Report on Preliminary Site Investigation

259 Windermere Road Windermere NSW

81022070-001

Prepared for
Newpro27 Pty Ltd

7 October 2022

Cardno
now
Stantec

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1	24/06/2022	First Issue to Client	BL/KS	DS
2	7/10/2022	Amended Lot Layout Plan	KS	DS

Executive Summary

Cardno now Stantec Australia Pty Ltd (Stantec) have been engaged by Newpro27 Pty Ltd (the Client) to prepare a Preliminary Site Investigation (PSI) for the proposed residential development in the southern portion of 259 Windermere Road, Windermere NSW (the Site).

The purpose of this PSI is to provide the Client with preliminary advice on the contamination status of the Site and subsequent implications for the intended use. The PSI reviews current and historical activities undertaken at the site and provides a preliminary environmental assessment of the potential for soil and/or groundwater contamination to be present on the Site. The following tasks formed the scope of works Stantec undertook to complete the PSI:

- Defining of the Site extents, features and surrounding area;
- Review of hydrogeology and groundwater resource use;
- Review of public records on Site history;
- Site inspection of the Site and surrounding land;
- Review of previous intrusive site investigation, sampling and testing undertaken at the Site; and
- Preparation of a PSI report to advise on the Site's preliminary contamination status.

As part of the initial investigation, multiple soil samples were subject to laboratory analysis for a range of analytical suites to assess the suitability of the existing fill. Analytical testing undertaken comprised; heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn), organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs), Total Recoverable Hydrocarbons (TRH), BTEXN (Benzene, Toluene, Ethyl-benzene, Xylenes and Naphthalene), Polycyclic Aromatic Hydrocarbons (PAH), Volatile Organic Compounds (VOC), Polychlorinated Biphenyls (PCB) and asbestos ID in soil.

Results from laboratory testing indicate there were no exceedances of the following thresholds for commercial and industrial development for the analytes tested as detailed in NEPM 1999 [1]:

- Health Investigation Levels (HIL's) "residential with garden/accessible soil" (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for residential (HSL A);
- Ecological Screening Levels (ESLs) for TRH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban residential and public open space; and
- Ecological Investigation Levels (EILs) for urban residential and public open space limits. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the site soils ranging between 5.9 - 6.5 and in the absence of CEC and/or % clay content testing.

Based on the review of the Site history, investigation works, Site inspection and laboratory testing, Stantec did not identify any past or current, potentially gross contaminating activities having been undertaken on or adjacent to the Site.

Given the results of this assessment, Stantec recommend the development and implementation of an unexpected finds protocol to address any potential contamination that may be uncovered during construction phase. This has been included as an Appendix in this report. The Site is considered low risk of potential contamination based on the review of Site history, geotechnical works, investigation findings and the identified data gaps. Based on the findings of the PSI, Stantec did not identify any contamination or potentially contaminating activities previously undertaken on Site that would render the site unsuitable for its proposed use.

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1 Introduction

1.1 Background

Cardno, now Stantec Australia Pty Ltd (Stantec) have been engaged by Newpro27 Pty Ltd (the Client), to prepare a Preliminary Site Investigation (PSI) for the proposed residential development at 259 Windermere Road, Windermere (the "Site"). The Site assessment area is shown on Figure 1 and 2, attached in Appendix A.

Stantec have been provided with concept design plans titled "Proposed Subdivision – 259 Windermere Road, Lochinvar – Lot Layout Plan", referenced 21460DA, revision 7, dated 27/07/2022, attached in Appendix A. Based on subdivision concept design plans provided by the Client, the proposed residential development comprises the following:

- The creation of 96 residential allotments and ancillary infrastructure (sewer, electrical services etc.);
- Internal subdivision pavements and associated infrastructure; and
- Proposed detention basin in the south-east portion of the site.

The assessment is required to satisfy pre-DA requirements for assessment of potential contamination at the Site.

The current PSI included a site inspection and desktop study of historical data including a review of the Maitland City Council (MCC) Section 10.7 Planning Certificate, historical aerial photographs, title deeds and NSW EPA database. The assessment also comprised intrusive field investigation and laboratory sampling.

The assessment was undertaken with reference to NSW EPA "Consultants reporting on contaminated land Contaminated land guidelines" [2]and *National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999* [1].

It should be noted this PSI has been prepared for only a portion of the overall lot, with the assessment extents shown on Figure 1 attached in Appendix A.

Revision of the PSI has been undertaken following amendments to the proposed lot layout plan.

1.2 Purpose and Objectives

The purpose of this PSI is to provide the Client with preliminary advice on the contamination status of the Site and subsequent implications for the intended use. The PSI reviews current and historical activities undertaken at the Site and provides a preliminary environmental assessment of the potential for soil and/or groundwater contamination to be present on the Site.

The objectives of the PSI are:

- To the extent practicable, identify the potential for past or present activities on; and surrounding the Site, to have impacted soil or groundwater at the Site.
- Identify potential areas and contaminants of concern at the Site.
- Identify potential receptors of concern and assess the potential for the protected beneficial uses of the land to be impacted due to contamination.
- To make a preliminary assessment of whether contamination is likely to affect the future use or development of the Site.
- Assess the requirement, if any, for further environmental investigation to assess or make the Site suitable for the proposed use.

1.3 Scope

Stantec carried out the following tasks in order to satisfy the purpose and objectives of the PSI.

Defined the Site, Features & Surrounds:

- Obtained the property title description from a Land-data Property Report.
- Defined the site boundaries based on title information, available data and established a site base plan.

- Identified the site features.
- Defined the topography, surface water drainage of the site and its proximity to the nearest surface water body.
- Identified the location of nearby sensitive environments and receptors such as residential, child-care and primary schools, wetlands, streams or rivers.
- Identified the zoning of the site under the local Planning Scheme.
- Review of previous investigations undertaken within the area.

Hydrogeology & Groundwater Resource Use

- Ascertained the potential utilisation of groundwater at and near the site through a search of the NSW Groundwater Database at NSW Office of Water website.

Review of Public Records on Site History

Reviewed publicly available documents relevant to the site including:

- The historical chain of land titles.
- Historical and current maps of the area.
- Selected historical aerial photos available from the Department of Lands.
- Undertook a review of the NSW EPA Contaminated Lands Register to identify nearby contaminated sites reported to the NSW EPA under section 60 of the CLM (1997)

Site Inspection & Surrounds

- Confirmed the site features and identified any visible evidence of fuel storage tanks (above or belowground) and other infrastructure with potential to act as a source of soil and/or groundwater.
- Confirmed the soil type and looked for evidence of site cutting and filling.
- Assessed the surrounding area (to a radius of approximately 500 m) for potential sources of contamination of soil or groundwater at the site.

Intrusive Site Investigation Sampling & Testing

- Performed limited investigations of soil conditions at seven (7) selected locations to depths ranging from 1.3-2.0 m below ground level (BGL).
- Tested selected soil samples for a broad range of analytes (by a National Association of Testing Authorities (NATA) accredited laboratory).
- Compared laboratory concentrations to thresholds detailed within the NEPM [1].

It should be noted the eastern portion of the Site was nominated as an exclusion zone due as Aboriginal Heritage Information Management System (AHIMS) searches returned Potential Archaeological Deposits (PADs) in the area. As such, no sampling or excavation was taken place within the eastern portion of the Site, however inspection of the eastern portion of the Site was undertaken.

Reporting

- Prepared this Preliminary Site Investigation (PSI) report to document the assessment activities and results to including findings and recommendations relevant to the objectives of the assessment.
- Developed a Conceptual Site Model (CSM) for the site, identifying complete and potential pathways between known and potential sources and receptors. This CSM is incorporated in this investigation report.

2 Site Inspection and Surrounding Environment

2.1 Site Identification

The subject Site details are presented in Table 2-1 below. For Site location, refer to Figure 1 and 2 in Appendix A.

Table 2-1 Site Details

Site Address	259 Windermere Road, Windermere NSW
Lot Number and Deposited Plan	Lot 1902 DP 1112961
Site Area	Approx. 9.7 ha
Local Government Area	Maitland City Council
Relative Zoning	R1 General Residential, C3 Environmental Management (Eastern Creek Alignment), RU1 Primary Production

2.2 Site Use and Infrastructure

A site inspection was undertaken by a Geotechnical Engineer from Stantec on 13 April 2022 in order to identify and map salient features of the site and the surrounding are. The inspection comprised a walkover assessment. Site features and observations are detailed in Table 2-2 below.

Table 2-2 Site features and Observations

Item	Observations
Site use	▪ Undeveloped Land / Pasture
Weather condition	▪ Overcast with some showers
Site slope and drainage features	▪ Gentle slopes falling from the north west corner of the block to the south-east, with a drainage channel running from the north west corner through the middle of the block to a dam on the adjacent property to the south.
Nearby water bodies	▪ Lochinvar creek traversing north to south, east of Site. The creek was flowing at the time of inspection.
Site surface coverings	▪ Surface predominately covered by vegetation (grass cover / pasture) with mature trees noted along Lochinvar Creek bounding the eastern portion of the Site. See Photograph 1 in Appendix A.
Surface soils	▪ Sandy SILTS
Site cut and fill	▪ Not Observed
Buildings	▪ Not Observed
Potential asbestos in building materials	▪ Not Observed
Manufacturing, industrial or chemical processes and infrastructure	▪ Not Observed
Fuel storage tanks (USTs/ASTs)	▪ Not Observed
Dangerous goods	▪ Not Observed
Presence of stockpiles, fly tipping or anthropogenic materials	▪ Not Observed
Liquid waste disposal features	▪ Not Observed
Evidence of previous site contamination investigations	▪ Not Observed
Evidence of land contamination (staining or odours)	▪ Not Observed

Item	Observations
Evidence of groundwater contamination	▪ Not Observed
Groundwater use	▪ Not Observed
Vegetation	▪ Grass cover
Site fencing	▪ Farm wire fencing
Additional Notes and Observations	Not Observed

2.3 Surrounding Environment and Land Uses

The Site is located within a rural residential district. Land uses around the site are detailed in Table 2-3 below.

Table 2-3 Surrounding Land Use

Direction	Land Use or Activity
North	▪ Rural residential property. ▪ Land zoned as Primary Production (RU1).
West	▪ Windermere Road with rural residential properties to the west. ▪ Land zoned as Primary Production (RU1).
East	▪ Rural residential property. ▪ Lochinvar Creek bounding the eastern portion of the Site. ▪ Land zoned as Primary Production (RU1) to the east. ▪ Land zoned as General Residential (R1) and Environmental Management (C3) along Lochinvar Creek to the south east.
South	▪ Land zoned as General Residential (R1) and Environmental Management (C3) along Lochinvar Creek. ▪ Further south existing residential buildings and Lochinvar Public School adjacent to the New England Highway.

The area is serviced by public roads and access to the Site is along Windermere Road.

3 Published Data

3.1 Regional Geology

Reference to the NSW Seamless Geology dataset [3] indicates that the Site is underlain by the Lochinvar Formation of the Dalwood Group **(Pdal)** known to comprise of Early Permian deposits of basalt, siltstone, sandstone and residual soils derived from the weathering of these deposits.

3.2 Acid Sulfate Soils

Review of the Maitland Local Environmental Plan (LEP) 2011 Acid Sulfate Soils Risk Map indicates the Site is situated within Class 5 Acid Sulfate Soils. Class 5 indicates that *"works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the water table is likely to be lowered below 1 metres AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk*

Further review of the NSW Government Planning, Industry & Environment eSPADE [4] indicates that the Site is situated within a no know occurrence area.

The Atlas of Australian Acid Sulfate Soils indicates that the Site is in an extremely low probability of occurrence (1-5%). Refer to Lotsearch Report (ref. LS031441 EP).

3.3 Hydrogeology

A search of the NSW Groundwater Database from Department of Primary Industries – Office of Water NSW indicated no wells are situated within 500 m of the Site. The searches are presented in the Lotsearch Report (ref. LS031441 EP), attached in Appendix B.

3.4 EPA Records Search

3.4.1 Contaminated Land Record of Notices

The Contaminated Land Record of Notices is maintained by the Office of Environment and Heritage (OEH) in accordance with Part 5 of the Contaminated Land Management (CLM) Act 1997 and contains regulatory notices issued by the Environment Protection Authority (EPA) in relation to contaminated sites. A search of NSW EPA Record of Notices revealed no notices listed within 500 m of the site. Records are attached in Appendix C, as part of the Lotsearch Report (LS031441 EP).

3.4.2 PoEO Public Register

The PoEO Public Register under Section 308 of the Protection of the Environmental Operations (PoEO) Act 1997 contains Environmental Protection Licences (EPLs), applications and notices issued by the EPA.

The Public Register was searched on the 22 April 2022 to identify any issues of relevance to the Site. The search revealed one (1) licensed activity on the Site and is summarised in Table 3-1 below. Refer to Lotsearch Report (LS031441 EP), attached in Appendix B.

Table 3-1 Licenced Activities under the PoEO Act 1997

EPL	Organisation	Name	Address	Activity	Distance
10393	Maitland City Council	All Waterbodies in the Maitland Local Government Area	-	Other Activities	Onsite

Notes to table:
- : Information not supplied.

The search revealed four (4) licenced activities now revoked or surrendered on the Site. The search results are presented in Table 3-2 below and attached in Appendix B as part of the Lotsearch Report (ref. LS031441 EP).

Table 3-2 Former Licensed Activities under the PoEO Act 1997

License No.	Organisation	Location	Date Issued	Activity	Distance
4653	Luhrmann Environment Management Pty Ltd	Waterways Throughout NSW	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Onsite
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Onsite
6630	Sydney Weed & Pest Management Pty Ltd	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Onsite
12439	State of NSW (Department of Primary Industries)	Soil Conservation Service, Waterways within the Hunter Valley Flood Mitigation Scheme, Maitland	13/02/2007	Other Activities – Application of Herbicides	North East

The current and the revoked licences relate to weed management by MCC on Lochinvar creek.

3.4.3 List of NSW Contaminated Sites Notified to the EPA

A search of the NSW Contaminated Sites Notified to the EPA did not identify contaminated sites within 500 km of the Site. The search results are presented in Appendix B, as part of the Lotsearch Report (ref. LS031441 EP).

4 Site History

4.1 General

The site history comprised the review of the Lotsearch Report LS031441 EP, title deed searches, available published data, Section 10.7 planning certificates and aerial photography review, all attached in Appendix B. The site history review is detailed herein.

4.1.1 Historical Title Deeds Search

Historical Title Deeds were obtained to help determine previous land use of the site. A summary of the previous owners can be seen below in Table 4-1.

It is noted that allotment identification numbers have changed for the subjected lots over the years and are detailed in the tables below.

Historical Title Deeds are attached in Appendix A.

Table 4-1 Historical Title Deeds Lot 1902 DP 1112961, 259 Windermere Road

Date of Acquisition	Registered Proprietor(s)	Occupation/Possible Land Use
22.02.1916 (1916 to 1975)	Wallace Capp	Grazier
01.01.1975 (1975 to 17975)	Allan Robert Peter Capp John Wallace Perdriau Capp (Trustees of the Estate of the late Wallace Capp)	Clerk Dairy Farmer/ Farmer
13.01.1975 (1975 to 2022)	Windermere Pastoral Company Pty. Limited	-/-
21.01.2022	# Newpro 27 Pty Ltd	-/-

Notes to table:
# denotes current registered proprietors.

4.1.2 Maitland City Council (MCC) Planning Information

A Section 10.7 (2) Planning Certificate search was undertaken for the Site. No notations of potential contamination issues were detailed in regards to Lot 1902 DP 1112961.

The complete certification attached in Appendix B and summarised below is for the entire lot which includes the subject Site:

- Zoned as C3 Environmental Management, R1 General Residential and RU1 Primary Production.
- Maitland Development Control Plan 2011 applies to this land.
- The land is not identified as critical habitat.
- The land is not identified as having either Conservation or Environmental Heritage value.
- The land is not affected by road realignment or road widening.
- Development consent is required where works are described as per the Maitland LEP 2011 Acid Sulfate Soils Map as being of the class specified for those works.
- The land is not subjected to Land Reserved for Acquisition.
- This land is within the flood planning area and is subject to flood related development controls.
- The land is not biodiversity certified land.
- The land is not within a proclaimed Mine Subsidence District.
- This land is bushfire prone (Vegetation Category 3). This site is therefore classified as medium bush fire risk.

- The land is not subject to a property vegetation plan under Native Vegetation Act 2003.
- There are no premises on the subject land listed to contain or have contained loose-fill asbestos insulation.
- The following contribution plans apply to the Site:
  - Maitland S94A Level Contributions Plan 2006
  - Lochinvar S94 Contribution Plan 2013
  - Maitland City Wide Section 94 Contributions Plan 2016
  - Maitland S94 Contribution Plans (City Wide) 2006
- The land to which this certificate relates is NOT significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.

4.1.3 Review of Historical Aerial Photos

Stantec has conducted a review of historical aerial photographs or available aerial imagery, current site inspection, previous investigations and knowledge of the area.

A summary of the interpreted site features is detailed in Table 4-2 below and aerial photographs are provided in Lotsearch Report LS031441 EP attached in Appendix B.

Table 4-2 Aerial Imagery Review

Date	Reference	Observations
1958	Black and White	**Onsite** ▪ The Site is undeveloped grassland. **Offsite** ▪ Undeveloped grassland to the north of the Site. ▪ Undeveloped grassland to the south of the Site. Further south are residential properties along the New England Highway. ▪ Windermere Road is present west of the Site. Further west is a rural residential property. ▪ Lochinvar Creek with mature trees is present west of the Site. Further west is undeveloped grassland.
1965	Black and white	**Onsite** ▪ Consistent with 1958 photograph above. **Offsite** ▪ Generally consistent with 1958 photograph above, with the following exceptions; – Small shed structure constructed to the west of Lochinvar Creek. – Rural dam formed directly south of the Site. – Construction of additional dam structure south west of the property, north of Luskintyre Road. – Increasing tree density along Lochinvar Creek.
1976	Colour	**Onsite** ▪ Consistent with 1965 photograph above. **Offsite** ▪ Generally consistent with 1965 photograph above, except increasing tree density along Lochinvar Creek.
1984	Black and White	**Onsite** ▪ Consistent with 1976 photograph above. **Offsite** ▪ Generally consistent with 1976 photograph above, with the exceptions; – Additional rural dam next to existing dam to the south of the Site. – Construction of residential property and access road west of Lochinvar Creek. – Additional rural residential development to the south of the site.

Date	Reference	Observations
		– Increasing tree density along Lochinvar Creek. – Addition of an ovular track south of the Site, possibly used as a horse track.
1993	Colour	**Onsite** ▪ Consistent with 1984 photograph above. **Offsite** ▪ Generally consistent with 1984 photograph above.
2004	Colour	**Onsite** ▪ Consistent with 1993 photograph above. **Offsite** ▪ Generally consistent with 1993 photograph above, with the exceptions; – Change of land use for farming practices, formation of two rural dams and increased rural residential properties to the east and south east of the site. – Change of land use for farming practices to the north west of the site.
2010	Colour	**Onsite** ▪ Consistent with 2004 photograph above. **Offsite** ▪ Generally consistent with 2004 photograph above.
2015	Colour	**Onsite** ▪ Consistent with 2010 photograph above. **Offsite** ▪ Generally consistent with 2010 photograph above.
2021	Colour	**Onsite** ▪ Consistent with 2015 photograph above. **Offsite** ▪ Generally consistent with 2015 photograph above, with the exceptions; –

4.2 Summary of Site History

Based on the available historical data, Stantec Site inspection and public searches, the Site predominately comprised of undeveloped grassland.

The surrounding areas were originally undeveloped grassland. Increasing residential development surrounding the Site has also occurred, most notably from 2015 to 2021.

5 Criteria for Contamination Assessment

The assessment criteria used in NSW to evaluate soil analytical results are based on the National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [1] . Table 5A of Schedule B (1) Guideline on Investigation Levels for Soil and Groundwater (NEPM 1999) provides default Tier I screening criteria contaminants of concern based on human health and generalised exposure scenarios.

Based on the proposed use setting of the Site, *"HIL A – residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools and primary school*s" was adopted. As such the following criteria was implemented:

- Health Investigation Levels (HIL's) "residential with garden/accessible soil" (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for residential (HSL A);
- Ecological Screening Levels (ESLs) for TRH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban residential and public open space; and
- Ecological Investigation Levels (EILs) for urban residential and public open space limits. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the site soils ranging between 5.9 - 6.5 and in the absence of CEC and/or % clay content testing.

"Investigation levels" or "screening levels" presented in the NEPM are not intended to be interpreted as "maximum permissible levels", "clean up levels" or "safe levels", rather, they are levels at which further investigation or assessment should be undertaken to provide assurance that unacceptable contamination does not occur to an extent that could cause harm or detriment for users of the land. Subsequent assessment on a site-specific basis often results in higher levels being acceptable. However, since the "investigation levels" or "screening levels" are generally set at conservatively low levels, they are often taken to be the acceptable levels.

Soils identified during the site inspection and sampling were predominantly comprised of Silty CLAY / Silty SAND. Based on the observed soil type, the ESL's and HIL's for sand, silt and clay soils have been considered. Sandy soils have been adopted, as NEPM stipulates a conservative approach for determination of observed soil type to be assessed.

6 Site Investigation Methodology

6.1 Fieldwork Scope

The intrusive investigation was undertaken on 13 April 2022 by Stantec and comprised the following:

- Site inspection on 13 April 2022 (as detailed in Section 2.2)
- Investigation on 13 April 2022 comprising the excavation of seven (7) test pits (TP001-TP007) using a 5t excavator. The test pits were advanced to a maximum depth of 2.0 m below ground level (BGL) with environmental samples recovered from depths of 0.05 m to 1.0 m BGL for subsequent laboratory testing. The test pit locations are shown on Figure 1 and 2 in Appendix A with logs and explanatory notes attached in Appendix C.

It should be noted the eastern portion of the Site was nominated as an exclusion zone as AHIMS searches returned potential PAD's in the area. As such, no sampling or excavation was taken place within the eastern portion of the Site, however inspection was undertaken to assess the eastern portion for potentially contaminating activities.

Based on the provided revised lot layout plan, the proposed development boundary has been extended slightly to the north into the currently zoned RU1 land. It should be noted that whilst not included in the original PSI, the previous assessment incorporated the general area inclusive of the proposed extension. The assessment boundary has been updated in Figures 1 and 2 attached in Appendix A to reflect this.

6.2 Laboratory testing

Laboratory testing on selected samples recovered during fieldwork comprised the following:

- Four (4) primary samples and one (1) duplicate sample (for quality control) soil contamination tests. The samples were analysed for eight metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn), organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs), Total Recoverable Hydrocarbons (TRH), BTEXN (Benzene, Toluene, Ethyl-benzene, Xylenes and Naphthalene), Polycyclic Aromatic Hydrocarbons (PAH), Polychlorinated Biphenyls (PCB), Electrical Conductivity (EC) and pH;
- Four (4) primary samples and one (1) duplicate sample (for quality control) asbestos ID in soil tests from samples.

Laboratory analysis and testing was carried out on soil samples by Eurofins, which holds current accreditation with the National Association of Testing Authorities, Australia (NATA) for the analysis performed.

Results of laboratory testing are in the laboratory reports attached in Appendix D.

6.3 Sampling Methodology

Environmental sampling was performed according to Stantec standard operating procedures with sampling data recorded on Chain of Custody sheets.

The methodology utilised is as follows:

- The use of new disposable gloves for the collection of each sample to prevent sample cross contamination;
- Decontamination of all sampling equipment using a 3% solution of phosphate free detergent (Decon 90) and distilled water prior to each bore;
- Test pits were advanced using a 5t excavator;
- The environmental samples from test pit were sampled directly from sidewalls of the test pit, following the preparation of a fresh face prior to sampling. Samples were collected via a stainless-steel trowel and was thoroughly decontaminated prior to advancement and collection of samples.
- All sampling utensils was decontaminated with Decon 90 solution and a "three bucket wash" procedure between sampling events.
- Soil samples were immediately placed into laboratory containers supplied by Eurofins;

- Sample jars contained zero headspace and the sample details were recorded on the jar label;
- Collection of a blind duplicate sample for quality assurance and control (QA/QC) at a rate of 1 per 20 samples collected;
- Samples were sent to the laboratory within recommended holding times; and
- The sample were preserved in a chilled esky containing ice bricks immediately after sampling and during transport to the laboratory. The laboratory chain of custody documentation was completed and accompanied the samples during shipment (a copy of the COC is attached to the laboratory test results in Appendix D).

The samples were collected at the intrusive testing locations as shown on Figure 1 and 2, attached in Appendix A.

7 Areas and Contaminants of Potential Concern

The assessment has identified several potential sources of contamination (and related Contaminants of Potential Concern – COPC), which are summarised in Table 7-1 below.

Table 7-1 Site Activities and Potential Contaminants of Concern

Area of Environmental Concern (AoEC)	Site Activity / Potential Source		Contaminants of Potential Concern (CoPC)	Comments
		Onsite Sources		
Overall Site	Machinery Use	▪ Agricultural Use ▪ Installation of service utility	▪ 8 Heavy Metals ▪ PAH,TRH BTEXN	▪ Potential machinery use on Site.
Overall Site	Grass Pasture	▪ Cattle grazing ▪ Agricultural activities	▪ OCP/OPP and metals	▪ Potential use of pesticides.

8 Investigation Findings

8.1 Analytical Tables

Chemical testing was carried out on soil samples by Eurofins, who are accredited with the National Association of Testing Authorities, Australia (NATA) for all analytical work undertaken.

All testing was undertaken within the terms of their accreditation. Copies of the laboratory analytical reports are shown in Appendix D. The results of laboratory analysis for inorganic and organic contaminants in the soil samples are summarised in the analytical comparison tables attached in Appendix D.

8.2 Subsurface Conditions

The subsurface conditions encountered within the test pits are detailed on the attached test pit sheets attached in Appendix C, together with explanatory notes. Sample locations are shown on Figure 1 and 2 in Appendix A.

The subsurface profile encountered within the test pits drilled generally comprised of the following:

UNIT T – TOPSOIL

> Topsoil comprising of Clayey/Sandy SILT was encountered in all test pits, with the exception of TP006. The depth of topsoil was limited to 0.1 -0.15 m below ground level (BGL).

UNIT C – COLLUVIUM

> Colluvial soils comprising Clayey SAND/ Silty, Sandy CLAY and Gravelly, Sandy SILT were encountered in TP001, TP003-TP007, to depths in the range of 0.25–0.9 m BGL. The colluvial soils encountered ranged in plasticity from medium to high, with fine to coarse grained sand and traces of fine to coarse gravel. Granular colluvial soils were observed to wet, with cohesive soils of moisture content greater than plastic limit, and were of very loose to loose density and soft to firm consistency respectively.

UNIT R – RESIDUAL

> Residual soils comprising Sandy/Silty CLAY were encountered in all test pits to depths ranging from 1.0 m to investigation limits of 2.0 m BGL. Residual clays were typically of medium to high plasticity and ranged from firm to hard consistency. Residual clays had observed moisture content ranging from equal to greater than plastic limit. Varying fractions of sand and gravel were encountered in the residual soils.

UNIT EWM – EXTREMELY WEATHERED MATERIAL

> Extremely weathered material (EWM) soils comprising Clayey SAND of brown and grey mottled yellow colour were encountered in TP001, TP003 and TP005 to depths of 1.4 m to investigation limits of 2 m BGL. The Sand was typically fine to coarse grained, and was generally dense to very dense. Moisture was observed to be moist to dry.

Groundwater was not observed at the time of the investigation; however, inflow was noted from ponded water due to recent inclement weather. It should be noted that groundwater is likely to fluctuate with variations in climatic and site conditions.

8.3 Laboratory Testing

8.3.1 Heavy Metals

Appraisal of the results indicates that the concentration levels of metals within the samples tested were below the threshold limits as detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 2013 for Residential A (HILs).

Comparison to the NEPM 2013 EIL is for Urban Residential and Public Open Space indicated that the all of the samples were below the EIL criteria for the Site.

8.3.2 Total Recoverable Hydrocarbons

Results for TRH's were generally below the Limit of Reporting (LOR) for each sample and all samples were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 2013 for Residential A (HSLs) and Urban Residential and Public Open Space (ESLs).

8.3.3 Benzene Toluene Ethylbenzene Xylenes and Naphthalene (BTEXN)

Results for BTEXN were generally below the Limit of Reporting (LOR) concentrations for each sample and all samples were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 2013 for Residential A (HSLs) and Urban Residential and Public Open Space (ESLs).

8.3.4 Polycyclic Aromatic Hydrocarbon (PAH)

Results for PAH's were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 2013 for Residential A (HSLs) and Urban Residential and Public Open Space (ESLs).

8.3.5 Organophosphorus & Organochlorine Pesticides (OPP/OCP) & Polychlorinated Biphenyls (PCB)

Results for OPP/OCC and PCB were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 2013 for Residential A (HSLs) and Urban Residential and Public Open Space (EILs).

8.3.6 Asbestos

No asbestos fibres were noted in samples testing for asbestos in soils.

8.4 Quality Assurance / Quality Control

A critical aspect of Site investigation is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process, which includes a review of the following aspects of the data collection process:

- Project Quality Objectives and Plans.
- Data Representativeness.
- Data Precision and Accuracy.
- Laboratory Performance.
- Data Comparability.
- Data Set Completeness.

The Primary and duplicate samples were sent to Eurofins for analysis and are identified in the table below.

Table 8-1 Duplicate Sample

Primary Sample ID	Duplicate ID
TP001: 0.05-0.1	DUP

Field laboratory replicates are generated by subjecting a separate aliquot of sample through the same preparation and analysis procedures as the primary sample. Comparison of the primary sample to the duplicate will yield a precision measurement, expressed as relative percentage of difference (RPD) in a given matrix.

The laboratory acceptance criteria for duplicate samples are as follows:

- Results less than 5 times LOR preclude acceptance criteria for RPD; and,
- If results are greater than 5 times the PQL, an RPD of 0-50% is acceptable.

A duplicate sample DUP was prepared from TP001 with the analysis of TRH, BTEX, PAH, OC, OP and 8 heavy metals undertaken on the both quality assurance samples. The duplicate sample was analysed by Eurofins laboratories.

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

Where:

Cp = Primary Sample

Cd = Duplicate Sample

Results of the RPD calculations are shown below.

PRD analysis of the duplicate sample was undertaken for quality assurance and quality control. Results of the PRD analysis is provided in Table 8-2 below.

Table 8-2 Summary of Analytical Results – Quality Assurance Results (mg/kg)

Analyte	RPD (%)
	TP001 & DUP
Arsenic	ND
Cadmium	ND
Chromium	5(1)
Copper	ND
Lead	39(1)
Mercury	ND
Nickel	11(1)
Zinc	83(1)
TRH, BTEX, PAH, OCP, OPP & PCB	ND
pH	2
EC	10(1)

Notes:
ND: Not Detected (Under Limit of Reporting)
1. Results less than 5 times LOR, precluding PRD requirements.

RPD values for Arsenic, Cadmium, Copper, Mercury, TRH, BTEX, PAH, OC and OP could not be calculated as the concentrations were below the laboratory limits of reporting. Values for Chromium, Lead, Nickel, EC, Zinc and pH were below 5 times the limit of reporting and therefore preclude the PRD requirements.

The chosen analytical laboratory undertook internal QA/QC procedures, which include the analysis of method blanks, internal duplicate samples, laboratory control samples, matrix spikes and surrogate recovery. Additional laboratory QA/QC procedures include sample receipt, logging, storage, preservation and analysis within the method specified holding time.

It was considered that the field and laboratory QA/QC criteria were within acceptable limits indicating field sampling, storage, handling and decontamination procedures and laboratory preparation and analysis procedures were adequate for the purposes of the environmental investigation. Therefore, the data set used as the basis for the soil assessment is considered valid and complete.

9 Conceptual Site Model

9.1 Preliminary Conceptual Site Model

Generally, a conceptual site model (CSM) provides an assessment of the fate and transport of COPCs relative to site-specific subsurface conditions with regard to their potential risk to human health and the environment. The CSM considers site-specific factors including:

- Source(s) of contamination,
- Identification of contaminants of potential concern (COPCs) associated with past (and present) source(s),
- Vertical, lateral and temporal distribution of COPCs,
- Site specific lithological information including soil type(s), depth to groundwater, effective porosity, and groundwater flow velocity,
- Actual or potential receptors considering both current and future land use for both the site and adjacent properties, and any sensitive ecological receptors.

Based on the information sourced in this report, a preliminary CSM has been developed and is outlined in Table 9-1 below. Additional details are included in the sections that follow as necessary.

Table 9-1 Preliminary Conceptual Site Model

Conceptual Site Model Element	Description
Site History	▪ Undeveloped grassland with potential agricultural activities – grazing.
Site Current and Future Use	▪ Undeveloped grassland with potential agricultural activities – grazing. ▪ Proposed to be developed into a residential development.
Site Geology	▪ Intrusive investigation was undertaken as part of the PSI. Based on Site conditions, published data and previous geotechnical investigations, the subsurface conditions can be generally summarised as natural materials, typically comprising sand and clay materials.
Site Hydrogeology	▪ Groundwater was not encountered in test pits; however, surface water was encountered in TP006. This is due to the test pit being located within a rabbit warren.
Area of Environmental Concern (AoEC) - Onsite	▪ No significant potentially contaminating activities are known to have occurred on site.
Media Potentially Impacted	▪ No impacted media identified.
Potential Human Receptors	▪ Site users / workers / employees (onsite) ▪ Site Construction workers (onsite) ▪ Local rural residents and surrounding properties (offsite)
Potential Environmental Receptors	▪ Flora and fauna. ▪ Surrounding soils. ▪ Nearby waterbodies – Lochinvar Creek.
Potential Exposure Pathways	▪ Air – inhalation of dusts. ▪ Soil – dermal / direct contact. ▪ Lateral migration via surficial runoff

9.2 Data Gaps

Based on the inspection, the potential for contamination at this site is not considered to present a significant constraint on the proposed redevelopment of subject site. However, it must be appreciated that assessment was limited to accessible soils (test pit locations) during the investigation within the subject Site and limited intrusive sampling or laboratory analysis was undertaken.

The following data gaps and uncertainties regarding the assessment are detailed below:

- Limited intrusive sampling spatially and vertically.
- No groundwater samples collected however; groundwater contamination is considered unlikely.
- No dangerous goods search was undertaken for the Site.
- No sampling was undertaken within the eastern portion of the Site due to the potential presence of aboriginal artefacts along the creek bank, however inspection was undertaken with no environmental concerns identified within the area.

10 Discussion

Review of historical aerial imagery indicates the Site has remained undeveloped since the1958 aerial photograph. The subsurface profile encountered across the Site, generally comprised topsoil, overlying colluvium, overlying residual soil, overlying extremely weathered rock. During the Site inspection, no indication of staining or olfactory indication of hydrocarbons, nor fibrous sheeting materials were observed within test pits or across the surface.

Sampling was undertaken during test pitting to allow for laboratory testing for specified analytes. Sampling was targeted within in portions of the Site proposed to be disturbed. Sampling locations are shown in Figure 1 and 2, attached in Appendix A. Results from laboratory testing were assessed against the following guidelines as detailed in NEPM 1999 [1]:

- Health Investigation Levels (HIL's) "residential with garden/accessible soil" (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for residential (HSL A);
- Ecological Screening Levels (ESLs) for TRH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban residential and public open space; and
- Ecological Investigation Levels (EILs) for urban residential and public open space limits. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the site soils ranging between 5.9 - 6.5 and in the absence of CEC and/or % clay content testing.

Based on the laboratory analysis, concentration of the tested analytes were below the adopted thresholds for residential development.

It should be noted the eastern portion of the Site was nominated as an exclusion zone due as AHIMS searches returned potential PAD's in the area. As such, no sampling or excavation was taken place within the eastern portion of the Site, however inspection of the area did not identify any filling or potentially contaminating activities. It is therefore proposed an unexpected finds protocol (UFP) is implemented during construction. This has been attached as Appendix F.

11 Conclusions and Recommendations

Stantec has completed a Preliminary Site Investigation of 259 Windermere Road, Windermere NSW as identified in Figure 1 and 2 in Appendix A. The objectives of the investigation were to assess:

- The potential for the past and present activities undertaken on and adjacent to the Site to have affected soil at the Site.
- The need for any further assessment or remedial works before definitive conclusions could be made on the suitably of the Site for use.

The investigation comprised intrusive test pitting and sampling for laboratory analysis. Results from laboratory testing indicate there were no exceedances of the adopted guidelines for the analytes tested as detailed in NEPM 1999 [1]. Analytes were tested against the following thresholds:

- Health Investigation Levels (HIL's) "residential with garden/accessible soil" (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for residential (HSL A);
- Ecological Screening Levels (ESLs) for TRH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban residential and public open space; and
- Ecological Investigation Levels (EILs) for urban residential and public open space limits. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the site soils ranging between 5.9 - 6.5 and in the absence of CEC and/or % clay content testing.

Based on the review of the Site history, geotechnical works and Site inspection, Stantec identified no past or current, potentially gross contaminating activities having been undertaken on or adjacent to the Site. The Site has remained undeveloped grassland since 1958.

The Site is considered low risk of potential contamination based on the review of Site history, geotechnical works, investigation findings and the identified data gap. As there is a low risk for contamination an unexpected finds protocol should be implemented and managed during the development.

Stantec has undertaken a Preliminary Site Investigation (PSI) in accordance with the State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55) [5]. Based on the findings of the PSI, Stantec did not identify gross contamination or potentially contaminating activities previously undertaken on Site that would render the Site unsuitable for its proposed use.

11.1 Recommendations

Given the results of this assessment, Stantec recommends the following:

- The implementation of an unexpected finds protocol to address any potential issues that may be uncovered during the course of the development. An unexpected finds protocol has been developed and attached as Appendix F.
- Any soil to be excavated and transported off Site for disposal require classification in accordance with the NSW EPA Waste Classification Guidelines.
- Presence of any sundry items to be assessed for offsite disposal or reuse. This can be undertaken during the construction phase.

12 Standard of Assessment and Limitations

This investigation has been undertaken in general accordance with the current “industry standards” for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

- National Environment Protection Council (NEPC) (1999) *National Environment Protection (Assessment of Site Contamination) Measure*, as amended (registered on 15 May 2013) [1]. This is referred to from here on as “the NEPM” or “NEPM”.
- Standards Australia (2005) *AS4482.1- 2005: Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds* [6].
- NSW EPA “*Guidelines for Consultants Reporting on Contaminated Sites*” [2].

The agreed scope of this investigation has been limited for the current purposes of the Client. The investigation may not identify contamination occurring in all areas of the site, or occurring after sampling was conducted. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This site investigation report is not any of the following:

- An Environmental Audit Report as defined under NSW Site Auditor Scheme [7].
- A detailed site investigation (DSI) report sufficient for an Environmental Auditor to be able to conclude a statutory or non-statutory environmental audit.
- A geotechnical report, and the bore logs or test pit logs may not be sufficient as the basis for geotechnical advice.
- A detailed hydrogeological assessment or an assessment of groundwater contaminants potentially arising from other sites or sources nearby.
- A waste classification report of soil analytical results from the Site.

13 References

[1] National Environment Protection (Assessment of Site Contamination) Measure 1999, “Schedule B1 Guidelines on Investigation Levels For Soil and Groundwater,” National Environment Protection Council (NEPC), 16 May 2013.

[2] NSW EPA, “"Consultants reporting on contaminated land guidelines”,” NSW Environmental Protection Authority, 2020.

[3] NSW Department of Planning, Industry & Environment, “MinView,” 2019. [Online]. Available: https://minview.geoscience.nsw.gov.au/. [Accessed August 2020].

[4] NSW Office of Enviroment and Heritage, “eSPADE V2.1,” NSW Office of Enviroment and Heritage, December 2016. [Online]. Available: https://www.environment.nsw.gov.au/eSpade2WebApp#. [Accessed 2021].

[5] NSW Government, “State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55),” 1998.

[6] Standards Australia, “Australian Standard - Guide to the investigation and sampling of sites with potentially contamainted soils - PArt one: Non-volatile and semi-volatile compounds,” Standards Australia, 2005.

[7] NSW DEC, “Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd Edition),” Department of Environment and Conservation NSW, 2017.

APPENDIX

A

FIGURES AND PHOTOS

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Stantec

Photograph 1: Typical Site grass coverage.

Photograph 2: Typical Site soils.

NOTES:

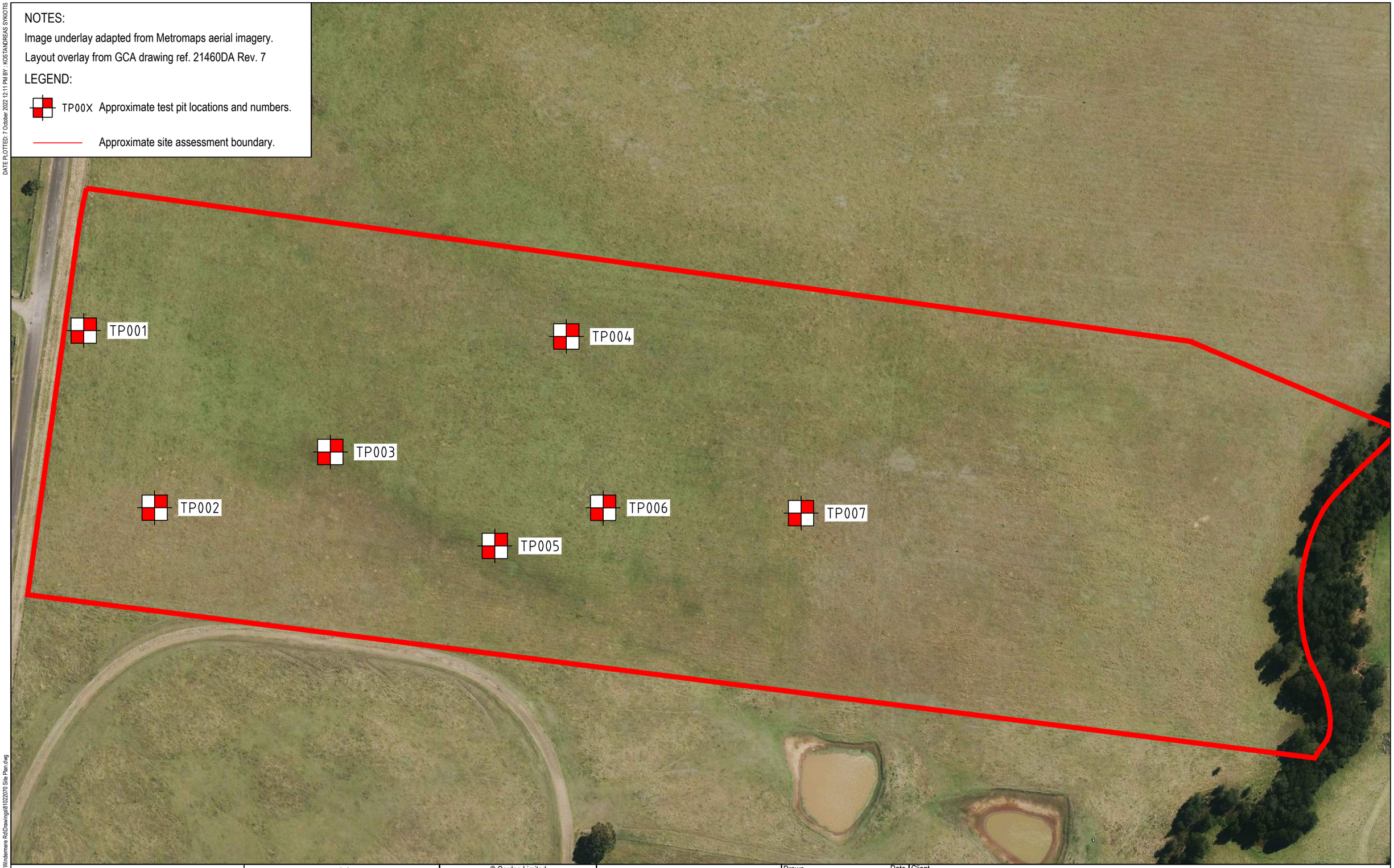
Image underlay adapted from Metromaps aerial imagery.

Layout overlay from GCA drawing ref. 21460DA Rev. 7

LEGEND:

TP00X Approximate test pit locations and numbers.

Approximate site assessment boundary.



0 50m

SCALE 1:1500 @A3

NORTH

Cardno
Shaping the Future
Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Unit 1, 10 Denney Street
Broadmeadow, NSW 2292
Tel: 02 4965 4555 Fax: 02 4965 4666
Web: www.cardno.com.au

Drawn	KS	Date 7/10/2022
Checked	DS	Date 7/10/2022
Designed		Date
Verified		Date
Approved		

Client: Newpro 27 Pty Ltd

Project: Preliminary Site Investigation
259 Windermere Road
Windermere, NSW

Title: Preliminary Site Investigation
Site Plan

Status: FOR CONCEPT APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Project Number	Scale	Size
81022070	1:1500	A3

Figure Number: Figure 1

Revision: B

DATE PLOTTED: 7 October 2022 12:11 PM BY : KOSTANDREAS SYKIOTIS

XREFs:
CAD File: A:\Projects\81081\FY22\070_259 Windermere Rd\Drawings\81022070 Site Plan.dwg
=

DATE PLOTTED: 7 October 2022 12:00 PM BY : KOSTANDREAS SYKIOTIS

NOTES:

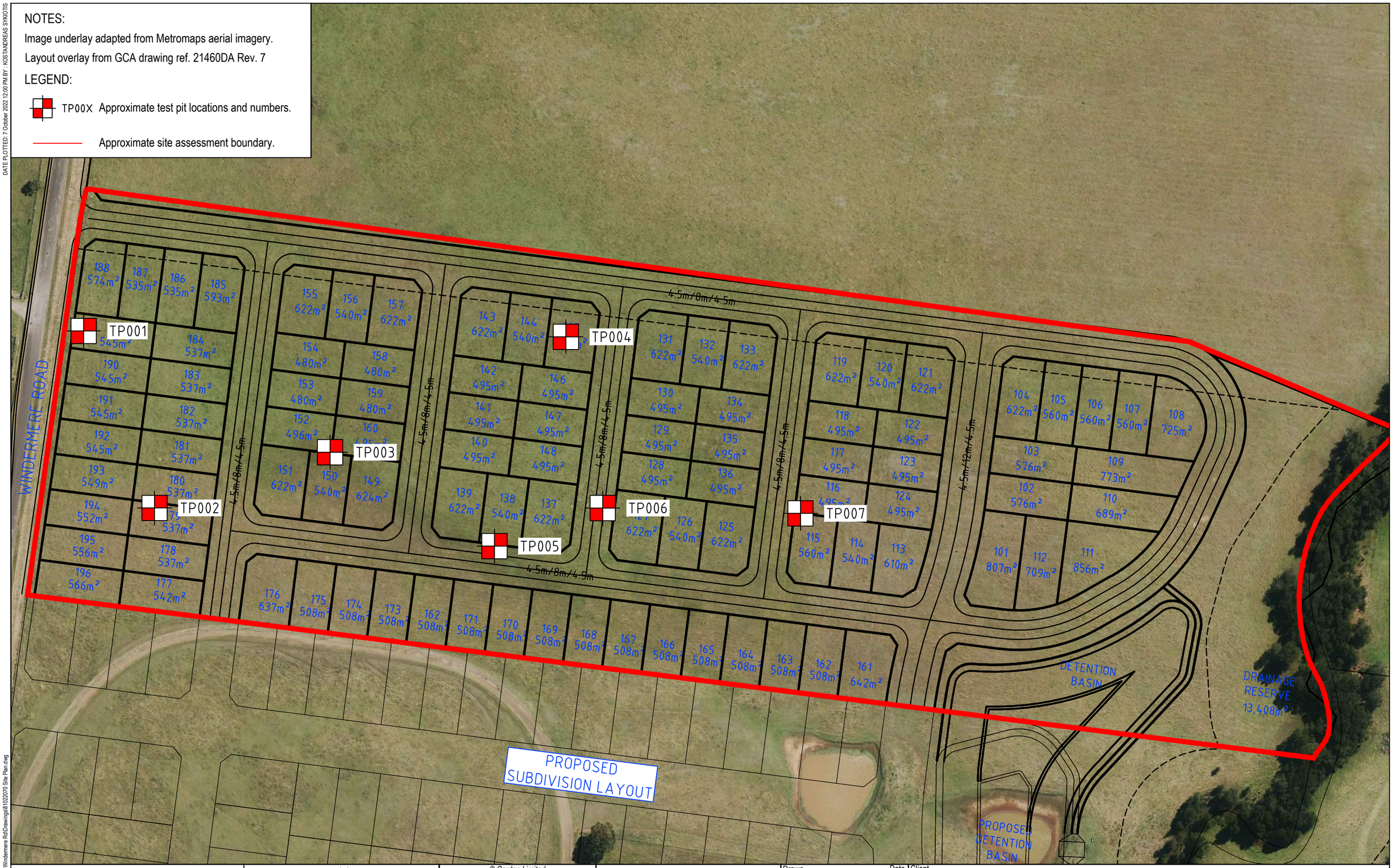
Image underlay adapted from Metromaps aerial imagery.

Layout overlay from GCA drawing ref. 21460DA Rev. 7

LEGEND:

TP00X Approximate test pit locations and numbers.

Approximate site assessment boundary.



0 50m

SCALE 1:1500 @A3

NORTH

Cardno
Shaping the Future
Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Unit 1, 10 Denney Street
Broadmeadow, NSW 2292
Tel: 02 4965 4555 Fax: 02 4965 4666
Web: www.cardno.com.au

Drawn	KS	Date 7/10/2022
Checked	DS	Date 7/10/2022
Designed		Date
Verified		Date
Approved		

Client: Newpro 27 Pty Ltd

Project: Preliminary Site Investigation
259 Windermere Road
Windermere, NSW

Title: Preliminary Site Investigation
Lot Layout

Status: FOR CONCEPT APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Project Number	Scale	Size
81022070	1:1500	A3

Figure Number: Figure 2

Revision: A

XREFs:
CAD File: A:\Projects\81081\GIS\22070_259 Windermere Rd\Drawings\81022070 Site Plan.dwg

LEGEND
TOTAL YIELD = 96
DRAINAGE RESERVE = 13,408m²

N

EXISTING 20m WINDERMERE ROAD RESERVE. PROVIDE UPRIGHT KERB AND GUTTER 7.5m FROM CENTER OF EXISTING ROAD RESERVE ALONG FULL FRONTAGE

450m² MIN WITHIN R1 ZONED LAND

APPROX ZONING BOUNDARY

ENCROACHMENT INTO RU1 ZONED LAND

R1/ENVIRONMENTAL ZONE (E3) ZONE BOUNDARY

WINDERMERE ROAD

4.5m/8m/4.5m

4.5m/12m/4.5m

188 574m²	187 535m²	186 535m²	185 593m²	155 622m²	156 540m²	157 622m²	143 622m²	144 540m²	145 622m²	131 622m²	132 540m²	133 622m²	119 622m²	120 540m²	121 622m²	104 622m²	105 560m²	106 560m²	107 560m²	108 725m²			
189 545m²		184 537m²		154 480m²	158 480m²		142 495m²	146 495m²		130 495m²	134 495m²		118 495m²	122 495m²		103 576m²		109 773m²					
190 545m²		183 537m²		153 480m²	159 480m²		141 495m²	147 495m²		129 495m²	135 495m²		117 495m²	123 495m²		102 576m²		110 689m²					
191 545m²		182 537m²		152 496m²	160 495m²		140 495m²	148 495m²		128 495m²	136 495m²		116 495m²	124 495m²		101 807m²	112 709m²	111 856m²					
192 545m²		181 537m²		151 622m²	150 540m²	149 624m²	139 622m²	138 540m²	137 622m²	127 622m²	126 540m²	125 622m²	115 560m²	114 540m²	113 610m²								
193 549m²		180 537m²																					
194 552m²		179 537m²																					
195 556m²		178 537m²																					
196 566m²		177 542m²		176 637m²	175 508m²	174 508m²	173 508m²	162 508m²	171 508m²	170 508m²	169 508m²	168 508m²	167 508m²	166 508m²	165 508m²	164 508m²	163 508m²	162 508m²	161 642m²				

4.5m/8m/4.5m

4.5m/8m/4.5m

4.5m/8m/4.5m

4.5m/8m/4.5m

4.5m/8m/4.5m

17.2

HUNTER RIVER 1% AEP 26.0m AHD

DRAINAGE RESERVE 13,408m²

DETENTION BASIN

3.0m ROAD WIDENING ALONG FULL FRONTAGE

PROPOSED DETENTION BASIN EXTENSION

PROPOSED DETENTION BASIN

PROPOSED SUBDIVISION LAYOUT

GCA ENGINEERING SOLUTIONS

Geoff Craig & Associates
1 Hartley Drive,
P.O. Box 3337,
Thornton NSW 2322
Phone: 49641811

TITLE:
PROPOSED SUBDIVISION
259 WINDERMERE ROAD
LOCHINVAR
LOT LAYOUT PLAN - OPTION 5

Cad Ref: 21460C DA01 r7 Scale: 1:750 Designed: D.B

No	Amendment	Drawn	Date
4	LOT LAYOUT AMENDED	DB	25.07.22
7	LOT LAYOUT AMENDED	DB	27.07.22
6	LOT LAYOUT AMENDED	DB	27.07.22
5	LOT LAYOUT AMENDED	DB	26.07.22

Project No 21460DA
Drawing No DA01
Revision 7

APPENDIX

B

DESKTOP REVIEW DATA

Cardno

now

Stantec

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 22 Apr 2022 08:33:55

Reference: LS031441 EP

Address: 259 Windemere Road, Windemere, NSW 2321

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	06/04/2022	06/04/2022	Quarterly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	25/06/2019	25/06/2019	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	19/04/2022	11/04/2022	Monthly	1000m	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	02/03/2022	14/07/2021	Quarterly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	13/07/2012	Annually	1000m	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	28/03/2022	14/07/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	03/03/2022	03/03/2022	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	16/02/2022	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	1	1	1
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	3	4	4
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	1
Points of Interest	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	20
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	1
Major Easements	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	1
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	10/02/2022	31/12/2021	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	Annually	1000m	1	1	1
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	28/03/2022	23/02/2018	Annually	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	24/01/2022	24/01/2022	Annually	2000m	0	0	8

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
NSW Seamless Geology Single Layer: Rock Units	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	1	1	3
NSW Seamless Geology – Single Layer: Trendlines	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	0
NSW Seamless Geology – Single Layer: Geological Boundaries and Faults	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	1
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	1	1	3
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	1	1	3
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	06/04/2022	18/02/2022	Monthly	500m	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	3
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	1	1	1
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	19/08/2021	05/08/2021	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	7	7	7
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	15/11/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	15/11/2021	05/11/2021	Monthly	1000m	2	5	19
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	19/08/2021	25/06/2021	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	06/04/2022	25/03/2022	Monthly	1000m	0	0	4
Bush Fire Prone Land	NSW Rural Fire Service	19/04/2022	08/12/2021	Weekly	1000m	1	2	2
Lower Hunter and Central Coast Regional Vegetation Survey	NSW Office of Environment & Heritage	28/02/2015	16/11/2009	As required	1000m	1	2	7
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	28/03/2022	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	1	2	4
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	3	3	10
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	19/04/2022	19/04/2022	Weekly	10000m	-	-	-

Site Diagram

259 Windemere Road, Windemere, NSW 2321

Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 80859m²

Total Perimeter: 1.44km

Disclaimers:

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

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

Scale: 0 25 50 100 150 Meters

Data Source Aerial Imagery:
© Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 56

Date: 22 April 2022

Contaminated Land

259 Windemere Road, Windemere, NSW 2321

List of NSW contaminated sites notified to EPA

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

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

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land

259 Windemere Road, Windemere, NSW 2321

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

Waste Management & Liquid Fuel Facilities

259 Windemere Road, Windemere, NSW 2321

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	Direction
N/A	No records in buffer											

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
N/A	No records in buffer										

PFAS Investigation & Management Programs

259 Windemere Road, Windemere, NSW 2321

EPA PFAS Investigation Program

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

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

EPA PFAS Investigation Program: Environment Protection Authority

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

259 Windemere Road, Windemere, NSW 2321

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

259 Windemere Road, Windemere, NSW 2321

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

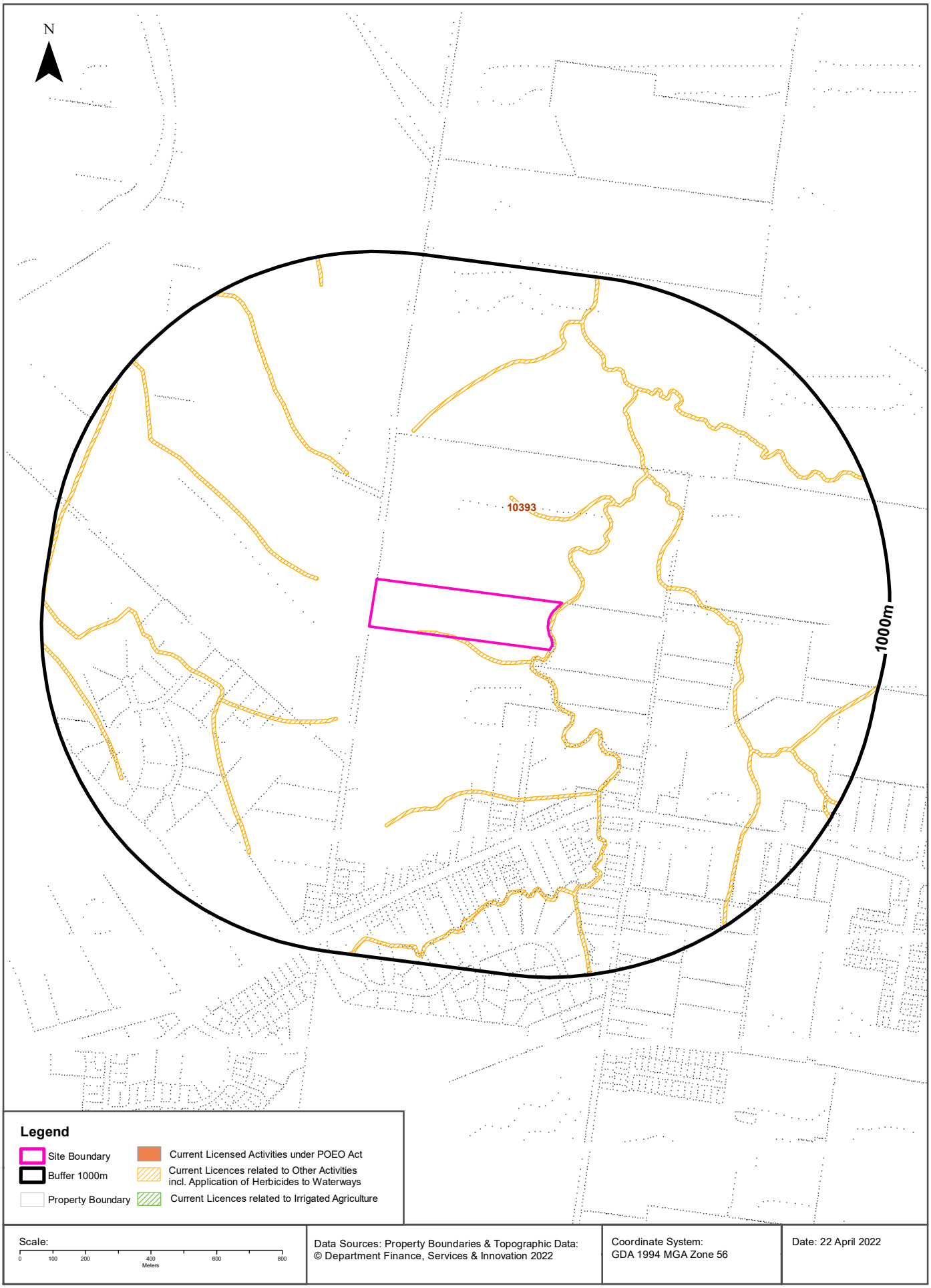
Sites within the dataset buffer:

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

259 Windemere Road, Windemere, NSW 2321



EPA Activities

259 Windemere Road, Windemere, NSW 2321

Licensed Activities under the POEO Act 1997

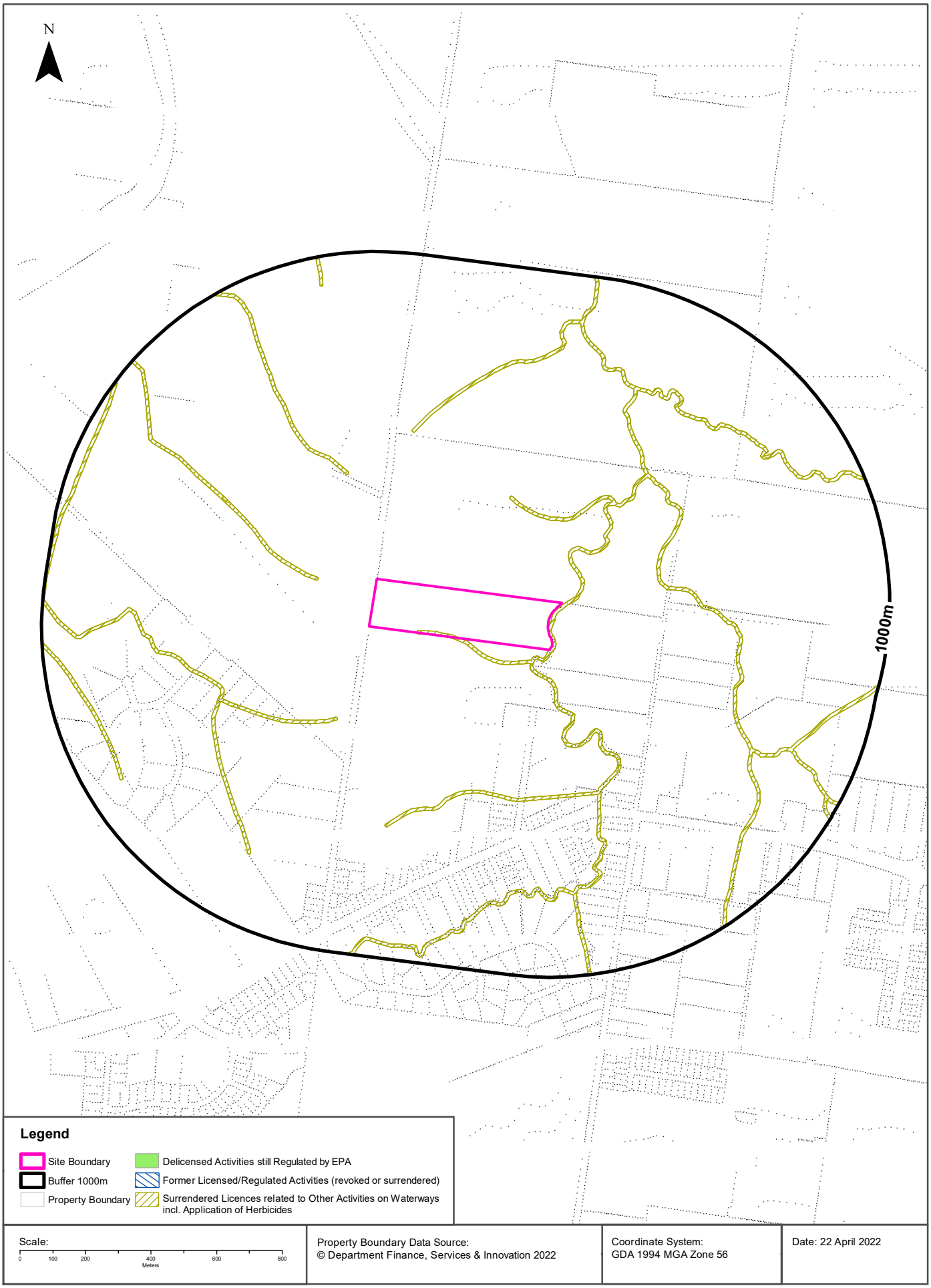
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
10393	MAITLAND CITY COUNCIL	ALL WATERBODIES IN THE MAITLAND LOCAL GOVERNMENT AREA	.	MAITLAND	Other activities	Network of Features	0m	On-site

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

259 Windemere Road, Windemere, NSW 2321



EPA Activities

259 Windemere Road, Windemere, NSW 2321

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority

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

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

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
12439	STATE OF NEW SOUTH WALES (Department of Primary Industries - Lands)	Soil Conservation Service, Waterways within the Hunter Valley Flood Mitigation Scheme, MAITLAND	Surrendered	13/02/2007	Other Activities - Application of Herbicides	Area Match	0m	North East

Former Licensed Activities Data Source: Environment Protection Authority

Historical Business Directories

259 Windemere Road, Windemere, NSW 2321

Business Directory Records 1950-1991
Premise or Road Intersection Matches

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

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

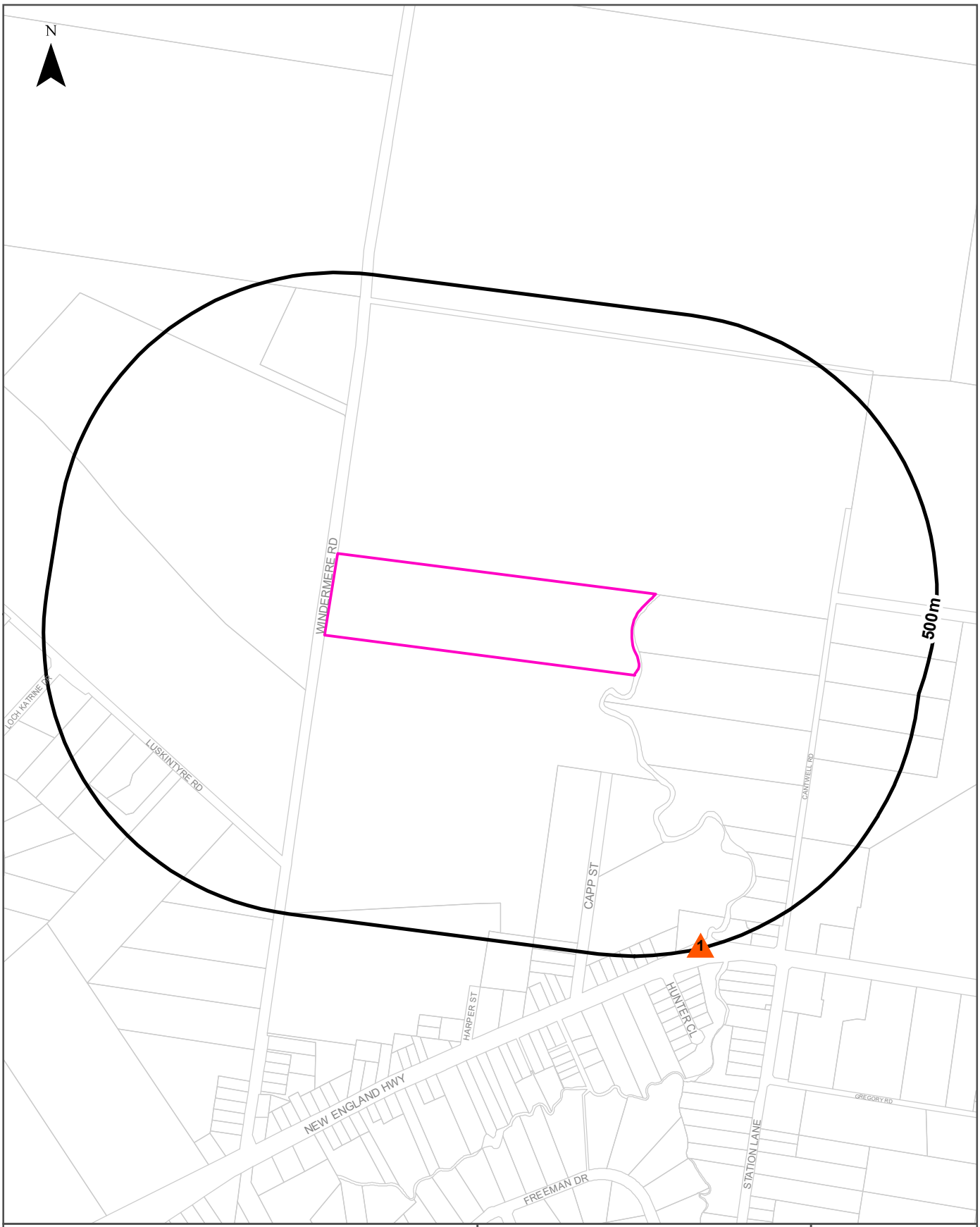
Business Directory Records 1950-1991
Road or Area Matches

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

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

Dry Cleaners, Motor Garages & Service Stations

259 Windemere Road, Windemere, NSW 2321



Legend

- Site Boundary
- Buffer 500m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 130 260 390 520 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 22 April 2022

Historical Business Directories

259 Windemere Road, Windemere, NSW 2321

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

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

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

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

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

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Crebert, H. & Sons, New England Highway., Lochinvar 2320	168607	1982	Road Match	486m

Aerial Imagery 2021

259 Windemere Road, Windemere, NSW 2321

Aerial Imagery 2015

259 Windemere Road, Windemere, NSW 2321

Aerial Imagery 2010

259 Windemere Road, Windemere, NSW 2321

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 22 April 2022
0 60 120 180 240 Meters	© Aerometrex Pty Ltd	GDA 1994 MGA Zone 56	

Aerial Imagery 2004

259 Windemere Road, Windemere, NSW 2321

Scale:
0 60 120 180 240
Meters

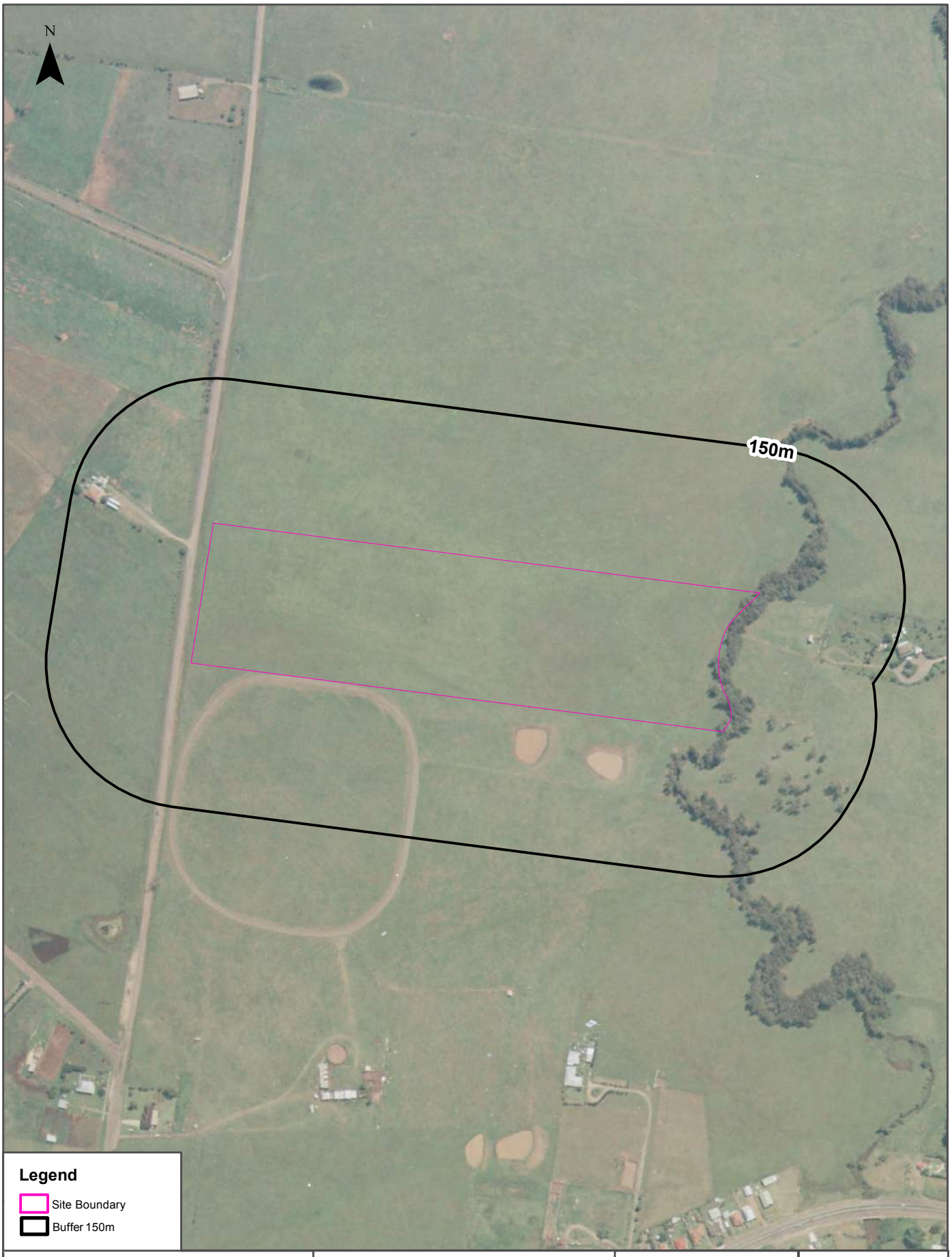
Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 56

Date: 21 April 2022

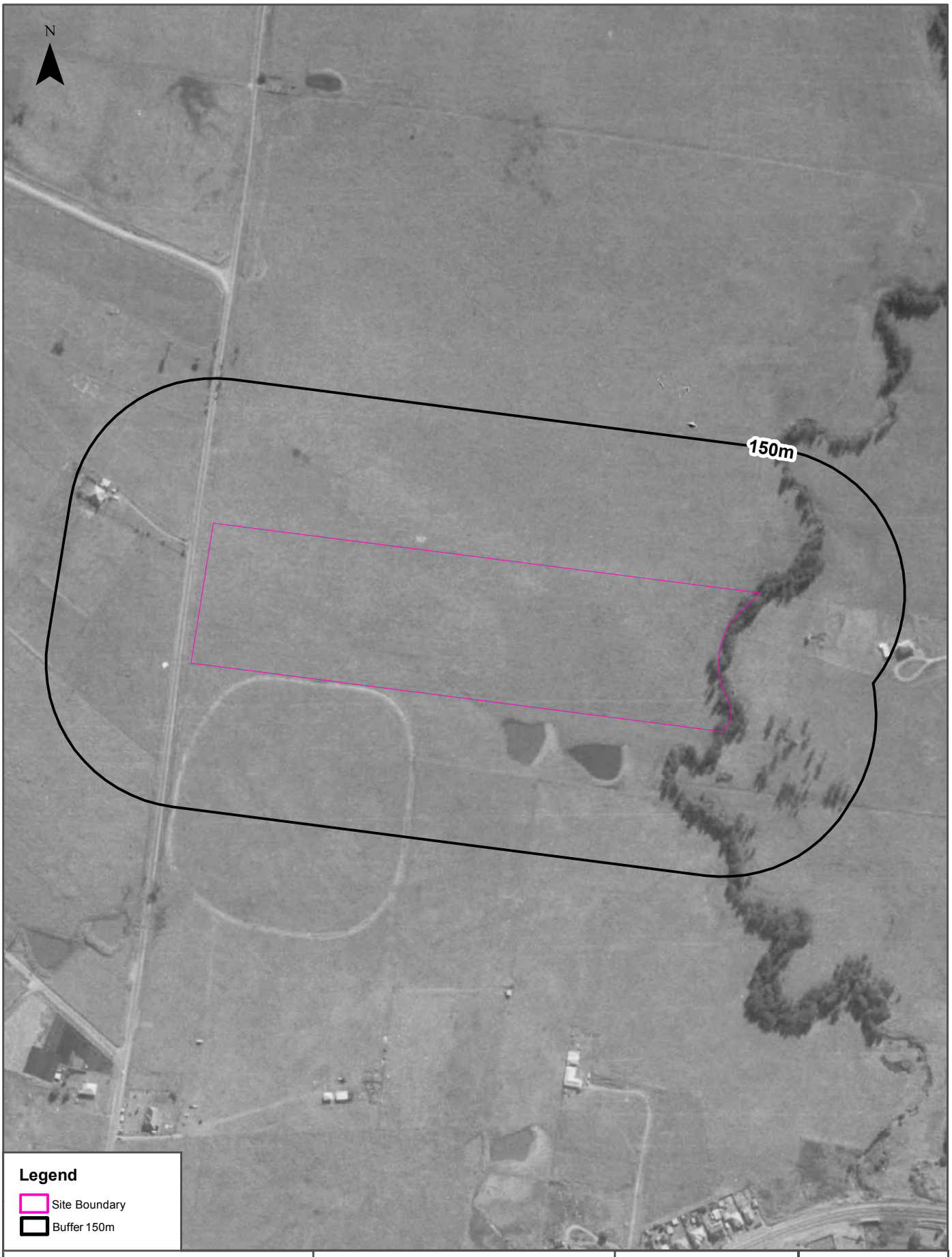
Aerial Imagery 1993

259 Windemere Road, Windemere, NSW 2321



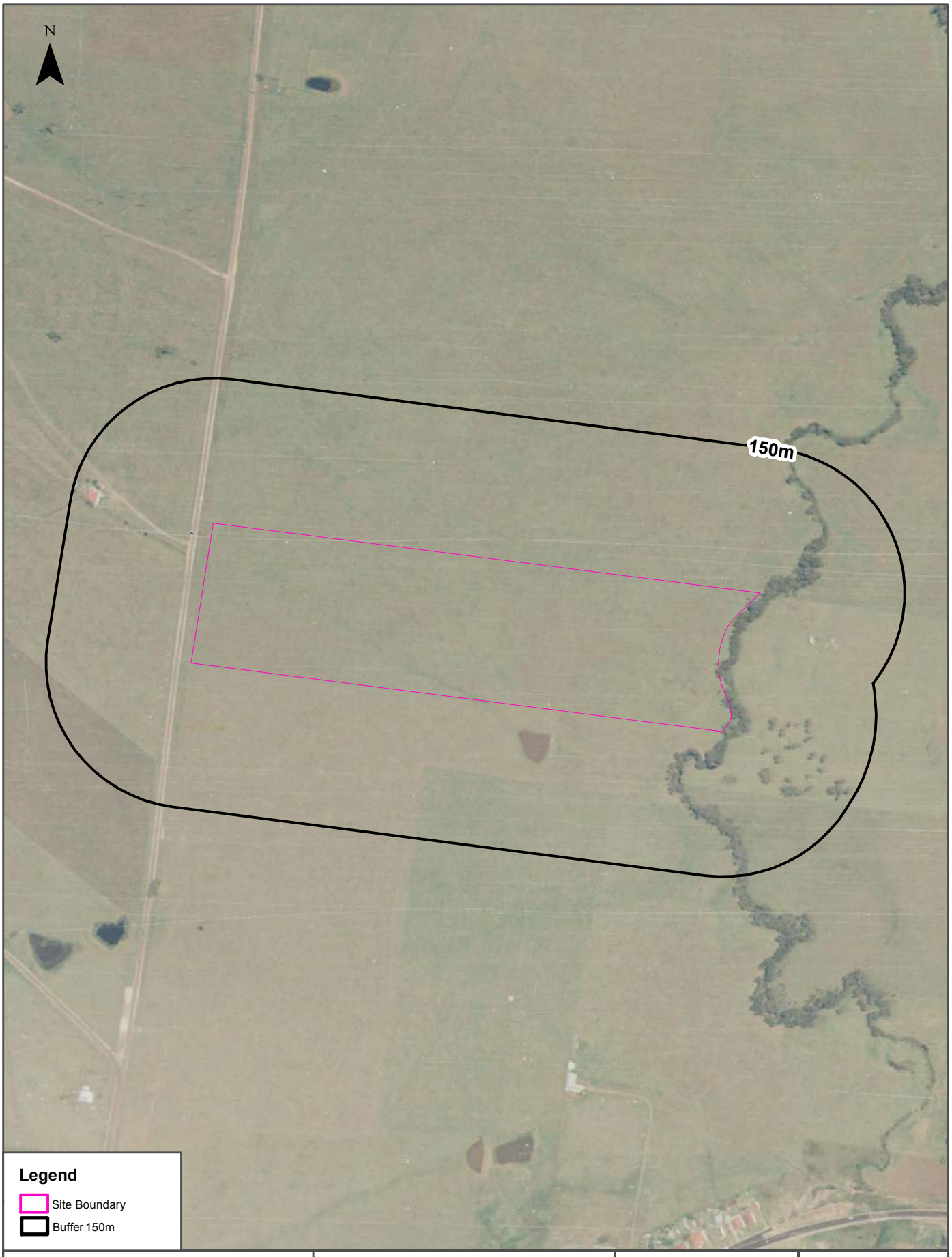
Aerial Imagery 1984

259 Windemere Road, Windemere, NSW 2321



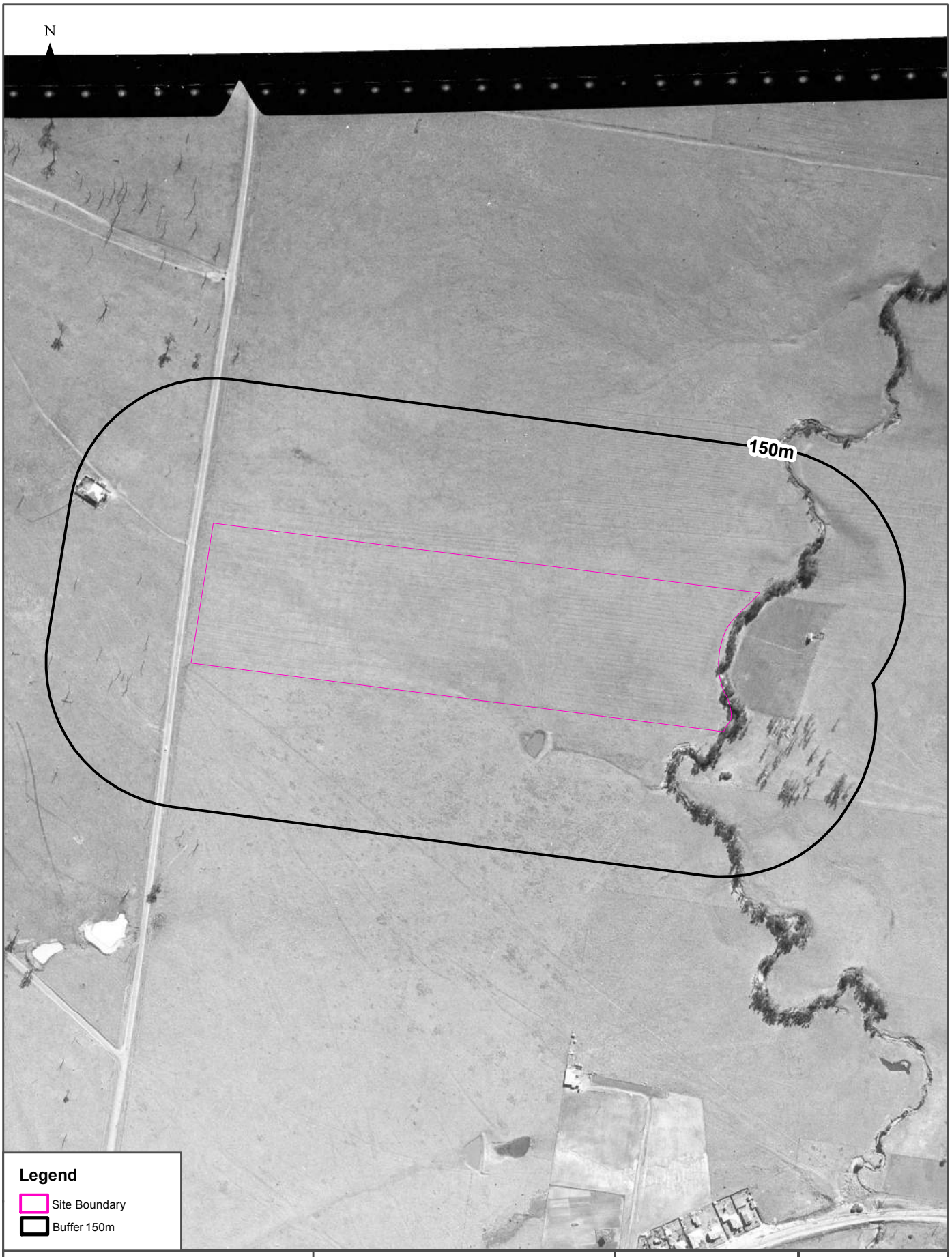
Aerial Imagery 1976

259 Windemere Road, Windemere, NSW 2321



Aerial Imagery 1965

259 Windemere Road, Windemere, NSW 2321

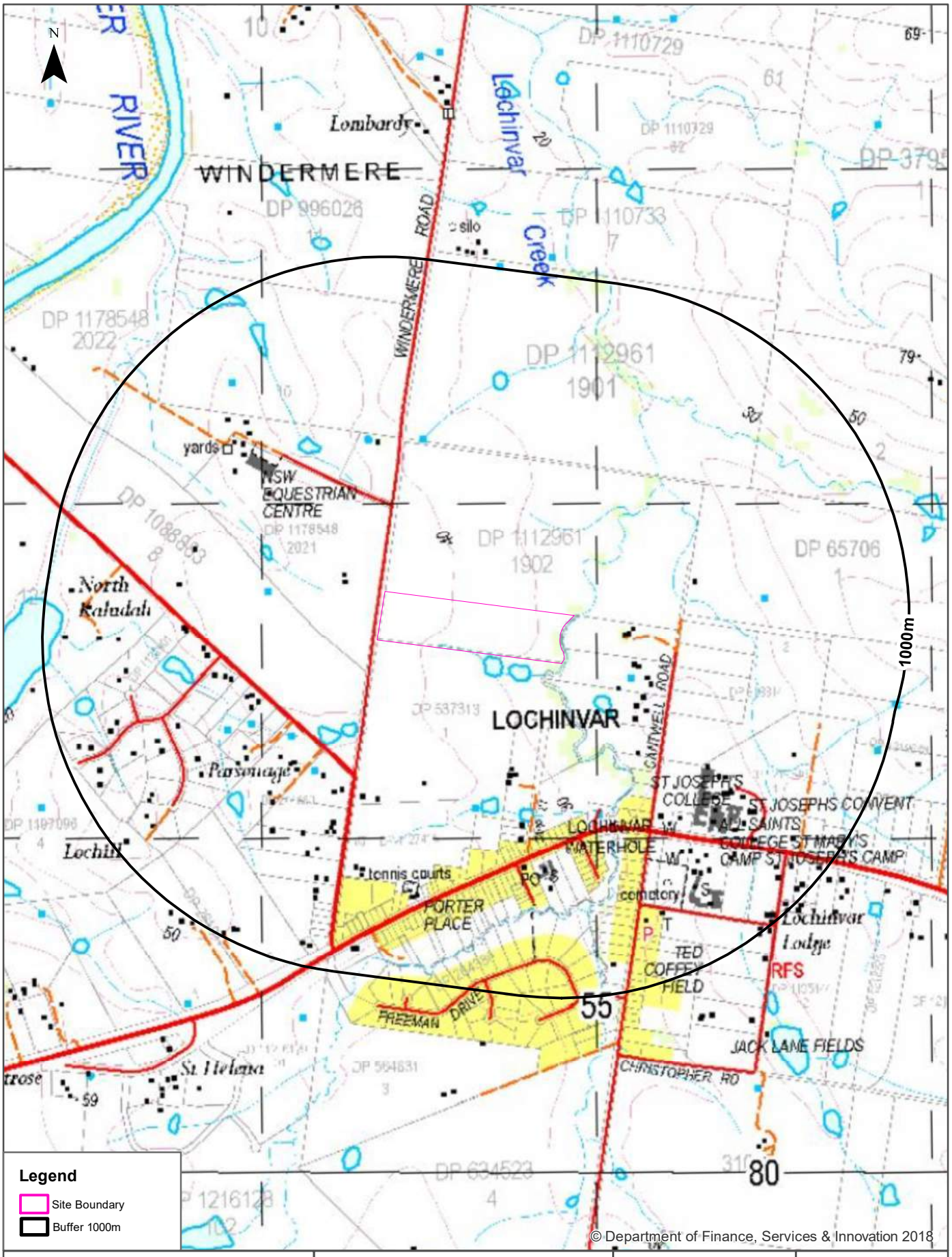


Aerial Imagery 1958

259 Windemere Road, Windemere, NSW 2321

Topographic Map 2015

259 Windemere Road, Windemere, NSW 2321

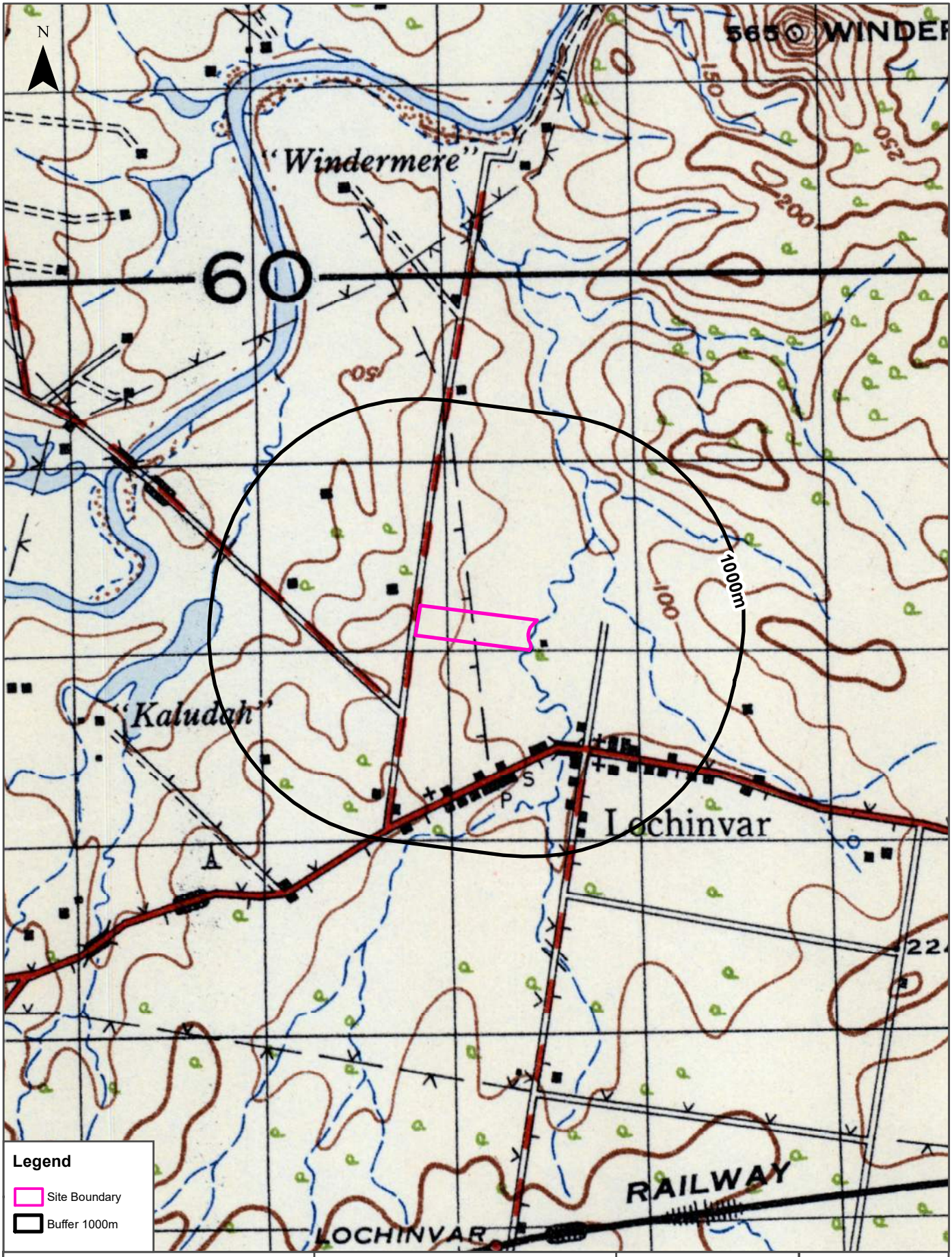


Historical Map 1982

259 Windemere Road, Windemere, NSW 2321

Historical Map c.1955

259 Windemere Road, Windemere, NSW 2321



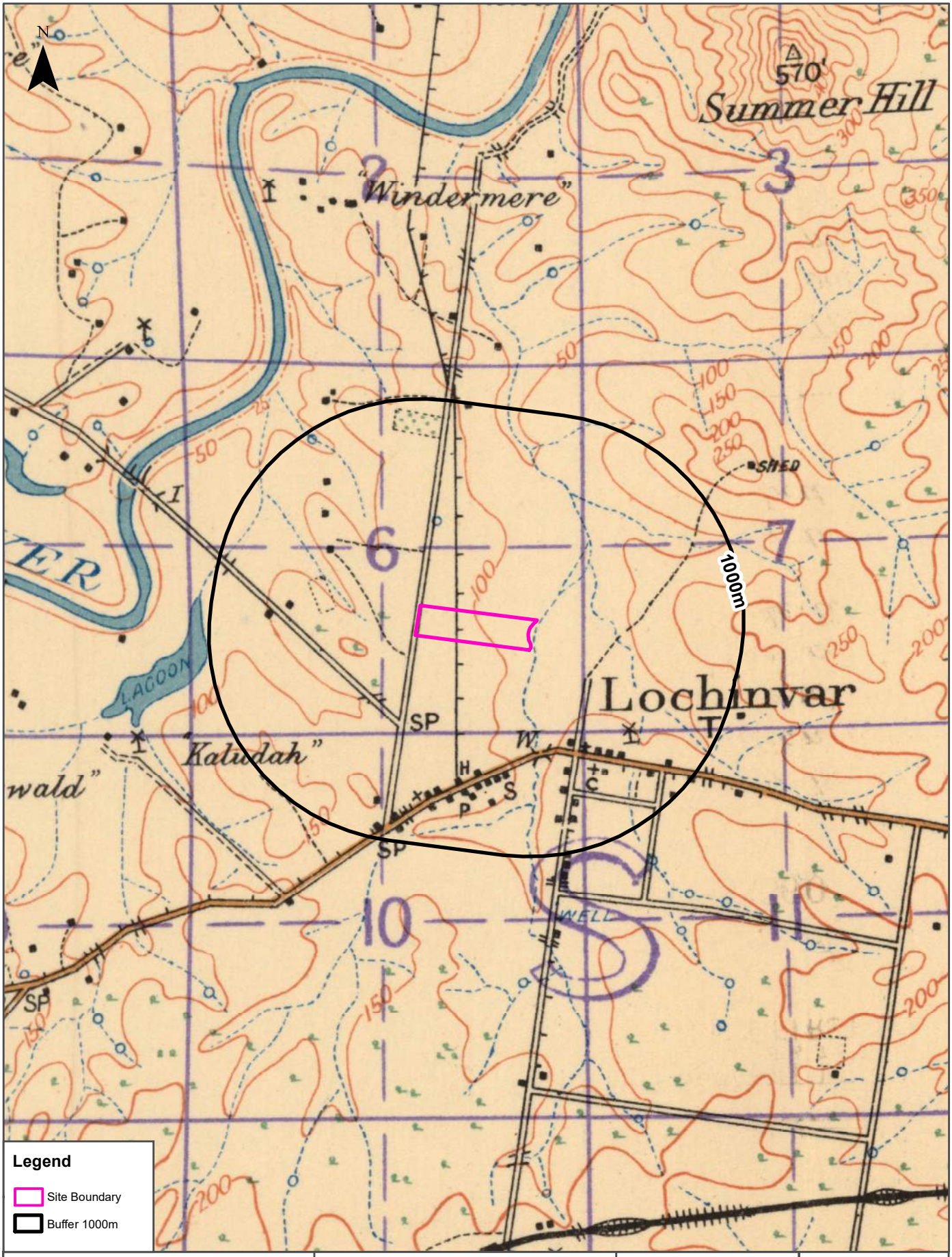
Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 22 April 2022

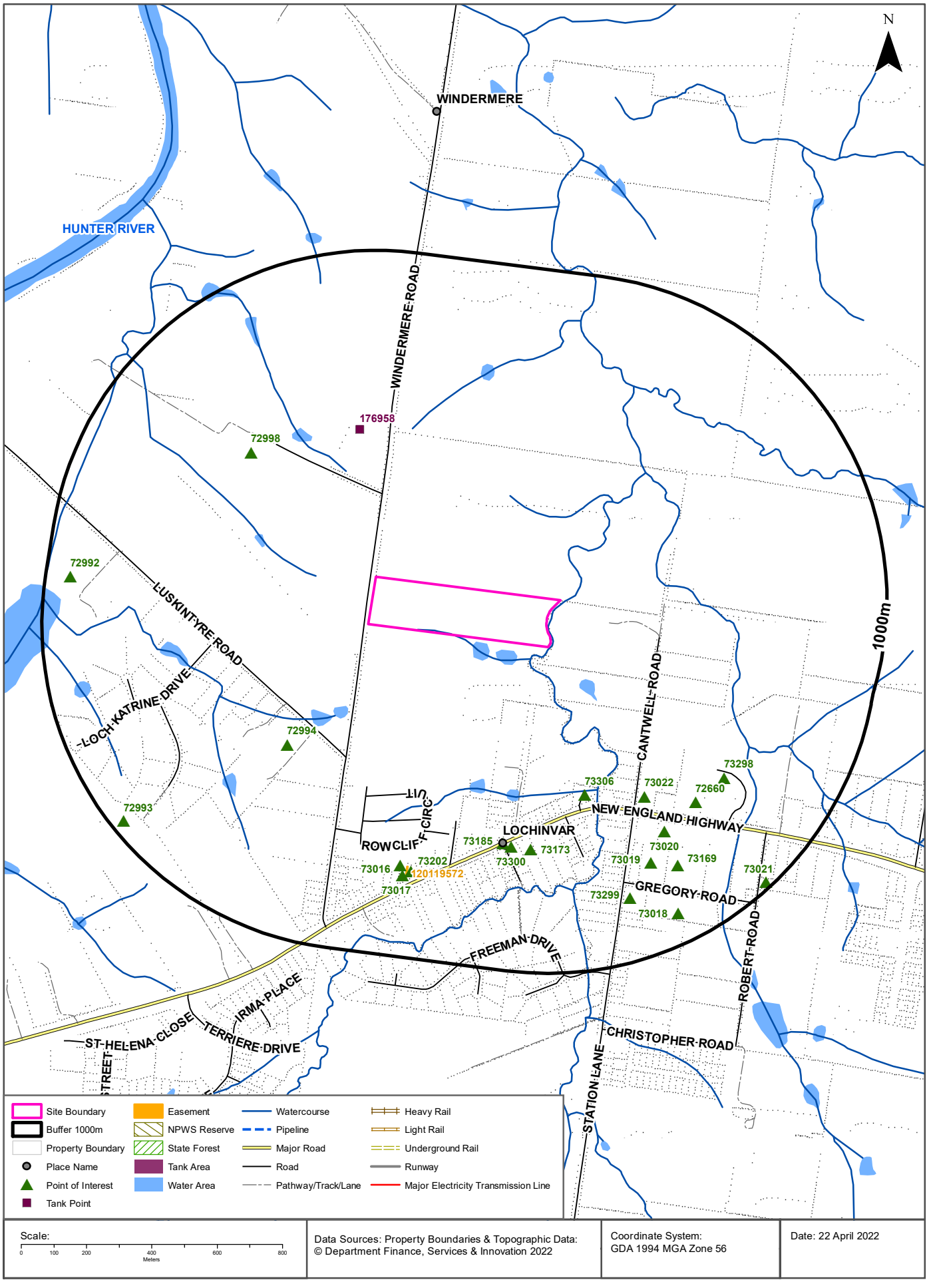
Historical Map c.1927

259 Windemere Road, Windemere, NSW 2321



Topographic Features

259 Windermere Road, Windermere, NSW 2321



Topographic Features

259 Windemere Road, Windemere, NSW 2321

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
72994	Homestead	PARSONAGE	445m	South West
73306	Manmade Waterbody	LOCHINVAR WATERHOLE	466m	South East
72998	Sports Centre	NSW EQUESTRIAN CENTRE	539m	North West
73022	Place Of Worship	ANGLICAN CHURCH	545m	South East
73185	Town	LOCHINVAR	613m	South
73300	Post Office	LOCHINVAR POST OFFICE	622m	South
73173	Primary School	LOCHINVAR PUBLIC SCHOOL	622m	South
72660	High School	ST JOSEPH'S COLLEGE DIOCESE OF MAITLAND NEWCASTLE	655m	South East
73020	Place Of Worship	CATHOLIC CHURCH	668m	South East
73298	Convent/Monastery	ST JOSEPHS CONVENT	672m	South East
73016	Sports Court	TENNIS COURTS	722m	South
73019	Cemetery	Cemetery	731m	South East
73202	Park	PORTER PLACE	736m	South
73017	Community Facility	LOCHINVAR TENNIS CLUB	751m	South
73169	Primary School	ST PATRICK'S PRIMARY SCHOOL	779m	South East
73299	Police Station	LOCHINVAR POLICE STATION	808m	South East
73018	Sports Field	TED COFFEY FIELD	907m	South East
72992	Homestead	NORTH KALUDAH	924m	West
72993	Homestead	LOCHILL	962m	South West
73021	Homestead	LOCHINVAR LODGE	982m	South East

Topographic Features

259 Windemere Road, Windemere, NSW 2321

Tanks (Areas)

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

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

Tanks (Points)

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
176958	Water	Operational		01/10/2011	453m	North West

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
120119572	Primary	Undefined		721m	South

Topographic Features

259 Windemere Road, Windemere, NSW 2321

State Forest

What State Forest exist within the dataset buffer?

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

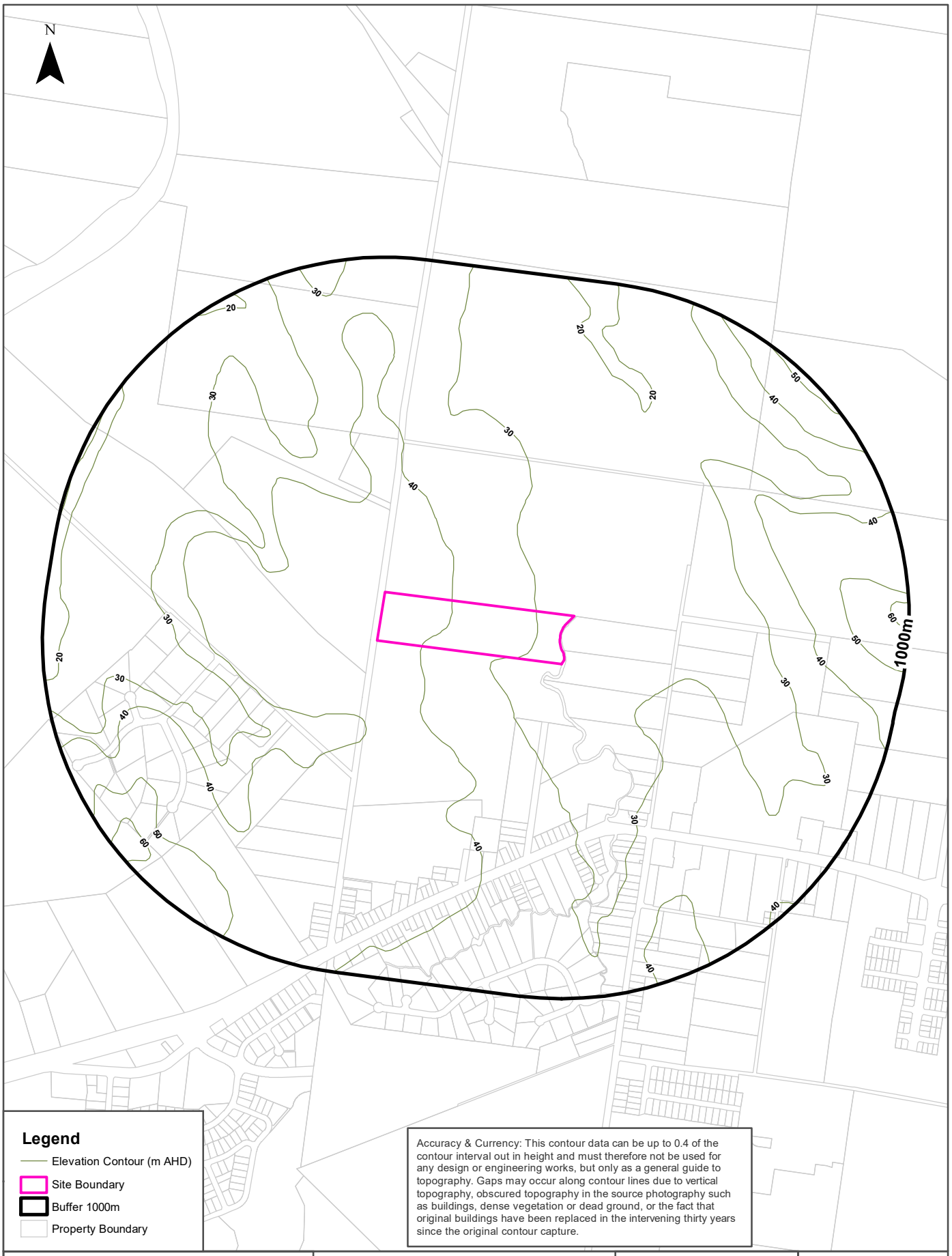
National Parks and Wildlife Service Reserves

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)

259 Windemere Road, Windemere, NSW 2321



Hydrogeology & Groundwater

259 Windemere Road, Windemere, NSW 2321

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	On-site

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

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

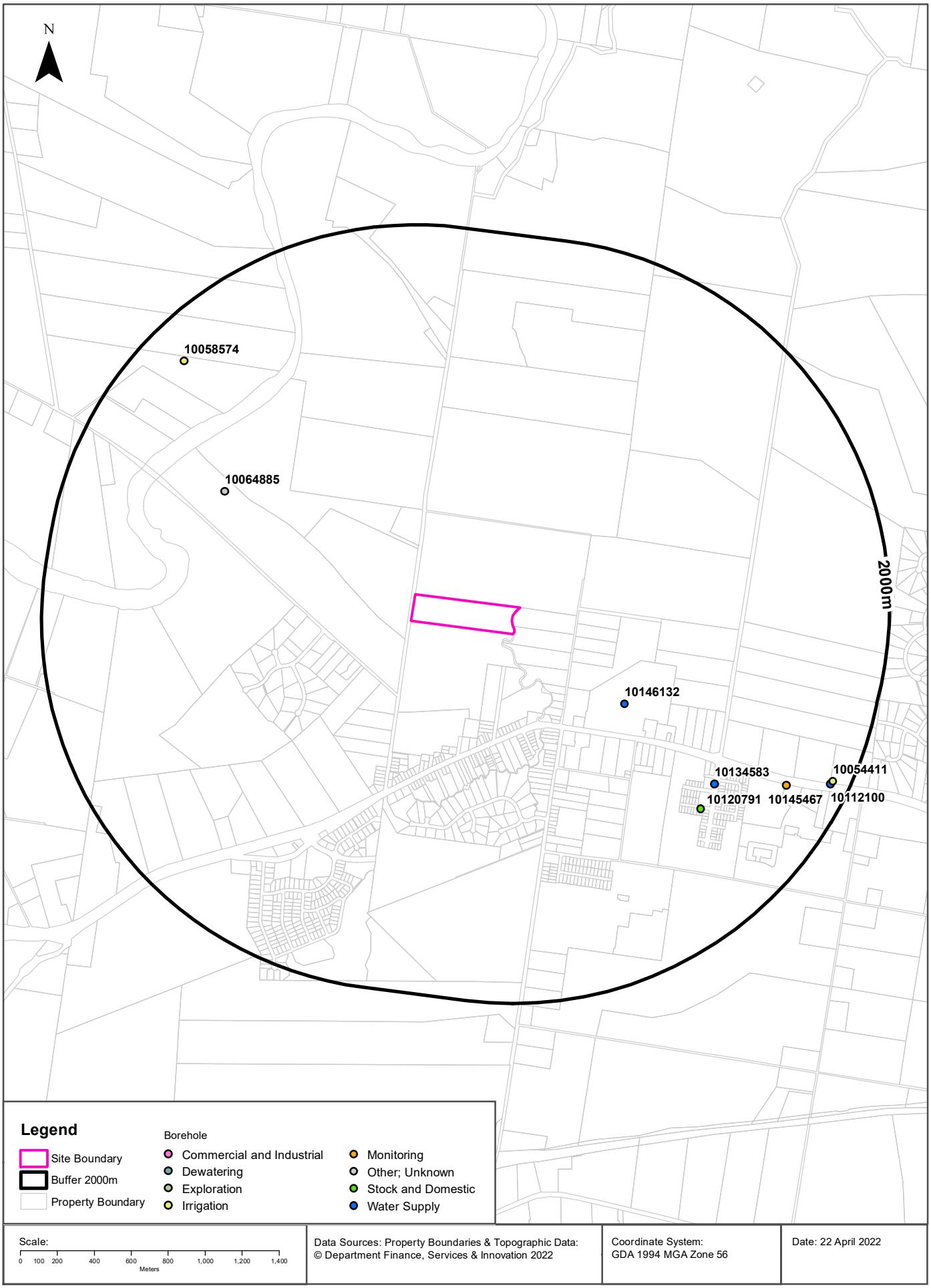
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

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

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018 Data Source : NSW Department of Primary Industries

Groundwater Boreholes

259 Windemere Road, Windemere, NSW 2321



Hydrogeology & Groundwater

259 Windemere Road, Windemere, NSW 2321

Groundwater Boreholes

Boreholes within the dataset buffer:

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10146132	GW060900	Water Supply	Abandoned	01/03/1985	18.30	25.00	AHD	501-1000 ppm			714m	South East
10064885	GW028891	Unknown	Functioning		16.50		AHD				1172m	North West
10134583	GW057354	Water Supply	Unknown	01/07/1982	22.90	37.00	AHD	1001-3000 ppm			1359m	South East
10120791	GW055019	Stock and Domestic	Removed	01/07/1982	23.80		AHD	Fair			1390m	South East
10145467	GW022693	Monitoring	Unknown	01/01/1865	12.20	49.00	AHD	Fresh			1691m	South East
10058574	GW014154	Irrigation	Unknown	01/02/1959	11.60		AHD	Good			1776m	North West
10112100	GW071829	Water Supply	Functioning	01/10/1992	16.00	45.50	AHD			16.00	1901m	South East
10054411	GW072724	Irrigation	Unknown	31/12/1992	70.00		AHD				1906m	South East

Hydrogeology & Groundwater

259 Windemere Road, Windemere, NSW 2321

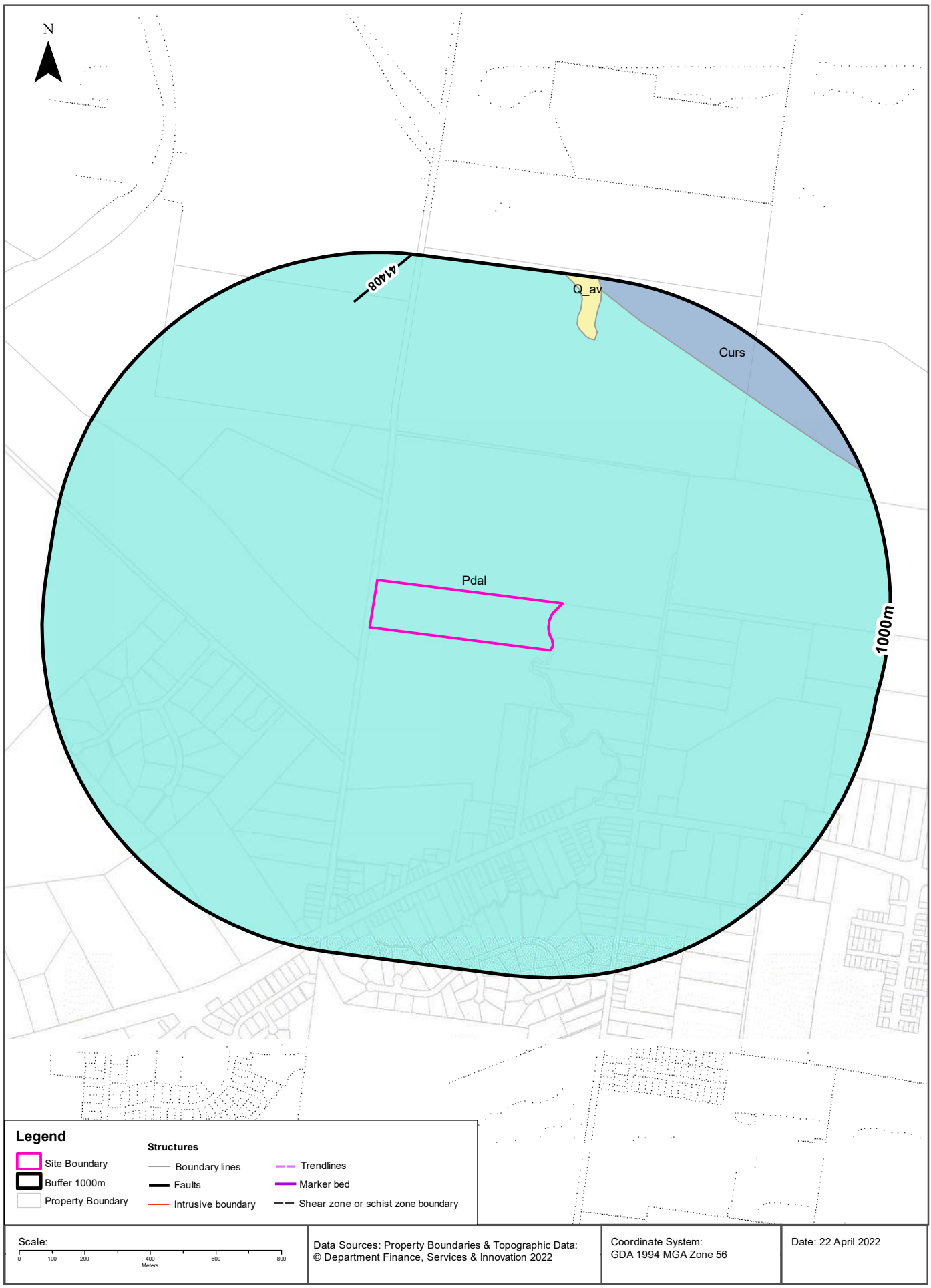
Driller's Logs

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

NGIS Bore ID	Drillers Log	Distance	Direction
10146132	0.00m-4.20m Clay 4.20m-4.87m Sandstone Weathered Water Supply 4.87m-10.00m Clay 10.00m-10.66m Andesite Weathered Water Supply 10.66m-16.15m Sandstone Or Siltstone Water Supply 16.15m-18.28m Shale Grey	714m	South East
10134583	0.00m-10.00m Clay 10.00m-22.00m Sandstone Water Supply 22.00m-22.86m Basalt	1359m	South East
10120791	0.00m-9.10m Clay 9.10m-16.40m Basalt Decomposed 16.40m-23.80m Basalt Water Supply	1390m	South East
10058574	0.00m-0.91m Sand 0.91m-11.58m Silt Flood	1776m	North West

Geology

259 Windemere Road, Windemere, NSW 2321



Geology

259 Windemere Road, Windemere, NSW 2321

Geological Units

What are the Geological Units within the dataset buffer?

Unit Code	Unit Name	Description	Unit Stratigraphy	Age	Dominant Lithology	Distance
Pdal	Lochinvar Formation	Basalt, siltstone, sandstone.	/Dalwood Group//Lochinvar Formation//	Permian (base) to Permian (top)	Basalt	0m
Q_av	Alluvial valley deposits	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	/Alluvium//Alluvial valley deposits//	Quaternary (base) to Now (top)	Clastic sediment	811m
Curs	Seaham Formation	Tillite, varved siltstone, tuff, red and green zeolitic mudstone with dropstones interbedded in thick-bedded lithic sandstone and conglomerate.	/Ungrouped Rouchel Block units//Seaham Formation//	Serpukhovian (base) to Kasimovian (top)	Siliciclastic sedimentary rock	846m

Linear Geological Structures

What are the Dyke, Sill, Fracture, Lineament and Vein trendlines within the dataset buffer?

Map ID	Feature Description	Map Sheet Name	Distance
No Features			

What are the Faults, Shear zones or Schist zones, Intrusive boundaries & Marker beds within the dataset buffer?

Map ID	Boundary Type	Description	Map Sheet Name	Distance
41408	Faulted boundary	Fault, position accurate	Newcastle Coalfield 1:100,000 Regional Geology	852m

Geological Data Source: Statewide Seamless Geology v2.1, Department of Regional NSW

Naturally Occurring Asbestos Potential

259 Windemere Road, Windemere, NSW 2321

Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

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

Atlas of Australian Soils

259 Windemere Road, Windemere, NSW 2321

Soils

259 Windemere Road, Windemere, NSW 2321

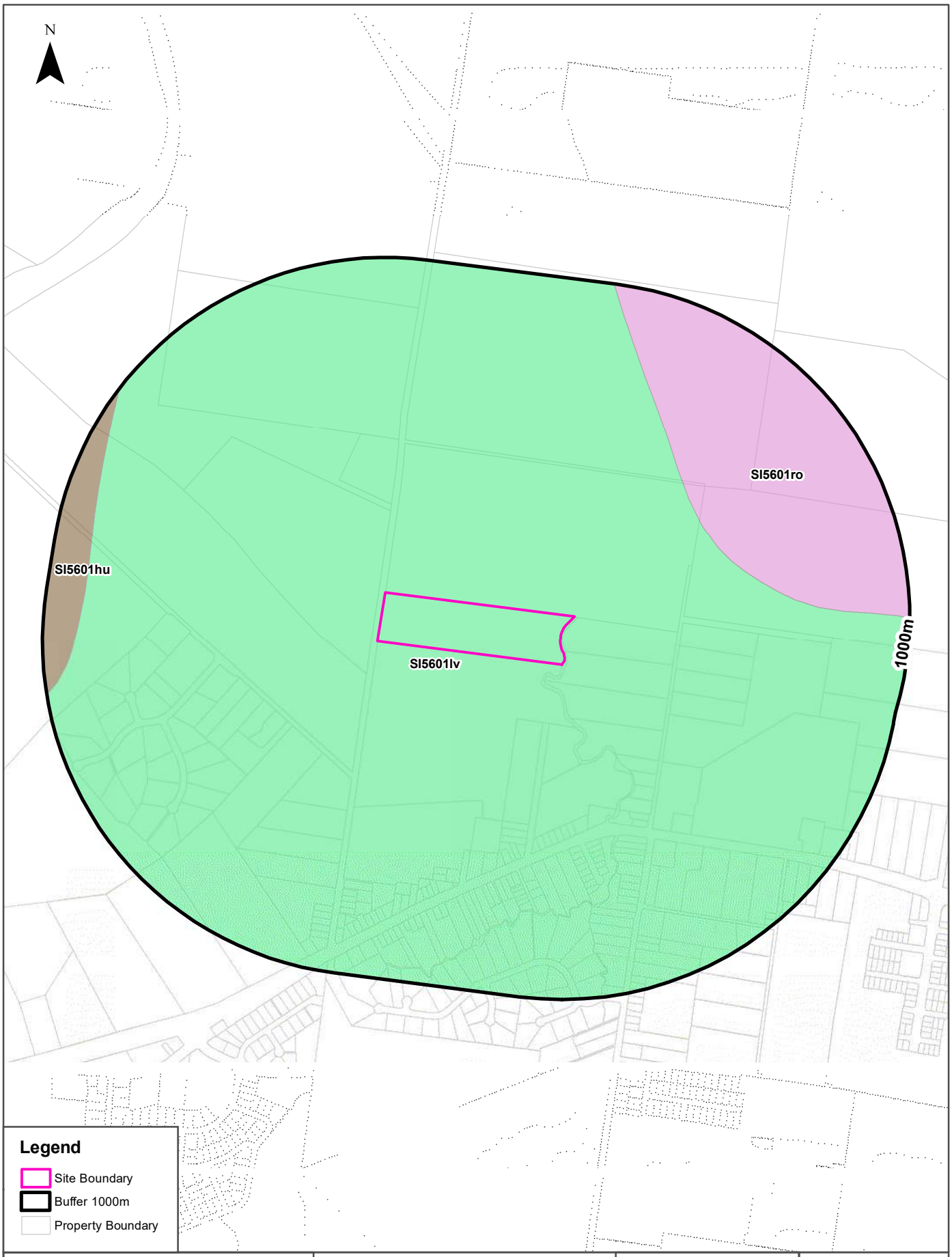
Atlas of Australian Soils

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

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Ke12	Vertosol	Undulating with shallow valleys: chief soils are dark cracking clays (Ug5.15), (Ug5.16), (Ug5.13), (Ug5.12), and (Ug5.14). Associated are small areas of other cracking clays, such as (Ug5.3), (Ug5.2), and (Ug5.S); dark friable earths (Gn3.42); and minor areas of all the soils common to unit Oc10. As mapped, small areas of unit LK1 are included.	0m	On-site
Tb42	Kurosol	Undulating to hilly with a general ridge, slope, and valley sequence throughout; some outcropping sandstone or conglomerate on the ridges, occasionally some escarpments: chief soils are hard acidic yellow mottled soils (Dy3.41), possibly with (Dy3.42). Associated are: narrow ridges of shallow (Dy3.41) and (Dr3.41) soils, both often containing ironstone gravel; (Dr2.41) soils on broader ridges some broad sandy flats of (Dy5.81) soils containing ironstone gravels; dunes of (Uc1.2) soils on local sand deposits; and various undescribed soils along the streams where salinity is a common local feature.	295m	West
Gb9	Dermosol	River terraces and flood-plains: chief soils are dark friable loamy soils (Um6.11) locally underlain by either sandy or clayey substrata, and occurring on the middle river terraces. Associated are hard alkaline dark soils (Dd1.33 and Dd1.43), and/or friable dark soils (Dd3.12), and/or hard alkaline brown soils (Db1.33) on terrace remnants flanking the valley slopes; siliceous sands (Uc1.23) on low terraces adjoining the river; and local areas of various soils including (Ug5.15), (Ug5.16) and possibly (Ug5.4), (Db1), and (Dy) soils. Locally the (Ug5) soils may form soil complexes with the (Dd) and (Db) soils.	371m	North West

Soil Landscapes of Central and Eastern NSW

259 Windemere Road, Windemere, NSW 2321



Soils

259 Windemere Road, Windemere, NSW 2321

Soil Landscapes of Central and Eastern NSW

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

Soil Code	Name	Distance	Direction
SI5601lv	Lochinvar	0m	On-site
SI5601ro	Rothbury	466m	North East
SI5601hu	Hunter	886m	West

Acid Sulfate Soils

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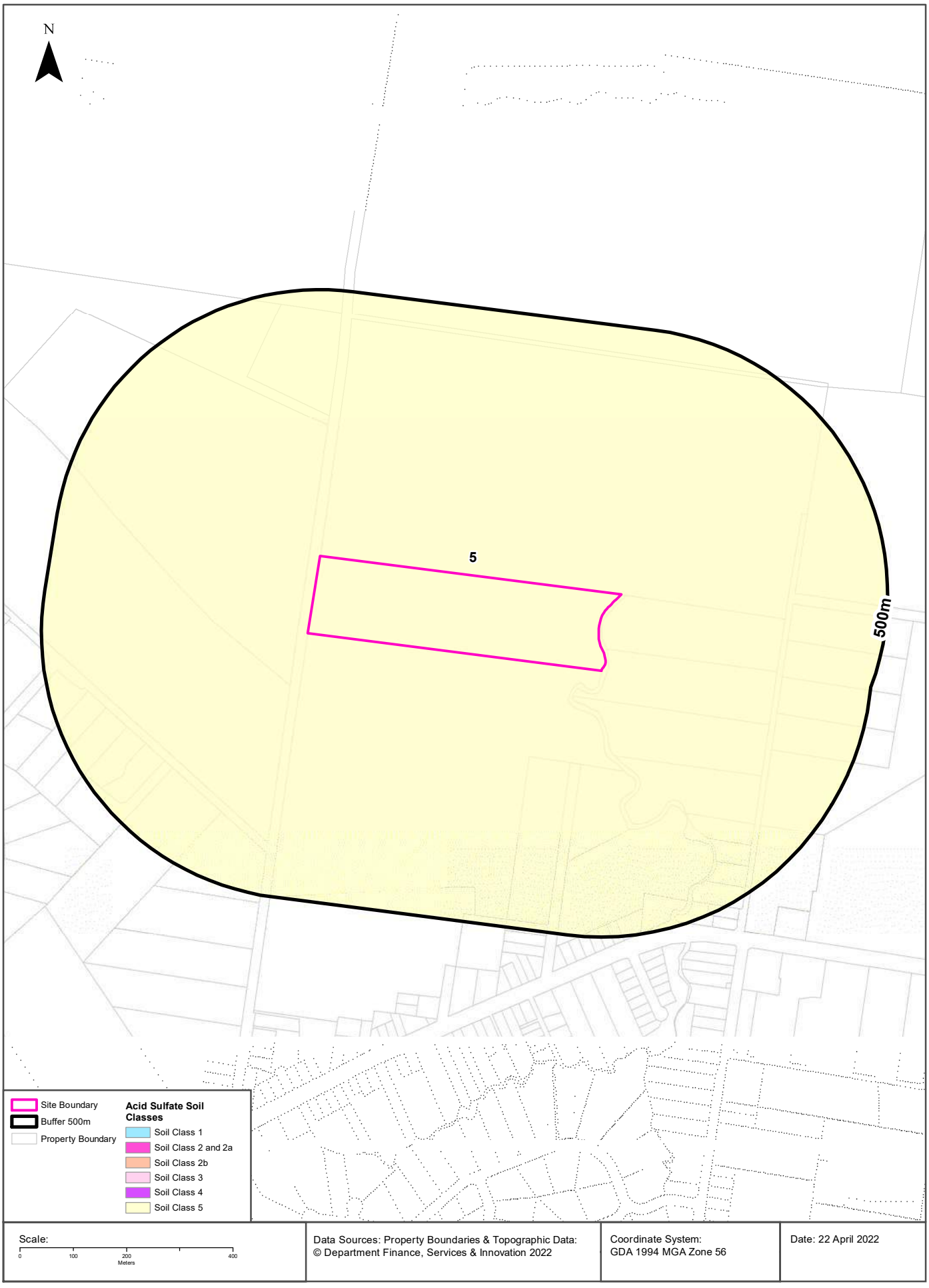

Acid Sulfate Soils

259 Windemere Road, Windemere, NSW 2321

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	Maitland Local Environmental Plan 2011

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

Soil Class	Description	EPI Name	Distance	Direction
None				

Atlas of Australian Acid Sulfate Soils

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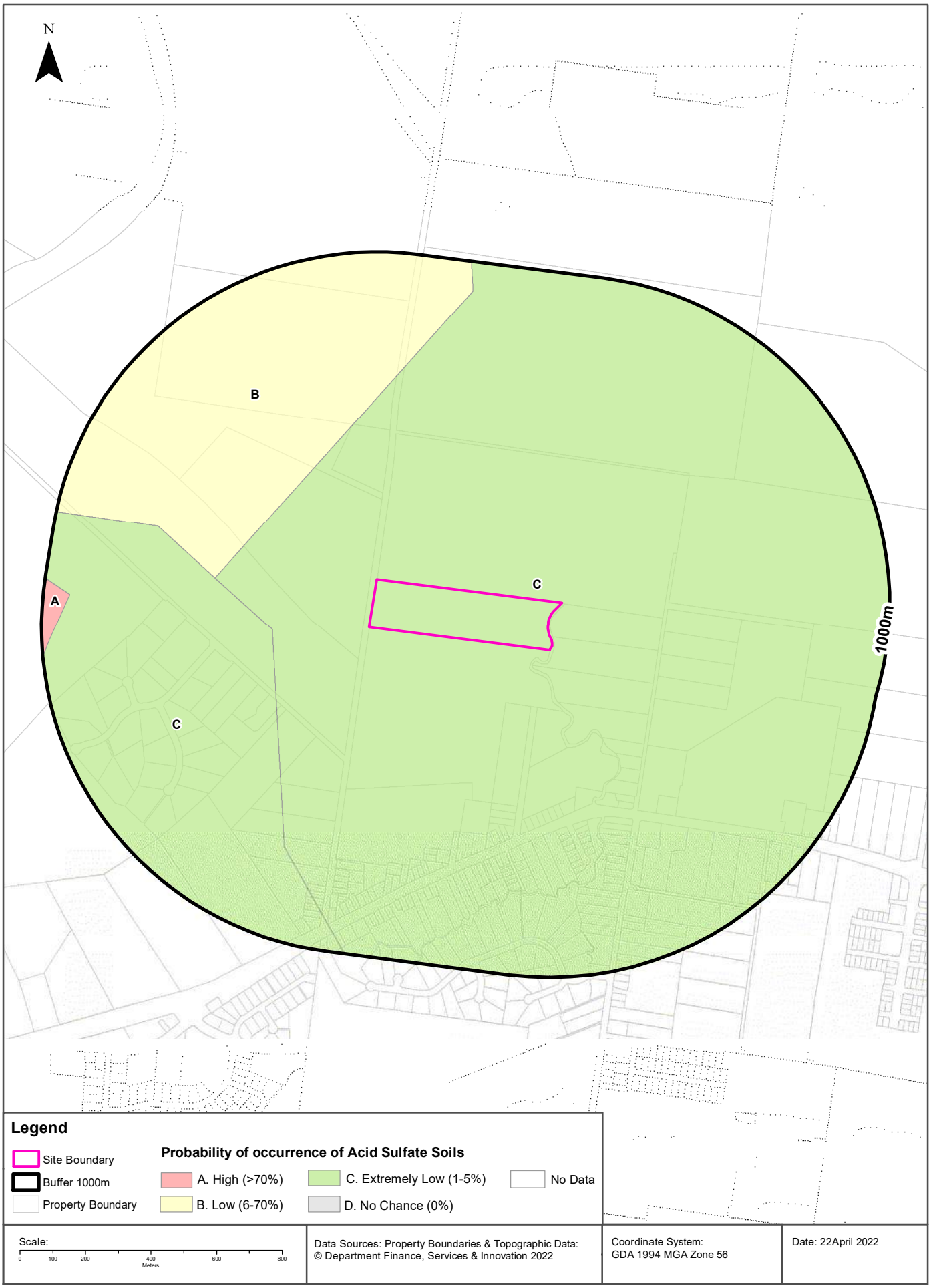


Acid Sulfate Soils

259 Windemere Road, Windemere, NSW 2321

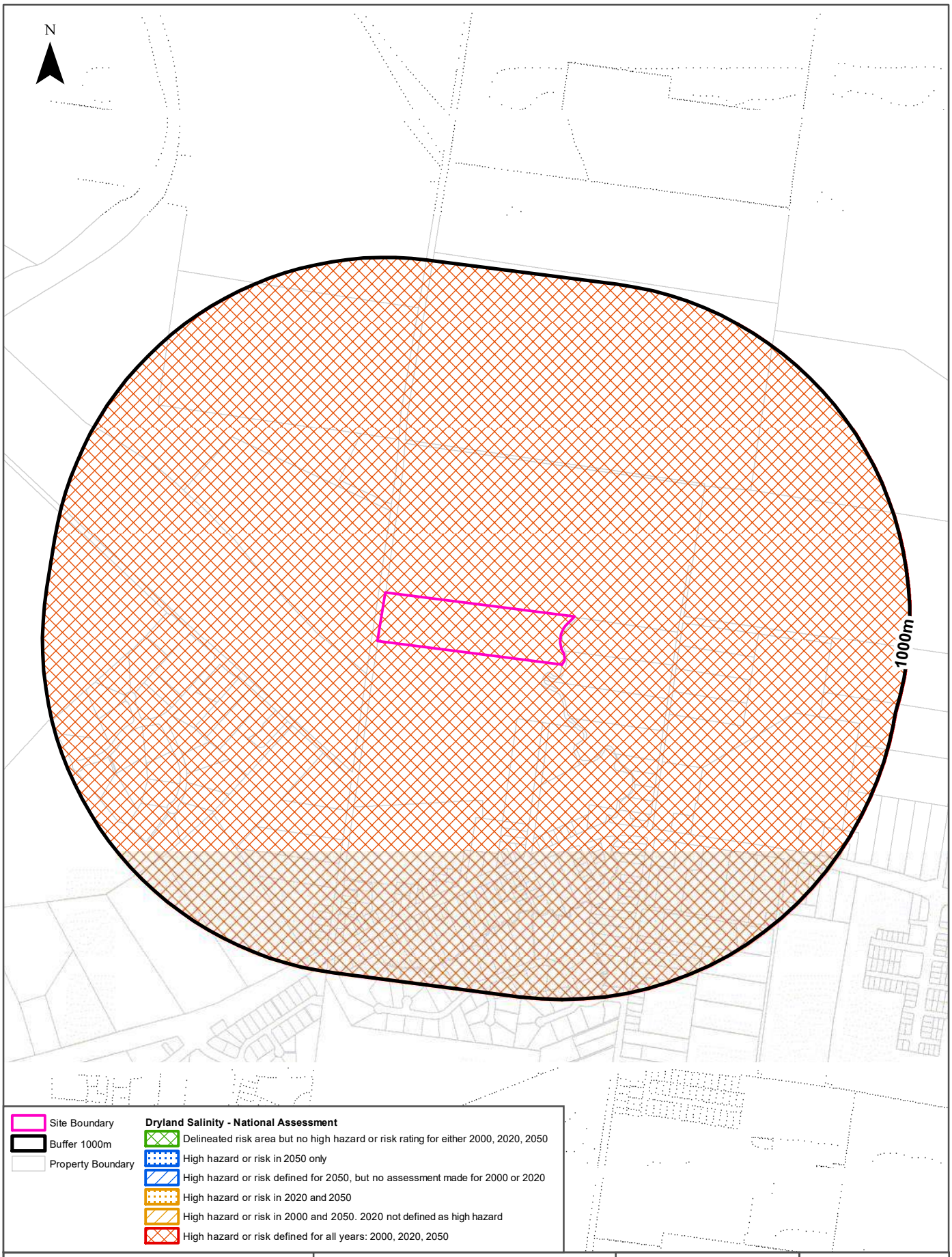
Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance	Direction
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m	On-site
B	Low Probability of occurrence. 6-70% chance of occurrence.	372m	North West
A	High Probability of occurrence. >70% chance of occurrence.	919m	West

Dryland Salinity

259 Windemere Road, Windemere, NSW 2321



Dryland Salinity

259 Windemere Road, Windemere, NSW 2321

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

Yes

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

Yes

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
High hazard or risk	High hazard or risk	High hazard or risk	0m	On-site

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

Mining

259 Windemere Road, Windemere, NSW 2321

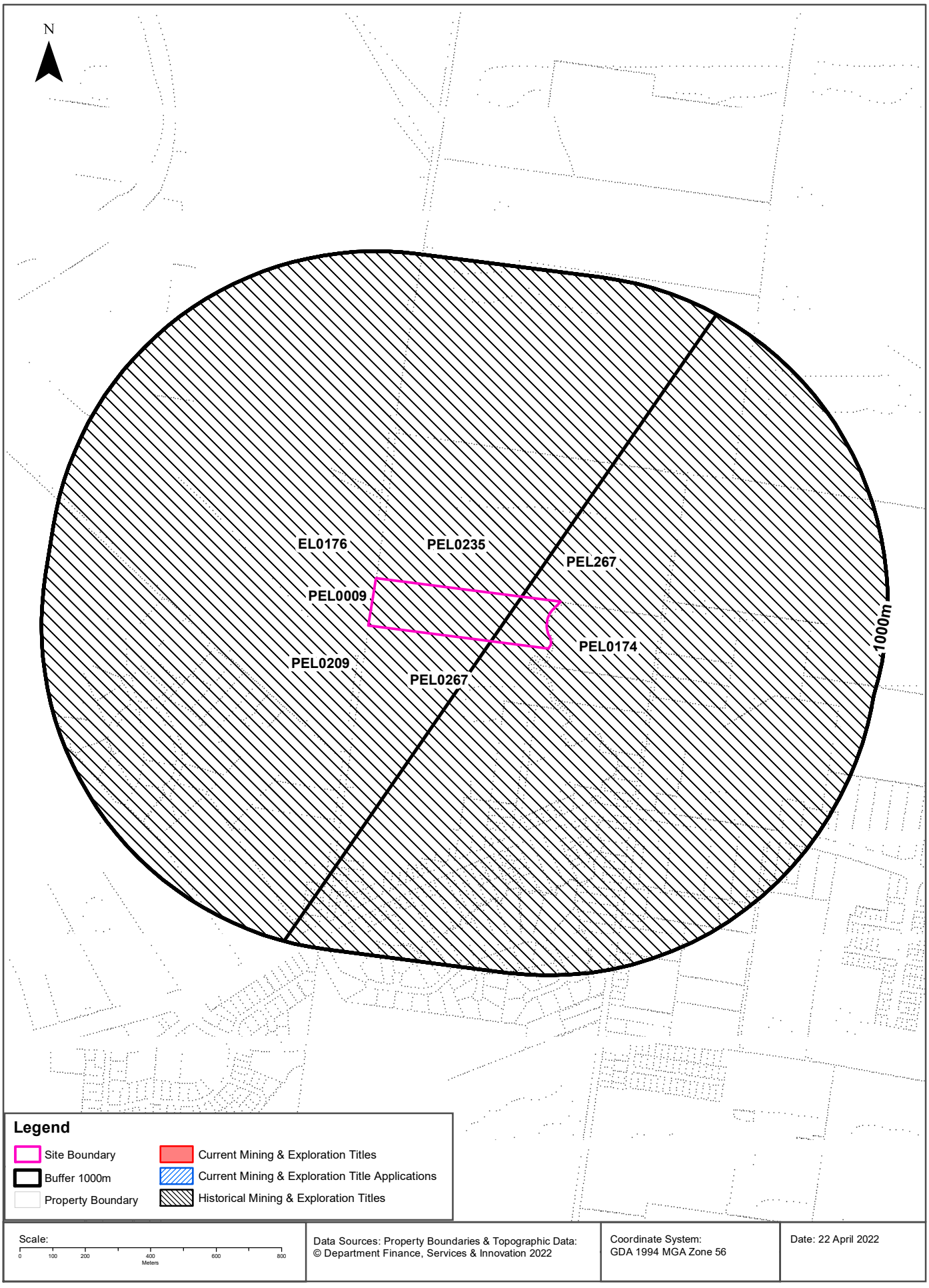
Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

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

Mining & Exploration Titles

259 Windemere Road, Windemere, NSW 2321



Mining

259 Windemere Road, Windemere, NSW 2321

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

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

Current Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

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

Current Mining & Exploration Title Applications Data Source: © State of New South Wales through NSW Department of Industry

Mining

259 Windemere Road, Windemere, NSW 2321

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL267	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	On-site
EL0176	LEFTWICH, R W	01 May 1969	01 May 1970	MINERALS	Cu Pb Zn Ag	0m	On-site
PEL0267	SYDNEY OIL CO (NSW) PTY LTD, MANVANE PTY LTD AUSTRALIA NL, BASE RESOURCES LTD, SEAHAWK OIL AUSTRALIA NL, READING & BATES	20/01/1984	6/07/2015	PETROLEUM	Petroleum	0m	On-site
PEL0174	NSW OIL AND GAS COMPANY NL			PETROLEUM	Petroleum	0m	On-site
PEL0209	EARTH RESOURCES AUSTRALIA PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0235	EASTMET LTD	17/04/1980		PETROLEUM	Petroleum	0m	On-site
PEL0009	AUSTRALIAN OIL AND GAS CORPORATION LTD, UNION OIL DEVELOPMENT CORP., KERN COUNTY LAND CO.			PETROLEUM	Petroleum	0m	On-site

State Environmental Planning Policy

259 Windemere Road, Windemere, NSW 2321

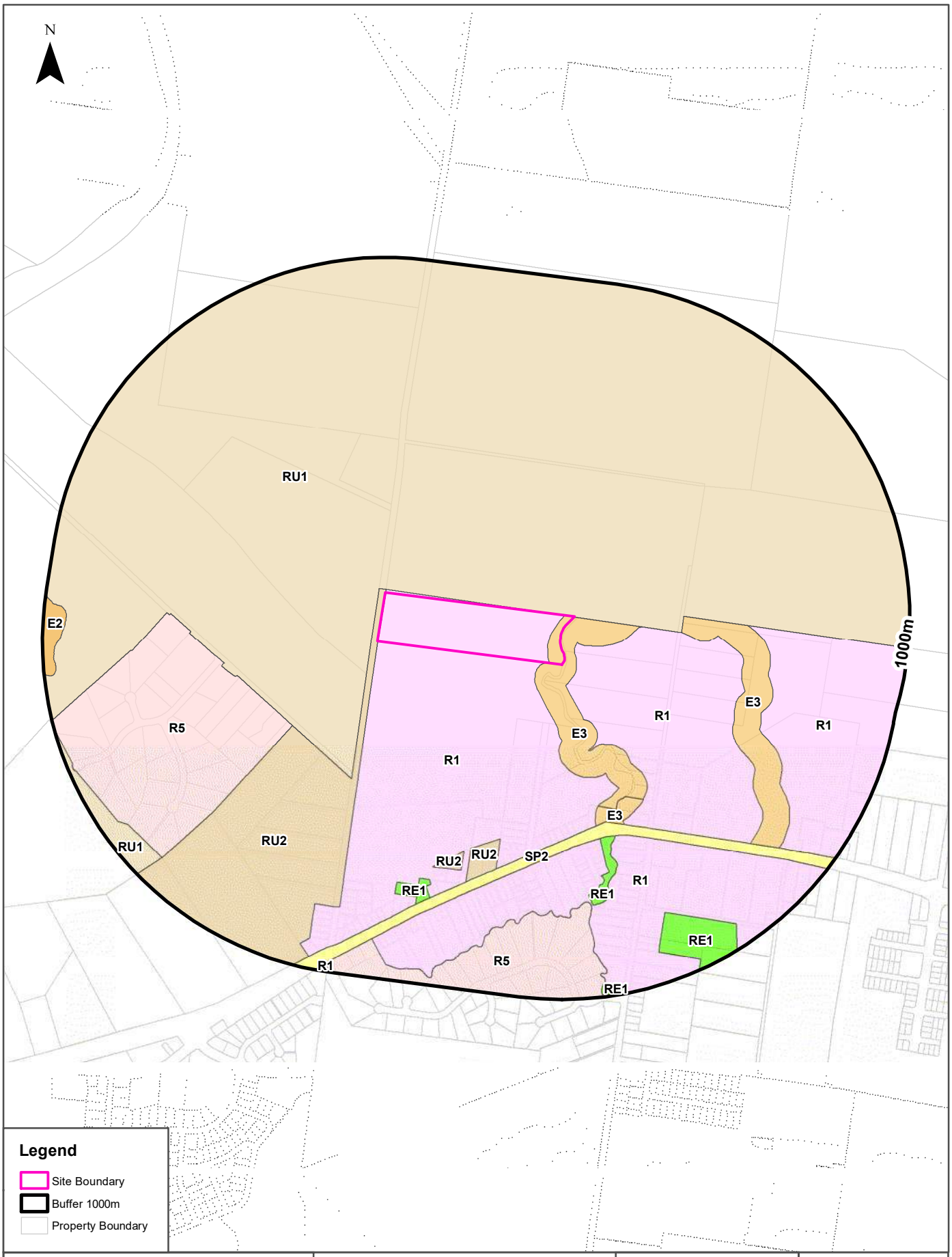
State Significant Precincts

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

259 Windemere Road, Windemere, NSW 2321



Environmental Planning Instrument

259 Windemere Road, Windemere, NSW 2321

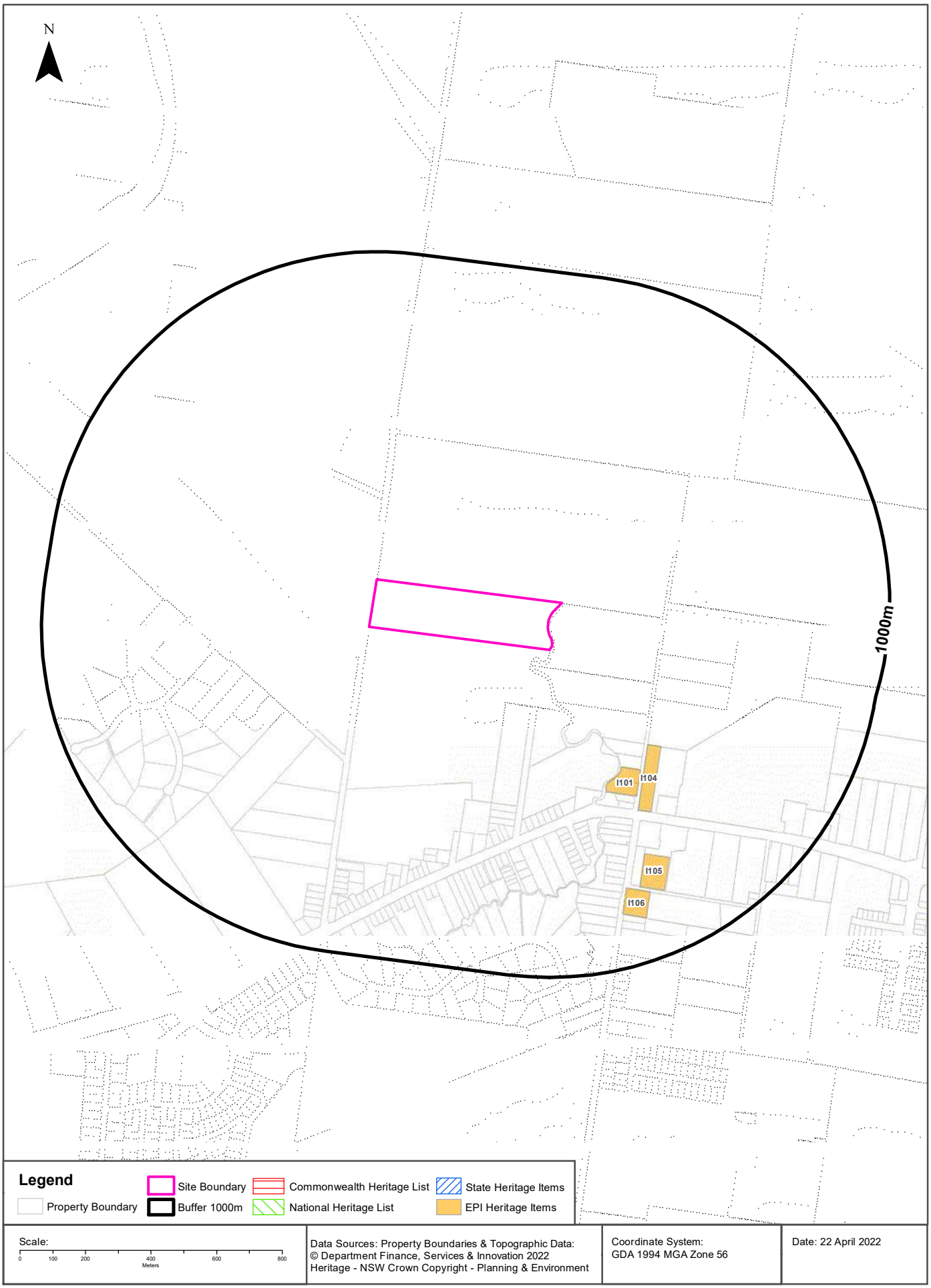
Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R1	General Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		0m	On-site
E3	Environmental Management		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		0m	On-site
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		0m	South West
RU1	Primary Production		Maitland Local Environmental Plan 2011	04/12/2020	04/12/2020	16/07/2021	Amendment No 26	0m	North
R1	General Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		30m	South East
E3	Environmental Management		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		320m	East
R5	Large Lot Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		358m	West
E3	Environmental Management		Maitland Local Environmental Plan 2011	30/05/2014	30/05/2014	16/07/2021	Amendment No 6	435m	South East
SP2	Infrastructure	Classified Road	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		486m	South
R1	General Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		515m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		529m	South East
R1	General Residential		Maitland Local Environmental Plan 2011	16/07/2021	16/07/2021	16/07/2021	Amendment No 31	530m	South East
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		539m	South
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		589m	South
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		687m	South
R5	Large Lot Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		712m	South
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		799m	South East
E2	Environmental Conservation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		932m	West
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		964m	South

Heritage Items

259 Windemere Road, Windemere, NSW 2321



Heritage

259 Windemere Road, Windemere, NSW 2321

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							

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							

State Heritage Register - Curtilages

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

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

Environmental Planning Instrument - Heritage

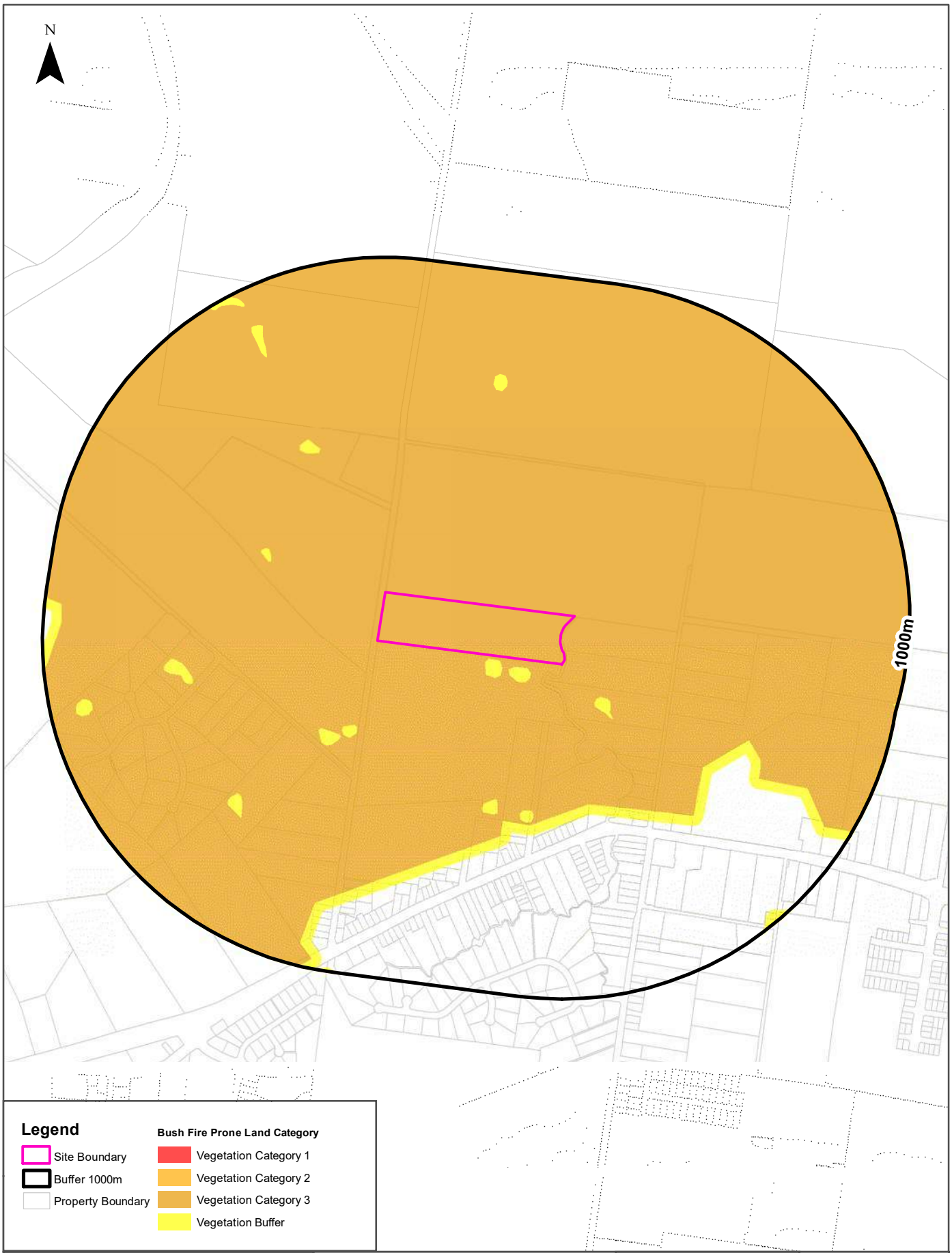
What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I104	Holy Trinity Church	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	14/01/2022	415m	South East
I101	Victoria House	Item - General	Local	Maitland Local Environmental Plan 2011	14/01/2022	14/01/2022	14/01/2022	417m	South East
I105	Catholic Cemetery	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	14/01/2022	685m	South East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I106	Police Station	Item - General	Local	Maitland Local Environmental Plan 2011	14/01/2022	14/01/2022	14/01/2022	762m	South East

Natural Hazards - Bush Fire Prone Land

259 Windemere Road, Windemere, NSW 2321



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2022. Property Boundaries: © Department Finance, Services & Innovation 2022

Coordinate System: GDA 1994 MGA Zone 56

Date: 22 April 2022

Natural Hazards

259 Windemere Road, Windemere, NSW 2321

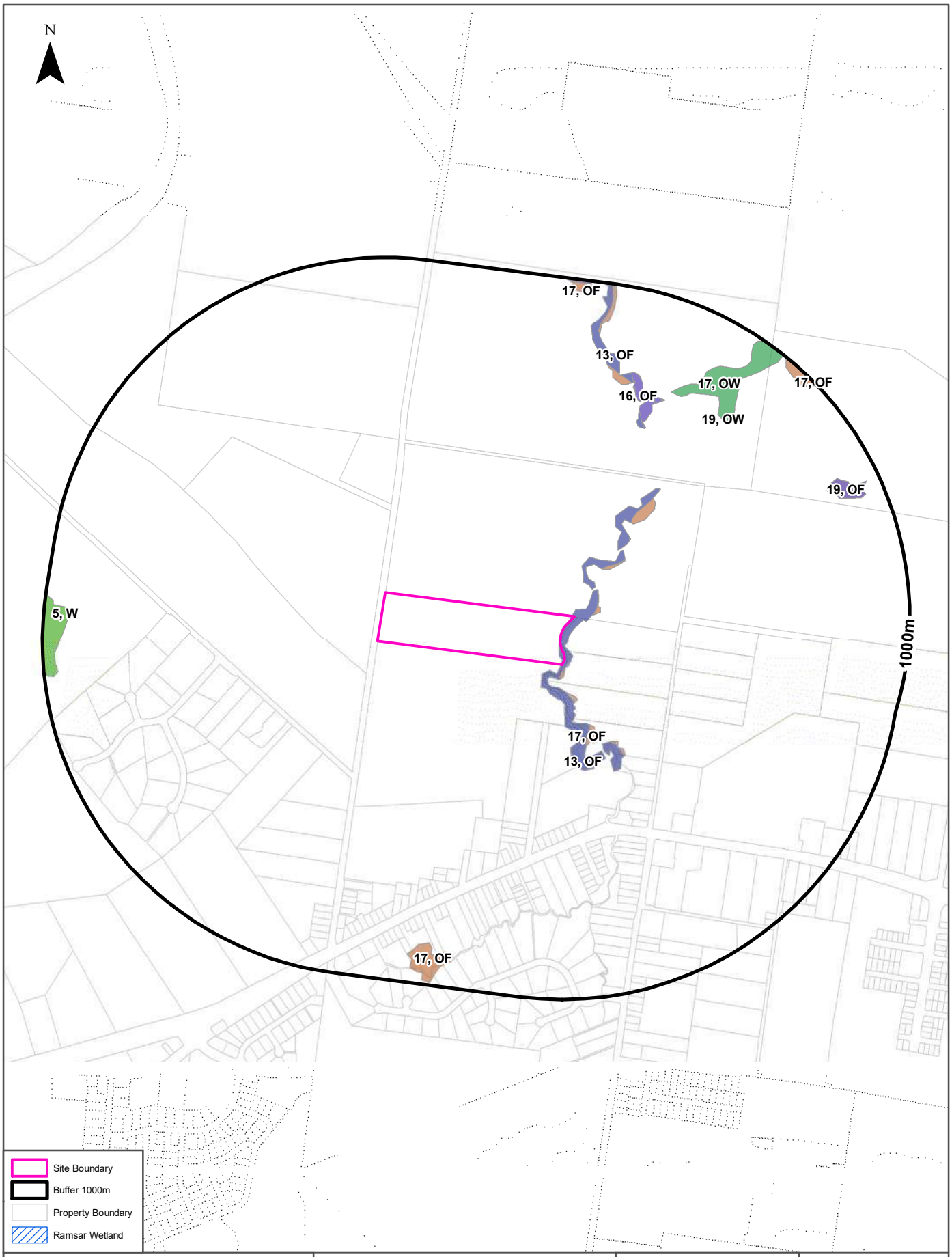
Bush Fire Prone Land

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

Bush Fire Prone Land Category	Distance	Direction
Vegetation Category 3	0m	On-site
Vegetation Buffer	11m	South East

Ecological Constraints - Vegetation & Ramsar Wetlands

259 Windemere Road, Windemere, NSW 2321



Ecological Constraints

259 Windemere Road, Windemere, NSW 2321

Lower Hunter and Central Coast Regional Vegetation Survey

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

Map Id	Unit Desc	Canopy Code	Canopy Cover	Species	Distance	Direction
13	Central Hunter Riparian Forest	OF	Mid Dense (Open Forest) 50-<100% cover	E. tereticornis / C. glauca / A. floribunda	0m	On-site
17	Lower Hunter Spotted Gum - Ironbark Forest	OF	Mid Dense (Open Forest) 50-<100% cover	C. maculata / E. fibrosa / E. punctata	11m	East
16	Seaham Spotted Gum Iron Bark Forest	OF	Mid Dense (Open Forest) 50-<100% cover	C. maculata / E. crebra / E. punctata / E. fibrosa	598m	North East
19	Hunter Lowland Redgum Forest	OF	Mid Dense (Open Forest) 50-<100% cover	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	694m	North East
17	Lower Hunter Spotted Gum - Ironbark Forest	OW	Very Sparse (Open Woodland) 10-20% cover	C. maculata / E. fibrosa / E. punctata	729m	North East
19	Hunter Lowland Redgum Forest	OW	Very Sparse (Open Woodland) 10-20% cover	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	734m	North East
5	Alluvial Tall Moist Forest	W	Wetland	E. saligna / S. glomulifera / Glochidion ferdinandi	922m	West

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

Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

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

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

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

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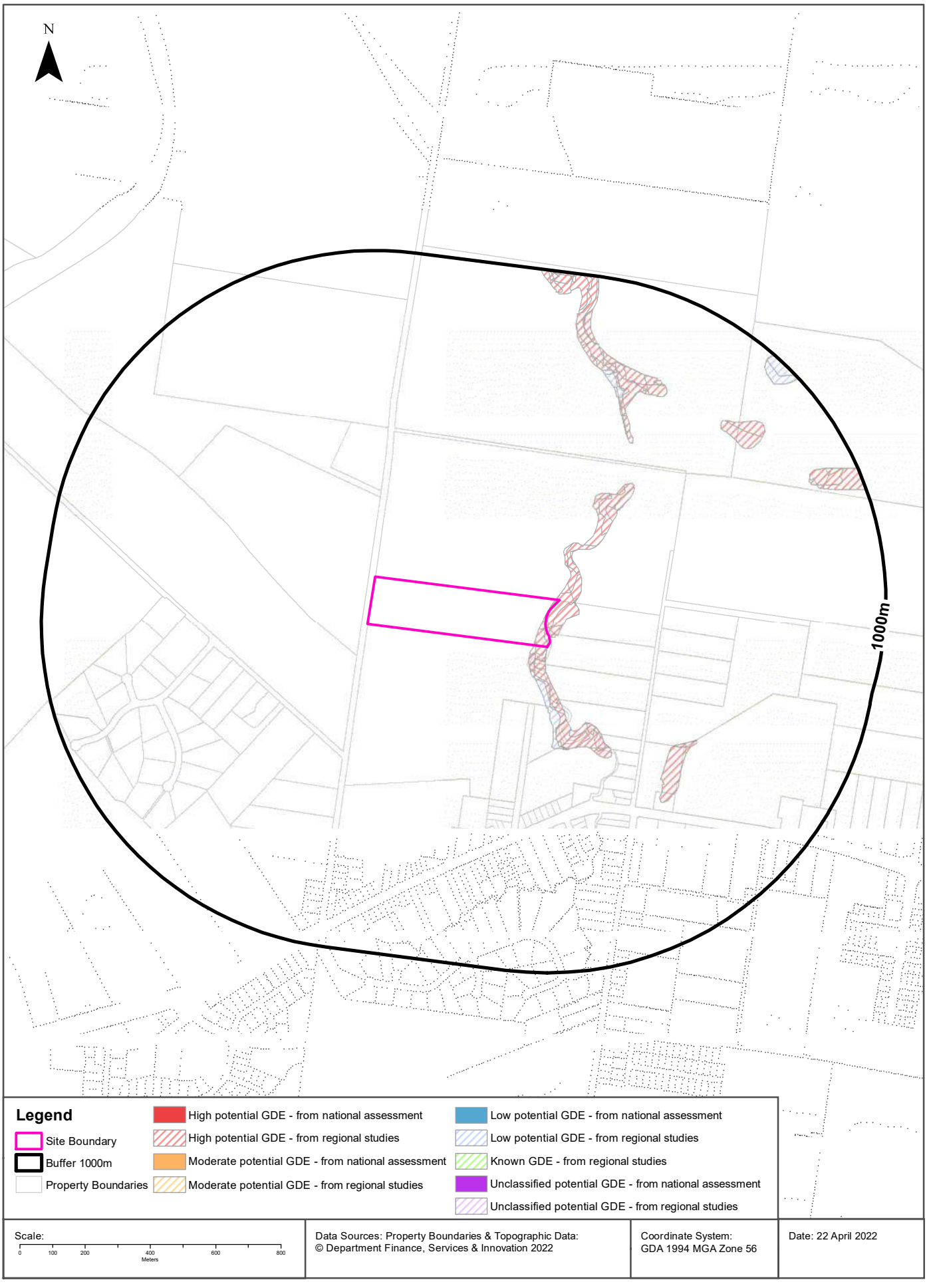

Ecological Constraints

259 Windemere Road, Windemere, NSW 2321

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	High potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m	On-site
Terrestrial	Low potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		100m	South East
Terrestrial	High potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		354m	South East
Terrestrial	Low potential GDE - from regional studies	Deeply dissected sandstone plateaus.	Vegetation		672m	North East

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

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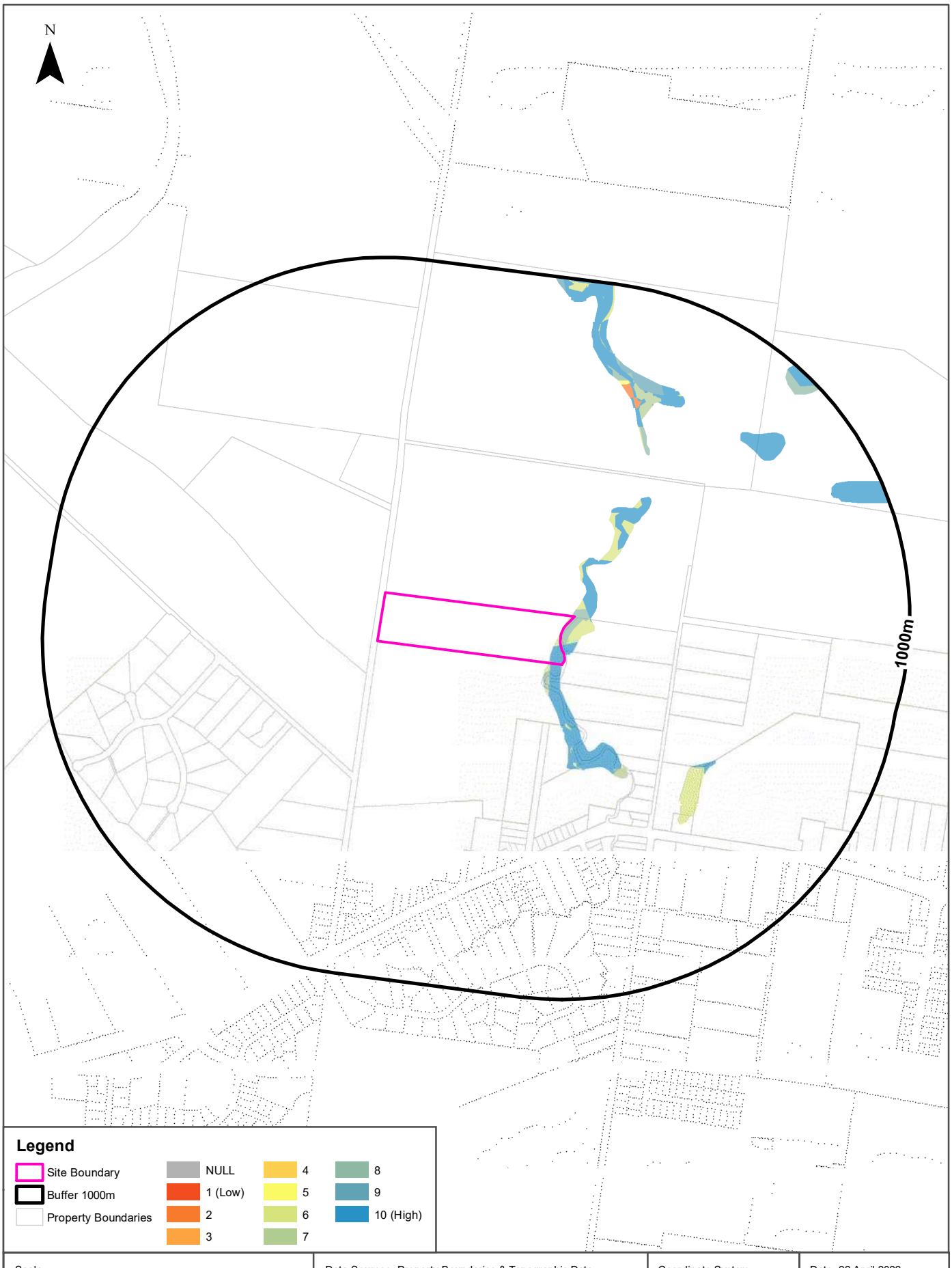

Ecological Constraints

259 Windemere Road, Windemere, NSW 2321

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	10	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m	On-site
Terrestrial	6	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m	On-site
Terrestrial	8	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		0m	On-site
Terrestrial	7	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		354m	South East
Terrestrial	7	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		608m	North East
Terrestrial	2	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		646m	North East
Terrestrial	10	Deeply dissected sandstone plateaus.	Vegetation		672m	North East
Terrestrial	9	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		706m	North East
Terrestrial	5	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		708m	North East
Terrestrial	5	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		986m	North

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Ecological Constraints

259 Windemere Road, Windemere, NSW 2321

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	Litoria littlejohni	Littlejohn's Tree Frog	Vulnerable	Not Sensitive	Vulnerable	
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	Ardenna pacifica	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Endangered	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
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	Cuculus optatus	Oriental Cuckoo	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	JAMBA

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
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	Oxyura australis	Blue-billed Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Thinornis cucullatus cucullatus	Eastern Hooded Dotterel	Critically Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	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	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Endangered	
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	Aprasia parapulchella	Pink-tailed Legless Lizard	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Cymbidium canaliculatum	Tiger Orchid	Endangered Population	Category 2	Not Listed	
Plantae	Flora	Diuris tricolor	Pine Donkey Orchid	Vulnerable	Category 2	Not Listed	
Plantae	Flora	Eucalyptus camaldulensis	River Red Gum	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus glaucina	Slaty Red Gum	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus parramattensis subsp. decadens		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia pauciflora	North Rothbury Persoonia	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Pterostylis chaetophora		Vulnerable	Category 2	Not Listed	
Plantae	Flora	Pterostylis gibbosa	Illawarra Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Rhodomyrtus psidioides	Native Guava	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rutidosis heterogama	Heath Wrinklewort	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	

Data does not include NSW category 1 sensitive species.

Location Confidences

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

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

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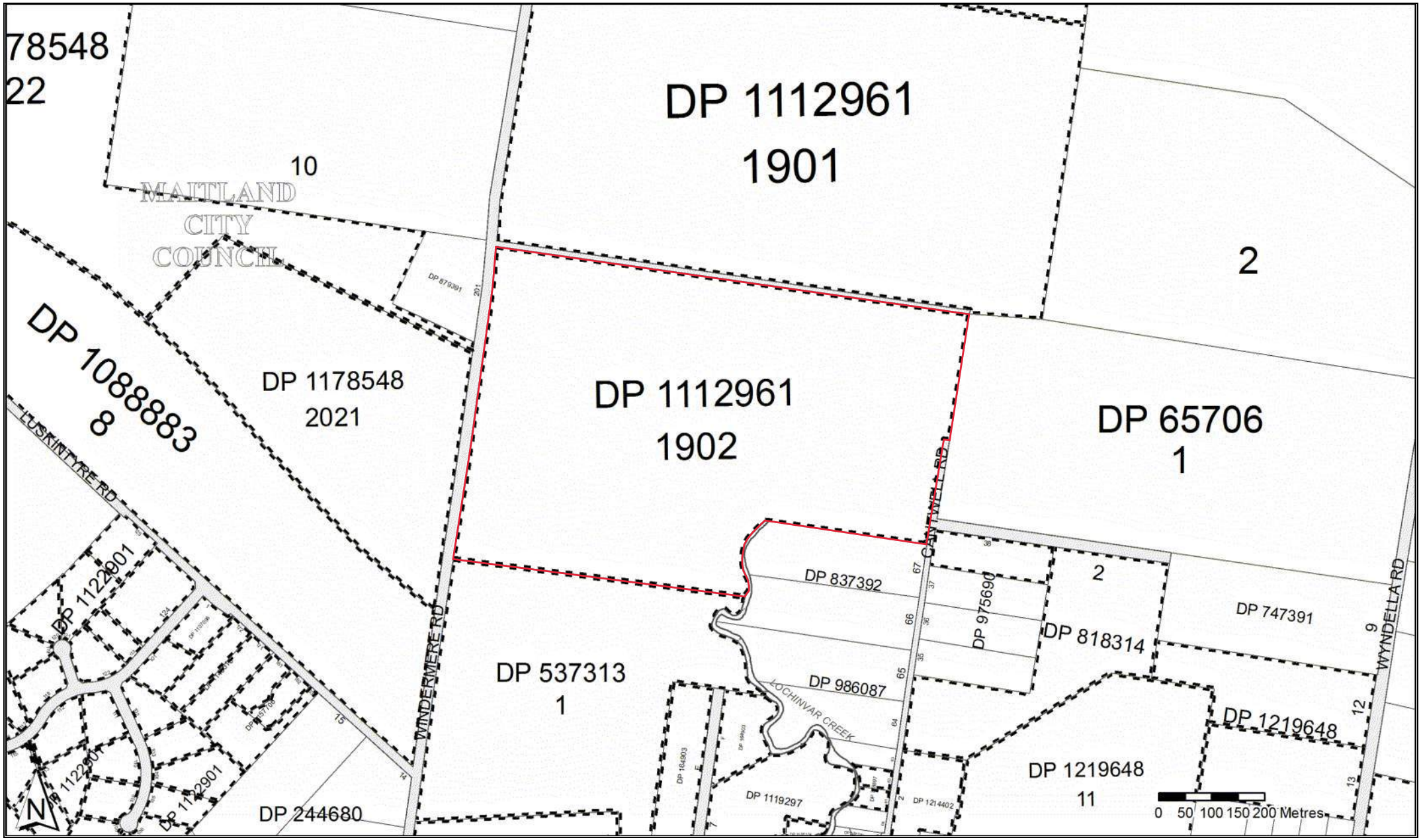
Cadastral Records Enquiry Report : Lot 1902 DP 1112961

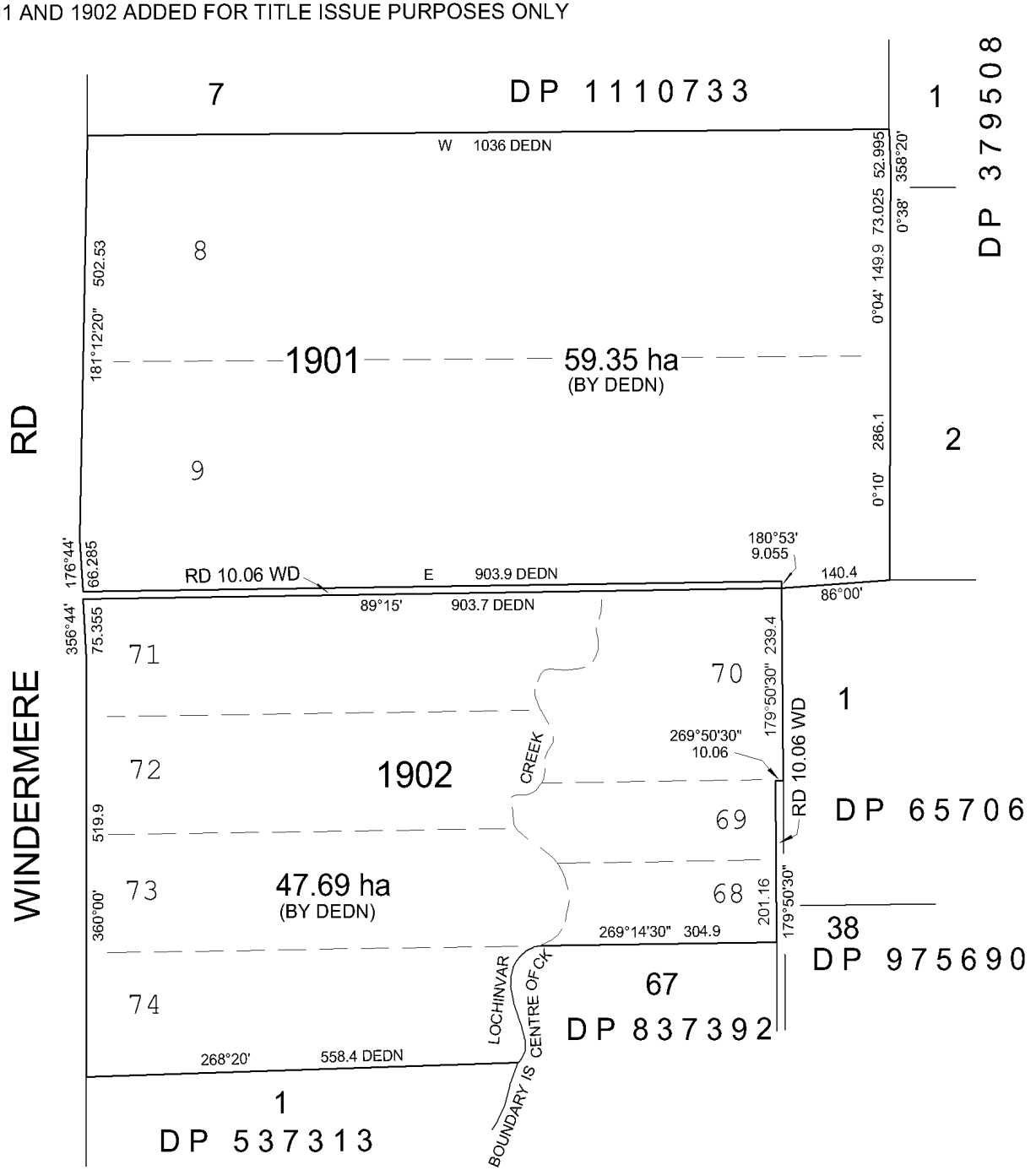
Locality : WINDERMERE
Parish : GOSFORTH
LGA : MAITLAND
County : NORTHUMBERLAND



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

	Status	Surv/Comp	Purpose
DP164903			
Lot(s): F			
DP1271709	REGISTERED	SURVEY	EASEMENT
Lot(s): E, F			
CA100660 - LOTS E AND F DP164903 AND LOT 7 DP1119297			
DP246447			
Lot(s): 224			
DP1137872	REGISTERED	SURVEY	EASEMENT
DP537313			
Lot(s): 1			
DP1271709	REGISTERED	SURVEY	EASEMENT
DP778897			
Lot(s): 61, 62			
DP1137872	REGISTERED	SURVEY	EASEMENT
DP818314			
Lot(s): 2			
DP1137872	REGISTERED	SURVEY	EASEMENT
DP1238395	REGISTERED	SURVEY	EASEMENT
DP975690			
Lot(s): 38			
CA101910 - LOTS 35-38 DP975690			
DP1088883			
Lot(s): 8			
CA95071 - LOT 8 DP1088883			
DP1107096			
Lot(s): 4			
DP255378	HISTORICAL	SURVEY	SUBDIVISION
DP1122901	REGISTERED	SURVEY	SUBDIVISION
Lot(s): 1			
DP244680	HISTORICAL	SURVEY	SUBDIVISION
DP1110733			
Lot(s): 7			
CA99140 - LOT 7 DP1110733			
DP1112961			
Lot(s): 1901, 1902			
CA100805 - LOTS 1901-1902 DP1112961			
DP1119297			
Lot(s): 7			
DP1137872	REGISTERED	SURVEY	EASEMENT
DP1231521	REGISTERED	SURVEY	EASEMENT
DP1238396	REGISTERED	SURVEY	EASEMENT
DP1271709	REGISTERED	SURVEY	EASEMENT
CA100660 - LOTS E AND F DP164903 AND LOT 7 DP1119297			
DP1122901			
Lot(s): 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125			
DP1107096	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 125			
DP255378	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 101, 123, 124			
DP244680	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 125			
DP161697	HISTORICAL	SURVEY	UNRESEARCHED
DP1127416			
Lot(s): 21			
CA101455 - LOT 21 DP1127416			
DP1145513			
Lot(s): 171, 172			
DP244680	HISTORICAL	SURVEY	SUBDIVISION
DP1157706			
Lot(s): 161, 162, 163			
DP244680	HISTORICAL	SURVEY	SUBDIVISION

LOTS 1901 AND 1902 ADDED FOR TITLE ISSUE PURPOSES ONLY



DP 1112961

Registered: 19.5.2007

Title System: OLD SYSTEM

Purpose: LIMITED FOLIO CREATION

Ref. Map: U3680-8, U3680-9

Last Plan: DP984137

C.A. 100805
PLAN OF LAND COMPRISED IN

DEED BK. 3200 NO. 166 &
DEED BK. 3200 NO. 165

BEING PT LOTS 8-9 OF SUBDIVISION OF THE WINDERMERE ESTATE, LOTS 68-70 & PT LOTS 71-74 OF SUBDN OF POR 35

Lengths are in metres. Reduction Ratio - NTS

Sheet 1 of 1 sheets

L.G.A.: MAITLAND

LOCALITY: WINDERMERE

PARISH: GOSFORTH

COUNTY: NORTHUMBERLAND

THIS PLAN WAS PREPARED SOLELY TO IDENTIFY THE LAND IN THE ABOVE DEED AND THE BOUNDARIES HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL

THIS PLAN IS NOT A CURRENT PLAN IN TERMS OF S.7A CONVEYANCING ACT 1919.

LPI Ref. : TCB15

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

22/4/2022 7:06AM

FOLIO: 1902/1112961

First Title(s): OLD SYSTEM
Prior Title(s): BK 3200 NO 166

Recorded	Number	Type of Instrument	C.T. Issue
26/5/2007	DP1112961	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
26/5/2007	CA100805	CONVERSION ACTION	
1/12/2010	AF911777	DEPARTMENTAL DEALING	EDITION 1
21/1/2022	AR822432	TRANSFER	EDITION 2

*** END OF SEARCH ***

System Document Identification

Form Number: 01T-e
Template Number: t_nsw18
ELN Document ID: 960746975
ELN NOS ID: 959574028

TRANSFER

New South Wales
Real Property Act 1900

Land Registry Document Identification

AR822432

Stamp Duty: 10306230-001

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

LODGED BY:

Responsible Subscriber:	SPARKE HELMORE LAWYERS ABN 78848387938
Address:	L 29, 25 Martin PL Sydney 2000
Email:	property.registration@sparke.com.au
ELNO Subscriber Number:	14960
Customer Account Number:	501746Y
Document Collection Box:	42G
Client Reference:	NEW998-00004

LAND TITLE REFERENCE

1902/1112961

TRANSFEROR

WINDERMERE PASTORAL COMPANY PTY. LIMITED ACN 008514412
Registered company

TRANSFEREE

NEWPRO 27 PTY LTD ACN 654634269
Registered company

Tenancy: Sole Proprietor

CONSIDERATION

The transferor acknowledges receipt of the consideration of $5,250,000.00

ESTATE TRANSFERRED

FEE SIMPLE

The Transferor transfers to the Transferee the Estate specified in this Instrument and acknowledges receipt of any Consideration shown.

SIGNING FOR TRANSFEROR

I certify that:

1. The Certifier has taken reasonable steps to ensure that this Registry Instrument or Document is correct and compliant with relevant legislation and any Prescribed Requirement.
2. The Certifier has retained the evidence supporting this Registry Instrument or Document.
3. The Certifier holds a properly completed Client Authorisation for the Conveyancing Transaction including this Registry Instrument or Document.
4. The Certifier has taken reasonable steps to verify the identity of the transferor or his, her or its administrator or attorney.

Party Represented by Subscriber:

WINDERMERE PASTORAL COMPANY PTY. LIMITED

Signed By: Earl Darcy Charles Hulin
ELNO Signer Number: 8718
Signer Capacity: Practitioner Certifier
Digital Signing Certificate Number:

Signed for Subscriber: HULIN CHADWICK PTY LTD ABN 36108958783

HULIN CHADWICK LAWYERS

Subscriber Capacity: Representative Subscriber
ELNO Subscriber Number: 4226 **Customer Account Number:** 500920
Date: 21/01/2022

SIGNING FOR TRANSFEREE

I certify that:

1. The Certifier has taken reasonable steps to ensure that this Registry Instrument or Document is correct and compliant with relevant legislation and any Prescribed Requirement.
2. The Certifier has retained the evidence supporting this Registry Instrument or Document.
3. The Certifier holds a properly completed Client Authorisation for the Conveyancing Transaction including this Registry Instrument or Document.
4. The Certifier has taken reasonable steps to verify the identity of the transferee or his, her or its administrator or attorney.

Party Represented by Subscriber:

NEWPRO 27 PTY LTD

Signed By: Andrew Ferguson **Signer Capacity:** Practitioner Certifier
ELNO Signer Number: 3937665 **Digital Signing Certificate Number:**

Signed for Subscriber: PARTNERS OF SPARKE HELMORE ABN 78848387938

SPARKE HELMORE LAWYERS

Subscriber Capacity: Representative Subscriber
ELNO Subscriber Number: 14960 **Customer Account Number:** 501746
Date: 21/01/2022

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1902/1112961

SEARCH DATE	TIME	EDITION NO	DATE
22/4/2022	7:05 AM	2	21/1/2022

LAND

LOT 1902 IN DEPOSITED PLAN 1112961

AT WINDERMERE
LOCAL GOVERNMENT AREA MAITLAND
PARISH OF GOSFORTH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP1112961

FIRST SCHEDULE

NEWPRO 27 PTY LTD (T AR822432)

SECOND SCHEDULE (3 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT, 1900. ENTERED 26.5.2007 BK 3200 NO 166
3 LIMITED TITLE. LIMITATION PURSUANT TO SECTION 28T(4) OF THE REAL PROPERTY ACT, 1900. THE BOUNDARIES OF THE LAND COMPRISED HEREIN HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Received: 22/04/2022 07:05:49

Certificate No.: PC/2022/1240
Certificate Date: 26/04/2022
Receipt No.:
Your Reference: LS031441

SECTION 10.7 PLANNING CERTIFICATE
Environmental Planning and Assessment Act, 1979 as amended

APPLICANT:	Lotsearch Pty Ltd
	support@lotsearch.com.au
PROPERTY DESCRIPTION:	259 Windermere Road WINDERMERE NSW 2321
PARCEL NUMBER:	45079
LEGAL DESCRIPTION:	Lot 1902 DP 1112961

IMPORTANT: Please read this Certificate carefully.

This Certificate contains important information about the land described above.

Please check for any item, which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, please contact Council by phoning (02) 4934 9700, or personally at Council's Administration Building at 285-287 High Street, Maitland.

The information provided in this Certificate relates only to the land described above. If you require information about adjoining or nearby land, or about the Council's development policies or codes for the general area, contact Council's Planning & Environment Department.

All information provided is correct as at the date of issue of this Certificate, however it is possible for changes to occur at any time after the issue of this Certificate. We recommend that you only rely upon a very recent Certificate.

The following responses are based on the Council's records and/or information from sources outside the Council. The responses are provided with all due care and in good faith, however the Council cannot accept responsibility for any omission or inaccuracy arising from information outside the control of the Council.

Furthermore, while this Certificate indicates the general effect of the zoning of the abovementioned land, it is suggested that the applicable planning instruments be further investigated to determine any additional requirements.

Copies of Maitland City Council's Local Environmental Planning Instrument, Development Control Plans and Policies are available from Council's website.

PART 1: MATTERS PROVIDED PURSUANT TO SECTION 10.7 (2)

1. Local Environmental Plan (LEP)

Maitland LEP 2011, published 16 December 2011, applies to the land.

Exhibited draft Local Environmental Plans

No draft local Environmental Plans that have been on public exhibition under the Act are applicable to the land.

Development Control Plan prepared by Council

Maitland Development Control Plan 2011 applies to the land.

Development Control Plan prepared by the Director General

The Council has not been notified of any Development Control Plan applying to the land that has been prepared by the Director-General under section 51A of the Act.

State Environmental Planning Policies

The Minister for Planning has notified that the following State Environmental Planning Policies (SEPPs) shall be specified on Certificates under Section 10.7 of the Environmental Planning and Assessment Act, 1979.

The land is affected by the following State Environmental Planning Policies:

- SEPP (Biodiversity and Conservation) 2021
- SEPP (Industry and Employment) 2021
- SEPP (Primary Production) 2021
- SEPP (Planning Systems) 2021
- SEPP (Housing) 2021
- SEPP Building Sustainability Index: BASIX 2014
- SEPP (Exempt and Complying Development Codes) 2008
- SEPP (Resources and Energy) 2021
- SEPP (Transport and Infrastructure) 2021
- SEPP (Resilience and Hazards) 2021

Draft State Environmental Planning Policies

No draft State Environmental Planning Policy(s) applying to the land is, or has been publicised the subject of community consultation or on public exhibition under the Act.

2. Zoning and land use under relevant LEPs

Maitland LEP 2011, published 16 December 2011, identifies the zone applying to the land as:

C3 Environmental Management, R1 General Residential, RU1 Primary Production

The following development information gives the objectives of the zone, the description of the zone and identifies development allowed or prohibited in each zone. Development consent where required, must be obtained from the Council.

RU1 Primary Production

a) Purpose/Objective

- 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

b) Permitted with Consent

Airstrips; Animal boarding or training establishments; Aquaculture; Bed and breakfast accommodation; Boat launching ramps; Boat sheds; Cellar door premises; Dual occupancies; Dwelling houses; Environmental facilities; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Flood mitigation works; Forestry; Helipads; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Jetties; Landscaping material supplies; Markets; Open cut mining; Plant nurseries; Recreation areas; Roads; Roadside stalls; Rural industries; Rural supplies; Signage; Turf farming; Water supply systems

c) Permitted without Consent

Extensive agriculture; Home occupations; Intensive plant agriculture

d) Prohibited

Any other development not specified in item 2 or 3.

R1 General Residential

a) Purpose/Objective

- 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

b) Permitted with Consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dwelling houses; Group homes; Home-based child care; Home industries; Hostels; Hotel or motel accommodation; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Serviced apartments; Shop top housing; Tank-based aquaculture; Any other development not specified in item 2 or 4

c) Permitted without Consent

Home occupations

d) Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Entertainment facilities; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Service stations; Sewage treatment plants; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies.

C3 Environmental Management

a) Purpose/Objective

- 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 maintain and improve the connectivity of habitat between remnant areas of native vegetation

b) Permitted with Consent

Bed and breakfast accommodation; Building identification signs; Business identification signs; Dwelling houses; Eco-tourist facilities; Environmental facilities; Environmental protection works; Extensive agriculture; Home-based child care; Home businesses; Oyster Aquaculture; Pond-based Aquaculture; Recreation areas; Roads; Tank-based Aquaculture; Water reticulation systems

c) Permitted without Consent

Home occupations

d) Prohibited

Dairies (pasture-based); 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.

e) Land dimensions to permit the erection of a dwelling house on the land

For the land zoned RU1 Primary Production Clause 4.2A in the Maitland Local Environmental Plan 2011 applies to the land. This clause fixes a minimum lot size for the erection of a dwelling-house that is identified on the Maitland Local Environmental Plan 2011 Lot Size Map as 40 hectares. For the land zoned R1 General Residential the Maitland LEP 2011 does not contain a development standard specifying the land dimensions required to permit the erection of a dwelling house on the land.

f) Critical Habitat

No Local Environmental Plan or draft Local Environmental Plan identifies the land as including or comprising critical habitat.

g) Conservation Area

The land IS NOT in a Heritage Conservation Area.

h) Item of Environmental Heritage

The land does NOT contain an item of Environmental Heritage.

3. Complying Development

Complying development under the **Housing Code** may not be carried out on the land as it is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

Complying development under the **Low Rise Medium Density Housing Code and Greenfield Housing Code** may not be carried out on the land as it is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

Complying development under the **Rural Housing Code** may not be carried out on the land as it is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

Complying development under the **Housing Alterations Code** may be carried out on the land.

Complying development under the **General Development Code** may be carried out on the land.

Complying development under the **Commercial and Industrial Alterations Code** may be carried out on the land.

Complying development under the **Commercial and Industrial (New Buildings and Additions) Code** may not be carried out on the land as it is not within an applicable zone and the land is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

Complying development under the **Subdivisions Code** may be carried out on the land.

Complying development under the **Demolition Code** may be carried out on the land.

Complying development under the **Fire Safety Code** may be carried out on the land.

Complying development under the **Container Recycling Facilities Code** may not be carried out on the land.

Note: Despite the above provisions, if only part of a lot is subject to an exclusion or exemption under Clause 1.17A or Clause 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Commercial and Industrial Development and Other Matters) 2013*, complying development may be carried out on that part of the lot that is not affected by the exclusion or exemption.

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

The owner (or any previous owner) of the land has NOT consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

5. Coal Mine Subsidence Compensation Act 2017

The land has NOT been proclaimed to be within a Mine Subsidence District under the meaning of section 20 of the Coal Mine Subsidence Compensation Act 2017.

6. Road widening and road realignment

a) The land is NOT affected by road widening under Division 2 of Part 3 of the Roads Act 1993.

b) The land is NOT affected by any environmental planning instrument

c) The land is NOT affected by any road-widening or realignment under any resolution of the Council

The information above relates to Council's road proposals only. Other authorities, including Roads and Maritime Services, may have proposals, which have not been set out.

7. Council and other public authority policies on hazard risk restrictions

All land within the Maitland Local Government Area has the potential to contain acid sulfate soils. Clause 7.1 of the Maitland Local Environmental Plan 2011 generally applies. Development consent is required where works described in the Table to this clause are proposed on land shown on the Maitland LEP 2011 Acid Sulfate Soils Map as being of the class specified for those works.

The Council has adopted by resolution a policy on contaminated land which may restrict the development of the land to which this certificate relates. This policy is implemented when zoning or land use changes are proposed on lands which:

- are considered to be contaminated; or
- which have previously been used for certain purposes; or
- which have previously been used for certain purposes but Council's records do not have sufficient information about previous use of the land to determine whether the land is contaminated; or
- have been remediated for a specific use.

Consideration of Council's adopted policy and the application of provisions under relevant State legislation is warranted.

7A. Flood Related Development Controls

The land or part of the land IS within the flood planning area and subject to flood related development controls.

The land or part of the land IS between the flood planning area and the probable maximum flood and subject to flood related development controls.

The Maitland LEP 2011 identifies the flood planning level (FPL) as the level of a 1:100 ARI flood event plus 0.5m freeboard. The probable maximum flood has the same meaning as the Floodplain Development Manual.

8. Land Reserved for Acquisition

No environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

9. Contribution Plans

The following contribution plan(s) apply to the land:

- Maitland S94A Levy Contributions Plan 2006
- Lochinvar S94 Contribution Plan 2013
- Maitland City Wide Section 94 Contributions Plan 2016
- Maitland S94 Contributions Plan (City Wide) 2006

Contributions Plans may be viewed on Council's website or inspected and purchased at Council's Customer Service Centre.

9A. Biodiversity Certified Land

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

10. Biodiversity Stewardship Sites

The Council is not aware if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under part 5 of the *Biodiversity Conservation Act 2016.*

10A. Native Vegetation clearing set asides

The Council is not aware if the land contains a set aside area under 60ZC of the *Local Land Services Act 2013.*

11. Bushfire Prone Land

The land is mapped as bushfire prone land and as such restrictions may apply to

new development on this land.

12. Property vegetation plans

The Council has not received any notification from Hunter Local Land Services that this land is affected by a property vegetation plan under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

13. Order under Trees (Disputes between Neighbours) Act 2006

Council has NOT received notification from the Land and Environment Court of NSW that the land is affected by an Order under Trees – (Disputes Between Neighbours) Act 2006.

14. Directions under Part 3A

There is NO direction by the Minister under Section 75P(2)(c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 (other than a project of a class prescribed by the regulations) of the Act does not have effect.

15. Site Compatibility Certificate and Conditions for Seniors Housing

a) Site Compatibility Certificate

Council is unaware of whether a current Site Compatibility Certificate issued under Clause 25 of the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004 has been issued for the land.

b) Conditions of Development Consent since 11 October 2007

No development consent has been granted for the development permitted under State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004 after 11 October 2007.

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

Council is unaware of whether a valid Site Compatibility Certificate has been issued under clause 19 of State Environmental Planning Policy (Infrastructure) 2007 for the land.

17. Site compatibility certificates and conditions for affordable rental housing

Council is unaware if a Site Compatibility Certificate (Affordable Rental Housing) has been issued in accordance with State Environmental Planning Policy (Affordable Rental Housing) 2009.

18. Paper subdivision information

There is no development plan that applies to the:

1) Land or that is proposed to be subject to a consent ballot
2) There is no subdivision order that applies to the land.

19. Site verification certificates

Council is not aware of any current site verification certificate in respect of the land.

20. Loose-fill asbestos insulation

There are no premises on the subject land listed on the register.

21. Affected building notices and building product rectification orders

The Council is NOT aware of any affected building notice which is in force in respect of the land.

The Council is NOT aware of any building product rectification order which is in force in respect of the land and that has not been fully complied with.

The Council is NOT aware of any notice of intention to make a building product rectification order being given in respect of the land and that is outstanding.

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

Contaminated Land

a) The land to which this certificate relates is NOT significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.

b) The land to which this certificate relates is NOT subject to a management order within the meaning of the Contaminated Land Management Act 1997.

c) The land to which this certificate relates is NOT the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.

d) The land to which this certificate relates is NOT the subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.

e) Council has NOT been provided with a site audit statement, within the meaning of the Contaminated Land Management Act 1997, for the land to which this Certificate relates.

PART 2: ADDITIONAL MATTERS PROVIDED PURSUANT TO SECTION 10.7 (5)

The following information is provided in accordance with section 10.7(5) of the Environmental Planning and Assessment Act 1979. Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5). If this information is to be relied upon, it should be independently checked.

1. Development Consent

Councils records indicate that the land has not had any development consent granted within the five (5) years preceding the date of this certificate.

2. Draft Development Control Plan

No draft Development Control Plans apply to the land.

3. Suspension of Covenants

Clause 1.9A in the Maitland LEP 2011 applies to all land within the Maitland Local Government Area. This clause suspends any agreement, covenant or other instrument that restricts the development of land that is permissible under the provisions of the Maitland Local Environmental Plan 2011 to the extent necessary

to serve that purpose.

4. Filling of Land

Earthworks (excavation and filling of land) require development consent. Clause 7.2 in the Maitland LEP 2011 applies to all land within the Maitland Local Government Area. Earthworks (defined as both excavation and filling of land) require development consent of Council unless the works are exempt development, ancillary to other development for which development consent is required or granted, or considered by Council to be of a minor nature.

5. Development in the Vicinity of Heritage Items

Clause 5.10 in the Maitland LEP 2011 generally applies to all land in the Maitland Local Government Area, where the land is located in the vicinity of a heritage item or heritage conservation area. This Clause requires a consent authority to consider the effect of the proposed development on the heritage significance of the item or area concerned, before granting development consent.

6. Other Matters

There are no other specific matters.

David Evans
General Manager

APPENDIX

C

ENGINEERING LOGS

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Cardno

TEST PIT LOG SHEET

Client: Newpro27 Pty Ltd
Project: 259 Windermere Road - PSI
Location: Lochinvar

Hole No: TP001

Job No: 81022070 **Sheet:** 1 of 1

Position: See attached site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** 600mm Toothed Bucket

Excavation Dimensions: **Contractor:** Tommy Gunn Earthmoving

Date Excavated: 13/4/22 **Logged By:** GE **Checked By:** KS

Excavation				Sampling & Testing			Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12	Depth (m)	Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
600mm toothed bucket									TOPSOIL: Clayey Sandy SILT; low plasticity, dark brown, fine to medium grained sand, with rootlet	W	S	TOPSOIL
				ES 0.05 - 0.10 m Duplicate					0.10m Clayey SAND; fine to coarse grained, light brown, with fine to coarse gravel	W	VL	COLLUVIUM
				ES 0.40 - 0.50 m		0.5			0.50m Sandy CLAY; medium to high plasticity, brown mottled yellow, fine to coarse sand, trace fine to medium gravel	M (>PL)	St	RESIDUAL SOIL
	E	Stable	Not Encountered	ES 0.50 - 0.60 m Duplicate		1.0						
						1.5			1.30m Silty CLAY; medium to high plasticity, brown mottled grey/yellow	M (>PL)	H	
									1.50m Sandy Silty CLAY; low to medium plasticity, dark brown, fine to coarse sand, trace fine gravel	M	H	
	E-F								1.80m Clayey SAND; fine to coarse grained, brown, with fine to coarse gravel (Sandstone fragments)	D	H	EXTREMELY WEATHERED
						2.0			2.00m TERMINATED AT 2.00 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Newpro27 Pty Ltd
Project: 259 Windermere Road - PSI
Location: Lochinvar

Hole No: TP002

Job No: 81022070 **Sheet:** 1 of 1

Position: See attached site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** 600mm Toothed Bucket

Excavation Dimensions: **Contractor:** Tommy Gunn Earthmoving

Date Excavated: 13/4/22 **Logged By:** GE **Checked By:** KS

Excavation				Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
600mm toothed bucket	E-F	Stable	Not Encountered	B 0.20 - 0.50 m		0.5			TOPSOIL: Sandy SILT; low plasticity, dark brown, fine to medium grained sand, trace fine to medium gravel, with rootlet	W	S	TOPSOIL
									0.15m Silty CLAY; medium to high plasticity, brown, trace fine to medium sand	M (>PL)	F	RESIDUAL SOIL
						1.0			1.00m Silty CLAY; medium plasticity, grey mottled yellow, trace fine to coarse sand, trace fine gravel	M (≈PL)	St to VSt H	
						1.5				M (<PL)		
						2.0			2.00m TERMINATED AT 2.00 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Newpro27 Pty Ltd
Project: 259 Windermere Road - PSI
Location: Lochinvar

Hole No: TP003

Job No: 81022070 **Sheet:** 1 of 1

Position: See attached site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** 600mm Toothed Bucket

Excavation Dimensions: **Contractor:** Tommy Gunn Earthmoving

Date Excavated: 13/4/22 **Logged By:** GE **Checked By:** KS

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
600mm toothed bucket		Stable	Not Encountered			0.5			TOPSOIL: Sandy SILT; low plasticity, dark brown, fine to medium grained sand, with rootlet	W	S	TOPSOIL
									0.10m Clayey SAND; fine to coarse grained, light brown, with fine to coarse gravel	W	VL	COLLUVIUM
	E								0.50m Sandy CLAY; medium plasticity, grey mottled yellow, fine to medium sand	M (>PL)	St	RESIDUAL SOIL
						1.0			1.00m Clayey SAND; fine to medium grained, grey mottled yellow, with fine to medium gravel (Sandstone fragments)	M	H	EXTREMELY WEATHERED
	F								1.30m TERMINATED AT 1.30 m Refusal			
						1.5						
						2.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Newpro27 Pty Ltd
Project: 259 Windermere Road - PSI
Location: Lochinvar

Hole No: TP004

Job No: 81022070 **Sheet:** 1 of 1

Position: See attached site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** 600mm Toothed Bucket

Excavation Dimensions: **Contractor:** Tommy Gunn Earthmoving

Date Excavated: 13/4/22 **Logged By:** GE **Checked By:** KS

Excavation				Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
600mm toothed bucket	E	Stable	Not Encountered	ES 0.05 - 0.10 m					TOPSOIL: Sandy SILT; low plasticity, dark brown, fine to medium grained sand, with rootlet	W	S	TOPSOIL
									0.10m Silty Sandy CLAY; medium plasticity, brown, fine to coarse grained sand, trace fine to medium gravel	M (>PL)	S	COLLUVIUM
				B 0.30 - 0.40 m ES 0.30 - 0.40 m		0.5			0.30m Sandy CLAY; medium to high plasticity, brown mottled yellow, fine to coarse sand, trace fine to medium gravel		F to St	RESIDUAL SOIL
						1.0				M (>PL)	H	
						1.5			1.70m Silty CLAY; medium plasticity, grey mottled orange, trace fine to medium sand, trace fine to medium gravel	M (≈PL)	H	
						2.0			2.00m TERMINATED AT 2.00 m Target depth			

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- PS Percussion sampler
- AS Short spiral auger
- AD/V Solid flight auger: V-Bit
- AD/T Solid flight auger: TC-Bit
- HFA Hollow flight auger
- WB Washbore drilling
- RR Rock roller

PENETRATION
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- SPT - Standard Penetration Test
- HP - Hand/Pocket Penetrometer
- DCP - Dynamic Cone Penetrometer
- PSP - Perth Sand Penetrometer
- MC - Moisture Content
- PBT - Plate Bearing Test
- IMP - Borehole Impression Test
- PID - Photoionisation Detector
- VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - Moisture content

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

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TEST PIT LOG SHEET

Client: Newpro27 Pty Ltd
Project: 259 Windermere Road - PSI
Location: Lochinvar

Hole No: TP005

Job No: 81022070 **Sheet:** 1 of 1

Position: See attached site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** 600mm Toothed Bucket

Excavation Dimensions: **Contractor:** Tommy Gunn Earthmoving

Date Excavated: 13/4/22 **Logged By:** GE **Checked By:** KS

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
600mm toothed bucket	E	Stable	Not Encountered	ES 0.05 - 0.10 m		0			TOPSOIL: Sandy SILT; low plasticity, dark brown, fine to medium grained sand, with rootlet	W	S	TOPSOIL
									0.10m Clayey SAND; fine to coarse grained, light brown, with fine to coarse gravel	W	L	COLLUVIUM
				ES 0.40 - 0.50 m					0.50m Sandy CLAY; medium plasticity, grey mottled yellow, fine to medium sand	M (>PL)	St	RESIDUAL SOIL
				B 0.60 - 0.70 m ES 0.60 - 0.70 m		0.5						
	F-H					1.0			1.00m Clayey SAND; fine to medium grained, grey mottled yellow, with fine to medium gravel (Sandstone fragments)	M	H	EXTREMELY WEATHERED
									1.40m TERMINATED AT 1.40 m Refusal			
						1.5						
						2.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
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HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
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D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
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S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: Newpro27 Pty Ltd
Project: 259 Windermere Road - PSI
Location: Lochinvar

Hole No: TP006

Job No: 81022070 **Sheet:** 1 of 1

Position: See attached site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** 600mm Toothed Bucket

Excavation Dimensions: **Contractor:** Tommy Gunn Earthmoving

Date Excavated: 13/4/22 **Logged By:** GE **Checked By:** KS

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
600mm toothed bucket	F	Major spalling	Surface Water	ES 0.05 - 0.10 m		0.5			Silty SAND; fine to coarse grained, brown, trace fine gravel	W	L	COLLUVIUM 0.00 m: Possible rabbit warren with water inflow from surface holes filled with recent rain
				ES 0.30 - 0.40 m					0.90m			
				ES 0.90 - 1.00 m		1.0			Sandy CLAY: medium plasticity, brown mottled yellow, fine to medium sand	M (>PL)	F	RESIDUAL SOIL
									1.20m			
						1.5			Sandy CLAY: medium to high plasticity, brown mottled yellow, fine to medium sand	M (>PL)	VSt to H	
						2.0			2.00m			
									TERMINATED AT 2.00 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Newpro27 Pty Ltd
Project: 259 Windermere Road - PSI
Location: Lochinvar

Hole No: TP007

Job No: 81022070 **Sheet:** 1 of 1

Position: See attached site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 5 tonne Excavator **Excavation Method:** 600mm Toothed Bucket

Excavation Dimensions: **Contractor:** Tommy Gunn Earthmoving

Date Excavated: 13/4/22 **Logged By:** GE **Checked By:** KS

Excavation				Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
600mm toothed bucket	E-F	Stable	Not Encountered	0.05 m					TOPSOIL: Sandy SILT; low plasticity, dark brown, fine to medium grained sand, with rootlet	W	S	TOPSOIL
				ES 0.10 - 0.20 m					0.10m Gravelly, Sandy SILT; low plasticity, brown/grey, fine to coarse grained sand, fine gravel	W	S	COLLUVIUM
				ES 0.30 - 0.35 m		0.5			0.30m Sandy CLAY; medium to high plasticity, brown mottled yellow, fine to coarse grained sand, trace fine gravel	M (>PL)	F VSt to H	RESIDUAL SOIL
						1.0						
						1.5			1.30m Silty CLAY; medium plasticity, grey mottled yellow	M (≈PL)	H	
						2.0			2.00m TERMINATED AT 2.00 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Explanatory Notes

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS1726-2017 Geotechnical Site Investigations. Material descriptions are deduced from field observation or engineering examination, and may be appended or confirmed by in situ or laboratory testing. The information is dependent on the scope of investigation, the extent of sampling and testing, and the inherent variability of the conditions encountered.

Subsurface investigation may be conducted by one or a combination of the following methods.

Method	
Test Pitting: excavation/trench	
BH	Backhoe bucket
EX	Excavator bucket
R	Ripper
H	Hydraulic Hammer
X	Existing excavation
N	Natural exposure
Manual drilling: hand operated tools	
HA	Hand Auger
Continuous sample drilling	
PT	Push tube
PS	Percussion sampling
SON	Sonic drilling
Hammer drilling	
AH	Air hammer
AT	Air track
Spiral flight auger drilling	
AS	Auger screwing
AD/V	Continuous flight auger: V-bit
AD/T	Continuous spiral flight auger: TC-Bit
HFA	Continuous hollow flight auger
Rotary non-core drilling	
WB	Washbore drilling
RR	Rock roller
Rotary core drilling	
PQ	85mm core (wire line core barrel)
HQ	63.5mm core (wire line core barrel)
NMLC	51.94mm core (conventional core barrel)
NQ	47.6mm core (wire line core barrel)
DT	Diatube (concrete coring)

Sampling is conducted to facilitate further assessment of selected materials encountered.

Sampling method	
Soil sampling	
B	Bulk disturbed sample
D	Disturbed sample
C	Core sample
ES	Environmental soil sample
SPT	Standard Penetration Test sample
U	Thin wall tube ‘undisturbed’ sample
Water sampling	
WS	Environmental water sample

Field testing may be conducted as a means of assessment of the in situ conditions of materials.

Field testing	
SPT	Standard Penetration Test
HP/PP	Hand/Pocket Penetrometer
Dynamic Penetrometers (blows per noted increment)	
DCP	Dynamic Cone Penetrometer
PSP	Perth Sand Penetrometer
MC	Moisture Content
VS	Vane Shear
PBT	Plate Bearing Test
IMP	Borehole Impression Test
PID	Photo Ionization Detector

If encountered, refusal (R), virtual refusal (VR) or hammer bouncing (HB) of penetrometers may be noted.

The quality of the rock can be assessed by the degree of natural defects/fractures and the following.

Rock quality description	
TCR	Total Core Recovery (%) (length of core recovered divided by the length of core run)
RQD	Rock Quality Designation (%) (sum of axial lengths of core greater than 100mm long divided by the length of core run)

Notes on groundwater conditions encountered may include.

Groundwater	
Not Encountered	Excavation is dry in the short term
Not Observed	Water level observation not possible
Seepage	Water seeping into hole
Inflow	Water flowing/flooding into hole

Perched groundwater may result in a misleading indication of the depth to the true water table. Groundwater levels are also likely to fluctuate with variations in climatic and site conditions.

Notes on the stability of excavations may include.

Excavation conditions	
Stable	No obvious/gross short term instability noted
Spalling	Material falling into excavation (minor/major)
Unstable	Collapse of the majority, or one or more face of the excavation

Explanatory Notes: General Soil Description

The methods of description and classification of soils used in this report are based on Australian Standard AS1726-2017 Geotechnical Site Investigations. In practice, a material is described as a soil if it can be remoulded by hand in its field condition or in water. The dominant component is shown in upper case, with secondary components in lower case. In general descriptions cover: soil type, plasticity or particle size/shape, colour, strength or density, moisture and inclusions.

In general, soil types are classified according to the dominant particle on the basis of the following particle sizes.

Soil Classification		Particle Size (mm)
CLAY		< 0.002
SILT		0.002 0.075
SAND	fine	0.075 to 0.21
	medium	0.21 to 0.6
	coarse	0.6 to 2.36
GRAVEL	fine	2.36 to 6.7
	medium	6.7 to 19
	coarse	19 to 63
COBBLES		63 to 200
BOULDERS		> 200

Soil types may be qualified by the presence of minor components on the basis of field examination methods and/or the soil grading.

Terminology	In coarse grained soils		In fine soils
	% fines	% coarse	% coarse
Trace	≤5	≤15	≤15
With	>5, ≤12	>15, ≤30	>15, ≤30

The strength of cohesive soils is classified by engineering assessment or field/lab testing as follows.

Strength	Symbol	Undrained shear strength
Very Soft	VS	≤12kPa
Soft	S	12kPa to ≤25kPa
Firm	F	25kPa to ≤50kPa
Stiff	St	50kPa to ≤100kPa
Very Stiff	VSt	100kPa to ≤200kPa
Hard	H	>200kPa

Cohesionless soils are classified on the basis of relative density as follows.

Relative Density	Symbol	Density Index
Very Loose	VL	<15%
Loose	L	15% to ≤35%
Medium Dense	MD	35% to ≤65%
Dense	D	65% to ≤85%
Very Dense	VD	>85%

The plasticity of cohesive soils is defined by the Liquid Limit (LL) as follows.

Plasticity	Silt LL	Clay LL
Low plasticity	≤ 35%	≤ 35%
Medium plasticity	N/A	> 35% ≤ 50%
High plasticity	> 50%	> 50%

The moisture condition of soil (*w*) is described by appearance and feel and may be described in relation to the Plastic Limit (PL), Liquid Limit (LL) or Optimum Moisture Content (OMC).

Moisture condition and description	
Dry	Cohesive soils: hard, friable, dry of plastic limit. Granular soils: cohesionless and free-running
Moist	Cool feel and darkened colour: Cohesive soils can be moulded. Granular soils tend to cohere
Wet	Cool feel and darkened colour: Cohesive soils usually weakened and free water forms when handling. Granular soils tend to cohere

The structure of the soil may be described as follows.

Zoning	Description
Layer	Continuous across exposure or sample
Lens	Discontinuous layer (lenticular shape)
Pocket	Irregular inclusion of different material

The structure of soil layers may include: defects such as softened zones, fissures, cracks, joints and root-holes; and coarse grained soils may be described as strongly or weakly cemented.

The soil origin may also be noted if possible to deduce.

Soil origin and description	
Fill	Anthropogenic deposits or disturbed material
Topsoil	Zone of soil affected by roots and root fibres
Peat	Significantly organic soils
Colluvial	Transported down slopes by gravity/water
Aeolian	Transported and deposited by wind
Alluvial	Deposited by rivers
Estuarine	Deposited in coastal estuaries
Lacustrine	Deposited in freshwater lakes
Marine	Deposits in marine environments
Residual soil	Soil formed by in situ weathering of rock, with no structure/fabric of parent rock evident
Extremely weathered material	Formed by in situ weathering of geological formations, with the structure/fabric of parent rock intact but with soil strength properties

The origin of the soil generally cannot be deduced solely on the appearance of the material and the inference may be supplemented by further geological evidence or other field observation. Where there is doubt, the terms ‘possibly’ or ‘probably’ may be used

Explanatory Notes: General Rock Description

The methods of description and classification of rocks used in this report are based on Australian Standard AS1726-2017 Geotechnical Site Investigations. In practice, if a material cannot be remoulded by hand in its field condition or in water, it is described as a rock. In general, descriptions cover: rock type, grain size, structure, colour, degree of weathering, strength, minor components or inclusions, and where applicable, the defect types, shape, roughness and coating/infill.

Rock types are generally described according to the predominant grain or crystal size, and in groups for each rock type as follows.

Rock type	Groups
Sedimentary	Deposited, carbonate (porous or non), volcanic ejection
Igneous	Felsic (much quartz, pale), Intermediate, or mafic (little quartz, dark)
Metamorphic	Foliated or non-foliated
Duricrust	Cementing minerology (iron oxides or hydroxides, silica, calcium carbonate, gypsum)

Reference should be made to AS1726 for details of the rock types and methods of classification.

The classification of rock weathering is described based on definitions in AS1726 and summarised as follows.

Term and symbol		Definition
Residual Soil	RS	Soil developed on rock with the mass structure and substance of the parent rock no longer evident
Extremely weathered	XW	Weathered to such an extent that the rock has 'soil-like' properties. Mass structure and substance still evident
Distinctly weathered	DW	The strength is usually changed and may be highly discoloured. Porosity may be increased by leaching, or decreased due to deposition in pores. May be distinguished into MW (Moderately Weathered) and HW (Highly Weathered).
Slightly weathered	SW	Slightly discoloured; little or no change of strength from fresh rock
Fresh Rock	FR	The rock shows no sign of decomposition or staining

The rock material strength can be defined based on the point load index as follows.

Term and symbol		Point Load Index I_s50 (MPa)
Very Low	VL	0.03 to 0.1
Low	L	0.1 to 0.3
Medium	M	0.3 to 1.0
High	H	1.0 to 3
Very High	VH	3 to 10
Extremely High	EH	> 10

It is important to note that the rock material strength as above is distinct from the rock mass strength which can be significantly weaker due to the effect of defects.

A preliminary assessment of rock strength may be made using the field guide detailed in AS1726, and this is conducted in the absence of point load testing.

The defect spacing measured normal to defects of the same set or bedding, is described as follows.

Definition	Defect Spacing (mm)
Thinly laminated	< 6
Laminated	6 to 20
Very thinly bedded	20 to 60
Thinly bedded	60 to 200
Medium bedded	200 to 600
Thickly bedded	600 to 2000
Very thickly bedded	> 2000

Terms for describing rock and defects are as follows.

Defect Terms			
Joint	JT	Sheared zone	SZ
Bedding Parting	BP	Seam	SM
Foliation	FL	Vein	VN
Cleavage	CL	Drill Lift	DL
Crushed Seam	CS	Handling Break	HB
Fracture Zone	FZ	Drilling Break	DB

The shape and roughness of defects in the rock mass are described using the following terms.

Planarity		Roughness	
Planar	PR	Very Rough	VR
Curved	CU	Rough	RF
Undulose	UN	Smooth	S
Irregular	IR	Slickensided	SL
Stepped	ST	Polished	POL
Discontinuous	DIS		

The coating or infill associated with defects in the rock mass are described as follows.

Infill and Coating		
Clean	CN	
Stained	SN	
Carbonaceous	X	
Minerals	MU	Unidentified mineral
	MS	Secondary mineral
	KT	Chlorite
	CA	Calcite
	Fe	Iron Oxide
	Qz	Quartz
Veneer	VNR	Thin or patchy coating
Coating	CT	Infill up to 1mm

Graphic Symbols Index

CLAY	SILT	SAND	GRAVEL
Silty CLAY	Clayey SILT	Clayey SAND	Clayey GRAVEL
Sandy CLAY	Sandy SILT	Silty SAND	Silty GRAVEL
Gravelly CLAY	Gravelly SILT	Gravelly SAND	Sandy GRAVEL
Silty Gravelly CLAY	Clayey Sandy SILT	Clayey Silty SAND	Clayey Silty GRAVEL
Silty Sandy CLAY	Clayey Gravelly SILT	Clayey Gravelly SAND	Clayey Sandy GRAVEL
Sandy Gravelly CLAY	Sandy Gravelly SILT	Silty Gravelly SAND	Silty Sandy GRAVEL

COBBLES & BOULDERS

PEAT, highly organic soil

TOPSOIL

FILL

FILL: Asphalt or Bituminous Seal

FILL: Ballast

FILL: Concrete

FILL: Roadbase

Sedimentary rock: fine, mostly clay (CLAYSTONE)

Sedimentary rock: fine, mostly silt (SILTSTONE)

Sedimentary rock: fine, silt and clay (MUDSTONE, SHALE, LAMINITE)

Sedimentary rock: medium (SANDSTONE, GREYWACKE)

Sedimentary rock: fine to coarse, angular (BRECCIA)

Sedimentary rock: coarse, rounded (CONGLOMERATE)

Sedimentary rock: Organic (COAL)

Sedimentary rock: Carbonate (LIMESTONE, DOLOMITE)

Sedimentary rock: Volcanic (TUFF, VOLCANIC BRECCIA, AGGLOMERATE)

Igneous rock: Felsic, fine (RHYOLITE)

Igneous rock: Felsic, coarse (GRANITE)

Igneous rock: Mafic, fine to medium (BASALT, DOLERITE)

Igneous rock: Mafic, coarse (GABBRO)

Metamorphic rock: Foliated, fine to medium (SLATE, PHYLLITE, SHIST)

Metamorphic rock: Foliated, coarse (GNEISS)

Metamorphic rock: Non-foliated (QUARTZITE, HORNFELS, MARBLE)

APPENDIX

D

LABORATORY TEST REPORTS

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Stantec

				BTEX						TPH						CRC Care TPH Fractions							
				Vic EPA IWRG 621 Other OCP (Total)*	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)	F1: C6-C10 less BTEX	F2: >C10-C16 less Naphthalene
				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	0.1	0.1	0.2	0.1	0.3	20	20	50	50	50	20	50	100	100	100	20	50
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																							
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m					**50**	**85**	**70**			**105**		**120**					**120**	**300**	**2800**		**180**	
NEPM 2013 HIL, Residential A																							
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m					**0.7**	**480**	**NL**			**110**											**50**	**280**
NEPM 2013 Management Limits, R/P&POS, Coarse Soil											**700**	**1000**				**700**	**1000**	**2500**	**10000**				
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Matrix_Description**																				
DUP	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
TP001: 0.05-0.1	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
TP004: 0.05-0.1	TP004: 0.05-0.1	13/04/2022	TOPSOIL: Sandy SILT	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
TP006:0.05-0.1	TP006:0.05-0.1	13/04/2022	Silty SAND	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
TP007: 0.1-0.2	TP007: 0.1-0.2	13/04/2022	Gravelly, Sandy SILT	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
Statistical Summary																							
Number of Results				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration				<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration				<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration				0.05	0.05	0.05	0.05	0.1	0.05	0.15	10	10	25	25	25	10	25	50	50	50	10	25
Median Concentration				0.05	0.05	0.05	0.05	0.1	0.05	0.15	10	10	25	25	25	10	25	50	50	50	10	25
Standard Deviation				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

				PAH																		
				Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	Benzo(b+j)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene
				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				0.5	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	0.5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																				170			
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m								0.7															
NEPM 2013 HIL, Residential A									3												300		
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m																				5			
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																							
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Matrix_Description**																				
DUP	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<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
TP001: 0.05-0.1	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<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
TP004: 0.05-0.1	TP004: 0.05-0.1	13/04/2022	TOPSOIL: Sandy SILT	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<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
TP006:0.05-0.1	TP006:0.05-0.1	13/04/2022	Silty SAND	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<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
TP007: 0.1-0.2	TP007: 0.1-0.2	13/04/2022	Gravelly, Sandy SILT	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<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
Statistical Summary																							
Number of Results				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects				0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration				<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<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
Minimum Detect				ND	ND	ND	ND	ND	0.6	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration				<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<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
Maximum Detect				ND	ND	ND	ND	ND	0.6	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration				0.25	0.25	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration				0.25	0.25	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

				Metals								Inorganics			SVOCs
				Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Conductivity (1:5 aqueous extract)	Moisture Content (dried @ 103°C)	pH (aqueous extract)	EPN
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	US/CM	%	pH_Units	mg/kg
EQL				2	0.4	5	5	5	0.1	5	5	10	1	0.1	0.2
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m				**100**		**190**	**60**	**1100**		**30**	**70**				
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m															
NEPM 2013 HIL, Residential A				**100**	**20**		**6000**	**300**	**40**	**400**	**7400**				
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m															
NEPM 2013 Management Limits, R/P&POS, Coarse Soil															
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Matrix_Description**												
DUP	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<2	<0.4	19	<5	8.3	<0.1	5.9	14	11	23	6.1	<0.2
TP001: 0.05-0.1	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<2	<0.4	18	<5	5.6	<0.1	5.3	5.8	<10	18	6.2	<0.2
TP004: 0.05-0.1	TP004: 0.05-0.1	13/04/2022	TOPSOIL: Sandy SILT	2.2	<0.4	41	6.2	8.7	<0.1	5.4	13	10	21	5.9	<0.2
TP006:0.05-0.1	TP006:0.05-0.1	13/04/2022	Silty SAND	<2	<0.4	14	<5	<5	<0.1	<5	<5	<10	15	6.5	<0.2
TP007: 0.1-0.2	TP007: 0.1-0.2	13/04/2022	Gravelly, Sandy SILT	2.3	<0.4	34	7	9	<0.1	14	7.8	<10	20	6.2	<0.2
Statistical Summary															
Number of Results				5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects				2	0	5	2	4	0	4	4	2	5	5	0
Minimum Concentration				<2	<0.4	14	<5	<5	<0.1	<5	<5	<10	15	5.9	<0.2
Minimum Detect				2.2	ND	14	6.2	5.6	ND	5.3	5.8	10	15	5.9	ND
Maximum Concentration				2.3	<0.4	41	7	9	<0.1	14	14	11	23	6.5	<0.2
Maximum Detect				2.3	ND	41	7	9	ND	14	14	11	23	6.5	ND
Average Concentration				1.5	0.2	25	4.1	6.8	0.05	6.6	8.6	7.2	19	6.2	0.1
Median Concentration				1	0.2	19	2.5	8.3	0.05	5.4	7.8	5	20	6.2	0.1
Standard Deviation				0.69	0	12	2.3	2.8	0	4.3	4.9	3	3	0.22	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0

				Organochlorine Pesticides																				
				Vic EPA IWRG 621 OCP (Total)*	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	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	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
EQL				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
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m													**180**											
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m																								
NEPM 2013 HIL, Residential A								**6**		**50**				**240**					**10**				**6**		**10**
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m																								
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																								
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Matrix_Description**																					
DUP	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<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
TP001: 0.05-0.1	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<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
TP004: 0.05-0.1	TP004: 0.05-0.1	13/04/2022	TOPSOIL: Sandy SILT	<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
TP006:0.05-0.1	TP006:0.05-0.1	13/04/2022	Silty SAND	<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
TP007: 0.1-0.2	TP007: 0.1-0.2	13/04/2022	Gravelly, Sandy SILT	<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
Statistical Summary																								
Number of Results				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration				<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
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration				<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
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration				0.05	0.025	0.025	0.025	0.025	0.025	0.05	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Median Concentration				0.05	0.025	0.025	0.025	0.025	0.025	0.05	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Standard Deviation				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

				Organophosphorous Pesticides																						
				Methoxychlor	Toxaphene	Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos
				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				0.05	0.5	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
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																									
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m																									
NEPM 2013 HIL, Residential A				**300**	**20**					**160**															
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m																									
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																									
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Matrix_Description**																						
DUP	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.05	<0.5	<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
TP001: 0.05-0.1	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.05	<0.5	<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
TP004: 0.05-0.1	TP004: 0.05-0.1	13/04/2022	TOPSOIL: Sandy SILT	<0.05	<0.5	<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
TP006:0.05-0.1	TP006:0.05-0.1	13/04/2022	Silty SAND	<0.05	<0.5	<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
TP007: 0.1-0.2	TP007: 0.1-0.2	13/04/2022	Gravelly, Sandy SILT	<0.05	<0.5	<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
Statistical Summary																									
Number of Results				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration				<0.05	<0.5	<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
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration				<0.05	<0.5	<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
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration				0.025	0.25	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Median Concentration				0.025	0.25	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Standard Deviation				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

													Pesticides		Polychlorinated Biphenyls							
				Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Parathion	Pirimiphos-methyl	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (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	mg/kg	mg/kg	mg/kg
EQL				0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																								
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m																								
NEPM 2013 HIL, Residential A																								**1**
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m																								
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																								
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Matrix_Description**																					
DUP	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP001: 0.05-0.1	TP001: 0.05-0.1	13/04/2022	TOPSOIL: Clayey Sandy SILT	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP004: 0.05-0.1	TP004: 0.05-0.1	13/04/2022	TOPSOIL: Sandy SILT	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP006:0.05-0.1	TP006:0.05-0.1	13/04/2022	Silty SAND	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP007: 0.1-0.2	TP007: 0.1-0.2	13/04/2022	Gravelly, Sandy SILT	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistical Summary																								
Number of Results				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration				<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration				<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration				0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration				0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cardno (NSW/ACT) Pty Ltd
Level 9, 203 Pacific Highway
St Leonards
NSW 2065

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Attention: **Kosta Sykiotis**

Report **882006-S**
Project name 81022070
Project ID 81022070
Received Date Apr 26, 2022

Client Sample ID			TP001: 0.05-0.1	DUP	TP004: 0.05-0.1	TP006:0.05-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ap0045002	N22-Ap0045003	N22-Ap0045004	N22-Ap0045005
Date Sampled			Apr 13, 2022	Apr 13, 2022	Apr 13, 2022	Apr 13, 2022
Test/Reference	LOR	Unit				
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	%	107	105	112	111
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

Client Sample ID			TP001: 0.05-0.1	DUP	TP004: 0.05-0.1	TP006:0.05-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ap0045002	N22-Ap0045003	N22-Ap0045004	N22-Ap0045005
Date Sampled			Apr 13, 2022	Apr 13, 2022	Apr 13, 2022	Apr 13, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	%	120	121	122	124
p-Terphenyl-d14 (surr.)	1	%	118	115	129	116
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	105	99	115	114
Tetrachloro-m-xylene (surr.)	1	%	130	121	136	129
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			TP001: 0.05-0.1	DUP	TP004: 0.05-0.1	TP006:0.05-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ap0045002	N22-Ap0045003	N22-Ap0045004	N22-Ap0045005
Date Sampled			Apr 13, 2022	Apr 13, 2022	Apr 13, 2022	Apr 13, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	105	106	115	115
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	105	99	115	114
Tetrachloro-m-xylene (surr.)	1	%	130	121	136	129
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
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	< 10	11	10	< 10
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.2	6.1	5.9	6.5
% Moisture	1	%	18	23	21	15
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	2.2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	18	19	41	14
Copper	5	mg/kg	< 5	< 5	6.2	< 5
Lead	5	mg/kg	5.6	8.3	8.7	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			TP001: 0.05-0.1	DUP	TP004: 0.05-0.1	TP006:0.05-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ap0045002	N22-Ap0045003	N22-Ap0045004	N22-Ap0045005
Date Sampled			Apr 13, 2022	Apr 13, 2022	Apr 13, 2022	Apr 13, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	5	mg/kg	5.3	5.9	5.4	< 5
Zinc	5	mg/kg	5.8	14	13	< 5

Client Sample ID			TP007: 0.1-0.2
Sample Matrix			Soil
Eurofins Sample No.			N22-Ap0045006
Date Sampled			Apr 13, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	112
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
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
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5

Client Sample ID			TP007: 0.1-0.2
Sample Matrix			Soil
Eurofins Sample No.			N22-Ap0045006
Date Sampled			Apr 13, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	130
p-Terphenyl-d14 (surr.)	1	%	129
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-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-HCH	0.05	mg/kg	< 0.05
d-HCH	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-HCH (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	0.5	mg/kg	< 0.5
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	%	120
Tetrachloro-m-xylene (surr.)	1	%	141
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

Client Sample ID			TP007: 0.1-0.2
Sample Matrix			**Soil**
Eurofins Sample No.			**N22-Ap0045006**
Date Sampled			**Apr 13, 2022**
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
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	%	123
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	120
Tetrachloro-m-xylene (surr.)	1	%	141
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	< 10
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.2
% Moisture	1	%	20
Heavy Metals			
Arsenic	2	mg/kg	2.3
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	34
Copper	5	mg/kg	7.0
Lead	5	mg/kg	9.0
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	14
Zinc	5	mg/kg	7.8

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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
ENM Exemption Suite -The excavated natural material order 2014 NSW EPA(excluding Foreign Material)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 02, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 02, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 02, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	May 02, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 02, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Sydney	May 02, 2022	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25°C as rec.)	Sydney	May 02, 2022	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Metals M8	Sydney	May 02, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	May 02, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	May 02, 2022	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	May 02, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Apr 22, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
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IANZ # 1327

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43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Cardno (NSW/ACT) Pty Ltd
Address: Level 9, 203 Pacific Highway
St Leonards
NSW 2065

Project Name: 81022070
Project ID: 81022070

Order No.:
Report #: 882006
Phone: 0294967700
Fax: 02 9499 3902

Received: Apr 26, 2022 8:30 AM
Due: May 3, 2022
Priority: 5 Day
Contact Name: Kosta Sykiotis

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	ENM Exemption Suite - The excavated natural material order 2014 NSW
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	TP001: 0.05-0.1	Apr 13, 2022		Soil	N22-Ap0045002	X		X	X	X
2	DUP	Apr 13, 2022		Soil	N22-Ap0045003	X		X	X	X
3	TP004: 0.05-0.1	Apr 13, 2022		Soil	N22-Ap0045004	X		X	X	X
4	TP006:0.05-0.1	Apr 13, 2022		Soil	N22-Ap0045005	X		X	X	X
5	TP007: 0.1-0.2	Apr 13, 2022		Soil	N22-Ap0045006	X		X	X	X
6	TP001: 0.4-0.5	Apr 13, 2022		Soil	N22-		X			

Date Reported:May 04, 2022

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Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
					Ap0048274					
7	TP001: 0.5-0.6	Apr 13, 2022		Soil	N22-Ap0048275		X			
8	TP001: 0.5-0.6 DUP	Apr 13, 2022		Soil	N22-Ap0048276		X			
9	TP004: 0.3-0.4	Apr 13, 2022		Soil	N22-Ap0048277		X			
10	TP005: 0.4-0.5	Apr 13, 2022		Soil	N22-Ap0048278		X			
11	TP005: 0.6-0.7	Apr 13, 2022		Soil	N22-Ap0048279		X			
12	TP006: 0.3-0.4	Apr 13, 2022		Soil	N22-Ap0048280		X			

Date Reported:May 04, 2022

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Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
13	TP006: 0.9-1.0	Apr 13, 2022		Soil	N22-Ap0048281		X			
14	TP007: 0.3-0.35	Apr 13, 2022		Soil	N22-Ap0048282		X			
15	TP005: 0.05-0.1	Apr 13, 2022		Soil	N22-Ap0048283		X			
Test Counts						5	10	5	5	5

Date Reported:May 04, 2022

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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.

Units

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

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - 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.
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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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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. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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/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							
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	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (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	< 0.5			0.5	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							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	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							
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	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	
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	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	97			70-130	Pass	
TRH C10-C14	%	74			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	103			70-130	Pass	
m&p-Xylenes	%	105			70-130	Pass	
o-Xylene	%	104			70-130	Pass	
Xylenes - Total*	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	108			70-130	Pass	
TRH C6-C10	%	98			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	110			70-130	Pass	
Acenaphthylene	%	117			70-130	Pass	
Anthracene	%	112			70-130	Pass	
Benz(a)anthracene	%	107			70-130	Pass	
Benzo(a)pyrene	%	119			70-130	Pass	
Benzo(b&j)fluoranthene	%	115			70-130	Pass	
Benzo(g.h.i)perylene	%	95			70-130	Pass	
Benzo(k)fluoranthene	%	123			70-130	Pass	
Chrysene	%	107			70-130	Pass	
Dibenz(a.h)anthracene	%	109			70-130	Pass	
Fluoranthene	%	111			70-130	Pass	
Fluorene	%	115			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	111			70-130	Pass	
Naphthalene	%	111			70-130	Pass	
Phenanthrene	%	117			70-130	Pass	
Pyrene	%	113			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	118			70-130	Pass	
4.4'-DDD	%	116			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDE	%	124			70-130	Pass	
4.4'-DDT	%	100			70-130	Pass	
a-HCH	%	103			70-130	Pass	
Aldrin	%	109			70-130	Pass	
b-HCH	%	108			70-130	Pass	
d-HCH	%	113			70-130	Pass	
Dieldrin	%	113			70-130	Pass	
Endosulfan I	%	110			70-130	Pass	
Endosulfan II	%	106			70-130	Pass	
Endosulfan sulphate	%	97			70-130	Pass	
Endrin	%	103			70-130	Pass	
Endrin aldehyde	%	124			70-130	Pass	
Endrin ketone	%	91			70-130	Pass	
g-HCH (Lindane)	%	113			70-130	Pass	
Heptachlor	%	104			70-130	Pass	
Heptachlor epoxide	%	114			70-130	Pass	
Hexachlorobenzene	%	113			70-130	Pass	
Methoxychlor	%	119			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	115			70-130	Pass	
Dimethoate	%	116			70-130	Pass	
Ethion	%	127			70-130	Pass	
Mevinphos	%	124			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	104			70-130	Pass	
Aroclor-1260	%	110			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	74			70-130	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25°C as rec.)	%	92			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	93			80-120	Pass	
Cadmium	%	106			80-120	Pass	
Chromium	%	95			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	93			80-120	Pass	
Mercury	%	102			80-120	Pass	
Nickel	%	99			80-120	Pass	
Zinc	%	97			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 C6-C9	S22-Ap0055264	NCP	%	81			70-130	Pass	
TRH C10-C14	S22-Ap0048129	NCP	%	101			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S22-Ap0055264	NCP	%	92			70-130	Pass	
Toluene	S22-Ap0055264	NCP	%	89			70-130	Pass	
Ethylbenzene	S22-Ap0055264	NCP	%	97			70-130	Pass	
m&p-Xylenes	S22-Ap0055264	NCP	%	96			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
o-Xylene	S22-Ap0055264	NCP	%	94			70-130	Pass	
Xylenes - Total*	S22-Ap0055264	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S22-Ap0055264	NCP	%	109			70-130	Pass	
TRH C6-C10	S22-Ap0055264	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Fenitrothion	S22-Ap0055517	NCP	%	87			70-130	Pass	
Methyl parathion	S22-Ap0055517	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S22-Ap0048129	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-Ap0049025	NCP	%	94			75-125	Pass	
Cadmium	S22-Ap0049025	NCP	%	97			75-125	Pass	
Chromium	S22-Ap0049025	NCP	%	93			75-125	Pass	
Copper	S22-Ap0049025	NCP	%	93			75-125	Pass	
Lead	S22-Ap0049025	NCP	%	97			75-125	Pass	
Mercury	S22-Ap0049025	NCP	%	95			75-125	Pass	
Nickel	S22-Ap0049025	NCP	%	96			75-125	Pass	
Zinc	S22-Ap0049025	NCP	%	90			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	N22-Ap0045003	CP	%	111			70-130	Pass	
Acenaphthylene	N22-Ap0045003	CP	%	105			70-130	Pass	
Anthracene	N22-Ap0045003	CP	%	109			70-130	Pass	
Benz(a)anthracene	N22-Ap0045003	CP	%	108			70-130	Pass	
Benzo(a)pyrene	N22-Ap0045003	CP	%	118			70-130	Pass	
Benzo(b&j)fluoranthene	N22-Ap0045003	CP	%	112			70-130	Pass	
Benzo(g.h.i)perylene	N22-Ap0045003	CP	%	95			70-130	Pass	
Benzo(k)fluoranthene	N22-Ap0045003	CP	%	121			70-130	Pass	
Chrysene	N22-Ap0045003	CP	%	103			70-130	Pass	
Dibenz(a.h)anthracene	N22-Ap0045003	CP	%	112			70-130	Pass	
Fluoranthene	N22-Ap0045003	CP	%	110			70-130	Pass	
Fluorene	N22-Ap0045003	CP	%	112			70-130	Pass	
Indeno(1.2.3-cd)pyrene	N22-Ap0045003	CP	%	113			70-130	Pass	
Naphthalene	N22-Ap0045003	CP	%	106			70-130	Pass	
Phenanthrene	N22-Ap0045003	CP	%	113			70-130	Pass	
Pyrene	N22-Ap0045003	CP	%	110			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	N22-Ap0045003	CP	%	114			70-130	Pass	
4.4'-DDD	N22-Ap0045003	CP	%	119			70-130	Pass	
4.4'-DDE	N22-Ap0045003	CP	%	120			70-130	Pass	
4.4'-DDT	N22-Ap0045003	CP	%	99			70-130	Pass	
a-HCH	N22-Ap0045003	CP	%	98			70-130	Pass	
Aldrin	N22-Ap0045003	CP	%	106			70-130	Pass	
b-HCH	N22-Ap0045003	CP	%	107			70-130	Pass	
d-HCH	N22-Ap0045003	CP	%	112			70-130	Pass	
Dieldrin	N22-Ap0045003	CP	%	111			70-130	Pass	
Endosulfan I	N22-Ap0045003	CP	%	108			70-130	Pass	
Endosulfan II	N22-Ap0045003	CP	%	107			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	N22-Ap0045003	CP	%	93			70-130	Pass	
Endrin	N22-Ap0045003	CP	%	102			70-130	Pass	
Endrin aldehyde	N22-Ap0045003	CP	%	78			70-130	Pass	
Endrin ketone	N22-Ap0045003	CP	%	91			70-130	Pass	
g-HCH (Lindane)	N22-Ap0045003	CP	%	111			70-130	Pass	
Heptachlor	N22-Ap0045003	CP	%	101			70-130	Pass	
Heptachlor epoxide	N22-Ap0045003	CP	%	115			70-130	Pass	
Hexachlorobenzene	N22-Ap0045003	CP	%	109			70-130	Pass	
Methoxychlor	N22-Ap0045003	CP	%	122			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	N22-Ap0045003	CP	%	117			70-130	Pass	
Dimethoate	N22-Ap0045003	CP	%	117			70-130	Pass	
Mevinphos	N22-Ap0045003	CP	%	123			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	N22-Ap0045003	CP	%	102			70-130	Pass	
Aroclor-1260	N22-Ap0045003	CP	%	113			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	S22-Ap0055263	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Ap0052873	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Ap0052873	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-Ap0052873	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Ap0055263	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-Ap0055263	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-Ap0055263	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-Ap0055263	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-Ap0055263	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-Ap0055263	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S22-Ap0055263	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-Ap0055263	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S22-Ap0052873	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Ap0052873	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Ap0052873	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	N22-Ap0045002	CP	%	18	18	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-Ap0056958	NCP	mg/kg	2.5	2.4	4.0	30%	Pass	
Cadmium	S22-Ap0056958	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-Ap0056958	NCP	mg/kg	37	37	2.0	30%	Pass	
Copper	S22-Ap0056958	NCP	mg/kg	8.7	8.8	2.0	30%	Pass	
Lead	S22-Ap0056958	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S22-Ap0056958	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-Ap0056958	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S22-Ap0056958	NCP	mg/kg	18	18	2.0	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	N22-Ap0045006	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	N22-Ap0045006	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	N22-Ap0045006	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	N22-Ap0045006	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	N22-Ap0045006	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	N22-Ap0045006	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	N22-Ap0045006	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	N22-Ap0045006	CP	uS/cm	< 10	< 10	<1	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	N22-Ap0045006	CP	pH Units	6.2	6.2	<1	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

Authorised by:

Ursula Long	Analytical Services Manager
Gabriele Cordero	Senior Analyst (NSW)
Ryan Phillips	Senior Analyst (NSW)
Roopesh Rangarajan	Senior Analyst (NSW)
Sayeed Abu	Senior Analyst (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.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Cardno (NSW/ACT) Pty Ltd
Level 9, 203 Pacific Highway
St Leonards
NSW 2065

Attention:	Kosta Sykiotis
Report	882006-AID
Project Name	81022070
Project ID	81022070
Received Date	Apr 26, 2022
Date Reported	May 04, 2022

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 81022070
Project ID 81022070
Date Sampled Apr 13, 2022
Report 882006-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP001: 0.05-0.1	22-Ap0045002	Apr 13, 2022	Approximate Sample 41g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
DUP	22-Ap0045003	Apr 13, 2022	Approximate Sample 39g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP004: 0.05-0.1	22-Ap0045004	Apr 13, 2022	Approximate Sample 39g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP006:0.05-0.1	22-Ap0045005	Apr 13, 2022	Approximate Sample 36g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP007: 0.1-0.2	22-Ap0045006	Apr 13, 2022	Approximate Sample 39g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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	Apr 22, 2022	Indefinite

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NATA # 1261 Site # 1254

Sydney
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Girraween NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
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IANZ # 1327

Christchurch
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Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Cardno (NSW/ACT) Pty Ltd
Address: Level 9, 203 Pacific Highway
St Leonards
NSW 2065

Project Name: 81022070
Project ID: 81022070

Order No.:
Report #: 882006
Phone: 0294967700
Fax: 02 9499 3902

Received: Apr 26, 2022 8:30 AM
Due: May 3, 2022
Priority: 5 Day
Contact Name: Kosta Sykiotis

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	ENM Exemption Suite -The excavated natural material order 2014 NSW
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	TP001: 0.05-0.1	Apr 13, 2022		Soil	N22-Ap0045002	X		X	X	X
2	DUP	Apr 13, 2022		Soil	N22-Ap0045003	X		X	X	X
3	TP004: 0.05-0.1	Apr 13, 2022		Soil	N22-Ap0045004	X		X	X	X
4	TP006:0.05-0.1	Apr 13, 2022		Soil	N22-Ap0045005	X		X	X	X
5	TP007: 0.1-0.2	Apr 13, 2022		Soil	N22-Ap0045006	X		X	X	X
6	TP001: 0.4-0.5	Apr 13, 2022		Soil	N22-		X			

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NATA # 1261 Site # 1254

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Rolleston, Christchurch 7675
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Company Name: Cardno (NSW/ACT) Pty Ltd
Address: Level 9, 203 Pacific Highway
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Received: Apr 26, 2022 8:30 AM
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Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	ENM Exemption Suite - The excavated natural material order 2014 NSW
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
					Ap0048274					
7	TP001: 0.5-0.6	Apr 13, 2022		Soil	N22-Ap0048275		X			
8	TP001: 0.5-0.6 DUP	Apr 13, 2022		Soil	N22-Ap0048276		X			
9	TP004: 0.3-0.4	Apr 13, 2022		Soil	N22-Ap0048277		X			
10	TP005: 0.4-0.5	Apr 13, 2022		Soil	N22-Ap0048278		X			
11	TP005: 0.6-0.7	Apr 13, 2022		Soil	N22-Ap0048279		X			
12	TP006: 0.3-0.4	Apr 13, 2022		Soil	N22-Ap0048280		X			

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Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	ENM Exemption Suite - The excavated natural material order 2014 NSW
Melbourne Laboratory - NATA # 1261 Site # 1254										
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794										
Mayfield Laboratory - NATA # 1261 Site # 25079										
Perth Laboratory - NATA # 2377 Site # 2370										
External Laboratory										
13	TP006: 0.9-1.0	Apr 13, 2022		Soil	N22-Ap0048281		X			
14	TP007: 0.3-0.35	Apr 13, 2022		Soil	N22-Ap0048282		X			
15	TP005: 0.05-0.1	Apr 13, 2022		Soil	N22-Ap0048283		X			
Test Counts						5	10	5	5	5

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 the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
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:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V** = **r** x **t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
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.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
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* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

The samples received were not collected in an approved asbestos bag and was therefore sub-sampled from the 250mL glass jar. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

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

Asbestos Counter/Identifier:

Chamath JHM Annakkage	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu	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.

APPENDIX

E

UNEXPECTED FINDS PROTOCOL

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Unexpected Finds Protocol

259 Windermere Road, Windermere
NSW

81022070-002.1

Prepared for

JRH Properties Pty Ltd & Raymond Property Group Pty Ltd

24 June 2022

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Stantec

Contact Information

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Document Information

Prepared for	JRH Properties Pty Ltd & Raymond Property Group Pty Ltd
Project Name	259 Windermere Road, Windermere NSW
File Reference	81022070-002
Job Reference	81022070-002.1
Date	24 June 2022
Version Number	1

Author(s):

Kosta Sykiotis
Geotechnical Engineer

Effective Date 24/06/2022

Approved By:

Dimce Stojanovski
Senior Scientist

Date Approved 24/06/2022

Document History

Version	Effective Date	Description of Revision	Prepared by	Reviewed by
1	24/06/2022	First Issue to Client	KS	DS

Table of Contents

Appendices

1 Introduction

This Unexpected Finds Protocol (UFP) has been developed for the proposed residential development located at 259 Windermere Road, Windermere NSW Lot 15 DP 1190956 (the “Site”) as shown in Figure 1, attached in Appendix A.

The purpose of the Unexpected Finds Protocol is to document the process for evaluating any unexpected environmental finds during the project, and to specify safety measures to be implemented to manage such circumstances and prevent any adverse environmental and human health impacts.

For the purpose of the investigation, Stantec have been provided with concept design plans titled “Proposed Subdivision – 259 Windermere Road, Lochinvar – Lot Layout Plan”, referenced 21460DA, revision 1, dated 8/03/2022.

Based on subdivision concept design plans provided by the Client, the proposed residential development comprises the following:

- The creation of 98 residential allotments and ancillary infrastructure (sewer, electrical services etc.);
- Internal subdivision pavements and associated infrastructure; and
- Construction of a detention basin and associated drainage reserve.

1.1 Scope

This Unexpected Finds Protocol (UFP) is specific to the proposed residential development in the portion of Lot 1902 DP 1112961 located at 259 Windermere Road, Windermere NSW as shown in Figure 1, attached in Appendix A. It provides guidance and procedures for dealing with any unexpected finds that may be encountered during the disturbance works carried out on Site.

1.2 References

The following documents have been reviewed in preparation of this Unexpected Finds Protocol:

- National Parks and Wildlife Act 1974 (NSW)
- Coroners Act 2009 (NSW)
- Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)
- Heritage Act 1977 (NSW)
- National Environmental Protection Measure (1999)

2 Procedure

2.1 General

The following procedure should be used to assess any unexpected finds that are encountered throughout the duration of the project. Unexpected finds may include but are not limited to heritage items, unidentified filling, odorous or stained soils, and suspected asbestos materials. All Site personnel are required to report any unexpected finds to the site manager, if observed during the course of their works.

2.2 Training and Induction of Personnel

Personnel involved in the project on site are to be inducted to the unexpected finds protocol.

Site inductions would include making workers and site personnel aware of the possibility of unexpected finds. Inductions will also include the immediate course of actions to be taken by workers if they were to find anything, including stopping work, notifying their supervisor immediately and completing the Incident Report forms. The induction should be reinforced at daily toolbox meetings.

2.3 Initial Response

If any unexpected/unidentified material is uncovered during disturbance works, the following procedure should be followed;

- Cease all works in the immediate area.
- Identify the category of the find (Contaminated Soils, Heritage, uncovering of Asbestos Materials etc).
- Delineate and restrict access to the area using fencing and /or appropriate barriers and signage.
- Ensure appropriate training and PPE is available for any persons required to enter the area.
- Document the nature of the find.
- Engage a suitably qualified consultant to assess the unexpected find.
- The consultant will assess the unexpected find and provide advice regarding the preliminary assessment with reference to Sections 4.4 – 4.8 below, which will include the following:
  - The need for further immediate management controls if required;
  - Further assessment and / or remediation works required in accordance with relevant guidelines;
  - Preparation of Remediation Action Plan (RAP) if required or provide clean up advice;
  - If required, clean up strategies of the affected area will be implemented.
  - If appointed, correspondence with a Site Auditor shall be undertaken.

Works within the affected area are not to recommence until it is deemed safe and suitable for works to continue. Written confirmation shall be undertaken by the appropriate consultant following appropriate advice and clean up procedures.

2.4 Skeletal Remains

In the event that skeletal remains are uncovered and the remains are not immediately identifiable as non-human remains, a qualified archaeologist should be engaged to determine their origin. If the skeletal remains are identifiable as human remains, the Local Police should be contacted to assess the discovery. Under no circumstances should the skeletal remains be disturbed without prior consultation with the relevant authorities which may include the coroner, police, Office of Environment & Heritage, aboriginal groups or a qualified anthropologist.

2.5 Aboriginal Heritage

In the event that any relic, artefact or material that is suspected of being Aboriginal Heritage is uncovered, works must cease immediately in the area. The Office of Environment and Heritage (OEH) should be notified, as well as the National Parks and Wildlife Service, NSW Police and local Aboriginal Stakeholders.

The Office of Environment and Heritage requires notification and an AHIP permit is required prior to the removal of any Aboriginal artefacts. An AHIP permit is issued under the National Parks and Wildlife Act and applications can be made directly to the OEH.

2.6 Archaeological Heritage

Items of archaeological heritage may be uncovered during disturbance works. Items of archaeological heritage may include Aboriginal artefacts or remains, European artefacts following settlement. European heritage may include items such as roadways (telford & corduroy timber road bases etc), kerbing, culverts, building foundations and tools. A suitably qualified archaeologist should be engaged to assess the find.

2.7 Potentially Contaminated Soils

In the event that any odorous, stained or unidentified soils are uncovered during the site works, a suitable qualified environmental consultant should be engaged to assess the material and the following procedures should apply:

- Excavation works at that part of the site where suspect soil material was encountered should cease until an inspection by an environmental consultant is carried out;
- Based on a visual inspection, the consultant will provide guidance on health and safety of remedial works, soil storage and soil disposal to allow construction works to proceed if possible;

Based on sampling and analysis the consultant will provide advice as to any additional requirements (i.e. managed on site or any offsite disposal requirements).

2.8 Asbestos Containing Materials

Contingency measures must be developed to evaluate any unexpected finds of suspected asbestos containing materials. These are to specify safety measures that can be implemented to manage and prevent any adverse environmental and human health impacts. Appropriate contingency measures in relation to asbestos impacted soils and suspected asbestos containing materials (ACM) include:

- Where suspected ACM is encountered excavation works must cease until an inspection by an environmental consultant is carried out;
- Any illegal dumping containing suspected asbestos bearing material or synthetic mineral fibres should be inspected by an environmental consultant.

Following a visual inspection; and sampling if necessary, the consultant will provide interim advice on health and safety requirements to allow construction works to proceed if possible;

Based on sampling and analysis the consultant will provide advice as to any additional requirements (i.e. management or disposal requirements).

Following an inspection and sampling for laboratory testing (where required), works can continue following the consultants written advice.

2.9 Summary

Where an area is identified as containing an isolated find, works must cease, and an inspection and sampling (where required) shall be undertaken by a suitable qualified consultant in accordance with Sections 2.4 to 2.8.

Works within the area shall only recommence following the advice of the suitable qualified personal.

An Unexpected Finds Protocol procedure form is available in Appendix B.

APPENDIX

A

FIGURES

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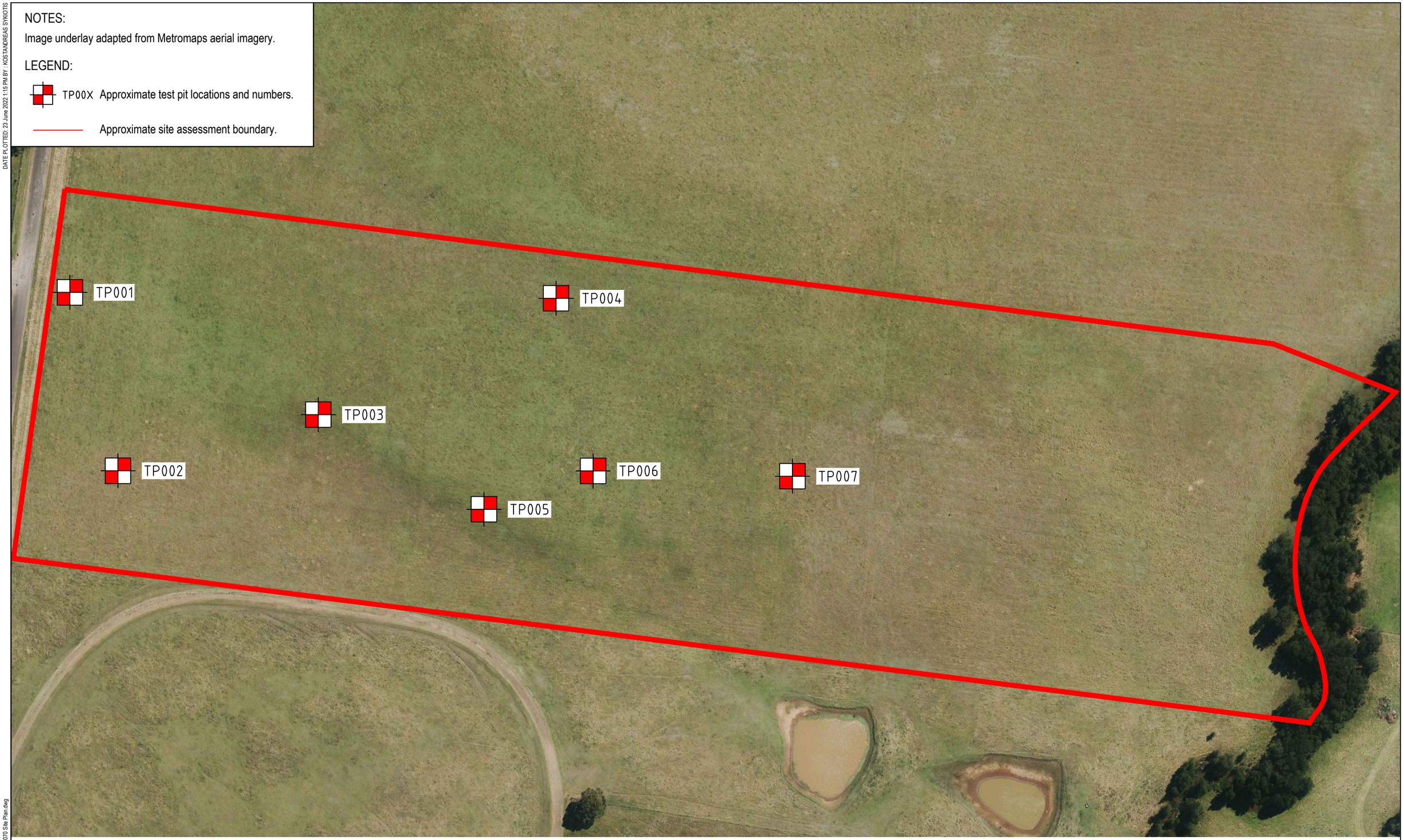
NOTES:

Image underlay adapted from Metromaps aerial imagery.

LEGEND:

TP00X Approximate test pit locations and numbers.

Approximate site assessment boundary.



0 50m

SCALE 1:1500 @A3

NORTH

Cardno
Shaping the Future
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Broadmeadow, NSW 2292
Tel: 02 4965 4555 Fax: 02 4965 4666
Web: www.cardno.com.au

Drawn	KS	Date 23/06/2022
Checked	DS	Date 23/06/2022
Designed		Date
Verified		Date
Approved		

Client: Newpro 27 Pty Ltd

Project: Preliminary Site Investigation
259 Windermere Road
Windermere, NSW

Title: Preliminary Site Investigation
Site Plan

Status: FOR CONCEPT APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Project Number	Scale	Size
81022070	1:1500	A3

Figure Number: Site Plan Figure 1

Revision: A

DATE PLOTTED: 23 June 2022 1:15 PM BY : KOSTANDREAS SYKIOTIS

XREFs:
CAD File: N:\FY22\070_259 Windermere Rd\Drawings\81022070 Site Plan.dwg

APPENDIX

B

UNEXPETCED FINDS PROTOCOL FORM

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UNEXPECTED FINDS PROTOCOL

INCIDENT REPORT FORM

Location of discovery (photographs, location map etc):

Nature of find (contaminated soils, heritage, asbestos etc.):

Action Taken:

Date: Recorded By: