soil analytical testing are contained in the analytical summary tables section at the rear of the report and the laboratory Certificates of Analysis are attached as **Appendix H.**

TRH / BTEXN / PAH

All TRH, BTEXN and PAH concentrations of the soil samples analysed were reported below the adopted criteria.

OCP / OPP / PCB

All OCP, OPP and PCB concentrations of the soil samples analysed were reported below the adopted criteria.

Heavy metals

All heavy metals concentrations of the soil samples analysed were reported below the adopted criteria.

Asbestos

Bonded (non-friable) asbestos was not detected above the limit of reporting of 0.01 % for the two samples collected. One fragment of bonded asbestos was observed in the surface soil in BH7.

Friable asbestos was not detected above the limit of reporting of 0.001% for the two samples collected.

9 Site Characterisation

Based on the decision-making process for assessing urban redevelopment sites detailed in EPA (2017), the decisions required to be made are detailed below.

- Are there any unacceptable risks to likely future onsite receptors from impacted soils during development?
- Are there any aesthetic concerns at the site?
- Is a detailed site investigation ('DSI') required?
- Is there sufficient information to provide an assessment of any contamination that may be present at the Site, associated with the historical land use?

9.1 Are there any unacceptable risks to likely future onsite receptors from impacted soils during development?

No, the preliminary soil sampling of the potentially contaminating activities revealed no exceedances to tier one criteria indicating that there is a low risk of unacceptable risks to future onsite users.

Based on the aerial photography and the site inspection, the onsite buildings are considered to potentially contain asbestos containing materials which may present a risk to future occupants however it is considered this can be managed appropriately during construction/demolition.

Based upon the absence of any soil concentrations exceeding the adopted criteria and the presence of groundwater at deeper depths within the underlying bedrock, the risk of contamination to groundwater is considered to be low.

9.2 Are there any aesthetic concerns at the Site?

Minor amounts of anthropogenic material were observed within fill in a few locations around the Site. The anthropogenic material included mostly brick and tile as well as one fragment of bonded (non-friable) asbestos containing material. Since minimal access to soil is expected following the redevelopment of the Site it is expected that there are no aesthetic concerns at the Site.

9.3 Is a DSI required?

The site history review and site inspection identified a low risk of contamination at the Site. Therefore, a DSI is not required subject to implementation of the recommendations in this report.

9.4 Is there sufficient information to provide an assessment of any contamination that may be present at the Site, associated with the historical land use?

Based on the site history review, site inspection and preliminary soil sampling program it is considered sufficient information was collected to adequately characterise the risk of contamination from historical activities onsite.

10 Refined Conceptual Site Model

A refined CSM has been developed based upon the information provided in previous sections of this report.

10.1 Potentially Contaminating Activities

The main potentially contaminating activities considered to be undertaken at and near the Site are:

- Historical use as a Hospital.
- Demolition of structures potentially containing asbestos.
- Importation of potentially contaminated fill material.
- Operation of a above ground diesel and LPG tanks.

10.2 Potentially Affected Media

The potential affected media at the Site are considered to be soil. Groundwater was not considered to be impacted due to the depth of groundwater and limited pathways for leaching of contaminants into groundwater.

10.3 Potential Human and Ecological Receptors

Sensitive receptors identified at and near the Site were considered to be:

Current

- Current commercial/industrial users at the Site (ASC NEPM 2013 health investigation levels ('HIL') D and health screening levels ('HSL') D – Commercial/industrial).
- Terrestrial fauna and flora at the Site and on adjoining land (ASC NEPM Ecological investigation levels ('EILs') and Ecological screening levels ('ESLs')).

Future (Proposed Development)

- Current commercial/industrial users at the Site (ASC NEPM 2013 health investigation levels ('HIL') D and health screening levels ('HSL') D – Commercial/industrial).
- Future construction and sub-surface maintenance workers at the Site (ASC NEPM 2013 HIL D and HSL D – commercial/industrial; CRC CARE 2011 Direct contact and intrusive maintenance workers HSLs and Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench)).
- Terrestrial fauna and flora at the Site and on adjoining land (ASC NEPM Ecological investigation levels ('EILs') and Ecological screening levels ('ESLs')).

10.4 Potential and Complete Exposure Pathways

An analysis of the potential exposure pathways between the COPC and the identified human and ecological receptors are presented in **Table 11**.

Table 11 – Potential Source-Pathway-Receptor Linkages

Sources				Pathways		Receptors	Linkages	Comments
Primary	Secondary	Contaminants	Affected Media	Transport Mechanisms	Exposure Pathways			
Demolition of structures potentially containing asbestos	-	Asbestos	Soil	Transported from filling, fugitive dust.	Human Health • inhalation • Dermal contact	• Residents of the Site • Construction / remediation and maintenance workers	Not Complete	Based on the results of analytical testing.
Importation of potentially contaminated fill material	Leaching into soil and groundwater	TRH, BTEXN, PAH, OCP, OPP, PCB, Asbestos	Soil	Leaching into soil and groundwater.	Human Health • Inhalation • Dermal contact	• Residents of the Site • Construction / remediation and maintenance workers	Not Complete	Based on the results of analytical testing.
					Ecological • Biomagnification • Bioaccumulation	• Terrestrial Flora and Fauna at the Site.	Not Complete	Based on the results of analytical testing.

Table 11 – Potential Source-Pathway-Receptor Linkages

Sources				Pathways		Receptors	Linkages	Comments
Primary	Secondary	Contaminants	Affected Media	Transport Mechanisms	Exposure Pathways			
Operation of above ground diesel storage tank.	Leaching into soil and groundwater	TRH, BTEXN, PAH, Heavy Metals.	Soil and groundwater	Leaching into soil and groundwater.	<u>Human Health</u> • Inhalation • Dermal contact	• Residents of the Site • Construction / remediation and maintenance workers	Not Complete	Based on the results of analytical testing.
					<u>Ecological</u> • Biomagnification • Bioaccumulation	• Terrestrial Flora and Fauna at the Site.	Not Complete	Based on the results of analytical testing.
Chemical Storage Area	Leaching into soil and groundwater	TRH, BTEXN, PAH, OCP, OPP	Soil and groundwater	Leaching into soil and groundwater.	<u>Human Health</u> • Inhalation • Dermal contact	• Residents of the Site • Construction / remediation and maintenance workers	Not Complete	Based on the results of analytical testing.

Table 11 – Potential Source-Pathway-Receptor Linkages

Sources				Pathways		Receptors	Linkages	Comments
Primary	Secondary	Contaminants	Affected Media	Transport Mechanisms	Exposure Pathways			
					<u>Ecological</u> • Biomagnification Bioaccumulation	• Terrestrial Flora and Fauna at the Site.	Not Complete	Based on the results of analytical testing.

11 Conclusions and Recommendations

This report presents the findings of a PSI undertaken for the proposed residential development at 235 Grose Vale Road, North Richmond, NSW.

Based upon a review of the site history information, the Site is believed to have operated as a hospital since around 1952, the hospital has had significant upgrades since it's opening and majority of the construction took place in the 1970's and 1980's.

The main infrastructure observed during the site inspection included:

- A number of buildings across the Site utilised for various purposes including accommodation, treatment clinics, dining areas, cafes, places of worship, maintenance facilities, monasteries;
- A number of recreational facilities including tennis courts, a pool and a small golf course;
- A large visitors carpark;
- The Battle of Richmond Hill Memorial Garden, a place of aboriginal cultural heritage significance located in the north east portion of the Site;
- A single walled steel (approximately 2,000 L) above ground diesel storage tank contained within a bunded area;
- Chemical storage area used to store pesticides, herbicides and fertilisers. Two LPG storage tanks;
- A large underground water storage tank used to store reclaimed water for irrigation adjacent to the Admin Building;
- Four above ground fire hydrant water storage tanks adjacent to the visitors carpark;
- A large above ground reclaimed water storage tank adjacent to the maintenance shed.

The soil lithology at the Site generally comprised FILL/TOPSOIL overlying natural residual sandy clay in the northern portion and weathered shale in the southern portion.

The results of the analytical testing indicated that the concentrations of COPC were below the adopted criteria.

Based on the results of the site history, site inspection, and analytical testing, the Site is considered to present a low risk of contamination. EP Risk considers that the Site is suitable for commercial / industrial land use subject to the implementation of an unexpected finds protocol during construction of the Proposed Development.

Figures

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Preliminary Site Investigation
235 Grose Vale Road, North Richmond, NSW

Figure 1 - Site Location

Job No: EP1494.001
Date: 30/01/2020
Drawing Ref: Draft
Version No: v1

N

0 40 80 120 m

Approximate Scale Only

Coordinate System: MGA 56
Drawn by: NM Checked by: PS
Scale of regional map not shown
Source: Nearmaps

APPROVED COMPANY ISO 9001 Quality Management Systems QMS Certification Services

APPROVED COMPANY AS/NZS 4801 OH&S Management Systems QMS Certification Services

APPROVED COMPANY ISO 14001 Environmental Management Systems QMS Certification Services

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Preliminary Site Investigation
235 Grose Vale Road, North Richmond, NSW

Figure 2 - Soil Sampling Locations

Job No: EP1494.001
Date: 30/01/2020
Version No: v1

N

0 20 40 60 m

Approximate Scale Only

Coordinate System: MGA 56
Drawn by: NM Checked by: PS
Scale of regional map not shown
Source: Nearmaps

APPROVED COMPANY ISO 9001 Quality Management Systems QMS Certification Services

APPROVED COMPANY AS/NZS 4801 OH&S Management Systems QMS Certification Services

APPROVED COMPANY ISO 14001 Environmental Management Systems QMS Certification Services

Analytical Tables

Table A1 - TRH, BTEXN, PAH

		TRH							TPH					BTEX						PAH																				Halogenated Benzenes
		C6-C10 (F1 minus BTEX)	C6-C10	C10-C16 (F2 minus Naphthalene)	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	>C10-C36 (Sum of total)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylenes Total	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ (LOR)	PAHs (Sum of total)	Hexachlorobenzene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		20	20	50	50	100	100	100	20	20	50	50	50	0.1	0.1	0.1	0.2	0.1	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.05
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil			800		1,000	5,000	10,000																																
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																																							
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																																	370						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																																							
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																																				40	4,000	80	
Field ID	**Date**																																						
BH1_0.2	**19/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH1_0.5	**19/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.05
BH2_0.2	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1.2	0.5	
BH2_1.0	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	74	52	126	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH3_0.2	**17/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	57	57	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	0.6	0.9	<0.5	1.0	0.7	0.8	<0.5	1.3	<0.5	0.6	<0.5	0.6	1.5	1.7	8	
BH3_0.5	**17/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.05
BH4_0.2	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	54	54	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.05
BH4_1.0	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH5_0.2	**17/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH7_0.1	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	37	70	73	180	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH8_0.05	**18/12/2019**	<20	<20	<50	<50	150	<100	150	<20	22	96	120	238	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.05
BH9_0.5	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH10_0.2	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.05
BH10_0.5	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH11_0.2	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.05
BH11_1.0	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH12_0.2	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH12_1.0	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	
BH13_0.1	**18/12/2019**	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<0.5	<0.5	0.8	0.6	<0.5	<0.5	0.7	1.1	<0.5	2.0	<0.5	<0.5	<0.5	<0.5	1.7	1.4	6.9	

Table A2 - Metals, OCP, OPP, PCBs

		Metals							
		Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		2	0.4	5	5	5	0.1	5	5
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil									
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay									
NEPM 2013 Table 1B(5) EIL - Comm/Ind		160		780	100	1,800		95	300
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil		3,000	900		240,000	1,500	730	6,000	400,000
Field ID	**Date**								
BH1_0.2	**19/12/2019**	110	<0.4	21	33	140	<0.1	13	110
BH1_0.5	**19/12/2019**	18	<0.4	14	40	28	<0.1	13	110
BH2_0.2	**18/12/2019**	9.8	<0.4	15	30	16	<0.1	8.3	67
BH2_1.0	**18/12/2019**	13	<0.4	15	29	15	<0.1	15	120
BH3_0.2	**17/12/2019**	11	<0.4	20	48	18	<0.1	22	130
BH3_0.5	**17/12/2019**	14	<0.4	21	44	17	0.1	9.8	98
BH4_0.2	**18/12/2019**	8.9	<0.4	13	44	47	<0.1	11	81
BH4_1.0	**18/12/2019**	17	<0.4	15	52	17	<0.1	17	140
BH5_0.2	**17/12/2019**	11	<0.4	11	34	17	<0.1	17	72
BH7_0.1	**18/12/2019**	6.2	<0.4	19	19	83	<0.1	7.7	120
BH8_0.05	**18/12/2019**	5.2	<0.4	12	29	31	<0.1	8.2	290
BH9_0.5	**18/12/2019**	25	<0.4	12	52	22	<0.1	12	90
BH10_0.2	**18/12/2019**	11	<0.4	21	29	36	<0.1	18	75
BH10_0.5	**18/12/2019**	13	<0.4	19	30	27	<0.1	11	57
BH11_0.2	**18/12/2019**	26	<0.4	26	26	24	<0.1	12	37
BH11_1.0	**18/12/2019**	19	<0.4	19	30	25	<0.1	<5	28
BH12_0.2	**18/12/2019**	4.9	<0.4	12	10	13	<0.1	7.8	37
BH12_1.0	**18/12/2019**	13	<0.4	26	14	17	<0.1	8.7	20
BH13_0.1	**18/12/2019**	2.5	<0.4	7.7	48	21	<0.1	10.0	71

		Organochlorine Pesticides																							
		Organochlorine pestiddes EPAVic	Other organochlorine pestiddes EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin aldehyde	Endrin ketone	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																									
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																									
NEPM 2013 Table 1B(5) EIL - Comm/Ind												640													
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							45		530				3,600							100		50		2,500	160
Field ID	**Date**																								
BH1_0.2	**19/12/2019**																								
BH1_0.5	**19/12/2019**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
BH2_0.2	**18/12/2019**																								
BH2_1.0	**18/12/2019**																								
BH3_0.2	**17/12/2019**																								
BH3_0.5	**17/12/2019**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
BH4_0.2	**18/12/2019**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
BH4_1.0	**18/12/2019**																								
BH5_0.2	**17/12/2019**																								
BH7_0.1	**18/12/2019**																								
BH8_0.05	**18/12/2019**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
BH9_0.5	**18/12/2019**																								
BH10_0.2	**18/12/2019**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
BH10_0.5	**18/12/2019**																								
BH11_0.2	**18/12/2019**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
BH11_1.0	**18/12/2019**																								
BH12_0.2	**18/12/2019**																								
BH12_1.0	**18/12/2019**																								
BH13_0.1	**18/12/2019**																								

		Organophosphorous Pesticides																																Pesticides	
		Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethoprop	Ethion	Fenitrothion	Fensulfothion	Fenthion	EPN	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Parathion	Pirimiphos-methyl
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																																			
NEPM 2013 Table 1B(5) EIL - Comm/Ind																																			
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																																			
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						2,000																													
Field ID	**Date**																																		
BH1_0.2	**19/12/2019**																																		
BH1_0.5	**19/12/2019**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH2_0.2	**18/12/2019**																																		
BH2_1.0	**18/12/2019**																																		
BH3_0.2	**17/12/2019**																																		
BH3_0.5	**17/12/2019**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH4_0.2	**18/12/2019**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH4_1.0	**18/12/2019**																																		
BH5_0.2	**17/12/2019**																																		
BH7_0.1	**18/12/2019**																																		
BH8_0.05	**18/12/2019**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH9_0.5	**18/12/2019**																																		
BH10_0.2	**18/12/2019**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH10_0.5	**18/12/2019**																																		
BH11_0.2	**18/12/2019**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH11_1.0	**18/12/2019**																																		
BH12_0.2	**18/12/2019**																																		
BH12_1.0	**18/12/2019**																																		
BH13_0.1	**18/12/2019**																																		

Table A3 - Asbestos

		Asbestos				
		Mass ACM	MassAsbestos in ACM	Mass Soil	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil
		g	g	g	%w/w	%w/w
EQL						
NEPM 2013 Bonded ACM Health Screening Level (w/w) Comm / Ind					0.05	
NEPM 2013 Friable Asbestos Health Screening Level (w/w) Comm / Ind						0.001
Field ID	**Date**					
BH7_ACM	**18/12/2019**	32	4.8	17500	0.0274	-
BH7 W/W%	**18/12/2019**	-	-	-	-	<0.0001

Table B1 - Duplicate and Triplicate RPDs

Field ID	Date	Metals								TRH						
		Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	C6-C10 (F1 minus BTEX)	C6-C10	C10-C16 (F2 minus Naphthalene)	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		2	0.4	5	5	5	0.1	5	5	20	20	50	50	100	100	100
BH13_0.1	18/12/2019	2.5	<0.4	7.7	48	21	<0.1	10.0	71	<20	<20	<50	<50	<100	<100	<100
QC03	19/12/2019	2.4	<0.4	7.8	57	22	<0.1	13	75	<20	<20	<50	<50	100	<100	100
RPD %		4.08	-	1.29	17.14	4.65	-	26.09	5.48	-	-	-	-	-	-	-
QC04	19/12/2019	<4	<0.4	7	49	22	<0.1	8	59	<20	<20	<50	<50	100	<100	100
RPD %		-	-	9.52	2.06	4.65	-	22.22	18.46	-	-	-	-	-	-	-

Field ID	Date	TPH					BTEX					
		C6-C9	C10-C14	C15-C28	C29-C36	+C10-C36 (Sum of total)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		20	20	50	50	50	0.1	0.1	0.1	0.2	0.1	0.3
BH13_0.1	18/12/2019	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3
QC03	19/12/2019	<20	<20	51	95	146	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3
RPD %		-	-	-	-	-	-	-	-	-	-	-
QC04	19/12/2019	<20	<20	51	95	146	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3
RPD %		-	-	-	-	-	-	-	-	-	-	-

Field ID	Date	PAH																	
		Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ (LOR)	PAHs (Sum of total)
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BH13_0.1	18/12/2019	<0.5	<0.5	<0.5	0.8	0.6	<0.5	<0.5	0.7	1.1	<0.5	2.0	<0.5	<0.5	<0.5	<0.5	1.7	1.4	6.9
QC03	19/12/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5
RPD %		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.38	-
QC04	19/12/2019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5
RPD %		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.38	-

Table B2 - Trip Blank, Trip Spike and Rinsate

Metals

Field ID	Date	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL		0.001	0.0002	0.001	0.001	0.001	0.0001	0.001	0.005
RW01	**19/12/2019**	<0.001	<0.0002	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005
TB	**19/12/2019**								
TS	**19/12/2019**								

TRH

Field ID	Date	C6-C10 (F1 minus BTEX)	C6-C10 (F1 minus BTEX)	C6-C10	C6-C10	C10-C16 (F2 minus Naphthalene)	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)
		mg/kg	mg/L	mg/kg	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL		20	0.02	20	0.02	0.05	0.05	0.1	0.1	0.1
RW01	**19/12/2019**		<0.02		<0.02	<0.05	<0.05	<0.1	<0.1	<0.1
TB	**19/12/2019**	<20		<20						
TS	**19/12/2019**			100						

TPH

Field ID	Date	C6-C9	C6-C9	C10-C14	C15-C28	C29-C36	+C10-C36 (Sum of total)
		mg/kg	mg/L	mg/L	mg/L	mg/L	mg/L
EQL		20	0.02	0.05	0.1	0.1	0.1
RW01	**19/12/2019**		<0.02	<0.05	<0.1	<0.1	<0.1
TB	**19/12/2019**	<20					
TS	**19/12/2019**	110					

BTEX

Field ID	Date	Benzene	Benzene	Toluene	Toluene	Ethylbenzene	Ethylbenzene	Xylene (m & p)	Xylene (m & p)	Xylene (o)	Xylene (o)	Xylene Total	Xylene Total
		mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L
EQL		0.1	0.001	0.1	0.001	0.1	0.001	0.2	0.002	0.1	0.001	0.3	0.003
RW01	**19/12/2019**		<0.001		<0.001		<0.001		<0.002		<0.001		<0.003
TB	**19/12/2019**	<0.1		<0.1		<0.1		<0.2		<0.1		<0.3	
TS	**19/12/2019**	98		110		120		130		130		130	

PAH

Field ID	Date	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/kg	mg/L	mg/L	mg/L	mg/L
EQL		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.5	0.001	0.001	0.001	0.001
RW01	**19/12/2019**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
TB	**19/12/2019**														<0.5				
TS	**19/12/2019**														94				

Appendix A
LOTSEARCH ENVIRONMENTAL REPORT (2019)

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 13 Dec 2019 10:15:02

Reference: LS010323 EP

Address: 235 Grose Vale Road, North Richmond, NSW 2754

Dataset Listing

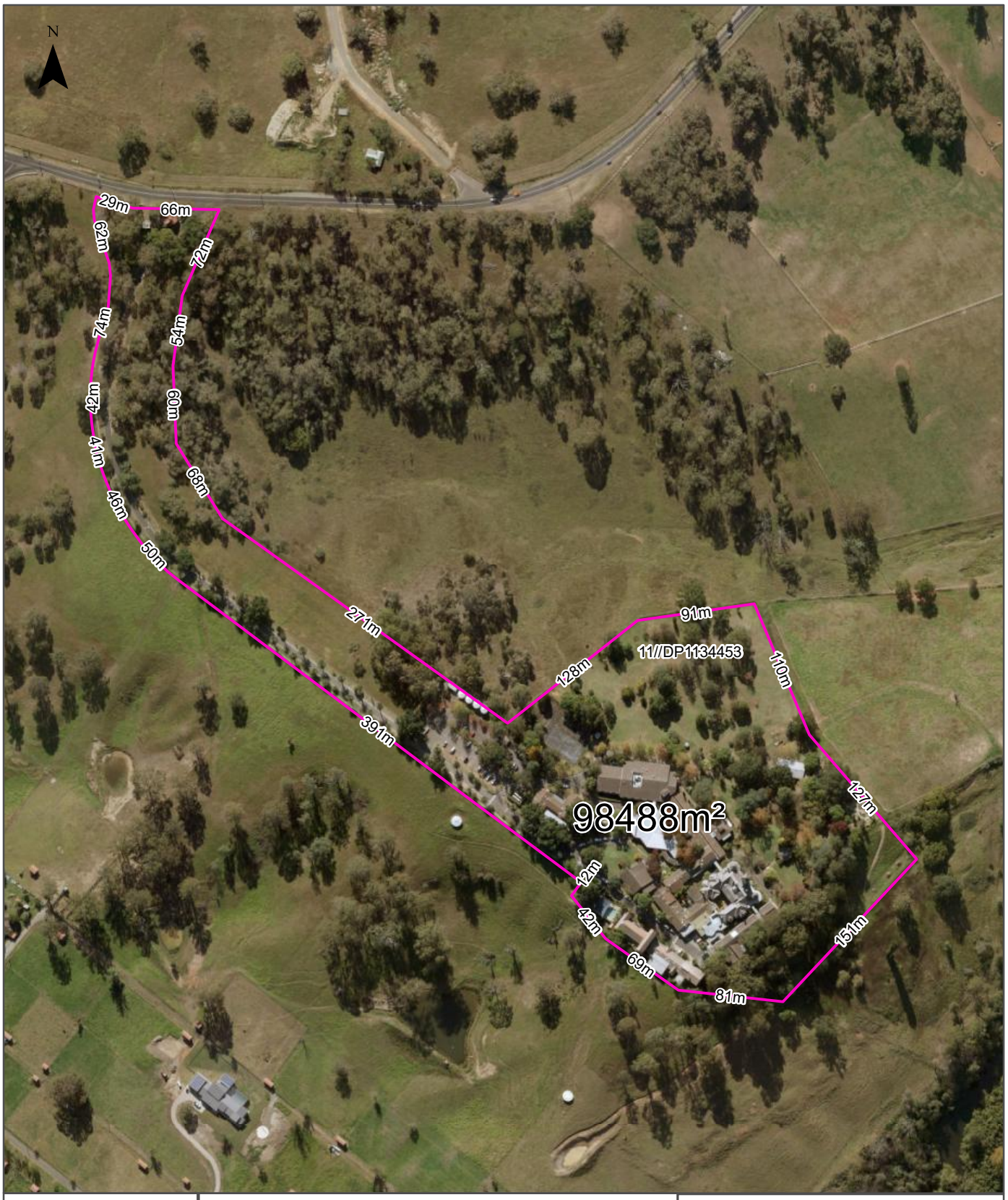
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	08/10/2019	08/10/2019	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	19/11/2019	18/11/2019	Monthly	1000	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	13/11/2019	13/11/2019	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	03/12/2019	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	05/11/2019	07/03/2017	Quarterly	1000	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	04/11/2019	04/11/2019	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program	Department of Defence	04/11/2019	04/11/2019	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	04/11/2019	04/11/2019	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	04/11/2019	04/11/2019	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	13/12/2018	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	25/11/2019	25/11/2019	Monthly	1000	0	0	1
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	25/11/2019	25/11/2019	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	25/11/2019	25/11/2019	Monthly	1000	0	3	4
UPSS Environmentally Sensitive Zones	Environment Protection Authority	14/04/2015	12/01/2010	As required	1000	1	1	1
UBD Business Directories 1950 - 1991 (Premise & Intersection Matches)	Hardie Grant			Not required	150	1	1	1
UBD Business Directories 1950 - 1991 (Road & Area Matches)	Hardie Grant			Not required	150	-	2	2
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	0
Points of Interest	NSW Department of Finance, Services & Innovation	19/09/2019	19/09/2019	Quarterly	1000	3	4	9
Tanks (Areas)	NSW Department of Finance, Services & Innovation	19/09/2019	19/09/2019	Quarterly	1000	0	0	1
Tanks (Points)	NSW Department of Finance, Services & Innovation	19/09/2019	19/09/2019	Quarterly	1000	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	19/09/2019	19/09/2019	Quarterly	1000	0	0	4
State Forest	NSW Department of Finance, Services & Innovation	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	16/01/2019	14/11/2018	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	2
Botany Groundwater Management Zones	NSW Department of Primary Industries	15/03/2018	01/10/2005	As required	1000	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	26
Geological Units 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	3	-	6

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Geological Structures 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	0	-	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1000	1	-	5
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	2	2	2
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning and Environment	06/12/2019	11/10/2019	Weekly	500	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	2	2	3
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	1	1	6
Mining Subsidence Districts	NSW Department of Finance, Services & Innovation	19/09/2019	19/09/2019	Quarterly	1000	0	0	0
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning and Environment	06/12/2019	07/12/2018	Weekly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning and Environment	06/12/2019	29/11/2019	Weekly	1000	1	2	17
Commonwealth Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	31/07/2018	Unknown	1000	0	0	0
National Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	28/09/2018	Unknown	1000	0	0	0
State Heritage Register - Curtilages	NSW Office of Environment & Heritage	08/11/2019	09/11/2018	Quarterly	1000	0	1	1
Environmental Planning Instrument Heritage	NSW Department of Planning and Environment	06/12/2019	29/11/2019	Weekly	1000	1	1	1
Bush Fire Prone Land	NSW Rural Fire Service	28/08/2019	03/06/2019	Quarterly	1000	2	2	3
Remnant Vegetation of the Cumberland Plain	NSW Office of Environment & Heritage	07/10/2014	04/08/2011	Unknown	1000	2	4	11
Ramsar Wetlands of Australia	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	4
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	6
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	13/12/2019	13/12/2019	Weekly	10000	-	-	-

Site Diagram

235 Grose Vale Road, North Richmond, NSW 2754



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 98488m²

Total Perimeter: 2150m

Scale: 0 25 50 100 150 200 Meters

Data Sources: Aerial Imagery: © Aerometrex Pty Ltd

Disclaimers:

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

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

Coordinate System: GDA 1994 MGA Zone 56

Date: 13 December 2019

Contaminated Land & Waste Management Facilities

235 Grose Vale Road, North Richmond, NSW 2754

List of NSW contaminated sites notified to EPA

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

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

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land & Waste Management Facilities

235 Grose Vale Road, North Richmond, NSW 2754

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

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

National Waste Management Site Database

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

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

Waste Management Facilities Data Source: Geoscience Australia

PFAS Investigation Programs

235 Grose Vale Road, North Richmond, NSW 2754

EPA PFAS Investigation Program

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

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

EPA PFAS Investigation Program: Environment Protection Authority

Defence PFAS Investigation & Management Program

Sites being investigated or 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 Investigation & 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

235 Grose Vale Road, North Richmond, NSW 2754

Defence 3 Year Regional Contamination Investigation Program

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

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

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

EPA Other Sites with Contamination Issues

235 Grose Vale Road, North Richmond, NSW 2754

EPA Other Sites with Contamination Issues

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

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

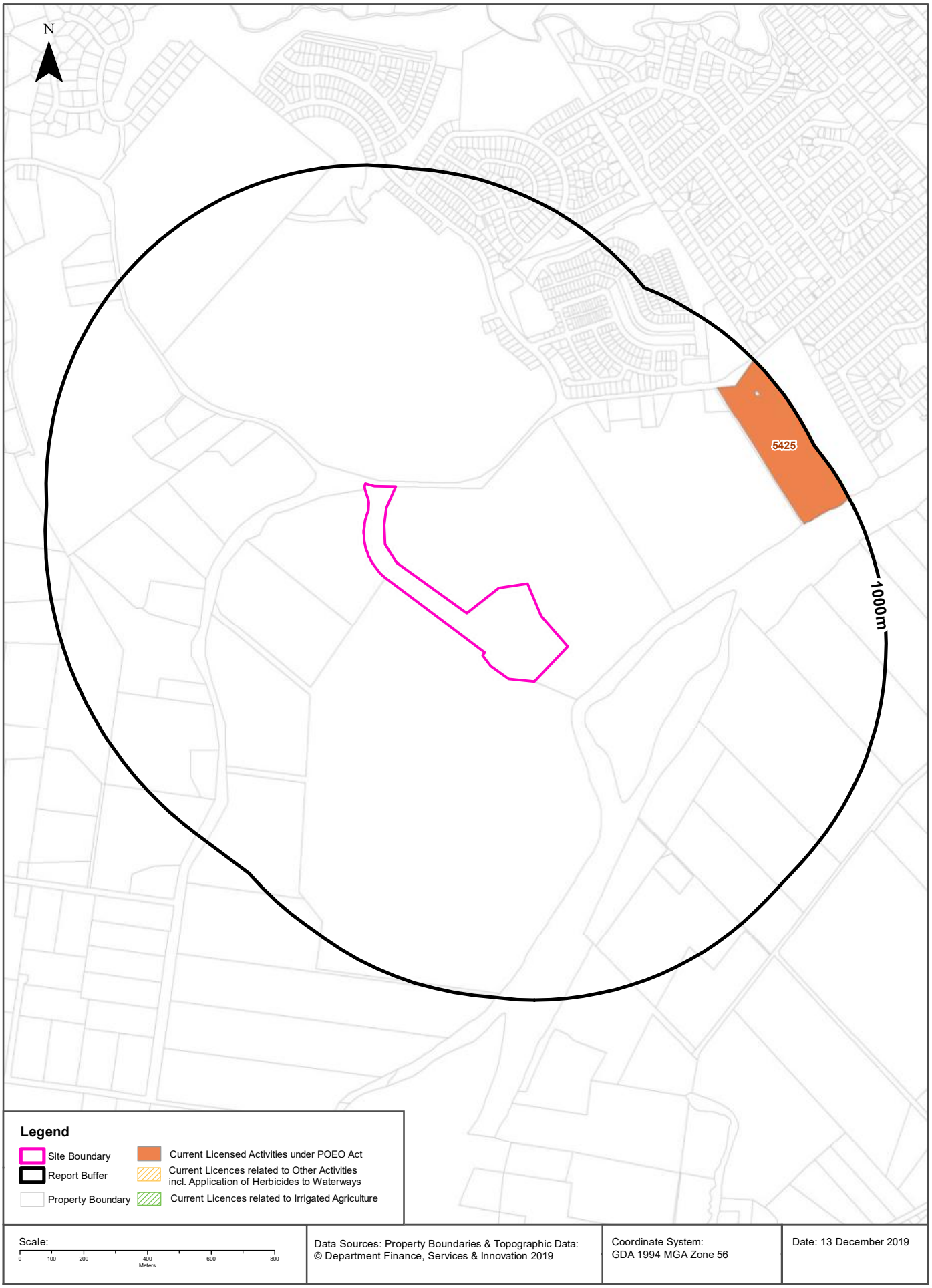
Sites within the dataset buffer:

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

EPA Other Sites with Contamination Issues: Environment Protection Authority

Current EPA Licensed Activities

235 Grose Vale Road, North Richmond, NSW 2754



EPA Activities

235 Grose Vale Road, North Richmond, NSW 2754

Licensed Activities under the POEO Act 1997

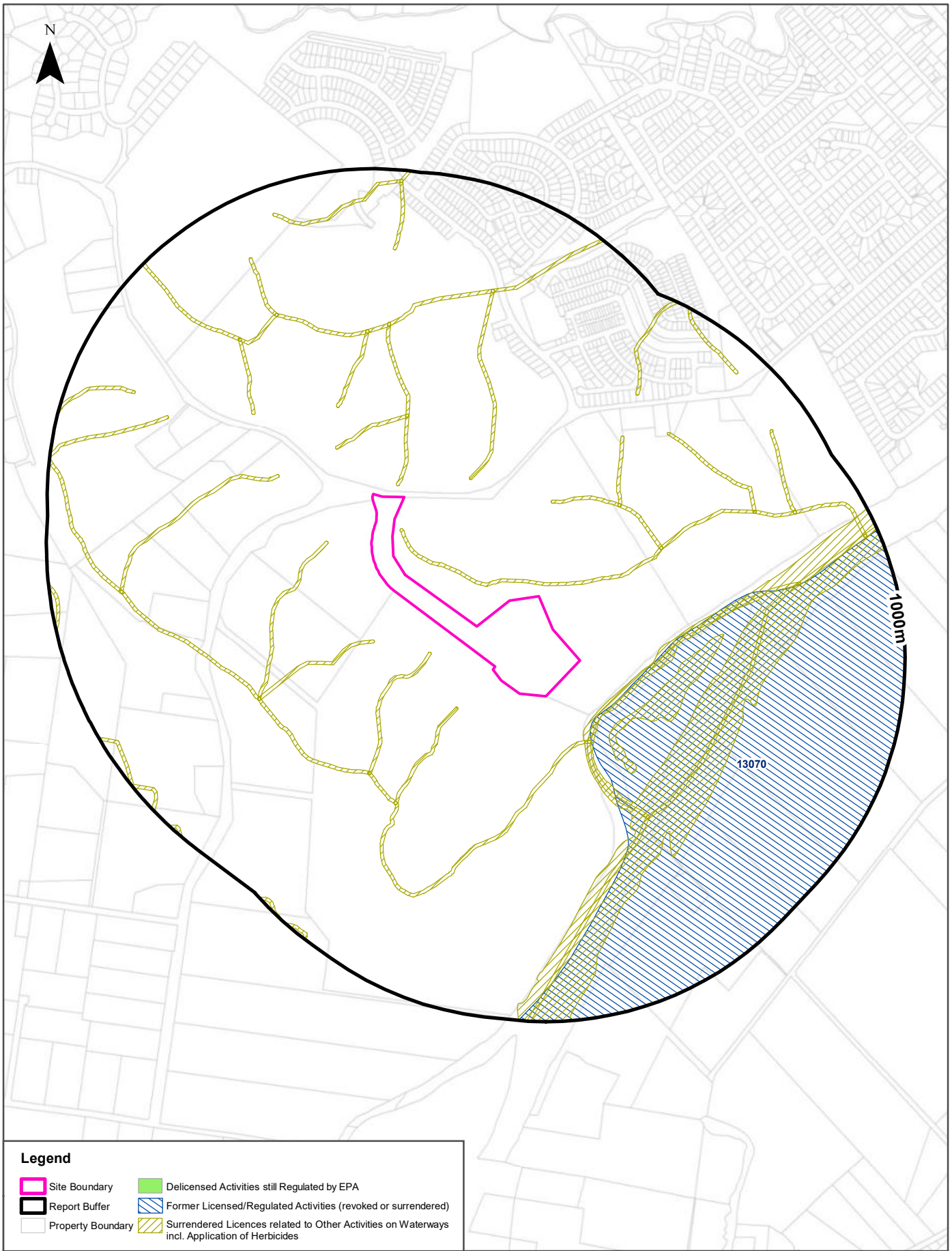
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
5425	SYDNEY WATER CORPORATION	NORTH RICHMOND WATER FILTRATION PLANT	GROSE VALE ROAD	NORTH RICHMOND	Miscellaneous licensed discharge to waters (at any time)	Premise Match	830m	North East

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

235 Grose Vale Road, North Richmond, NSW 2754



EPA Activities

235 Grose Vale Road, North Richmond, NSW 2754

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority

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

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

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	20m	-
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	20m	-
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	20m	-
13070	SYDNEY WATER CORPORATION	Agnes Banks and Londonderry Sewerage Scheme including the townships of Agnes Banks and, LONDONDERRY, NSW, 2753	Surrendered	27/04/2009	Sewage treatment processing by small plants	General Area/ Suburb Match	156m	South East

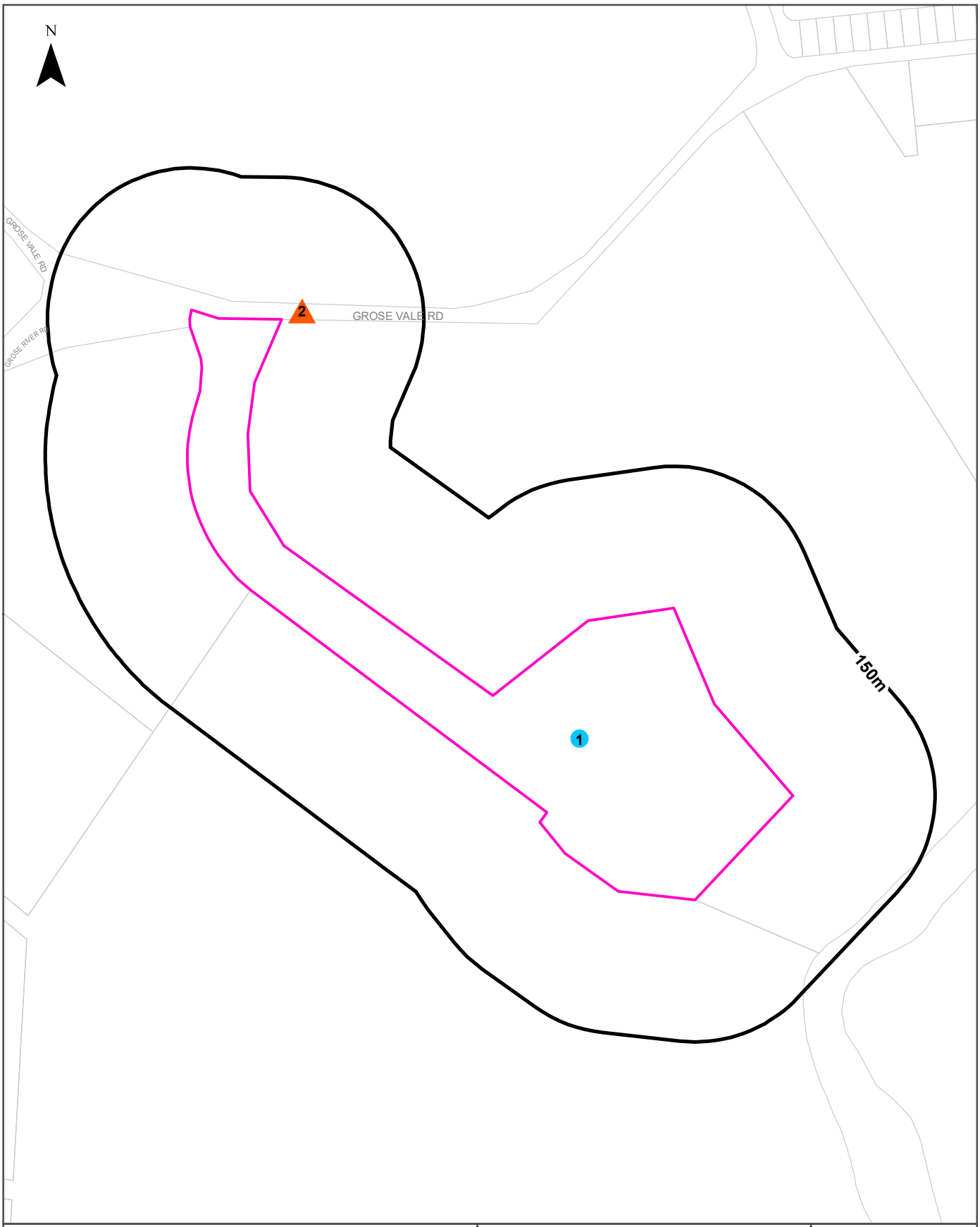
Former Licensed Activities Data Source: Environment Protection Authority

UPSS Sensitive Zones

235 Grose Vale Road, North Richmond, NSW 2754

Historical Business Directories 1950-1991

235 Grose Vale Road, North Richmond, NSW 2754



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 75 150 225 300 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 13 December 2019

Historical Business Directories

235 Grose Vale Road, North Richmond, NSW 2754

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1986, 1982, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	HOSPITALS & HEALTH CENTRES	Hospital of St. John of God, Grose Vale Rd., North Richmond Richmond	536413	1970	Premise Match	0m	On-site

Business Directory Records 1950-1991
Road or Area Matches

Universal Business Directory records from years 1991, 1986, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	MOTOR OIL & SPIRIT MERCHANTS	Ryan, J. (Agent, Ampol), Grose Vale Rd. Richmond	155721	1950	Road Match	0m
	ROTARY HOE CONTRACTORS	Ryan, J., Grose Vale Rd. Richmond	155743	1950	Road Match	0m

Historical Business Directories

235 Grose Vale Road, North Richmond, NSW 2754

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
	No records in buffer						

Dry Cleaners, Motor Garages & Service Stations 1948-1993 Road or Area Matches

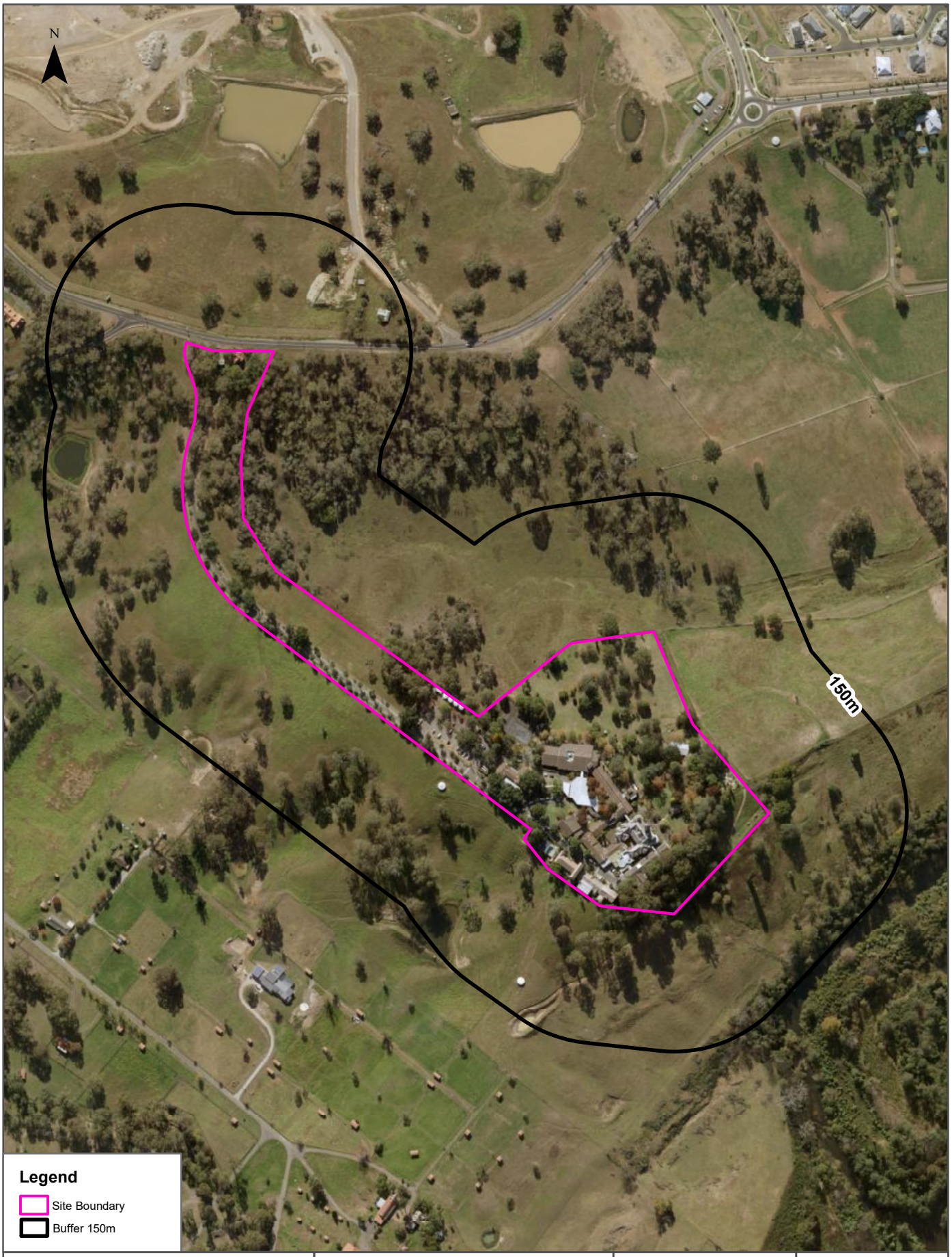
Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

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
	No records in buffer					

Aerial Imagery 2019

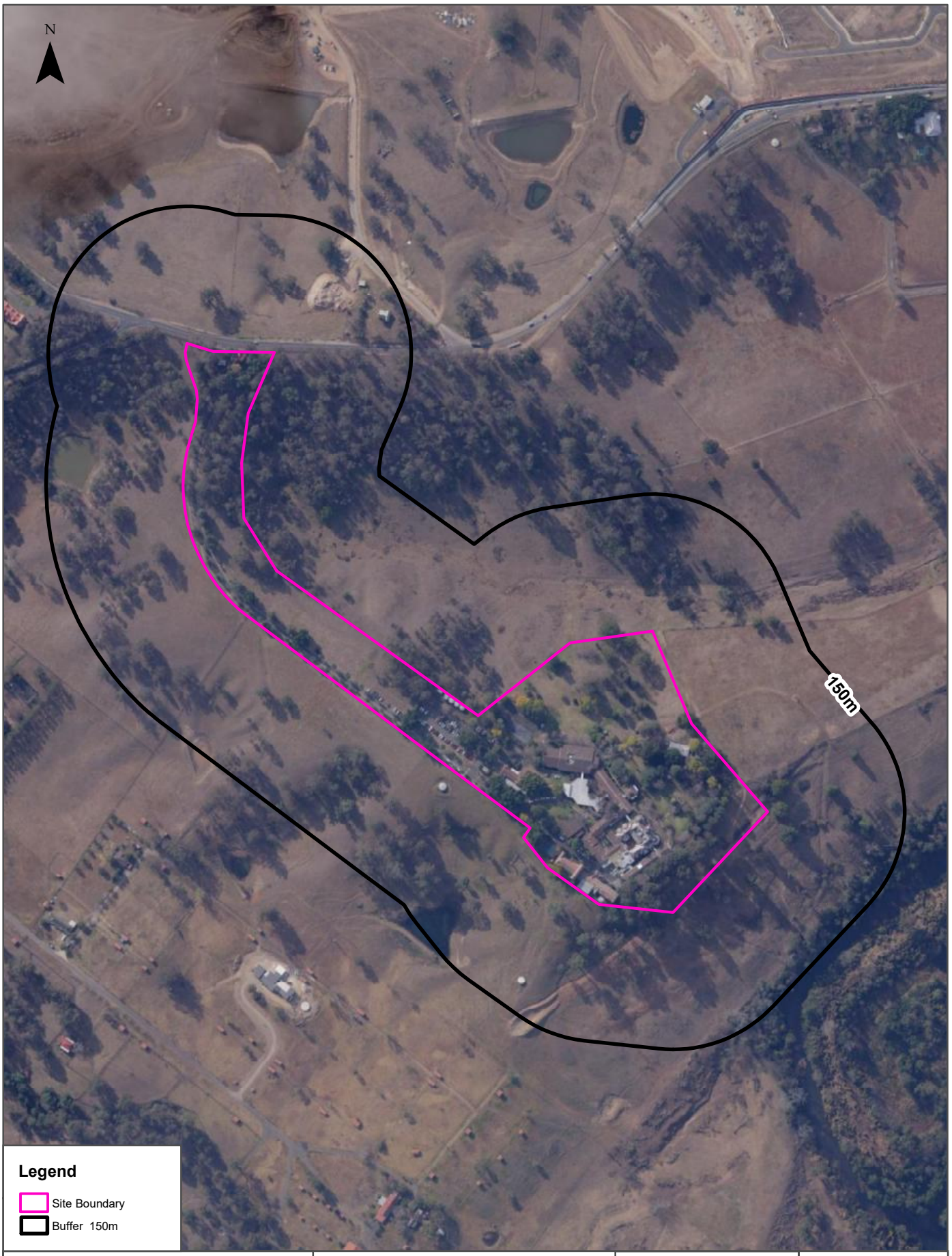
235 Grose Vale Road, North Richmond, NSW 2754



Scale: 0 60 120 180 240 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 13 December 2019

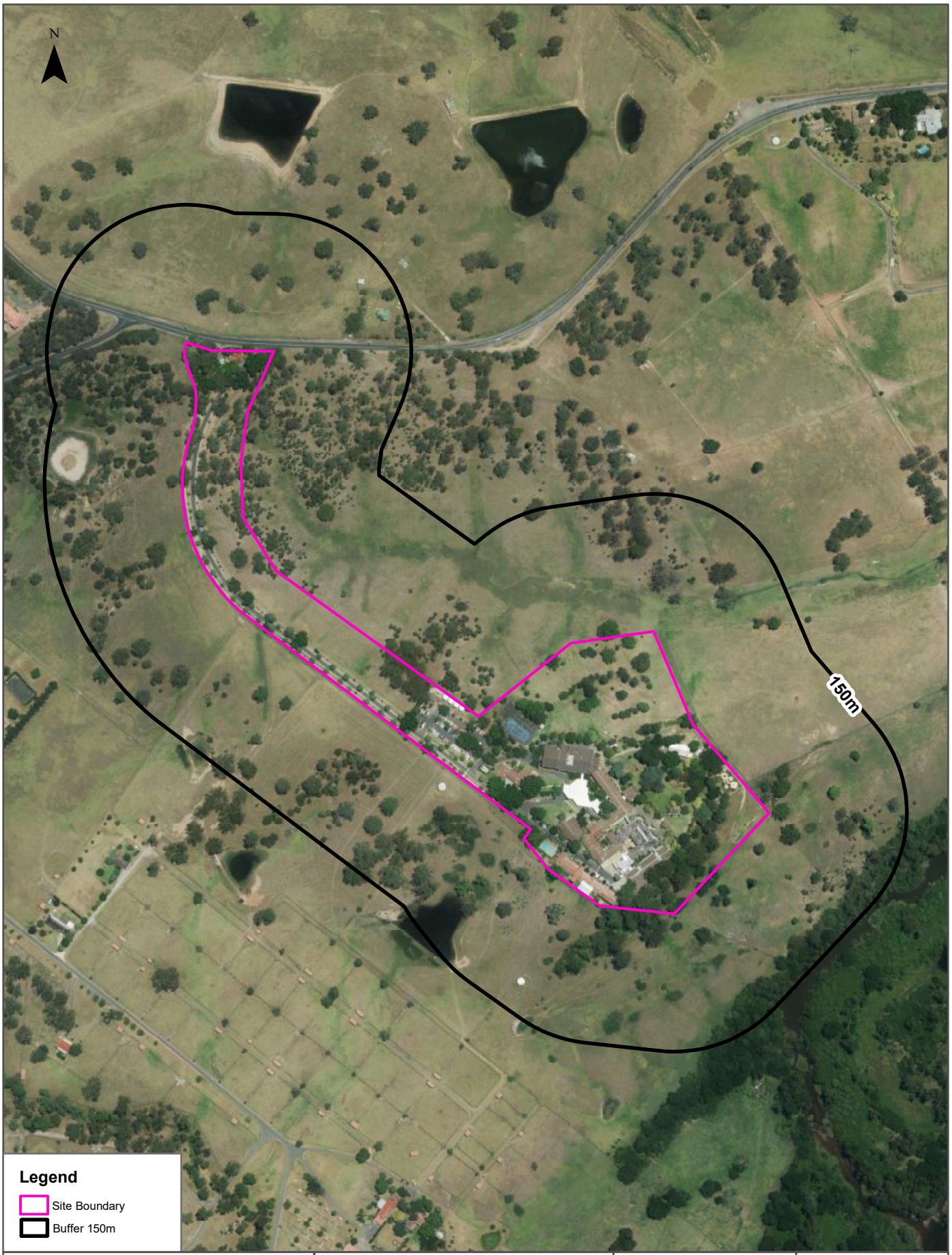
Aerial Imagery 2018

235 Grose Vale Road, North Richmond, NSW 2754



Aerial Imagery 2014

235 Grose Vale Road, North Richmond, NSW 2754



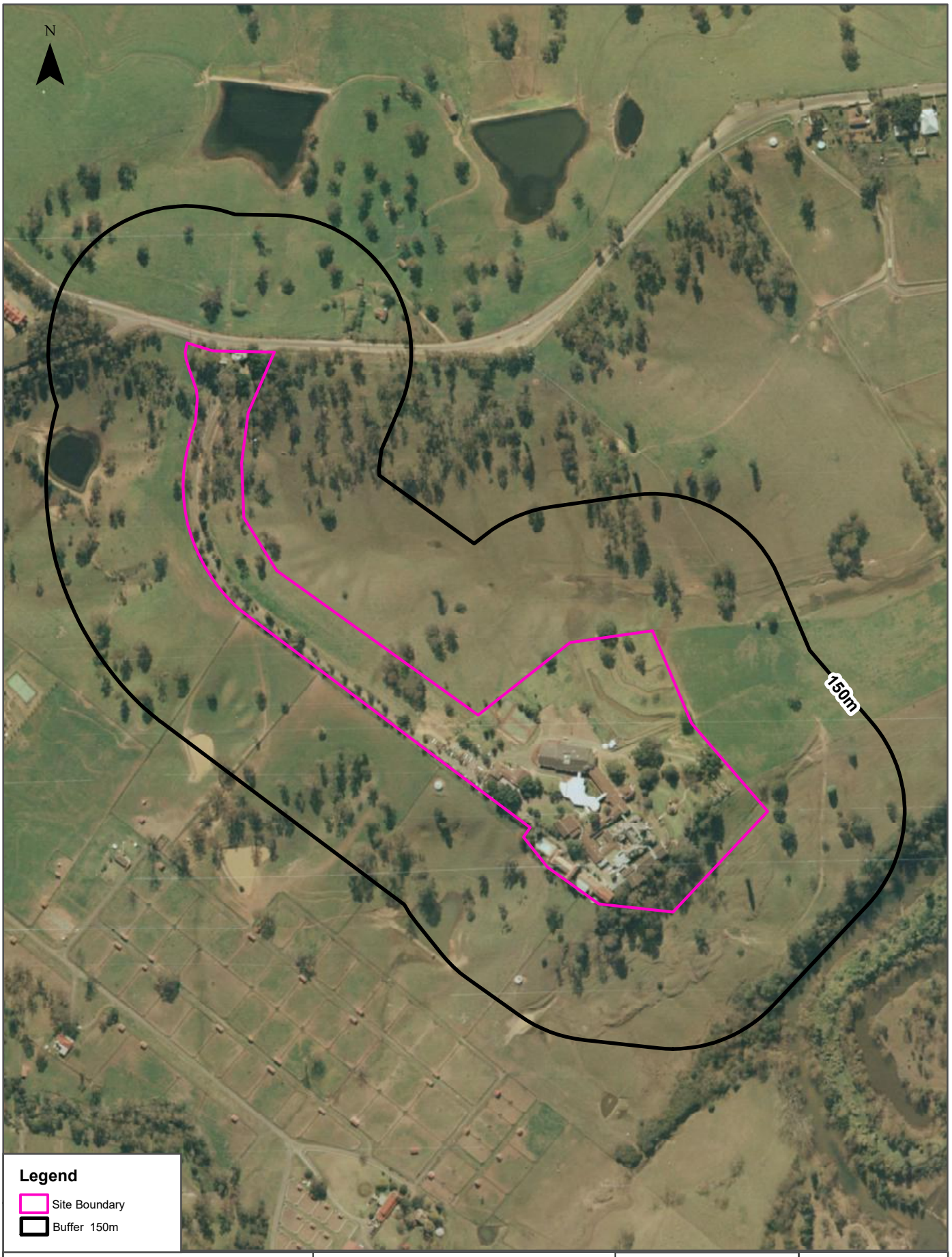
Scale: 0 60 120 180 240 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 13 December 2019

Aerial Imagery 2007

235 Grose Vale Road, North Richmond, NSW 2754

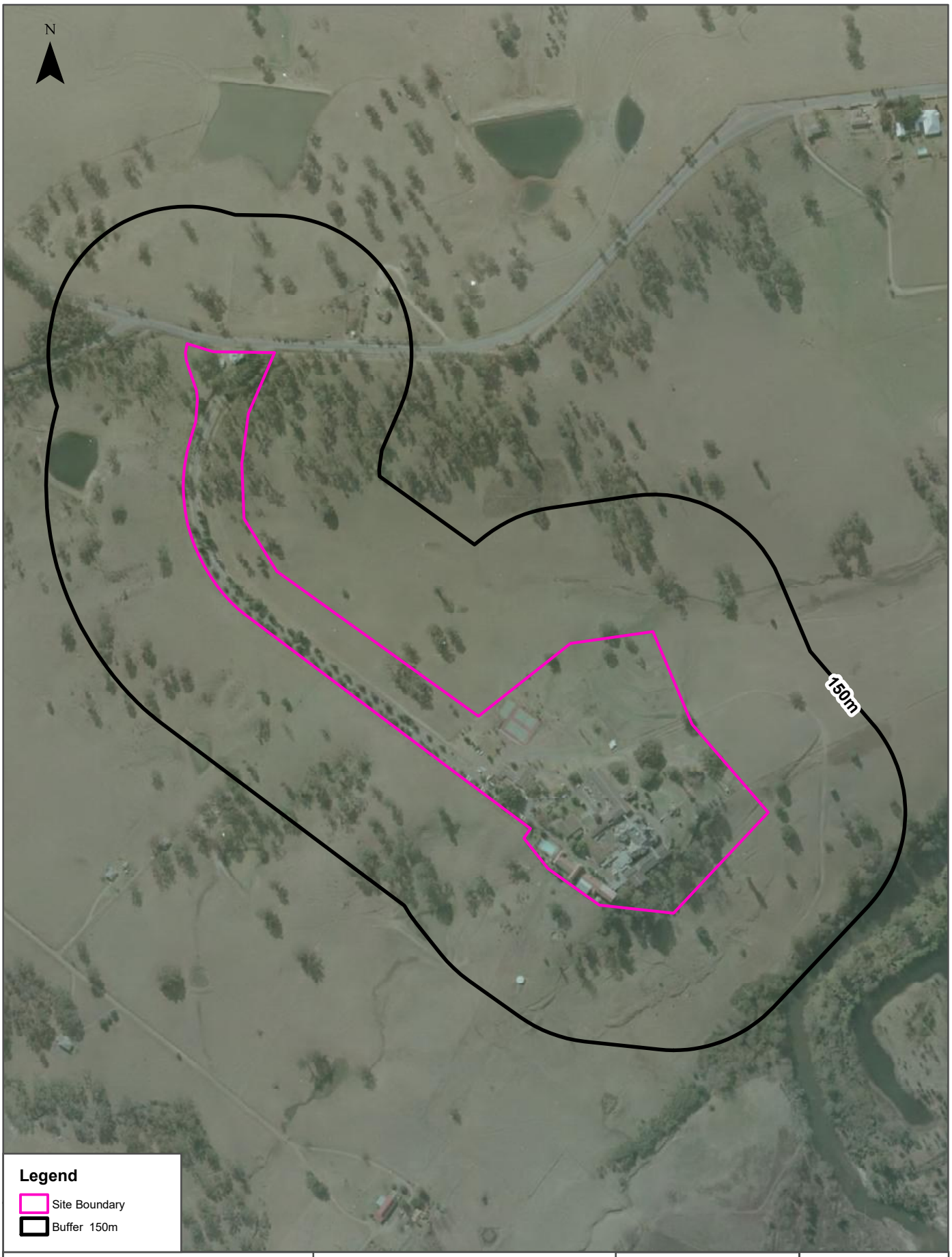
Aerial Imagery 1991

235 Grose Vale Road, North Richmond, NSW 2754



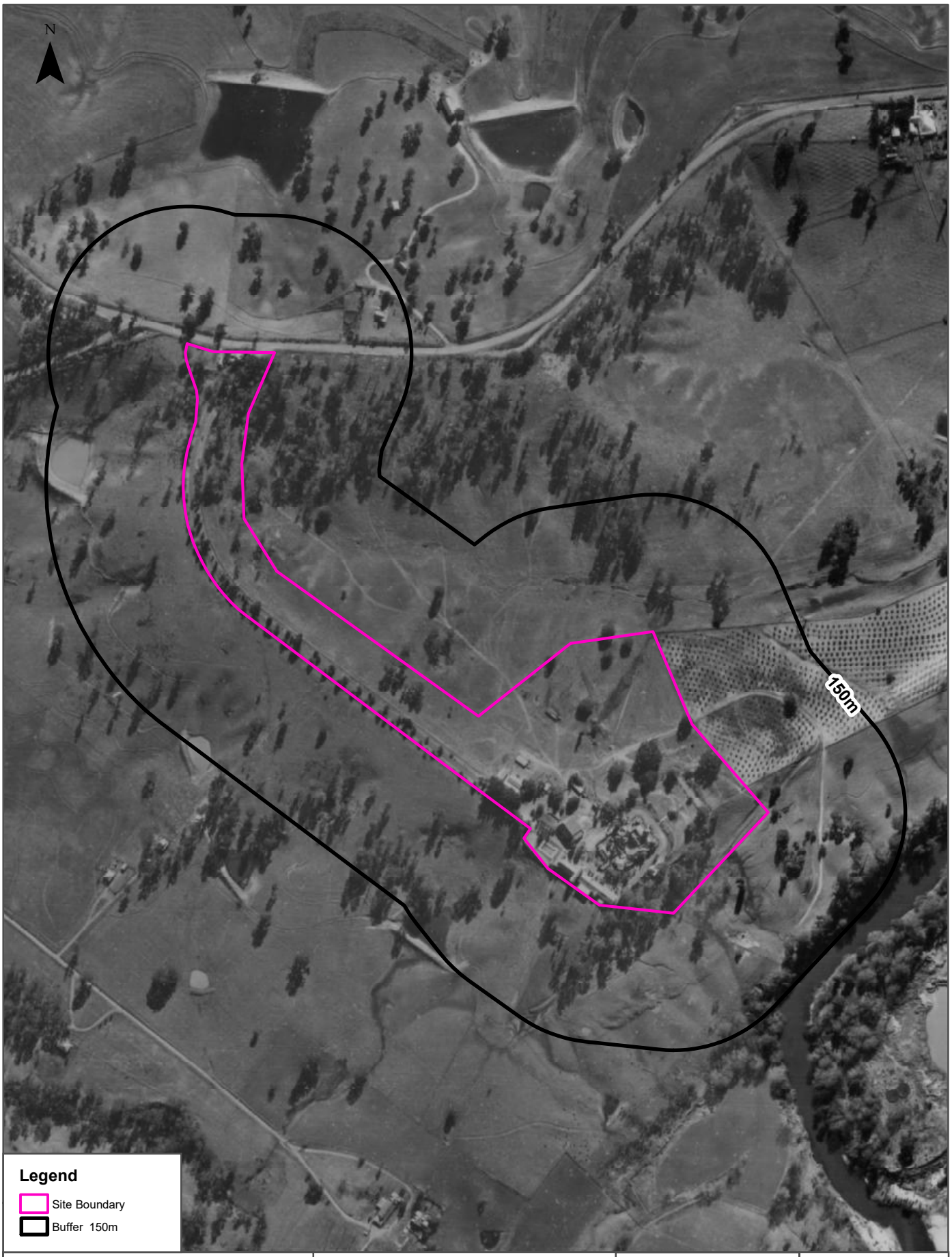
Aerial Imagery 1982

235 Grose Vale Road, North Richmond, NSW 2754



Aerial Imagery 1970

235 Grose Vale Road, North Richmond, NSW 2754



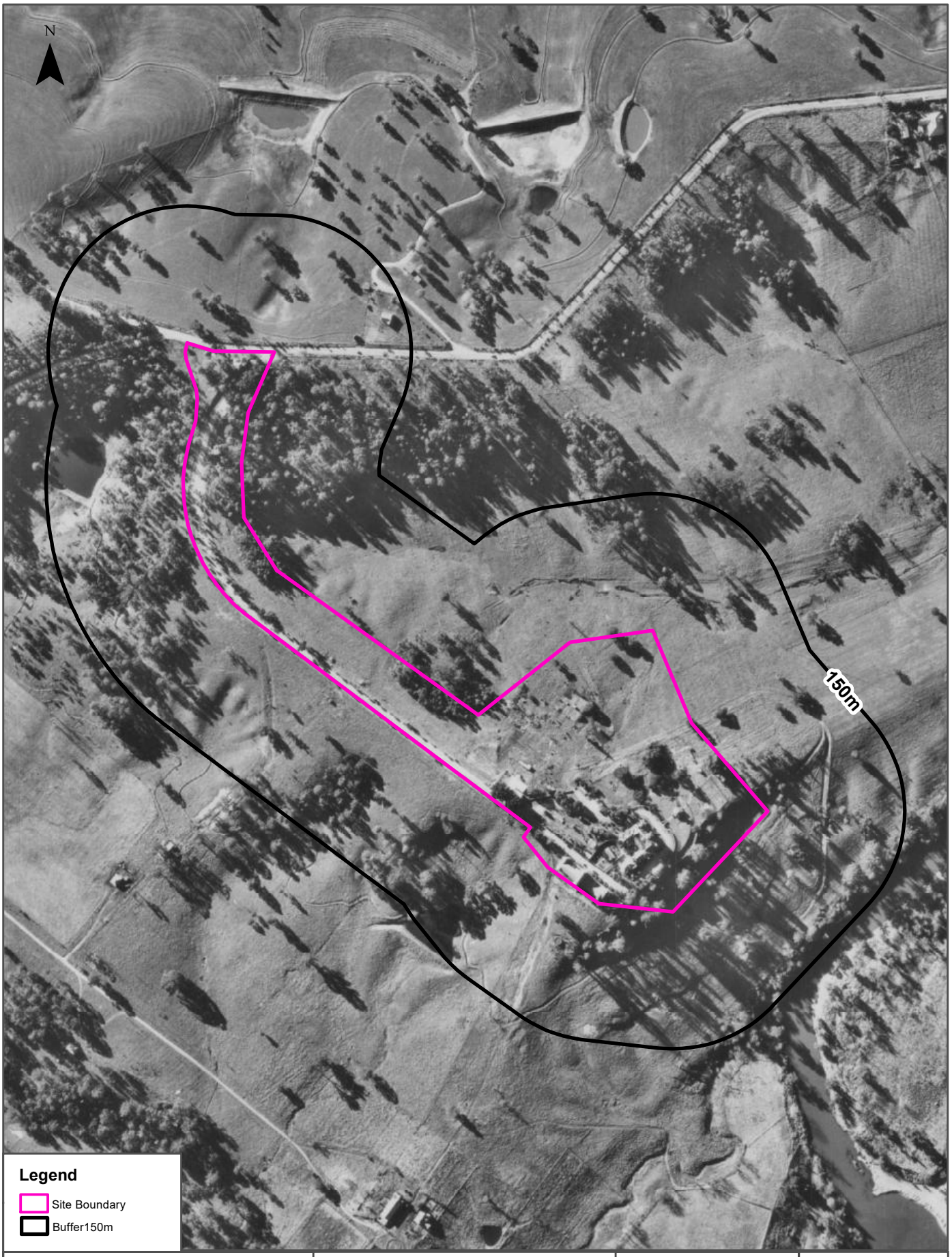
Data Sources: Aerial Imagery © Department of Finance, Services & Innovation

Coordinate System: GDA 1994 MGA Zone 56

Date: 13 December 2019

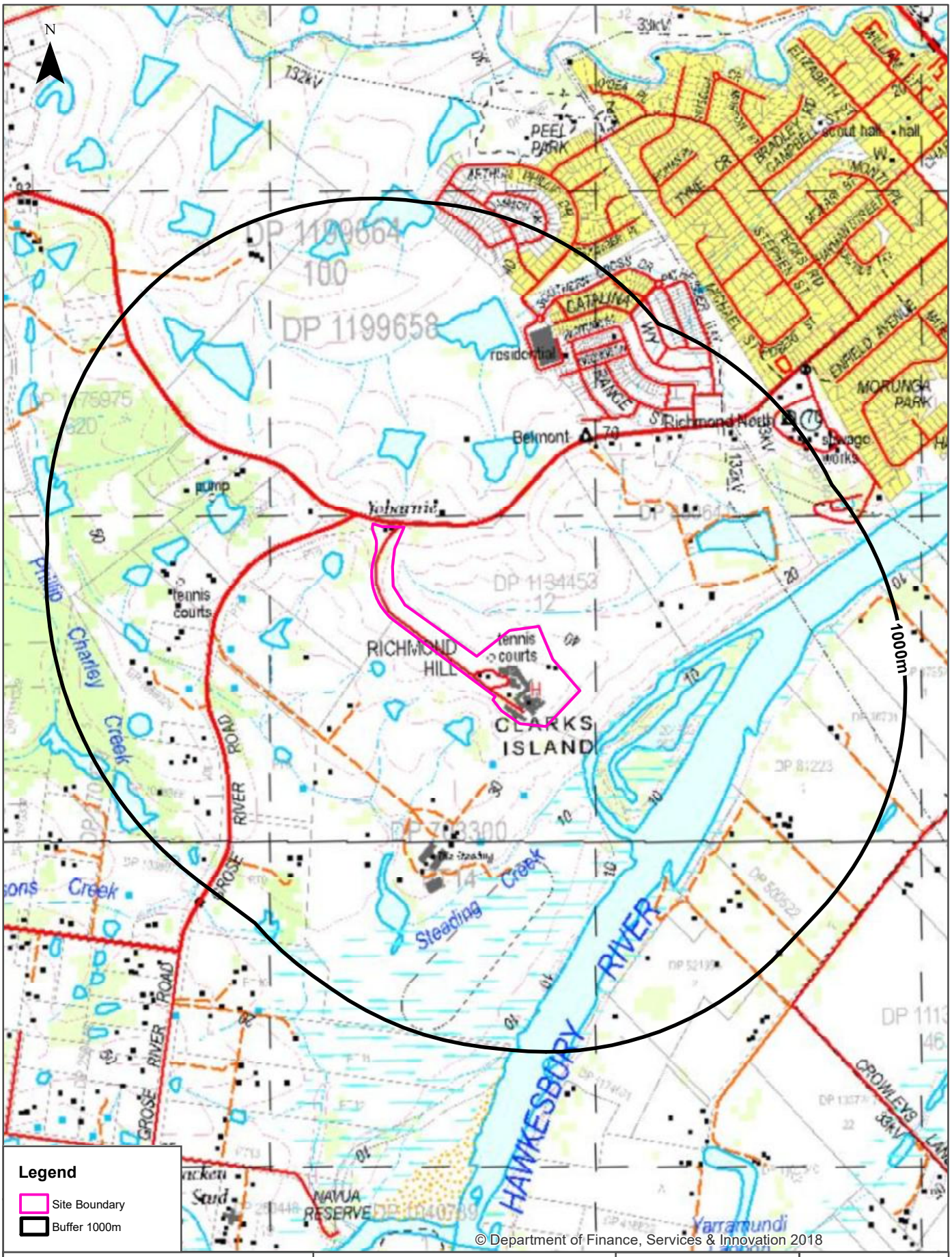
Aerial Imagery 1961

235 Grose Vale Road, North Richmond, NSW 2754



Topographic Map 2015

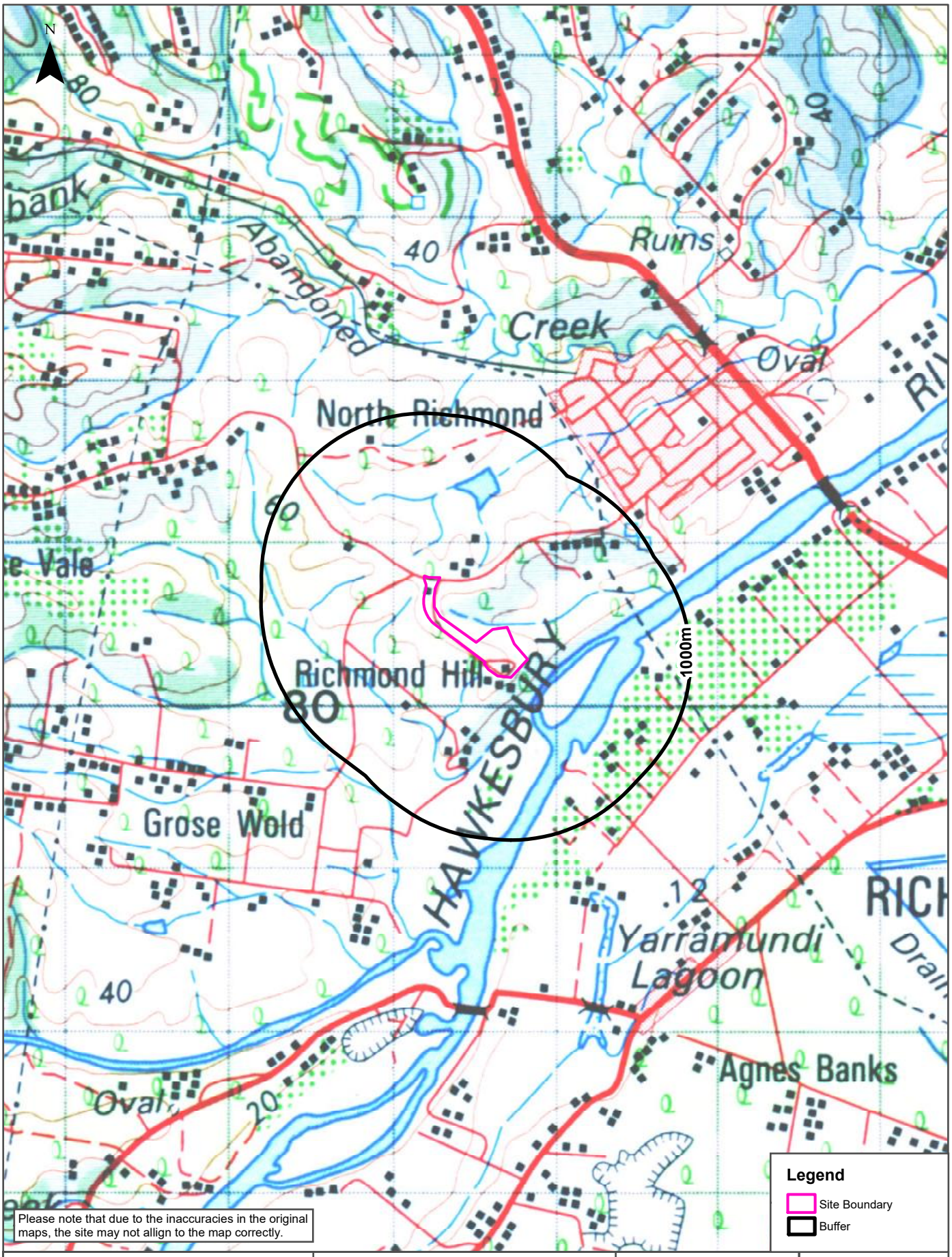
235 Grose Vale Road, North Richmond, NSW 2754



Scale:	Data Sources: Topographic Map Data © NSW Land and Property Information	Coordinate System: GDA 1994 MGA Zone 56	Date: 13 December 2019

Historical Map 1975

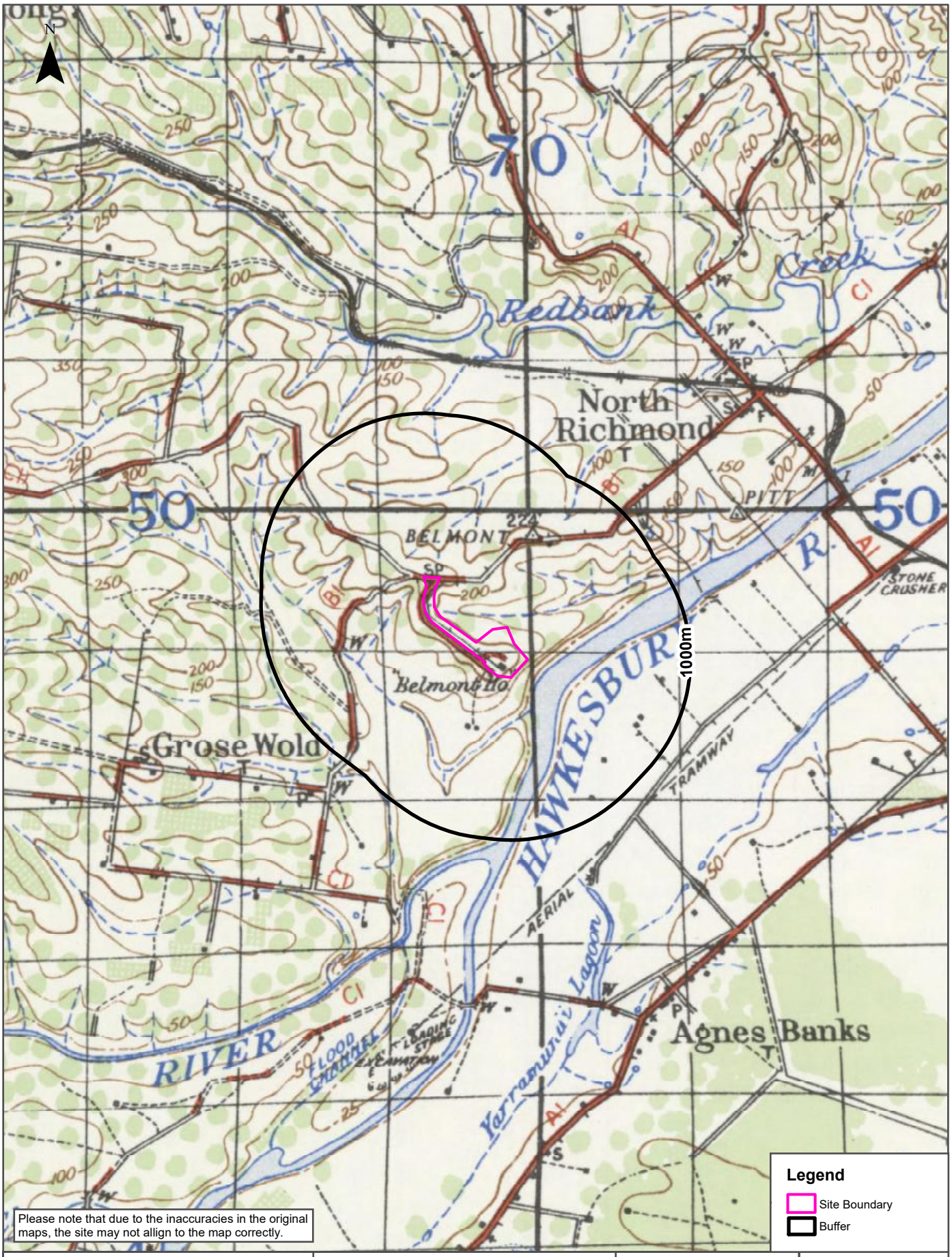
235 Grose Vale Road, North Richmond, NSW 2754



Scale: 0 150 300 600 900 1,200 1,500 Meters	Data Sources: NATMAP 1:100,000 Topographic Maps Geoscience Australia	Coordinate System: GDA 1994 MGA Zone 56	Date: 13 December 2019

Historical Map c.1942

235 Grose Vale Road, North Richmond, NSW 2754



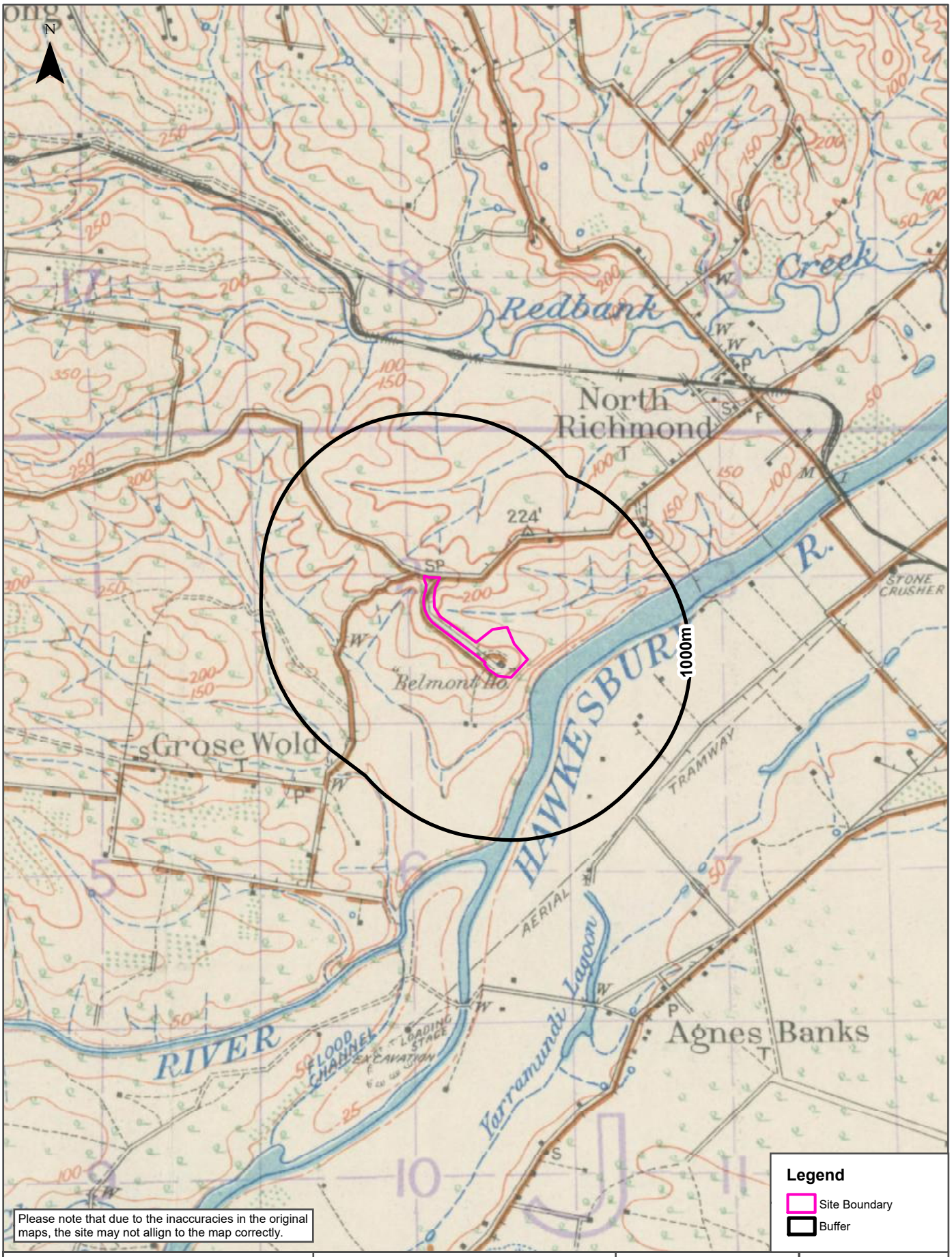
Please note that due to the inaccuracies in the original maps, the site may not allign to the map correctly.

Scale:	Data Sources: Australia 1:63360, Produced by Australian Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 56	Date: 13 December 2019

0 150 300 600 900 1,200 1,500 Meters

Historical Map c.1929

235 Grose Vale Road, North Richmond, NSW 2754



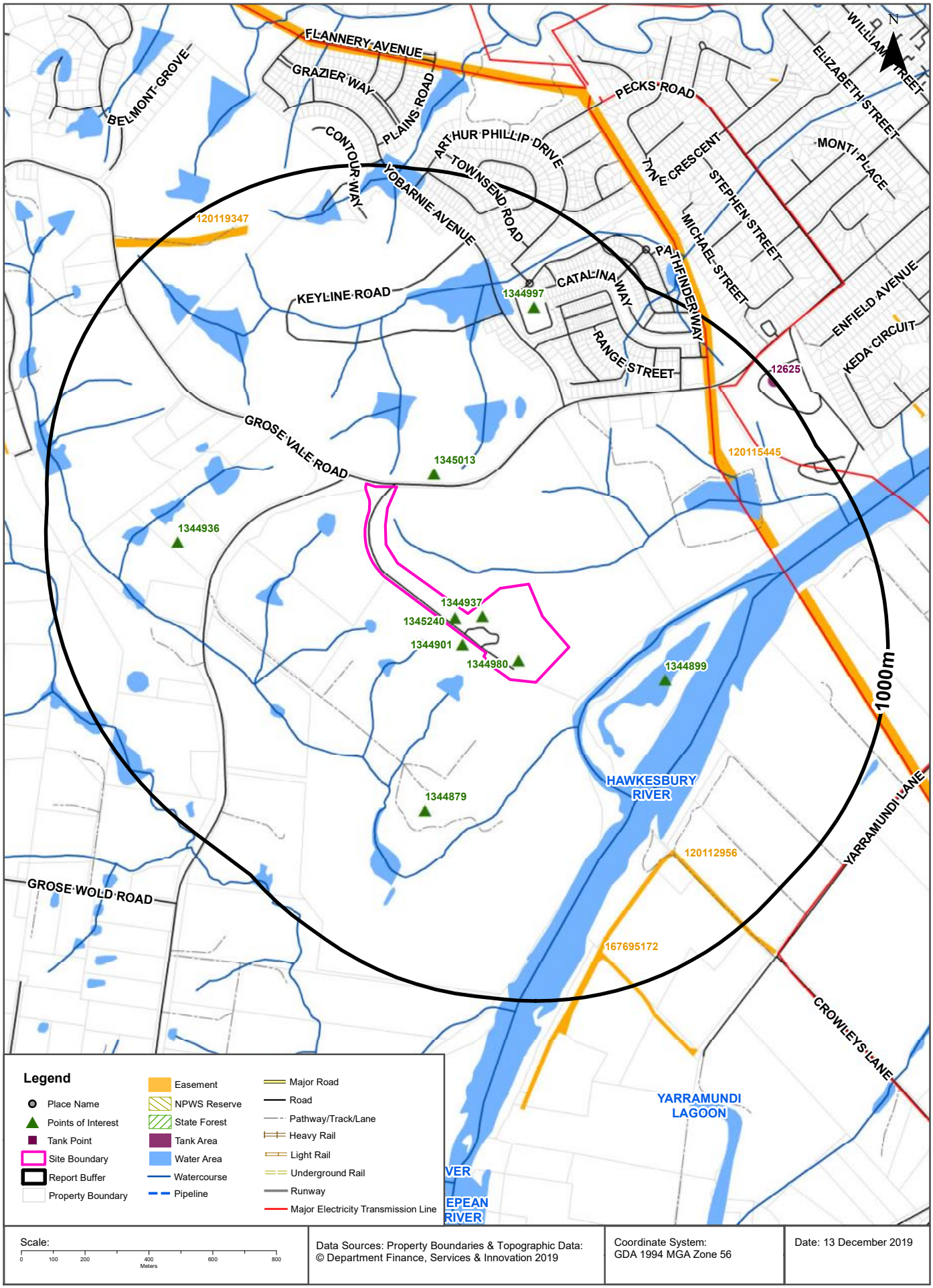
Please note that due to the inaccuracies in the original maps, the site may not allign to the map correctly.

Scale:	Data Sources: Australia 1:63360, Produced by Australian Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 56	Date: 13 December 2019

0 150 300 600 900 1,200 1,500 Meters

Topographic Features

235 Grose Vale Road, North Richmond, NSW 2754



Topographic Features

235 Grose Vale Road, North Richmond, NSW 2754

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1344937	Sports Court	TENNIS COURTS	0m	Onsite
1344980	Psychiatric Hospital	ST JOHN OF GOD PRIVATE HOSPITAL RICHMOND	0m	Onsite
1345240	Parking Area	Parking Area	0m	Onsite
1344901	Mountain/Hill/Peak	RICHMOND HILL	22m	South
1345013	Homestead	YOBARNIE	124m	North
1344899	Island	CLARKS ISLAND	318m	East
1344879	Homestead	THE STEADING	490m	South
1344936	Sports Court	TENNIS COURTS	587m	West
1344997	Nursing Home	RON MIDDLETON VC GARDENS	709m	North

Topographic Features

235 Grose Vale Road, North Richmond, NSW 2754

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
12625	Water	Operational		09/09/2018	980m	North East

Tanks (Points)

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

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

Major Easements

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120112956	Primary	Undefined		679m	South East
120115445	Primary	Undefined		698m	North West
167695172	Primary	Right of way		870m	South
120119347	Primary	Undefined		871m	North West

Topographic Features

235 Grose Vale Road, North Richmond, NSW 2754

State Forest

What State Forest exist within the dataset buffer?

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

National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

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

Elevation Contours (m AHD)

235 Grose Vale Road, North Richmond, NSW 2754

Hydrogeology & Groundwater

235 Grose Vale Road, North Richmond, NSW 2754

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Porous, extensive aquifers of low to moderate productivity
Porous, extensive highly productive aquifers

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

Botany Groundwater Management Zones

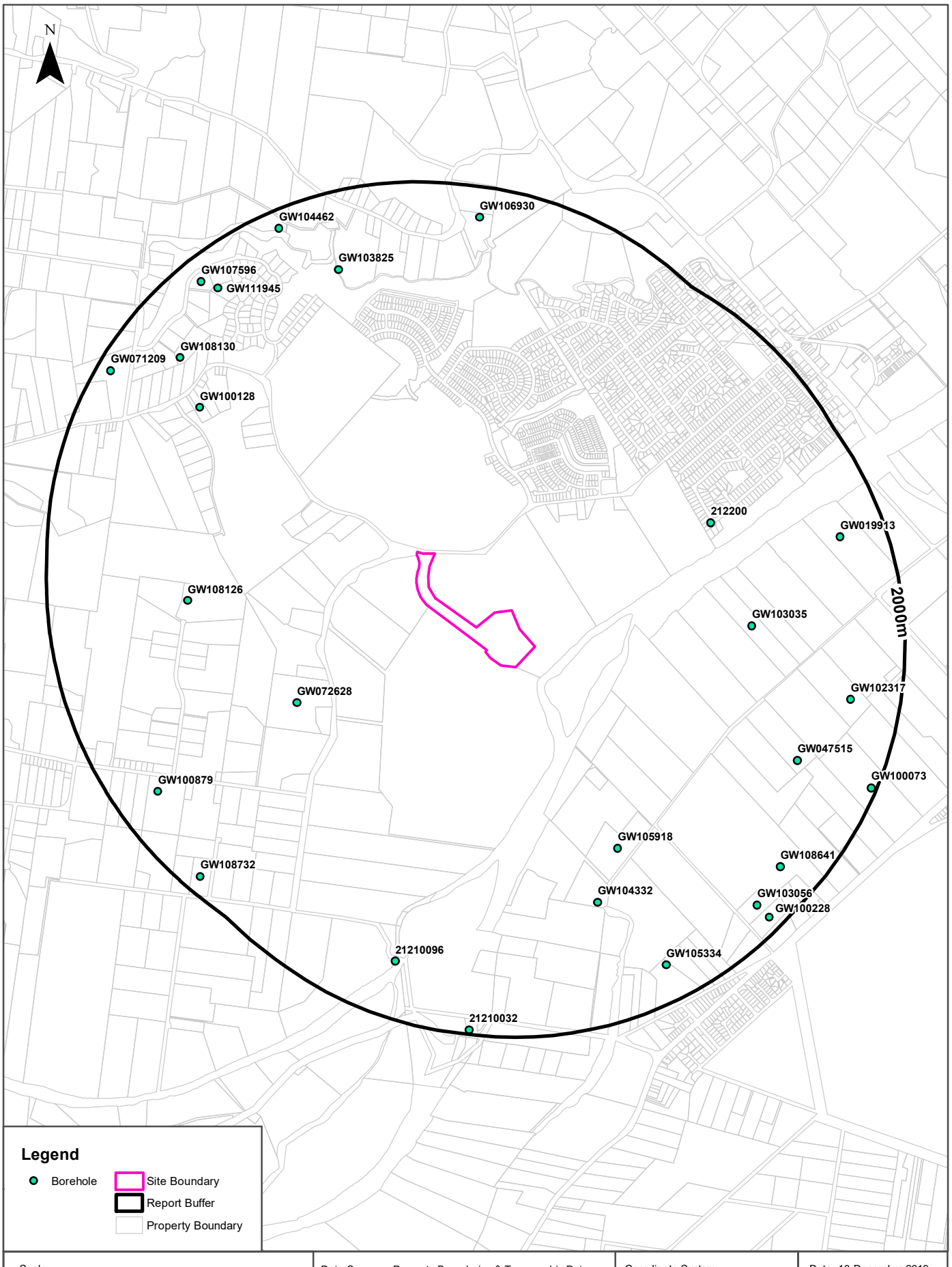
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

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

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

Groundwater Boreholes

235 Grose Vale Road, North Richmond, NSW 2754



Hydrogeology & Groundwater

235 Grose Vale Road, North Richmond, NSW 2754

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW072628	10BL156258, 10WA106904	Bore		Domestic, Stock	Domestic, Stock		16/11/1994	28.10	28.10					877m	South West
GW105918	10BL161497, 10WA112687	Bore		Domestic, Stock			13/05/2005							1125m	South East
212200					UNK								24.86	1164m	North East
GW103035	10BL158965, 10WA112671	Bore		Domestic, Stock	Domestic		14/01/1999	18.50	18.50	Good				1180m	East
GW108126	10BL600433, 10WA107244	Bore	Private	Domestic, Stock	Domestic, Stock		01/08/2006	72.00	72.00		18.00	3.500		1241m	West
GW104332	10BL156724, 10WA112654	Bore	Private	Domestic, Farming, Stock	Domestic, Farming, Stock		14/05/1996	18.30	18.30	500	12.00	0.730		1348m	South East
GW100128	10BL144215, 10WA106851	Bore	Private	Domestic, Stock	Domestic, Stock		12/10/1991	46.00	48.80	Fair				1408m	North West
GW047515	10BL111497, 10WA112624	Bore	Private	Domestic	Irrigation		01/02/1980	16.00	16.00					1546m	South East
GW103825	10BL157318, 10CA107379	Bore		Irrigation, Stock	Domestic, Stock		02/06/1995	44.00	44.00	Good				1583m	North
GW108130	10BL600451, 10WA107247	Bore	Private	Domestic	Domestic		01/07/2006	126.00	126.00		60.00	3.600		1654m	North West
21210096					UNK								10.99	1697m	South
GW102317	10BL159170, 10WA112672	Bore	Private	Domestic	Domestic		22/06/1999	14.60	15.00	Good	6.00	3.000		1731m	East
GW019913	10BL012553	Bore	Private	Domestic, Irrigation	General Use		01/08/1962	18.80	18.90					1753m	East
GW100879	10BL156769, 10CA107385	Bore	Private	Domestic, Irrigation	Domestic, Irrigation		13/07/1995	91.50	91.50	1100	63.00	1.600		1765m	South West
GW108641	10BL165826, 10WA112706	Bore	Private	Domestic, Farming, Stock	Domestic, Farming, Stock		02/02/2006	21.50	21.50	700		0.500		1782m	South East
GW111945	10WA117965	Bore	Private	Domestic	Domestic		29/10/2012	94.00	94.00	650	14.00	6.000		1786m	North West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW105334	10BL160234, 10BL600058, 10WA112707	Bore		Domestic, Stock	Stock		11/07/2003	48.80	48.80	1200	12.00	1.500		1805m	South East
GW106930	10BL164729, 10WA107225	Bore	Private	Domestic, Stock	Domestic, Stock		01/02/2005	126.00	126.00	300	16.00	6.500		1832m	North
GW103056	10BL159627, 10WA108459	Bore		Domestic, Stock	Domestic, Stock		10/06/2000	19.00	19.30	Fair				1833m	South East
GW107596	10BL165634, 10WA107236	Bore	Private	Domestic, Stock	Domestic, Stock		26/10/2005	78.30	78.30	696	24.80	10.000		1870m	North West
GW104462	10BL160258, 10WA107065	Bore	Private	Domestic, Stock	Domestic, Stock		14/09/1991	67.00	67.00	Good	24.00	2.200		1900m	North West
GW108732	10BL600517, 10WA107252	Bore	Private	Domestic, Stock	Domestic, Stock		14/09/2006	234.00	234.00	430	62.00	4.650		1912m	South West
GW071209	10BL150584, 10WA106862	Bore open thru rock	Private	Domestic, Stock	Domestic		23/04/1991	120.00	122.00	580			69.00	1923m	North West
GW100228	10BL152517, 10WA108293	Bore	Private	Domestic, Stock	Domestic, Stock		20/06/1993	18.00	18.00	450	10.00	2.500		1927m	South East
GW100073	10BL156766, 10WA108354	Bore	Private	Domestic, Stock	Domestic, Stock		01/08/1995	24.00	24.00	90	12.00	1.000		1972m	South East
21210032					UNK								10.00	1977m	South

Hydrogeology & Groundwater

235 Grose Vale Road, North Richmond, NSW 2754

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW072628	0.00m-2.00m CLAY 2.00m-28.10m SANDSTONE	877m	South West
GW103035	0.00m-15.80m SILT AND FINE SAND 15.80m-18.50m GRAVEL	1180m	East
GW108126	0.00m-28.00m sandstone, broken 28.00m-60.00m sandstone, 60.00m-72.00m sandstone, shale	1241m	West
GW104332	0.00m-13.50m BLACK SAND(COARSE) 13.50m-17.50m ROUNDED RIVER GRAVEL 17.50m-18.30m SHALE	1348m	South East
GW100128	0.00m-0.30m SOIL 0.30m-27.00m SHALE 27.00m-30.00m SOFT SANDSTONE & SHALE 30.00m-36.40m SHALE 36.40m-42.40m SANDSTONE 42.40m-44.00m SHALE 44.00m-48.80m SHALE & SANDSTONE	1408m	North West
GW047515	0.00m-5.50m Sand 5.50m-6.00m Gravel Coarse 6.00m-12.00m Sand Gravel 6.00m-12.00m Clay 12.00m-13.00m Sand Gravel 13.00m-14.00m Gravel Sloppy Water Supply 14.00m-16.00m Slate Water Supply	1546m	South East
GW103825	0.00m-0.60m DIRT/CLAY 0.60m-4.50m SOFT SANDSTONE 4.50m-44.00m SANDSTONE	1583m	North
GW108130	0.00m-36.00m shale 36.00m-72.00m sandstone, 72.00m-75.00m mudstone 75.00m-85.00m sandstone, 85.00m-100.00m sandstone, shale 100.00m-108.00m sandstone, 108.00m-126.00m sandstone, quartz	1654m	North West
GW102317	0.00m-9.00m SOIL SANDY 9.00m-15.00m GRAVEL/SAND	1731m	East
GW019913	0.00m-0.91m Loam Dark Brown 0.91m-3.65m Clay 3.65m-4.26m Clay Sand Medium 4.26m-18.59m Sand Gravel Medium-coarse Lignite Water Supply 18.59m-18.89m Shale Dark Green	1753m	East
GW100879	0.00m-3.00m CLAY/DIRT 3.00m-21.50m SANDSTONE 21.50m-23.00m SHALE 23.00m-66.60m SANDSTONE 66.60m-78.80m SHALE 78.80m-91.50m SANDSTONE	1765m	South West
GW108641	0.00m-0.50m TOPSOIL 0.50m-3.00m CLAY 3.00m-19.00m SAND AND CLAY 19.00m-21.00m GRAVEL 21.00m-21.50m SHALE	1782m	South East

Groundwater No	Drillers Log	Distance	Direction
GW111945	0.00m-5.00m CLAY BROWN SHALE 5.00m-12.00m SHALE 12.00m-82.00m SANDSTONE / SHALE 82.00m-94.00m SANDSTONE / QUARTZ	1786m	North West
GW105334	0.00m-0.40m SOIL 0.40m-11.20m SAND/CLAY 11.20m-15.80m GRAVEL 15.80m-36.00m SHALE 36.00m-48.80m SANDSTONE	1805m	South East
GW106930	0.00m-2.50m Sand 2.50m-22.00m Sandstone 22.00m-28.00m Shale 28.00m-52.00m Sandstone 52.00m-56.00m Shale 56.00m-95.00m Sandstone/Shale 95.00m-126.00m Sandstone/Quartzite	1832m	North
GW103056	0.00m-0.30m SOIL 0.30m-17.30m CLAY/SAND 17.30m-19.00m GRAVEL 19.00m-19.30m SHALE	1833m	South East
GW107596	0.00m-1.30m clay, brown 1.30m-2.70m sandstone, brown 2.70m-3.70m clay, brown white 3.70m-10.70m sandstone, brown 10.70m-10.80m clay, brown 10.80m-14.50m sandstone, brown 14.50m-14.60m clay, brown 14.60m-22.50m sandstone, grey brown 22.50m-22.70m clay, brown 22.70m-23.80m sandstone, brown 23.80m-24.50m shale, grey 24.50m-25.10m sandstone, grey 25.10m-26.30m shale, grey 26.30m-32.30m sandstone, grey 32.30m-32.40m shale, grey 32.40m-39.80m sandstone, grey 39.80m-42.30m shale, grey brown soft 42.30m-47.30m sandstone, grey 47.30m-47.60m shale, grey 47.60m-57.70m sandstone, grey 57.70m-58.10m sandstone, brown, and quartz, water bearing 58.10m-58.60m sandstone, grey 58.60m-59.60m shale, grey soft 59.60m-71.90m sandstone, grey 71.90m-72.30m sandstone, grey & black jointing, water bearing 72.30m-76.60m sandstone, grey 76.60m-76.90m sandstone, grey, fractured, water bearing 76.90m-78.30m sandstone, grey	1870m	North West
GW104462	0.00m-1.30m SOIL/CLAY 1.30m-4.00m SANDSTONE 4.00m-63.00m SANDSTONE 63.00m-64.00m SHALE 64.00m-67.00m SANDSTONE	1900m	North West
GW108732	0.00m-1.50m clay, red 1.50m-18.00m sandstone, yellow 18.00m-39.00m sandstone, white 39.00m-40.00m shale 40.00m-99.00m sandstone, white 99.00m-102.00m sandstone, shale 102.00m-104.00m sandstone, brown 104.00m-132.00m sandstone, shale 132.00m-137.00m sandstone, white 137.00m-155.00m sandstone, quartz 155.00m-157.00m sandstone, shale 157.00m-169.00m sandstone, quartz 169.00m-173.00m shale 173.00m-182.00m sandstone, shale 182.00m-189.00m sandstone, quartz 189.00m-234.00m sandstone, shale	1912m	South West
GW071209	0.00m-0.30m soil 0.30m-1.50m Brown Soft Shale 1.50m-3.60m Brown Firm Shale 3.60m-39.40m Blue Shale 39.40m-48.50m sandstone 48.50m-72.70m shale 72.70m-78.80m sandstone 78.80m-103.00m shale 103.00m-122.00m sandstone	1923m	North West

Groundwater No	Drillers Log	Distance	Direction
GW100228	0.00m-3.00m BROWN CLAY 3.00m-8.00m BROWN SANDY CLAY 8.00m-10.00m RED CLAY 10.00m-11.50m BROWN SAND & GRAVEL (MEDIUM) 11.50m-16.00m COARSE GRAVEL 16.00m-18.00m COARSE BROWN BASALT	1927m	South East
GW100073	0.00m-1.20m SOIL 1.20m-18.30m SAND 18.30m-21.00m SAND SLURRY 21.00m-23.50m SAND & GRAVEL 23.50m-24.00m SANDSTONE SOFT	1972m	South East

Geology 1:100,000

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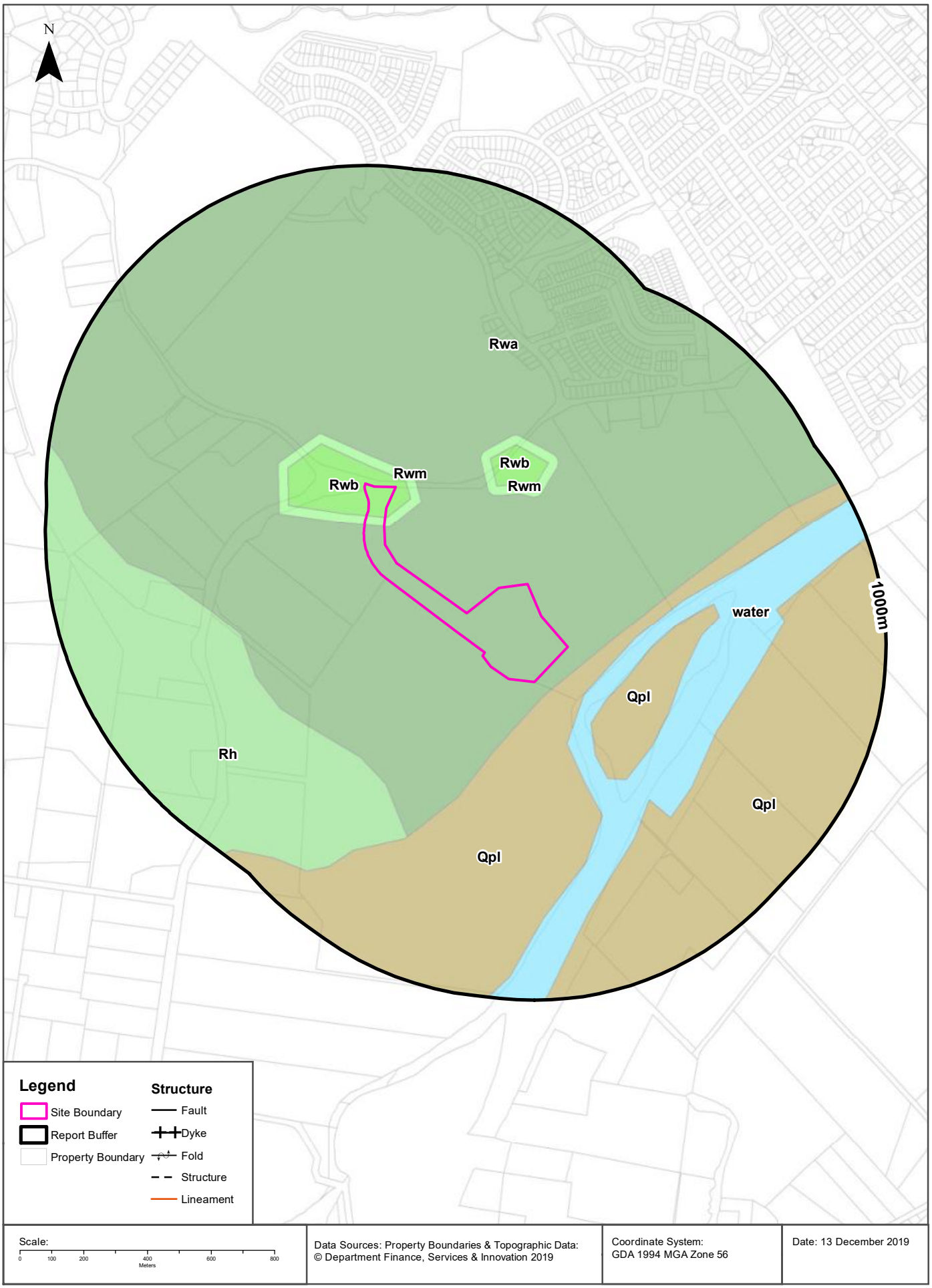


Geology

235 Grose Vale Road, North Richmond, NSW 2754

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rwa	Dark-grey to black claystone-siltstone and fine sandstone -siltstone laminate	Ashfield Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwb	Shale, carbonaceous claystone,claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwm	Fine to medium-grained quartz-lithic sandstone	Minchinbury Sandstone	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Qpl	Gravel, sand, silt, clay	Lowlands Formation			Quaternary		Penrith	1:100,000
Rh	Medium to very coarse-grained quartz sandstone, minor laminated mudstone and siltstone leases	Hawkesbury Sandstone			Middle Triassic		Penrith	1:100,000
Rwa	Dark-grey to black claystone-siltstone and fine sandstone -siltstone laminate	Ashfield Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwb	Shale, carbonaceous claystone,claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwm	Fine to medium-grained quartz-lithic sandstone	Minchinbury Sandstone	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
water							Penrith	1:100,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

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

Naturally Occurring Asbestos Potential

235 Grose Vale Road, North Richmond, NSW 2754

Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

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

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

Soil Landscapes

235 Grose Vale Road, North Richmond, NSW 2754

Soils

235 Grose Vale Road, North Richmond, NSW 2754

Soil Landscapes

What are the onsite Soil Landscapes?

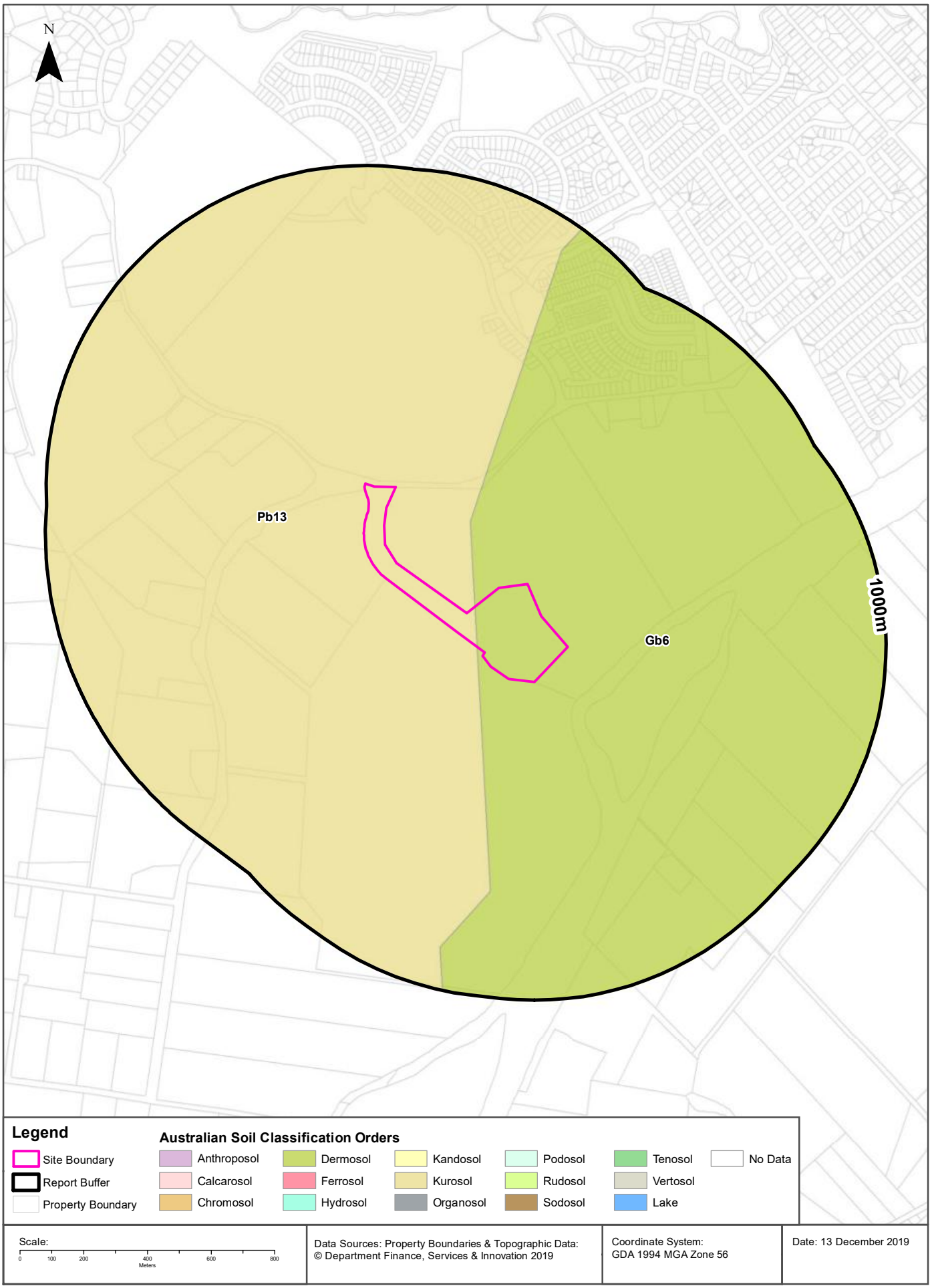
Soil Code	Name	Group	Process	Map Sheet	Scale
ERlu	LUDDENHAM		EROSIONAL	Penrith	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALfr	FREEMANS REACH		ALLUVIAL	Penrith	1:100,000
ERgy	GYMEA		EROSIONAL	Penrith	1:100,000
ERlu	LUDDENHAM		EROSIONAL	Penrith	1:100,000
REbt	BLACKTOWN		RESIDUAL	Penrith	1:100,000
WATER	WATER		WATER	Penrith	1:100,000

Atlas of Australian Soils

235 Grose Vale Road, North Richmond, NSW 2754



Soils

235 Grose Vale Road, North Richmond, NSW 2754

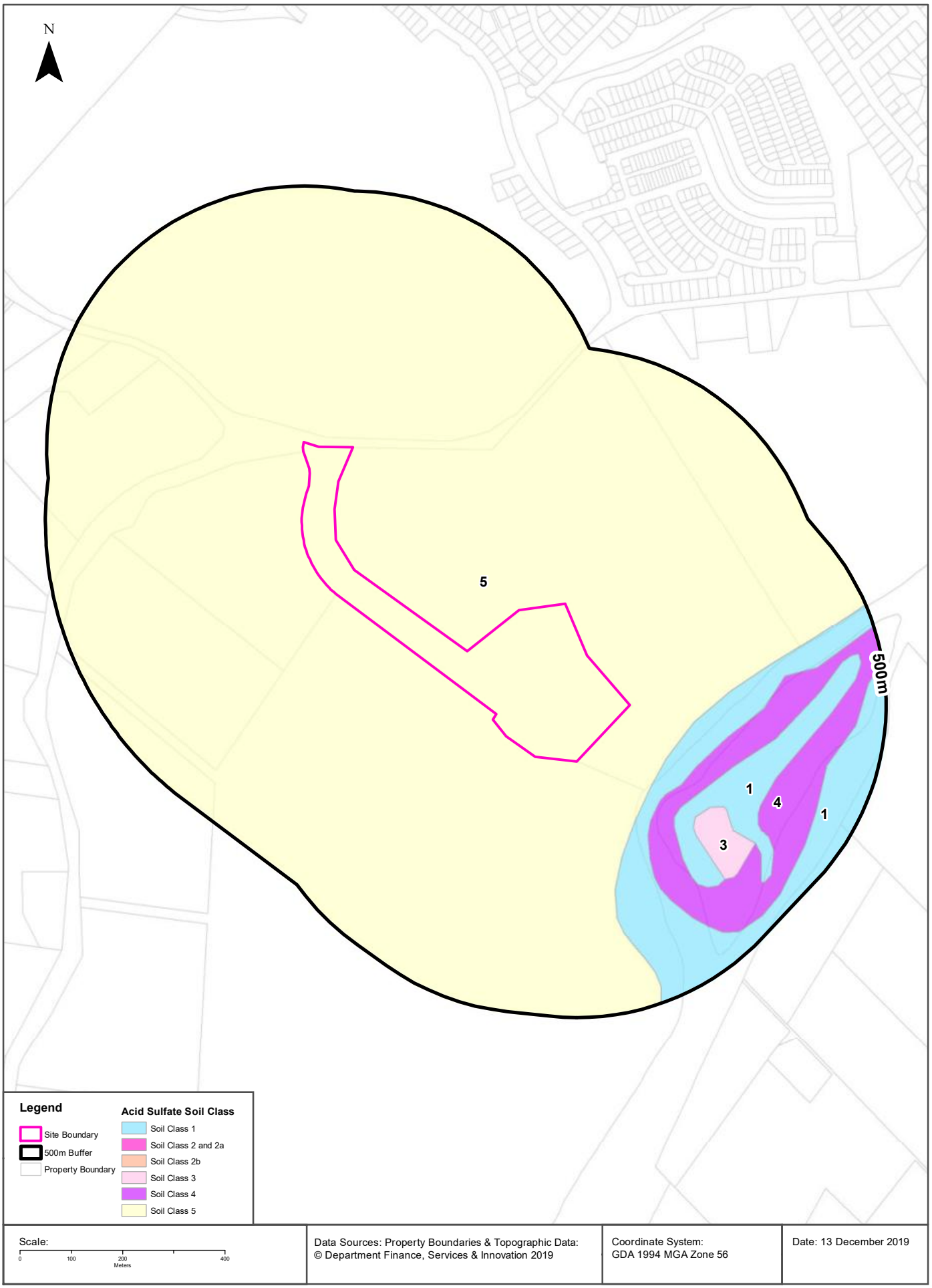
Atlas of Australian Soils

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

Map Unit Code	Soil Order	Map Unit Description	Distance
Gb6	Dermosol	Younger river terraces, present flood-plain, and swamps: chief soils are dark friable loamy soils (Um6.11), possibly with some (Gn2.8) soils on the terraces. Associated are various (Um) and (Uc) soils on the flood-plains and swamps. Area is subject to periodic inundation. As mapped, areas of units X9, Mb2, and Sp1 are included.	0m
Pb13	Kurosol	Ridge and valley country of gently undulating ridge tops and steep side slopes often with slumping, also rounded hilly to steep hilly areas and relatively narrow valleys: chief soils are hard acidic red soils (Dr2.21) with hard acidic yellow mottled soils (Dy3.41); in places some ironstone gravels occur in both these soils. Associated are hard neutral and alkaline red soils (Dr2.22 and Dr2.23) in saddles and some mid-slope positions; (Dy3.42 and Dy3.43) soils, usually in depressions; and small areas of undescribed soils in wet soaks and valley areas. Small areas of other soils are likely throughout.	0m

Acid Sulfate Soils

235 Grose Vale Road, North Richmond, NSW 2754



Acid Sulfate Soils

235 Grose Vale Road, North Richmond, NSW 2754

Environmental Planning Instrument - Acid Sulfate Soils

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

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

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

Soil Class	Description	EPI Name	Distance	Direction
1	Any works present an environmental risk	Hawkesbury Local Environmental Plan 2012	119m	South East
4	Works more than 2 metres below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered more than 2 metres below natural ground surface, present an environmental risk	Hawkesbury Local Environmental Plan 2012	170m	South East
3	Works more than 1 metre below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered more than 1 metre below natural ground surface, present an environmental risk	Hawkesbury Local Environmental Plan 2012	242m	South East

Atlas of Australian Acid Sulfate Soils

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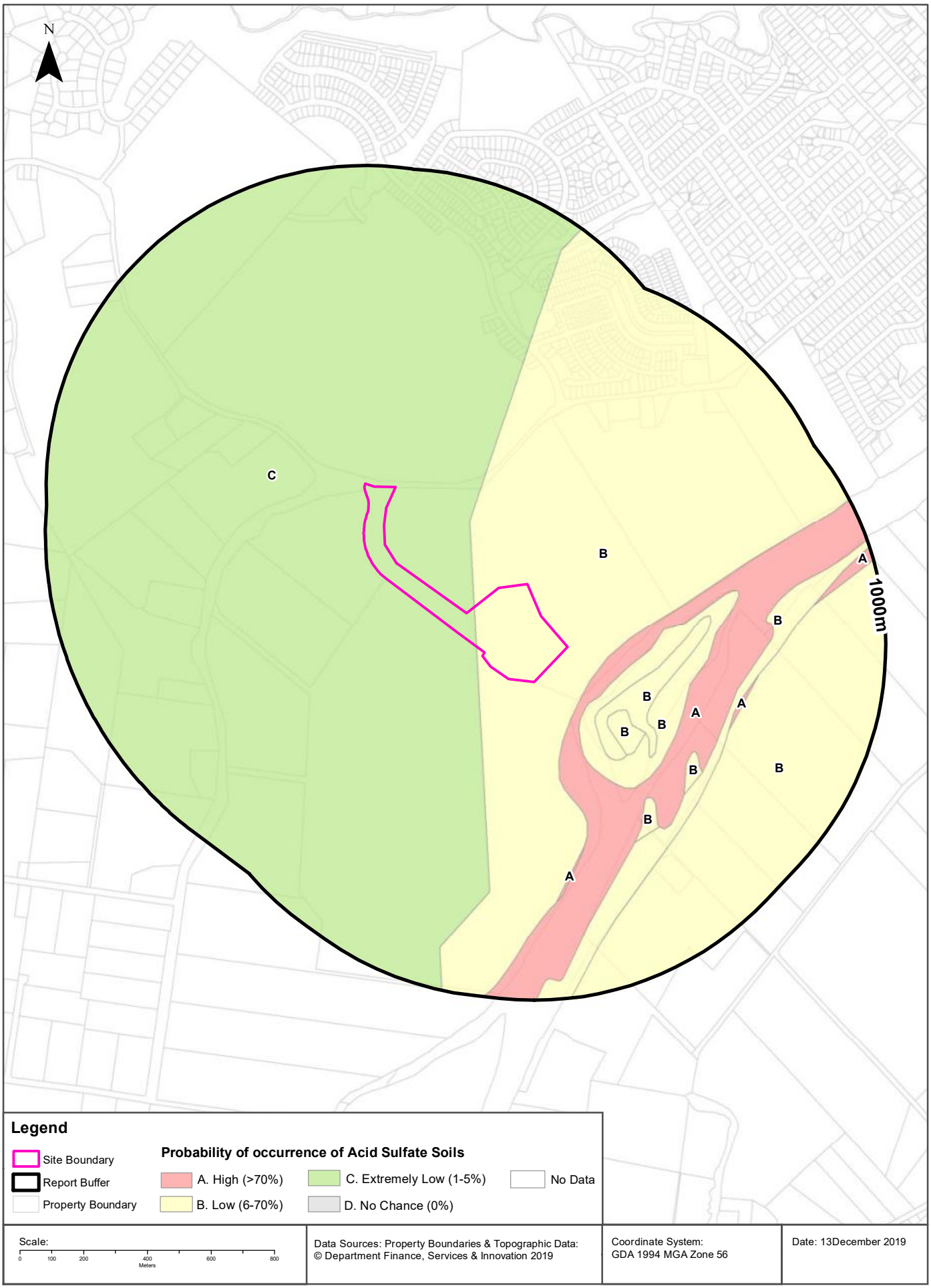


Acid Sulfate Soils

235 Grose Vale Road, North Richmond, NSW 2754

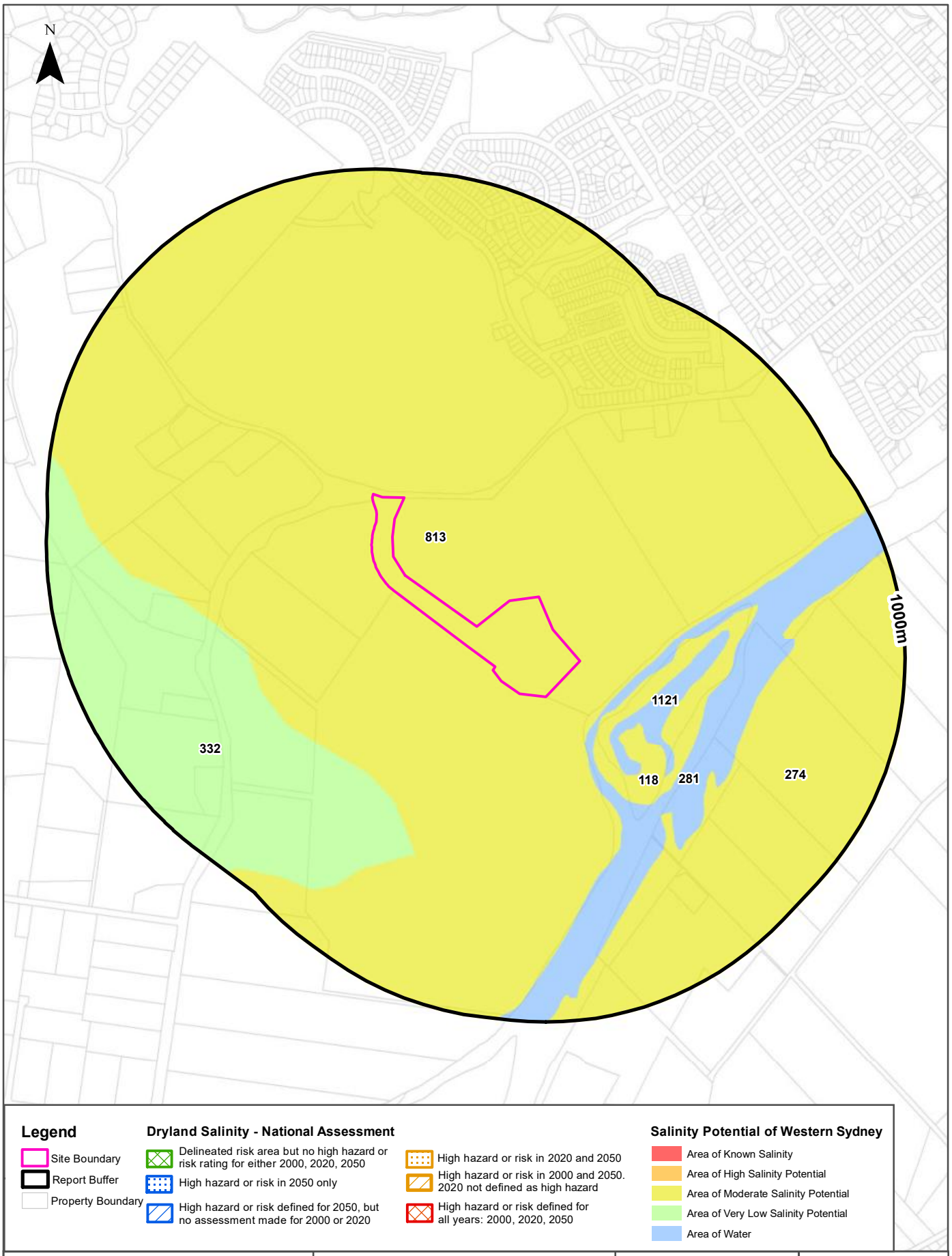
Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m
A	High Probability of occurrence. >70% chance of occurrence.	119m

Dryland Salinity

235 Grose Vale Road, North Richmond, NSW 2754



Dryland Salinity

235 Grose Vale Road, North Richmond, NSW 2754

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

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

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

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
813	MODERATE	Area of Moderate Salinity Potential	0m	Onsite
281	WATER	Area of Water	151m	South East
118	MODERATE	Area of Moderate Salinity Potential	165m	South East
1121	WATER	Area of Water	214m	South East
332	LOW	Area of Very Low Salinity Potential	469m	West
274	MODERATE	Area of Moderate Salinity Potential	504m	South

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

Mining Subsidence Districts

235 Grose Vale Road, North Richmond, NSW 2754

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

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

State Environmental Planning Policy

235 Grose Vale Road, North Richmond, NSW 2754

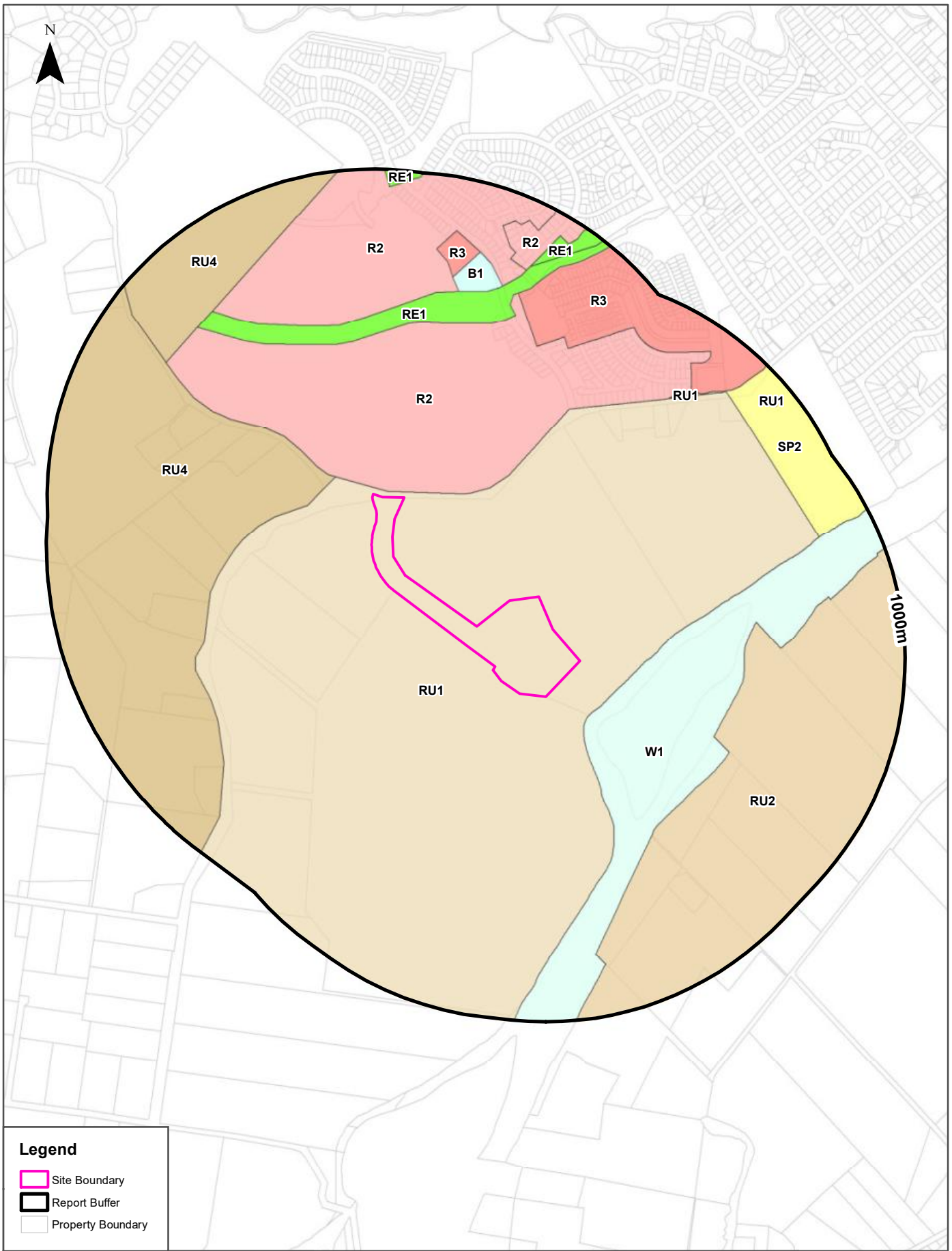
State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

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

EPI Planning Zones

235 Grose Vale Road, North Richmond, NSW 2754



Environmental Planning Instrument

235 Grose Vale Road, North Richmond, NSW 2754

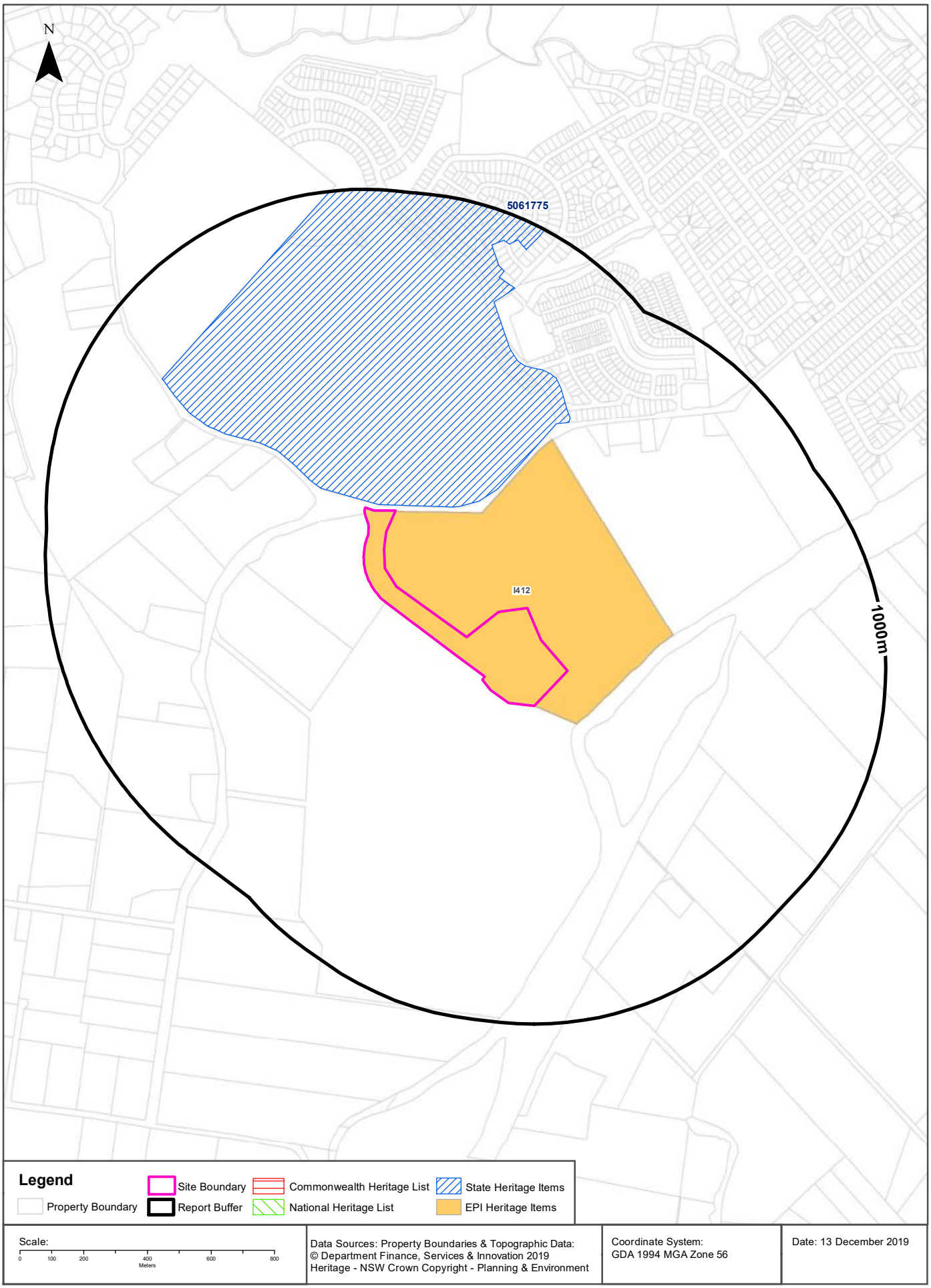
Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RU1	Primary Production		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		0m	Onsite
R2	Low Density Residential		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	18m	North
RU4	Primary Production Small Lots		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		128m	West
W1	Natural Waterways		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		134m	South East
RU2	Rural Landscape		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		472m	East
RE1	Public Recreation		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	474m	North
R2	Low Density Residential		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	530m	North
R3	Medium Density Residential		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	617m	North East
B1	Neighbourhood Centre		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	656m	North
R3	Medium Density Residential		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	694m	North
RU1	Primary Production		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	725m	North East
RU4	Primary Production Small Lots		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		745m	North West
R2	Low Density Residential		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		793m	North
RE1	Public Recreation		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		807m	North
SP2	Infrastructure	Water Supply System	Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		824m	North East
RU1	Primary Production		Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	28/02/2019		930m	North East
RE1	Public Recreation		Hawkesbury Local Environmental Plan 2012	11/04/2014	11/04/2014	28/02/2019	Amendment No 6	948m	North

Heritage Items

235 Grose Vale Road, North Richmond, NSW 2754



Heritage

235 Grose Vale Road, North Richmond, NSW 2754

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

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

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
5061775	Yobarnie Keyline Farm	Grose Vale Road, Grose Vale	Hawkesbury	08/03/2013	01826	2291	18m	North

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

Environmental Planning Instrument - Heritage

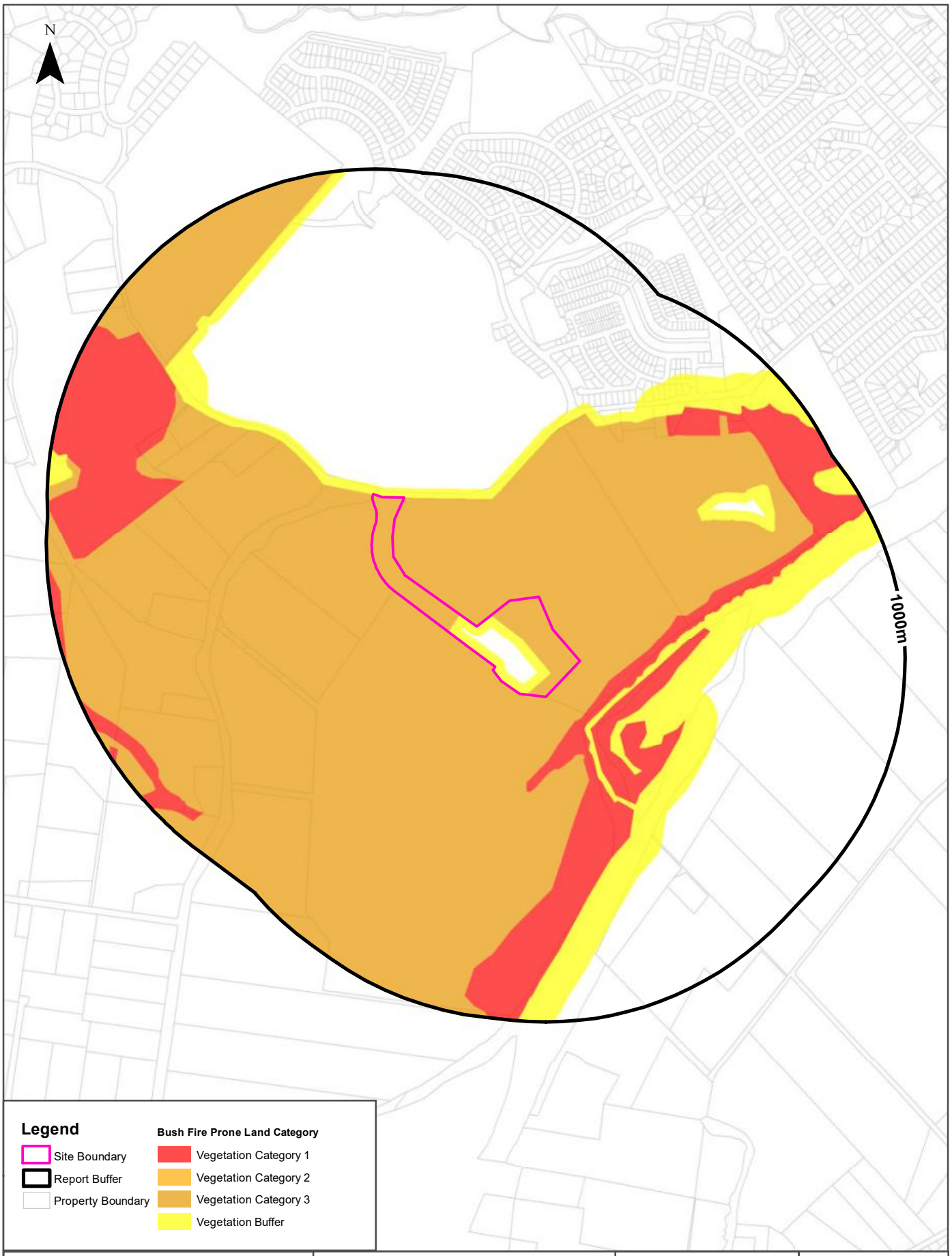
What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I412	St John of God Hospital (former 'Belmont Park', mansion, garden, building, gatehouse and curtilage)	Item - General	Local	Hawkesbury Local Environmental Plan 2012	21/09/2012	21/09/2012	21/09/2012	0m	Onsite

Heritage Data Source: NSW Crown Copyright - Planning & Environment

Natural Hazards - Bush Fire Prone Land

235 Grose Vale Road, North Richmond, NSW 2754



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2019. Property Boundaries: © Department Finance, Services & Innovation 2019

Coordinate System: GDA 1994 MGA Zone 56

Date: 13 December 2019

Natural Hazards

235 Grose Vale Road, North Richmond, NSW 2754

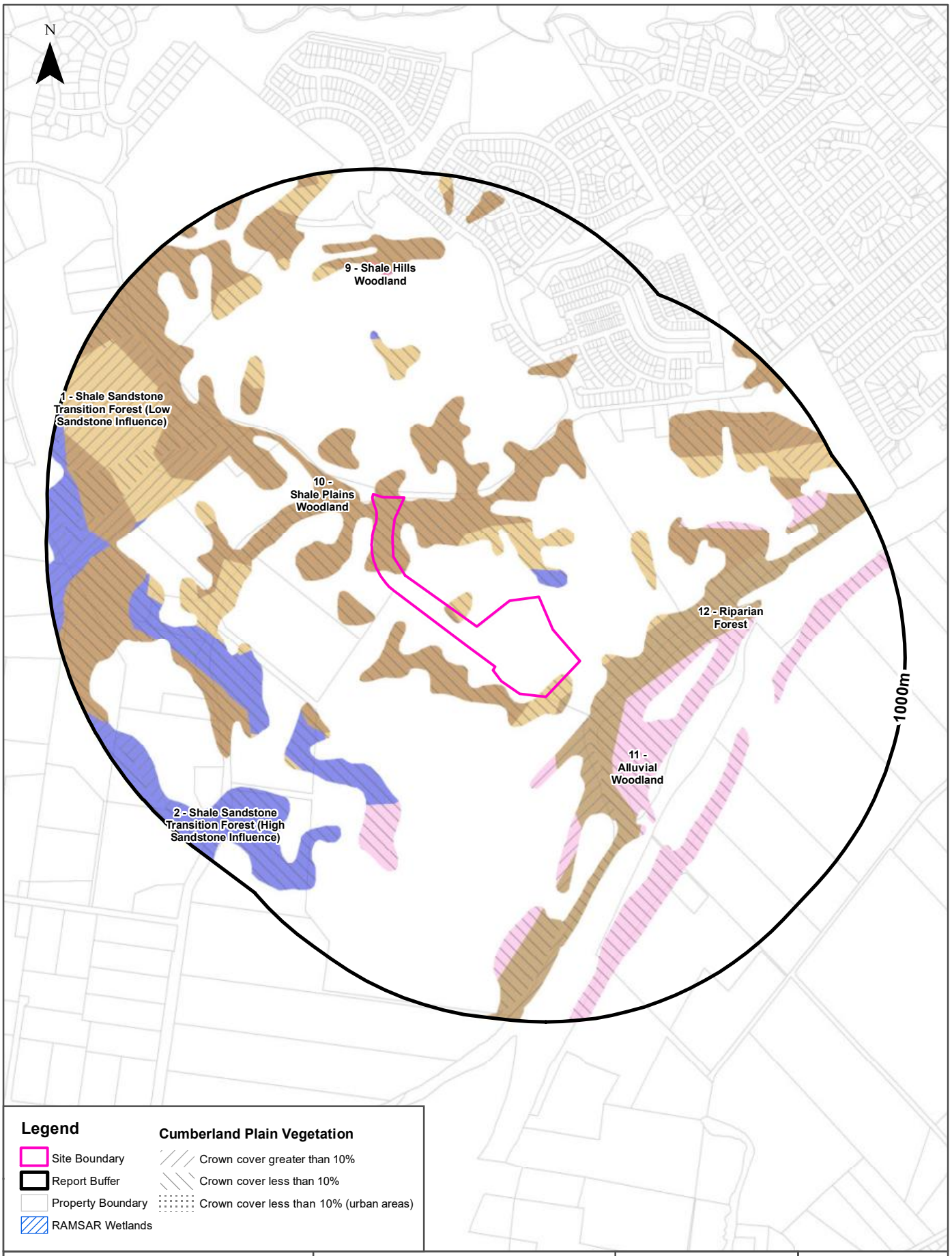
Bush Fire Prone Land

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

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	0m	Onsite
Vegetation Category 3	0m	Onsite
Vegetation Category 1	106m	West

Ecological Constraints - Remnant Vegetation of the Cumberland Plain

235 Grose Vale Road, North Richmond, NSW 2754



Ecological Constraints

235 Grose Vale Road, North Richmond, NSW 2754

Remnant Vegetation of the Cumberland Plain

What remnant vegetation of the Cumberland Plain exists within the dataset buffer?

Description	Crown Cover	Distance	Direction
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover less than 10%	0m	Onsite
10 - Shale Plains Woodland	Crown cover less than 10%	0m	Onsite
12 - Riparian Forest	Crown cover less than 10%	36m	South East
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover less than 10%	39m	North East
12 - Riparian Forest	Crown cover greater than 10%	134m	South East
11 - Alluvial Woodland	Crown cover greater than 10%	179m	South
11 - Alluvial Woodland	Crown cover less than 10%	182m	South East
10 - Shale Plains Woodland	Crown cover greater than 10%	457m	North West
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover greater than 10%	537m	West
9 - Shale Hills Woodland	Crown cover less than 10%	671m	North
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover greater than 10%	692m	West

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					

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

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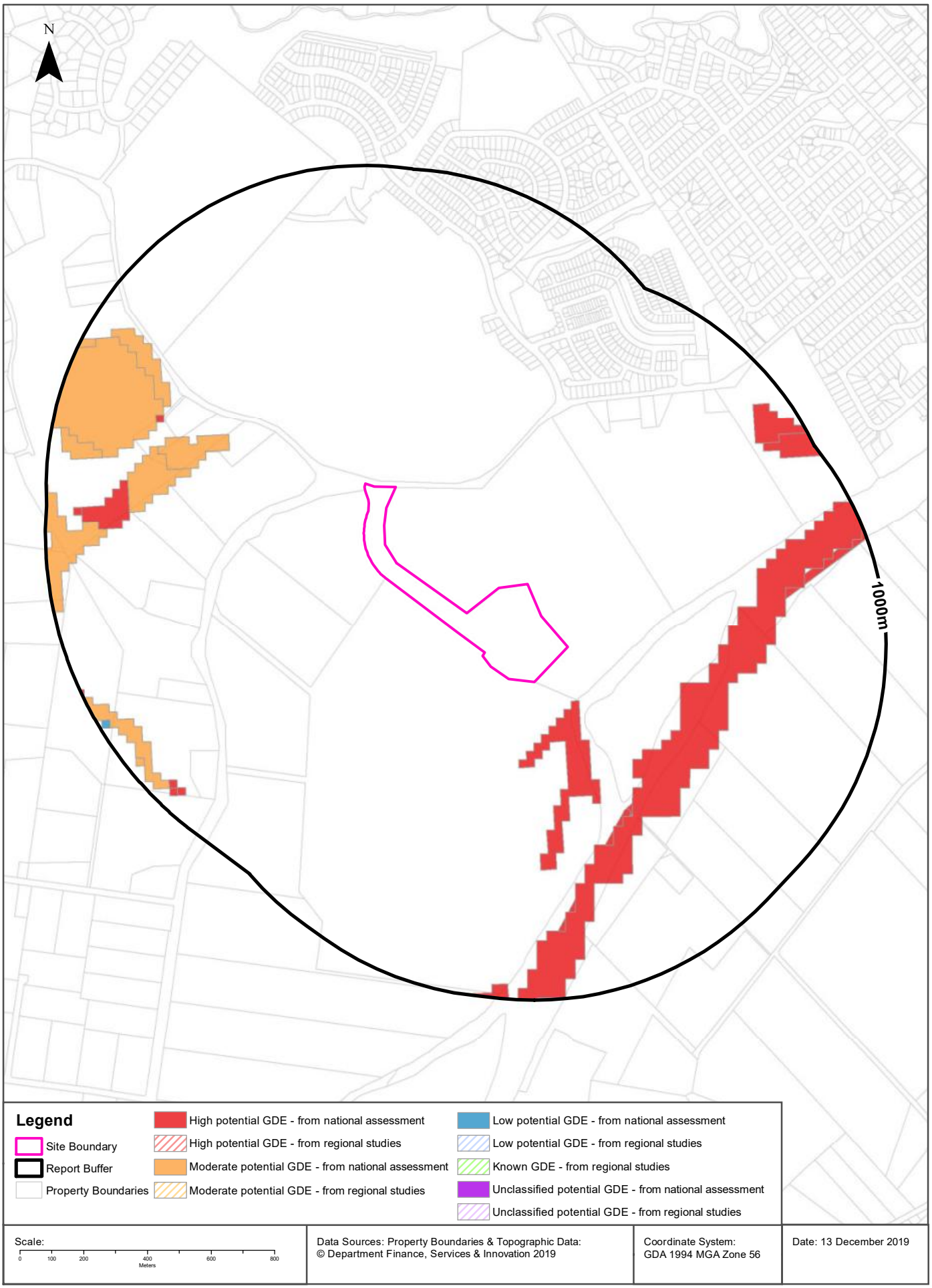

Ecological Constraints

235 Grose Vale Road, North Richmond, NSW 2754

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	122m
Aquatic	High potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Wetland		369m
Terrestrial	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	439m
Terrestrial	Low potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	960m

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

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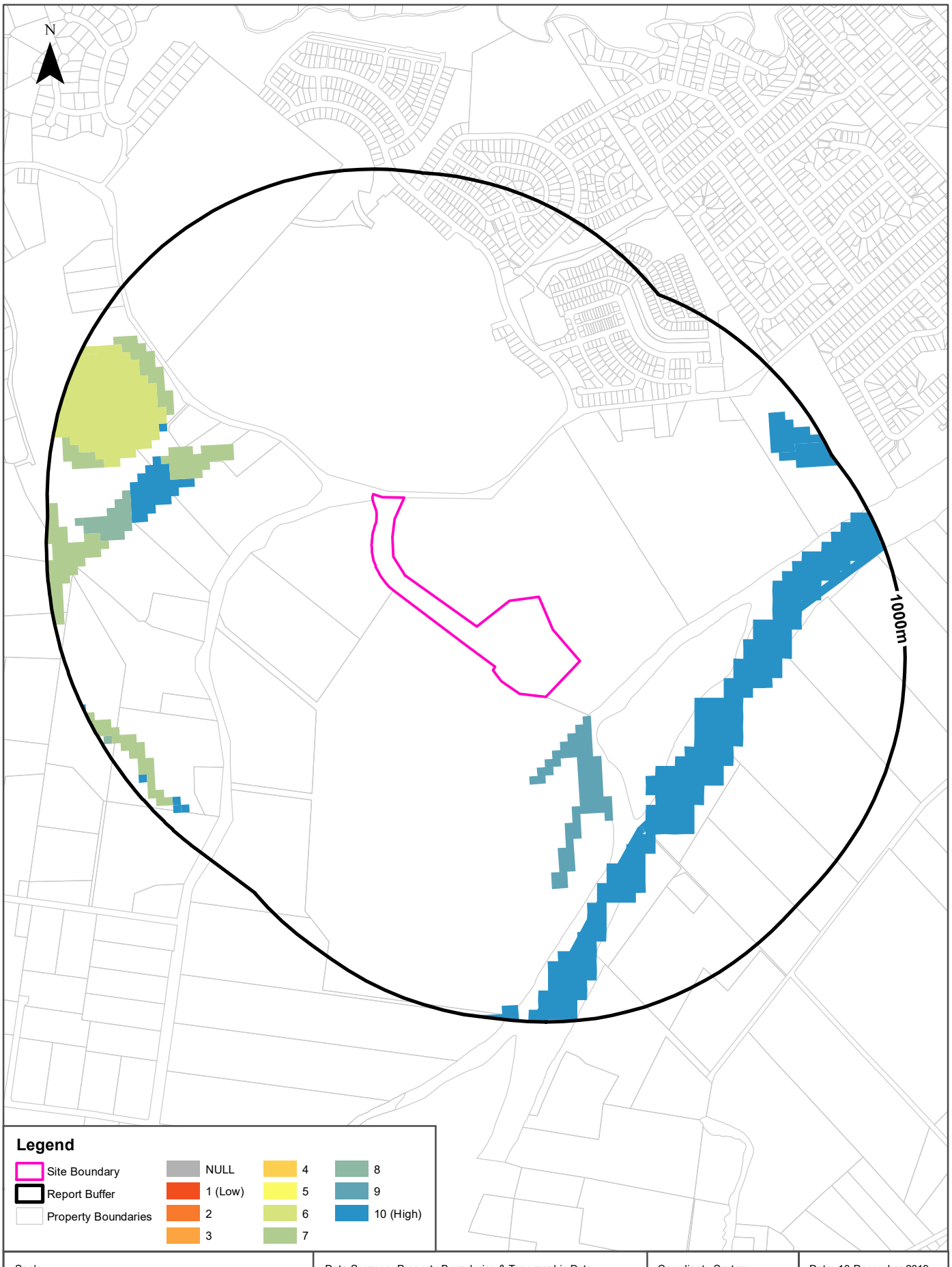

Ecological Constraints

235 Grose Vale Road, North Richmond, NSW 2754

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	9	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	122m
Aquatic	10	Undulating to low hilly country, mainly on shale.	Wetland		369m
Terrestrial	7	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	439m
Terrestrial	10	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	545m
Terrestrial	6	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	669m
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	735m

Ecological Constraints

235 Grose Vale Road, North Richmond, NSW 2754

NSW BioNet Atlas

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

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Heleioporus australiacus	Giant Burrowing Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Acrocephalus orientalis	Oriental Reed-Warbler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Chlidonias leucopterus	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA;JAMBA
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gelochelidon nilotica	Gull-billed Tern	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Glareola maldivarum	Oriental Pratincole	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Grantiella picta	Painted Honeyeater	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Irediparra gallinacea	Comb-crested Jacana	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Motacilla flava	Yellow Wagtail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Neochmia ruficauda	Star Finch	Presumed Extinct	Not Sensitive	Endangered	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius minutus	Little Curlew	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pachycephala olivacea	Olive Whistler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica rodinogaster	Pink Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pezoporus wallicus wallicus	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Tringa glareola	Wood Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tryngites subruficollis	Buff-breasted Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Gastropoda	Meridolum corneovirens	Cumberland Plain Land Snail	Endangered	Not Sensitive	Not Listed	
Animalia	Gastropoda	Pommerhelix duralensis	Dural Land Snail	Endangered	Not Sensitive	Endangered	
Animalia	Insecta	Petalura gigantea	Giant Dragonfly	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Petaurus australis	Yellow-bellied Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Hoplocephalus bungaroides	Broad-headed Snake	Endangered	Category 2	Vulnerable	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia pubescens	Downy Wattle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Allocasuarina glareicola		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Cymbidium canaliculatum	Tiger Orchid	Not Listed	Category 2	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Cynanchum elegans	White-flowered Wax Plant	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Dillwynia tenuifolia		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Epacris sparsa	Sparse Heath	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus benthamii	Camden White Gum	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Endangered	Category 3	Not Listed	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Not Listed	Not Sensitive	Extinct	
Plantae	Flora	Leucopogon exolasius	Woronora Beard-heath	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Leucopogon fletcheri subsp. fletcheri		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Marsdenia viridiflora subsp. viridiflora	Native Pear	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Micromyrtus minutiflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia nutans	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pimelea spicata	Spiked Rice-flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Pultenaea parviflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Pultenaea villifera		Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Tylophora woollsii	Cryptic Forest Twiner	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Zieria involucrata		Endangered	Not Sensitive	Vulnerable	

Data does not include NSW category 1 sensitive species.

Data obtained 03/10/2019

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
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

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

Appendix B
SITE PHOTOGRAPHS

	**Plate 1** **Description:** Two Large LPG Storage tanks located in the central portion of the Site. **Date:** 16/12/19
	**Plate 2** **Description:** Reclaimed water tank in the northern portion of the Site. **Date:** 16/12/19

	**Plate 3** **Description:** Pump shed located in the northern portion of the Site. **Date:** 16/12/19
	**Plate 4** **Description:** Steep to extreme slopes and retaining wall on the eastern boundary of the Site. **Date:** 16/12/19

	**Plate 5** **Description:** Suspected asbestos communication pit located in the eastern portion of the Site. **Date:** 16/12/19
	**Plate 6** **Description:** Bonded ACM fragment encountered within soil at BH7. **Date:** 16/12/19

	**Plate 7** **Description:** The Chapel located in the central eastern portion of the Site. **Date:** 16/12/19
	**Plate 8** **Description:** Large underground water storage tank and pump house located in the central eastern portion of the Site. **Date:** 16/12/19

	**Plate 9** **Description:** Battle of Richmond Hill Memorial located in the northern portion of the Site. **Date:** 16/12/19
	**Plate 10** **Description:** Above ground diesel tank and chemical storage area located adjacent to the maintenance shed. **Date:** 16/12/19

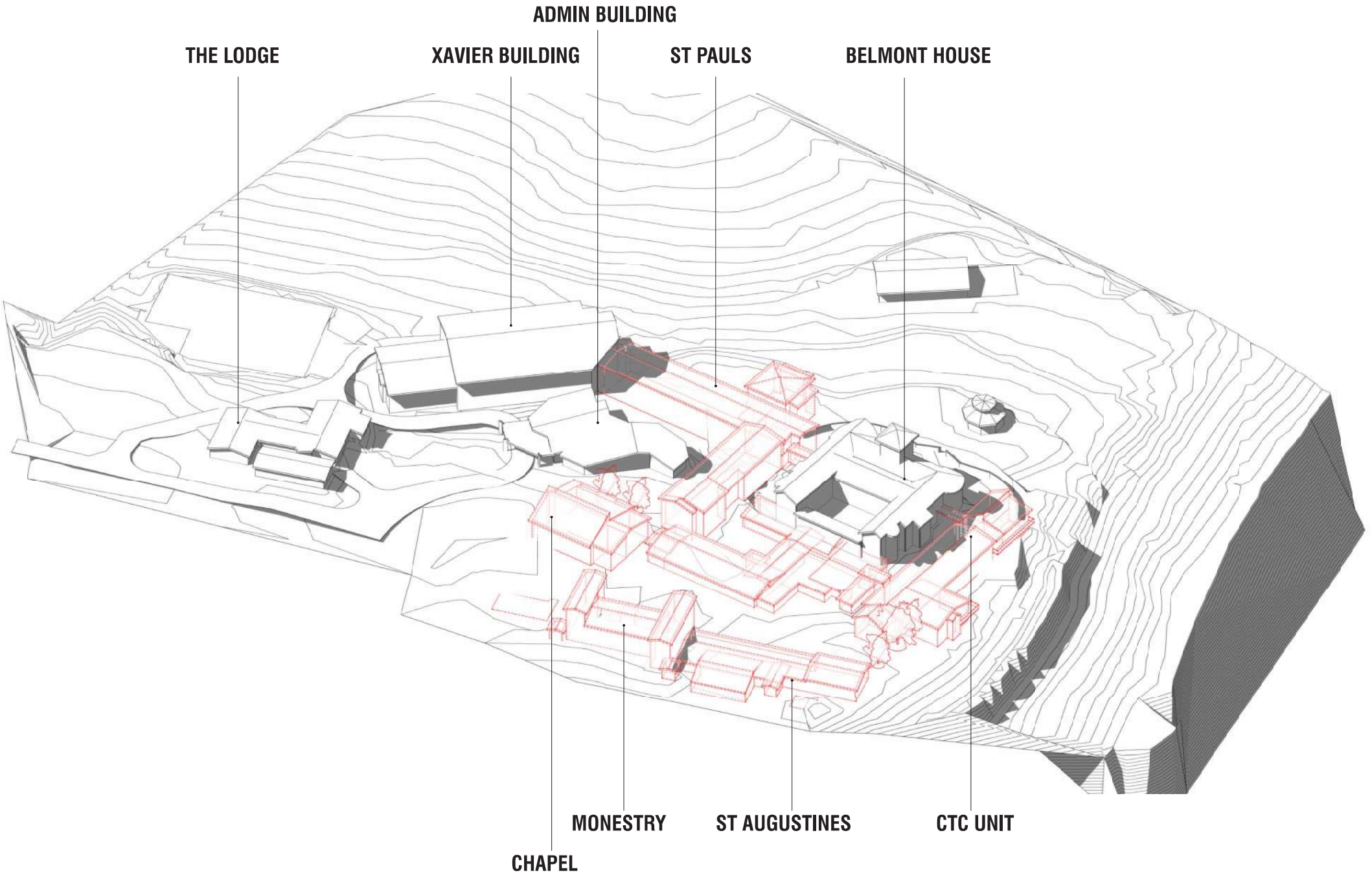
	**Plate 11** **Description:** Open space area in the northern portion of the Site. **Date:** 16/12/19
	**Plate 12** **Description:** Tennis courts located in the north west portion of the Site. **Date:** 16/12/19

	**Plate 13** **Description:** Xaviers building (left) and reception/admin building (right) in the central potion of the Site. **Date:** 16/12/19
	**Plate 14** **Description:** St Augustines (right) and CTC building (left) in the eastern portion of the Site. **Date:** 16/12/19

	**Plate 15** **Description:** Access road in the eastern portion of the Site. **Date:** 16/12/19

Appendix C
PLANS OF PROPOSED DEVELOPMENT


MAIN DRIVEWAY
VIEWS
VIEWS
BLUE MOUNTAIN VIEWS
HAWKSBY RIVER VIEWS
To Be Demolished
To Be Retained
1 Tennis Court
2 Xavier Building
3 St Pauls
4 Admin
5 The Lodge
6 The Stables
7 Chapel
8 Pool
9 Monestry
10 St Augustines
11 Belmont House
12 CTC Unit
13 Summer House
14 Engineering
15 Bushland
16 Mature specimen trees
17 Lawn
18 Back of House
19 Pond


ADMIN BUILDING
THE LODGE
XAVIER BUILDING
ST PAULS
BELMONT HOUSE
MONESTRY
ST AUGUSTINES
CTC UNIT
CHAPEL

ST JOHN OF GOD Health Care

JOHNSTAFF

STH

OPTION 1 - GF CONCEPT PLAN

ST JOHN OF GOD RICHMOND HOSPITAL
18 OCT 2019
NOT TO SCALE

CONCEPT

02

ST JOHN OF GOD Health Care | JOHNSTAFF | STH

OPTION 1 - 1F CONCEPT PLAN

ST JOHN OF GOD RICHMOND HOSPITAL
18 OCT 2019
NOT TO SCALE

CONCEPT 03

Appendix D
SECTION 10.7 CERTIFICATE

Hawkesbury City Council

Planning Certificate

Issued under Section 10.7 of the *Environmental Planning and Assessment Act, 1979*

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

support@lotsearch.com.au

Certificate Number PC1025/20

Your Reference LS010323

Date of Endorsement 18 December 2019

Location

Land Description Lot 11 DP 1134453, 235 Grose Vale Road NORTH RICHMOND NSW 2754

The following information is only applicable as of the date of this certificate and is provided pursuant to Section 10.7 of the *Environmental Planning and Assessment Act 1979*, as prescribed by Schedule 4 of the *Environmental Planning and Assessment Regulation 2000*.

Information pursuant to Section 10.7(2) of the Act

1 Names of relevant planning instruments and Development Control Plans

1.1 The land is affected by the following environmental planning instruments:

Hawkesbury Local Environmental Plan 2012

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1995)

Identifies regionally significant extractive resources within the Sydney Region to facilitate their utilisation. The plan ensures extraction is carried out in an environmentally acceptable manner and prohibits extraction from certain environmentally sensitive areas. It ensures that decisions on future urban expansion take into account the ability to realise the full potential of important deposits.

Sydney Regional Environmental Plan No 20 - Hawkesbury Nepean River (No 2 - 1997)

SREP No 20 (No 2 - 1997) was gazetted on 6 November 1997, and is accompanied by the 'Hawkesbury-Nepean Action Plan 1997' and 'Codes of Practice for Consultation'.

The aim of *SREP No 20 (No 2 - 1997)* is to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context.

SREP No 20 (No 2 - 1997) requires development consent for the purpose of caravan parks or camping grounds; composting facilities or works; buildings works or land uses within conservation area sub-catchments; remediation of contaminated land; filling; certain activities in relation to items of non-aboriginal heritage; intensive horticulture industries; some intensive animal industries; manufactured home estates; marinas; recreational facilities; land uses in or near the river; land uses in riverine scenic areas; sewerage systems or works.

Development for extractive industries is prohibited in some areas. Consent of Council and the concurrence of the Director-General is required for maintenance dredging and extractive operations carried out downstream of the Wallacia Bridge as a consequence of, and ancillary to, works for flood mitigation, bank stabilisation, the construction of bridges or other instream structures (such as marinas) or the licensed or unlicensed withdrawal of water where extraction is necessary to carry out the works. Some intensive animal industries and potentially hazardous or offensive industries are prohibited if carried out on a floodway. Development in mapped wetlands requires the consent of Council and the concurrence of the Director-General of Urban Affairs and Planning.

State Environmental Planning Policy No 19 - Bushland in Urban Areas

Protects and preserves bushland within certain urban areas, as part of the natural heritage or for recreation, educational and scientific purposes. The SEPP is designed to protect bushland in public open space zones and reservations, and to ensure that bush preservation is given a high priority when local environmental plans for urban development are prepared.

State Environmental Planning Policy No 21 - Caravan Parks

Ensures that where caravan parks or camping grounds are permitted under an environmental planning instrument, movable dwellings, as defined in the *Local Government Act 1993*, are also permitted. The specific kinds of movable dwellings allowed under the *Local Government Act* in caravan parks and camping grounds are subject to the provisions of the Caravan Parks Regulation. The SEPP ensures that development consent is required for new caravan parks and camping grounds and for additional long-term sites in existing caravan parks. It also enables, with the council's consent, long-term sites in caravan parks to be subdivided by leases of up to 20 years.

State Environmental Planning Policy No 33 - Hazardous and Offensive Development

Provides definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future. The definitions enable decisions to approve or refuse a development to be based on the merit of proposal. The consent authority must carefully consider the specifics of the case, the location and the way in which the proposed activity is to be carried out. The SEPP also requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the SEPP. For example, any application to carry out a potentially hazardous or potentially offensive development is to be advertised for public comment, and applications to carry out potentially hazardous development must be supported by a preliminary hazard analysis (PHA). The SEPP does not change the role of councils as consent authorities, land zoning, or the designated development provisions of the *Environmental Planning and Assessment Act 1979*.

State Environmental Planning Policy No 44 - Koala Habitat Protection

Encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range. Local councils cannot approve development in an area affected by the SEPP without an investigation of core koala habitat. The SEPP provides the state-wide approach needed to enable appropriate development to continue, while ensuring there is ongoing protection of koalas and their habitat.

State Environmental Planning Policy No 50 - Canal Estate Development

Bans new canal estates from the date of gazettal, to ensure coastal and aquatic environments are not affected by these developments.

State Environmental Planning Policy No 55 - Remediation of Land

Introduces state-wide planning controls for the remediation of contaminated land. The SEPP states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The SEPP makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals.

State Environmental Planning Policy No 64 - Advertising and Signage

Aims to ensure that outdoor advertising is compatible with the desired amenity and visual character of an area, provides effective communication in suitable locations and is of high quality design and finish.

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

Raises the design quality of residential flat development across the state through the application of a series of design principles. Provides for the establishment of Design Review Panels to provide independent expert advice to councils on the merit of residential flat development.

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

Extends the life of affordable housing provisions relating to: *Sydney Regional Environmental Plan No. 26 - City West*, *Willoughby Local Environmental Plan 1995* and *South Sydney Local Environmental Plan 1998*. Schemes such as these are helping to provide affordable housing in areas undergoing significant redevelopment.

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

This SEPP operates in conjunction with *Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004* to ensure the effective introduction of BASIX in NSW. The SEPP ensures consistency in the implementation of BASIX throughout the State by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX.

State Environmental Planning Policy (State Significant Precincts) 2005

Defines certain developments that are major projects under Part 3A of the *Environmental Planning & Assessment Act 1979* and determined by the Minister for Planning. The SEPP also lists State significant precincts.

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

The SEPP aims to provide for the proper management and development of mining, petroleum and extractive material resources for the social and economic welfare of the State. The SEPP establishes appropriate planning controls to encourage ecologically sustainable development.

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

Provides for the erection of temporary structures. The SEPP supports the transfer temporary structures (such as tents, marquees and booths) from the *Local Government Act 1993* to the *Environmental Planning and Assessment Act 1979.*

State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2004

Amends various environmental planning instruments so as to omit provisions requiring consent authorities to obtain certain concurrences or refer matter to various persons or bodies.

State Environmental Planning Policy (State and Regional Development) 2011

The aims of this SEPP are to identify development that is State significant development, to identify development that is State significant infrastructure and critical State significant infrastructure, to confer functions on joint regional planning panels to determine development applications.

State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2008

Removes duplicative or unnecessary requirements in environmental planning instruments which require concurrence from or referral to government agencies.

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

Aims to provide streamlined assessment processes for development that complies with specified development standards.

State Environmental Planning Policy (Affordable Rental Housing) 2009

Aims to provide a consistent planning regime for the retention and provision of affordable rental housing.

State Environmental Planning Policy (Infrastructure) 2007

Provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

State Environmental Planning Policy (Integration and Repeals) 2016

This SEPP repealed a number of SEPPs and deemed SEPPs including State Environmental Planning Policy No 32-Urban Consolidation (Redevelopment of Urban Land) and Sydney Regional Environmental Plan No 19-Rouse Hill Development Area.

State Environmental Planning Policy (Vegetation in Non-Urban Areas)

The aim of this Policy is to protect the biodiversity values and the amenity of non-rural areas of the State through the preservation of trees and other vegetation.

State Environmental Planning Policy (Concurrences) 2018

This Policy identifies the circumstances in which the Planning Secretary may elect to act in the place of a person whose concurrence to development is required to be obtained and has failed to inform a consent authority of the decision concerning concurrence within the time allowed for doing so.

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

This Policy facilitates the orderly economic use and development of lands for primary production, and encourages sustainable agriculture, including sustainable aquaculture. It aims to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources. The Policy provides development controls and the matters for consideration for development applications involving or affecting certain agricultural uses.

The land may be affected by the following environmental planning instrument:

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

Encourage the development of high quality accommodation for our aging population and for people who have disabilities - housing that is in keeping with the local neighbourhood.

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

The aim of this Policy is to facilitate the effective delivery of educational establishments and early education and care facilities across the State by providing a consistent planning regime including the establishment of consistent assessment requirements, design considerations and consultation for these types of development.

1.2 The land is affected by the following proposed environmental planning instruments that are or have been the subject of community consultation or on public exhibition under the *Environmental Planning and Assessment Act 1979* (excludes instruments where Council has been notified that the making of the proposed instrument has been deferred indefinitely or has not been approved):

Draft State Environmental Planning Policy - Integrating Land Use and Transport

Draft State Environmental Planning Policy (Application of Development Standards) 2004

Draft State Environmental Planning Policy (Competition) 2010

Amendment to *State Environmental Planning Policy No. 44 Koala Habitat Protection*

Draft State Environmental Planning Policy (Environment) 2017

Amendment to *State Environmental Planning Policy No. 55 – Remediation of Land*

Amendment to *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* – Housekeeping Amendments

Amendment to *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* – Short-term Rental Accommodation

Amendment to *Standard Instrument Local Environmental Plan* – Short-term Rental Accommodation definition

Draft State *Environmental Planning Policy (Short-term Rental Accommodation) 2019*

1.3 The land is affected by the following Development Control Plans:

Hawkesbury Development Control Plan 2002

Note: In this section a proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

2 Zoning and land use under relevant Local Environmental Plans

2.1 The land is zoned:

RU1 Primary Production under *Hawkesbury Local Environmental Plan 2012*.

2.2 Under the provisions of *Hawkesbury Local Environmental Plan 2012* the purposes for which development may be carried out within the zone without development consent are referred to in the Land Use Table Annexure.

2.3 Under the provisions of *Hawkesbury Local Environmental Plan 2012* the purposes for which development may not be carried out within the zone except with development consent are referred to in the Land Use Table Annexure.

2.4 Under the provisions of *Hawkesbury Local Environmental Plan 2012* the purposes for which the carrying out of development is prohibited within the zone are referred to in the Land Use Table Annexure.

The following special provisions of *Hawkesbury Local Environmental Plan 2012* may apply to the subject land:

- Clause 2.5 Additional permitted uses for particular land.
- Clause 2.6 Subdivision – consent requirements.
- Clause 2.7 Demolition requires development consent.
- Clause 2.8 Temporary use of land.
- Part 3 Exempt and complying development.
- Clause 4.2 Rural subdivision.
- Clause 4.2A Residential development and subdivision prohibited on certain land.
- Clause 5.1 Relevant acquisition authority.
- Clause 5.1A Development on land intended to be acquired for public purposes.
- Clause 5.3 Development near zone boundaries.

- Clause 5.7 Development below mean high water mark.
- Clause 5.8 Conversion of fire alarms.
- Clause 5.10 Heritage conservation.
- Clause 5.11 Bush fire hazard reduction.
- Clause 5.12 Infrastructure development and use of existing buildings of the Crown.
- Clause 6.1 Acid sulfate soils.
- Clause 6.2 Earthworks.
- Clause 6.11 Residential accommodation at Johnston and New Streets, Windsor.
- Clause 6.12 Certain development at Richmond Lowlands.

These special provisions may alter the development shown in the Land Use Table which may be carried out with or without development consent and prohibited land uses. Please refer to the above mentioned provisions of *Hawkesbury Local Environmental Plan 2012* to determine applicability.

2.5 Has Council adopted any development standards providing fixed minimum land dimensions for the erection of a dwelling house on the land?

No.

2.6 Does the land include or comprise critical habitat?

No.

2.7 Is the land in a conservation area under *Hawkesbury Local Environmental Plan 2012* or a proposed instrument referred to in section 1 of this certificate (other than a SEPP or proposed SEPP)?

No.

2.8 Is an item of environmental heritage under *Hawkesbury Local Environmental Plan 2012* or a proposed instrument referred to in section 1 of this certificate (other than a SEPP or proposed SEPP) situated on the land?

Yes.

Note: The land may also be subject to a proposed environmental planning instrument (see section 1.2 of this certificate) that may change the information given in this section of the certificate.

3 Complying Development under each of the codes for complying development because of the provisions of clauses 1.17A(1)(c) to (e), (2), (3) and (4), 1.18(1)(c3), and 1.19 of *State Environmental Planning Policy* (Exempt and Complying Development Codes) 2008.

3.1 Housing Code.

Can complying development under the Housing Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

  a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

  b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.2 Housing Alterations Code.

Can complying development under the Housing Alterations Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

  a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

  b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.3 Commercial and Industrial Alterations Code.

Can complying development under the Commercial and Industrial Alterations Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

  a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

  b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.4 Subdivisions Code.

Can complying development under the Subdivisions Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

  a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

  b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.5 Rural Housing Code.

Can complying development under the Rural Housing Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.6 General Development Code.

Can complying development under the General Development Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

Note: If development meets the requirements and standards specified by this Policy and that development:

a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.7 Demolition Code.

Can complying development under the Demolition Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

Note: If development meets the requirements and standards specified by this Policy and that development:

a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.8 Commercial and Industrial (New Buildings and Additions) Code.

Can complying development under the Commercial and Industrial (New Buildings and Additions) Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

Note: If development meets the requirements and standards specified by this Policy and that development:

a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.9 Container Recycling Facilities Code

Can complying development under the Container Recycling Facilities Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

  a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

  b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.10 Fire Safety Code

Can complying development under the Fire Safety Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

  a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

  b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.11 Greenfield Housing Code

Can complying development under the Greenfield Housing Code be carried out on the subject land?

No, because:

- The land comprises or contains a heritage item or draft heritage item.

  Note: If development meets the requirements and standards specified by this Policy and that development:

  a) Has been granted an exemption under section 57(2) of the *Heritage Act 1977*, or

  b) Is subject to an exemption under section 57(1A) or (3) of that Act, the development is complying development under this Policy.

3.12 Low Rise Medium Density Housing Code

The Low Rise Medium Density Housing Code does not apply to the Hawkesbury Local Government Area at this time.

4 Repealed

4A Repealed

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

Has the owner (or any previous owner) of the land 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 *Local Government Act 1993*)?

No.

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

5 Mine Subsidence

Is the subject land within a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017*?

No.

6 Road widening and road realignment

Is the land affected by road widening or road re-alignment under Division 2 of Part 3 of the *Roads Act 1993*, or any environmental planning instruments, or any resolution of Council?

No.

7 Council and other public authority policies on hazard risk restrictions

Has Council adopted a policy or has any other public authority notified Council for the purpose of planning certificates of a policy that restricts the development of the land because of the likelihood of:

a) Landslip.

No.

b) Bushfire risk.

No.

c) Tidal inundation.

No.

d) Subsidence.

No.

e) Acid sulfate soils.

Yes.

f) Any other risk (other than flooding)?

No.

7A Flood Related Development Controls Information

a) Is the land or part of the land subject to flood related development controls for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing)?

The land is not subject to riverine flood related development controls.

b) Is the land or part of the land subject to flood related development controls for any other purpose not included in a) above?

The land is not subject to riverine flood related development controls.

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

The above responses are provided in relation to the flood related development controls of *Hawkesbury Local Environmental Plan 2012*. Some State or Regional planning instruments may contain flood related development controls which affect the land. These include, but are not necessarily restricted to, *State Environmental Planning Policy (Exempt and Complying Development Code) 2008*, *State Environmental Planning Policy No 30 - Intensive Agriculture, State Environmental Planning Policy (Infrastructure) 2007*, *State Environmental Planning Policy No 62 - Sustainable Aquaculture, State Environmental Planning Policy (Sydney Region Growth Centres) 2006*, *Sydney Regional Environmental No 9 – Extractive Industry (No 2 – 1995)*, and *Sydney Regional Environmental Plan No 20 – Hawkesbury – Nepean River (No 2 – 1997)*.

8. Land Reserved for Acquisition

Is the land affected by any environmental planning instrument, or proposed environmental planning instrument referred to in section 1 of this certificate, which makes provision for the acquisition of the land by a public authority, as referred to in Section 3.15 of the *Environmental Planning and Assessment Act 1979*?

No.

9 Contributions Plans

The *Hawkesbury Section 94 Contributions Plan 2015* applies to the subject land.

The *Hawkesbury Section 94A Contributions Plan 2015* applies to the subject land.

9A Biodiversity certified land

Is the land biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016*?

No.

Note: Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016.*

10 Biodiversity stewardship sites

Has Council been notified that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act* 2016?

No.

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016.*

10A Native vegetation clearing set asides

Does the land contain a set aside area under section 60ZC of the *Local Land Services Act 2013*?

No.

11 Bush fire prone land

Is the land bush fire prone land (as defined by the *Environmental Planning and Assessment Act 1979)*?

Some of the land is bush fire prone.

12 Property Vegetation Plans

Has Council been notified that the land is land to which a property vegetation plan approved under Part 4 of the *Native Vegetation Act 2003* (and that continues in force) applies?

No.

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

Has Council been notified whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land?

No.

14 Directions under Part 3A

Is the land subject to an in force direction under Section 75P(2)(c1) of the *Environmental Planning and Assessment Act 1979*?

No.

15 Site compatibility certificates and conditions for seniors housing

15.1 Is the land subject to a current site compatibility certificate (seniors housing), of which Council is aware, issued under *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*?

No.

15.2 Has Council granted a development consent after 11 October 2007 in respect of the land, setting out any terms of a kind referred to in clause 18(2) of the *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*?

No.

16 Site compatibility certificates for infrastructure, schools or TAFE establishments

Is the land subject to a valid site compatibility certificate (infrastructure), or site compatibility certificate (schools or TAFE establishments), of which Council is aware?

No.

17 Site compatibility certificates and conditions for affordable rental housing

17.1 Is the land subject to a current site compatibility certificate (affordable rental housing), of which Council is aware?

No.

17.2 Is the land subject to a statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that has been imposed as a condition of consent to a development application?

No.

18 Paper subdivision information

18.1 Is the land subject to a development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot?

No.

18.2 Is the land subject to a subdivision order?

No.

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

19 Site verification certificates for biophysical strategic agricultural lands

Is the land subject to a current site verification certificate (biophysical strategic agricultural land), of which Council is aware?

No.

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

20 Loose-fill asbestos insulation

Does the land contain any residential premises that is listed on the Loose-Fill Asbestos Insulation Register (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989)*?

No.

21 Affected building notices and building product rectification orders

21.1 Is the land subject to an in force affected building notice (within the meaning of Part 4 of the *Building Products (Safety) Act 2017)*, of which Council is aware?

No.

21.2 (a) Is the land subject to an in force affected building product rectification order (within the meaning of the *Building Products (Safety) Act 2017*) that has not been fully complied with?

No.

(b) Is the land subject to a notice of intention to make a building product rectification order (within the meaning of the *Building Products (Safety) Act 2017)*, of which Council is aware has been given, and that is outstanding?

No.

Additional Matters

Certain prescribed matters under Section 59(2) of the *Contaminated Land Management Act 1997 (CLMA1997)*.

a) Is the land significantly contaminated land within the meaning of the CLMA 1997?

No.

b) Is the land subject to a management order within the meaning of the CLMA 1997?

No.

c) Is the land subject to an approved voluntary management proposal within the meaning of the CLMA 1997?

No.

d) Is the land subject to an ongoing maintenance order within the meaning of the CLMA 1997?

No.

e) Is the land subject to a site audit statement within the meaning of the CLMA 1997?

No.

Information pursuant to Section 10.7(5) of the Act

Applicants are advised that Council does not accept any liability in respect of any advice provided under the heading 'Development Consent'.

Preservation of trees and vegetation

The *Hawkesbury Local Environmental Plan 2012, State Environmental Planning Policy (Vegetation in Non-Urban Areas) 2017* and the *Hawkesbury Development Control Plan 2002* contain provisions which relate to the preservation of trees and vegetation throughout the local government area.

Development Consent

Has a development consent which applies to the subject land been issued within the past five years? If a development consent has been issued within the past five years, reference should be made to Section 4.53 of the *Environmental Planning and Assessment Act 1979* to determine whether or not the consent has lapsed.

Yes.

DA0186/15 - Health Services Facility – Replacement of roof slates to the Belmont Park Mansion verandahs.

Enquiries

For any enquiries please contact Customer Service on (02) 4560 4444.

Chris Carloss | Authorised Officer | Hawkesbury City Council
www.hawkesbury.nsw.gov.au

Hawkesbury City Council

366 George Street (PO Box 146) Windsor NSW 2756 DX 8601 WINDSOR
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Hawkesbury Local Environmental Plan 2012

Annexure to Planning Certificates issued under Section 10.7(2) and (5) of the Environmental Planning and Assessment Act 1979

Land Use Table

Note: A type of development referred to in the Land Use Table is a reference to that type of development only to the extent it is not regulated by an applicable State Environmental Planning Policy. Please refer to the State Environmental Planning Policies (SEPPs) and Sydney Regional Environmental Plans (SREPs) listed in Question 1.1 of the Planning Certificate to determine if additional permissibility's or prohibitions apply to development under these Policies.

Zone RU1 Primary Production

1. Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage agricultural activities that do not rely on highly fertile land.
- To ensure that development occurs in a way that does not have a significant adverse effect on water catchments, including surface and groundwater quality and flows, land surface conditions and important ecosystems such as waterways.
- To promote the conservation and enhancement of local native vegetation including the habitat of threatened species, populations and ecological communities by encouraging development to occur in areas already cleared of vegetation.
- To ensure that development retains or enhances existing landscape values including a distinctive agricultural component.
- To ensure that development does not detract from the existing rural character or create unreasonable demands for the provision or extension of public amenities and services.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Extensive agriculture; Home occupations

3. Permitted with consent

Animal boarding or training establishments; Aquaculture; Boarding houses; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Cemeteries; Centre-based child care facilities; Charter and tourism boating facilities; Community facilities; Correctional centres; Crematoria; Dual occupancies (attached); Dwelling houses; Educational establishments; Entertainment facilities; Environmental facilities; Extractive industries; Farm buildings; Flood mitigation works; Food and drink premises; Forestry; Funeral homes; Health consulting rooms; Helipads; Heliports; Home-based child care; Home industries; Hospitals; Intensive livestock agriculture; Intensive plant agriculture; Jetties; Landscaping material supplies; Moorings; Open cut mining; Places of public worship; Plant nurseries; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Tourist and visitor accommodation; Truck depots; Veterinary hospitals; Water recreation structures; Water storage facilities

4. Prohibited

Any development not specified in item 2 or 3.

Zone RU2 Rural Landscape

1. Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses in the zone and land uses in adjoining zones.
- To ensure that development occurs in a way that does not have a significant adverse effect on water catchments, including surface and groundwater quality and flows, land surface conditions and important ecosystems such as waterways.
- To ensure that development retains or enhances existing landscape values including a distinctive agricultural component.
- To preserve the river valley systems, scenic corridors, wooded ridges, escarpments, environmentally sensitive areas and other features of scenic quality.
- To ensure that development does not detract from the existing rural character or create unreasonable demands for the provision or extension of public amenities and services.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Extensive agriculture; Home occupations

3. Permitted with consent

Agriculture; Animal boarding or training establishments; Aquaculture; Boat sheds; Building identification signs; Business identification signs; Cemeteries; Charter and tourism boating facilities; Crematoria; Dual occupancies (attached); Dwelling houses; Educational establishments; Entertainment facilities; Environmental facilities; Farm buildings; Farm stay accommodation; Flood mitigation works; Forestry; Funeral homes; Helipads; Home-based child care; Home industries; Jetties; Landscaping material supplies; Moorings; Places of public worship; Plant nurseries; Recreation areas; Restaurants or cafes; Roads; Roadside stalls; Rural industries; Rural supplies; Rural workers' dwellings; Water recreation structures; Water storage facilities.

4. Prohibited

Any development not specified in item 2 or 3.

Zone RU4 Primary Production Small Lots

1. Objectives of zone

- To enable sustainable primary industry and other compatible land uses.
- To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To ensure that development occurs in a way that does not have a significant adverse effect on water catchments, including surface and groundwater quality and flows, land surface conditions and important ecosystems such as waterways.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Extensive agriculture; Home occupations.

3. Permitted with consent

Animal boarding or training establishments; Aquaculture; Boarding houses; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Cemeteries; Centre-based child care facilities; Charter and tourism boating facilities; Community facilities; Dual occupancies (attached); Dwelling houses; Educational establishments; Entertainment facilities; Environmental facilities; Farm buildings; Flood mitigation works; Food and drink premises; Home-based child care; Home industries; Intensive livestock agriculture; Intensive plant agriculture; Jetties; Landscaping material supplies; Moorings; Places of public worship; Plant nurseries; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Roadside stalls; Rural supplies; Rural workers' dwellings; Tourist and visitor accommodation; Veterinary

hospitals; Water recreation structures; Water storage facilities

4. Prohibited

Any development not specified in item 2 or 3.

Zone RU5 Village

1. Objectives of zone

- To provide for a range of land uses, services and facilities that are associated with a rural village.
- To maintain the rural character of the village and ensure buildings and works are designed to be in sympathy with the character of the village.
- To protect hilltops, ridge lines, river valleys, rural landscape and other local features of scenic significance.
- To ensure that development does not detract from the existing rural character or create unreasonable demands for the provision or extension of public amenities and services.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Home occupations.

3. Permitted with consent

Boarding houses; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies (attached); Dwelling houses; Educational establishments; Entertainment facilities; Environmental facilities; Flood mitigation works; Food and drink premises; Home-based child care; Home industries; Jetties; Landscaping material supplies; Moorings; Neighbourhood shops; Oyster aquaculture; Places of public worship; Plant nurseries; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Roadside stalls; Rural supplies; Schools; Tank-based aquaculture; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Water storage facilities.

4. Prohibited

Pond-based aquaculture Any development not specified in item 2 or 3.

Zone R1 General Residential

1. Objectives of zone

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Home occupations

3. Permitted with consent

Animal boarding or training establishments; Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Community facilities; Dwelling houses; Educational establishments; Environmental facilities; Exhibition homes; Flood mitigation works; Group homes; Home-based child care; Home industries; Hostels; Multi dwelling housing; Neighbourhood shops; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Residential accommodation; Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Tourist and visitor accommodation; Veterinary hospitals; Water storage facilities.

4. Prohibited

Rural workers' dwellings; Any other development not specified in item 2 or 3.

Zone R2 Low Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To protect the character of traditional residential development and streetscapes.
- To ensure that new development retains and enhances that character.
- To ensure that development is sympathetic to the natural environment and ecological processes of the area.
- To enable development for purposes other than residential only if it is compatible with the character of the living area and has a domestic scale.
- To ensure that water supply and sewage disposal on each resultant lot of a subdivision is provided to the satisfaction of the Council.
- To ensure that development does not create unreasonable demands for the provision or extension of public amenities or services.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Home occupations.

3. Permitted with consent

Animal boarding or training establishments; Boarding houses; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Community facilities; Dwelling houses; Educational establishments; Environmental facilities; Exhibition homes; Exhibition villages; Extensive agriculture; Farm buildings; Flood mitigation works; Group homes; Health consulting rooms; Home-based child care; Home industries; Hospitals; Neighbourhood shops; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Tank-based aquaculture; Tourist and visitor accommodation; Veterinary hospitals; Water storage facilities.

4. Prohibited

Any development not specified in item 2 or 3.

Zone R3 Medium Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a medium density residential environment.
- To provide a variety of housing types within a medium density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To provide a wide range of housing choices in close proximity to commercial centres and railway stations.
- To ensure that development is sympathetic to the natural amenity and ecological processes of the area.
- To ensure that development does not create unreasonable demands for the provision or extension of public amenities or services.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Home occupations.

3. Permitted with consent

Animal boarding or training establishments; Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Environmental facilities; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Home industries; Hostels; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Tank-based aquaculture; Tourist and visitor accommodation; Veterinary hospitals; Water storage facilities.

4. Prohibited

Pond-based aquaculture; Any development not specified in item 2 or 3.

Zone R5 Large Lot Residential

1. Objectives of zone

- To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.
- To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future.
- To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To provide primarily for low density residential housing and associated facilities.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Home occupations.

3. Permitted with consent

Animal boarding or training establishments; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Community facilities; Dwelling houses; Educational establishments; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extensive agriculture; Farm buildings; Flood mitigation works; Home-based child care; Home industries; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Tank-based aquaculture; Tourist and visitor accommodation; Veterinary hospitals; Water storage facilities.

4. Prohibited

Any development not specified in item 2 or 3.

Zone B1 Neighbourhood Centre

1. Objectives of zone

- To provide a range of small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood.
- To promote the development and expansion of business activities to meet the optimum employment and social needs of Hawkesbury.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Home occupations.

3. Permitted with consent

Boarding houses; Business premises; Centre-based child care facilities; Community facilities; Home industries; Medical centres; Neighbourhood shops; Neighbourhood supermarkets; Oyster aquaculture; Respite day care centres; Roads; Shop top housing; Tank-based aquaculture; Any other development not specified in item 2 or 4.

4. Prohibited

Airports; Airstrips; Biosolids treatment facilities; Boat building and repair facilities; Boat sheds; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Extensive agriculture; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Hostels; Industrial retail outlets; Industries; Intensive livestock agriculture; Intensive plant agriculture; Jetties; Marinas; Moorings; Open cut mining; Pond-based aquaculture Recreation facilities (major); Research stations; Resource recovery facilities; Restricted premises; Rural industries; Rural workers' dwellings; Sewage treatment plants; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities.

Zone B2 Local Centre

1. Objectives of zone

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.
- To encourage employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To promote the development and expansion of business activities to meet the optimum employment and social needs of Hawkesbury.

2. Permitted without consent

Environmental protection works; Home occupations.

3. Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Home industries; Information and education facilities; Medical centres; Oyster aquaculture; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Service stations; Shop top housing; Tank-based aquaculture; Tourist and visitor accommodation; Any other development not specified in item 2 or 4.

4. Prohibited

Airports; Airstrips; Biosolids treatment facilities; Boat building and repair facilities; Boat sheds; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Extensive agriculture; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Home occupations (sex services); Hostels; Industrial retail outlets; Industries; Intensive livestock agriculture; Intensive plant agriculture; Jetties; Marinas; Moorings; Open cut mining; Pond-based aquaculture Recreation facilities (major); Research stations; Resource recovery facilities; Rural industries; Rural workers' dwellings; Sewage treatment plants; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities.

Zone B5 Business Development

1. Objectives of zone

- To enable a mix of business and warehouse uses, and specialised retail premises that require a large floor area, in locations that are close to, and that support the viability of, centres.
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.

2. Permitted without consent

Environmental protection works; Home occupations.

3. Permitted with consent

Centre-based child care facilities; Funeral homes; Garden centres; Hardware and building supplies; Landscaping material supplies; Neighbourhood shops; Oyster aquaculture; Passenger transport facilities; Respite day care centres; Roads; Specialised retail premises; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 4.

4. Prohibited

Airports; Airstrips; Amusement centres; Biosolids treatment facilities; Boat sheds; Business premises; Camping grounds; Car parks; Caravan parks; Cellar door premises; Cemeteries; Charter and tourism boating facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; General industries; Hazardous storage establishments; Heavy industries; Highway service centres; Home businesses; Home-based child care; Home industries; Home occupations (sex services); Intensive livestock agriculture; Intensive plant agriculture; Jetties; Kiosks; Marinas; Markets; Moorings; Offensive storage establishments; Office premises; Pond-based aquaculture Recreation facilities (major); Research stations; Residential accommodation; Resource recovery facilities; Restricted premises; Roadside stalls; Sawmill or log processing works; Sewage treatment plants; Sex services premises; Shops; Tourist and visitor accommodation; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water storage facilities; Water treatment facilities; Wholesale supplies; Water recycling facilities.

Zone B6 Enterprise Corridor

1. Objectives of zone

- To promote businesses along main roads and to encourage a mix of compatible uses.
- To provide a range of employment uses (including business, office, retail and light industrial uses).
- To maintain the economic strength of centres by limiting retailing activity.

2. Permitted without consent

Environmental protection works; Home occupations.

3. Permitted with consent

Business premises; Community facilities; Garden centres; Hardware and building supplies; Hotel or motel accommodation; Landscaping material supplies; Light industries; Neighbourhood shops; Oyster aquaculture; Passenger transport facilities; Plant nurseries; Roads; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 4.

4. Prohibited

Airports; Airstrips; Backpackers' accommodation; Bed and breakfast accommodation; Biosolids treatment facilities; Boat building and repair facilities; Boat sheds; Cellar door premises; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Extensive agriculture; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; General industries; Heavy industrial storage establishments; Heavy industries; Highway service centres; Home-based child care; Home occupations (sex services); Intensive livestock agriculture; Intensive plant agriculture; Jetties; Marinas; Markets; Moorings; Open cut mining; Pond-based aquaculture Recreation facilities (major); Research stations; Residential accommodation; Resource recovery facilities; Roadside stalls; Rural industries; Sewage treatment plants; Sex services premises; Shops; Storage premises; Transport depots; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water storage facilities; Water treatment facilities.

Zone IN1 General Industrial

1. Objectives of zone

- To provide a wide range of industrial and warehouse land uses.
- To encourage employment opportunities.
- To minimise any adverse effect of industry on other land uses.
- To support and protect industrial land for industrial uses.
- To allow commercial development for:

(a) uses ancillary to the main use of land in the zone, and
(b) the day-to-day needs of the occupants and employees of the surrounding industrial area.
- To ensure that industrial development creates areas that are pleasant to work in and safe and efficient in terms of transportation, land utilisation and services distribution.

2. Permitted without consent

Environmental protection works; Home occupations.

3. Permitted with consent

Depots; Freight transport facilities; Funeral homes; Garden centres; General industries; Hardware and building supplies; Health consulting rooms; Hospitals; Industrial training facilities; Light industries; Neighbourhood shops; Oyster aquaculture; Places of public worship; Roads; Tank-based aquaculture; Warehouse or distributions centres; Any other development not specified in item 2 or 4.

4. Prohibited

Airports; Airstrips; Amusement centres; Boat sheds; Business premises; Camping grounds; Car parks; Caravan parks; Cellar door premises; Cemeteries; Charter and tourism boating facilities; Educational establishments; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Hazardous storage establishments; Health services facilities; Highway service centres; Home-based child care; Home businesses; Home occupations (sex services); Intensive livestock agriculture; Intensive plant agriculture; Jetties; Kiosks; Marinas; Markets; Moorings; Offensive storage establishments; Office premises; Pond-based aquaculture Recreation facilities (major); Research stations; Residential accommodation; Restricted premises; Roadside stalls; Sex services premises; Shops; Specialised retail premises; Tourist and visitor accommodation; Water recreation structures; Wholesale supplies.

Zone IN2 Light Industrial

1. Objectives of zone

- To provide a wide range of light industrial, warehouse and related land uses.
- To encourage employment opportunities and to support the viability of centres.
- To minimise any adverse effect of industry on other land uses.
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.
- To support and protect industrial land for industrial uses.
- To ensure that industrial development creates areas that are pleasant to work in and safe and efficient in terms of transportation, land utilisation and services distribution

2. Permitted without consent

Environmental protection works; Home occupations.

3. Permitted with consent

Depots; Funeral homes; Garden centres; Hardware and building supplies; Health consulting rooms; Hospitals; Industrial training facilities; Light industries; Neighbourhood shops; Oyster aquaculture; Places of public worship; Roads; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 4.

4. Prohibited

Airports; Airstrips; Amusement centres; Biosolids treatment facilities; Boat sheds; Business premises; Camping grounds; Car parks; Caravan parks; Cellar door premises; Cemeteries; Charter and tourism boating facilities; Educational establishments; Exhibition homes; Exhibition villages; Farm buildings; Forestry; General industries; Hazardous storage establishments; Health services facilities; Heavy industries; Highway service centres; Home-based child care; Home businesses; Home occupations (sex services); Intensive livestock agriculture; Intensive plant agriculture; Jetties; Kiosks; Marinas; Markets; Moorings; Offensive storage establishments; Office premises; Pond-based aquaculture Recreation facilities (major); Research stations; Residential accommodation; Resource recovery facilities; Restricted premises; Roadside stalls; Sawmill or log processing works; Sewage treatment plants; Sex services premises; Shops; Specialised retail premises; Tourist and visitor accommodation; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wholesale supplies.

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

Environmental protection works; Home occupations.

3. Permitted with consent

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

4. Prohibited

Any development not specified in item 2 or 3.

Zone SP2 Infrastructure

1. Objectives of zone

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

2. Permitted without consent

Environmental protection works; Home occupations.

3. Permitted with consent

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

4. Prohibited

Any development not specified in item 2 or 3.

Zone RE1 Public Recreation

1. Objectives of zone

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To protect and enhance the natural environment for environmental purposes.
- To restrict development on land required for future open space purposes.

2. Permitted without consent

Environmental protection works.

3. Permitted with consent

Aquaculture; Boat sheds; Centre-based child care facilities; Charter and tourism boating facilities; Community facilities; Environmental facilities; Extensive agriculture; Farm buildings; Flood mitigation works; Food and drink premises; Forestry; Helipads; Information and education facilities; Jetties; Kiosks; Markets; Moorings; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Respite day care centres; Roads; Signage; Water recreation structures; Water storage facilities.

4. Prohibited

Any development not specified in item 2 or 3.

Zone RE2 Private Recreation

1. Objectives of zone

- To enable land to be used for private open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.

2. Permitted without consent

Environmental protection works.

3. Permitted with consent

Aquaculture; Boat sheds; Centre-based child care facilities; Charter and tourism boating facilities; Community facilities; Environmental facilities; Extensive agriculture; Farm buildings; Flood mitigation works; Food and drink premises; Helipads; Information and education facilities; Jetties; Kiosks; Markets; Moorings; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Signage; Water recreation structures; Water storage facilities.

4. Prohibited

Any development not specified in item 2 or 3.

Zone E1 National Parks and Nature Reserves

1. Objectives of zone

- To enable the management and appropriate use of land that is reserved under the National Parks and Wildlife Act 1974 or that is acquired under Part 11 of that Act.
- To enable uses authorised under the National Parks and Wildlife Act 1974.
- To identify land that is to be reserved under the National Parks and Wildlife Act 1974 and to protect the environmental significance of that land.

2. Permitted without consent

Uses authorised under the National Parks and Wildlife Act 1974.

3. Permitted with consent

Nil.

4. Prohibited

Any development not specified in item 2 or 3.

Zone E2 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 wetland areas from development that could adversely affect their preservation and conservation.
- To preserve wetland areas as habitats for indigenous and migratory wildlife.

2. Permitted without consent

Nil.

3. Permitted with consent

Environmental facilities; Environmental protection works; Flood mitigation works; Oyster aquaculture Recreation areas; Roads; Water storage facilities.

4. Prohibited

Business premises; Hotel or motel accommodation; Industries; 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.

Zone E3 Environmental Management

1. Objectives of zone

- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- To provide for a limited range of development that does not have an adverse effect on those values.
- To protect varieties of wildlife and their associated habitats and corridors.
- To retain the visual and scenic qualities of the escarpment ridges and foot slopes.
- To ensure that development occurs in a way that does not have a significant adverse effect on water catchments, including surface and groundwater quality and flows, land surface conditions and important ecosystems such as waterways.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Home occupations.

3. Permitted with consent

Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Community facilities; Correctional centres; Dual occupancies (attached); Dwelling houses; Educational establishments; Entertainment facilities; Environmental facilities; Extensive agriculture; Farm buildings; Flood mitigation works; Health consulting rooms; Helipads; Home-based child care; Home industries; Hospitals; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Roadside stalls; Tank-based aquaculture; Tourist and visitor accommodation; Veterinary hospitals; Water storage facilities.

4. Prohibited

Industries; Multi dwelling housing; Residential flat buildings; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3.

Zone E4 Environmental Living

1. Objectives of zone

- To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values.
- To ensure that residential development does not have an adverse effect on those values.
- To restrict development on land that is inappropriate for development because of its physical characteristics or bushfire risk.
- To ensure that land uses are compatible with existing infrastructure, services and facilities and with the environmental capabilities of the land.
- To encourage existing sustainable agricultural activities.
- To ensure that development does not create or contribute to rural land use conflicts.
- To promote the conservation and enhancement of local native vegetation, including the habitat of threatened species, populations and ecological communities by encouraging development to occur in areas already cleared of vegetation.
- To ensure that development occurs in a way that does not have a significant adverse effect on water catchments, including surface and groundwater quality and flows, land surface conditions and important ecosystems such as waterways.

2. Permitted without consent

Bed and breakfast accommodation; Environmental protection works; Extensive agriculture; Home occupations.

3. Permitted with consent

Animal boarding or training establishments; Boarding houses; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Charter and tourism boating facilities; Community facilities; Dual occupancies (attached); Dwelling houses; Educational establishments; Entertainment facilities; Environmental facilities; Farm buildings; Flood mitigation works; Food and drink premises; Forestry; Health consulting rooms; Helipads; Heliports; Home-based child care; Home industries; Hospitals; Intensive livestock agriculture; Intensive plant agriculture; Jetties; Landscaping material supplies; Moorings; Oyster aquaculture; Passenger transport facilities; Places of public worship; Plant nurseries; Pond-based aquaculture; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Roadside stalls; Rural supplies; Rural workers' dwellings; Sawmill or log processing works; Stock and sale yards; Tank-based aquaculture; Tourist and visitor accommodation; Transport depots; Truck depots; Veterinary hospitals; Water recreation structures; Water storage facilities.

4. Prohibited

Industries; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3.

Zone W1 Natural Waterways

1. Objectives of zone

- To protect the ecological and scenic values of natural waterways.
- To prevent development that would have an adverse effect on the natural values of waterways in this zone.
- To provide for sustainable fishing industries and recreational fishing.

2. Permitted without consent

Nil.

3. Permitted with consent

Aquaculture; Environmental facilities; Environmental protection works; Flood mitigation works; Jetties; Moorings; Water recreation structures.

4. Prohibited

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

Zone W2 Recreational Waterways

1. Objectives of zone

- To protect the ecological, scenic and recreation values of recreational waterways.
- To allow for water-based recreation and related uses.
- To provide for sustainable fishing industries and recreational fishing.

2. Permitted without consent

Nil.

3. Permitted with consent

Aquaculture; Boat sheds; Building identification signs; Business identification signs; Charter and tourism boating facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Jetties; Kiosks; Marinas; Moorings; Mooring pens; Recreation areas; Recreation facilities (outdoor); Water recreation structures.

4. Prohibited

Industries; Multi dwelling housing; Residential flat buildings; Seniors housing; Warehouse or distribution centres; Any other development not specified in item 2 or 3.

Privacy Notice

Council is bound by the provisions of the Privacy and Personal Information Protection Act 1998, in the collection, storage and utilisation of personal information provided in this form. Accordingly, the personal information will only be utilised for the purposes for which it has been obtained and may be available for public access and/or disclosure under various NSW Government legislation.

Hawkesbury City Council

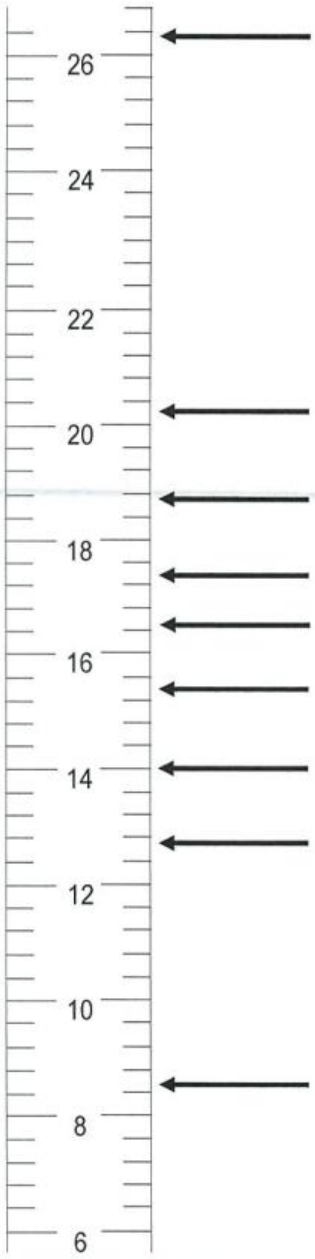
366 George Street (PO Box 146) Windsor NSW 2756 DX 8601 WINDSOR
Phone: (02) 4560 4444 **Facsimile:** (02) 4587 7740 **Email:** council@hawkesbury.nsw.gov.au

Flood Awareness - City of Hawkesbury

North Richmond

Please note that there is a risk of flooding above Council's residential floor height control. The table below indicates levels to Australian Height Datum (above sea level) for estimated flooding probabilities and historical flood peaks.

Flood chance of occurrence per year and historical floods



26.5m	1 in 100,000 chance per year (Probable Maximum Flood)
20.4m	1 in 500 chance per year
18.9m	1 in 200 chance per year
17.5m	1 in 100 chance per year - Residential Floor Standard
16.4m	1 in 50 chance per year
15.3m	1 in 20 chance per year
14.0m	1 in 10 chance per year
12.5m	1 in 5 chance per year

Please Note: Figures are average estimated occurances

8.4m	Level of North Richmond Bridge

Flood heights obtained from *Engineering Studies to Modify Flood Behaviour*, September 1997, prepared by Webb, McKeown & Associates Pty Ltd for the Hawkesbury-Nepean Floodplain Management Strategy Steering Committee. Flood heights reproduced in Table: 2.3 Design Flood Levels of the Hawkesbury *Floodplain Risk Management Study and Plan*, December 2012, prepared by Bewsher Consulting Pty Ltd for Hawkesbury City Council.

January 2016

Hawkesbury City Council

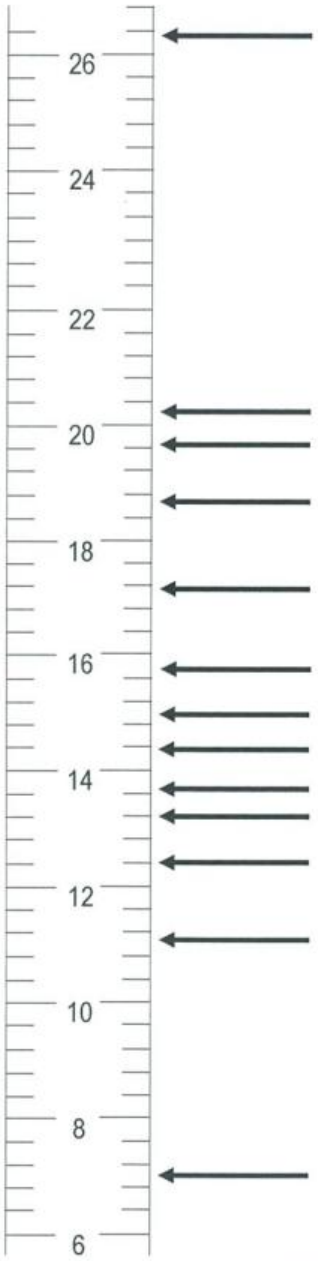
366 George Street (PO Box 146) Windsor NSW 2756 DX 8601 WINDSOR
Phone: (02) 4560 4444 **Facsimile:** (02) 4587 7740 **Email:** council@hawkesbury.nsw.gov.au

Flood Awareness - City of Hawkesbury

Windsor

Please note that there is a risk of flooding above Council's residential floor height control. The table below indicates levels to Australian Height Datum (above sea level) for estimated flooding probabilities and historical flood peaks.

Flood chance of occurrence per year and historical floods



26.4m	1 in 100,000 chance per year (Probable Maximum Flood)
20.2m	1 in 500 chance per year
19.7m	June 1867 flood peak
18.7m	1 in 200 chance per year
17.3m	1 in 100 chance per year - Residential Floor Standard
15.7m	1 in 50 chance per year
14.95m	November 1961 flood peak
14.46m	March 1978 flood peak
13.7m	1 in 20 chance per year
13.5m	August 1990 flood peak
12.3m	1 in 10 chance per year
11.1m	1 in 5 chance per year
7.0m	Level of Windsor Bridge

Please Note: Figures are average estimated occurances

Flood heights obtained from *Engineering Studies to Modify Flood Behaviour*, September 1997, prepared by Webb, McKeown & Associates Pty Ltd for the Hawkesbury-Nepean Floodplain Management Strategy Steering Committee. Flood heights reproduced in Table: 2.3 Design Flood Levels of the Hawkesbury *Floodplain Risk Management Study and Plan*, December 2012, prepared by Bewsher Consulting Pty Ltd for Hawkesbury City Council.

January 2016

Appendix E
HISTORICAL TITLE SEARCH

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

LPI **Sydney**

Address: - 235 Grose Vale Road, North Richmond

Description: - Lot 11 D.P. 1134453

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
26.07.1928 (1928 to 1937)	Philip Charley (Grazier)	Vol 4172 Fol 139
29.06.1937 (1937 to 1951)	Clifford Grahame (Grazier)	Vol 4172 Fol 139 Now Vol 4872 Fol 44
07.11.1951 (1951 to 1952)	Mildred MacDonald (Widow)	Vol 4872 Fol 44
11.01.1952 (1952 to 2009)	The Trustees of The Hospitaller Brothers of St John of God	Vol 4872 Fol 44 Now 11/1134453
25.06.2009 (2009 to date)	# St John of Good Health Care Inc	11/1134453

# Denotes Current Registered Proprietors

Easements: - NIL

Leases: -

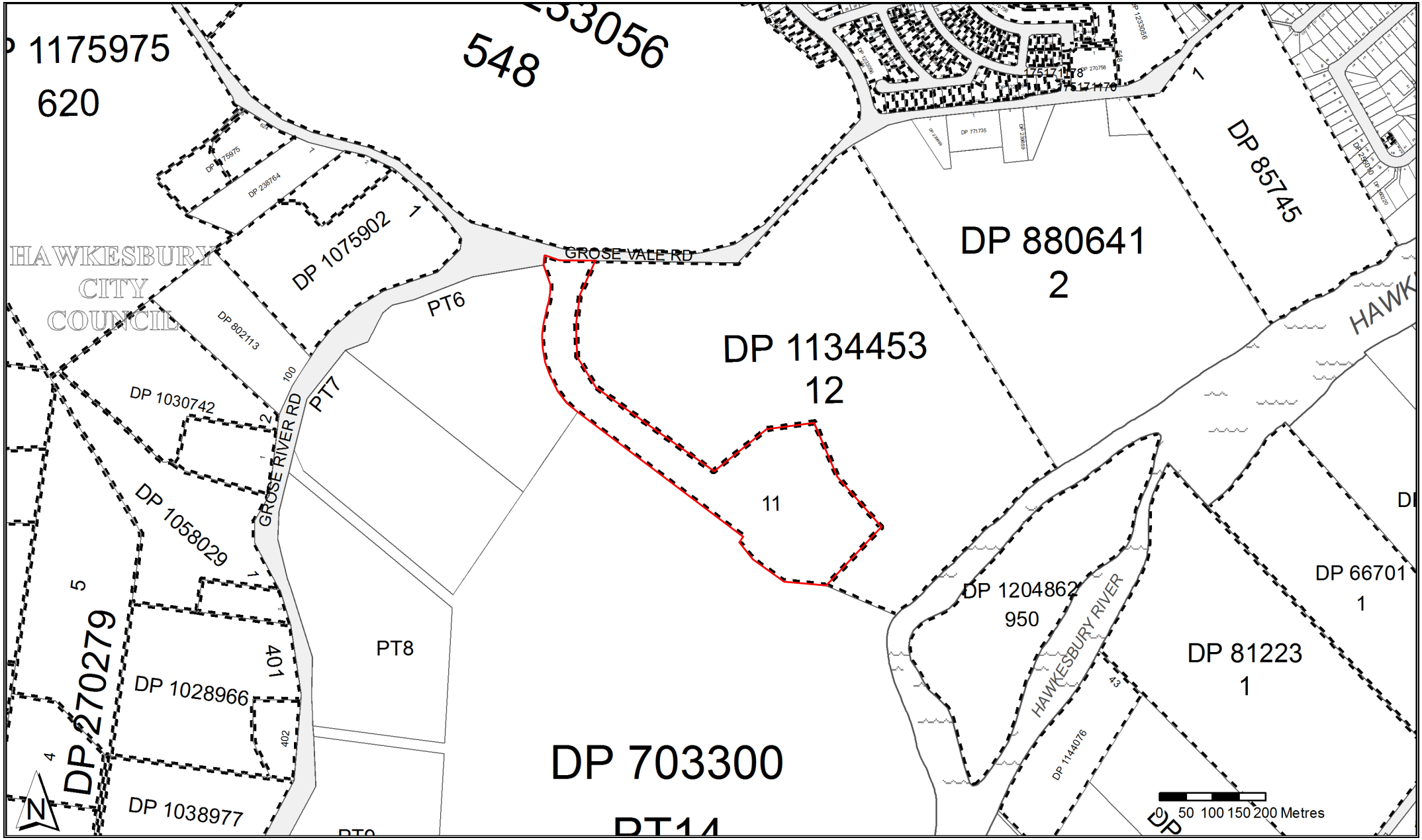
- Various leases were found from 21.03.1994 that have since expired – not investigated.

Yours Sincerely
Mark Groll
13 December 2019

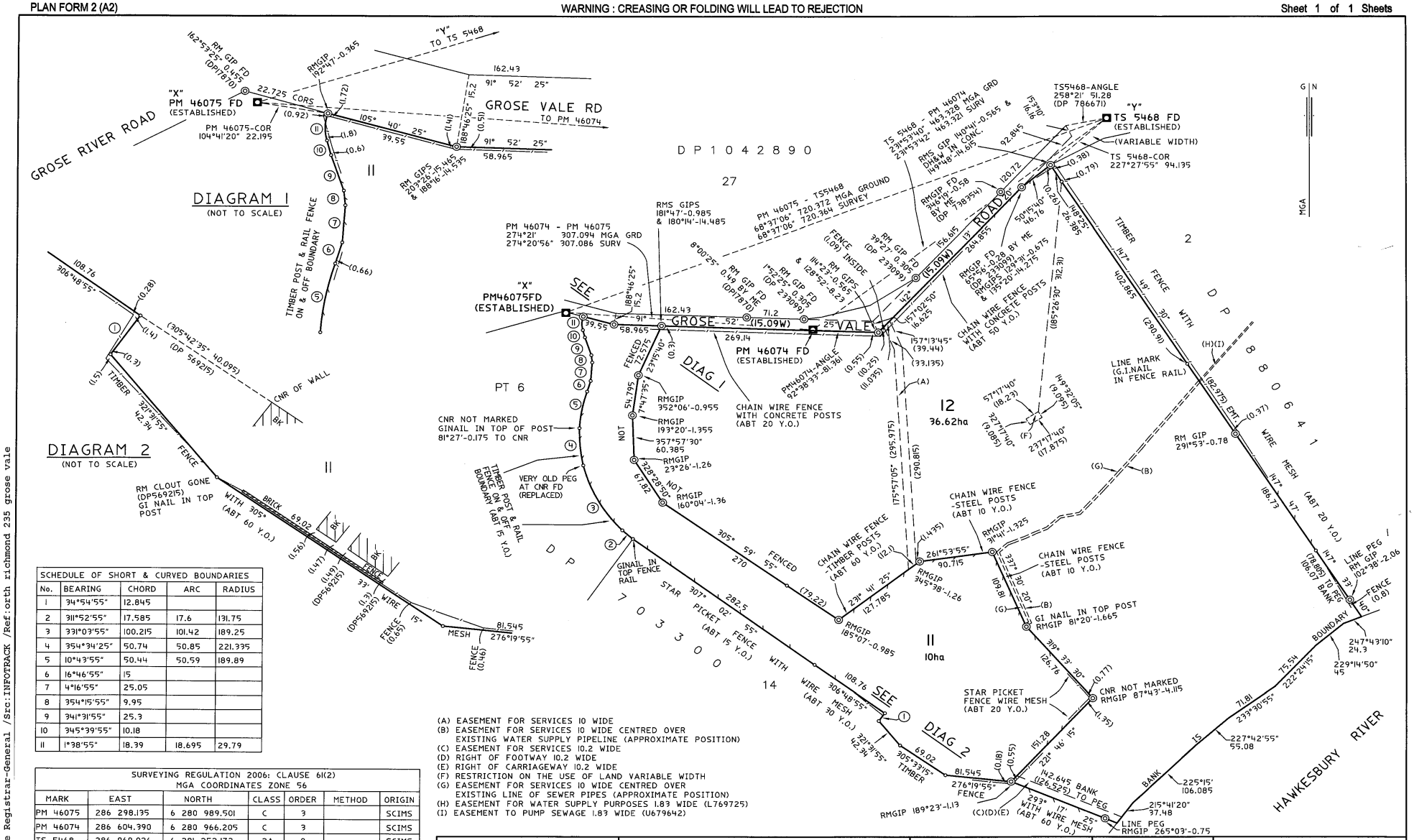
Cadastral Records Enquiry Report : Lot 11 DP 1134453

Ref : orth richmond 235 grose vale

Locality : NORTH RICHMOND
Parish : KURRAJONG
LGA : HAWKESBURY
County : COOK



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



SCHEDULE OF SHORT & CURVED BOUNDARIES				
No.	BEARING	CHORD	ARC	RADIUS
1	34°54'55"	12.845		
2	311°52'55"	17.585	17.6	131.75
3	331°03'55"	100.215	101.42	189.25
4	354°34'25"	50.74	50.85	221.335
5	10°43'55"	50.44	50.59	189.89
6	16°46'55"	15		
7	4°16'55"	25.05		
8	354°15'55"	9.95		
9	341°31'55"	26.3		
10	345°39'55"	10.18		
11	1°38'55"	18.39	18.695	29.79

SURVEYING REGULATION 2006: CLAUSE 61(2) MGA COORDINATES ZONE 56						
MARK	EAST	NORTH	CLASS	ORDER	METHOD	ORIGIN
PM 46075	286 298.135	6 280 989.501	C	3		SCIMS
PM 46074	286 604.390	6 280 966.205	C	3		SCIMS
TS 5468	286 969.026	6 281 252.173	2A	0		SCIMS
COMBINED SEA LEVEL & SCALE FACTOR 1.000150 SOURCE: MGA COORDINATES ADOPTED FROM SCIMS ON 15/05/2008						

(A) EASEMENT FOR SERVICES 10 WIDE
(B) EASEMENT FOR SERVICES 10 WIDE CENTRED OVER EXISTING WATER SUPPLY PIPELINE (APPROXIMATE POSITION)
(C) EASEMENT FOR SERVICES 10.2 WIDE
(D) RIGHT OF FOOTWAY 10.2 WIDE
(E) RIGHT OF CARRIAGEWAY 10.2 WIDE
(F) RESTRICTION ON THE USE OF LAND VARIABLE WIDTH
(G) EASEMENT FOR SERVICES 10 WIDE CENTRED OVER EXISTING LINE OF SEWER PIPES (APPROXIMATE POSITION)
(H) EASEMENT FOR WATER SUPPLY PURPOSES 1.83 WIDE (L769725)
(I) EASEMENT TO PUMP SEWAGE 1.83 WIDE (U679642)

Surveyor : PETER GABRIEL FRIEDMANN Date of Survey : 27.5.08 Surveyor's Ref : 25574RH GROSE 040908	**PLAN OF SUBDIVISION OF LOT 1 IN DP 569215**	LGA : HAWKESBURY Locality : NORTH RICHMOND Subdivision No : 0805 / Lengths are in metres. Reduction Ratio 1 : 3000	Registered 22.1.2009	DP1134453 P

00 10 20 30 40 50 60 Table of mm 90 100 110 120 130 140

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 2 Sheet(s)

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 as amended it is intended to create:

1) EASEMENT FOR SERVICES 10 WIDE (A)
2) EASEMENT FOR SERVICES 10 WIDE CENTRED OVER EXISTING WATER SUPPLY PIPELINE (B)
3) EASEMENT FOR SERVICES 10.2 WIDE (C)
4) RIGHT OF FOOTWAY 10.2 WIDE (D)
5) RIGHT OF CARRIAGEWAY 10.2 WIDE (E)
6) RESTRICTION ON THE USE OF LAND VARIABLE WIDTH (F)
7) EASEMENT FOR SERVICES 10 WIDE CENTRED OVER EXISTING LINE OF SEWER PIPES (G)

The Trustees of The Hospitaller Brothers of St. John of God

I G Grahe Provincial

John Clegg Councillor

Councillor

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 has 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 SUBDIVISION set out herein
(insert 'subdivision' or 'new road')

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

Consent Authority: HAWKESBURY CITY COUNCIL
Date of Endorsement: 4 DECEMBER 2008
~~Accreditation no~~: .....
Subdivision Certificate no: 08051
File no: DA0503/07

* Delete whichever is inapplicable

DP1134453 S

* OFFICE USE ONLY

Registered : 22.1.2009
Title System : TORRENS
Purpose : SUBDIVISION

PLAN OF SUBDIVISION OF LOT 1 IN DP 569215

LGA : HAWKESBURY
Locality : NORTH RICHMOND
Parish : KURRAJONG
County : COOK

Surveying Regulation, 2006

I, PETER GABRIEL FRIEDMANN
HARRISON FRIEDMANN & ASSOC P/L
of PO BOX 99 JANNALI NSW 2226
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 27.5.2008

The survey relates to LOTS 11 & 12

(specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

Signature ..... *Dated* : 26/9/08
Surveyor registered under the Surveying Act, 2002

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

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

DP 569215
DP 17870
DP 703300
DP 233099
DP 738354
DP 880641
DP 786671

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

SURVEYOR'S REFERENCE : 25574RH GROSE 040908

DEPOSITED PLAN ADMINISTRATION SHEET

PLAN OF SUBDIVISION OF LOT 1 IN DP 569215

DP1134453

Registered : 22.1.2009

* OFFICE USE ONLY

Subdivision Certificate No: 08051

Date of Endorsement: 4 DECEMBER 2008

SURVEYOR'S REFERENCE : 25574RH GROSE 040908

12974249

[redacted]ICATE OF TITLE

NEW SOUTH WALES

[redacted] PROPERTY ACT, 1900

Appln. No.7816 (part)

Prior Titles Vol.4872 Fol. 44
Vol.4830 Fol. 49

Vol. 12974 Fol. 249

EDITION ISSUED

23 1 1976

(Page 1) Vol. 12974 Fol. 249

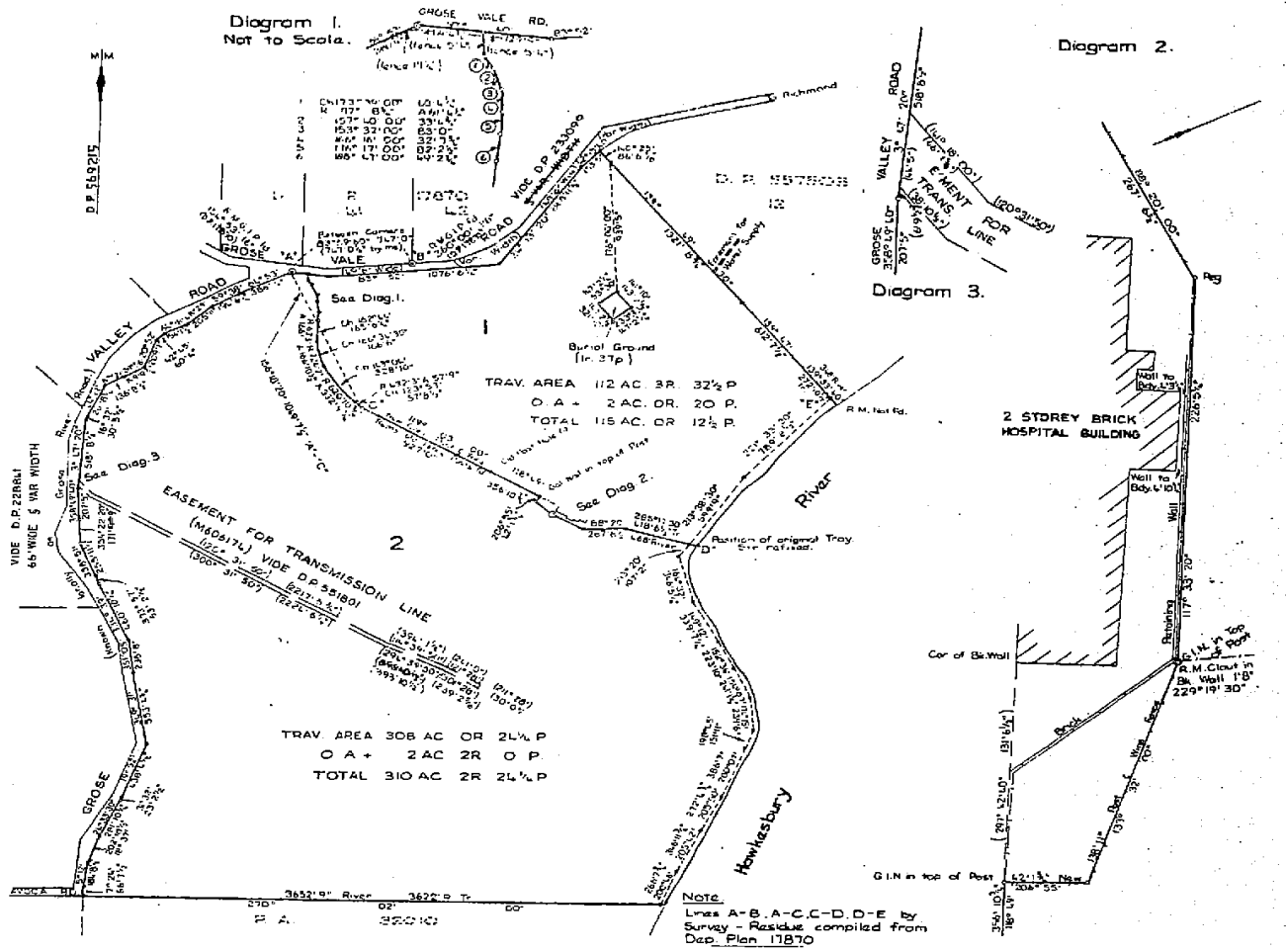
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED

Registrar General

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 569215 at North Richmond in the Shire of Colo Parish of Kurrajong and County of Cook being part of Portions 43 and 241 separately granted to Archibald Bell on 1-1-1810 and part of 1.356 hectares granted by Crown Grant Volume 1129 Folio 55. EXCEPTING THEREOUT the minerals reserved by Crown Grant Volume 1129 Folio 55.

FIRST SCHEDULE

THE TRUSTEES OF THE HOSPITALLER BROTHERS OF ST.JOHN OF GOD.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. Easement for Water Supply Purposes created by Transfer No.L769725 appurtenant to the part of the land above described formerly comprised in Certificate of Title Volume 4872 Folio 44 affecting the piece of land shown as "Site of Proposed Easement for Water Supply Purposes 6 feet wide" in plan lodged with Transfer No.L769725.

Vol. 12574 Fol. 249

1367230

X275115L

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
CANCELLED					
SEE AUTO FOLIO					

SECOND SCHEDULE (continued)

INSTRUMENT			PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
NATURE	NUMBER	DATE						
X275115P Lease to Tanilb			Pty. Limited of Lot 3 in plan X275115 Expires 15-11-1992 Registered	1-2-1988				

L

(Page 2 of 2 pages)

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

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
12/12/2019 9:36PM

FOLIO: 1/569215

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 12974 FOL 249

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
26/8/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
9/8/1993		AMENDMENT: LOCAL GOVT AREA	
21/3/1994	U97984	LEASE	EDITION 1
10/10/1994	U679642	TRANSFER GRANTING EASEMENT	
20/3/1995	O90530	TRANSFER GRANTING EASEMENT	
26/3/1999	5708233	LEASE	EDITION 2
30/10/2003	AA113799	LEASE	EDITION 3
29/6/2007	AD235398	CAVEAT	
22/1/2009	DP1134453	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

Received: 12/12/2019 21:36:21

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
12/12/2019 9:36PM

FOLIO: 11/1134453

First Title(s): OLD SYSTEM
Prior Title(s): 1/569215

Recorded	Number	Type of Instrument	C.T. Issue
22/1/2009	DP1134453	DEPOSITED PLAN	FOLIO CREATED EDITION 1
25/6/2009	AE773141	TRANSFER	EDITION 2
8/12/2009	AF177468	MORTGAGE	
8/12/2009	AF177469	MORTGAGE	EDITION 3
29/9/2011	AG529584	DISCHARGE OF MORTGAGE	EDITION 4
9/4/2018	AN247027	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 11/1134453

SEARCH DATE	TIME	EDITION NO	DATE
12/12/2019	9:35 PM	4	29/9/2011

LAND

LOT 11 IN DEPOSITED PLAN 1134453
AT NORTH RICHMOND
LOCAL GOVERNMENT AREA HAWKESBURY
PARISH OF KURRAJONG COUNTY OF COOK
TITLE DIAGRAM DP1134453

FIRST SCHEDULE

ST JOHN OF GOD HEALTH CARE INC (T AE773141)

SECOND SCHEDULE (12 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 LAND EXCLUDES MINERALS BY THE CROWN GRANT VOL 1129 FOL 55
3 L769725 EASEMENT FOR WATER SUPPLY 1.83 METRES WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE LAND SHOWN SO BURDENED IN THE PLAN WITH L769725
* 4 U679642 EASEMENT TO PUMP SEWAGE 1.83 METRES WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE LAND SHOWN SO BURDENED IN THE TITLE DIAGRAM
* 5 O90530 EASEMENT TO SEWAGE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE LAND DESIGNATED "EASEMENT FOR ACCESS VAR. WIDTH" IN DP786671
6 DP1134453 EASEMENT FOR SERVICES 10 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED
7 DP1134453 EASEMENT FOR SERVICES 10 METRE(S) WIDE CENTRED OVER EXISTING WATER SUPPLY PIPELINE APPURTENANT TO THE LAND ABOVE DESCRIBED
8 DP1134453 EASEMENT FOR SERVICES 10.2 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED
9 DP1134453 RIGHT OF FOOTWAY 10.2 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED
10 DP1134453 RIGHT OF CARRIAGEWAY 10.2 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED
11 DP1134453 EASEMENT FOR SERVICES 10 METRE(S) WIDE CENTRED OVER EXISTING LINE OF SEWER PIPES APPURTENANT TO THE LAND ABOVE DESCRIBED
* 12 AF177468 MORTGAGE TO PERPETUAL TRUSTEES CONSOLIDATED LIMITED

END OF PAGE 1 - CONTINUED OVER

FOLIO: 11/1134453 PAGE 2

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Appendix F
BORE LOGS

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH1

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 19/12/19 **COMPLETED** 19/12/19 **R.L. SURFACE** 63.5 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
							ASPHALT: 30 mm.		
						GW	Sandy GRAVEL: Brown, dry, medium to coarse sub angular gravel, basecoarse.	Environmental Sample	
	-		63.0	0.5			XW SHALE: Brown, dry, laminated, recovered as gravelly silt.	Environmental Sample	
			62.5	1.0				Environmental Sample	
			62.0	1.5				Environmental Sample	
							Borehole BH1 continued as cored hole		
			61.5	2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH1

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 19/12/19 **COMPLETED** 19/12/19 **R.L. SURFACE** 63.5 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	$Is_{(50)}$ MPa D- diametral A- axial	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
						Continued from non-cored borehole						
			61	2		SHALE: Grey and orange, moderately weathered, highly fractured, very low to low strength.	MW			36		EC - VC, 0-10 degrees, Pt, Sm, Fe.
						As above but light grey.						Jt 2.4 - 2.5, 80 degrees, Fe, Sm, Pln.
			60	3								Clay, 0 degrees. Jt 2.6 -2.7, 80 degrees, Sm, Fe,
			59	4						0		
	-			5						0		VC - C, 0-10 degrees, Pt, Sm, Fe.
			58	6						77		
	▼		57	7								
			56	8								
						BH1 terminated at 8m						
			55	9								
			54	10								

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH2

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 63.6 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
						ASPHALT: 30 mm.		
		63.5			ML	FILL: Sandy SILT with gravel: Brown, dry, fine to medium angular gravel, base coarse.		
							Environmental sample	
	-		0.5		GW-GM	XW SHALE: Grey and brown, dry, laminated, recovered as silty gravel with clay.	Environmental sample	
		63.0						
			1.0				Environmental sample	
						Borehole BH2 continued as cored hole		
		62.5						
			1.5					
		62.0						
			2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH2

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 63.6 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	$Is_{(50)}$ MPa D- diametral A- axial	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
					Continued from non-cored borehole						
	-	62	2		SHALE: Light grey and orange, moderatley weathered, low strength.	MW			42		VC, Pt, 0-5 degrees, Sm, Fe.
		61	3		As above but dark grey and orange, medium strength and highly fractured.						
		60	4						75		VC to C.
		59	5								
		58	6						81		
		57	7								
		56									
		55	8		BH2 terminated at 7.8m						
			9								

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH3

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 63.5 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-		63.0	0.5			ASPHALT: 20 mm. FILL: Sandy silty GRAVEL: Brown, dry, fine to medium angular gravel, base coarse.	Environmental sample	
								Environmental sample	
			62.5	1.0			Borehole BH3 continued as cored hole		
			62.0	1.5					
			61.5	2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH3

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 63.5 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	$Is_{(50)}$ MPa D- diametral A- axial	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
						Continued from non-cored borehole						
			62	1		SHALE : Grey with red stains, highly weathered, low to very low strength, highly fractured, thinely bedded.	HW			36		
						As above but dark grey.						
			61	2		SANDSTONE: Brown, fine to medium grained, medoeratley weathered.	MW					
						SHALE: Red, moderately weathered, low to very low strength.	MW					
	-		60	3								
			59	4						43		
			58	5		As above but slightly weathered.	SW					
	▼		57	6						60		
			56	7								
						BH3 terminated at 7.5m						
			55	8								
				9								

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH4

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 62.6 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
		62.5			GW	ASPHALT: 20 mm. FILL: Sandy silty GRAVEL: Dark brown, dry, fine to coarse angular gravel, base coarse.	Environmental sample and QA/QC samples	
	-	62.0	0.5		CL-ML	XW SHALE: Grey, dry, fine, laminated, recovered as silty CLAY/clayey SILT with gravel.	Environmental sample	
		61.5	1.0				Environmental sample	
		61.0	1.5			Borehole BH4 continued as cored hole	Environmental sample	
			2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH4

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 62.6 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	$Is_{(50)}$ MPa D- diametral A- axial	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
					Continued from non-cored borehole						
	-	61	2		SHALE: Light grey and orange, moderatley weathered, low strength.	MW			0		VC, BED, Sm, Fe.
		60	3						0		VC - C, Jt 60 degrees, Sm, Fe.
		59	4						0		
		58	5						0		
		57	6						0		
		56	7						0		
		55	8								
		54	9		BH4 terminated at 8.2m						
		53	10								

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH5

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 62.9 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-		62.5	0.5		ML	ASPHALT: 20 mm. FILL: Sandy SILT with gravel: Brown, dry, medium to coarse angular gravel.	UCS Environmental sample Environmental sample	
			62.0	1.0			Borehole BH5 continued as cored hole		
			61.5	1.5					
			61.0	2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH5

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 62.9 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	$Is_{(50)}$ MPa D- diametral A- axial	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
						Continued from non-cored borehole						
	-		62	1		SHALE: Light grey and orange, moderatley weathered, highly fractured.	MW			<A		EC, Pt.
						As above but dark grey and orange.						Jt, 30 degrees.
			61	2						58		VC, Pt.
			60	3								C, Pt 0 - 10 degrees.
			59	4								
			58	5								
			57	6								
	▼		56	7								Water losses.
			55	8		BH5 terminated at 7.9m						
			54	9								

CORED BOREHOLE EP1494_CORE_TEMPLATE.GPJ GINT STD AUSTRALIA.GDT 31/1/20

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH7

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 58 **DATUM** m AHD

DRILLING CONTRACTOR EP Risk **SLOPE** 90° **BEARING** -

EQUIPMENT Hand Auger **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-	57.5	0.5		ML	FILL: Sandy SILT with gravel.	ACM W/W% and environmental sample Environmental sample	Glass Geofab layer
		57.0	1.0			Borehole BH7 terminated at 0.5m		
		56.5	1.5					
		56.0	2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH8

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 58 **DATUM** m AHD

DRILLING CONTRACTOR EP Risk **SLOPE** 90° **BEARING** -

EQUIPMENT Hand Auger **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-	57.5	0.5			FILL: Sandy SILT: Grey, dry, organic material.	Environmental sample.	
		57.0	1.0					
		56.5	1.5			Borehole BH8 terminated at 1m		
		56.0	2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH9

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 65.55 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
		65.5			GW	FILL: Sandy GRAVEL with silt: Light grey and brown, dry, medium to coarse angular gravel, basecoarse.		
			0.5				Environmental sample	
	-	65.0				XW SHALE: Grey, dry, fine to coarse gravel, laminated, recovered as silty gravel.	UCS	
			1.0					
		64.5						
						Borehole BH9 terminated at 1.2m		
			1.5					
		64.0						
			2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH10

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 62.5 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
		62.0	0.5			FILL: Sandy SILT: Brown, dry, loose, trace fine to medium sub angular gravel, medium dense.	Environmental sample	
							Environmental sample	
	-	61.5	1.0		CL	Sandy Silty CLAY: Grey and brown mottled red, dry, very stiff, low to medium plasticity, hgh strength.	Environmental sample	
							UCS and environmental sample.	
		61.0	1.5			XW SHALE: Grey, dry, fine to medium grained, laminated, recovered as silty gravel.		
		60.5	2.0			Borehole BH10 terminated at 1.9m		

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH11

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 61.2 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
						ASPHALT: 20 mm.		
		61.0			GW	FILL: Sandy silty GRAVEL: Grey, dry, fine to medium angular gravel.	Environmental sample	
			0.5		CL	Sandy silty CLAY: Red and brown, dry, very stiff, low plasticity.	Environmental sample	
	-	60.5						
			1.0			XW SHALE: Grey, dry, fine grained, laminated, recovered as silty clayey gravel.	Environmental sample	
		60.0						
			1.5					
		59.5				Borehole BH11 terminated at 1.7m		
			2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH12

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 52 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
					ML	FILL: Sandy SILT with gravel: Brown, dry, loose to medium dense.		
							Enironmental sample	
		51.5	0.5		CL	Sandy silty CLAY: Red and brown, dry, very stiff, low plasticity, trace sub rounded gravel.		
							Enironmental sample	
	-	51.0	1.0				Enironmental sample	
							CBR	
		50.5	1.5					
		50.0	2.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH12

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 52 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
					CL	Sandy silty CLAY: Red and brown, dry, very stiff, low plasticity, trace sub rounded gravel. *(continued)*	Enironmental sample	
	-	49.5	2.5		CL	As above but becoming XW SHALE.	CBR	
		49.0	3.0			Borehole BH12 terminated at 3m		
		48.5	3.5					
		48.0	4.0					

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH13

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 57.8 **DATUM** m AHD

DRILLING CONTRACTOR EP Risk **SLOPE** 90° **BEARING** -

EQUIPMENT Hand Auger **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-	57.5	0.5			FILL: Sandy silty GRAVEL: Grey, dry, fine to medium angular shale gravels.	Environmental sample, QC and QA samples	
		57.0	1.0			Borehole BH13 terminated at 0.5m		
		56.5	1.5					
		56.0	2.0					

Appendix G
CALIBRATION CERTIFICATES

Project Details		
Date: 16/12/2019	Project No.: EP1494	Project Manager: Nathan McGuire
Time: 7.30 am	Location: 235 Grose Vale Road, North Richmond, NSW	
Weather: Fine		

PID Information					
Calibration	**Actual Value**		**Reading**	**Pass**	
Zero - Fresh Air	0.0 ppm		0.0 ppm	Y	
Span - Isobutylene	100.00 ppm		99.8 ppm	Y	
Set Alarm Limits to	High		100 ppm	Low	50 ppm
Operations Check					
	Performance Check (pump, lamp, sensor and battery voltage check)				
	Battery Charge	Y	Filters Check	Y	Spare battery voltage (5.5 V min) 6.0V
	Bump Test		Date: 16/12/2019		

Date: _16/12/19_____ Check By: _NM_____

Signed: _____

Appendix H
LABORATORY CERTIFICATES OF ANALYSIS

EP Risk Management (NSW)
109/283 Alfred Street
North Sydney
NSW 2060

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Nathan McGuire**

Report **694857-S**
Project name RICHMOND HOSPITAL PSI
Project ID EP1494
Received Date Dec 20, 2019

Client Sample ID			**BH3_0.2**	**BH3_0.5**	**BH5_0.2**	**BH5_0.4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**N19-De29735**	**N19-De29736**	**N19-De29737**	**N19-De29738**
Date Sampled			**Dec 17, 2019**	**Dec 17, 2019**	**Dec 17, 2019**	**Dec 17, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	-	12	-	110
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	48	-	89
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	5.9	-	7.3
Resistivity*	0.5	ohm.m	-	210	-	110
Sulphate (as SO4)	30	mg/kg	-	36	-	110
% Moisture	1	%	9.3	11	8.5	11
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	57	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	57	< 50	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	82	76	66	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.1	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.4	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.7	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	0.6	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	0.9	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-

Client Sample ID			BH3_0.2	BH3_0.5	BH5_0.2	BH5_0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29735	N19-De29736	N19-De29737	N19-De29738
Date Sampled			Dec 17, 2019	Dec 17, 2019	Dec 17, 2019	Dec 17, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(g.h.i)perylene	0.5	mg/kg	1.0	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	0.7	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	0.8	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	1.3	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.6	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	0.6	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	1.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	8	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	62	97	57	-
p-Terphenyl-d14 (surr.)	1	%	94	100	84	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-BHC	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-BHC	0.05	mg/kg	-	< 0.05	-	-
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	65	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	110	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Bolstar	0.2	mg/kg	-	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	-
Coumaphos	2	mg/kg	-	< 2	-	-
Demeton-S	0.2	mg/kg	-	< 0.2	-	-

Client Sample ID			BH3_0.2	BH3_0.5	BH5_0.2	BH5_0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29735	N19-De29736	N19-De29737	N19-De29738
Date Sampled			Dec 17, 2019	Dec 17, 2019	Dec 17, 2019	Dec 17, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-O	0.2	mg/kg	-	< 0.2	-	-
Diazinon	0.2	mg/kg	-	< 0.2	-	-
Dichlorvos	0.2	mg/kg	-	< 0.2	-	-
Dimethoate	0.2	mg/kg	-	< 0.2	-	-
Disulfoton	0.2	mg/kg	-	< 0.2	-	-
EPN	0.2	mg/kg	-	< 0.2	-	-
Ethion	0.2	mg/kg	-	< 0.2	-	-
Ethoprop	0.2	mg/kg	-	< 0.2	-	-
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	-
Fenitrothion	0.2	mg/kg	-	< 0.2	-	-
Fensulfothion	0.2	mg/kg	-	< 0.2	-	-
Fenthion	0.2	mg/kg	-	< 0.2	-	-
Malathion	0.2	mg/kg	-	< 0.2	-	-
Merphos	0.2	mg/kg	-	< 0.2	-	-
Methyl parathion	0.2	mg/kg	-	< 0.2	-	-
Mevinphos	0.2	mg/kg	-	< 0.2	-	-
Monocrotophos	2	mg/kg	-	< 2	-	-
Naled	0.2	mg/kg	-	< 0.2	-	-
Omethoate	2	mg/kg	-	< 2	-	-
Phorate	0.2	mg/kg	-	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Pyrazophos	0.2	mg/kg	-	< 0.2	-	-
Ronnel	0.2	mg/kg	-	< 0.2	-	-
Terbufos	0.2	mg/kg	-	< 0.2	-	-
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	-
Tokuthion	0.2	mg/kg	-	< 0.2	-	-
Trichloronate	0.2	mg/kg	-	< 0.2	-	-
Triphenylphosphate (surr.)	1	%	-	81	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	-
Heavy Metals						
Arsenic	2	mg/kg	11	14	11	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	20	21	11	-
Copper	5	mg/kg	48	44	34	-
Lead	5	mg/kg	18	17	17	-
Mercury	0.1	mg/kg	< 0.1	0.1	< 0.1	-
Nickel	5	mg/kg	22	9.8	17	-
Zinc	5	mg/kg	130	98	72	-

Client Sample ID			BH2_0.2	BH2_1.0	BH4_0.2	BH4_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29739	N19-De29740	N19-De29741	N19-De29742
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
% Moisture	1	%	9.3	6.8	8.8	7.3
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	74	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	52	54	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	126	54	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	79	70	79	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	56	64	83	61
p-Terphenyl-d14 (surr.)	1	%	93	90	99	87
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-BHC	0.05	mg/kg	-	-	< 0.05	-

Client Sample ID			BH2_0.2	BH2_1.0	BH4_0.2	BH4_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29739	N19-De29740	N19-De29741	N19-De29742
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	1	mg/kg	-	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	68	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	92	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Bolstar	0.2	mg/kg	-	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	-	-	< 0.2	-
Coumaphos	2	mg/kg	-	-	< 2	-
Demeton-S	0.2	mg/kg	-	-	< 0.2	-
Demeton-O	0.2	mg/kg	-	-	< 0.2	-
Diazinon	0.2	mg/kg	-	-	< 0.2	-
Dichlorvos	0.2	mg/kg	-	-	< 0.2	-
Dimethoate	0.2	mg/kg	-	-	< 0.2	-
Disulfoton	0.2	mg/kg	-	-	< 0.2	-
EPN	0.2	mg/kg	-	-	< 0.2	-
Ethion	0.2	mg/kg	-	-	< 0.2	-
Ethoprop	0.2	mg/kg	-	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	-	-	< 0.2	-
Fenitrothion	0.2	mg/kg	-	-	< 0.2	-
Fensulfothion	0.2	mg/kg	-	-	< 0.2	-
Fenthion	0.2	mg/kg	-	-	< 0.2	-
Malathion	0.2	mg/kg	-	-	< 0.2	-
Merphos	0.2	mg/kg	-	-	< 0.2	-
Methyl parathion	0.2	mg/kg	-	-	< 0.2	-
Mevinphos	0.2	mg/kg	-	-	< 0.2	-
Monocrotophos	2	mg/kg	-	-	< 2	-
Naled	0.2	mg/kg	-	-	< 0.2	-
Omethoate	2	mg/kg	-	-	< 2	-

Client Sample ID			BH2_0.2	BH2_1.0	BH4_0.2	BH4_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29739	N19-De29740	N19-De29741	N19-De29742
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Phorate	0.2	mg/kg	-	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Pyrazophos	0.2	mg/kg	-	-	< 0.2	-
Ronnel	0.2	mg/kg	-	-	< 0.2	-
Terbufos	0.2	mg/kg	-	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	-	-	< 0.2	-
Tokuthion	0.2	mg/kg	-	-	< 0.2	-
Trichloronate	0.2	mg/kg	-	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	-	-	77	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	9.8	13	8.9	17
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	15	13	15
Copper	5	mg/kg	30	29	44	52
Lead	5	mg/kg	16	15	47	17
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	8.3	15	11	17
Zinc	5	mg/kg	67	120	81	140

Client Sample ID			BH7_0.1	BH8_0.05	BH9_0.5	BH10_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29743	N19-De29746	N19-De29747	N19-De29748
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
% Moisture	1	%	13	5.2	14	13
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	37	22	< 20	< 20
TRH C15-C28	50	mg/kg	70	96	< 50	< 50
TRH C29-C36	50	mg/kg	73	120	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	180	238	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	69	82	66

Client Sample ID			BH7_0.1	BH8_0.05	BH9_0.5	BH10_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29743	N19-De29746	N19-De29747	N19-De29748
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	51	83	55	84
p-Terphenyl-d14 (surr.)	1	%	79	145	69	99
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	< 0.05
a-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.05
Methoxychlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Toxaphene	1	mg/kg	-	< 1	-	< 1

Client Sample ID			BH7_0.1	BH8_0.05	BH9_0.5	BH10_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29743	N19-De29746	N19-De29747	N19-De29748
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	104	-	148
Tetrachloro-m-xylene (surr.)	1	%	-	125	-	120
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.2
Bolstar	0.2	mg/kg	-	< 0.2	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.2
Coumaphos	2	mg/kg	-	< 2	-	< 2
Demeton-S	0.2	mg/kg	-	< 0.2	-	< 0.2
Demeton-O	0.2	mg/kg	-	< 0.2	-	< 0.2
Diazinon	0.2	mg/kg	-	< 0.2	-	< 0.2
Dichlorvos	0.2	mg/kg	-	< 0.2	-	< 0.2
Dimethoate	0.2	mg/kg	-	< 0.2	-	< 0.2
Disulfoton	0.2	mg/kg	-	< 0.2	-	< 0.2
EPN	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethion	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethoprop	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.2
Fenitrothion	0.2	mg/kg	-	< 0.2	-	< 0.2
Fensulfothion	0.2	mg/kg	-	< 0.2	-	< 0.2
Fenthion	0.2	mg/kg	-	< 0.2	-	< 0.2
Malathion	0.2	mg/kg	-	< 0.2	-	< 0.2
Merphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Methyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.2
Mevinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Monocrotophos	2	mg/kg	-	< 2	-	< 2
Naled	0.2	mg/kg	-	< 0.2	-	< 0.2
Omethoate	2	mg/kg	-	< 2	-	< 2
Phorate	0.2	mg/kg	-	< 0.2	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.2
Pyrazophos	0.2	mg/kg	-	< 0.2	-	< 0.2
Ronnel	0.2	mg/kg	-	< 0.2	-	< 0.2
Terbufos	0.2	mg/kg	-	< 0.2	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Tokuthion	0.2	mg/kg	-	< 0.2	-	< 0.2
Trichloronate	0.2	mg/kg	-	< 0.2	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	123	-	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	150	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	150	< 100	< 100

Client Sample ID			BH7_0.1	BH8_0.05	BH9_0.5	BH10_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29743	N19-De29746	N19-De29747	N19-De29748
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	6.2	5.2	25	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	19	12	12	21
Copper	5	mg/kg	19	29	52	29
Lead	5	mg/kg	83	31	22	36
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	7.7	8.2	12	18
Zinc	5	mg/kg	120	290	90	75

Client Sample ID			BH10_0.5	BH11_0.2	BH11_1.0	BH12_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29749	N19-De29750	N19-De29751	N19-De29752
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
% Moisture	1	%	14	17	16	9.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	65	91	113	67
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH10_0.5	BH11_0.2	BH11_1.0	BH12_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29749	N19-De29750	N19-De29751	N19-De29752
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	55	80	79	90
p-Terphenyl-d14 (surr.)	1	%	93	102	92	86
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-BHC	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-BHC	0.05	mg/kg	-	< 0.05	-	-
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	133	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	112	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Bolstar	0.2	mg/kg	-	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	-
Coumaphos	2	mg/kg	-	< 2	-	-
Demeton-S	0.2	mg/kg	-	< 0.2	-	-
Demeton-O	0.2	mg/kg	-	< 0.2	-	-
Diazinon	0.2	mg/kg	-	< 0.2	-	-
Dichlorvos	0.2	mg/kg	-	< 0.2	-	-

Client Sample ID			BH10_0.5	BH11_0.2	BH11_1.0	BH12_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29749	N19-De29750	N19-De29751	N19-De29752
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 18, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	-	< 0.2	-	-
Disulfoton	0.2	mg/kg	-	< 0.2	-	-
EPN	0.2	mg/kg	-	< 0.2	-	-
Ethion	0.2	mg/kg	-	< 0.2	-	-
Ethoprop	0.2	mg/kg	-	< 0.2	-	-
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	-
Fenitrothion	0.2	mg/kg	-	< 0.2	-	-
Fensulfothion	0.2	mg/kg	-	< 0.2	-	-
Fenthion	0.2	mg/kg	-	< 0.2	-	-
Malathion	0.2	mg/kg	-	< 0.2	-	-
Merphos	0.2	mg/kg	-	< 0.2	-	-
Methyl parathion	0.2	mg/kg	-	< 0.2	-	-
Mevinphos	0.2	mg/kg	-	< 0.2	-	-
Monocrotophos	2	mg/kg	-	< 2	-	-
Naled	0.2	mg/kg	-	< 0.2	-	-
Omethoate	2	mg/kg	-	< 2	-	-
Phorate	0.2	mg/kg	-	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	-
Pyrazophos	0.2	mg/kg	-	< 0.2	-	-
Ronnel	0.2	mg/kg	-	< 0.2	-	-
Terbufos	0.2	mg/kg	-	< 0.2	-	-
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	-
Tokuthion	0.2	mg/kg	-	< 0.2	-	-
Trichloronate	0.2	mg/kg	-	< 0.2	-	-
Triphenylphosphate (surr.)	1	%	-	134	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	13	26	19	4.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	19	26	19	12
Copper	5	mg/kg	30	26	30	10
Lead	5	mg/kg	27	24	25	13
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	11	12	< 5	7.8
Zinc	5	mg/kg	57	37	28	37

Client Sample ID			BH12_1.0	BH12_2.0	BH13_0.1	BH1_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29753	N19-De29754	N19-De29755	N19-De29756
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 19, 2019
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	-	340	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	64	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	5.4	-	-
Resistivity*	0.5	ohm.m	-	160	-	-
Sulphate (as SO4)	30	mg/kg	-	< 30	-	-
% Moisture	1	%	11	18	5.1	6.6
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	-	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	70	-	68	64
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	0.8	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	1.1	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.4	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	0.8	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	0.6	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	0.7	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	1.1	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	2.0	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	1.7	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	6.9	< 0.5
2-Fluorobiphenyl (surr.)	1	%	69	-	69	73
p-Terphenyl-d14 (surr.)	1	%	94	-	81	92

Client Sample ID			BH12_1.0	BH12_2.0	BH13_0.1	BH1_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29753	N19-De29754	N19-De29755	N19-De29756
Date Sampled			Dec 18, 2019	Dec 18, 2019	Dec 18, 2019	Dec 19, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	-	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	13	-	2.5	110
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	< 0.4
Chromium	5	mg/kg	26	-	7.7	21
Copper	5	mg/kg	14	-	48	33
Lead	5	mg/kg	17	-	21	140
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Nickel	5	mg/kg	8.7	-	10.0	13
Zinc	5	mg/kg	20	-	71	110

Client Sample ID			BH1_0.5	BH1_1.0	QC03	TB
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29757	N19-De29758	N19-De29759	N19-De29761
Date Sampled			Dec 19, 2019	Dec 19, 2019	Dec 19, 2019	Dec 19, 2019
Test/Reference	LOR	Unit				
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
% Clay	1	%	16	-	-	-
Chloride	5	mg/kg	-	36	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	56	44	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	6.6	-	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	4.5	-	-	-
Resistivity*	0.5	ohm.m	-	230	-	-
Sulphate (as SO4)	30	mg/kg	-	50	-	-
Total Organic Carbon	0.1	%	< 0.1	-	-	-
% Moisture	1	%	5.2	13	11	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	51	-
TRH C29-C36	50	mg/kg	< 50	-	95	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	146	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	67	-	65	64
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-

Client Sample ID			BH1_0.5	BH1_1.0	QC03	TB
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29757	N19-De29758	N19-De29759	N19-De29761
Date Sampled			Dec 19, 2019	Dec 19, 2019	Dec 19, 2019	Dec 19, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	52	-	53	-
p-Terphenyl-d14 (surr.)	1	%	76	-	91	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-

Client Sample ID			BH1_0.5	BH1_1.0	QC03	TB
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29757	N19-De29758	N19-De29759	N19-De29761
Date Sampled			Dec 19, 2019	Dec 19, 2019	Dec 19, 2019	Dec 19, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	105	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	93	-	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Bolstar	0.2	mg/kg	< 0.2	-	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	-
Coumaphos	2	mg/kg	< 2	-	-	-
Demeton-S	0.2	mg/kg	< 0.2	-	-	-
Demeton-O	0.2	mg/kg	< 0.2	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Dichlorvos	0.2	mg/kg	< 0.2	-	-	-
Dimethoate	0.2	mg/kg	< 0.2	-	-	-
Disulfoton	0.2	mg/kg	< 0.2	-	-	-
EPN	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.2	mg/kg	< 0.2	-	-	-
Ethoprop	0.2	mg/kg	< 0.2	-	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	-
Fenitrothion	0.2	mg/kg	< 0.2	-	-	-
Fensulfothion	0.2	mg/kg	< 0.2	-	-	-
Fenthion	0.2	mg/kg	< 0.2	-	-	-
Malathion	0.2	mg/kg	< 0.2	-	-	-
Merphos	0.2	mg/kg	< 0.2	-	-	-
Methyl parathion	0.2	mg/kg	< 0.2	-	-	-
Mevinphos	0.2	mg/kg	< 0.2	-	-	-
Monocrotophos	2	mg/kg	< 2	-	-	-
Naled	0.2	mg/kg	< 0.2	-	-	-
Omethoate	2	mg/kg	< 2	-	-	-
Phorate	0.2	mg/kg	< 0.2	-	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Pyrazophos	0.2	mg/kg	< 0.2	-	-	-
Ronnel	0.2	mg/kg	< 0.2	-	-	-
Terbufos	0.2	mg/kg	< 0.2	-	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	-
Tokuthion	0.2	mg/kg	< 0.2	-	-	-
Trichloronate	0.2	mg/kg	< 0.2	-	-	-
Triphenylphosphate (surr.)	1	%	120	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	100	-

Client Sample ID			BH1_0.5	BH1_1.0	QC03	TB
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N19-De29757	N19-De29758	N19-De29759	N19-De29761
Date Sampled			Dec 19, 2019	Dec 19, 2019	Dec 19, 2019	Dec 19, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	18	-	2.4	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	14	-	7.8	-
Copper	5	mg/kg	40	-	57	-
Iron	20	mg/kg	61000	-	-	-
Lead	5	mg/kg	28	-	22	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	13	-	13	-
Zinc	5	mg/kg	110	-	75	-
Heavy Metals						
Iron (%)	0.01	%	6.1	-	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	6.2	-	-	-

Client Sample ID			[R20]TS
Sample Matrix			Soil
Eurofins Sample No.			N19-De29762
Date Sampled			Dec 19, 2019
Test/Reference	LOR	Unit	
Naphthalene[N02]	0.5	mg/kg	94
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	110
BTEX			
Benzene	0.1	mg/kg	98
Toluene	0.1	mg/kg	110
Ethylbenzene	0.1	mg/kg	120
m&p-Xylenes	0.2	mg/kg	130
o-Xylene	0.1	mg/kg	130
Xylenes - Total	0.3	mg/kg	130
4-Bromofluorobenzene (surr.)	1	%	59
Total Recoverable Hydrocarbons			
TRH C6-C10	20	mg/kg	100

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jan 02, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Jan 02, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Dec 30, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Jan 02, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
NEPM Screen for Soil Classification			
% Clay	Brisbane	Jan 03, 2020	0 Days
- Method: LTM-GEN-7040			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Dec 30, 2019	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	Melbourne	Dec 30, 2019	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Total Organic Carbon	Melbourne	Dec 31, 2019	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Heavy Metals	Melbourne	Dec 30, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Cation Exchange Capacity	Melbourne	Dec 31, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
Chloride	Melbourne	Dec 30, 2019	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Dec 30, 2019	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Sulphate (as SO4)	Melbourne	Dec 30, 2019	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
% Moisture	Melbourne	Dec 20, 2019	14 Days
- Method: LTM-GEN-7080 Moisture			
Eurofins | mgt Suite B7			
Polycyclic Aromatic Hydrocarbons	Melbourne	Dec 30, 2019	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Dec 30, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Melbourne	Dec 30, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B14			
Organochlorine Pesticides	Melbourne	Dec 30, 2019	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Melbourne	Dec 30, 2019	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8081)			

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Company Name: EP Risk Management (NSW)
Address: 109/283 Alfred Street
North Sydney
NSW 2060

Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
Report #: 694857
Phone: 02 99225021
Fax:

Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH3_0.2	Dec 17, 2019		Soil	N19-De29735						X		X	
2	BH3_0.5	Dec 17, 2019		Soil	N19-De29736				X	X	X		X	
3	BH5_0.2	Dec 17, 2019		Soil	N19-De29737						X		X	
4	BH5_0.4	Dec 17, 2019		Soil	N19-De29738					X	X			
5	BH2_0.2	Dec 18, 2019		Soil	N19-De29739						X		X	
6	BH2_1.0	Dec 18, 2019		Soil	N19-De29740						X		X	
7	BH4_0.2	Dec 18, 2019		Soil	N19-De29741				X		X		X	
8	BH4_1.0	Dec 18, 2019		Soil	N19-De29742						X		X	
9	BH7_0.1	Dec 18, 2019		Soil	N19-De29743						X		X	
10	BH7_ACM	Dec 18, 2019		Building	N19-De29744		X							

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Company Name: EP Risk Management (NSW)
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Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
Report #: 694857
Phone: 02 99225021
Fax:

Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
				Materials										
11	BH7 W/W%	Dec 18, 2019		Soil	N19-De29745	X								
12	BH8_0.05	Dec 18, 2019		Soil	N19-De29746				X		X		X	
13	BH9_0.5	Dec 18, 2019		Soil	N19-De29747						X		X	
14	BH10_0.2	Dec 18, 2019		Soil	N19-De29748				X		X		X	
15	BH10_0.5	Dec 18, 2019		Soil	N19-De29749						X		X	
16	BH11_0.2	Dec 18, 2019		Soil	N19-De29750				X		X		X	
17	BH11_1.0	Dec 18, 2019		Soil	N19-De29751						X		X	
18	BH12_0.2	Dec 18, 2019		Soil	N19-De29752						X		X	
19	BH12_1.0	Dec 18, 2019		Soil	N19-De29753						X		X	
20	BH12_2.0	Dec 18, 2019		Soil	N19-De29754					X	X			
21	BH13_0.1	Dec 18, 2019		Soil	N19-De29755						X		X	
22	BH1_0.2	Dec 19, 2019		Soil	N19-De29756						X		X	

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Company Name: EP Risk Management (NSW)
Address: 109/283 Alfred Street
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NSW 2060

Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
Report #: 694857
Phone: 02 99225021
Fax:

Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
23	BH1_0.5	Dec 19, 2019		Soil	N19-De29757				X		X	X	X	
24	BH1_1.0	Dec 19, 2019		Soil	N19-De29758					X	X			
25	QC03	Dec 19, 2019		Soil	N19-De29759						X		X	
26	RW01	Dec 19, 2019		Water	N19-De29760								X	
27	TB	Dec 19, 2019		Soil	N19-De29761									X
28	TS	Dec 19, 2019		Soil	N19-De29762									X
29	BH2_0.5	Dec 18, 2019		Soil	N19-De29763			X						
30	BH4_0.5	Dec 18, 2019		Soil	N19-De29764			X						
31	BH4_1.5	Dec 18, 2019		Soil	N19-De29765			X						
32	BH7_0.3	Dec 18, 2019		Soil	N19-De29766			X						
33	BH10_1.0	Dec 18, 2019		Soil	N19-De29767			X						
34	BH11_0.5	Dec 18, 2019		Soil	N19-De29768			X						
35	BH12_0.5	Dec 18, 2019		Soil	N19-De29770			X						

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Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
Report #: 694857
Phone: 02 99225021
Fax:

Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
36	BH1_1.5	Dec 19, 2019		Soil	N19-De29771			X						
37	QC01	Dec 18, 2019		Soil	N19-De29772			X						
Test Counts						1	1	9	6	4	23	1	21	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
% Clay	%	< 1			1	Pass	
Chloride	mg/kg	< 5			5	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Sulphate (as SO4)	mg/kg	< 30			30	Pass	
Total Organic Carbon	%	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Iron	mg/kg	< 20			20	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
LCS - % Recovery							
Naphthalene	%	111			70-130	Pass	
% Clay	%	90			70-130	Pass	
Chloride	%	96			70-130	Pass	
Sulphate (as SO4)	%	107			70-130	Pass	
Total Organic Carbon	%	117			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	115			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	108			70-130	Pass	
Toluene	%	117			70-130	Pass	
Ethylbenzene	%	107			70-130	Pass	
m&p-Xylenes	%	117			70-130	Pass	
Xylenes - Total	%	117			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	86			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	79			70-130	Pass	
Acenaphthylene	%	79			70-130	Pass	
Anthracene	%	105			70-130	Pass	
Benz(a)anthracene	%	86			70-130	Pass	
Benzo(a)pyrene	%	78			70-130	Pass	
Benzo(b&j)fluoranthene	%	70			70-130	Pass	
Benzo(g.h.i)perylene	%	74			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	74			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	89			70-130	Pass	
Fluorene	%	85			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	74			70-130	Pass	
Naphthalene	%	78			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	%	82			70-130	Pass	
Pyrene	%	89			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	87			70-130	Pass	
4.4'-DDD	%	76			70-130	Pass	
4.4'-DDE	%	86			70-130	Pass	
4.4'-DDT	%	78			70-130	Pass	
a-BHC	%	84			70-130	Pass	
Aldrin	%	96			70-130	Pass	
b-BHC	%	71			70-130	Pass	
d-BHC	%	73			70-130	Pass	
Dieldrin	%	84			70-130	Pass	
Endosulfan I	%	88			70-130	Pass	
Endosulfan II	%	82			70-130	Pass	
Endosulfan sulphate	%	84			70-130	Pass	
Endrin	%	93			70-130	Pass	
Endrin aldehyde	%	75			70-130	Pass	
Endrin ketone	%	72			70-130	Pass	
g-BHC (Lindane)	%	96			70-130	Pass	
Heptachlor	%	81			70-130	Pass	
Heptachlor epoxide	%	86			70-130	Pass	
Hexachlorobenzene	%	85			70-130	Pass	
Methoxychlor	%	81			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	98			70-130	Pass	
Dimethoate	%	95			70-130	Pass	
Ethion	%	114			70-130	Pass	
Fenitrothion	%	76			70-130	Pass	
Methyl parathion	%	72			70-130	Pass	
Mevinphos	%	84			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	85			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	112			80-120	Pass	
Cadmium	%	109			80-120	Pass	
Chromium	%	120			80-120	Pass	
Copper	%	113			80-120	Pass	
Iron	%	119			80-120	Pass	
Lead	%	90			80-120	Pass	
Mercury	%	95			75-125	Pass	
Nickel	%	110			80-120	Pass	
Zinc	%	109			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-De27043	NCP	%	86			70-130	Pass	
Acenaphthylene	M19-De27043	NCP	%	82			70-130	Pass	
Anthracene	M19-De27043	NCP	%	91			70-130	Pass	
Benz(a)anthracene	M19-De27043	NCP	%	92			70-130	Pass	
Benzo(a)pyrene	M19-De27043	NCP	%	87			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene	M19-De27043	NCP	%	71			70-130	Pass	
Benzo(g.h.i)perylene	M19-De27043	NCP	%	92			70-130	Pass	
Benzo(k)fluoranthene	M19-De27043	NCP	%	85			70-130	Pass	
Chrysene	M19-De27043	NCP	%	117			70-130	Pass	
Dibenz(a.h)anthracene	M19-De27043	NCP	%	99			70-130	Pass	
Fluoranthene	M19-De27043	NCP	%	89			70-130	Pass	
Fluorene	M19-De27043	NCP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-De27043	NCP	%	89			70-130	Pass	
Naphthalene	M19-De27043	NCP	%	85			70-130	Pass	
Phenanthrene	M19-De27043	NCP	%	84			70-130	Pass	
Pyrene	M19-De27043	NCP	%	91			70-130	Pass	
Spike - % Recovery									
				Result 1					
Naphthalene	N19-De29736	CP	%	88			70-130	Pass	
Sulphate (as SO4)	P19-De31268	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	N19-De29736	CP	%	88			70-130	Pass	
TRH C10-C14	N19-De29736	CP	%	100			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N19-De29736	CP	%	72			70-130	Pass	
Toluene	N19-De29736	CP	%	82			70-130	Pass	
Ethylbenzene	N19-De29736	CP	%	80			70-130	Pass	
m&p-Xylenes	N19-De29736	CP	%	89			70-130	Pass	
o-Xylene	N19-De29736	CP	%	91			70-130	Pass	
Xylenes - Total	N19-De29736	CP	%	90			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	N19-De29736	CP	%	86			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M19-De29978	NCP	%	94			70-130	Pass	
4.4'-DDD	M19-De29978	NCP	%	110			70-130	Pass	
4.4'-DDE	M19-De29978	NCP	%	93			70-130	Pass	
4.4'-DDT	M19-De32719	NCP	%	79			70-130	Pass	
a-BHC	M19-De29978	NCP	%	84			70-130	Pass	
Aldrin	M19-De29978	NCP	%	101			70-130	Pass	
b-BHC	M19-De29978	NCP	%	124			70-130	Pass	
d-BHC	M19-De32719	NCP	%	73			70-130	Pass	
Dieldrin	M19-De29978	NCP	%	104			70-130	Pass	
Endosulfan I	M19-De29978	NCP	%	99			70-130	Pass	
Endosulfan II	M19-De29978	NCP	%	91			70-130	Pass	
Endosulfan sulphate	M19-De29978	NCP	%	76			70-130	Pass	
Endrin	M19-De32719	NCP	%	77			70-130	Pass	
Endrin aldehyde	M19-De29978	NCP	%	105			70-130	Pass	
Endrin ketone	M19-De29978	NCP	%	87			70-130	Pass	
g-BHC (Lindane)	M19-De29978	NCP	%	126			70-130	Pass	
Heptachlor	M19-De29978	NCP	%	105			70-130	Pass	
Heptachlor epoxide	M19-De29978	NCP	%	91			70-130	Pass	
Hexachlorobenzene	M19-De29978	NCP	%	97			70-130	Pass	
Methoxychlor	M19-De32719	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Diazinon	M19-De32832	NCP	%	91			70-130	Pass	
Dimethoate	B19-De13866	NCP	%	78			70-130	Pass	
Ethion	M19-De32832	NCP	%	98			70-130	Pass	
Fenitrothion	M19-De32832	NCP	%	82			70-130	Pass	
Methyl parathion	M19-De32832	NCP	%	72			70-130	Pass	
Mevinphos	M19-De32832	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	N19-De29736	CP	%	97			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	N19-De29738	CP	%	76			70-130	Pass	
Spike - % Recovery									
				Result 1					
Naphthalene	N19-De29749	CP	%	105			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	N19-De29749	CP	%	73			70-130	Pass	
TRH C10-C14	N19-De29749	CP	%	104			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N19-De29749	CP	%	80			70-130	Pass	
Toluene	N19-De29749	CP	%	85			70-130	Pass	
Ethylbenzene	N19-De29749	CP	%	85			70-130	Pass	
m&p-Xylenes	N19-De29749	CP	%	91			70-130	Pass	
o-Xylene	N19-De29749	CP	%	92			70-130	Pass	
Xylenes - Total	N19-De29749	CP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	N19-De29749	CP	%	77			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	N19-De29749	CP	%	100			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N19-De29749	CP	%	112			75-125	Pass	
Cadmium	N19-De29749	CP	%	108			75-125	Pass	
Chromium	N19-De29749	CP	%	113			75-125	Pass	
Copper	N19-De29749	CP	%	109			75-125	Pass	
Lead	N19-De29749	CP	%	120			75-125	Pass	
Mercury	N19-De29749	CP	%	148			70-130	Fail	Q08
Nickel	N19-De29749	CP	%	108			75-125	Pass	
Zinc	N19-De29749	CP	%	94			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Iron	P19-De30856	NCP	%	95			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Naphthalene	N19-De29735	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
% Moisture	N19-De29735	CP	%	9.3	8.6	8.0	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	N19-De29735	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	N19-De29735	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	N19-De29735	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	N19-De29735	CP	mg/kg	57	< 50	29	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N19-De29735	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N19-De29735	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N19-De29735	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N19-De29735	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N19-De29735	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	N19-De29735	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C10	N19-De29735	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-De30662	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	N19-De29735	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	N19-De29735	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	N19-De29735	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N19-De29735	CP	mg/kg	11	10	9.0	30%	Pass	
Cadmium	N19-De29735	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N19-De29735	CP	mg/kg	20	18	10	30%	Pass	
Copper	N19-De29735	CP	mg/kg	48	53	10	30%	Pass	
Lead	N19-De29735	CP	mg/kg	18	19	6.0	30%	Pass	
Mercury	N19-De29735	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N19-De29735	CP	mg/kg	22	23	2.0	30%	Pass	
Zinc	N19-De29735	CP	mg/kg	130	130	3.0	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Chloride	N19-De29736	CP	mg/kg	12	17	33	30%	Fail	Q15
Conductivity (1:5 aqueous extract at 25°C as rec.)	P19-De31279	NCP	uS/cm	19	20	4.1	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	P19-De31260	NCP	pH Units	6.0	6.2	pass	30%	Pass	
Resistivity*	P19-De31279	NCP	ohm.m	520	500	4.1	30%	Pass	
Sulphate (as SO4)	P19-De31279	NCP	mg/kg	< 30	< 30	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M19-De32788	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M19-De32788	NCP	mg/kg	0.54	0.58	7.0	30%	Pass	
Endosulfan I	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M19-De32788	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M19-De27981	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M19-De32788	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Monocrotophos	M19-De32788	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M19-De32788	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M19-De32788	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	N19-De29747	CP	%	14	14	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Naphthalene	N19-De29748	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	N19-De29748	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	N19-De29748	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	N19-De29748	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	N19-De29748	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N19-De29748	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N19-De29748	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N19-De29748	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N19-De29748	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N19-De29748	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	N19-De29748	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C10	N19-De29748	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	N19-De29748	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	N19-De29748	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	N19-De29748	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N19-De29748	CP	mg/kg	11	10	13	30%	Pass	
Cadmium	N19-De29748	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N19-De29748	CP	mg/kg	21	21	2.0	30%	Pass	
Copper	N19-De29748	CP	mg/kg	29	28	4.0	30%	Pass	
Lead	N19-De29748	CP	mg/kg	36	35	2.0	30%	Pass	
Mercury	N19-De29748	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N19-De29748	CP	mg/kg	18	21	17	30%	Pass	
Zinc	N19-De29748	CP	mg/kg	75	72	3.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N19-De29749	CP	mg/kg	13	14	1.0	30%	Pass	
Cadmium	N19-De29749	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N19-De29749	CP	mg/kg	19	19	1.0	30%	Pass	
Copper	N19-De29749	CP	mg/kg	30	30	1.0	30%	Pass	
Lead	N19-De29749	CP	mg/kg	27	28	2.0	30%	Pass	
Mercury	N19-De29749	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N19-De29749	CP	mg/kg	11	12	1.0	30%	Pass	
Zinc	N19-De29749	CP	mg/kg	57	57	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Clay	P19-De14514	NCP	%	5.0	5.0	<1	30%	Pass	
Total Organic Carbon	M19-De24426	NCP	%	2.1	1.8	17	30%	Pass	
% Moisture	N19-De29757	CP	%	5.2	5.2	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Iron	P19-De30855	NCP	mg/kg	400	330	19	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Alena Bounkeua	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)
Scott Beddoes	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

EP Risk Management (NSW)
109/283 Alfred Street
North Sydney
NSW 2060

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Nathan McGuire**

Report **694857-W**
Project name RICHMOND HOSPITAL PSI
Project ID EP1494
Received Date Dec 20, 2019

Client Sample ID			**RW01**
Sample Matrix			**Water**
Eurofins Sample No.			**N19-De29760**
Date Sampled			**Dec 19, 2019**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001

Client Sample ID			RW01
Sample Matrix			Water
Eurofins Sample No.			N19-De29760
Date Sampled			Dec 19, 2019
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	66
p-Terphenyl-d14 (surr.)	1	%	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Heavy Metals			
Arsenic	0.001	mg/L	< 0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	< 0.001
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	< 0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	< 0.001
Zinc	0.005	mg/L	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Dec 23, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Dec 23, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Dec 23, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins | mgt Suite B7			
Polycyclic Aromatic Hydrocarbons	Melbourne	Dec 23, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Dec 23, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Melbourne	Dec 24, 2019	180 Days
- Method:			

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Company Name: EP Risk Management (NSW)
Address: 109/283 Alfred Street
North Sydney
NSW 2060

Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
Report #: 694857
Phone: 02 99225021
Fax:

Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH3_0.2	Dec 17, 2019		Soil	N19-De29735						X		X	
2	BH3_0.5	Dec 17, 2019		Soil	N19-De29736				X	X	X		X	
3	BH5_0.2	Dec 17, 2019		Soil	N19-De29737						X		X	
4	BH5_0.4	Dec 17, 2019		Soil	N19-De29738					X	X			
5	BH2_0.2	Dec 18, 2019		Soil	N19-De29739						X		X	
6	BH2_1.0	Dec 18, 2019		Soil	N19-De29740						X		X	
7	BH4_0.2	Dec 18, 2019		Soil	N19-De29741				X		X		X	
8	BH4_1.0	Dec 18, 2019		Soil	N19-De29742						X		X	
9	BH7_0.1	Dec 18, 2019		Soil	N19-De29743						X		X	
10	BH7_ACM	Dec 18, 2019		Building	N19-De29744		X							

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Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
				Materials										
11	BH7 W/W%	Dec 18, 2019		Soil	N19-De29745	X								
12	BH8_0.05	Dec 18, 2019		Soil	N19-De29746				X		X		X	
13	BH9_0.5	Dec 18, 2019		Soil	N19-De29747						X		X	
14	BH10_0.2	Dec 18, 2019		Soil	N19-De29748				X		X		X	
15	BH10_0.5	Dec 18, 2019		Soil	N19-De29749						X		X	
16	BH11_0.2	Dec 18, 2019		Soil	N19-De29750				X		X		X	
17	BH11_1.0	Dec 18, 2019		Soil	N19-De29751						X		X	
18	BH12_0.2	Dec 18, 2019		Soil	N19-De29752						X		X	
19	BH12_1.0	Dec 18, 2019		Soil	N19-De29753						X		X	
20	BH12_2.0	Dec 18, 2019		Soil	N19-De29754					X	X			
21	BH13_0.1	Dec 18, 2019		Soil	N19-De29755						X		X	
22	BH1_0.2	Dec 19, 2019		Soil	N19-De29756						X		X	

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Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
23	BH1_0.5	Dec 19, 2019		Soil	N19-De29757				X		X	X	X	
24	BH1_1.0	Dec 19, 2019		Soil	N19-De29758					X	X			
25	QC03	Dec 19, 2019		Soil	N19-De29759						X		X	
26	RW01	Dec 19, 2019		Water	N19-De29760								X	
27	TB	Dec 19, 2019		Soil	N19-De29761									X
28	TS	Dec 19, 2019		Soil	N19-De29762									X
29	BH2_0.5	Dec 18, 2019		Soil	N19-De29763			X						
30	BH4_0.5	Dec 18, 2019		Soil	N19-De29764			X						
31	BH4_1.5	Dec 18, 2019		Soil	N19-De29765			X						
32	BH7_0.3	Dec 18, 2019		Soil	N19-De29766			X						
33	BH10_1.0	Dec 18, 2019		Soil	N19-De29767			X						
34	BH11_0.5	Dec 18, 2019		Soil	N19-De29768			X						
35	BH12_0.5	Dec 18, 2019		Soil	N19-De29770			X						

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Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
36	BH1_1.5	Dec 19, 2019		Soil	N19-De29771			X						
37	QC01	Dec 18, 2019		Soil	N19-De29772			X						
Test Counts						1	1	9	6	4	23	1	21	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram | **mg/L:** milligrams per litre | **ug/L:** micrograms per litre

ppm: Parts per million | **ppb:** Parts per billion | **%:** Percentage

org/100mL: Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100mL:** Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	86			70-130	Pass	
TRH C10-C14	%	105			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	89			70-130	Pass	
Toluene	%	81			70-130	Pass	
Ethylbenzene	%	83			70-130	Pass	
m&p-Xylenes	%	78			70-130	Pass	
Xylenes - Total	%	79			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	113			70-130	Pass	
TRH C6-C10	%	80			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	79			70-130	Pass	
Acenaphthylene	%	88			70-130	Pass	
Anthracene	%	90			70-130	Pass	
Benz(a)anthracene	%	76			70-130	Pass	
Benzo(a)pyrene	%	115			70-130	Pass	
Benzo(b&j)fluoranthene	%	122			70-130	Pass	
Benzo(g.h.i)perylene	%	98			70-130	Pass	
Benzo(k)fluoranthene	%	122			70-130	Pass	
Chrysene	%	98			70-130	Pass	
Dibenz(a.h)anthracene	%	110			70-130	Pass	
Fluoranthene	%	74			70-130	Pass	
Fluorene	%	86			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	112			70-130	Pass	
Naphthalene	%	81			70-130	Pass	
Phenanthrene	%	85			70-130	Pass	
Pyrene	%	75			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	98			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	97			80-120	Pass	
Cadmium	%	101			80-120	Pass	
Chromium	%	98			80-120	Pass	
Copper	%	97			80-120	Pass	
Lead	%	96			80-120	Pass	
Mercury	%	94			75-125	Pass	
Nickel	%	99			80-120	Pass	
Zinc	%	99			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B19-De25685	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S19-De17360	NCP	%	113			70-130	Pass	
Acenaphthylene	S19-De17360	NCP	%	113			70-130	Pass	
Anthracene	S19-De17360	NCP	%	119			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	S19-De17360	NCP	%	82			70-130	Pass	
Benzo(a)pyrene	S19-De17360	NCP	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	S19-De17360	NCP	%	114			70-130	Pass	
Benzo(g.h.i)perylene	S19-De17360	NCP	%	85			70-130	Pass	
Benzo(k)fluoranthene	S19-De17360	NCP	%	107			70-130	Pass	
Chrysene	S19-De17360	NCP	%	117			70-130	Pass	
Dibenz(a.h)anthracene	S19-De17360	NCP	%	84			70-130	Pass	
Fluoranthene	S19-De17360	NCP	%	108			70-130	Pass	
Fluorene	S19-De17360	NCP	%	126			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S19-De17360	NCP	%	72			70-130	Pass	
Naphthalene	S19-De17360	NCP	%	97			70-130	Pass	
Phenanthrene	S19-De17360	NCP	%	102			70-130	Pass	
Pyrene	S19-De17360	NCP	%	111			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B19-De25685	NCP	%	108			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B19-De32335	NCP	mg/L	0.02	< 0.02	43	30%	Fail	Q15
TRH C10-C14	B19-De25684	NCP	mg/L	1.4	1.7	17	30%	Pass	
TRH C15-C28	B19-De25684	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	B19-De25684	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B19-De32335	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B19-De32335	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B19-De32335	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B19-De32335	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B19-De32335	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	B19-De32335	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B19-De32335	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B19-De32335	NCP	mg/L	0.02	< 0.02	16	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S19-De20468	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B19-De25684	NCP	mg/L	1.3	1.6	16	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Alena Bounkeua	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

EP Risk Management (NSW)
109/283 Alfred Street
North Sydney
NSW 2060

Attention:	Nathan McGuire
Report	694857-AID
Project Name	RICHMOND HOSPITAL PSI
Project ID	EP1494
Received Date	Dec 20, 2019
Date Reported	Jan 07, 2020

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name RICHMOND HOSPITAL PSI
Project ID EP1494
Date Sampled Dec 18, 2019
Report 694857-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH7_ACM	19-De29744	Dec 18, 2019	Approximate Sample 32g / 65x55x5mm Sample consisted of: Grey fibre cement sheet	Chrysotile asbestos detected.
BH7 W/W%	19-De29745	Dec 18, 2019	Approximate Sample 748g Sample consisted of: Brown coarse-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Dec 20, 2019	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Dec 20, 2019	Indefinite

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Company Name: EP Risk Management (NSW)
Address: 109/283 Alfred Street
North Sydney
NSW 2060

Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
Report #: 694857
Phone: 02 99225021
Fax:

Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH3_0.2	Dec 17, 2019		Soil	N19-De29735						X		X	
2	BH3_0.5	Dec 17, 2019		Soil	N19-De29736				X	X	X		X	
3	BH5_0.2	Dec 17, 2019		Soil	N19-De29737						X		X	
4	BH5_0.4	Dec 17, 2019		Soil	N19-De29738					X	X			
5	BH2_0.2	Dec 18, 2019		Soil	N19-De29739						X		X	
6	BH2_1.0	Dec 18, 2019		Soil	N19-De29740						X		X	
7	BH4_0.2	Dec 18, 2019		Soil	N19-De29741				X		X		X	
8	BH4_1.0	Dec 18, 2019		Soil	N19-De29742						X		X	
9	BH7_0.1	Dec 18, 2019		Soil	N19-De29743						X		X	
10	BH7_ACM	Dec 18, 2019		Building	N19-De29744		X							

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Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
				Materials										
11	BH7 W/W%	Dec 18, 2019		Soil	N19-De29745	X								
12	BH8_0.05	Dec 18, 2019		Soil	N19-De29746				X		X		X	
13	BH9_0.5	Dec 18, 2019		Soil	N19-De29747						X		X	
14	BH10_0.2	Dec 18, 2019		Soil	N19-De29748				X		X		X	
15	BH10_0.5	Dec 18, 2019		Soil	N19-De29749						X		X	
16	BH11_0.2	Dec 18, 2019		Soil	N19-De29750				X		X		X	
17	BH11_1.0	Dec 18, 2019		Soil	N19-De29751						X		X	
18	BH12_0.2	Dec 18, 2019		Soil	N19-De29752						X		X	
19	BH12_1.0	Dec 18, 2019		Soil	N19-De29753						X		X	
20	BH12_2.0	Dec 18, 2019		Soil	N19-De29754					X	X			
21	BH13_0.1	Dec 18, 2019		Soil	N19-De29755						X		X	
22	BH1_0.2	Dec 19, 2019		Soil	N19-De29756						X		X	

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Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
23	BH1_0.5	Dec 19, 2019		Soil	N19-De29757				X		X	X	X	
24	BH1_1.0	Dec 19, 2019		Soil	N19-De29758					X	X			
25	QC03	Dec 19, 2019		Soil	N19-De29759						X		X	
26	RW01	Dec 19, 2019		Water	N19-De29760								X	
27	TB	Dec 19, 2019		Soil	N19-De29761									X
28	TS	Dec 19, 2019		Soil	N19-De29762									X
29	BH2_0.5	Dec 18, 2019		Soil	N19-De29763			X						
30	BH4_0.5	Dec 18, 2019		Soil	N19-De29764			X						
31	BH4_1.5	Dec 18, 2019		Soil	N19-De29765			X						
32	BH7_0.3	Dec 18, 2019		Soil	N19-De29766			X						
33	BH10_1.0	Dec 18, 2019		Soil	N19-De29767			X						
34	BH11_0.5	Dec 18, 2019		Soil	N19-De29768			X						
35	BH12_0.5	Dec 18, 2019		Soil	N19-De29770			X						

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Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
36	BH1_1.5	Dec 19, 2019		Soil	N19-De29771			X						
37	QC01	Dec 18, 2019		Soil	N19-De29772			X						
Test Counts						1	1	9	6	4	23	1	21	2

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Authorised by:

Charl Du Preez	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Phone : 0800 856 450
IANZ # 1290

Company Name: EP Risk Management (NSW)
Address: 109/283 Alfred Street
North Sydney
NSW 2060

Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
Report #: 694857
Phone: 02 99225021
Fax:

Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH3_0.2	Dec 17, 2019		Soil	N19-De29735						X		X	
2	BH3_0.5	Dec 17, 2019		Soil	N19-De29736				X	X	X		X	
3	BH5_0.2	Dec 17, 2019		Soil	N19-De29737						X		X	
4	BH5_0.4	Dec 17, 2019		Soil	N19-De29738					X	X			
5	BH2_0.2	Dec 18, 2019		Soil	N19-De29739						X		X	
6	BH2_1.0	Dec 18, 2019		Soil	N19-De29740						X		X	
7	BH4_0.2	Dec 18, 2019		Soil	N19-De29741				X		X		X	
8	BH4_1.0	Dec 18, 2019		Soil	N19-De29742						X		X	
9	BH7_0.1	Dec 18, 2019		Soil	N19-De29743						X		X	
10	BH7_ACM	Dec 18, 2019		Building	N19-De29744		X							

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Australia

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Site # 1254 & 14271

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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

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Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
				Materials										
11	BH7 W/W%	Dec 18, 2019		Soil	N19-De29745	X								
12	BH8_0.05	Dec 18, 2019		Soil	N19-De29746				X		X		X	
13	BH9_0.5	Dec 18, 2019		Soil	N19-De29747						X		X	
14	BH10_0.2	Dec 18, 2019		Soil	N19-De29748				X		X		X	
15	BH10_0.5	Dec 18, 2019		Soil	N19-De29749						X		X	
16	BH11_0.2	Dec 18, 2019		Soil	N19-De29750				X		X		X	
17	BH11_1.0	Dec 18, 2019		Soil	N19-De29751						X		X	
18	BH12_0.2	Dec 18, 2019		Soil	N19-De29752						X		X	
19	BH12_1.0	Dec 18, 2019		Soil	N19-De29753						X		X	
20	BH12_2.0	Dec 18, 2019		Soil	N19-De29754					X	X			
21	BH13_0.1	Dec 18, 2019		Soil	N19-De29755						X		X	
22	BH1_0.2	Dec 19, 2019		Soil	N19-De29756						X		X	

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Company Name: EP Risk Management (NSW)
Address: 109/283 Alfred Street
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Project Name: RICHMOND HOSPITAL PSI
Project ID: EP1494

Order No.:
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Received: Dec 20, 2019 8:45 AM
Due: Dec 31, 2019
Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
23	BH1_0.5	Dec 19, 2019		Soil	N19-De29757				X		X	X	X	
24	BH1_1.0	Dec 19, 2019		Soil	N19-De29758					X	X			
25	QC03	Dec 19, 2019		Soil	N19-De29759						X		X	
26	RW01	Dec 19, 2019		Water	N19-De29760								X	
27	TB	Dec 19, 2019		Soil	N19-De29761									X
28	TS	Dec 19, 2019		Soil	N19-De29762									X
29	BH2_0.5	Dec 18, 2019		Soil	N19-De29763			X						
30	BH4_0.5	Dec 18, 2019		Soil	N19-De29764			X						
31	BH4_1.5	Dec 18, 2019		Soil	N19-De29765			X						
32	BH7_0.3	Dec 18, 2019		Soil	N19-De29766			X						
33	BH10_1.0	Dec 18, 2019		Soil	N19-De29767			X						
34	BH11_0.5	Dec 18, 2019		Soil	N19-De29768			X						
35	BH12_0.5	Dec 18, 2019		Soil	N19-De29770			X						

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Address: 109/283 Alfred Street
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NSW 2060

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Project ID: EP1494

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Priority: 5 Day
Contact Name: Nathan McGuire

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite B14	Aggressivity Soil Set	Moisture Set	NEPM Screen for Soil Classification	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271								X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X	X							
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
36	BH1_1.5	Dec 19, 2019		Soil	N19-De29771			X						
37	QC01	Dec 18, 2019		Soil	N19-De29772			X						
Test Counts						1	1	9	6	4	23	1	21	2

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NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**EP Risk Management (NSW)**
Contact name:	Nathan McGuire
Project name:	RICHMOND HOSPITAL PSI
Project ID:	EP1494
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Dec 20, 2019 8:45 AM
Eurofins reference:	**694857**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

QC02, QC04 to be sent to envirolab.

Contact notes

If you have any questions with respect to these samples please contact:

Alena Bounkeua on Phone : or by e.mail: AlenaBounkeua@eurofins.com

Results will be delivered electronically via e.mail to Nathan McGuire - nathan.mcguire@eprisk.com.au.

①

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt Sydney Lab — Unit F3 Building F, 16 Mars Road, Lane Cove West, NSW 2066 P: +61 2 9900 8400 E: EnviroSampleNSW@eurofins.com.au

☐ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie, QLD 4172 P: +61 7 3902 4600 E: EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 P: +61 3 8564 5000 F: +61 3 8564 5090 E: EnviroSampleVic@eurofins.com.au

Company	EP Risk	Purchase Order	EP1494	Project Manager	Nathan McGuire	Project Name	Richmond Hospital PSI
Address	3/19 Bolton st, Newcastle	Eurofins | mgt Quote №		Project №	EP1494	Electronic Results Format	Esdat
Contact Name	Nathan McGuire					Email for Results	nathan.mcguire@eprisk.com.au
Contact Phone №	0422 937 410					Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* ☐ 5 DAY (Std.) ☐ Other ( ) *Surcharges apply
Special Direction						Method of Shipment	[✓ Courier (#)] ☐ Hand Delivered ☐ Postal
Relinquished by (Signature) (Time / Date)	N. McGuire 2:30 19/12/19						

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	TRH, BTEXN, PAH, 8 metals	OCP, OPP	Asbestos w/w%	NEPM Screen for soil classification	Aggressivity	Asbestos ID	TRH (F1), BTEX
1	BH3_0.2	17/12/19	S	X						
2	BH3_0.5			X	X			X		
3	BH5_0.2			X						
4	BH5_~~0.5~~ 0.54							X		
5	BH2_0.2	18/12/19		X						
6	BH2_0.5									
7	BH2_1.0							X		
8	BH4_0.2			X	X					
9	BH4_0.5									
10	BH4_1.0			X						
11	BH4_1.5									
12	BH7_0.1			X						

Containers: 1L Plastic | 250mL Plastic | 125mL Plastic | 200mL Amber Glass | 40mLvial | 125mL Amber Glass | Jar

Sample Comments / DG Hazard Warning

Date/Time: 20/12 8:45am
Chilled: [✓ Yes] / No
Temp: 6.9
Correction: ~~6.1~~ 5.9
Final Temp: ~~10~~ 6

Laboratory Use Only											
	Received By	SUE	SYD | BNE | MEL | PER | ADL | [✓ NEW] | DAR	Date	20/12/19	Time	8:15am	Signature	[illegible]	Temperature	6.9°C
	Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature		Report №	694857

QS3009_R4 Modified by: S. Kojima Approved by: T. Lakeland Approved on: 11 August 2015

(2)

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

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☐ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie, QLD 4172 — P: +61 7 3902 4600 — E: EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 — P: +61 3 8564 5000 — F: +61 3 8564 5090 — E: EnviroSampleVic@eurofins.com.au

Company	EP Risk	Purchase Order	EP14494	Project Manager	Nathan McGuire	Project Name	Richmond Hospital PSI
Address	3/19 Bolton St, Newcastle	Eurofins | mgt Quote №		Project №	EP14494	Electronic Results Format	Esdat
Contact Name	Nathan McGuire					Email for Results	nathan.mcguire@eprisk.com.au
Contact Phone №	0422 937 440					Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☐ 5 DAY (Std.) ☐ Other ( )
Special Direction						Containers	Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal
Relinquished by (Signature)	N. McGuire						
(Time / Date)	2:30 19/12/19						

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 metals	OCP, OPP	Asbestos w/w%	NEPM screen for soil classification	Aggressivity	Asbestos ID	TRH (F1), BTEX	1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	BH7_0.3	18/12/19	S															
2	BH7 ACM					~~X~~			X									
3	BH7 w/w%					X												
4	BH8_0.05			X	X													
5	BH9_0.5			X														
6	BH10_0.2			X	X													
7	BH10_0.5			X														
8	BH10_1.0																	
9	BH11_0.2			X	X													
10	BH11_0.5																	
11	BH11_1.0			X														
12	BH12_0.2			X														

Laboratory Use Only										
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	___/___/___	Time	___:___	Signature		Temperature	6.9c
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	___/___/___	Time	___:___	Signature		Report №	694857

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

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Company	EP Risk	Purchase Order	EP14494	Project Manager	Nathan McGuire
Address	3/19 Bolton St, Newcastle	Eurofins | mgt Quote №		Project №	EP14494
Contact Name	Nathan McGuire				
Contact Phone №	0422 937 440				
Special Direction					
Relinquished by (Signature)	N. McGuire				
(Time / Date)	2:30 19/12/19				

Project Name	Richmond Hospital PSI	
Electronic Results Format	Esdat	
Email for Results	nathan.mcguire@eprisk.com.au	
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* * Surcharges apply ☐ 5 DAY (Std.) ☐ Other ( )	

Containers: 1L Plastic | 250mL Plastic | 125mL Plastic | 200mL Amber Glass | 40mL vial | 125mL Amber Glass | Jar

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 metals	OCP, OPP	Asbestos w/w %	NEPM suite for soil classification	Aggressivity	Asbestos ID	TRH(F1), BTEX	Sample Comments / DG Hazard Warning
1	BH12_0.5	18/12/19	S								
2	BH12_1.0			X							
3	BH12_2.0							X			
4	BH13_0.1			X							
5	BH1_0.2	19/12/19		X							
6	BH1_0.5			X	X		X				
7	BH1_1.0							X			
8	BH1_1.5										
9	QC01	18/12/19									
10	QC02										Please send QC02 to envirolab
11	QC03			X							
12	QC04			X							Please send QC04 to envirolab

Laboratory Use Only									
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	Temperature	6.9C
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	Report №	694857

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

(4)

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Company	EP Risk	Purchase Order	EP1494	Project Manager	Nathan McGuire
Address	3/19 Bolton St, Newcastle	Eurofins | mgt Quote №		Project №	EP1494
Contact Name	Nathan McGuire				
Contact Phone №	0422 937 410				
Special Direction					
Relinquished by (Signature)	N. McGuire				
(Time / Date)	2:30 19/12/19				

Project Name	Richmond Hospital PSI	
Electronic Results Format	Esdat	
Email for Results	nathan.mcguire@eprisk.com.au	
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☐ 5 DAY (Std.) ☐ Other ( )	

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	TRH, BTEX, PAH, Metals	OCP, OPP	Asbestos w/w%	NEPM screen for soil classification	Aggressivity	Asbestos ID	TRH(F1), BTEX
1	RW01	19/12/19	W	X						
2	TB		S							X
3	TS		↓							X
4										
5										
6										
7										
8										
9										
10										
11										
12										

Containers: 1L Plastic | 250mL Plastic | 125mL Plastic | 200mL Amber Glass | 40mL vial | 125mL Amber Glass | Jar

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Sample Comments / DG Hazard Warning

Laboratory Use Only									
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	Temperature	6.9°C
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature	Report №	694857

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ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 19527

Client Details

Client	EP Risk Management Pty Ltd
Attention	Nathan McGuire
Address	Unit 22/1 Ricketts Road, Mt Waverly, VIC, 3149

Sample Details

Your Reference	**EP1494**
Number of Samples	Soils
Date samples received	03/01/2020
Date completed instructions received	03/01/2020

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	10/01/2020
Date of Issue	08/01/2020

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Results Approved By
Chris De Luca, Operations Manager

Authorised By

Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		19527-2
Your Reference	UNITS	QC04
Date Sampled		18/12/2019
Type of sample		Soil
Date extracted	-	06/01/2020
Date analysed	-	07/01/2020
vTRH C_6 - C_9	mg/kg	<25
vTRH C_6 - C_{10}	mg/kg	<25
TRH 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	%	86

TRH Soil C10-C40 NEPM		
Our Reference		19527-2
Your Reference	UNITS	QC04
Date Sampled		18/12/2019
Type of sample		Soil
Date extracted	-	6/01/2020
Date analysed	-	06/01/2020
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	%	93

PAHs in Soil		
Our Reference		19527-2
Your Reference	UNITS	QC04
Date Sampled		18/12/2019
Type of sample		Soil
Date extracted	-	06/01/2020
Date analysed	-	07/01/2020
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.2
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	0.8
Pyrene	mg/kg	0.8
Benzo(a)anthracene	mg/kg	0.5
Chrysene	mg/kg	0.4
Benzo(b,j&k)fluoranthene	mg/kg	0.8
Benzo(a)pyrene	mg/kg	0.41
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4
Total +ve PAH's	mg/kg	4.6
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.6
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.6
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	0.7
Surrogate p-Terphenyl-d_{14}	%	98

Acid Extractable metals in soil		
Our Reference		19527-2
Your Reference	UNITS	QC04
Date Sampled		18/12/2019
Type of sample		Soil
Date digested	-	06/01/2020
Date analysed	-	06/01/2020
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	7
Copper	mg/kg	49
Lead	mg/kg	22
Mercury	mg/kg	<0.1
Nickel	mg/kg	8
Zinc	mg/kg	59

Moisture		
Our Reference		19527-2
Your Reference	UNITS	QC04
Date Sampled		18/12/2019
Type of sample		Soil
Date prepared	-	6/01/2020
Date analysed	-	7/01/2020
Moisture	%	7.3

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	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	[NT]
Date extracted	-			06/01/2020	2	06/01/2020	06/01/2020		06/01/2020	[NT]
Date analysed	-			07/01/2020	2	07/01/2020	07/01/2020		07/01/2020	[NT]
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	2	<25	<25	0	91	[NT]
vTRH C_6 - C_{10}	mg/kg	25	Org-016	<25	2	<25	<25	0	92	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	2	<0.2	<0.2	0	92	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	2	<0.5	<0.5	0	84	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	2	<1	<1	0	91	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	2	<2	<2	0	94	[NT]
o-Xylene	mg/kg	1	Org-016	<1	2	<1	<1	0	94	[NT]
Naphthalene	mg/kg	1	Org-014	<1	2	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	81	2	86	82	5	87	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/01/2020	2	6/01/2020	6/01/2020		06/01/2020	[NT]
Date analysed	-			06/01/2020	2	06/01/2020	06/01/2020		06/01/2020	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	2	<50	<50	0	94	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	2	<100	<100	0	96	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	2	<100	<100	0	93	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	2	<50	<50	0	94	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	2	<100	<100	0	96	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	2	<100	<100	0	93	[NT]
Surrogate o-Terphenyl	%		Org-003	95	2	93	94	1	85	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/01/2020	2	06/01/2020	06/01/2020		06/01/2020	[NT]
Date analysed	-			07/01/2020	2	07/01/2020	07/01/2020		07/01/2020	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	88	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	92	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	94	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	2	0.2	<0.1	67	92	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	2	0.8	0.2	120	94	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	2	0.8	0.2	120	94	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	2	0.5	<0.1	133	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	2	0.4	<0.1	120	92	[NT]
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-012	<0.2	2	0.8	<0.2	120	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	2	0.41	0.11	115	78	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	2	0.3	<0.1	100	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	2	0.4	0.1	120	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	110	2	98	100	2	90	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			06/01/2020	[NT]	[NT]	[NT]	[NT]	06/01/2020	[NT]
Date analysed	-			06/01/2020	[NT]	[NT]	[NT]	[NT]	06/01/2020	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	88	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	90	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	90	[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.

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.

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

PAH: The RPD for duplicate results 19527-2 for PAHs is accepted due to the inhomogeneous nature of the sample/s. Triplicate analysis confirms this and is available upon request.

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	EP Risk Management Pty Ltd
Attention	Nathan McGuire

Sample Login Details

Your reference	EP1494
Envirolab Reference	19527
Date Sample Received	03/01/2020
Date Instructions Received	03/01/2020
Date Results Expected to be Reported	10/01/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	Soils
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	9.7C
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

TRH/BTEX & PAH have exceeded the recommended technical holding times, please contact the laboratory within 24 hours if you wish to cancel the aforementioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

Pamela Adams	Analisa Mathrick
Phone: 03 9763 2500	**Phone: 03 9763 2500**
Fax: 03 9763 2633	**Fax: 03 9763 2633**
Email: padams@envirolab.com.au	**Email: amathrick@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	Acid Extractable metalsin soil	On Hold
QC02					✓
QC04	✓	✓	✓	✓	

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.

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt Sydney Lab — Unit F3 Building F, 16 Mars Road, Lane Cove West, NSW 2066 P: +61 2 9900 8400 E: EnviroSampleNSW@eurofins.com.au

☐ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie, QLD 4172 P: +61 7 3902 4600 E: EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 P: +61 3 8564 5000 F: +61 3 8564 5090 E: EnviroSampleVic@eurofins.com.au

1

Company	EP Risk	Purchase Order	EP1494
Address	3/19 Bolton St, Newcastle	Eurofins | mgt Quote №	
Contact Name	Nathan McGuire	Project Manager	Nathan McGuire
Contact Phone №	0422 937 410	Project №	EP1494
Special Direction		Project Name	Richmond Hospital PSI
Relinquished by (Signature)	N. McGuire	Electronic Results Format	Esdat
(Time / Date)	2:30 19/12/19	Email for Results	nathan.mcguire@eprisk.com.au

Turn Around Requirements: ☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* ☐ 5 DAY (Std.) ☐ Other ( ) * Surcharges apply

Method of Shipment: ☑ Courier (#) ☐ Hand Delivered ☐ Postal

Containers: 1L Plastic | 250mL Plastic | 125mL Plastic | 200mL Amber Glass | 40mL vial | 125mL Amber Glass | Jar

Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	TRH, BTEXN, PAH, 8 metals	OCP, OPP	Asbestos w/w %	NEPM screen for soil classification	Aggressivity	Asbestos ID	TRH(F1), BTEX	Sample Comments / DG Hazard Warning
1	BH12_0.5	18/12/19	S								
2	BH12_1.0			X							
3	BH12_2.0							X			
4	BH13_0.1			X							
5	BH1_0.2	19/12/19		X							
6	BH1_0.5			X	X		X				
7	BH1_1.0							X			
8	BH1_1.5										
9	QC01	18/12/19									
10	① QC02										Please send QC02 to envirolab
11	QC03			X							
12	② QC04			X							Please send QC04 to envirolab

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500
Job No: 19527
Date Received: 3/1/20.
Time Received: 10:00
Received By: SL
Temp: [✓ Cool]/Ambient 9.7°C
Cooling: Ice/[✓ Icepack]
Security: [✓ Intact]/Broken/None

Laboratory Use Only										
~~Received By~~ RLQ	CANNA TO EF	SYD | BNE | [✓ MEL] | PER | ADL | NEW | DAR	Date	03/01/2020	Time	8am	Signature	[illegible]	Temperature	6.9°C
Received By		SYD | BNE | [✓ MEL] | PER | ADL | NEW | DAR	Date	3/1/2020	Time	10:00	Signature	[illegible]	Report №	694857