

Appendix I – Preliminary Site Investigation

Mandalong Road Upgrade

Preliminary Site Investigation (Contamination)

Transport for NSW

Document control

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
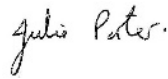
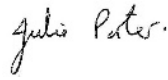
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Executive summary

Transport for NSW (Transport) proposes to provide upgrades to Mandalong Road between Gimberts Road and Ourimbah Street (the proposal). The proposal is located within the suburb of Morisset in the Lake Macquarie local government area.

Mandalong Road is a critical link within the B53 Morisset to Wallsend transport corridor that connects the Morisset town centre and surrounding urban areas to the M1 Pacific Motorway. A key aim of the proposal is to improve traffic flow and road safety for all road users by increasing the capacity of Mandalong Road and active and public transport improvements, which would support future economic and residential growth in the surrounding area. Key features of the proposal would include upgrades to the Mandalong Road/Freemans Drive/Dora Street/Wyee Road intersection.

This technical report documents the findings of a preliminary Stage 1 investigation (PSI), that assessed the potential for contamination to exist based on a desktop study and review of previous reports/assessments relevant to the proposal.

Predominant land uses at the location of the proposal include infrastructure, commercial, industrial, recreational and agricultural land uses.

The site inspection indicated that widespread contamination is unlikely to be present across the area directly impacted by the proposal. Six areas of environmental interest (AEIs) were identified, which present low to high risks of soil and groundwater contamination impacts during construction.

A high risk of contamination is associated with underground asbestos containing pipes encountered within the proposal area during previous geotechnical investigations by Transport. The extent of the asbestos containing pipes is unknown.

Medium risks of contamination are associated with:

- illegal dumping in bushland areas, due to potential exposure to hazardous waste material including asbestos
- the Hanson concrete batching plant, due to potential exposure to high alkaline soils and silica during shallow earthworks. All buildings and structures on the site (except the concrete slabs and site shed) will be demolished and removed prior to construction of the proposal
- disturbance of soils beneath the existing road near Mullards Creek during shallow earthworks, due to potential exposure to asbestos fibres.

Potential impacts associated with these contamination risks during construction include:

- interaction with potentially contaminated soils and groundwater as a result of ground disturbance, including disturbance and potential migration/mobilisation of contaminants
- release of potentially contaminated groundwater if construction activities such as trenching and drainage works intercept groundwater and de-watering is required
- contamination of soils due to disturbance of materials containing hazardous substances (including asbestos pipes)
- direct contact and inhalation of contaminated soil, illegally dumped material and groundwater by site workers where construction activities result in the exposure of existing contamination
- inhalation of asbestos fibres by site workers where construction activities result in the disturbance of buried asbestos
- managing and disposal of contaminated soils encountered during construction in areas where existing contamination is present.

The operation of the proposal is not expected to result in contamination risks to the surrounding environment and users.

Based on the findings of this PSI, the completion of a detailed site investigation, including preparation of a sampling analysis quality plan, is not warranted. Potential contamination impacts during construction and operation of the proposal (in terms of both causing contamination or creating impacts as a result of existing contamination sources) are expected to be limited and the use of typical mitigation measures would generally be adequate to manage contamination risks.

1 Introduction

1.1 Proposal identification

Transport for NSW (Transport) proposes to provide upgrades to Mandalong Road between Gimberts Road and Ourimbah Street (the proposal). The proposal is located within the suburb of Morisset in the Lake Macquarie local government area (LGA).

Mandalong Road is a critical link within the B53 Morisset to Wallsend transport corridor, that connects the Morisset town centre and surrounding urban areas to the M1 Pacific Motorway. A key aim of the proposal is to improve traffic flow and road safety for all road users through increasing the capacity of Mandalong Road and active and public transport improvements, which would support future economic and residential growth in the surrounding area.

The location of the proposal is shown in Figure 1-1.

1.2 Key features of the proposal

Key features of the proposal include:

- upgrading the Mandalong Road/Freemans Drive/Dora Street/Wyee Road intersection, including:
 - replacing the existing roundabout with new traffic lights
 - providing additional through and turning lanes on all approaches of the intersection
 - providing a central raised median on all approaches of the intersection
- providing active transport connections, including:
 - a shared user path along the length of the proposal on Mandalong Road and Dora Street
 - a shared user path on the eastern side of Wyee Road
 - a footpath on the north-eastern corner of Dora Street and Freemans Drive
- providing two new bus stop facilities on Dora Street
- installing and/or relocating fauna connectivity structures, such as glider poles
- full and partial property acquisitions, leases and adjustments, including relocating and adjusting property access and private utility connections
- ancillary work for the proposal, including, but not limited to, vegetation clearing, earthworks, landscaping and tie-in works
- relocating and/or adjusting existing public utilities, including electrical, gas, water, sewer and telecommunications
- roadworks, including pavement, line marking, lighting and road furniture (e.g. signs and safety barriers)
- upgrading drainage infrastructure, including culverts, pits, pipes, kerbs and gutters
- temporary ancillary facilities, including site compounds, material storage and laydown areas.

The concept design is indicative and may be further refined during the detailed design phase.

The key features of the proposal are shown in Figure 1-2 and described in detail in Chapter 3 of the REF. The concept design is indicative and may be further refined during the detailed design phase.

The ‘proposal area’ refers to the area that would be directly impacted by the proposal. This comprises the construction area of the proposal and any other areas that would be temporarily disturbed, including ancillary facilities. The proposal area is shown in Figure 1-2.

1.3 Purpose of this report

This Preliminary Site Investigation (PSI) supports the environmental assessment for the proposal. The proposal is subject to assessment by a REF under Division 5.1 of *Environmental Planning and Assessment Act 1979* (EP&A Act).

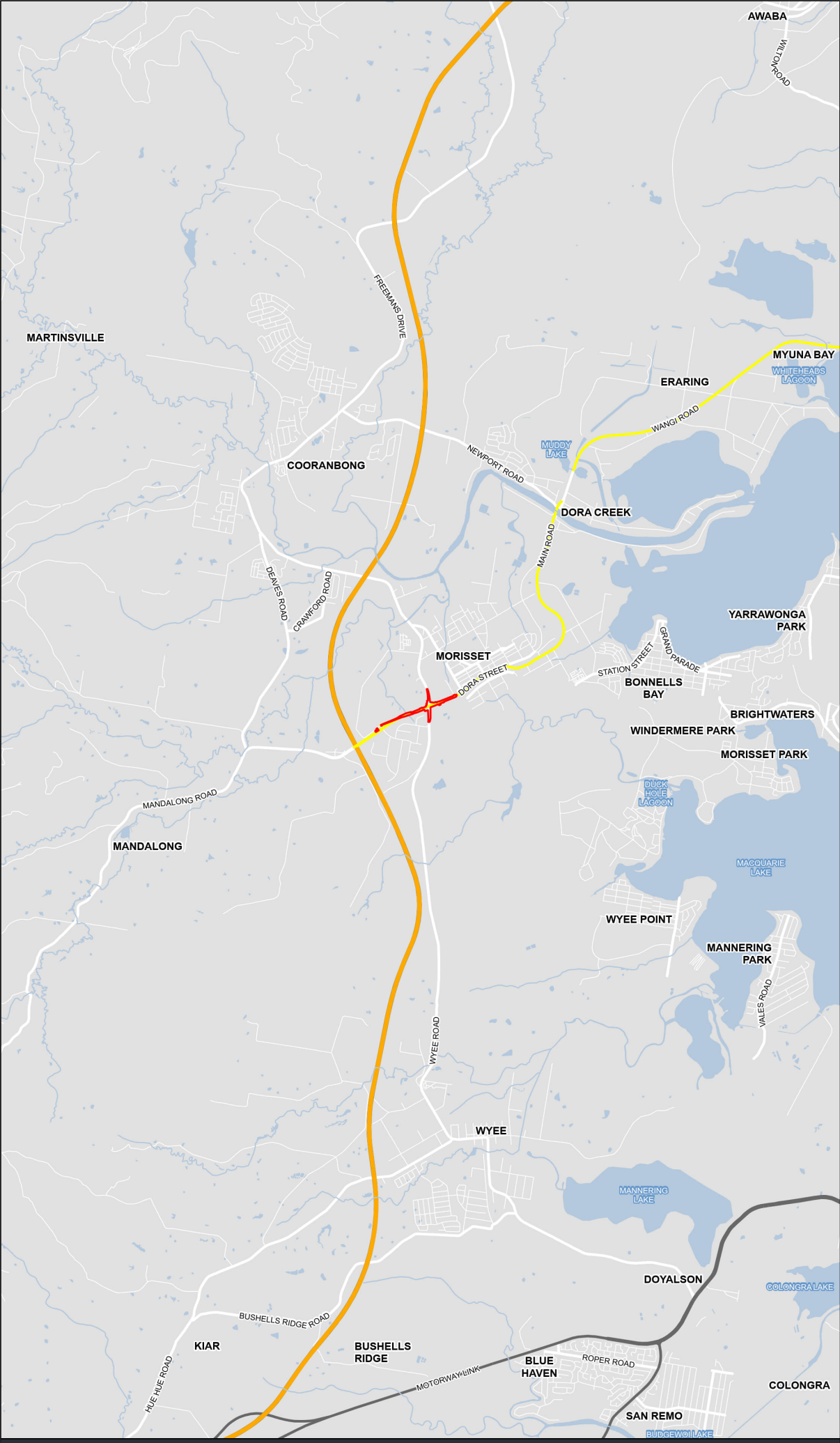
The purpose of this report is to identify potential areas of environmental interest (AEI) to assist in identifying construction limitations/constraints with respect to contamination impacts from the construction and operation of the proposal, to support the REF. Specifically, this report has the following objectives:

- conduct a preliminary Stage 1 site investigation as per the guidance in The National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended in 2013 (NEPM 2013), Schedule B2
 - prepare this assessment in accordance with the NSW Environment Protection Authority (EPA) *Consultants reporting on contaminated land: Contaminated land guidelines* (NSW EPA, 2020)
 - identify and document current and historical land uses to identify potential sources of contamination and associated contaminants of concern, potentially affected media and potential human and ecological receptors
 - assess whether potential contamination could present a risk of harm to human health and the environment as a result of the proposal; to inform the design and other specialist assessments in the REF
 - based on the findings, identify any contamination issues and provide recommendation for further investigations (if required).
-

1.4 Report outline

This report contains the following information and is structured as outlined below:

- Chapter 1 provides an overview of the proposal and assessment purpose/objectives
- Chapter 2 provides an overview of the legislative and policy context for the assessment
- Chapter 3 describes the scope of works and assessment methodology
- Chapter 4 describes the site condition and surrounding environment and site history of the proposal area, based on a desktop review
- Chapter 5 describes observations made about the existing environment during a site inspection
- Chapter 6 identifies and describes the areas of environmental interest (AEI) relating to the proposal
- Chapter 7 outlines the preliminary conceptual site model (CSM) and provides a risk assessment of the AEIs that relate to the proposal, including potential contaminants, receptors and contamination pathways
- Chapter 8 details how the proposal would be managed to reduce potential environmental impacts throughout detailed design, construction, and operation
- Chapter 9 provides a summary and conclusion
- Chapters 10 and 11 provide definitions for terms and acronyms used in the assessment
- Chapter 12 provides references of information used throughout the assessment.



Mandalong Road Upgrade

Figure 1-1
Locality of the proposal

Legend

- Proposal area
- Sub-arterial road
- Local road
- Highway
- M1 Pacific Motorway
- B53 Morisset to Wallsend Corridor
- Waterbody
- Watercourse

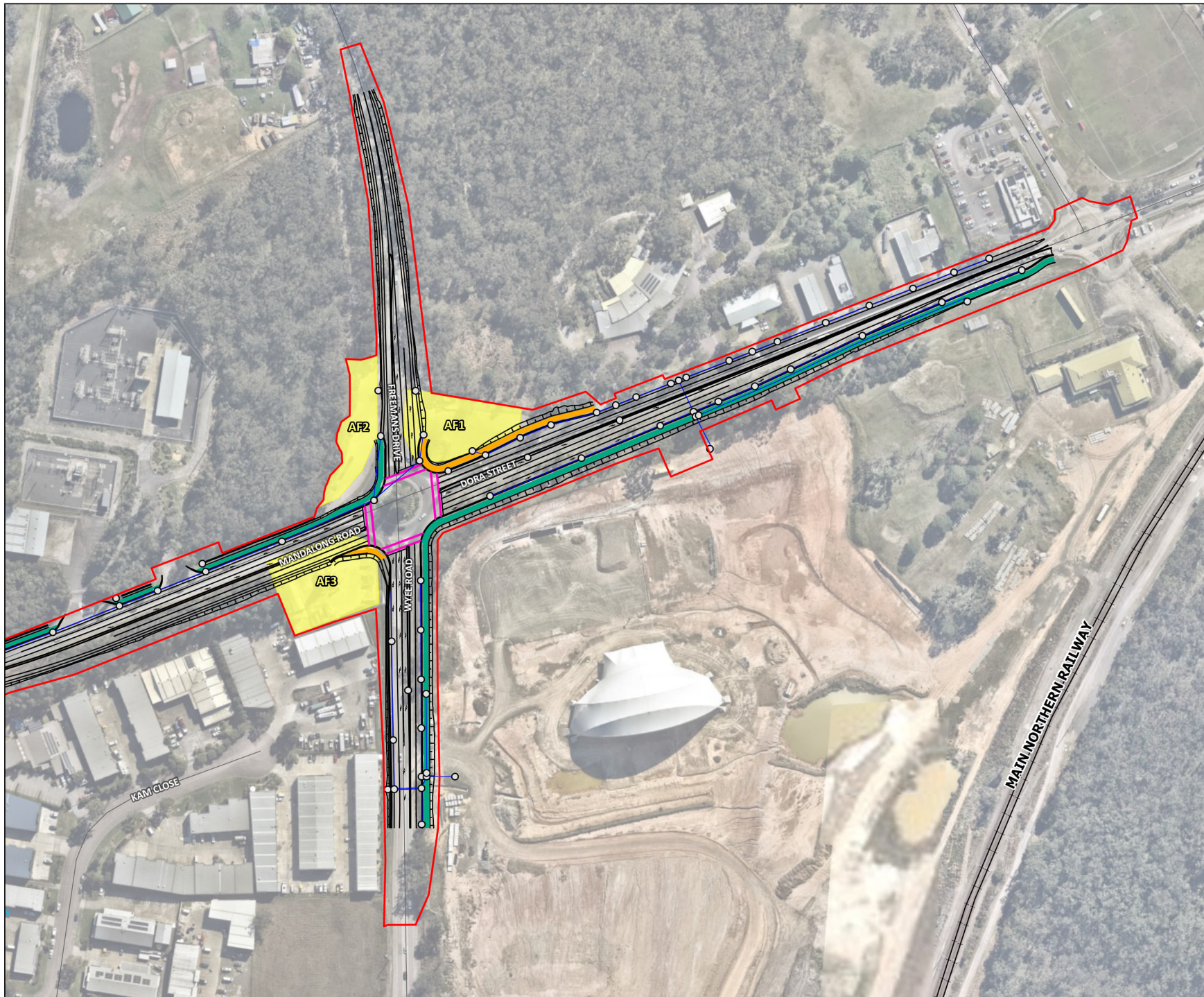


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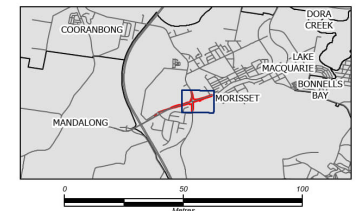
Mandalong Road Upgrade

Figure 1-2
Proposal Design

Page 1 of 2

Legend

- Proposal area
- Ancillary facility
- Road
- Railway
- Watercourse
- Road design**
 - Drainage pit
 - Road alignment
 - Pedestrian crossing
 - Drainage pipe
 - Footpath
 - Shared user path



Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3

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Date: 28/11/2024



Data sources: WSP, Newmap, NSWSS

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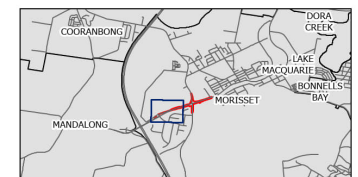
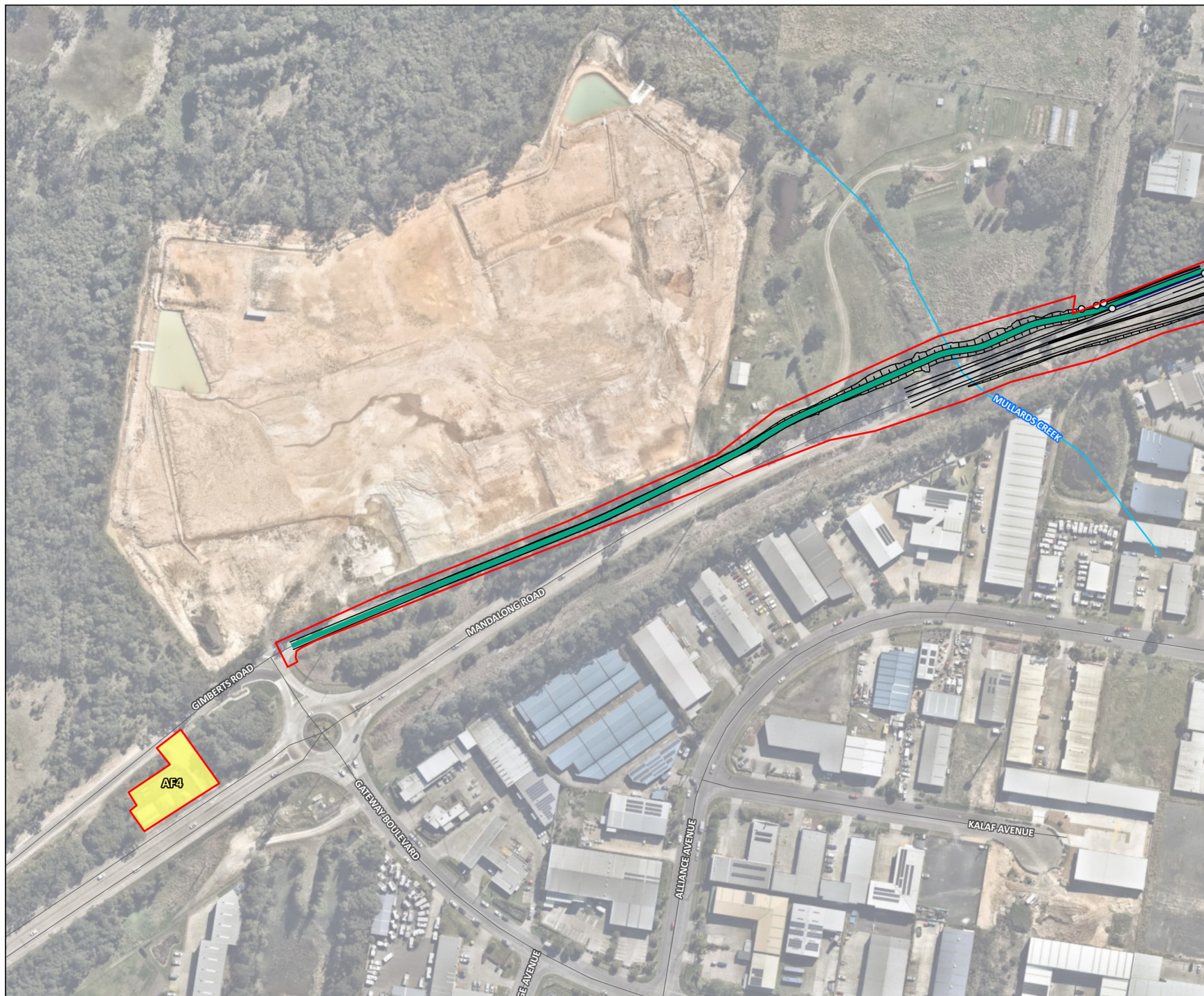
Mandalong Road Upgrade

Figure 1-2 Proposal Design

Page 2 of 2

Legend

- Proposal area
- Ancillary facility
- Road
- Railway
- Watercourse
- Road design
 - Drainage pit
 - Road alignment
 - Drainage pipe
 - Shared user path



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2 Legislation and policy context

Legislation and policy relevant to the proposal is discussed in the following sections.

2.1 Contaminated Land Management Act 1997

The *Contaminated Land Management Act 1997* (CLM Act) is part of the management framework for contaminated land in NSW. An objective of the CLM Act is to ensure that contaminated land is managed with regard to the principles of ecologically sustainable development.

The act enables the NSW EPA to respond to and manage site contamination when it considers that contamination is significant enough to require regulation. Site contamination requires regulation under the CLM Act when a site is declared “significantly contaminated land” (defined as land described in a notice having effect under section 11 of the CLM Act) or when land is subject to a management order or an approved voluntary management proposal. Land within the study area has not been declared “significantly contaminated land” and is not subject to a management order or an approved voluntary management proposal.

Section 105 of the CLM Act allows the NSW EPA to make or approve guidelines for the purposes connected with the objectives of the CLM Act.

Contaminated sites not regulated by the NSW EPA can be managed through the planning process by the relevant planning consent authority.

2.2 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021 pertains to, and aims to, promote the remediation of contaminated land. Through the development application process, planning authorities (local councils, in particular) are required to assess the contamination status of land prior to granting development consent. The State Environmental Planning Policy (SEPP) lists remediation work that may be undertaken without the consent of the consent authority.

In accordance with clause 4.7(1) of the SEPP, a consent authority must not consent to carrying out development on land unless it has considered whether the land is contaminated. Sections of the proposed work would occur within or adjacent to an existing road corridor. Based on potential for contamination from the existing land uses the development approval needs to be able to consider known existence or likelihood of the contamination at the proposal site. This report has been undertaken to determine the potential for contamination and provide recommendation on next steps in relation to contamination (if any).

2.3 National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended in 2013

The NEPM 2013 is made under the *National Environment Protection Council Act 1994* and is given effect by individual legislation and guidelines in each state and territory. The NEPM 2013 is approved by the NSW EPA under section 105 of the CLM Act. The purpose of the measure is to establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community, which includes regulators, site assessors, environmental auditors, landowners, developers and industry.

The desired environmental outcome for this measure is to provide adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and effective national approach to the assessment of site contamination.

Authorities (at local and state government level) that consent to development or changes in land use consider the land's suitability for its intended use. To determine if a site is suitable, a site's history of use and whether it is indicative of potential contamination should be considered.

Under the NEPM 2013, site contamination assessment is generally carried out in stages involving progressively more detailed levels of data collection and analysis, such as preliminary Stage 1 site investigations, detailed site investigations and site-specific risk assessment. This technical report is a preliminary Stage 1 investigation, which assesses the potential for contamination to exist based on a desktop study and review of previous reports/assessments undertaken within the proposal area.

2.4 Other guidelines

A number of other guidelines, which are relevant to the management of contamination, were considered in the preparation of this report and are presented in Table 2-1.

Table 2-1 Other guidelines

Guideline	Consideration in this report
Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (WA Department of Health, 2009)	NEPM 2013 references the Western Australia guidelines for the management of asbestos. The guidelines provide a framework and best practice for the assessment, remediation and management of asbestos contaminated sites. The guidelines would need to be considered during any additional investigations undertaken within the proposal area.
Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2021)	The guidelines detail reporting objectives and requirements for investigation and remediation reports prepared by contaminated land consultants. These guidelines have been considered when preparing this report and will need to be considered when preparing additional investigation reports, remediation action plans, validation reports or other reports pertaining to contamination for the proposal.
Guidelines on the Duty to Report Contamination under the <i>Contaminated Land Management Act 1997</i> (NSW EPA, 2015)	The guidelines detail circumstances in which contamination at a site triggers the requirement to notify the NSW EPA. The guidelines are made under section 105 of the CLM Act. The duty to report lies with landowners and those responsible for contamination. The triggers would need to be considered in the preparation of future investigation reports and in the event that contamination is encountered within the proposal area.
Guidelines for the NSW Site Auditor Scheme (third edition) (NSW EPA, 2017)	The guidelines describe the obligations of accredited site auditors undertaking site audits in NSW. The guidelines are made under Section 105 of the CLM Act. These guidelines need to be considered when preparing reports that may be reviewed by a site auditor (e.g. investigation report or remediation action plan).
National Acid Sulfate Guidance (Department of Agriculture and Water Resources, 2018)	This guideline provides technical and practical advice on the identification and sampling of acid sulfate soils.

3 Methodology

3.1 Study area

The contamination study area for this assessment comprises the proposal area and a 1,000 metre (m) buffer around the proposal area.

3.2 Approach

The preliminary contamination assessment included the following:

- completion of a desktop review of regional environmental setting and historical information comprising:
 - physical site setting information such as topography, geology, hydrology, hydrogeology, and potential sensitive receptors on or near the proposal area
 - regulatory notices or records relating to potential contamination within the study area issued by the NSW EPA
 - historical aerial photographs for the proposal area and surrounds
 - review historical investigation reports for the proposal area (where available)
 - review of NSW EPA per- and polyfluoroalkyl substances (PFAS) investigation database
 - review of Department of Defence database for unexploded ordnance
 - review of Department of Primary Industries Cattle Dip Site Locator
 - review of NSW EPA Location of former gasworks sites
 - an overview of neighbouring properties to identify the presence and proximity of sensitive receptors which could be significantly impacted upon by the proposal
- completion of an inspection of publicly accessible areas within the proposal area on 20 August 2024, noting the following:
 - identification of key site features
 - existing infrastructure
 - potential contamination sources
- identification of potential AEIs within the study area
- development of a CSM to evaluate the potential risks to human health and the environment during construction and operation of the proposal
- development of recommended safeguards and mitigation measures to address the identified contamination risks.

3.3 Risks identification

Potential environmental risks associated with construction of the proposal were identified and rated according to likelihood, consequence and overall level of risk, in general accordance with the AS/NZS ISO 31000:2009 Risk management – Principles and guidelines.

The risk of disturbing or encountering contaminated material during construction varies depending on the extent and type of contamination and the work undertaken. A preliminary contamination risk evaluation (considering the potential for risks without the implementation of appropriate controls or remediation) has been conducted to rank the potential risk of the identified areas of contamination concern. The risk evaluation assesses identified areas of contamination concern based on the likelihood of encountering contamination. The rating assigned is described in Table 3-1, which is based on the assessment of current regulated activities, and historical land uses/activities at the identified AEIs located within the study area.

Table 3-1 Qualitative risk rankings

Risk ranking	Likelihood that the site may be affected by contamination	Basis for risk ranking
High	Likely contamination source identified	The available information indicates that the subject site: <ul style="list-style-type: none"> — is currently identified as being contaminated on a public register of contaminated sites maintained by a regulator or has been the subject of an activity which is frequently associated with significant contamination.
Medium	Possible contamination source identified	The available information indicates that the subject site: <ul style="list-style-type: none"> — is or has been the subject of an activity which in some circumstances is known to be associated with significant contamination — has been historically filled with imported material, the origin of which is unknown; and/or — has groundwater records indicating the potential for contamination.
Low	Unlikely contamination source identified	The available information does not indicate that the subject AEI: <ul style="list-style-type: none"> — is currently identified as being contaminated on a public register of contaminated sites maintained by a regulator — is or has been the subject of an activity which is frequently associated with contamination — has been historically filled with imported material, the origin of which is unknown — has groundwater records indicating the potential for contamination.

4 Desktop investigation

A review of site history, environmental risk and planning information has been undertaken by Lotsearch Pty Ltd (Lotsearch) for the study area, with key environmental setting information detailed below. The full Lotsearch report is available in Appendix B.

4.1 Site setting and land use

A summary of the site setting and land use within the proposal area is provided in Table 4-1.

Table 4-1 Site details

Item	Details
Land uses	The proposal traverses a mixture of infrastructure, commercial, industrial, recreational and agricultural land uses.
Local government area	Lake Macquarie
Zoning	<p>Land zoning within and neighbouring the proposal area, as shown in Figure 4-1 of the REF, include:</p> <ul style="list-style-type: none">— SP2 Infrastructure (Classified Road)— SP2 Infrastructure (Electricity Transmission or Distribution Network)— E3 Productivity Support— E4 General Industrial— RE1 Public Recreation— RE2 Private Recreation— RU6 Transition— MU1 Mixed Use.
Current land use within proposal area	<p>The proposal area mainly consists of a road reserve, with public and private recreation areas, commercial, industrial and agricultural properties along the boundaries of the road reserve (refer to Figure 4-1 of the REF).</p> <p>The current land use for the proposed ancillary facilities, as shown in Figure 4-1 of the REF, include:</p> <ul style="list-style-type: none">— ancillary facility AF1: vacant area adjacent to the road corridor currently used for informal parking— ancillary facility AF2: vacant land adjacent to the road corridor currently used for informal parking and mobile food vendor business purposes (food truck)— ancillary facility AF3: currently a concrete batching plant for a construction and building material supplier (Hanson)— ancillary facility AF4: the facility is currently used by Transport as a maintenance and storage facility for roadworks.
Proposed land use	Road infrastructure

Item	Details
Surrounding land uses	<p>The areas around the proposal area comprise a variety of land uses, as shown in Figure 4-1 of the REF and figure on page 68 of Appendix B, including:</p> <ul style="list-style-type: none"> — areas surrounding the western portion of the proposal mainly include infrastructure (including surrounding roads, a substation and the M1 Pacific Motorway), commercial, industrial, agricultural and public recreation land uses. A substation is located along the northern boundary of the proposal along Mandalong Road. Construction of a new bulky goods retail development is taking place along the northern boundary of the proposal along Gimberts Road — areas surrounding the eastern portion of the proposal mainly include infrastructure, public and private recreation, and commercial land uses. Operational service stations are located along the northern boundary of the proposal along Dora Street. The former Morisset Golf and Bowling Clubhouse and Golf Course are located along the southern boundary of the proposal along Dora Street. The Great Northern Railway is located around 120 m south-east of the eastern end of the proposal. Construction of the Cedar Mill event site development is taking place along the southern boundary of the proposal along Dora Street — medium-density residential areas are located to the north of the eastern end of the proposal.
Sensitive environmental areas	<p>Sensitive environmental areas within the study area include:</p> <ul style="list-style-type: none"> — Mullards Creek, intersecting the proposal area in a north-south direction (refer to figure on page 35 of Appendix B) — moderate potential groundwater ecosystem, intersecting and neighbouring the proposal area along Freemans Drive (refer to figure on page 96 of Appendix B) — groundwater potentially used for beneficial uses, including water supply (domestic), irrigation, livestock water supply and recreation purposes (refer to figure on page 43 of Appendix B).

4.2 Environmental setting

The environmental setting of the proposal area is summarised Table 4-2.

Table 4-2 Environmental site setting

Item	Details
Topography	Topography varies between 10 and 30 m Australian Height Datum (mAHD) along the proposal area. The topography of the surrounding study area ranges from 0 mAHD to around 40 mAHD to the east and south of the proposal area (refer to figure on page 41 of Appendix B).
Hydrology	The proposal area is intersected by Mullards Creek, which flows towards Stockton Creek to the north of the proposal area, which then drains into Dora Creek (refer to figure on page 35 of Appendix B).
Soil landscapes	<p>The Gosford-Lake Macquarie 1:100,000 Sheet (Murphy & Tille, 1993) indicates the proposal area is dominated by the Gorokan Soil Landscape, consisting of undulating low hills and rises on lithic sandstones of the Tuggerah Formation (refer to figure on page 55 of Appendix B).</p> <p>Vegetation is generally partially cleared low open forest (refer to figure on page 77 of Appendix B).</p>

Item	Details
Acid sulfate soils and salinity	<p>There are no areas mapped as Class 1 to Class 5 acid sulfate soils (ASS) within the proposal area (refer to figure on page 57 of Appendix B).</p> <p>An area to the north of the proposal area along Mandalong Road is mapped as having the potential to contain Class 5 ASS, which is defined as an area within 500 m of Class 1 to 4 ASS areas. A small section of Class 4 ASS is mapped along the western edge of the study area (refer to figure on page 57 of Appendix B).</p> <p>The probability of occurrence of ASS is mapped on the Atlas of Australian Acid Sulfate Soils (CSIRO, 2011) as being extremely low (1–5%).</p> <p>There is no dryland salinity areas mapped within the study area (National Land and Water Resources Audit, 2020) (refer to page 61 of Appendix B).</p>
Geology	<p>A review of the Gosford-Lake Macquarie Special 1:100 000 Geological Sheet 9131 & part sheet 9231 (Geological Survey of New South Wales, 2015) indicates the study area encompasses multiple geological sequences, with the following dominating geology units (refer to figure on page 47 of Appendix B):</p> <ul style="list-style-type: none"> — Tuggerah Formation: Grey to green-grey laminite, to red-brown claystone and siltstone, (in turn interbedded with) fine- to medium-grained green-grey sandstone — Alluvial valley deposits: Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.
Hydrogeology	The study area is defined by porous, extensive aquifers of low to moderate productivity (refer to page 42 of Appendix B).
Naturally Occurring Asbestos Potential	There are no known records for naturally occurring asbestos potential within the study area (refer to page 52 of Appendix B).
Mining Activities	The proposal area resides within current and historical mining and exploration titles, as shown in figure on page 64 of Appendix B. The proposal area is located within the West Lake Mine Subsidence District (refer to figure on page 62 of Appendix B).

4.3 Groundwater

A search of registered groundwater bores identified 16 registered bores located within a 2 km radius of the proposal (refer to Appendix B). The majority of the bores are listed for household monitoring, water supply (domestic), irrigation and livestock water supply. Eight bores are listed as being used for monitoring purposes.

Three registered groundwater boreholes have been identified within 500 metres of the proposal area (WaterNSW, 2024):

- GW078084, located around 20 metres south of the proposal area (recorded standing water level 5 metres below ground level (mbgl))
- GW200915, located around 160 metres north of the proposal area, with a drilled depth of 60 metres. Groundwater was not encountered during drilling
- GW205429, located around 445 metres west of the proposal area (recorded standing water level 7 mbgl).

Based on the above information, the groundwater table within the proposal area is likely to be encountered at depths between 5 and 7 mbgl.

4.4 Sensitive receptors

A sensitive receptor is human or ecological, which may be susceptible to harmful impacts if exposed to contamination.

Ecological receptors include watercourses, groundwater and conservation areas located throughout the study area including:

- nearby surface water features, Mullards Creek, Stockton Creek and Dora Creek (shown on page 35 of Appendix B)
- low to high potential groundwater ecosystems (shown on page 96 of Appendix B).

Human health receptors in the study area include:

- staff employed in commercial and industrial businesses
- users of groundwater, including for domestic water supply
- construction workers involved in the proposal
- future construction and maintenance workers
- future road users of the road, including pedestrians and cyclists.

4.5 Potential current and former contaminant sources

A database search review of potential current and former contaminant sources in the vicinity of the proposal is presented in Table 4-3 below.

Table 4-3 Search of potential current and former contaminant sources

Item	Details
List of contaminated sites regulated by or notified to the NSW EPA	<p>A total of four contaminated sites within the study area have been notified to the NSW EPA under the CLM Act (refer to figure on page 5 of Appendix B):</p> <ul style="list-style-type: none">— Mandalong Mine, Mandalong Road (303 m west of proposal area)— Railcorp Station Masters Cottage, Dora Street (589 m north-east of proposal area)— Morisset High school, Bridge Street (672 m north-east of proposal area)— Service station, Dora Street (834 m north-east of proposal area). <p>The NSW EPA register states that regulation under the CLM Act is not required for any of the above premises.</p> <p><i>Source: NSW EPA List of NSW contaminated sites notified to NSW EPA – Accessed July 2024 (refer to page 6 of Appendix B).</i></p>

Item	Details
Current NSW EPA licensed activities	<p>There are four activities licensed under the <i>Protection of the Environment Operations Act 1997</i> (POEO Act) within the study area (refer to figure on page 14 of Appendix B):</p> <ul style="list-style-type: none"> — waters within the Lake Macquarie Local Government area, including Mullards Creek (intersecting the proposal area), relating to application of herbicides (Environment Protection Licence (EPL) Number (No) 6332) — railway infrastructure and rolling stock operations associated with the Main Northern Railway Line (115 m east of proposal area), operated by Sydney Trains (EPL No 12208) — coal works (Mandalong Mine), at Kerry Anderson Drive (303 m west of proposal area), operated by Centennial Mandalong Proprietary Limited (Pty Ltd.) (EPL No 365) — generation of electrical power for Mandalong Mine from waste coal mine gas, at facility along Kerry Anderson Drive (468 m west of proposal area), operated by EDL Holdings (Australia) Pty Ltd (EPL No 21230). <p><i>Source: NSW EPA POEO Act Licensed Activity Register – Accessed July 2024 (refer to page 15 of Appendix B).</i></p>
Clean Up/Penalty Notices	<p>There are two sites within the study area which have been issued clean-up or penalty notices under Section 91 of the POEO Act (refer to figure on page 5 of Appendix B):</p> <ul style="list-style-type: none"> — Main Northern Railway Line operated by Sydney Trains (115 m east of proposal area) (Penalty Notice No 3173530755) — Alexanders Mulch and Soil, operated by Vinci Bros. Pty Ltd. (528 m south-west of proposal area) (Clean Up Notice No's 1520836 and 1518177). <p><i>Source: NSW EPA Records of Notice – Accessed July 2024 (refer to page 9 of Appendix B).</i></p>
Former licensed activities, now revoked or surrendered	<p>There are three former licensed activities under the POEO Act, now revoked or surrendered within the study area (refer to figure on page 16 of Appendix B):</p> <ul style="list-style-type: none"> — application of herbicides to waterways (that intersects the proposal area), issued to Luhrmann Environment Management Pty Ltd on 6 September 2000 (licence surrendered) — application of herbicides to waterways (that intersects the proposal area), issued to Robert Orchard on 7 September 2000 (licence surrendered) — application of herbicides to waterways (that intersects the proposal area), issued to Sydney Weed & Pest Management Pty Ltd on 9 November 2000 (licence surrendered). <p><i>Source: NSW EPA Former Licensed Activities register – Accessed July 2024 (refer to page 17 of Appendix B).</i></p>
Delicensed activities still regulated by the NSW EPA	<p>There is one delicensed activity regulated by the NSW EPA within the study area (refer to figure on page 16 of Appendix B):</p> <ul style="list-style-type: none"> — concrete works at 230 Mandalong Road, licence held by Hanson Construction Materials Pty Ltd (within proposal area, being the location of ancillary facility AF3). <p><i>Source: NSW EPA POEO Act Licensed Activity Register – Accessed July 2024 (refer to page 17 of Appendix B).</i></p>
Former gasworks	<p>There are no former gas works noted within the study area.</p> <p><i>Source: NSW EPA Location of former gasworks sites – Accessed July 2024 (refer to page 7 of Appendix B).</i></p>

Item	Details
National Waste Management Site Database/National Liquid Fuel Facilities Database	<p>There are two properties on the National Waste Management Site Database within the study area (refer to figure on page 9 of Appendix B). Both are soft plastics drop-off facilities:</p> <ul style="list-style-type: none"> — Woolworths, at 103 Dora Street (392 m north-east of proposal area) — Coles, at 35 Yambo Street (650 m north-east of proposal area). <p>Five properties listed under the National Liquid Fuel Facilities database are located within the study area (refer to figure on page 9 of Appendix B):</p> <ul style="list-style-type: none"> — 7-Eleven, at 133 Dora Street, Morisset (directly north of proposal area) — Caltex Woolworths (found to be rebranded as Ampol during site inspection), at 125 Dora Street, Morisset (directly north of proposal area) — Ampol, at 5–11 Gateway Boulevard, Morisset (150 m south-east of proposal area) — BP, at 50 Alliance Avenue, Morisset (100 m south of proposal area) — Metro Fuel, at 57 Dora Street, Morisset (834 m north-east of proposal area). <p><i>Source: Geoscience Australia, Waste Management Facilities – Accessed July 2024 (refer to page 10 of Appendix B).</i></p>
NSW EPA PFAS investigation program	<p>There are no contaminated sites listed on the NSW EPA PFAS investigation program within the study area.</p> <p><i>Source: PFAS investigation program, New South Wales Environment Protection Authority – Accessed July 2024 (refer to page 11 of Appendix B).</i></p>
Department of Defence Unexploded Ordnance (UXO) database	<p>The study area does not have any areas where unexploded ordnance is known to occur.</p> <p><i>Source: Department of Defence Unexploded Ordnance database – Accessed July 2024 (refer to page 12 of Appendix B).</i></p>
Cattle dips	<p>No cattle dips were identified within the study area.</p> <p><i>Source: Department of Primary Industries Cattle Dip Site Locator – Accessed July 2024.</i></p>

4.6 Historic aerial photographs

A review of historical aerial photography covering the proposal area and surrounding area was undertaken with a summary of the observed land use changes described in Table 4-4. Historical aerial photographs are presented in Appendix B (page 24 to page 30).

Table 4-4 Historical aerial photograph review

Year	Observations along proposal area	Surrounding land observations
1954	Mandalong Road appears to be an unsealed road in the 1954 aerial photograph, with several local roads and access tracks intersecting the proposal area. An easement for electricity cables and towers also intersects the road. Land directly adjacent to the road consists of mostly dense undisturbed vegetation, with a clearing near the central portion of the proposal area. The Main Northern Railway is located to the east of the proposal area.	Surrounding land is generally farmland or uncleared, with some buildings located in the Morisset township.

Year	Observations along proposal area	Surrounding land observations
1976	Significant land clearing has taken place around Mandalong Road and adjacent roads. A golf course is now located along the southeast portion with some low-density residential properties visible in the north-east and central sections of the proposal area.	Significant land clearing for farming observed, and development at Morisset. The Morisset RSL and Country Club (later called Morisset Country Club) and golf course and bowling club have been constructed.
1984	No significant change from the 1976 imagery, with some additional residential buildings developed along the road. A concrete batching plant has been constructed at the corner of Mandalong Road and Wyee Road.	Further land clearing has taken place resulting in an increase in residential properties to the north and east of the proposal area. The Morisset RSL and Country Club building has been demolished and a new clubhouse has been built near the existing bowling green.
1994	Mandalong Road is now paved and connects to the newly built M1 Pacific Motorway to the west of the proposal area. The roundabout has been constructed at the Mandalong Road/Freemans Drive/Dora Street/Wyee Road intersection.	M1 Pacific Motorway has been constructed to the west of the proposal area. There is an increase in residential buildings to the north and east of the proposal area.
2002	Land south of Mandalong Road has been cleared, and industrial sheds have been constructed. Additional buildings have been added to properties along the northern side of Mandalong Road. The roundabout has been constructed at the Gimberts Road/Mandalong Road/Gateway Boulevard intersection.	No significant changes other than the development of the industrial estate (Morisset Business Park) south of Mandalong Road.
2014	Development of an industrial estate (Morisset Business Park) south of Mandalong Road has taken place, with multiple buildings constructed. A service station has been built along the northern side of Dora Street. A roundabout has been constructed at the Dora Street/Ourimbah Street intersection.	Increased development of the commercial/industrial precinct south of the proposal area has taken place. Service stations have been constructed along Dora Street, Gateway Boulevard and Wyee Road. A substation has been constructed along the northern side of Mandalong Road.
2024	No significant changes observed within the proposal area.	Significant development of the commercial/industrial precinct south of the proposal area has taken place. There are large areas of clearing and earthworks to the south-east and north-west of the proposal area.

4.7 Previous investigations

Laboratory results of soil samples collected during geotechnical investigations conducted by Transport in June 2024 were reviewed:

- ALS, Certificate of Analysis EN2405898, dated 4 July 2024
- ALS, Certificate of Analysis ES2420639, dated 25 June 2024.

There was no corresponding report at the time of writing of this report. One certificate of analysis (ALS Certificate of Analysis – EN2405898, dated 4 July 2024) detected chrysotile asbestos from cement sheeting at one investigation location TP10 (sample ID TP10D) (refer to Figure 6-1). The investigation location is located near Mullards Creek beneath the existing road. The borehole logs indicate the identified asbestos was from a broken pipe, possibly from redundant utilities. No other samples were analysed for asbestos.

Three samples from three locations within the proposal area (HA01, HA02 and HA04) (refer to Figure 6-1) were analysed for total recoverable hydrocarbon (TRH), benzene, toluene, ethylbenzene and total xylenes (BTEX), polycyclic aromatic hydrocarbons and heavy metals (ALS Certificate of Analysis ES2420639, dated 25 June 2024). All concentrations reported were below the National Environment Protection (Assessment of Site Contamination) Measure 2013 Amendment Health Screening Levels and Health investigation levels applicable to a recreational open space and commercial/industrial land use.

5 Site inspection

A site inspection of publicly accessible areas along the proposal area was completed on 20 August 2024 by appropriately qualified contaminated land staff. It is noted that the private property associated with ancillary facility AF3, the Hanson concrete batching plant, was not accessed. The current land use associated with this ancillary facility is discussed in Table 4-1. General and specific observations recorded during the site inspection are described below. Photographs taken during the site inspection are provided in Appendix A.

5.1 Overview

The following land uses were observed adjacent to the proposal area during the site inspection (refer to Figure 4-1 of the REF and Appendix A):

- a Transport maintenance and storage facility (the location of ancillary facility AF4), located north of the proposal area along Mandalong Road
- a strip of roadside vegetation (zoned RE1 Public Recreation), located along the southern side of the proposal area along Mandalong Road
- an industrial/commercial estate, Morisset Business Park (zoned E3 Productivity Support and E4 General Industrial), located south of the proposal area between Wyee Road and the M1 Pacific Motorway
- a concrete batching plant (zoned E4 General Industrial), located within the proposal area on the south-western corner of the Mandalong Road/Freemans Drive/Dora Street/Wyee Road intersection (the location of ancillary facility AF3)
- bushland (zoned C2 Environmental Conservation), located north of the proposal area along Gimberts Road
- a cleared area for a future retail estate and a commercial and residential property (zoned E3 Productivity Support), located north of the proposal area along Gimberts Road
- agricultural land (zoned E3 Productivity support), located north of the proposal area along Mandalong Road
- a transmission line easement and a substation (Ausgrid) (zoned SP2 Infrastructure (Electricity Transmission or Distribution Network)), located north of the proposal area along Mandalong Road
- bushland (zoned SP2 Infrastructure (Electricity Transmission or Distribution Network) and RU6 Transition), located north of Mandalong Road between the transmission line easement and Freemans Drive
- a large construction area associated with the Cedar Mill event site development (zoned RE2 Private Recreation), including the former Morisset Golf and Bowling Clubhouse fenced off for renovation or demolition, located south of the proposal area between Wyee Road and Ourimbah Street
- bushland and a disability support services facility (Nova Care) (zoned RE1 Public Recreation), located north of the proposal area along Dora Street
- 7-Eleven and Ampol service stations, and a McDonalds restaurant (zoned MU1 Mixed Use), located north of the proposal area along Dora Street.

All the vegetated areas described above appear to be generally in good condition.

5.2 Specific observations

The following outlines specific observations in relation to potential land contamination within the proposal area (refer to Appendix A and Figure 6-1):

- The former Morisset Golf and Bowling Clubhouse south of the proposal area along Dora Street was fenced off for renovations or demolition and appeared to be in decent condition given the age of the building. It is suspected that the building was constructed (or partially constructed) of Asbestos Containing Material (ACM).
- Two operational service stations (7-Eleven and Ampol) north of the proposal area along Dora Street were observed to be in good condition with no observable odours or staining that would be associated with service stations. An Ampol worker was able to confirm that the service station had been operational since 2012 and that there has been no major spillages or leaks that they were aware of. The Ampol worker also confirmed that the underground petroleum storage systems and associated underground fuel infrastructure has not been replaced since the original construction. The general topography in this area is sloping to the south-west.
- The construction site associated with the Cedar Mill event site development south of the proposal area along Dora Street had evidence of scouring from erosion, however the topography at the location was sloping southwards away from the proposal area.
- The Hanson concrete batching plant (the location of ancillary facility AF3) on the south-western corner of the Mandalong Road/Freemans Drive/Dora Street/Wyee Road intersection was observed to be in good condition with no dust or mud trails leaving the site which is often observed at such sites.
- The construction site for the retail estate development north of the proposal area along Gimberts Road had evidence of scouring from erosion. The topography is sloping to the north-west. Some construction materials were observed along the fenceline.
- The Ausgrid substation north of the proposal area along Mandalong Road appeared to be in good condition and no signs of staining was observed. Vegetation surrounding the substation was generally in good condition. The site inspection was limited to observations made from the substation site fence.
- Evidence of illegal dumping and stockpiles was noted along Freemans Drive at the location of ancillary facility AF1 (at the north-eastern corner of the Mandalong Road/Freemans Drive/Dora Street/Wyee Road intersection) and ancillary facility AF2 (at the north-western corner of the Mandalong Road/Freemans Drive/Dora Street/Wyee Road intersection), and along Gimberts Road adjacent to the proposal area.

6 Areas of environmental interest

Six potential AEIs have been identified in the study area during the desktop information review. The potential AEIs are summarised in Table 6-1 and shown in Figure 6-1.

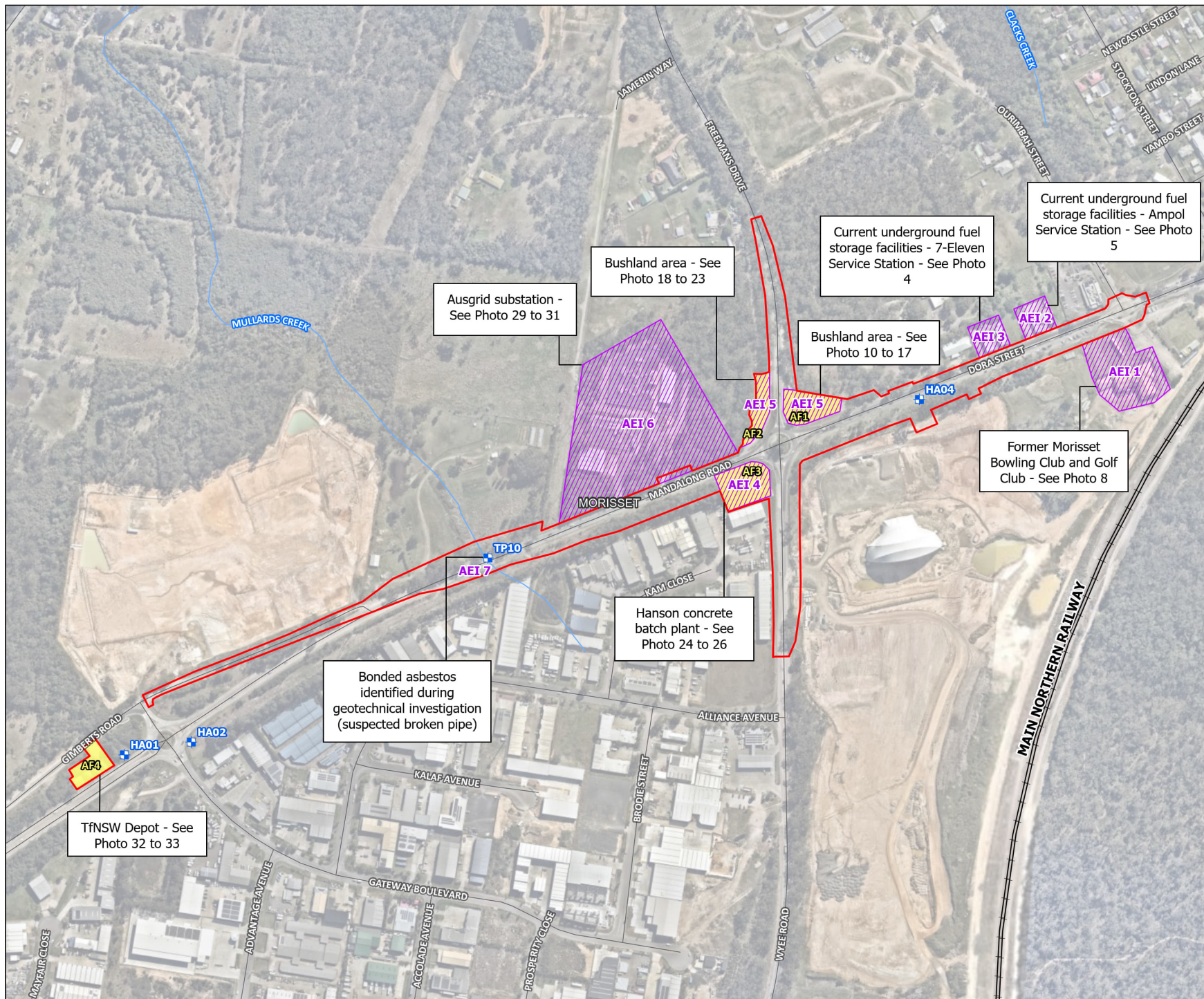
Table 6-1 Potential areas of environmental interest

ID	Potential AEI	Location	Potential contamination source	Contaminant of concern ¹	Potential impact	Construction activity proposed at AEI location	Notes
AEI 1	Former Morisset Country Club (clubhouse, bowling greens and golf course), 126 Dora Street, Morisset	Outside proposal area. Adjacent to proposal area along Dora Street.	Old construction materials, usage of herbicides and pesticides, fertilisers, storage of chemicals.	Heavy metals, asbestos, TRH/BTEXN, PAHs, pesticides and herbicides.	Soil and/or groundwater (anticipated 5 to 7 mbgl) may be impacted.	Nearby excavation, vegetation clearing, vehicle movement, temporary stockpiling and utilities works.	During the site inspection, the clubhouse was fenced off and under renovation/demolition works. Due to the age of the clubhouse, asbestos is likely to be present within building materials.
AEI 2 AEI 3	Current underground fuel storage facilities: — Ampol Service Station, 125 Dora Street, Morisset, (Lot 1 DP 1163044). — 7-Eleven Service Station, 133 Dora Street, Morisset (Lot 1 DP 1245209)	Outside proposal area. Adjacent to proposal area along Dora Street.	Underground fuel storage and dispensing.	TRH/BTEXN, PAHs, lead.	Soil and/or groundwater (anticipated 5 to 7 mbgl) may be impacted.	— general earthworks — excavation of trenches for new stormwater lines, up to 1.8 m deep — pavement works — utility relocations.	Service station sites are located upgradient of the proposal area. During the site inspection, both service stations were in good condition with no obvious signs of contamination. No known notifications of contamination have been made to the NSW EPA from either site.

ID	Potential AEI	Location	Potential contamination source	Contaminant of concern ¹	Potential impact	Construction activity proposed at AEI location	Notes
AEI 4	Concrete batching plant (operated by Hanson), 9 Mandalong Road, Morisset	Within proposal area. Location of ancillary facility AF3.	Dust, surface water run-off, and chemical storage from cement activities.	Fuels (TRH), cement (high alkalinity). Fly ash, iron and sulphur oxides and silica.	Risk of exposure to high alkaline soils and silica during shallow earthworks.	<ul style="list-style-type: none"> — demolition works (concrete slabs and site shed) — general earthworks — utility relocations — pavement works. 	<p>The site inspection was limited to observations from the property boundary.</p> <p>During the site inspection, the site appeared to be in good condition with no visible signs of contamination. Water was being used to subdue dust. Chemicals were stored adequately in a bunded area.</p> <p>The site is de-licensed, formerly regulated by the NSW EPA (Notice number – 103545).</p> <p>All buildings and structures on this site (except the concrete slabs and site shed) will be demolished and removed prior to construction of the proposal.</p>
AEI 5	Bushland area (along Freemans Drive, Mandalong Road and Dora Street)	Within proposal area. Location of ancillary facilities AF1 and AF2.	Potential for dumped domestic waste material.	TRH/BTEXN, oil and grease, heavy metals, PAH, asbestos.	Surface soils may be impacted by waste materials.	<ul style="list-style-type: none"> — general earthworks up to 1 m deep — pavement works — utility relocations. 	<p>The site inspection was limited to areas immediately adjacent to the existing road.</p> <p>During site inspection signs of illegal roadside dumping were recorded.</p> <p>Contamination observed to be present during site inspection presents a contamination risk to the proposal.</p>

ID	Potential AEI	Location	Potential contamination source	Contaminant of concern ¹	Potential impact	Construction activity proposed at AEI location	Notes
AEI 6	Ausgrid substation, 20 Mandalong Road, Morisset	Outside proposal area. Adjacent to proposal area along Mandalong Road.	Transformers, storage of chemicals.	PCBs, heavy metals, TRH/BTEXN, PAHs.	Soil and/or groundwater (anticipated 5 to 7 mbgl) may be impacted.	Local utility connections.	The site inspection was limited to observations from the property boundary. The substation site is located upgradient of the proposal area. During the site inspection, the site was in good condition with no visible signs of contamination.
AEI 7	Asbestos find at investigation location TP10	Within proposal area. Located near Mullards Creek beneath the existing road.	Possibly from redundant utilities.	Bonded asbestos	Risk of exposure to asbestos fibres during shallow earthworks.	— general earthworks — utility relocations — pavement works.	The borehole logs indicate the identified asbestos was from a broken pipe, possibly from redundant utilities.

- (1) TRH – total recoverable hydrocarbon
BTEXN – Benzene, Toluene, Ethyl benzene, Xylenes (ortho and meta/para) and Naphthalene
PAHs – polycyclic aromatic hydrocarbons
PCB – polychlorinated biphenyl.



Mandalong Road Upgrade

Figure 6-1
Areas of Environmental Interest

Legend

- Proposal area
- Ancillary facility
- Watercourse
- Road
- Railway
- + Test locations
- Area of environmental interest (AEI)



0 110 220
Metres

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3

1:4,500 Date: 8/11/2024

Data sources: WSP, Neimap, NSWSS

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7 Conceptual Site Model

The conceptual site model (CSM) is a key component of contaminated site assessment and provides the framework for identifying how potential receptors may be exposed to contamination from previous or current site sources. For an ecological or human health risk from contamination to be present, there must be a possible pollutant linkage between the source of contamination and a receptor by means of a transport mechanism (pathway).

In the CSM assessment, where the data confirms that the contamination has impacted the receptor (i.e. the pathway is proven to have occurred) the pollutant linkage is referred to as a complete exposure pathway. The potential contaminants of concern associated with the identified AEI's is presented in Table 6-1 above. The potential receptors include:

- construction/maintenance workers
- terrestrial ecosystems (associated recreational open space and conservation areas)
- aquatic ecosystems (including Mullards Creek)
- users of registered groundwater bores (including water supply)
- off-site land users (including recreational, residential and recreational land use).

A preliminary CSM identifying potential contamination sources, receptors and exposure pathways is provided in Table 7-1 below.

7.1 Construction impacts

The risk of disturbing or encountering contaminated material during construction varies depending on the extent and type of contamination and the nature of the construction work being undertaken (described in Table 6-1 above). Based on the available information, a preliminary risk rating has been assigned to each area of contamination concern and construction activity, based on the potential for the activity to cause exposure of sensitive receivers to contamination. This information is presented in Table 7-1 below.

7.1.1 Ancillary facilities

Four ancillary facilities have been identified for the proposal. Use of ancillary facilities would generally include:

- site office
- worker amenities
- equipment and materials storage
- temporary stockpiling of excavated or imported material
- storage tanks for water derived from dewatering activities
- chemical and fuel storage
- storage of construction plant and parking for light and heavy vehicles.

Ancillary facilities AF1 and AF2 are located either side of Freemans Drive and are currently vacant areas adjacent to vegetated areas. The sites are currently used for informal parking for trucks and other vehicles and mobile food vendor business purposes (food truck). Illegal dumping was identified at ancillary facilities AF1 and AF2 (AEI 5) during the site inspection. Potential impacts from hazardous material and fuel and oil spills could be present. Ancillary facility AF3 (AEI 4) is currently a concrete batching plant, which has potential risks of contamination from current and historical activities. All buildings and structures on this site (except the concrete slabs and site shed) will be demolished and removed prior to construction of the proposal. Ancillary facility AF4 is currently used by Transport as a maintenance and storage facility for road works. There is currently no baseline data available on the contamination status of the soils at the

proposed ancillary facilities. With the exception of potential asbestos and based on the current and historical activities, it is considered that risks from potential contamination in soils are low, if soils are not disturbed.

7.1.2 Risk assessment

Construction activities, including excavation activities, spoil management, vegetation clearing, vehicle movement, pavement works, drainage and utility works, have the potential to disturb the soil and groundwater (if encountered). However, groundwater is likely to be located at depths between 5 and 7 mbgl, and is not likely to be intercepted during excavation during construction (up to 1.8 metres deep).

A construction phase impact assessment is provided in Table 7-1 which aims to identify potential contamination impacts based on the likely construction methodology.

Potential impacts associated with these contamination risks during construction include:

- interaction with potentially contaminated soils and groundwater as a result of ground disturbance, including disturbance and potential migration/mobilisation of contaminants
- release of potentially contaminated groundwater if construction activities such as trenching and drainage works intercept groundwater and de-watering is required
- contamination of soils due to disturbance of materials containing hazardous substances (including asbestos pipes)
- direct contact and inhalation of contaminated soil, illegally dumped material and groundwater by site workers where construction activities result in the exposure of existing contamination
- managing and disposal of contaminated soils encountered during construction in areas where existing contamination is present.

Mitigation measures are proposed to minimise, mitigate and manage potential impacts (as relevant) which would be included in a construction environmental management plan (CEMP). The following risk categories have been assigned:

- negligible risk: no management required
- low risk: unlikely contamination source identified; impact can be managed by implementing standard construction management practices or work, health and safety controls in accordance with relevant guidelines
- medium risk: possible contamination source identified; contamination specific management plans and/or controls are required
- high risk: likely contamination source identified; health/ecological risk assessment and/or engineered controls and/or environmental/health monitoring are required.

7.2 Operational impacts

The day-to-day future use of the proposal would not result in exposure of users to potentially contaminated soil or groundwater.

The primary operational impact related to the proposal is the potential contamination of soil, surface water and groundwater arising from occasional vehicle accidents, leaks and spills on the roadway. State emergency services would be responsible for the management of spills and leaks associated with vehicle accidents.

Table 7-1 Contamination risks during construction

Area of environmental interest	Construction activity	Construction impact (if unmitigated)	Likelihood	Consequence	Preliminary risk evaluation	Mitigation
AEI 1: Former Morisset Country Club (clubhouse, bowling greens and golf course), 126 Dora Street, Morisset Immediately south of proposal area along Dora Street.	Nearby excavation, vegetation clearing, vehicle movement, temporary stockpiling and utilities works.	Contaminants include hydrocarbons, heavy metals, PAHs pesticides, herbicides and asbestos. If not managed appropriately, disturbance/reuse of contaminated soil could result in the following exposure scenarios which have the potential to impact on human health and/or the environment: <ul style="list-style-type: none">— direct contact, ingestion and inhalation by construction workers— off-site transport of contaminants via vehicle/plant movements— risk of dust exposure to construction workers— potential vapour intrusion into service trenches and excavations— surface water run-off and discharge into the receiving environment.	Low to medium potential for contaminants to be present.	Site soils unlikely to be disturbed during construction. Historic pesticide and herbicide usage unlikely to impact proposal due to being downgradient of proposal area.	Low	Implementation of a CEMP, including an unexpected finds protocol.
AEI 2 and AEI 3: Current underground fuel storage facilities Ampol Service Station, 125 Dora Street, Morisset, (Lot 1 DP 1163044). 7-Eleven Service Station, 133 Dora Street, Morisset (Lot 1 DP 1245209) Immediately north of proposal area along Dora Street.	Nearby excavation, vegetation clearing, vehicle movement, temporary stockpiling and utilities works.	Contaminants include hydrocarbons, PAHs, lead. If not managed appropriately, disturbance/reuse of contaminated soil and groundwater could result in the following exposure scenarios which have the potential to impact on human health and/or the environment: <ul style="list-style-type: none">— direct contact, ingestion and inhalation by construction workers— off-site transport of contaminants via vehicle/plant movements— risk of dust exposure to construction workers— potential vapour intrusion into service trenches and excavations— incidental groundwater discharge into receiving environment (aquatic and terrestrial ecosystems)— surface water run-off and discharge into receiving environment.	Low to medium potential for contaminants to be present.	Site soils unlikely to be disturbed during construction. Excavation of trenches for new stormwater lines, up to 1.8 m depth unlikely to interact with groundwater (anticipated at 5 to 7 mbgl).	Low	Implementation of a CEMP, including an unexpected finds protocol.
AEI 4: Concrete batching plant (operated by Hanson), 9 Mandalong Road, Morisset Location of ancillary facility AF3.	Demolition of concrete slabs and site shed, operation of ancillary facility AF3, excavation, vegetation clearing, vehicle movement, temporary stockpiling and utilities works.	Anticipated contaminants of concern include hydrocarbons, cement (High alkalinity), fly ash, iron and sulphur oxides and silica. If not managed appropriately, disturbance/reuse of contaminated soil could result in the following exposure scenarios which have the potential to impact on human health and/or the environment: <ul style="list-style-type: none">— exposure to high alkaline soils and silica during shallow earthworks— direct contact, ingestion and inhalation by construction workers— off-site transport of contaminants via vehicle/plant movements— risk of dust exposure to construction workers— surface water run-off and discharge into receiving environment.	Low to medium potential for contaminants within the AEI.	Exposure pathway complete during construction (without the implementation of appropriate controls). Risks from potential contamination in soils are low, if soils are not disturbed.	Low to medium	Implementation of a CEMP, including an unexpected finds protocol. Occupational hygiene monitoring during any significant disturbance.

Area of environmental interest	Construction activity	Construction impact (if unmitigated)	Likelihood	Consequence	Preliminary risk evaluation	Mitigation
AEI 5: Bushland area Within and surrounding proposal area along Freemans Drive, Mandalong Road and Dora Street.	Operation of ancillary facilities, vegetation clearing, excavation, vehicle movement, temporary stockpiling and utilities works.	Anticipated contaminants of concern include hydrocarbons and asbestos. Hazardous materials may also be present from illegal dumping observed during site inspection. If not managed appropriately, disturbance/reuse of contaminated soil could result in the following exposure scenarios which have the potential to impact on human health and/or the environment: — direct contact, ingestion and inhalation by construction workers — off-site transport of contaminants via vehicle/plant movements — risk of dust/asbestos fibre exposure to construction workers — surface water run-off and discharge into receiving environment.	Medium potential for contaminants within the AEI.	Exposure pathway complete during construction (without the implementation of appropriate controls).	Medium	Implementation of a CEMP, including an unexpected finds protocol.
AEI 6: Ausgrid substation, 20 Mandalong Road, Morisset. Immediately north of proposal area along Mandalong Road.	Nearby excavation, vegetation clearing, vehicle movement, temporary stockpiling and utilities works.	Contaminants include hydrocarbons, PAHs, PCBs and heavy metals. If not managed appropriately, disturbance/reuse of contaminated soil could result in the following exposure scenarios which have the potential to impact on human health and/or the environment: — direct contact, ingestion and inhalation by construction workers — off-site transport of contaminants via vehicle/plant movements — risk of dust exposure to construction workers — surface water run-off and discharge into receiving environment.	Low to medium potential for contaminants to be present.	Site soils unlikely to be disturbed during construction.	Low	Implementation of a CEMP, including an unexpected finds protocol.
AEI 7: Asbestos find at investigation Location TP10. Located near Mullards Creek beneath the existing road.	Excavation, vehicle movement, temporary stockpiling and utilities works.	Test pitting undertaken for geotechnical investigation (location TP10) (refer to Figure 6-1) indicates that underground asbestos containing pipes (likely associated with redundant utilities) are present within the proposal area (the extent of the underground pipework is unknown). If not managed appropriately, disturbance of asbestos containing material could result in the following exposure scenarios which have the potential to impact on human health: — off-site transport of contaminants via vehicle/plant movements — risk of dust/asbestos fibre exposure to construction workers.	Medium to high potential for localised contamination	Exposure pathway complete during construction (without the implementation of appropriate controls). Risks from potential contamination in soils are low, if soils are not disturbed.	Medium	Implementation of an asbestos management plan.

8 Environmental management

The safeguards and management measures for the management of potential contamination impacts are summarised in Table 8-1.

Table 8-1 Safeguards and management measures

Impact	Environmental safeguard	Responsibility	Timing
Contamination	Complete a Detailed Site Investigation (Stage 2) contamination investigation and report to review and confirm any medium to high AEIs that are rated with a medium to high risk in the Preliminary Site Investigation (Stage 1).	Contractor	Detailed design
Contamination and asbestos	<p>A Contamination Land Management Plan (CLMP) will be developed and implemented in accordance with relevant NSW EPA guidelines, Australian Standards and relevant industry codes of practice. Waste classification and testing of materials, potentially contaminated soils and illegally dumped materials will be carried out in accordance with NSW EPA Waste Classification Guidelines (NSW EPA, 2014). The CLMP will demonstrate the implementation of the recommendations of the DSI.</p> <p>All identified contaminated materials will be cleared prior to topsoil stripping activities.</p> <p>The plan will also include an asbestos management procedure to manage asbestos and asbestos containing material if encountered during the construction. The asbestos procedure will include:</p> <ul style="list-style-type: none"> — identification of potential asbestos on site — procedures to manage and handle asbestos, if encountered during construction — procedures for disposal of asbestos in accordance with procedures for disposal of hazardous materials in accordance with NSW EPA guidelines, Australian Standards and relevant industry code of practice. 	Contractor	Construction
Potential contamination at ancillary facilities	<p>A pre-construction land assessment shall be undertaken in accordance with Transport's Management of waste on Residual Land Procedure (Transport for NSW, 2023f), additional contamination assessment will be undertaken before establishment of ancillary facilities, as part of a pre-construction land assessment. The assessment will include a review of risks and remediation activities from past land use, including any activities from Transport use as an ancillary facility for other proposals.</p> <p>A post-construction land assessment will be completed upon vacation of the ancillary facilities to ensure land has not been contaminated during use of the ancillary facilities.</p>	Contractor	Construction

Impact	Environmental safeguard	Responsibility	Timing
Unidentified contamination	<p>An unexpected contamination finds procedure will be included in the CLMP. This procedure will be prepared in accordance with Transports An unexpected contamination finds procedure will be included in the CLMP. This procedure will be prepared in accordance with Transport's Guideline for the Management of Contamination (Transport for NSW, 2013).</p> <p>The procedure will outline the appropriate management protocols to be followed in the event of potential contamination being found during construction activities, including odours or visually contaminated materials.</p>	Contractor	Construction

9 Conclusion

This technical report documents the findings of a PSI carried out for the proposal. This assessment has been undertaken to determine the potential for contamination and provide recommendation on next steps in relation to contamination (if any).

The predominant land uses across the proposal area include infrastructure, commercial, industrial, recreational and agricultural land uses. Historical aerial imagery indicate that prior to 2002, the study area predominantly consisted of cleared bushland and residential properties, with the Morisset Country Club, bowling green and golf course and concrete batching plant developed circa 1984. In 2002, significant land clearing is observed to the south of the proposal area with the industrial estate to the south of Mandalong Road (Morisset Business Park) under development. By 2014, two service stations (Ampol and 7-Eleven) and an Ausgrid substation had been constructed to the north of Mandalong Road.

The site inspection indicated that widespread contamination across the proposal area is unlikely to be present, noting that the study area was largely undeveloped until circa 2002.

This assessment has identified six specific AEIs across and close to the proposal area. The identified AEIs present low to high risks of soil and groundwater contamination impacts during construction.

A high risk of contamination is associated with underground asbestos containing pipes encountered within the proposal area during previous geotechnical investigations by Transport. The extent of the asbestos containing pipes is unknown.

Medium risks of contamination are associated with:

- illegal dumping in bushland areas, due to potential exposure to hazardous waste material, including asbestos
- the Hanson concrete batching plant, due to potential exposure to high alkaline soils and silica during shallow earthworks. All buildings and structures on the site (except the concrete slabs and site shed) will be demolished and removed prior to construction of the proposal
- disturbance of soils beneath the existing road near Mullards Creek during shallow earthworks, due to potential exposure to asbestos fibres.

Based on these findings, it is concluded that the potential for widespread/significant contamination to be present across the proposal area is low. Completion of a detailed site investigation, including preparation of a sampling analysis quality plan, is not warranted.

Potential contamination impacts during construction and operation of the proposal (in terms of both causing contamination or creating impacts as a result of existing contamination sources) are expected to be limited and the use of typical mitigation measures shall generally be adequate to manage risk. Unidentified localised contamination should be managed under an unexpected finds protocol. Mitigation and managements measures identified for the proposal include:

- hazardous building material assessment (including utility assets) to be completed and reported on prior to works
- land condition assessments of ancillary facilities before and after construction
- clearance of illegal waste materials recorded during land condition assessments
- protocols for the effective management of hazardous building materials (including asbestos pipes), contaminated soil and water (if identified)
- implementation of an unexpected finds protocol during construction.

10 Glossary

Term	Description
Alluvial	Sediments deposited by flowing water.
Aquifer	Rock or sediment in a formation, group of formations or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.
Bore	Artificially constructed or improved groundwater cavity used for the purpose of accessing or recharging water from an aquifer. Interchangeable with borehole, piezometer.
Borehole	Includes a well, excavation, or other artificially constructed or improved groundwater cavity which can be used for the purpose of intercepting, collecting or storing water from an aquifer; observing or collecting data and information on water in an aquifer; or recharging an aquifer. Interchangeable with bores, wells, piezometers.
CLM Act	<i>Contaminated Land Management Act 1997</i>
Detailed design	The stage of design where proposal elements are designed in detail, suitable for construction.
Discharge	The rate of flow of water measured in terms of volume per unit time, for example, cubic metres per second. Discharge is different from the speed or velocity of flow, which is a measure of how fast the water is moving (e.g. metres per second).
Earthworks	All operations involved in loosening, excavating, placing, shaping and compacting soil or rock.
Formation	General term used to describe a sequence of rock layers.
Groundwater	Water found in the subsurface in the saturated zone below the water table or piezometric surface i.e. the water table marks the upper surface of groundwater systems.
Groundwater flow	The movement of water through openings and pore spaces in rocks below the water table i.e. in the saturated zone.
Study area	The wider area including and surrounding the proposal, with the potential to be directly or indirectly affected by the proposal. For use within the contamination assessment, it incorporates a 1,000 m buffer surrounding the proposal area.
Impact	An event that disrupts ecosystem, community, or population structure and alters the physical environment, directly or indirectly.
NEPM 2013	<i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> as amended in 2013
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Proposal	Upgrades to Mandalong Road between Gimberts Road and Ourimbah Street, Morisset
Proposal area	Refers to the area that would be directly impacted by the proposal comprising the construction area of the proposal and any other areas that would be temporarily disturbed, including ancillary facilities.
Salinity	The concentration of dissolved salts in water, usually expressed in EC units or milligrams of total dissolved solids per litre (mg/L TDS).

Term	Description
Sensitive receptors	Land uses, landscape features and activities that are sensitive to changes in the environment such as water quality and quantity, noise, vibration, air and visual impacts. Sensitive receivers may include aquatic ecosystems, aquaculture areas, residential dwellings, schools and recreation areas.
Site compound	An area used as the base for construction activities, usually for the storage of plant, equipment and materials, and/or construction site offices and worker facilities.
Water table	The surface in an unconfined aquifer or confining bed at which the pore water pressure is atmospheric; it can be measured by installing shallow wells extending a few feet into the zone of saturation and then measuring the water level in those wells.

11 Abbreviations

Acronym	Description
ACM	Asbestos containing materials
AEI	Area of Environmental Interest
ASS	Acid sulfate soils
BTEXN	Benzene, Toluene, Ethyl benzene, Xylenes (ortho and meta/para) and Naphthalene
CEMP	Construction environmental management plan
DAWR	Department of Agriculture and Water Resources
DP	Deposited plan
LEP	Local environmental plan
m	metres
mAHD	metres relative to Australian Height Datum
mbgl	metres below ground level
NEPM	National Environment Protection Measure
NSW EPA	NSW Environmental Protection Authority
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PFAS	Per and poly fluoro alkyl substances
PSI	Preliminary site investigation
TRH	Total Recoverable Hydrocarbon
UXO	Department of Defence unexploded ordnance

12 References

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Appendix A

Site inspection photos


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722



Photo No.	Date	
1.	20 August 2024	
Description Looking southwest along Mandalong Road from the footpath near NovaCare.		

Photo No.	Date	
2	020 August 2024	
Description General view of the ongoing construction at Cedar Mill.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
3	020 August 2024	
Description Looking eastwards along Mandalong Road from the footpath near NovaCare.		



Photo No.	Date	
4	020 August 2024	
Description General view of the 7-Eleven service station forecourt.		


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	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
5	020 August 2024	
Description General view of the Ampol service station forecourt.		

Photo No.	Date	
6	020 August 2024	
Description General view of SW08 and water flowing over the road evident.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722


Photo No.	Date	
7	020 August 2024	
Description General view of the vacant lot between the Ampol service station and McDonalds.		

Photo No.	Date	
8	020 August 2024	
Description General view of the old bowling/golf club under renovation or demolition. Site is fenced off.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No. 9	Date 020 August 2024
Description General view of the stormwater drainage the Ampol service station.	



Photo No.	Date	
10	020 August 2024	
Description		
General view of the vegetated area adjacent to Ancillary site 2.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
11	020 August 2024	
Description A small stockpile of unknown material within the vegetated area adjacent to Ancillary site 2.		

Photo No.	Date	
12	020 August 2024	
Description Another small stockpile of unknown material within the vegetated area adjacent to Ancillary site 2.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722


Photo No.	Date	
13	020 August 2024	
Description General view of the parking area at Ancillary site 2.		

Photo No.	Date	
14	020 August 2024	
Description A heavy vehicle (truck) parked at Ancillary site 2 during the site inspection.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722


Photo No.	Date	
15	020 August 2024	
Description Evidence of illegal dumping within the vegetated area at Ancillary site 2.		

Photo No.	Date	
16	020 August 2024	
Description Evidence of illegal dumping within the vegetated area at Ancillary site 2.		

A photograph showing a dirt path or road with several large, weathered wooden planks or logs lying across it. The surrounding area is overgrown with tall grass and weeds, suggesting a natural or semi-natural environment. The planks are scattered across the gravelly dirt surface, some partially buried under the vegetation. The scene is captured in bright daylight, with shadows cast across the ground.



	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
17	20 August 2024	
Description Another small stockpile of unknown material within the vegetated area adjacent to Ancillary site 2.		

Photo No.	Date	
18	20 August 2024	
Description General view of the side road running adjacent to Freemans Drive and north of Ancillary site 1.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
19	20 August 2024	
Description Evidence of illegal dumping within the vegetated area at Ancillary site 1.		

Photo No.	Date	
20	20 August 2024	
Description Gas main observed near Ancillary site 1.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722


Photo No.	Date	
21	20 August 2024	
Description A small stockpile of unknown material within the vegetated area adjacent to Ancillary site 1.		

Photo No.	Date	
22	20 August 2024	
Description Evidence of illegal dumping within the vegetated area at Ancillary site 1.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722


Photo No.	Date	
23	20 August 2024	
Description Stormwater drainage observed at Ancillary site 1.		

Photo No.	Date	
24	20 August 2024	
Description General view of the concrete batch plant that currently occupies where Ancillary site 3 is proposed.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722



Photo No.	Date	
25	20 August 2024	
Description General view of the material that is stored at the concrete batch plant.		

Photo No.	Date	
26	20 August 2024	
Description General view of the main structure of the concrete batch plant.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722



Photo No.	Date	
27	20 August 2024	
Description General view of Mandalong Road from the west side of the exiting round about at Freemans Drive and Wyee Road. The topography was observed to be sloping southwest.		

Photo No.	Date	
28	20 August 2024	
Description General view of the road base material along Mandalong Road adjacent to the Ausgrid substation.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
29	20 August 2024	
Description General view of the stormwater drainage adjacent to the Ausgrid substation.		

Photo No.	Date	
30	20 August 2024	
Description Signage out the front of the Ausgrid substation stating that it's a wildlife corridor for threatened flora and fauna.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
31	20 August 2024	
Description TfNSW depot where Ancillary site 4 is proposed to be located.		

Photo No.	Date	
32	20 August 2024	
Description Road base material (bitumen) stockpiled outside the TfNSW depot.		



	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
33	20 August 2024	
Description Drainage easement observed near the TfNSW depot.		

Photo No.	Date	
34	20 August 2024	
Description General view of the stormwater drainage observed near the TfNSW depot along Gimberts Road..		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
35	20 August 2024	
Description Signage of the retail estate currently being constructed near Gimberts Road.		

Photo No.	Date	
36	20 August 2024	
Description Construction are of the retail estate currently being constructed near Gimberts Road.		


	Photographic Log	
Client Name TfNSW	Site Location Mandalong Road Upgrade – Preliminary Site Investigation	Project No. PS213722

Photo No.	Date	
37	20 August 2024	<div data-bbox="574 421 1420 1048" data-label="Image">  </div> <div data-bbox="113 472 512 1102" data-label="Text"> <p>Description</p> <p>Construction materials observed during the site inspection outside of the fenced area at the retail estate under construction.</p> </div>

Appendix B

Lotsearch report



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 31 Jul 2024 09:33:45

Reference: LS059305 EP

Address: Mandalong Road Upgrade, Morisset, NSW 2264

Disclaimer:

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

Dataset Listing

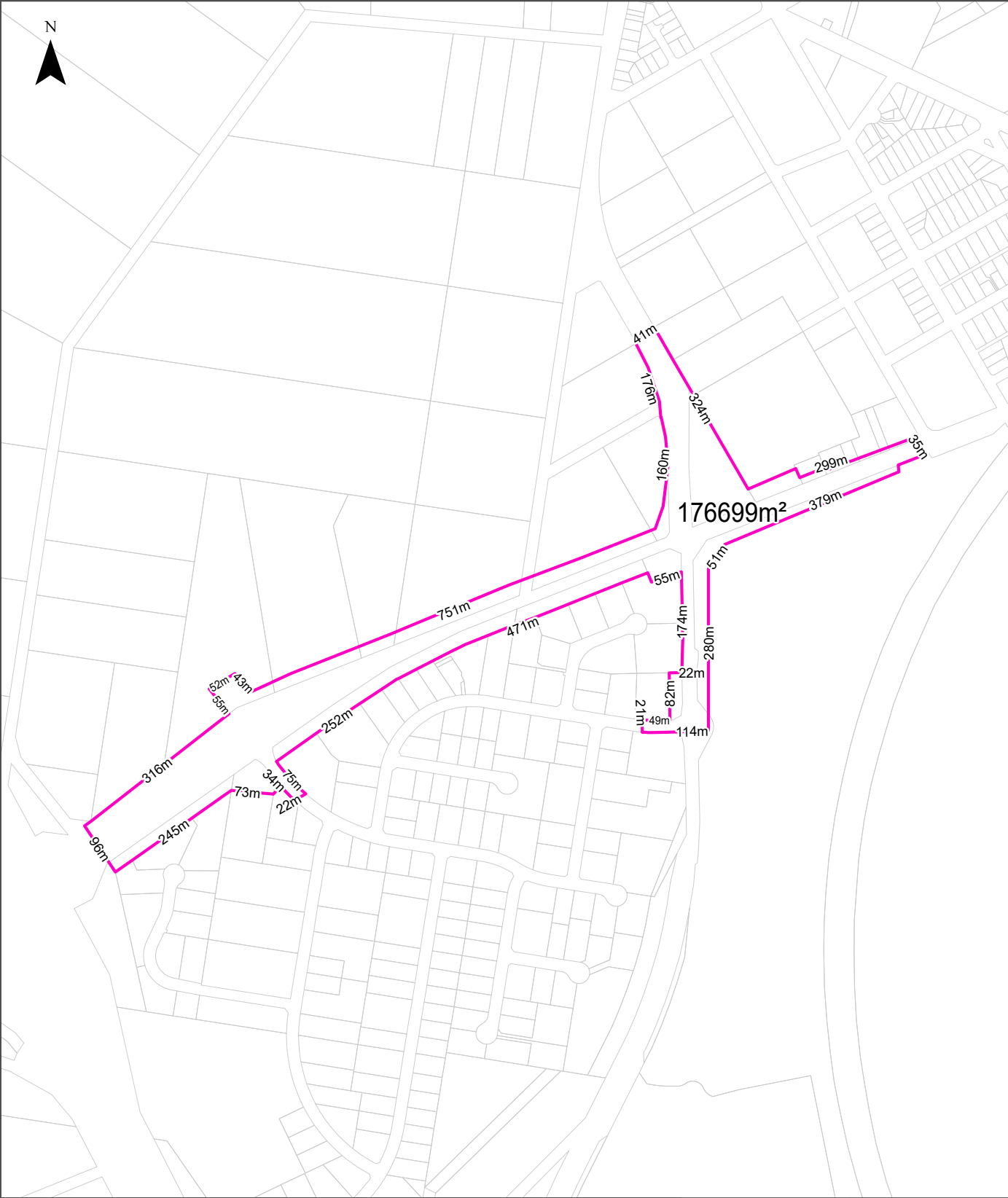
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	24/07/2024	24/07/2024	Quarterly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	21/05/2024	21/05/2024	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority NSW	30/07/2024	10/07/2024	Monthly	1000m	0	0	4
Contaminated Land Records of Notice	Environment Protection Authority NSW	30/07/2024	30/07/2024	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority NSW	28/04/2024	14/07/2021	Quarterly	1000m	0	0	0
Notices under the POEO Act 1997	Environment Protection Authority NSW	30/07/2024	30/07/2024	Monthly	1000m	0	0	3
National Waste Management Facilities Database	Geoscience Australia	29/04/2024	29/11/2022	Annually	1000m	0	0	2
National Liquid Fuel Facilities	Geoscience Australia	20/09/2023	07/09/2020	Annually	1000m	2	4	5
EPA PFAS Investigation Program	Environment Protection Authority NSW	18/07/2024	14/06/2024	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Australian Department of Defence	18/07/2024	29/02/2024	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Australian Department of Defence	18/07/2024	29/02/2024	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	18/07/2024	18/07/2024	Monthly	2000m	0	0	0
Defence Controlled Areas	Australian Department of Defence	17/07/2024	17/07/2024	Quarterly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Australian Department of Defence	30/04/2024	02/09/2022	Quarterly	2000m	0	0	0
National Unexploded Ordnance (UXO)	Australian Department of Defence	17/07/2024	17/07/2024	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority NSW	13/11/2023	15/12/2022	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority NSW	22/07/2024	22/07/2024	Monthly	1000m	1	1	4
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority NSW	22/07/2024	22/07/2024	Monthly	1000m	1	1	1
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority NSW	22/07/2024	22/07/2024	Monthly	1000m	3	3	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	5	5	5
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	22	27
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	-	1	1
Points of Interest	NSW Department of Customer Service - Spatial Services	18/07/2024	18/07/2024	Quarterly	1000m	0	6	41
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	18/07/2024	18/07/2024	Quarterly	1000m	0	0	1
Tanks (Points)	NSW Department of Customer Service - Spatial Services	18/07/2024	18/07/2024	Quarterly	1000m	0	0	3
Major Easements	NSW Department of Customer Service - Spatial Services	06/05/2024	06/05/2024	Quarterly	1000m	3	6	20
State Forest	Forestry Corporation of NSW	12/12/2023	11/12/2023	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Geoscience Australia	17/04/2024	19/08/2019	Annually	1000m	1	1	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Climate Change, Energy, the Environment and Water	28/05/2024	23/02/2018	Quarterly	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	28/05/2024	20/06/2023	Annually	2000m	1	2	16
NSW Seamless Geology Single Layer: Rock Units	NSW Department of Regional NSW	06/12/2023	31/05/2023	Annually	1000m	2	3	7
NSW Seamless Geology Single Layer: Trendlines	NSW Department of Regional NSW	06/12/2023	31/05/2023	Annually	1000m	6	6	84
NSW Seamless Geology Single Layer: Geological Boundaries and Faults	NSW Department of Regional NSW	06/12/2023	31/05/2023	Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Department of Regional NSW	26/04/2024	14/03/2024	Annually	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	12/01/2024	17/02/2011	Annually	1000m	1	1	2
Soil Landscapes of Central and Eastern NSW	NSW Department of Climate Change, Energy, the Environment and Water	12/12/2023	27/07/2020	Annually	1000m	1	2	6
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Housing and Infrastructure	08/07/2024	03/05/2024	Monthly	500m	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	12/01/2024	21/02/2013	Annually	1000m	1	1	3
Dryland Salinity - National Assessment	Australian Bureau of Agricultural and Resource Economics and Sciences	03/06/2024	24/05/2024	Annually	1000m	0	0	0
Mining Subsidence Districts	NSW Department of Customer Service	03/05/2024	03/05/2024	Quarterly	1000m	1	1	2
Current Mining Titles	NSW Department of Regional NSW	22/07/2024	22/07/2024	Monthly	1000m	2	2	6
Mining Title Applications	NSW Department of Regional NSW	22/07/2024	22/07/2024	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Regional NSW	22/07/2024	22/07/2024	Monthly	1000m	9	9	12
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Housing and Infrastructure	08/07/2024	08/09/2023	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Housing and Infrastructure	08/07/2024	01/07/2024	Monthly	1000m	8	12	54
Commonwealth Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	20/10/2023	13/04/2022	Annually	1000m	0	0	0
National Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	20/10/2023	13/04/2022	Annually	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	29/07/2024	05/07/2024	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Housing and Infrastructure	08/07/2024	28/06/2024	Monthly	1000m	0	0	6
Bush Fire Prone Land	NSW Rural Fire Service	22/07/2024	12/03/2024	Monthly	1000m	3	4	4
NSW Native Vegetation Type Map	NSW Department of Climate Change, Energy, the Environment and Water	28/05/2024	30/11/2023	Quarterly	1000m	22	32	428
Ramsar Wetlands of Australia	Australian Department of Climate Change, Energy, the Environment and Water	16/05/2024	11/04/2024	Annually	1000m	0	0	0
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Terrestrial	Australian Department of Climate Change, Energy, The Environment and Water	04/03/2024	30/06/2022	Annually	1000m	0	0	0
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Marine	Australian Department of Climate Change, Energy, The Environment and Water	04/03/2024	30/06/2022	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	1	2	3
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	1	3	8
NSW BioNet Species Sightings	NSW Department of Climate Change, Energy, the Environment and Water	10/07/2024	10/07/2024	Monthly	10000m	-	-	-

Site Diagram

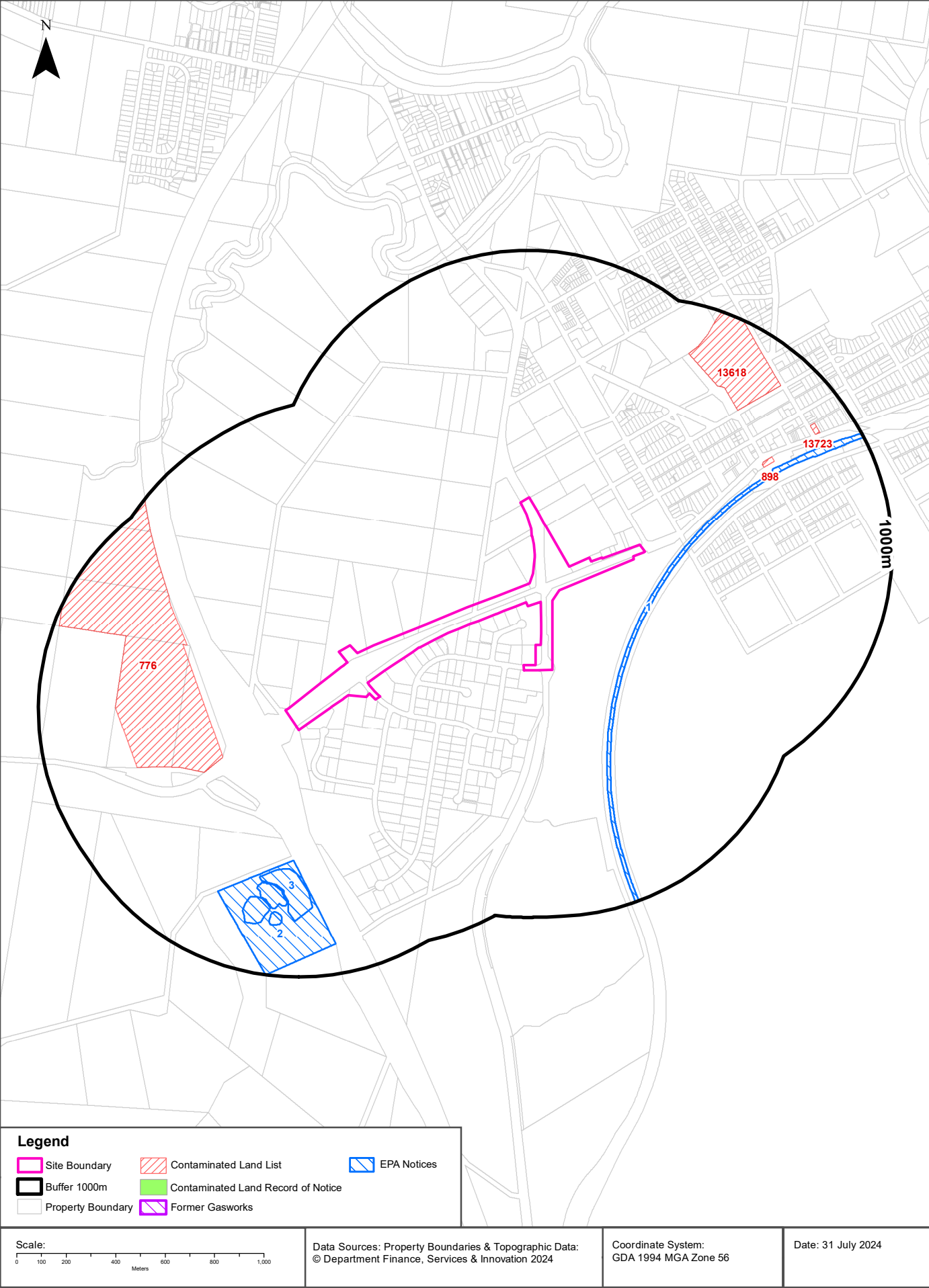
Mandalong Road Upgrade, Morisset, NSW 2264



Legend <div><div></div> Site Boundary</div> <div><div></div> Internal Parcel Boundaries</div>	Total Area: 176699m ² Total Perimeter: 4.82km <small>Disclaimers:</small> Measurements are approximate only and may have been simplified or smaller lengths removed for readability. Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.	Scale: <div><div></div><div>050100200300400500</div><div>Meters</div></div> <div>Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2024</div> <div><div>Coordinate System: GDA 1994 MGA Zone 56</div><div>Date: 31 July 2024</div></div>
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Contaminated Land

Mandalong Road Upgrade, Morisset, NSW 2264



Contaminated Land

Mandalong Road Upgrade, Morisset, NSW 2264

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
776	Mandalong Mine	Mandalong Road	Mandalong	Other Industry	Regulation under CLM Act not required	Current EPA List	Premise Match	303m	West
898	Railcorp Station Masters Cottage	24 Dora Street	Morisset	Unclassified	Regulation under CLM Act not required	Current EPA List	Premise Match	589m	North East
13618	Morisset High School	Bridge STREET	MORISSET	Unclassified	Regulation under CLM Act not required	Current EPA List	Premise Match	672m	North East
13723	Sanyog Holdings Pty Ltd	57 Dora STREET	MORISSET	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	834m	North East

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

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

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

Contaminated Land

Mandalong Road Upgrade, Morisset, NSW 2264

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

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

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

Former Gasworks

Former Gasworks within the dataset buffer:

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

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

Contaminated Land

Mandalong Road Upgrade, Morisset, NSW 2264

EPA Notices

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

Map ID	Number	Type	Name	Address	Status	Issued Date	Act	Offence	Offence Date	Loc Conf	Dist	Dir
1	3173530755	Penalty Notice	SYDNEY TRAINS	SYDNEY TRAINS, HAYMARKET, NSW 1238	Issued	10/11/2021	Protection of the Environment Operations Act 1997 - 64(1)	Contravene condition of licence - Corporation	31/05/2021	Network of Features	115m	East
2	1520836	s.91 Clean Up Notice	VINCI BROS. PTY LTD	17 Crooks Road, MANDALONG, NSW 2264	Issued	14/03/2014				Premise Match	528m	South West
3	1518177	s.91 Clean Up Notice	VINCI BROS. PTY LTD	17 Crooks Road, MANDALONG, NSW 2264	Issued	13/12/2013				Premise Match	562m	South West

NSW EPA Notice Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Waste Management & Liquid Fuel Facilities

Mandalong Road Upgrade, Morisset, NSW 2264



Legend

- Site Boundary
- Waste Management Facilities
- Buffer 1000m
- National Liquid Fuel Facilities
- Property Boundary

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

Data Sources: Property Boundaries & Topographic Data:
© Department Finance, Services & Innovation 2024

Coordinate System:
GDA 1994 MGA Zone 56

Date: 31 July 2024

Waste Management & Liquid Fuel Facilities

Mandalong Road Upgrade, Morisset, NSW 2264

National Waste Management Facilities Database

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

Map ID	Owner	Name	Address	Management Type	Facility Type	Status	Loc Conf	Dist	Dir
1	WOOLWORTHS	WOOLWORTHS SUPERMARKET	103 DORA STREET, MORISSET	DROP-OFF	SOFT PLASTICS DROP-OFF FACILITY	OPERATIONAL	Premise Match	392m	North East
2	COLES	COLES SUPERMARKET	35 YAMBO STREET, MORISSET	DROP-OFF	SOFT PLASTICS DROP-OFF FACILITY	OPERATIONAL	Premise Match	650m	North East

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

National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
5167	7-ELEVEN	7-ELEVEN MORISSET	133 DORA STREET	MORISSET	PETROL STATION	OPERATIONAL			Premise Match	0m	On-site
5980	CALTEX WOOLWORTHS	CALTEX WOOLWORTHS MORISSET	125 DORA STREET	MORISSET	PETROL STATION	OPERATIONAL			Premise Match	0m	On-site
5329	AMPOL	AMPOL MORISSET	5-11 BOULEVARD	MORISSET	PETROL STATION	OPERATIONAL			Premise Match	0m	South West
5594	BP	BP MORISSET	50 ALLIANCE AVENUE	MORISSET	PETROL STATION	OPERATIONAL			Premise Match	0m	South East
6715	METRO FUEL	METRO PETROLEUM MORISSET	57 DORA STREET	MORISSET	PETROL STATION	OPERATIONAL			Premise Match	834m	North East

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

PFAS Investigation & Management Programs

Mandalong Road Upgrade, Morisset, NSW 2264

EPA PFAS Investigation Program

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

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

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

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites and Unexploded Ordnance

Mandalong Road Upgrade, Morisset, NSW 2264

Defence Controlled Areas (DCA)

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

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

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

Defence 3 Year Regional Contamination Investigation Program (RCIP)

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

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

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

National Unexploded Ordnance (UXO)

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

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

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

EPA Other Sites with Contamination Issues

Mandalong Road Upgrade, Morisset, NSW 2264

EPA Other Sites with Contamination Issues

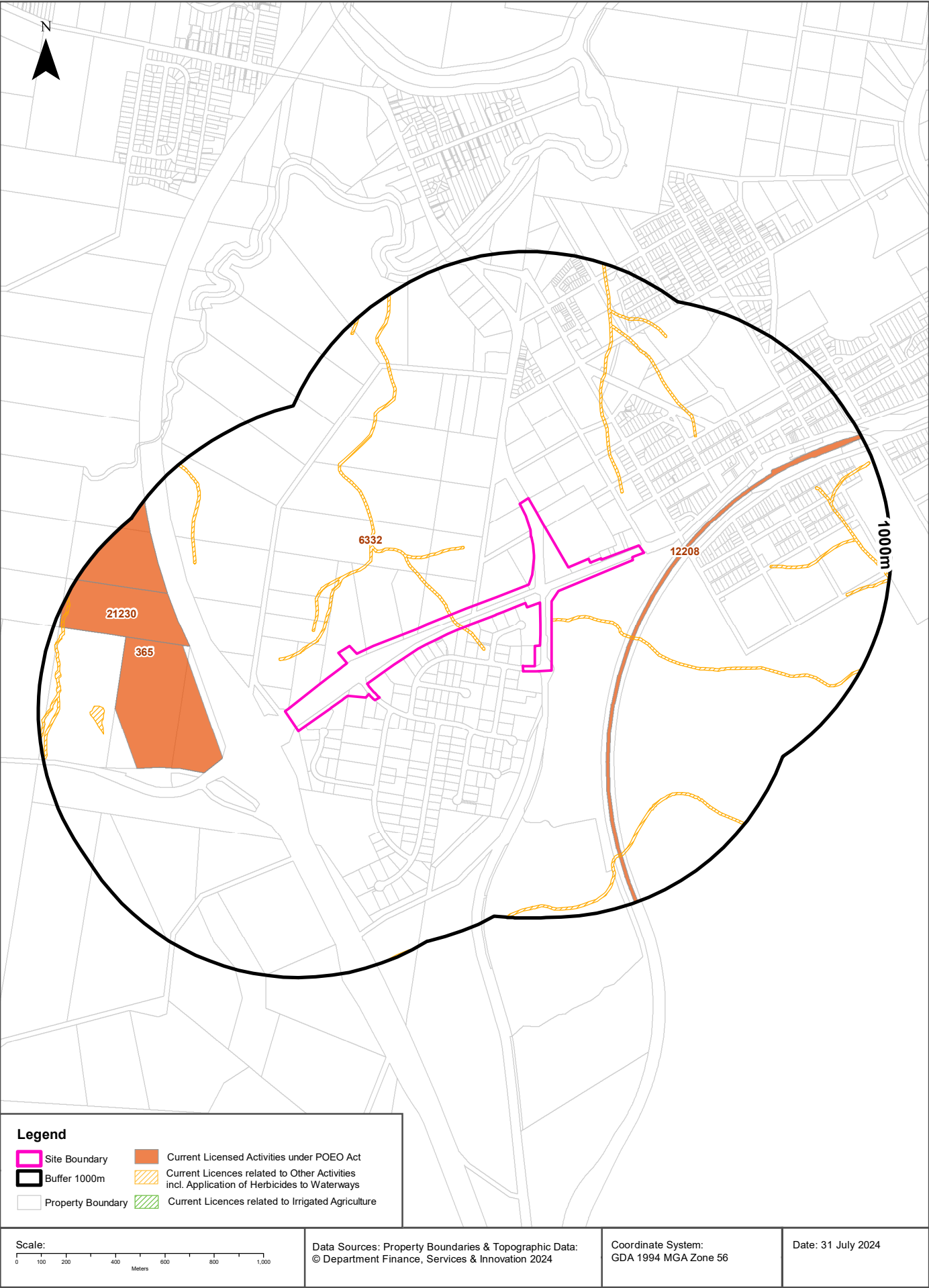
This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

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

Sites within the dataset buffer:

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

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



EPA Activities

Mandalong Road Upgrade, Morisset, NSW 2264

Licensed Activities under the POEO Act 1997

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

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
6332	LAKE MACQUARIE CITY COUNCIL	-	-	SPEERS POINT	Other activities	Network of Features	0m	On-site
12208	SYDNEY TRAINS		SYDNEY TRAINS, HAYMARKET, NSW 1238		Railway systems activities	Network of Features	115m	East
365	CENTENNIAL MANDALONG PTY LIMITED	MANDALONG MINE, COORANBONG COLLIERY AND DELTA COAL SERVICES SITE	KERRY ANDERSON DRIVE, GRADWELLS ROAD AND RUTLEYS ROAD, MANDALONG, WYEE AND, DORA CREEK, NSW 2264	DORA CREEK	Coal works	Premise Match	303m	West
21230	EDL HOLDINGS (AUSTRALIA) PTY LTD		LOT 5 KERRY ANDERSON DRIVE, MANDALONG, NSW 2264		Generation of electrical power from gas	Premise Match	468m	West

POEO Licence Data Source: Environment Protection Authority

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Delicensed & Former Licensed EPA Activities

Mandalong Road Upgrade, Morisset, NSW 2264



EPA Activities

Mandalong Road Upgrade, Morisset, NSW 2264

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
678	HANSON CONSTRUCTION MATERIALS PTY LTD	HANSON CONSTRUCTION MATERIALS PTY LTD	230 MANDALONG ROAD	MORISSET	Concrete works	Premise Match	0m	On-site

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

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

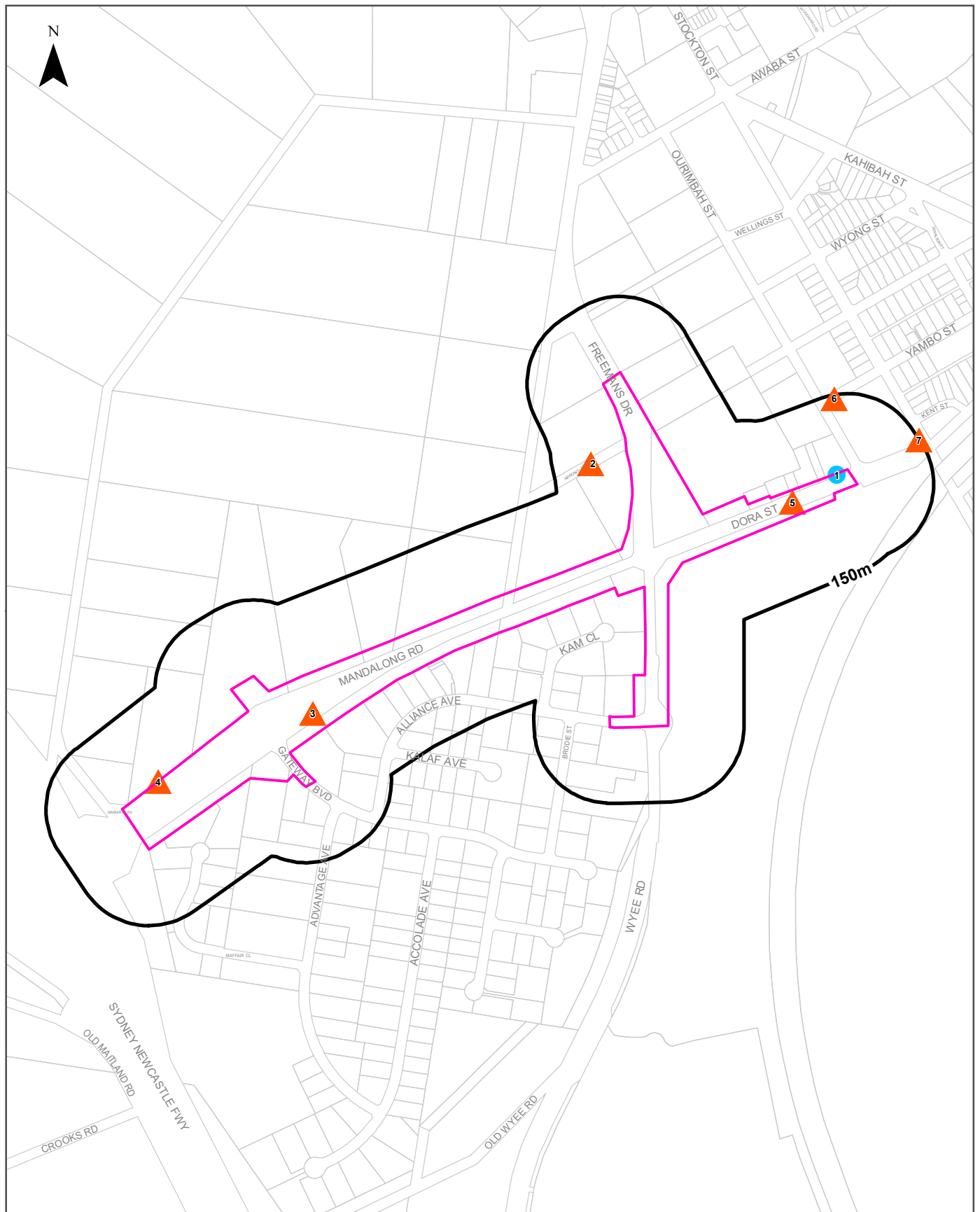
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	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

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

Historical Business Directories

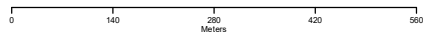
Mandalong Road Upgrade, Morisset, NSW 2264



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- ▲ Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale:



Coordinate System:
GDA 1994 MGA Zone 56

Date: 31 July 2024

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2024

Historical Business Directories

Mandalong Road Upgrade, Morisset, NSW 2264

Business Directory Records 1950-1991 Premise or Road Intersection Matches

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

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	NOT LISTED	Morisset Motor Body Repairs., 117 Dora St, Morisset 2264	79450	1991	Premise Match	0m	On-site
	NOT LISTED	Morisset Spare Parts., 117 Dora St, Morisset 2264	79498	1991	Premise Match	0m	On-site
	NOT LISTED	N.R.M.A Depot., 117 Dora St, Morisset 2264	79453	1991	Premise Match	0m	On-site
	NOT LISTED	Wilcock, J., Carrier, 119 Dora St., Morisset 2264	169174	1982	Premise Match	0m	On-site
	CARRIERS &/OR CARTAGE CONTRACTORS	Wilcock, J. M., 119 Dora St., Morisset 2264	637033	1970	Premise Match	0m	On-site

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Business Directory Records 1950-1991

Road or Area Matches

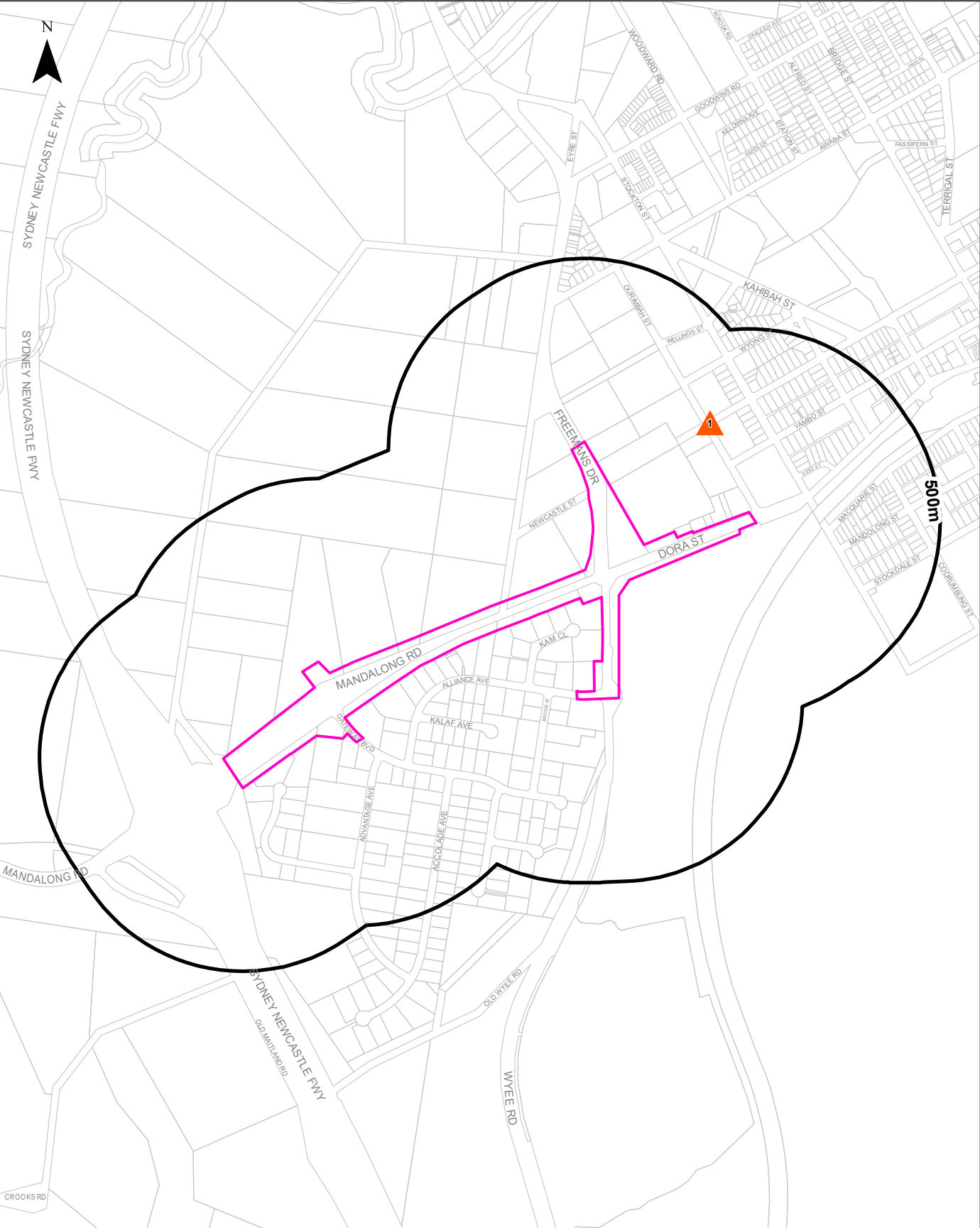
Potentially contaminative business activities extracted from Universal Business Directories from years 1991, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered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

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	NOT LISTED	Bi-Lo Cheap Groceries., Newcastle St, Morisset 2264	79329	1991	Road Match	0m
	MOTOR ACCESSORIES	Fennell, L. E., Newcastle St. Morisset	132735	1950	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Fennell, L. F., Newcastle St. Morisset	132736	1950	Road Match	0m
	MOTOR PAINTERS & PANEL BEATERS	Fennell, L. F., Newcastle St. Morisset	132737	1950	Road Match	0m
	TAXI PROPRIETORS	Fennell, L. F., Newcastle St. Morisset	132745	1950	Road Match	0m
	WELDERS	Fennell, L. F., Newcastle St. Morisset	132750	1950	Road Match	0m
	MOTOR ACCESSORIES	L. F. Fennell Newcastle Street, Morisset	132729	1950	Road Match	0m
	TAXI PROPRIETORS	O'Hara, J., Newcastle St. Morisset	132746	1950	Road Match	0m
3	NOT LISTED	Central Truck Rentals., 173 Mandalong Rd, Morisset 2264	79346	1991	Road Match	0m
	NOT LISTED	Morisset Turf., 173 Mandalong Rd, Morisset 2264	79513	1991	Road Match	0m
	NOT LISTED	Pioneer Concrete (N S W) Pty Ltd., Mandalong Rd, Morisset 2264	79475	1991	Road Match	0m
4	NOT LISTED	Grange Mobile Home Village The., Gimberts Rd, Morisset 2264	79402	1991	Road Match	0m
5	NOT LISTED	Morisset R.S.L & Country Club Ltd., Dora St, Morisset 2264	79481	1991	Road Match	0m
	MOTOR PAINTER & PANEL BEATERS	Morisset Motor Body Works, 167 Dora St., Morisset 2264	637067	1970	Road Match	0m
	MOTOR ACCESSORIES &/OR SPARE PARTS DEALERS .	Morisset Spare Parts, 165 Dora St., Morisset 2264	637064	1970	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	B.P. (Aust.) Limited., Dora St., Morisset	164023	1961	Road Match	0m
	ROAD TRANSPORT SERVICES-N.S.W.	Wilcock, J. M., Dora St., Morisset	164033	1961	Road Match	0m
	CYCLE DEALERS	Goodwin, E. C. (Agent, Speedwell Cycles), Dora St. Morisset	132719	1950	Road Match	0m
	SPORTS GOODS	Goodwin, E. C., Dora St. Morisset	132744	1950	Road Match	0m
	RADIO DEALERS &/OR SERVICEMEN	Goodwin, E. L., Dora St. Morisset	132741	1950	Road Match	0m
	BUTCHERS	McGavin, R. N. and Son, Dora St. Morisset	132716	1950	Road Match	0m
	TIMBER MERCHANTS	Wellings, N. E., Dora St. Morisset	132749	1950	Road Match	0m
6	BLACKSMITHS	Craft, L. J., Yambo St. Morisset	132715	1950	Road Match	131m
	BAKERS	Lean, C. A., Yambo St. Morisset	132714	1950	Road Match	131m
7	NOT LISTED	Lake Macquarie Caravan Park., Stockton St, Morisset 2264	79430	1991	Road Match	148m
	NOT LISTED	Atlas Building Supplies, Stockton St., Morisset 2264	169122	1982	Road Match	148m
	NOT LISTED	Brody Constructions Pty. Ltd., Stockton St., Morisset 2264	169125	1982	Road Match	148m

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Dry Cleaners, Motor Garages & Service Stations

Mandalong Road Upgrade, Morisset, NSW 2264



Legend		Scale:	Coordinate System:
Site Boundary	Business directory records mapped to a specific premise		GDA 1994 MGA Zone 56
Buffer 500m	Business directory records mapped to a road intersection		Date: 31 July 2024
Property Boundary	Business directory records mapped to a road corridor		
	Business directory records mapped to a general area		

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Property Boundaries © NSW Department Finance, Services & Innovation 2024

Historical Business Directories

Mandalong Road Upgrade, Morisset, NSW 2264

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						

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

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

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES & ENGINEERS	Fennell, L. F., Newcastle St. Morisset	132736	1950	Road Match	0m

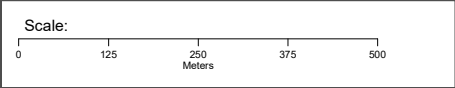
Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018



<p>Scale:</p> <p>0 125 250 375 500</p> <p>Meters</p>	<p>Data Source Aerial Imagery: © 2024 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.</p>	<p>Coordinate System:</p> <p>GDA 1994 MGA Zone 56</p>	<p>Date: 31 July 2024</p>
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Aerial Imagery 2014

Mandalong Road Upgrade, Morisset, NSW 2264



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Coordinate System:
GDA 1994 MGA Zone 56

Date: 31 July 2024

Aerial Imagery 2002

Mandalong Road Upgrade, Morisset, NSW 2264



<p>Scale:</p> <p>0 125 250 375 500</p> <p>Meters</p>	<p>Data Source Aerial Imagery: © 2024 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.</p>	<p>Coordinate System: GDA 1994 MGA Zone 56</p>	<p>Date: 31 July 2024</p>
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Aerial Imagery 1994

Mandalong Road Upgrade, Morisset, NSW 2264

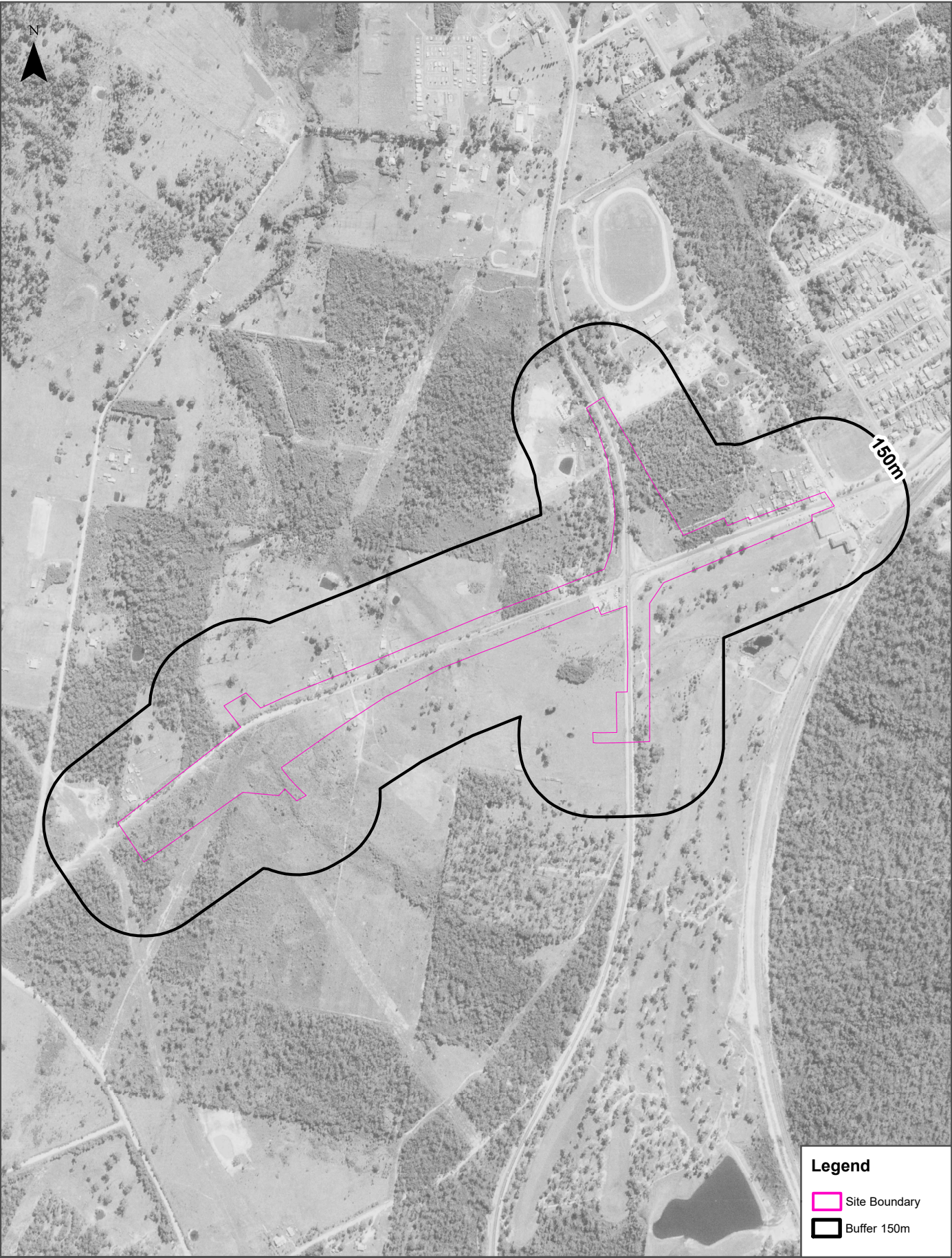


6E24MSN +6/60/GT WW92'25

<p>Scale:</p> <p>0 125 250 375 500</p> <p>Meters</p>	<p>Data Source Aerial Imagery:</p> <p>© NSW Department of Customer Service</p>	<p>Coordinate System:</p> <p>GDA 1994 MGA Zone 56</p>	<p>Legend</p> <ul style="list-style-type: none">Site BoundaryBuffer 150m
			<p>Date: 31 July 2024</p>

Aerial Imagery 1984

Mandalong Road Upgrade, Morisset, NSW 2264



<p>Scale:</p> <p>0 125 250 375 500</p> <p>Meters</p>	<p>Data Source Aerial Imagery:</p> <p>© NSW Department of Customer Service</p>	<p>Coordinate System:</p> <p>GDA 1994 MGA Zone 56</p>	<p>Date: 31 July 2024</p>
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Aerial Imagery 1976

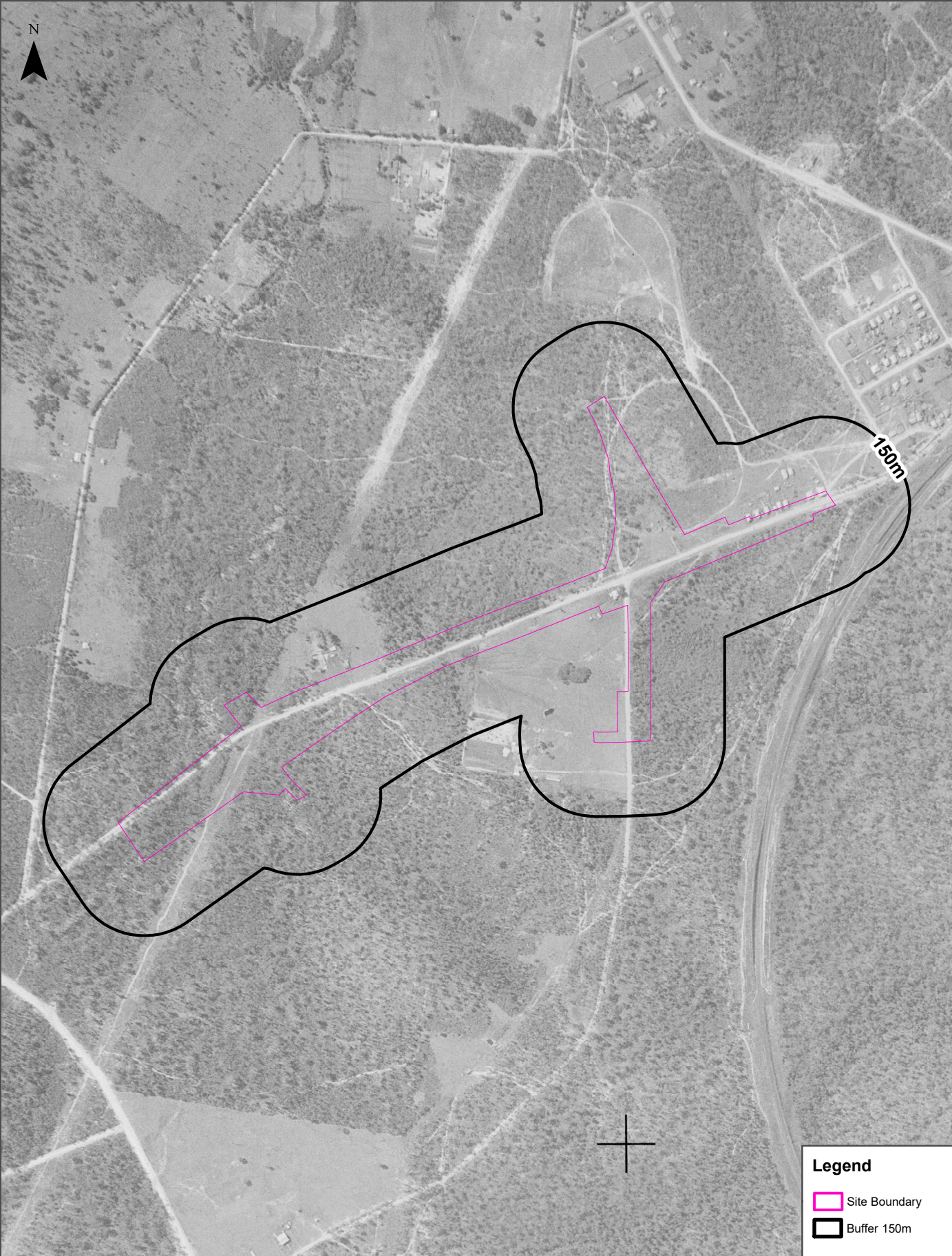
Mandalong Road Upgrade, Morisset, NSW 2264



<p>Scale:</p> <p>0 125 250 375 500</p> <p>Meters</p>	<p>Data Source Aerial Imagery:</p> <p>© NSW Department of Customer Service</p>	<p>Coordinate System:</p> <p>GDA 1994 MGA Zone 56</p>	<p>Date: 31 July 2024</p>
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Aerial Imagery 1954

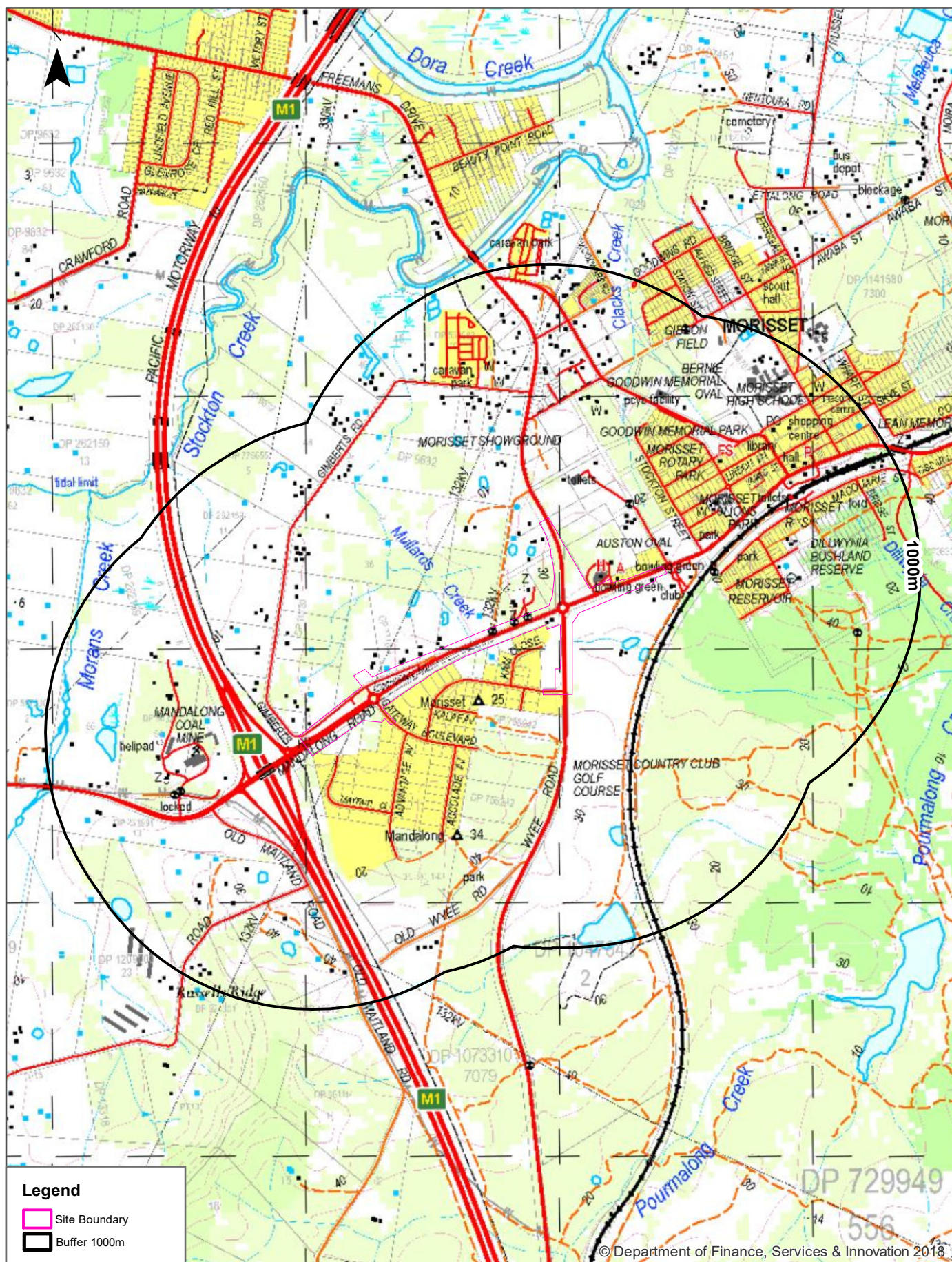
Mandalong Road Upgrade, Morisset, NSW 2264

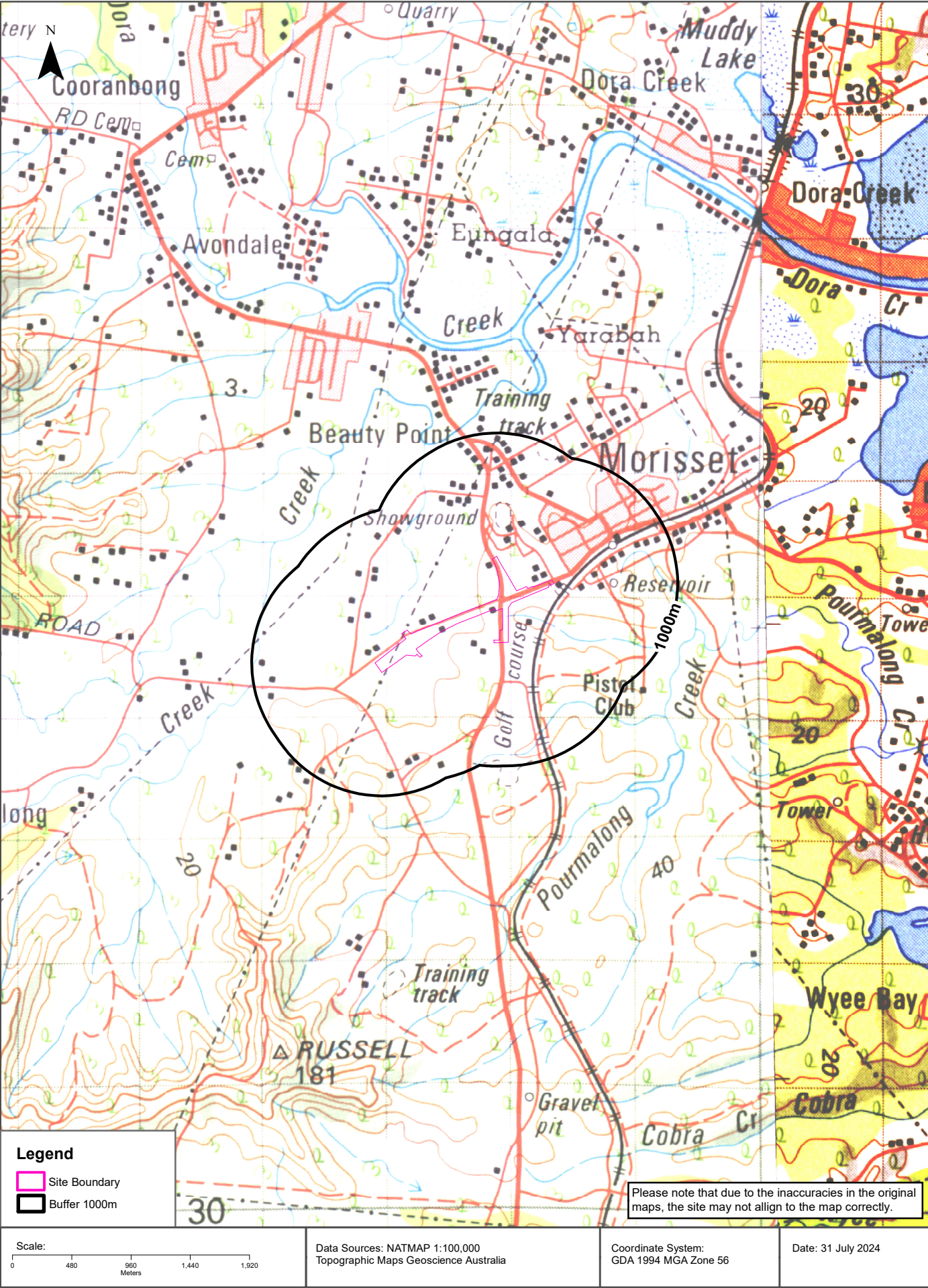


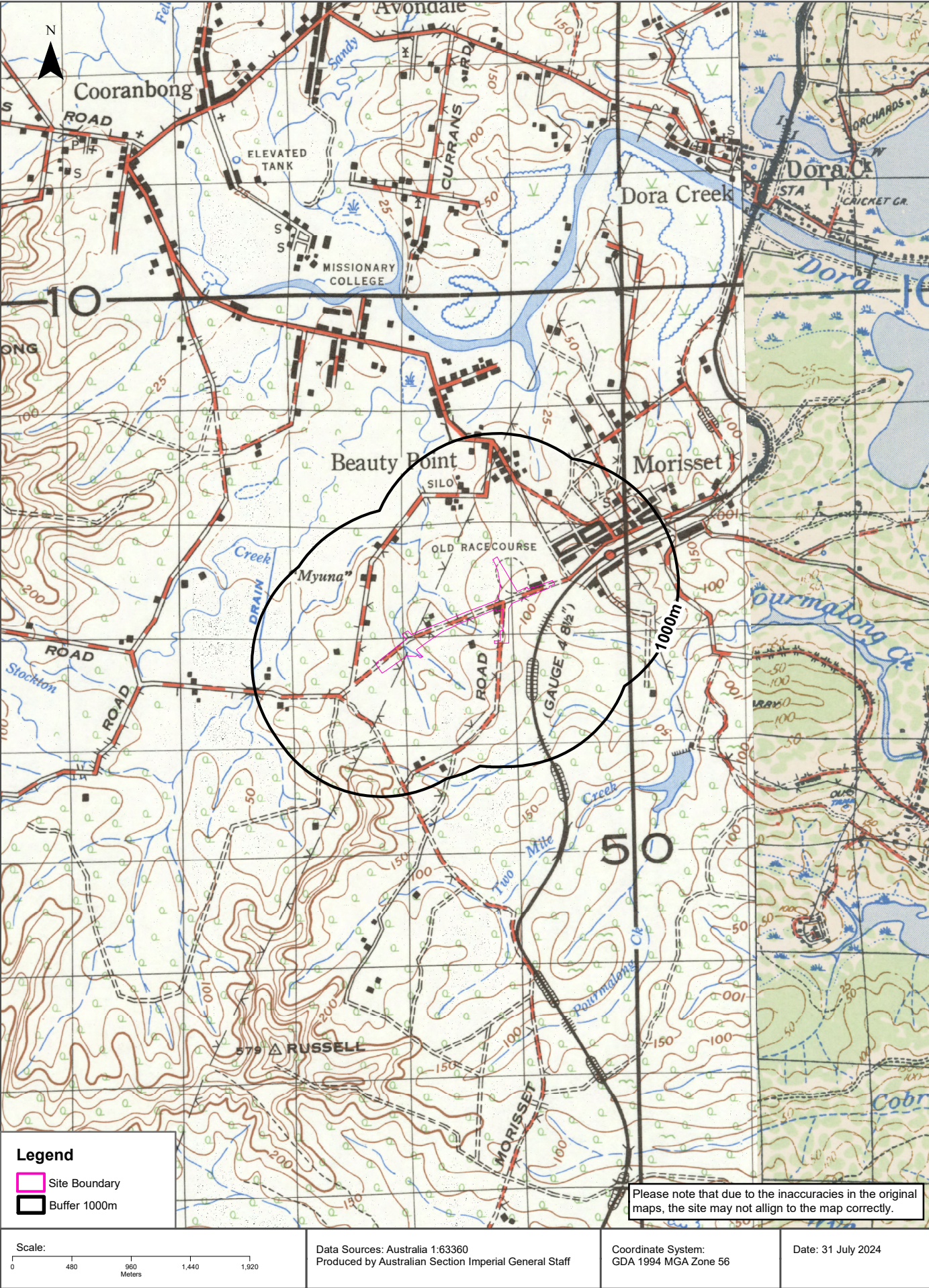
<p>Scale:</p> <p>0 125 250 375 500</p> <p>Meters</p>	<p>Data Source Aerial Imagery: © 2024 Geoscience Australia</p>	<p>Coordinate System:</p> <p>GDA 1994 MGA Zone 56</p>	<p>Legend</p> <p>Site Boundary</p> <p>Buffer 150m</p> <p>Date: 31 July 2024</p>
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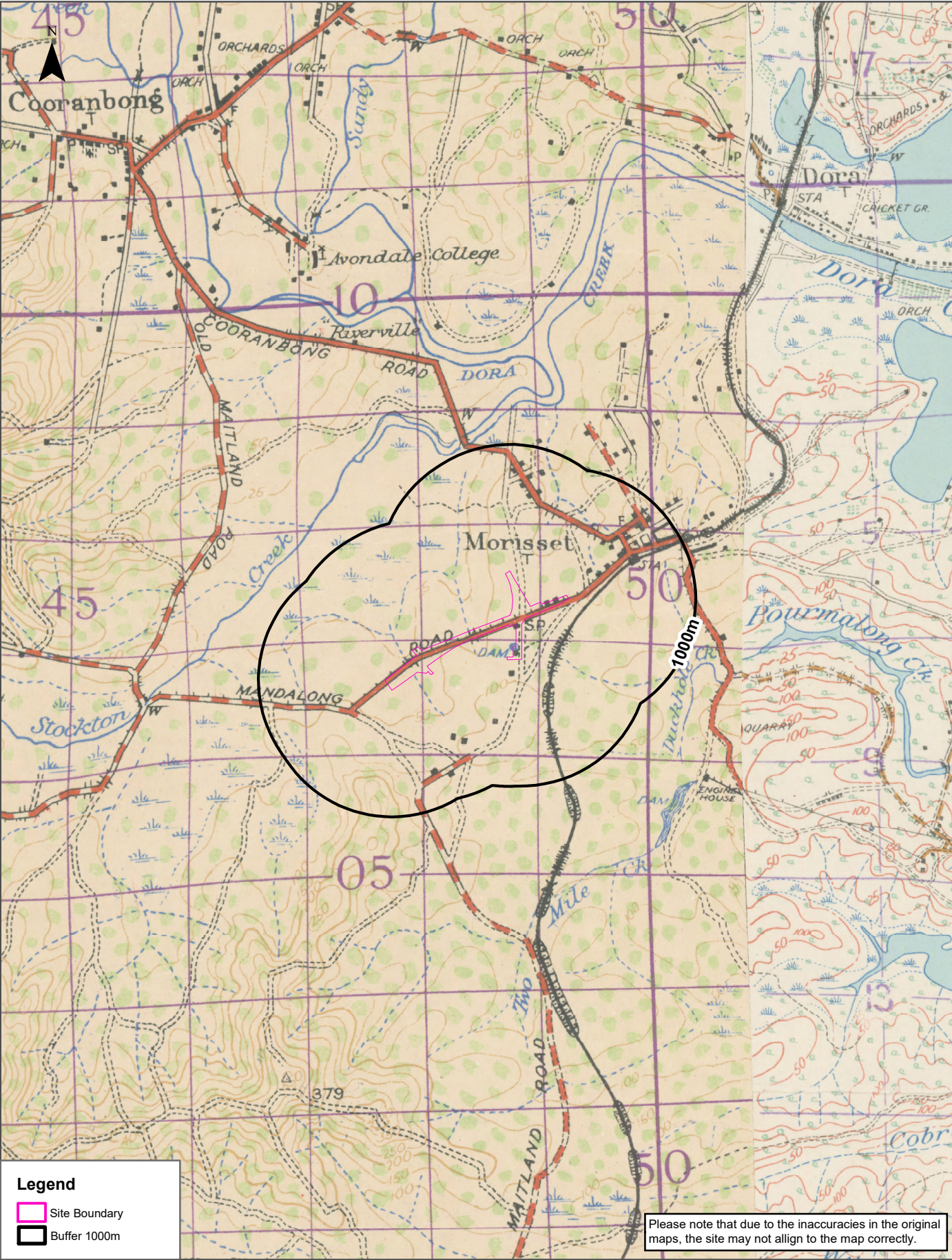
Topographic Map 2015

Mandalong Road Upgrade, Morisset, NSW 2264





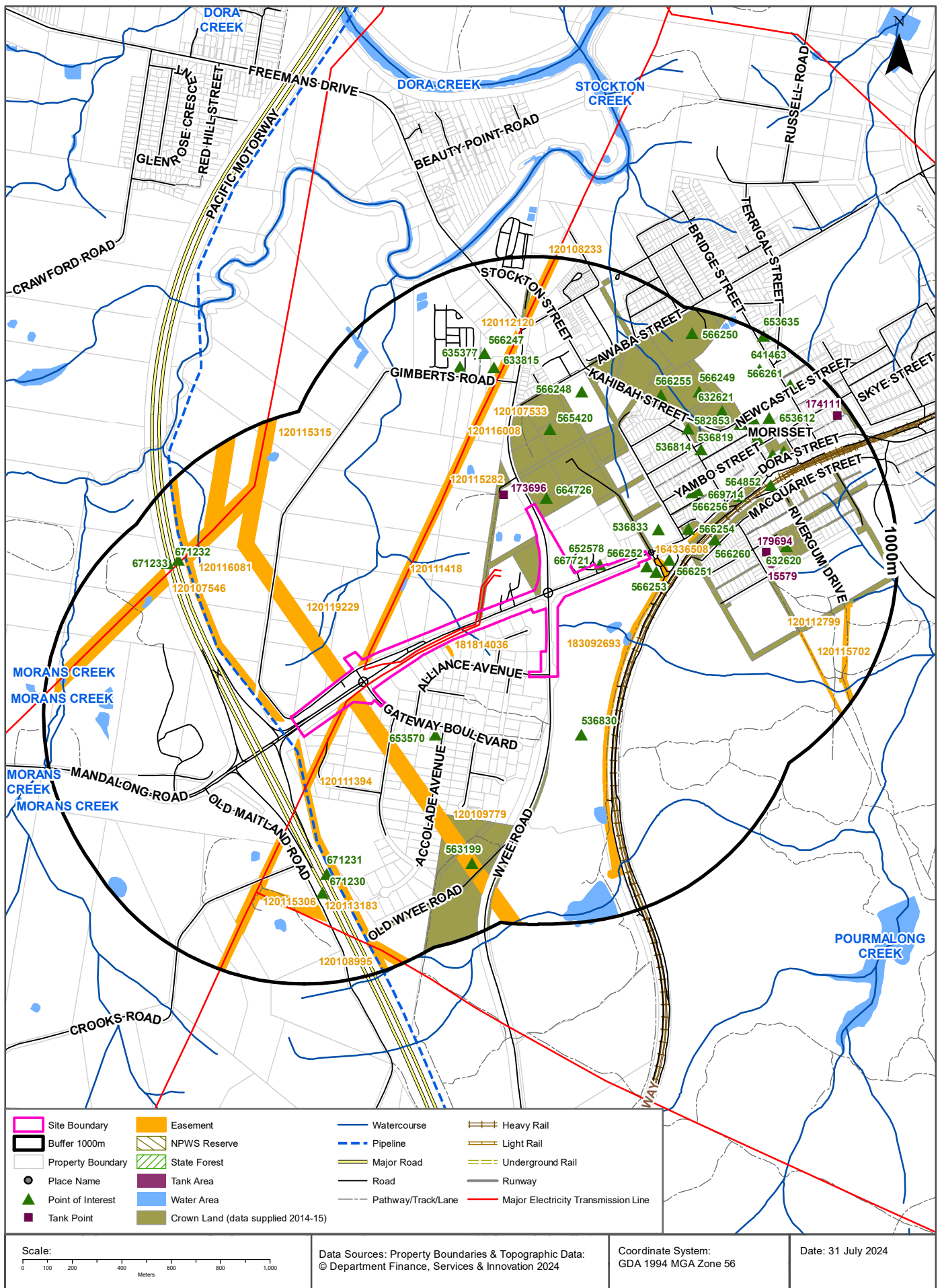




Scale: 0 480 960 1,440 1,920 Meters	Data Sources: Australia 1:63360 Produced by Australian Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 56	Date: 31 July 2024
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Topographic Features

Mandalong Road Upgrade, Morisset, NSW 2264



Topographic Features

Mandalong Road Upgrade, Morisset, NSW 2264

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
667721	Ambulance Station	MORISSET AMBULANCE STATION	11m	North East
652578	Community Medical Centre	MORMORISSET HOSPITAL	23m	North East
566252	Sports Field	BOWLING GREEN	25m	East
664726	Sports Field	LES NORRIS OVAL	55m	North East
566253	Club	MORISSET COUNTRY CLUB	60m	East
566251	Sports Field	BOWLING GREEN	78m	East
536833	Sports Field	AUSTON OVAL	103m	North East
566254	Park	Park	197m	North East
653570	Child Care Centre	DINKY DI CHILDRENS LEARNING CENTRE	239m	South
536830	Golf Course	MORISSET COUNTRY CLUB GOLF COURSE	254m	South East
566260	Park	Park	273m	East
566256	Place Of Worship	CATHOLIC CHURCH	304m	North East
565420	Showground	MORISSET SHOWGROUND	310m	North
669714	Primary School	ST JOHN VIANNEY PRIMARY SCHOOL	324m	North East
536823	Park	MORISSET LIONS PARK	443m	North East
536814	Fire Station	MORISSET FIRE STATION	470m	North East
566248	Place Of Worship	UNITING CHURCH	492m	North East
536819	Park	MORISSET ROTARY PARK	525m	North East
632620	Park	DILLWYNIA BUSHLAND RESERVE	554m	East
671231	Roadside Emergency Telephone	ET564	561m	South West
564852	Railway Station	MORISSET RAILWAY STATION	572m	North East
633815	Place Of Worship	BUDDHIST TEMPLE	574m	North
635377	Tourist Park / Home Village	INGENIA LIFESTYLE THE GRANGE	631m	North
671230	Roadside Emergency Telephone	ET563	633m	South West
566255	Swimming Pool	MORISSET SWIM CENTRE	635m	North East
566247	Place Of Worship	SEVENTH DAY ADVENTIST CHURCH	641m	North
582853	Town	MORISSET	643m	North East
565421	Library	MORISSET LIBRARY	646m	North East
632621	Park	GOODWIN MEMORIAL PARK	646m	North East
566257	Community Facility	MORISSET COMMUNITY HALL	647m	North East
566249	Sports Field	BERNIE GOODWIN MEMORIAL OVAL	682m	North East

Map Id	Feature Type	Label	Distance	Direction
545270	Police Station	MORISSET POLICE STATION	691m	North East
545269	Post Office	MORISSET POST OFFICE	691m	North East
563199	Park	Park	735m	South
653612	Shopping Centre	MORISSET SQUARE SHOPPING CENTRE	738m	North East
671233	Roadside Emergency Telephone	ET566	781m	West
671232	Roadside Emergency Telephone	ET565	799m	West
641463	High School	MORISSET HIGH SCHOOL	870m	North East
566261	Place Of Worship	ANGLICAN CHURCH	893m	North East
566250	Sports Field	GIBSON FIELD	903m	North East
653635	Child Care Centre	MORISSET AND DISTRICT CHILDRENS CENTRE	995m	North East

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Topographic Features

Mandalong Road Upgrade, Morisset, NSW 2264

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
15579	Water	Operational	MORISSET RESERVOIR	01/09/2011	472m	East

Tanks (Points)

What are the Tank Points located within the dataset buffer?

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
173696	Water	Operational		24/10/2011	107m	North
179694	Water	Operational		24/10/2011	470m	East
174111	Water	Operational		24/10/2011	950m	North East

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

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Major Easements

What Major Easements exist within the dataset buffer?

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120119229	Primary	Undefined		0m	On-site
120111394	Primary	Undefined		0m	On-site
120111418	Primary	Undefined		0m	On-site
181814036	Primary	Right of way	Variable	13m	South West
183092693	Primary	Right of way	variable	14m	South East
120116081	Primary	Undefined		26m	South West
164336508	Primary	Electricity	VAR	168m	North East
120115282	Primary	Undefined		239m	North West
120116008	Primary	Undefined		311m	North
120107533	Primary	Undefined		351m	North
120115306	Primary	Undefined		410m	South West

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120109779	Primary	Undefined		511m	South
120112120	Primary	Undefined		524m	North
120113183	Primary	Undefined		595m	South West
120115702	Primary	Undefined		677m	East
120107546	Primary	Undefined		711m	West
120115315	Primary	Undefined		722m	North West
120108233	Primary	Undefined		723m	North
120112799	Primary	Undefined		813m	East
120108995	Primary	Undefined		863m	South

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

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Topographic Features

Mandalong Road Upgrade, Morisset, NSW 2264

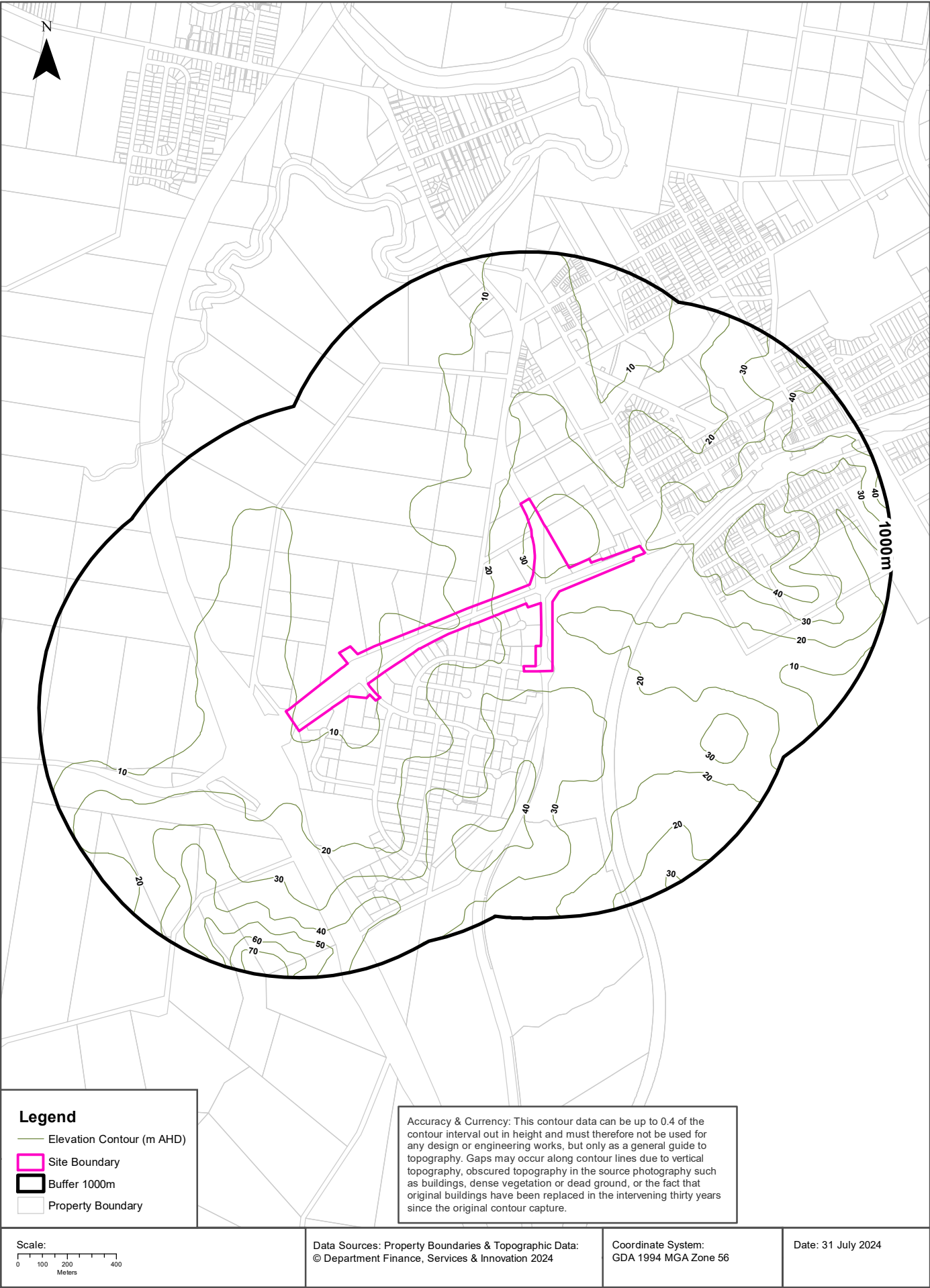
State Forest

What State Forest exist within the dataset buffer?

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

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)

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Hydrogeology & Groundwater

Mandalong Road Upgrade, Morisset, NSW 2264

Hydrogeology

Description of aquifers within the dataset buffer:

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

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

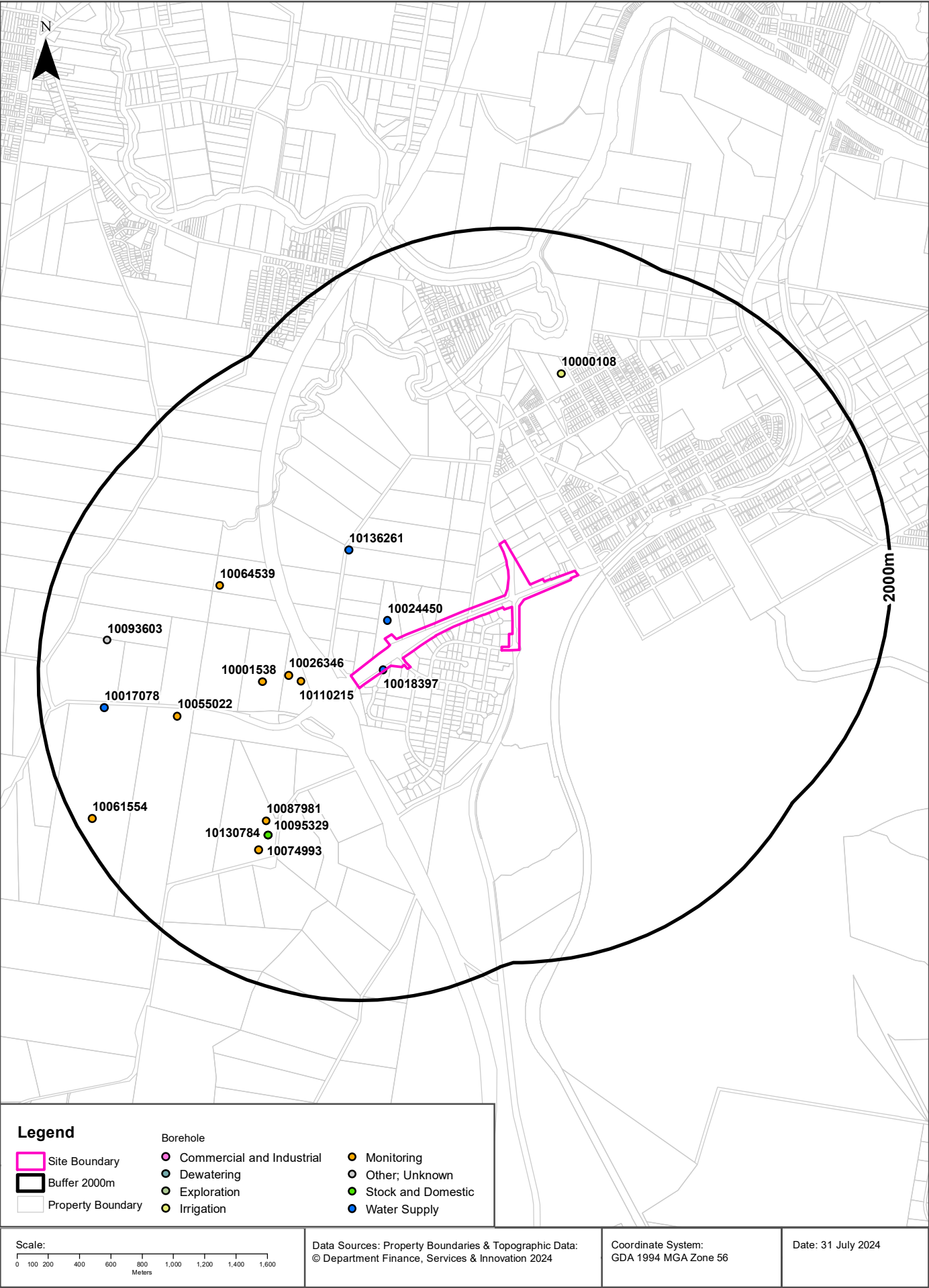
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Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

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



Hydrogeology & Groundwater

Mandalong Road Upgrade, Morisset, NSW 2264

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
10018397	GW078084	Water Supply	Unknown	22/05/1996	62.00		AHD	Fresh			0m	On-site
10024450	GW200915	Water Supply	Functioning	01/01/1994	60.00		AHD				92m	West
10110215	GW204675	Monitoring	Unknown	06/06/2017	8.00		AHD				320m	West
10026346	GW204677	Monitoring	Functioning	26/06/2017	8.00		AHD				398m	West
10001538	GW204674	Monitoring	Functioning	05/06/2019	8.00		AHD				567m	West
10136261	GW034950	Water Supply	Unknown	01/01/1973	76.20		AHD	Poor			602m	North West
10064539	GW078136	Monitoring	Unknown	03/06/1997	9.00		AHD	370			1015m	West
10087981	GW078140	Monitoring	Unknown	11/02/1998	180.00		AHD	634	0.200	16.00	1038m	South West
10095329	GW052255	Stock and Domestic	Unknown	01/11/1980	114.00		AHD				1109m	South West
10130784	GW061226	Water Supply	Unknown	01/07/1985	117.30		AHD	3001-7000 ppm			1109m	South West
10000108	GW059558	Irrigation	Unknown	01/07/1984	5.00		AHD				1127m	North
10055022	GW078114	Monitoring	Unknown	04/06/1997	12.00		AHD	650			1141m	West
10074993	GW079772	Monitoring	Unknown	19/02/1998	234.00		AHD	1500	0.300	8.00	1220m	South West
10093603	GW078137	Unknown	Unknown	03/06/1997	5.50		AHD	2720			1574m	West
10017078	GW021578	Water Supply	Unknown	01/03/1964	3.60		AHD	Fair			1591m	West
10061554	GW078115	Monitoring	Unknown	13/06/1997	10.40		AHD	5370		0.99	1892m	South West

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

Hydrogeology & Groundwater

Mandalong Road Upgrade, Morisset, NSW 2264

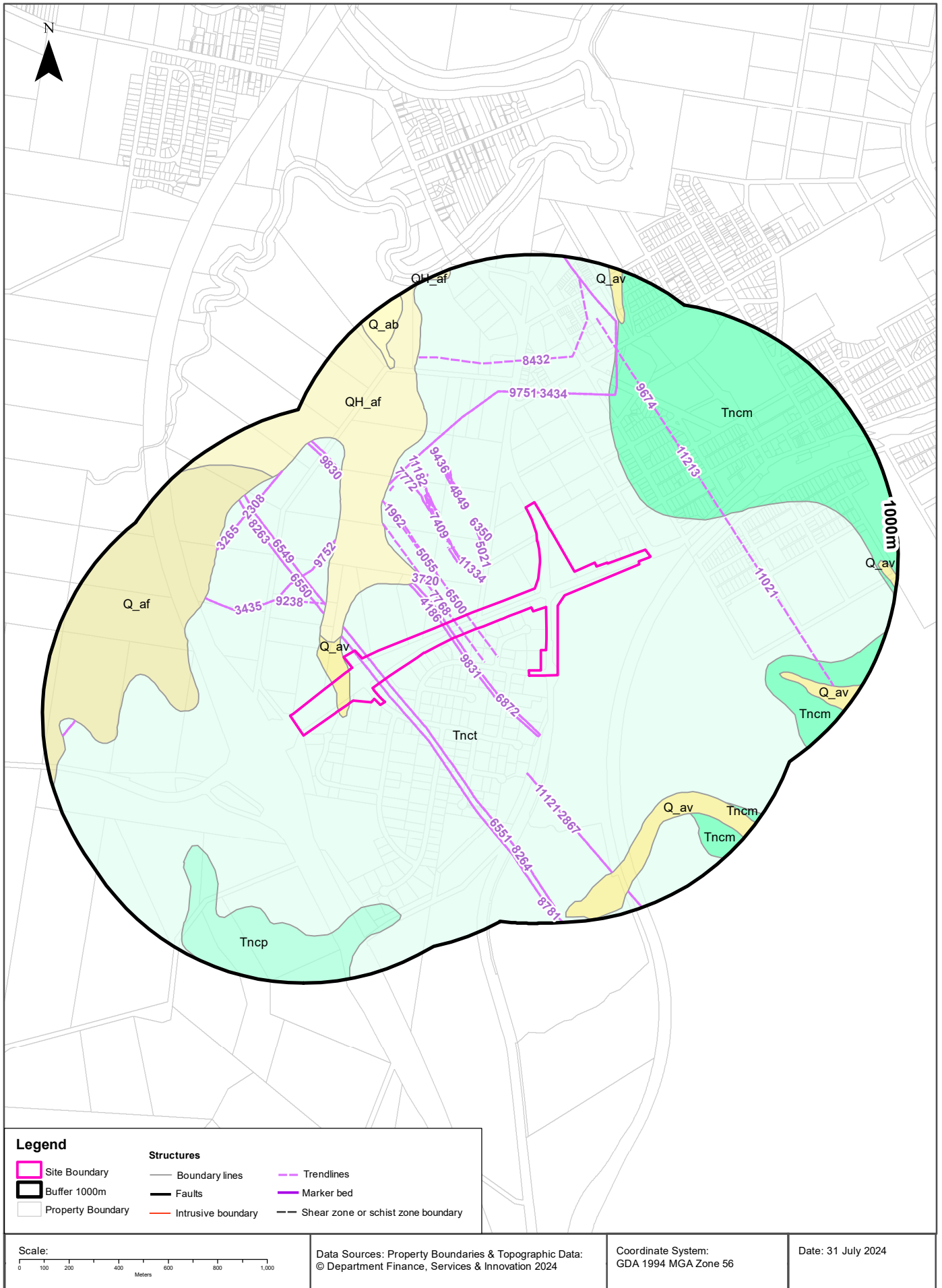
Driller's Logs

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

NGIS Bore ID	Drillers Log	Distance	Direction
10018397	0.00m-0.50m Topsoil 0.50m-1.50m Clay Red 1.50m-3.80m Sandy Clay White 3.80m-6.20m Decomposed Sandstone Brown 6.20m-6.50m Sandstone Yellow (W.B.) 6.50m-10.00m Sandstone Yellow 10.00m-21.30m Mudstone Grey 21.30m-21.60m Sandstone Grey (W.B.) 21.60m-26.00m Sandstone Grey 26.00m-31.30m Shale 31.30m-58.00m Conglomerate 58.00m-62.00m Shale/Conglomerate	0m	On-site
10136261	0.00m-0.30m Soil 0.30m-7.62m Clay 7.62m-27.43m Sandstone Soft Shale 27.43m-38.10m Sandstone 38.10m-76.20m Conglomerate Water Supply	602m	North West
10064539	0.00m-0.60m Soil, black clay loam 0.60m-1.00m Clay 1.00m-2.00m Clay, Silty 2.00m-6.00m Sand, fine, silty 6.00m-7.30m Sand, medium 7.30m-8.20m Sand, fine, clayey 8.20m-10.40m Sand, medium to coarse 10.40m-12.20m Sand, fine to medium 12.20m-13.70m Sand, very fine to fine, clayey - possibly weathered bedrock	1015m	West
10087981	0.00m-4.50m Sandy Clay 4.50m-7.60m Sandstone M/Grain Yellow 7.60m-16.00m Clay 16.00m-18.50m Conglomerate 18.50m-24.00m Sandstone M/G Grey 24.00m-27.50m Clay 27.50m-28.50m Sandstone F/Grain Grey 28.50m-37.00m Conglomerate 37.00m-39.50m Sandstone F/Grain L/Grey 39.50m-45.60m Claystone D/Grey 45.60m-47.00m Sandstone M/Grain L/Grey 47.00m-106.50m Conglomerate 106.50m-120.00m Sandstone F/Grain L/Grey 120.00m-124.50m Conglomerate 124.50m-139.00m Sandstone F/Grain L/Grey 139.00m-144.50m Conglomerate 144.50m-148.00m Sandstone M/Grain D/Grey 148.00m-151.00m Conglomerate 151.00m-164.00m Sandstone M/Grain Grey 164.00m-166.20m Coal 166.20m-168.50m Sandstone M/Grain Grey 168.50m-180.00m Conglomerate	1038m	South West
10095329	0.00m-15.00m Soil Soft Shale 15.00m-20.00m Sandstone 20.00m-24.00m Shale 24.00m-40.00m Sandstone 40.00m-58.00m Shale Water Supply 58.00m-62.00m Conglomerate Sandstone 62.00m-67.00m Conglomerate 67.00m-72.00m Shale 72.00m-84.00m Conglomerate Fine 84.00m-114.00m Conglomerate Coarse Water Supply	1109m	South West

NGIS Bore ID	Drillers Log	Distance	Direction
10130784	0.00m-3.04m Clay 3.04m-10.66m Shale Reddish 10.66m-13.71m Sandstone 13.71m-16.76m Shale 16.76m-22.86m Sandstone 22.86m-46.90m Conglomerate 46.90m-48.76m Sandstone Water Supply 48.76m-88.00m Conglomerate 88.00m-88.39m Shale Water Supply 88.39m-106.00m Conglomerate 106.00m-106.60m Shale Water Supply 106.60m-117.34m Conglomerate	1109m	South West
10000108	0.00m-0.60m Topsoil 0.60m-1.00m Clay Yellow 1.00m-5.00m Gravel White Clayey	1127m	North
10055022	0.00m-0.09m Soil, clay loam 0.09m-1.20m Clay, v dk grey, mottled 1.20m-3.60m Silt, mid orange - brown 3.60m-9.10m Clay, mid grey mottled orange 9.10m-9.40m Sand, fine, very clayey 9.40m-10.00m Clay, sandy, mid to light grey 10.00m-12.20m Sand, medium, clayey. Base of alluvium 12.20m-14.60m Clay, orange & light grey weathered bedrock	1141m	West
10074993	0.00m-7.00m clay, sand 7.00m-11.50m sandstone, med grained grey 11.50m-37.00m conglomerate 37.00m-44.00m sandstone, grey, fine grained 44.00m-93.40m conglomerate 93.40m-95.00m sandstone, grey, ce,ented 95.00m-101.00m conglomerate 101.00m-139.00m sandstone, grey, fine grained 139.00m-155.80m sandstone, light grey, coarse grained 155.80m-158.00m coal, water bearing 158.00m-161.00m sandstone, light grey, med grained 161.00m-174.00m conglomerate 174.00m-178.50m sandstone, grey cemented 178.50m-179.00m sandstone, grey fine 179.00m-180.00m coal 180.00m-218.00m conglomerate 218.00m-221.00m coal 221.00m-225.00m sandstone, and clay, fine grained 225.00m-234.00m conglomerate	1220m	South West
10093603	0.00m-0.50m Soil, Very dark brown clay loam 0.50m-2.00m Clay, dark grey mottled orange 2.00m-2.50m Sand, V Fine, Clayey 2.50m-4.60m Clay, Sandy, Light & Dark Grey 4.60m-5.50m Sand, Fine, Silty 5.50m-7.00m Clay, Sandy 7.00m-7.60m Clay 7.60m-10.30m Clay, Sandy, Light grey 10.30m-12.80m Sand, very fine to fine, Silty 12.80m-15.50m Sand, fine to medium, Silty 15.50m-15.80m Sand, coarse to very coarse, dark grey 15.80m-18.00m Clay, Sandy 18.00m-18.60m Sand, Fine, Silty 18.60m-19.50m Clay, light grey-brown & mid grey 19.50m-21.90m Clay, mid greenish grey, weathered bedrock	1574m	West
10017078	0.00m-2.43m Clay 2.43m-3.65m Sand Water Supply	1591m	West
10061554	0.00m-0.20m Clay Loam, very dark brown 0.20m-0.90m Clay, very dary grey to black, mottled 0.90m-4.60m Clay, light to med. grey, mottled 4.60m-5.50m Clay, med. brownish grey 5.50m-7.30m Clay, sandy, med. grey, mottled 7.30m-8.20m Sand, clayey, med. yellow brown 8.20m-10.00m Clay, sandy, light to med. grey, mottled 10.00m-10.70m Sand, fine to med, med. brown, silty. Base of alluvium. 10.70m-11.30m Claystone, dark purplish brown with greenish grey streaks. Bedrock	1892m	South West

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



Geology

Mandalong Road Upgrade, Morisset, NSW 2264

Geological Units

What are the Geological Units within the dataset buffer?

Unit Code	Unit Name	Description	Unit Stratigraphy	Age	Dominant Lithology	Distance
Tnct	Tuggerah Formation	Grey to green-grey laminite, to red-brown claystone and siltstone, (in turn interbedded with) fine- to medium-grained green-grey sandstone.	\Narrabeen Group\Clifton Subgroup\Tuggerah Formation\\	Early Triassic (base) to Early Triassic (top)	Siliciclastic sedimentary rock	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	0m
QH_af	Alluvial floodplain deposits	Silt, very fine- to medium-grained lithic to quartz-rich sand, clay.	\Alluvium\Alluvial floodplain deposits\\	Holocene (base) to Now (top)	Clastic sediment	70m
Tncm	Munmorah Conglomerate	Medium- to coarse-grained lithic to quartz-lithic sandstone, granule to pebble polymictic conglomerate; minor siltstone and white claystone, thin lenticular coal seams.	\Narrabeen Group\Clifton Subgroup\Munmorah Conglomerate\\	Lopingian (base) to Early Triassic (top)	Sandstone	159m
Q_af	Alluvial floodplain deposits	Silt, very fine- to medium-grained lithic to quartz-rich sand, clay.	\Alluvium\Alluvial floodplain deposits\\	Quaternary (base) to Now (top)	Clastic sediment	376m
Tncp	Patonga Claystone	Red-brown claystone and siltstone, light green-grey fine-grained sandstone.	\Narrabeen Group\Clifton Subgroup\Patonga Claystone\\	Early Triassic (base) to Early Triassic (top)	Siliciclastic sedimentary rock	616m
Q_ab	Alluvial backswamp deposits	Organic-rich mud, peat, silt, clay.	\Alluvium\Alluvial backswamp deposits\\	Quaternary (base) to Now (top)	Organic rich sediment	776m

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
4186	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	0m
6500	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	0m
6551	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	0m
7768	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	0m
8264	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	0m
9831	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	0m
6872	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	143m
6550	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	192m
8263	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	192m
6180	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	196m

Map ID	Feature Description	Map Sheet Name	Distance
7409	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	197m
2105	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	205m
5055	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	205m
5607	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	205m
6359	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	205m
6384	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	205m
7417	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	206m
7865	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	208m
5021	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	209m
5925	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	209m
7695	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	209m
11179	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	209m
11334	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	209m
6350	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	210m
9914	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	210m
3720	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	211m
6549	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	218m
8262	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	218m
11316	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	220m
9238	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	222m
9436	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	235m
4849	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	236m
7249	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	240m
8608	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	240m
11170	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	240m
3701	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	270m
5652	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	270m
7255	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	270m
10143	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	270m
7853	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	298m
8392	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	298m
8960	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	298m
6279	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	299m
3153	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	300m

Map ID	Feature Description	Map Sheet Name	Distance
11406	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	300m
2845	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	315m
6055	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	338m
11021	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	339m
3681	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	349m
10585	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	353m
11182	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	353m
3435	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	358m
9752	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	358m
11213	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	361m
3933	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	376m
8169	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	377m
9601	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	377m
8485	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	383m
6209	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	385m
7772	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	387m
2867	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	393m
11121	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	393m
2219	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	398m
1962	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	404m
7688	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	418m
3434	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	443m
9751	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	443m
9674	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	449m
10646	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	540m
8432	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	574m
2308	Lineament, approximate, airphoto interpreted	Gosford-Lake Macquarie 1:100,000 Geological Sheet	670m
3265	Lineament, approximate, airphoto interpreted	Gosford-Lake Macquarie 1:100,000 Geological Sheet	670m
4185	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	698m
9830	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	698m
5670	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	711m
4184	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	720m
9829	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	720m
2309	Lineament, approximate, airphoto interpreted	Gosford-Lake Macquarie 1:100,000 Geological Sheet	868m

Map ID	Feature Description	Map Sheet Name	Distance
3266	Lineament, approximate, airphoto interpreted	Gosford-Lake Macquarie 1:100,000 Geological Sheet	868m
2868	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	918m
11122	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	918m
5538	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	925m
9745	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	925m
8781	Dyke interpreted from geophysical data	Gosford-Lake Macquarie 1:100,000 Geological Sheet	933m

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
No Features				

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

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Naturally Occurring Asbestos Potential

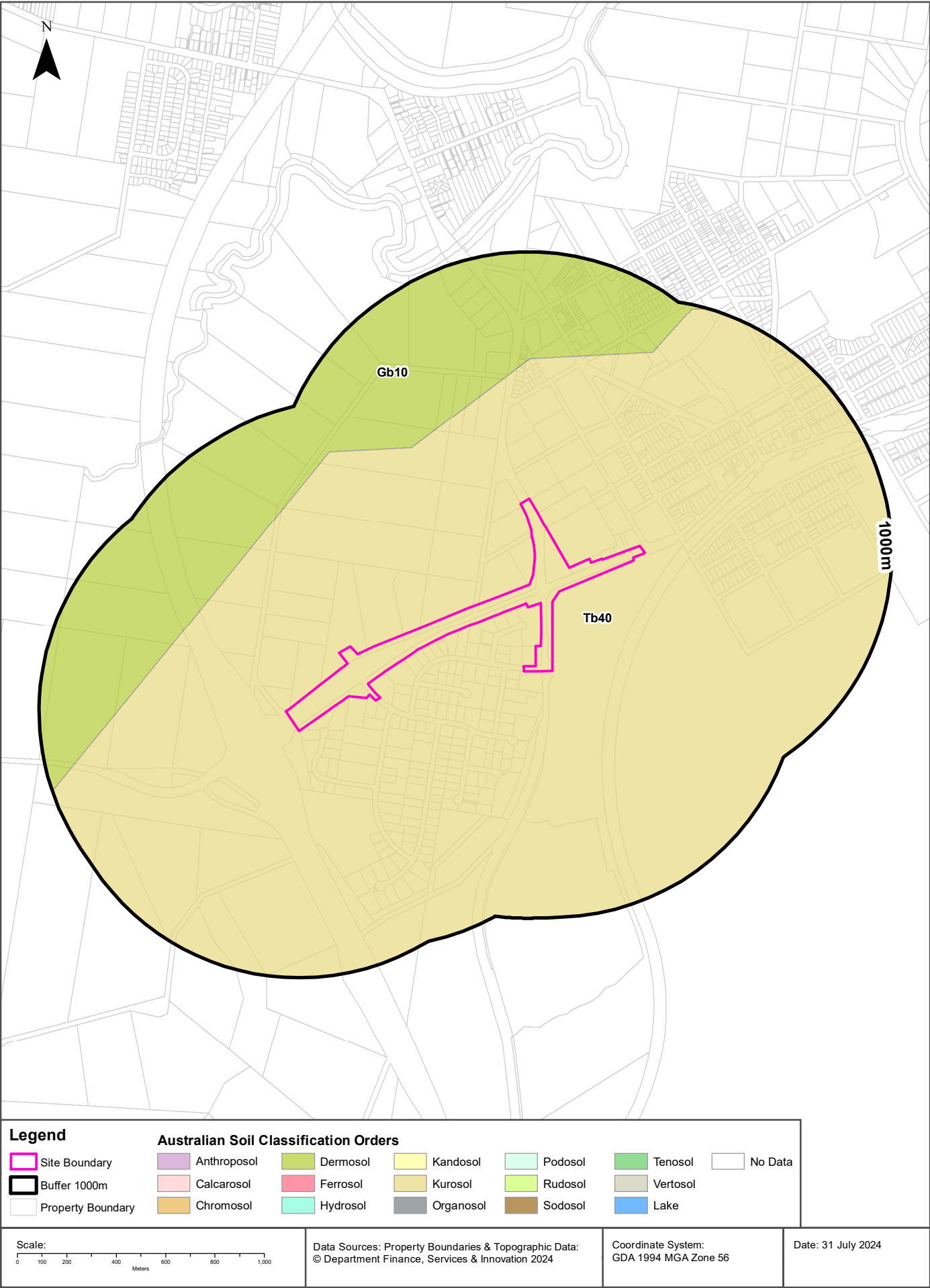
Mandalong Road Upgrade, Morisset, NSW 2264

Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

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

Naturally Occurring Asbestos Potential Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy



Soils

Mandalong Road Upgrade, Morisset, NSW 2264

Atlas of Australian Soils

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

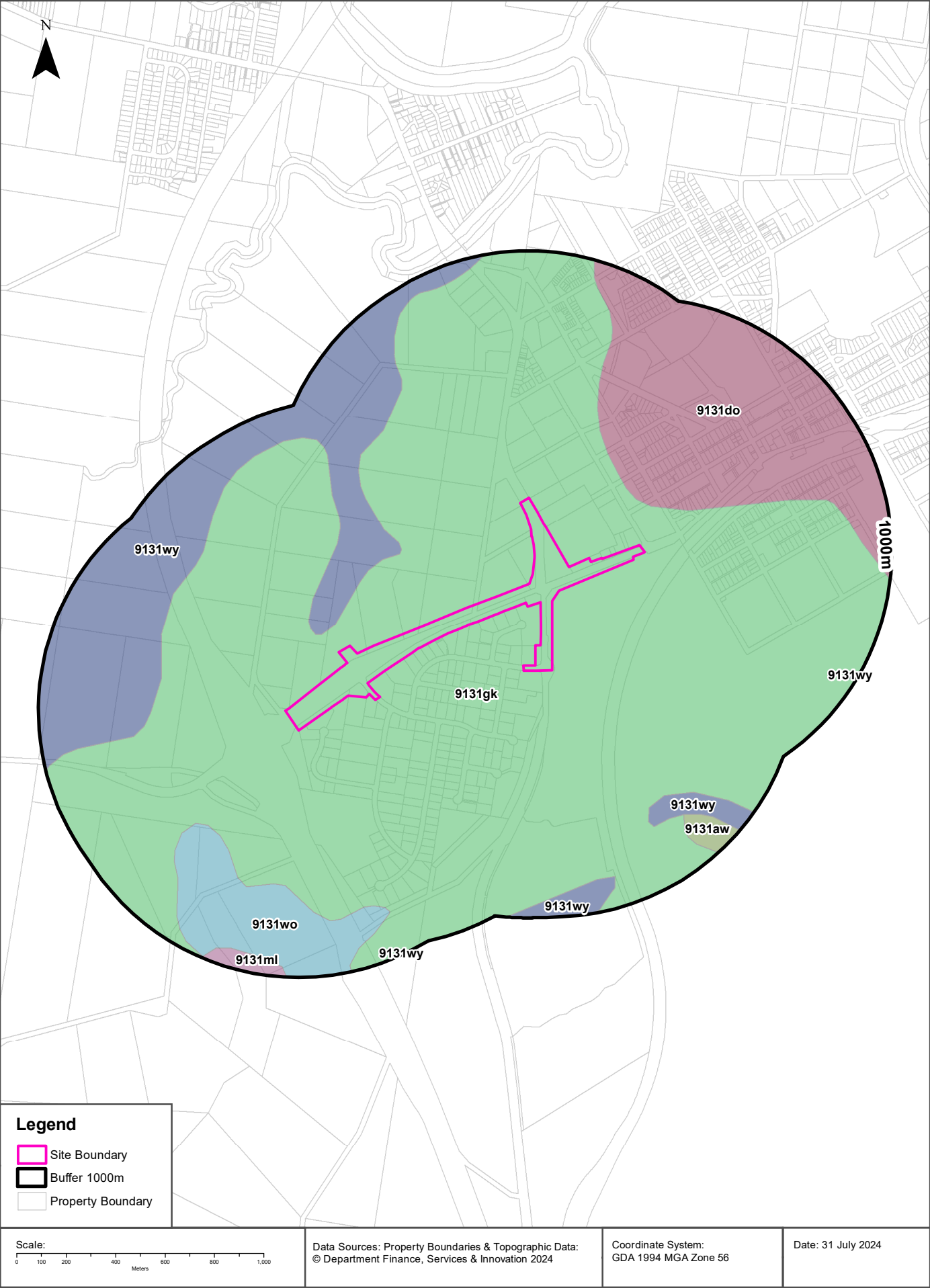
Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Tb40	Kurosol	Undulating to hilly areas with some steep slopes and cliffs, rock outcrops, and narrow terraced valleys: chief soils are hard acidic yellow mottled soils (Dy3.41) with some shallow soils such as (Um4.1) and (Uc4.1) on the steeper slopes. Associated are: (Gn2.2) soils and (Dd1) soils, both of which occur on slopes; undescribed soils in the valleys; and some (Dy5) and (Uc1 .2) soils along the coast. As mapped, small areas of units Gb10 and Cb28 are included.	0m	On-site
Gb10	Dermosol	River terraces, levees, flood-plains, coastal swamps, and tidal flats: this unit contains the same land forms and soils as unit Gb9, but in addition has (i) swamps and levees of the lower river flood-plain of (Uf6.6), (Ug5), and other undescribed soils; (ii) estuarine flats of peaty or organic soils over acid clays; and (iii) tidal mud flats. The soils of these areas are not well known but probably have similarities with the soils of units J3, Mc4, NY1, and NN1. The smaller areas mapped as unit Gb10 consist mainly of areas of (i) and/or (iii) above.	450m	North West

Atlas of Australian Soils Data Source: CSIRO

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Soil Landscapes of Central and Eastern NSW

Mandalong Road Upgrade, Morisset, NSW 2264



Soils

Mandalong Road Upgrade, Morisset, NSW 2264

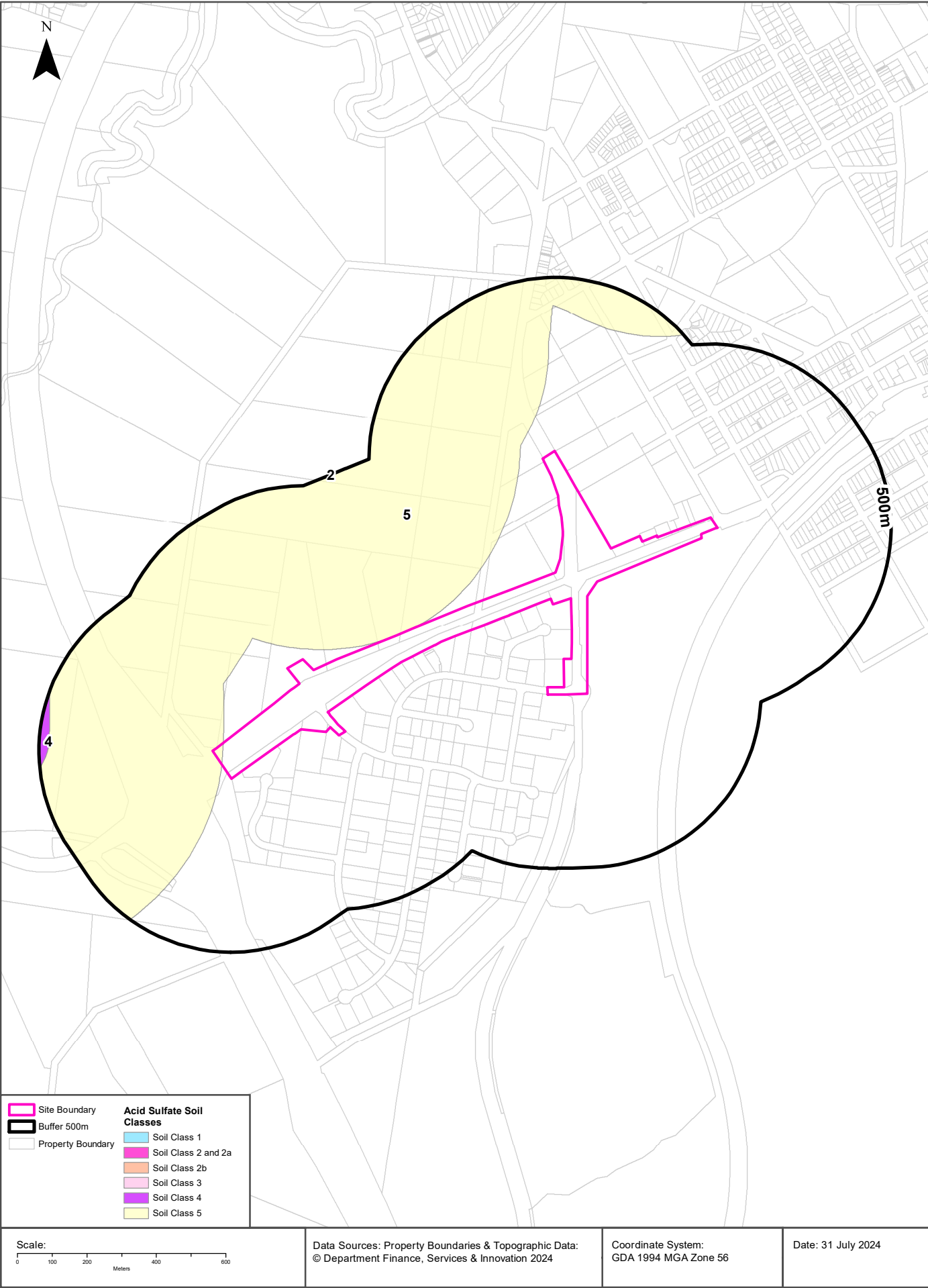
Soil Landscapes of Central and Eastern NSW

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

Soil Code	Name	Distance	Direction
9131gk	Gorokan	0m	On-site
9131wy	Wyong	100m	West
9131do	Doyalson	166m	North East
9131wo	Woodburys Bridge	530m	South West
9131aw	Awaba	790m	South East
9131ml	Mandalong	923m	South West

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

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Acid Sulfate Soils

Mandalong Road Upgrade, Morisset, NSW 2264

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	Lake Macquarie Local Environmental Plan 2014

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

Soil Class	Description	EPI Name	Distance	Direction
4	Works more than 2 metres below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered more than 2 metres below natural ground surface, present an environmental risk	Lake Macquarie Local Environmental Plan 2014	472m	West
2	Works below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered present an environmental risk	Lake Macquarie Local Environmental Plan 2014	499m	North West

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Acid Sulfate Soils

Mandalong Road Upgrade, Morisset, NSW 2264

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.	450m	North
A	High Probability of occurrence. >70% chance of occurrence.	499m	North

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Dryland Salinity

Mandalong Road Upgrade, Morisset, NSW 2264

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

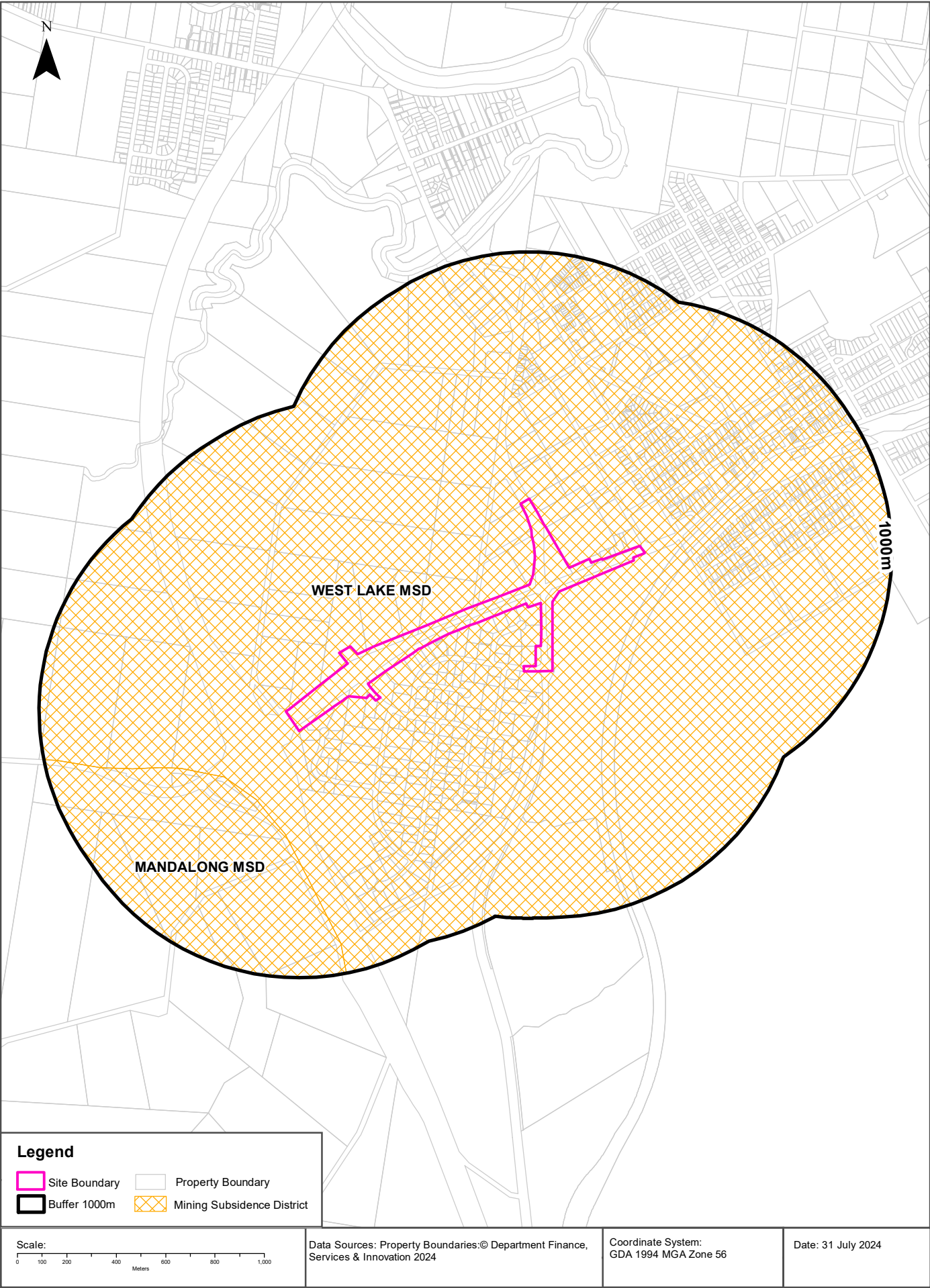
Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A		

Dryland Salinity Data Source : National Land and Water Resources Audit

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

Any persons using this information do so at their own risk.

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



Mining

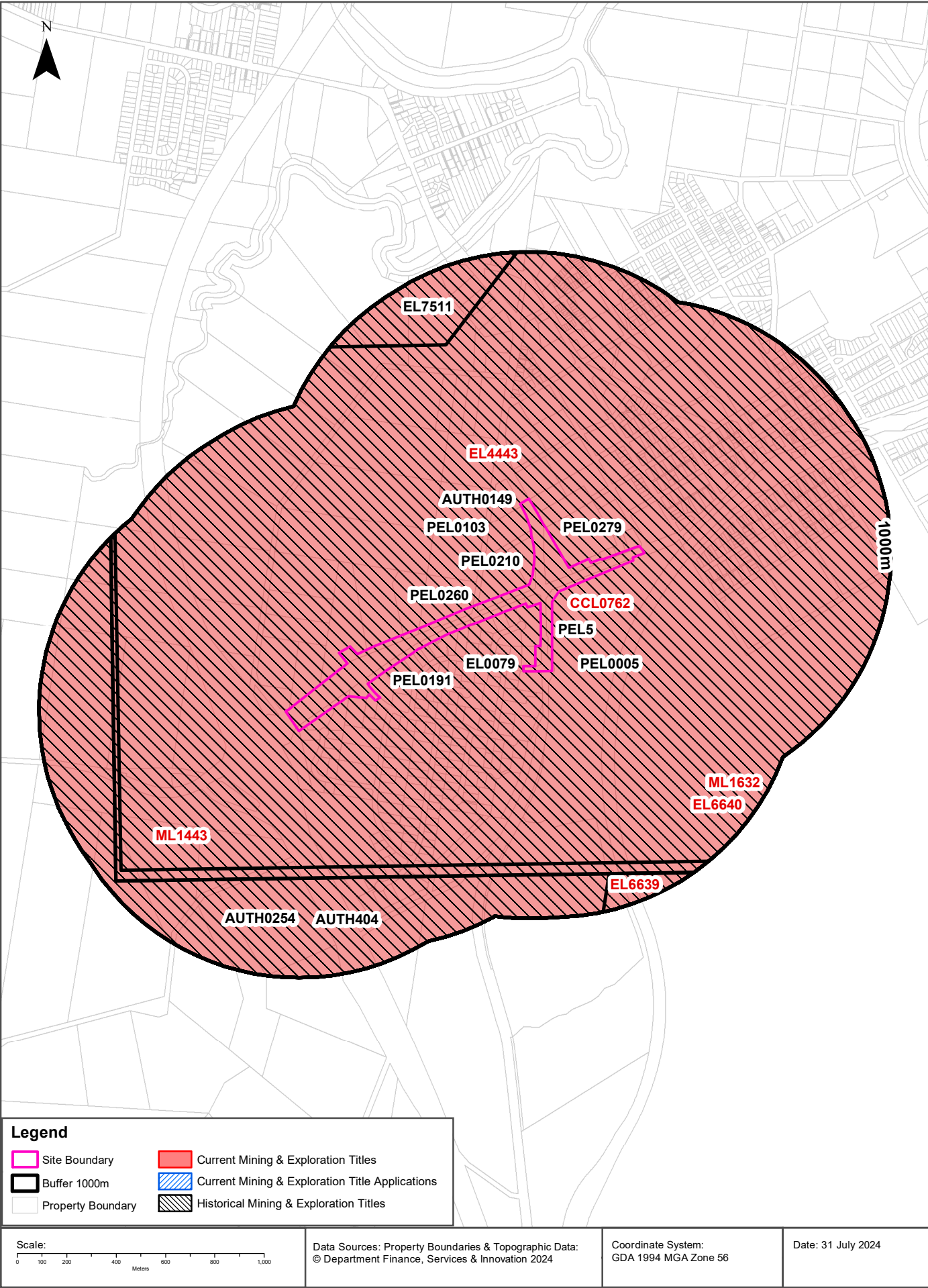
Mandalong Road Upgrade, Morisset, NSW 2264

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
WEST LAKE	0m	On-site
MANDALONG	327m	South West

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

Mandalong Road Upgrade, Morisset, NSW 2264

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
EL4443	CENTENNIAL MANDALONG PTY LIMITED	23/10/1992	23/10/2025	20230825	EXPLORING	COAL	Group 9	0m	On-site
CCL0762	CENTENNIAL MANDALONG PTY LIMITED	16/09/1991	13/10/2043	20221014	MINING	COAL	Coal, Petroleum	0m	On-site
ML1443	CENTENNIAL MANDALONG PTY LIMITED	01/03/1999	01/03/2043	20230324	MINING	COAL	Coal, Petroleum	277m	South West
ML1632	CENTENNIAL MYUNA PTY LIMITED	13/04/2013	13/10/2043	20221014	MINING	COAL	Coal, Petroleum	746m	South East
EL6640	CENTENNIAL MYUNA PTY LIMITED	23/04/2008	23/04/2026	20221012	EXPLORING	COAL	Group 9	746m	South East
EL6639	CENTENNIAL MANNERING PTY LTD	05/05/2008	05/05/2026	20230907	EXPLORING	COAL	Group 9	855m	South East

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

Mandalong Road Upgrade, Morisset, NSW 2264

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL0191	NORTHWEST OIL AND MINERALS CO NL			PETROLEUM	Petroleum	0m	On-site
PEL0210	THE AUSTRALIAN GAS LIGHT COMPANY (AGL), NORTH BULLI COLLIERIES PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0279	THE ELECTRICITY COMMISSION OF NSW (TRADING AS PACIFIC POWER)	19910504	19931111	PETROLEUM	Petroleum	0m	On-site
PEL0260	NORTH BULLI COLLIERIES PTY LTD, AGL PETROLEUM OPERATIONS PTY LTD, THE AUSTRALIAN GAS LIGHT CO.	19810909	19930803	PETROLEUM	Petroleum	0m	On-site
PEL0005	AGL UPSTREAM INVESTMENTS PTY LIMITED	19931111	20150403	PETROLEUM	Petroleum	0m	On-site
EL0079	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	19670201	19680201	MINERALS		0m	On-site
AUTH0149	THE ELECTRICITY COMMISSION OF NSW (TRADING AS PACIFIC POWER)	19790203	19920214	COAL	Coal	0m	On-site
PEL0103	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL5	AGL UPSTREAM INVESTMENTS PTY LIMITED	19931111	20011210	MINERALS		0m	On-site
AUTH0254	NSW DEPARTMENT OF MINERAL RESOURCES	19810115	19850115	COAL	Coal	553m	South West
AUTH404	CENTENNIAL MANDALONG PTY LIMITED	19980317	19990301	MINERALS		596m	South West
EL7511	CENTENNIAL FASSIFERN PTY LTD	20100407	20130407	MINERALS	Geothermal	707m	North

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

State Environmental Planning Policy

Mandalong Road Upgrade, Morisset, NSW 2264

State Significant Precincts

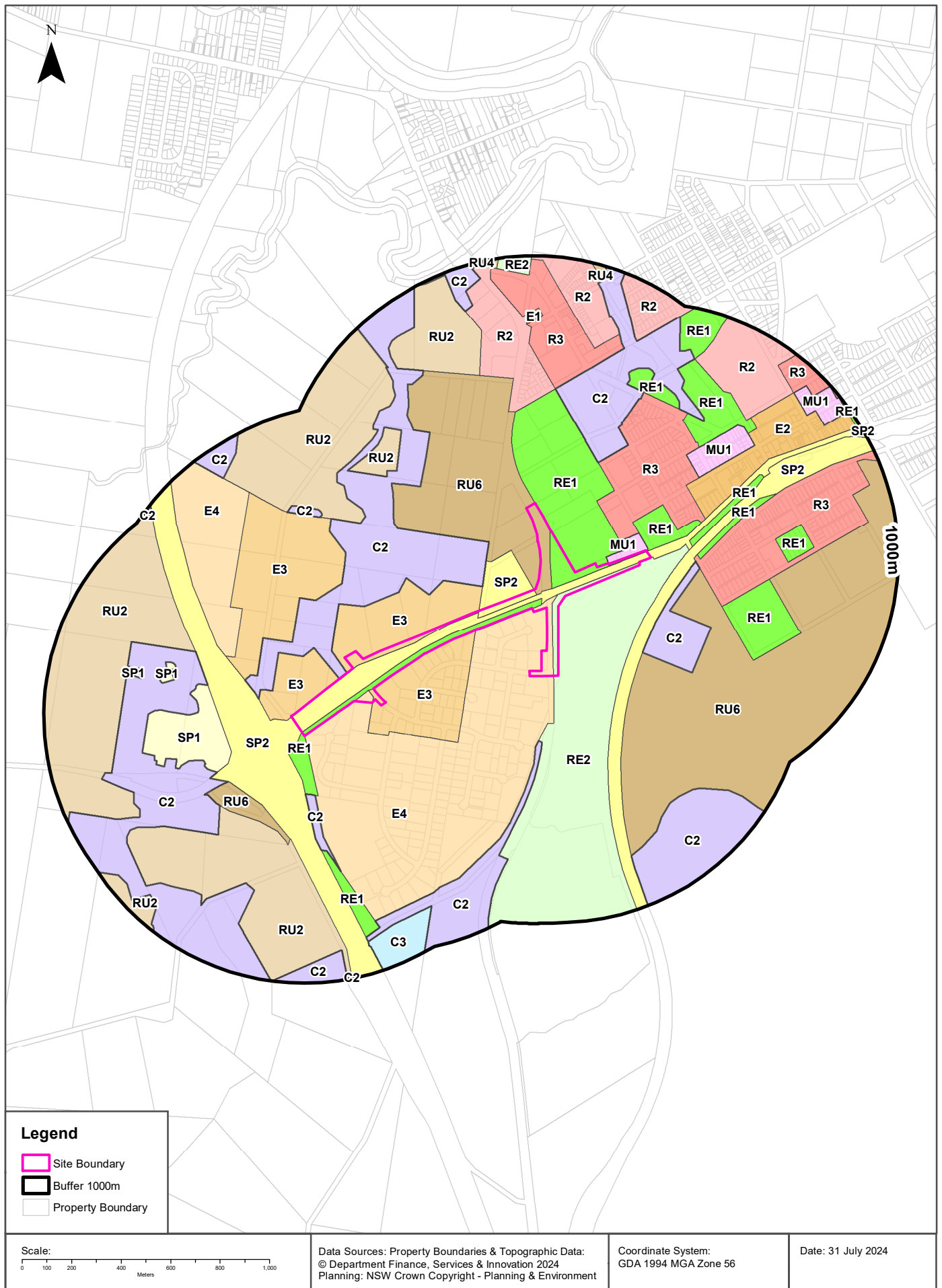
What SEPP State Significant Precincts exist within the dataset buffer?

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

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EPI Planning Zones

Mandalong Road Upgrade, Morisset, NSW 2264



Environmental Planning Instrument

Mandalong Road Upgrade, Morisset, NSW 2264

Land Zoning

What EPI Land Zones exist within the dataset buffer?

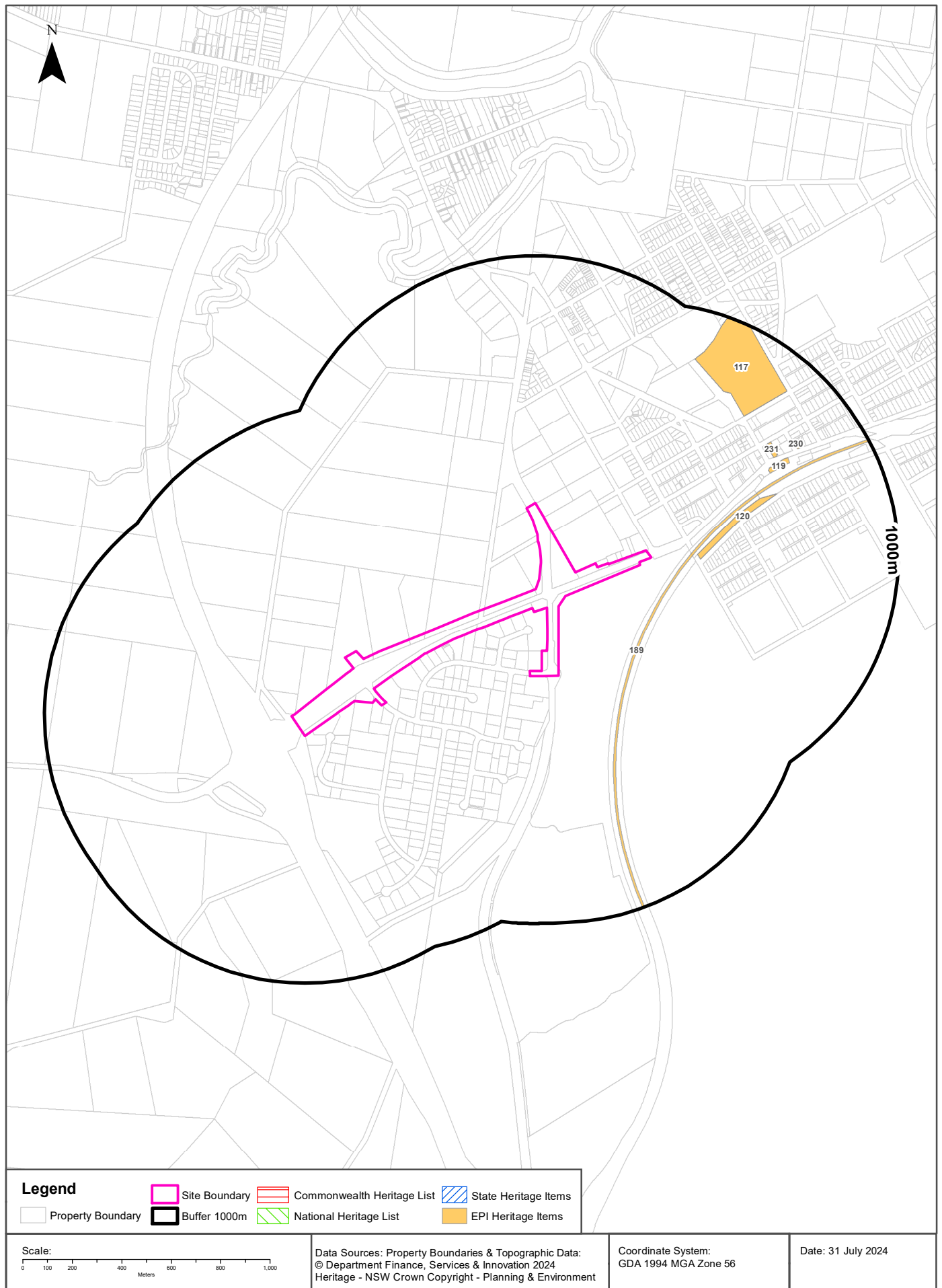
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
E3	Productivity Support		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
E4	General Industrial		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
SP2	Infrastructure	Classified Road	Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
RU6	Transition		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
RE2	Private Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
MU1	Mixed Use		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
SP2	Infrastructure	Electricity Transmission Or Distribution Network	Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	On-site
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	North East
C2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	North
E3	Productivity Support		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	0m	West
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	75m	North East
SP2	Infrastructure	Railway Corridor	Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	102m	East
C2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	153m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	168m	North East
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	172m	East
RU6	Transition		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	184m	East
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	186m	East
E3	Productivity Support		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	215m	West
C2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	234m	South West

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
C2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	260m	South
E2	Commercial Centre		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	270m	North East
SP1	Special Activities	Mining	Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	277m	West
RU6	Transition		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	327m	South West
E4	General Industrial		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	330m	West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	346m	East
C2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	361m	South West
MU1	Mixed Use		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	363m	North East
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	378m	North
RU2	Rural Landscape		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	390m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	466m	South West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	467m	North East
RU2	Rural Landscape		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	468m	West
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	470m	North
SP1	Special Activities	Mining	Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	497m	West
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	505m	East
RU2	Rural Landscape		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	512m	North West
RU2	Rural Landscape		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	547m	North West
C2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	563m	North West
RU2	Rural Landscape		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	564m	North
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	588m	North East
SP1	Special Activities	Mining	Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	627m	West
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	664m	North East
R2	Low Density Residential		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	668m	North

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
C2	Environmental Conservation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	683m	South East
E1	Local Centre		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	723m	North
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	798m	North East
C3	Environmental Management		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	835m	South
MU1	Mixed Use		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	847m	North East
R3	Medium Density Residential		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	872m	North East
RE2	Private Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	923m	North
RU4	Primary Production Small Lots		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	938m	North
RU4	Primary Production Small Lots		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	961m	North
RE1	Public Recreation		Lake Macquarie Local Environmental Plan 2014	28/04/2023	28/04/2023	28/06/2024	Map Amendment No 8	982m	North East

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Mandalong Road Upgrade, Morisset, NSW 2264



Heritage

Mandalong Road Upgrade, Morisset, NSW 2264

Commonwealth Heritage List

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

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

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

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

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

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

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

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

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

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Environmental Planning Instrument - Heritage

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

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
189	Great Northern Railway	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/11/2022	118m	East
120	Tree-Morisset's Campsite	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/11/2022	186m	East
119	Stationmasters house	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	18/11/2016	18/11/2016	25/11/2022	589m	North East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
231	Community Hall	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/11/2022	636m	North East
117	Morisset High School	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/11/2022	672m	North East
230	Mullard Chambers Building	Item - General	Local	Lake Macquarie Local Environmental Plan 2014	12/09/2014	10/10/2014	25/11/2022	735m	North East

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Natural Hazards

Mandalong Road Upgrade, Morisset, NSW 2264

Bush Fire Prone Land

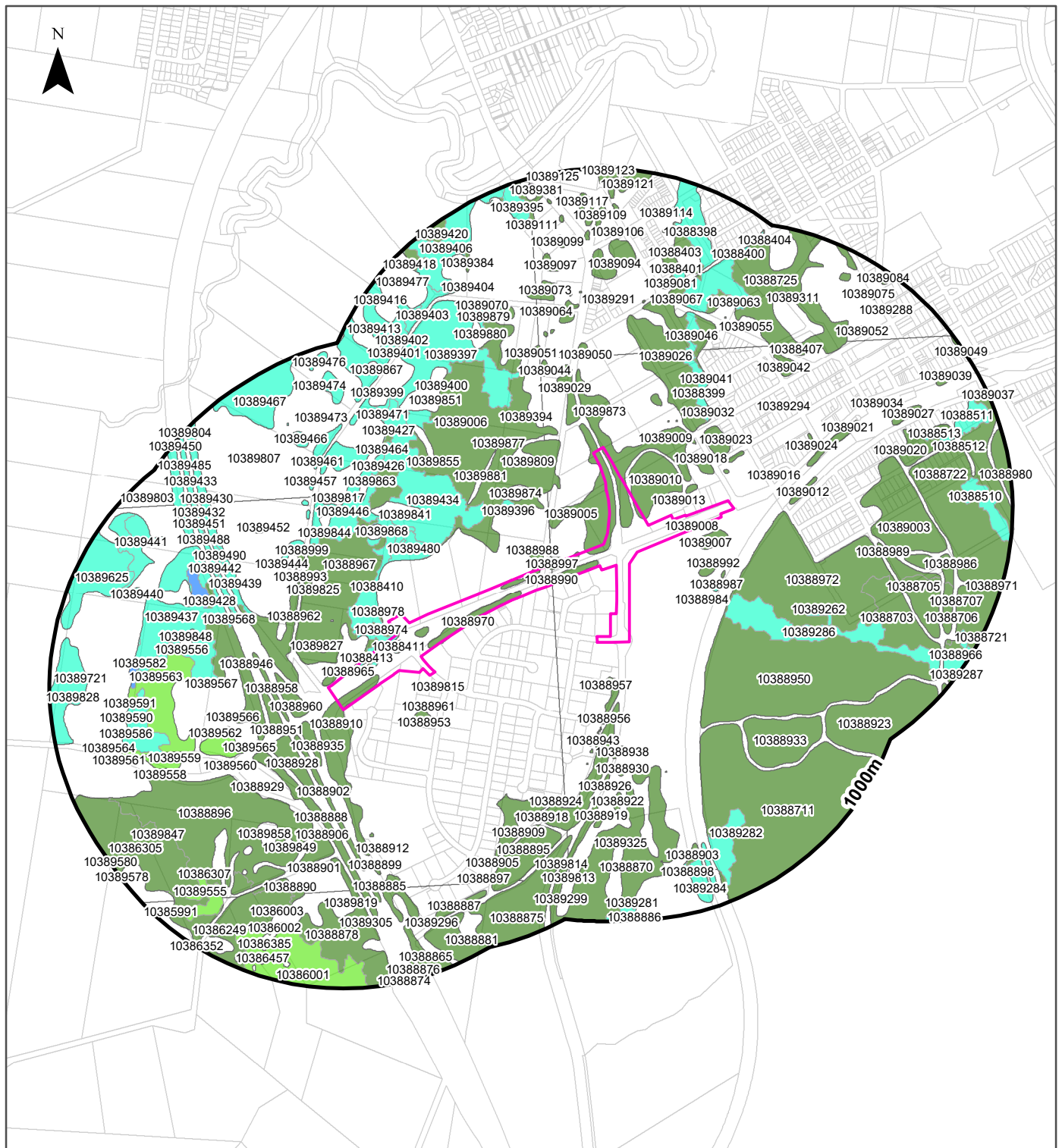
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Category 1	0m	On-site
Vegetation Category 3	0m	On-site
Vegetation Buffer	0m	On-site
Vegetation Category 2	55m	North West

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Ecological Constraints - Vegetation & Ramsar Wetlands

Mandalong Road Upgrade, Morisset, NSW 2264



<p>Site Boundary</p> <p>Report Buffer</p> <p>Property Boundary</p> <p>Ramsar Wetland</p> <p>Native Vegetation</p> <p>Alpine Complex</p> <p>Arid Shrublands (Acacia sub-formation)</p> <p>Arid Shrublands (Chenopod sub-formation)</p>	<p>Dry Sclerophyll Forests (Shrub/grass sub-formation)</p> <p>Dry Sclerophyll Forests (Shrubby sub-formation)</p> <p>Forested Wetlands</p> <p>Freshwater Wetlands</p> <p>Grasslands</p> <p>Grassy Woodlands</p> <p>Heathlands</p> <p>Rainforests</p> <p>Saline Wetlands</p>	<p>Semi-arid Woodlands (Grassy sub-formation)</p> <p>Semi-arid Woodlands (Shrubby sub-formation)</p> <p>Wet Sclerophyll Forests (Grassy sub-formation)</p> <p>Wet Sclerophyll Forests (Shrubby sub-formation)</p> <p>Non vegetated</p> <p>Unattributed</p> <p>Not classified</p> <p>Other</p>
<p>Scale:</p> <p>0 100 200 400 600 800 1,000</p> <p>Meters</p>	<p>Data Sources: Property Boundaries & Topographic Data:</p> <p>© Department Finance, Services & Innovation 2024</p>	<p>Coordinate System:</p> <p>GDA 1994 MGA Zone 56</p> <p>Date: 31 July 2024</p>

Ecological Constraints

Mandalong Road Upgrade, Morisset, NSW 2264

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10388410	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	0m	On-site
10388411	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	0m	On-site
10388413	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	0m	On-site
10388414	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	0m	On-site
10388910	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388964	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388965	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388968	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388969	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388970	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388973	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388974	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388988	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388990	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10388997	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10389002	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10389005	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10389008	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10389009	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10389010	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	0m	On-site
10389294	Not classified	(Not classified) Not classified	Not classified	0m	On-site
10389815	Not classified	(Not classified) Not classified	Not classified	0m	On-site

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10388963	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	10m	South West
10388978	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	21m	West
10389007	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	36m	East
10388412	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	48m	West
10388967	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	55m	West
10389013	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	55m	North East
10389015	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	73m	North East
10389301	Not classified	(Not classified) Not classified	Not classified	96m	West
10388960	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	98m	South West
10389019	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	99m	North East
10388961	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	103m	South West
10388962	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	108m	West
10389827	Not classified	(Not classified) Not classified	Not classified	109m	West
10388954	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	110m	South West
10389018	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	112m	North East
10389006	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	116m	North
10388953	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	121m	South West
10388957	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	122m	South East
10389873	Not classified	(Not classified) Not classified	Not classified	122m	North
10388992	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	128m	East
10388935	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	129m	South West
10389029	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	132m	North
10389022	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	138m	North East
10388972	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	142m	East
10388998	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	158m	East

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10389023	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	163m	North East
10388958	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	176m	West
10389300	Not classified	(Not classified) Not classified	Not classified	178m	West
10388991	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	179m	East
10389016	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	181m	North East
10389809	Not classified	(Not classified) Not classified	Not classified	184m	North
10388902	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	187m	South West
10389004	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	192m	West
10389480	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	192m	West
10389012	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	199m	East
10388951	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	203m	South West
10389807	Not classified	(Not classified) Not classified	Not classified	204m	North West
10388987	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	207m	East
10388918	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	213m	South
10389396	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	214m	North
10388928	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	215m	South West
10389011	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	215m	North
10389017	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	216m	North East
10389280	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	216m	East
10389434	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	217m	North West
10389315	Not classified	(Not classified) Not classified	Not classified	237m	North East
10389036	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	238m	North East
10388984	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	239m	East
10389030	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	245m	North East
10389435	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	247m	West
10388946	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	250m	West
10389874	Not classified	(Not classified) Not classified	Not classified	256m	North
10389394	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	257m	North

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10389825	Not classified	(Not classified) Not classified	Not classified	266m	West
10388956	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	269m	South East
10389031	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	272m	North East
10389286	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	273m	East
10389026	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	276m	North East
10389868	Not classified	(Not classified) Not classified	Not classified	284m	West
10388950	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	286m	East
10388952	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	289m	South East
10388399	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	292m	North East
10389032	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	297m	North East
10388888	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	302m	South West
10388949	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	305m	South East
10389021	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	305m	North East
10389881	Not classified	(Not classified) Not classified	Not classified	311m	North West
10388948	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	315m	South East
10388947	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	320m	South East
10389876	Not classified	(Not classified) Not classified	Not classified	322m	North
10389050	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	327m	North
10389044	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	328m	North
10389291	Not classified	(Not classified) Not classified	Not classified	330m	North
10388945	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	336m	South East
10389446	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	336m	North West
10389841	Not classified	(Not classified) Not classified	Not classified	336m	North West
10389024	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	338m	North East
10389869	Not classified	(Not classified) Not classified	Not classified	339m	West
10389877	Not classified	(Not classified) Not classified	Not classified	340m	North
10388944	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	344m	South West
10389397	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	345m	North

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10389565	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	346m	South West
10388943	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	347m	South East
10388942	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	348m	South East
10388993	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	350m	West
10389566	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	352m	South West
10388941	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	368m	South
10388999	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	371m	West
10388938	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	373m	South East
10389439	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	377m	West
10389562	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	377m	South West
10389844	Not classified	(Not classified) Not classified	Not classified	380m	West
10389425	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	382m	North West
10389557	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	382m	West
10388939	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	383m	South
10389443	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	384m	West
10389437	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	387m	West
10388896	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	393m	South West
10389445	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	395m	West
10388929	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	403m	South West
10388937	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	403m	South East
10389438	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	406m	West
10389567	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	409m	West
10389051	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	411m	North
10388979	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	413m	West
10389444	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	418m	West
10388711	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	420m	South East
10389589	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	426m	West

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10388982	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	427m	West
10388983	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	430m	West
10389863	Not classified	(Not classified) Not classified	Not classified	430m	North West
10389568	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	431m	West
10388934	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	435m	South
10389041	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	435m	North East
10388906	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	438m	South West
10388870	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	441m	South
10388985	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	441m	West
10389043	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	441m	North East
10389560	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	442m	South West
10389046	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	444m	North East
10389053	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	447m	North
10389817	Not classified	(Not classified) Not classified	Not classified	447m	North West
10389054	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	448m	North
10388930	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	449m	South East
10389262	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	450m	East
10388916	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	453m	South West
10389003	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	453m	East
10388936	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	455m	South West
10389058	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	466m	North
10388926	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	467m	South
10389453	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	467m	West
10389563	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	476m	West
10389858	Not classified	(Not classified) Not classified	Not classified	476m	South West
10388931	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	482m	South East

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10389042	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	487m	North East
10389855	Not classified	(Not classified) Not classified	Not classified	499m	North West
10388933	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	500m	South East
10389849	Not classified	(Not classified) Not classified	Not classified	501m	South West
10388909	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	505m	South
10389428	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	505m	West
10388912	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	508m	South West
10389066	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	508m	North
10389455	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	508m	West
10389064	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	511m	North
10389848	Not classified	(Not classified) Not classified	Not classified	511m	West
10389429	Freshwater Wetlands	(Freshwater Wetlands) Coastal Floodplain Phragmites Reedland	Coastal Freshwater Lagoons	521m	West
10388989	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	527m	East
10388878	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	532m	South West
10389426	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	534m	North West
10389556	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	534m	West
10388703	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	536m	East
10389072	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	536m	North
10388922	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	537m	South East
10389457	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	546m	North West
10389880	Not classified	(Not classified) Not classified	Not classified	551m	North
10389452	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	554m	West
10389077	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	555m	North
10389073	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	556m	North
10388899	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	559m	South West
10389080	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	559m	North
10389491	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	562m	West

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10389861	Not classified	(Not classified) Not classified	Not classified	564m	South West
10388901	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	569m	South West
10388725	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	571m	North East
10389427	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	577m	North West
10389442	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	577m	West
10389490	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	578m	West
10389851	Not classified	(Not classified) Not classified	Not classified	580m	North West
10389067	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	582m	North East
10389492	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	582m	West
10388407	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	583m	North East
10388924	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	584m	South
10388400	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	585m	North East
10389559	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	587m	South West
10388925	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	589m	South
10389400	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	593m	North West
10389464	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	593m	North West
10389829	Not classified	(Not classified) Not classified	Not classified	593m	South West
10389493	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	597m	West
10389430	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	598m	West
10389094	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	601m	North
10389590	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	601m	West
10389063	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	603m	North East
10389461	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	606m	North West
10389081	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	607m	North East
10388919	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	609m	South
10388885	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	613m	South West
10389468	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	618m	North West
10388891	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	619m	South West
10389879	Not classified	(Not classified) Not classified	Not classified	619m	North

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10389311	Not classified	(Not classified) Not classified	Not classified	620m	North East
10389020	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	621m	East
10389055	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	622m	North East
10389034	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	627m	North East
10389398	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	627m	North West
10389469	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	627m	North West
10389448	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	633m	West
10388994	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	635m	East
10389060	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	635m	North East
10388890	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	639m	South West
10388722	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	640m	East
10388401	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	642m	North East
10389027	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	644m	North East
10389447	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	646m	West
10389296	Not classified	(Not classified) Not classified	Not classified	648m	South
10389819	Not classified	(Not classified) Not classified	Not classified	649m	South West
10388705	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	651m	East
10386249	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	652m	South West
10388895	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	652m	South
10389097	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	652m	North
10389449	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	654m	West
10389487	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	658m	West
10389070	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	659m	North
10389488	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	666m	West
10388894	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	670m	South West
10389832	Not classified	(Not classified) Not classified	Not classified	673m	South West
10389068	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	674m	North
10389582	Freshwater Wetlands	(Freshwater Wetlands) Coastal Floodplain Phragmites Reedland	Coastal Freshwater Lagoons	678m	West

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10389558	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	679m	South West
10388908	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	684m	South
10389092	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	686m	North East
10389471	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	690m	North West
10386306	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	692m	South West
10389096	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	692m	North East
10389466	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	692m	North West
10389584	Forested Wetlands	(Forested Wetlands) Hunter Estuarine Melaleuca nodosa Scrub	Coastal Floodplain Wetlands	693m	West
10388905	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	695m	South
10389095	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	695m	North East
10388875	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	699m	South
10389583	Forested Wetlands	(Forested Wetlands) Hunter Estuarine Melaleuca nodosa Scrub	Coastal Floodplain Wetlands	699m	West
10389431	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	701m	West
10389282	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	704m	South East
10389450	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	705m	West
10386308	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	709m	South West
10388398	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	711m	North East
10389288	Not classified	(Not classified) Not classified	Not classified	711m	North East
10389325	Not classified	(Not classified) Not classified	Not classified	712m	South
10389451	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	712m	West
10389591	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	715m	West
10389489	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	719m	West
10388513	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	721m	East
10388904	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	724m	South
10389100	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	724m	North
10388889	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	725m	South West
10389099	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	728m	North
10389404	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	728m	North
10389082	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	729m	North

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10386307	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	743m	South West
10389025	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	743m	East
10388403	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	744m	North East
10389101	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	744m	North
10389586	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	744m	West
10389814	Not classified	(Not classified) Not classified	Not classified	744m	South
10386003	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	745m	South West
10389440	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	745m	West
10388897	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	747m	South
10388923	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	749m	East
10389454	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	753m	West
10389052	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	756m	North East
10389473	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	756m	North West
10388986	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	757m	East
10389585	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	757m	West
10388903	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	760m	South East
10389305	Not classified	(Not classified) Not classified	Not classified	762m	South West
10386305	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	763m	South West
10389406	Forested Wetlands	(Forested Wetlands) Southern Estuarine Swamp Paperbark Creekflat Scrub	Coastal Floodplain Wetlands	763m	North
10389824	Not classified	(Not classified) Not classified	Not classified	763m	South West
10389106	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	765m	North
10389285	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	768m	South East
10389555	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	768m	South West
10389441	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	769m	West
10388911	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	770m	South East
10389403	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	770m	North
10386352	Not classified	(Not classified) Not classified	Not classified	771m	South West
10389483	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	772m	West
10389436	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	777m	North West

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10389484	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	779m	West
10389432	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	781m	West
10389561	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	785m	South West
10389474	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	788m	North West
10389284	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	789m	South East
10389472	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	789m	North West
10389847	Not classified	(Not classified) Not classified	Not classified	790m	South West
10386001	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	791m	South West
10388884	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	791m	South West
10389384	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	791m	North
10388887	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	792m	South
10389109	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	792m	North
10389399	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	793m	North West
10389402	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	793m	North West
10389312	Not classified	(Not classified) Not classified	Not classified	795m	South East
10389110	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	796m	North
10389804	Not classified	(Not classified) Not classified	Not classified	796m	West
10388706	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	799m	East
10389401	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	800m	North West
10389107	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	801m	North
10388512	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	802m	East
10389625	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	804m	West
10388865	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	805m	South
10389813	Not classified	(Not classified) Not classified	Not classified	808m	South
10386002	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	809m	South West
10386385	Not classified	(Not classified) Not classified	Not classified	809m	South West
10389467	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	809m	North West
10389564	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Sandy Creekflat Low Paperbark Scrub	Hunter-Macleay Dry Sclerophyll Forests	813m	West
10389433	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	814m	West

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
10388510	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	817m	East
10389112	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	820m	North
10388900	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	825m	South East
10388709	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	828m	East
10389395	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	829m	North
10389867	Not classified	(Not classified) Not classified	Not classified	832m	North West
10389111	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	836m	North
10388898	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	842m	South East
10388511	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	843m	East
10389456	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	845m	West
10389299	Not classified	(Not classified) Not classified	Not classified	847m	South
10389116	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	850m	North
10388971	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	851m	East
10389039	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	851m	North East
10388708	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	853m	East
10389117	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	855m	North
10389803	Not classified	(Not classified) Not classified	Not classified	858m	West
10388707	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	860m	East
10389114	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	860m	North
10389721	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	860m	West
10389113	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	861m	North
10388402	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	864m	North
10389407	Forested Wetlands	(Forested Wetlands) Southern Estuarine Swamp Paperbark Creekflat Scrub	Coastal Floodplain Wetlands	880m	North
10389417	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	880m	North
10389413	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	883m	North West
10389459	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	883m	West
10389033	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	885m	East
10389828	Not classified	(Not classified) Not classified	Not classified	885m	West

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10389071	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	886m	North East
10389088	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	887m	North East
10389485	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	888m	West
10389458	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	889m	West
10389075	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	891m	North East
10388704	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Apple-Bloodwood Forest	Sydney Coastal Dry Sclerophyll Forests	893m	East
10388966	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	893m	East
10389119	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	893m	North
10389118	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	894m	North
10389460	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	896m	West
10386428	Not classified	(Not classified) Not classified	Not classified	898m	South West
10385993	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	901m	South West
10388876	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	901m	South
10389287	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	902m	East
10389418	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	902m	North
10389121	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	916m	North
10389477	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	916m	North
10389089	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	918m	North East
10388404	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	919m	North East
10389486	Forested Wetlands	(Forested Wetlands) Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Coastal Floodplain Wetlands	919m	West
10389281	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	920m	South
10389463	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	920m	West
10389035	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	921m	North East
10388667	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	923m	East
10389882	Not classified	(Not classified) Not classified	Not classified	923m	North
10386457	Not classified	(Not classified) Not classified	Not classified	924m	South West
10386380	Not classified	(Not classified) Not classified	Not classified	927m	South West
10389414	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	928m	North West

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10389122	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	929m	North
10389475	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	929m	North West
10386394	Not classified	(Not classified) Not classified	Not classified	932m	South West
10389416	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	934m	North West
10389420	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	934m	North
10388874	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	936m	South
10389476	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	938m	North West
10385992	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	939m	South West
10388666	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	940m	East
10388881	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	940m	South
10389385	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	940m	North
10388980	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	943m	East
10389381	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Ranges Turpentine Wet Forest	North Coast Wet Sclerophyll Forests	944m	North
10389123	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	945m	North
10385991	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	947m	South West
10389415	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	948m	North West
10389387	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	949m	North
10389084	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	951m	North East
10388405	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	952m	North East
10389037	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	953m	North East
10389105	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	953m	North East
10389104	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	959m	North East
10386421	Not classified	(Not classified) Not classified	Not classified	960m	South West
10389102	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	960m	North East
10385990	Dry Sclerophyll Forests (Shrub/grass sub-formation)	(Dry Sclerophyll Forests (Shrub/grass sub-formation)) Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	Hunter-Macleay Dry Sclerophyll Forests	961m	South West
10389465	Forested Wetlands	(Forested Wetlands) Lower North Riverflat Eucalypt-Paperbark Forest	Coastal Floodplain Wetlands	961m	North West

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10389388	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	962m	North
10388721	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	963m	East
10389386	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	963m	North
10389408	Forested Wetlands	(Forested Wetlands) Southern Estuarine Swamp Paperbark Creekflat Scrub	Coastal Floodplain Wetlands	964m	North
10389409	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	966m	North West
10386447	Not classified	(Not classified) Not classified	Not classified	970m	South West
10389810	Not classified	(Not classified) Not classified	Not classified	970m	North
10389124	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	977m	North
10389125	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	977m	North
10388886	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	985m	South
10389049	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	986m	North East
10389578	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	986m	South West
10389580	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	992m	South West
10388668	Forested Wetlands	(Forested Wetlands) Lower North Creekflat Mahogany Swamp Forest	Coastal Swamp Forests	995m	East
10389382	Wet Sclerophyll Forests (Shrubby sub-formation)	(Wet Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Ranges Turpentine Wet Forest	North Coast Wet Sclerophyll Forests	995m	North
10389410	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Coastal Sands Bloodwood Low Forest	Coastal Dune Dry Sclerophyll Forests	996m	North West
10389693	Forested Wetlands	(Forested Wetlands) Coastal Creekflat Layered Grass-Sedge Swamp Forest	Coastal Floodplain Wetlands	997m	West
10389126	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	998m	North
10388883	Dry Sclerophyll Forests (Shrubby sub-formation)	(Dry Sclerophyll Forests (Shrubby sub-formation)) Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	999m	South

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

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Ecological Constraints

Mandalong Road Upgrade, Morisset, NSW 2264

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

Mandalong Road Upgrade, Morisset, NSW 2264

Collaborative Australian Protected Areas Database - Terrestrial

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

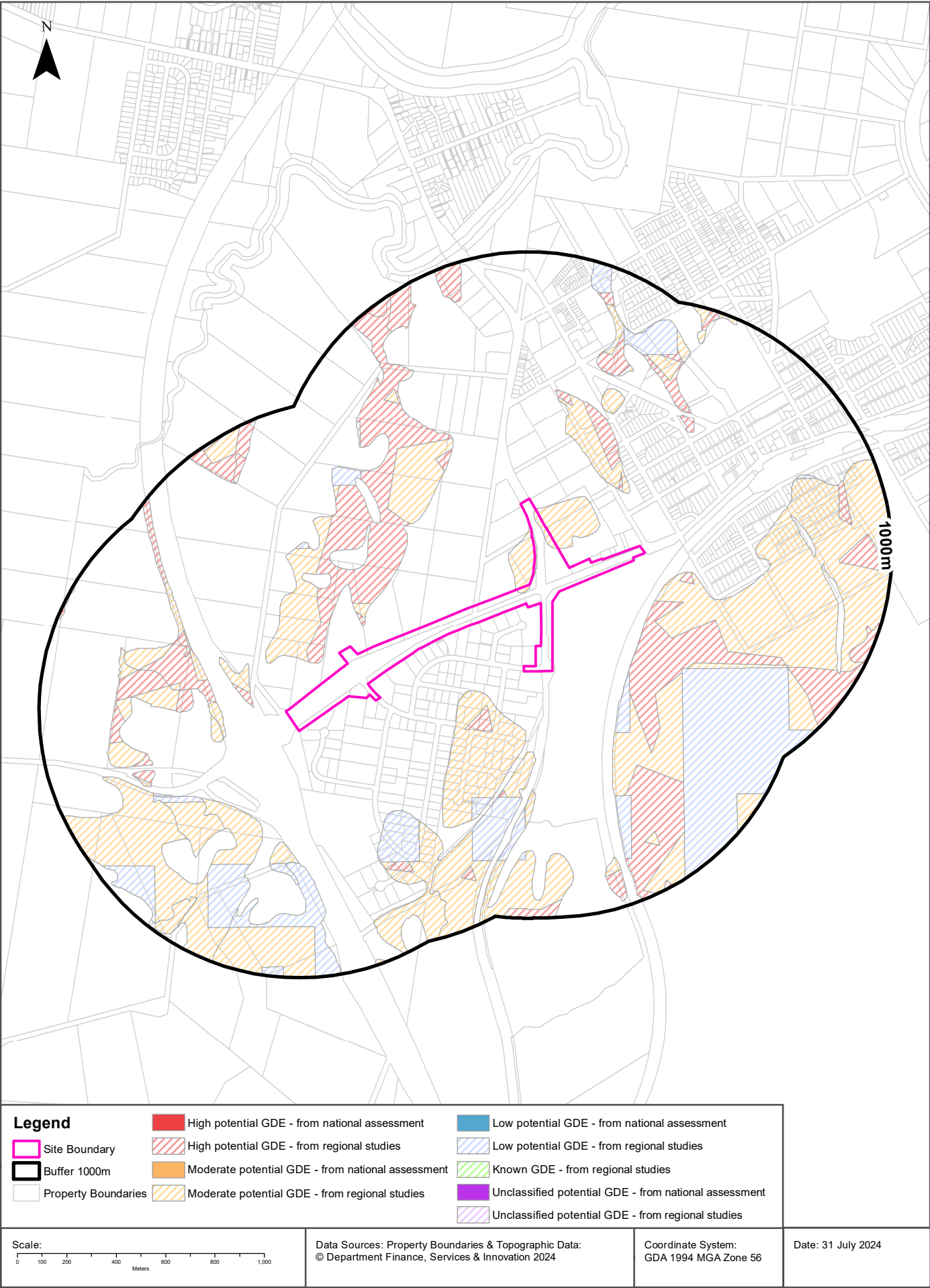
Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Collaborative Australian Protected Areas Database - Marine

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

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

Source: Collaborative Australian Protected Areas Database (CAPAD) 2022
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Ecological Constraints

Mandalong Road Upgrade, Morisset, NSW 2264

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	Moderate potential GDE - from regional studies	Deeply dissected sandstone plateaus.	Vegetation		0m	On-site
Terrestrial	High potential GDE - from regional studies	Deeply dissected sandstone plateaus.	Vegetation		64m	North West
Terrestrial	Low potential GDE - from regional studies	Deeply dissected sandstone plateaus.	Vegetation		294m	South East

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

Mandalong Road Upgrade, Morisset, NSW 2264

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial		5 Deeply dissected sandstone plateaus.	Vegetation		0m	On-site
Terrestrial		6 Deeply dissected sandstone plateaus.	Vegetation		64m	North West
Terrestrial		3 Deeply dissected sandstone plateaus.	Vegetation		94m	West
Terrestrial		7 Deeply dissected sandstone plateaus.	Vegetation		146m	East
Terrestrial		4 Deeply dissected sandstone plateaus.	Vegetation		256m	West
Terrestrial		8 Deeply dissected sandstone plateaus.	Vegetation		294m	South East
Terrestrial		1 Deeply dissected sandstone plateaus.	Vegetation		342m	West
Terrestrial		2 Deeply dissected sandstone plateaus.	Vegetation		455m	South West

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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Ecological Constraints

Mandalong Road Upgrade, Morisset, NSW 2264

NSW BioNet Species Sightings

Species sightings from the NSW BioNet Repository that have either a state or federal conservation status, or a sensitivity status, and are within 10 km of the site:

Note: This data does not include NSW Category 1 sensitive species.

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Crinia tinnula	Wallum Froglet	Not Sensitive	Vulnerable	Not Listed	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Not Sensitive	Endangered	Vulnerable	
Animalia	Amphibia	Litoria brevipalmata	Green-thighed Frog	Not Sensitive	Vulnerable	Not Listed	
Animalia	Amphibia	Mixophyes balbus	Stuttering Frog	Category 2	Endangered	Vulnerable	
Animalia	Amphibia	Mixophyes iteratus	Giant Barred Frog	Category 2	Vulnerable	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Category 2	Critically Endangered	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna grisea	Sooty Shearwater	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Ardenna pacifica	Wedge-tailed Shearwater	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris canutus	Red Knot	Not Sensitive	Not Listed	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Not Sensitive	Endangered	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Category 3	Endangered	Endangered	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Category 2	Vulnerable	Not Listed	
Animalia	Aves	Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	Category 2	Vulnerable	Vulnerable	
Animalia	Aves	Charadrius veredus	Oriental Plover	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Cuculus optatus	Oriental Cuckoo	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Sensitive	Not Listed	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Not Sensitive	Endangered	Critically Endangered	
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophochroa leadbeateri	Pink Cockatoo	Category 2	Vulnerable	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Sensitive	Not Listed	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Oxyura australis	Blue-billed Duck	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pomatostomus temporalis	Grey-crowned Babbler (eastern subspecies)	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Pycnophilus floccosus	Pilotbird	Not Sensitive	Not Listed	Vulnerable	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Rhipidura fuliginosa	New Zealand Fantail (Lord Howe Is. subsp.)	Not Sensitive	Extinct	Extinct	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Stercorarius parasiticus	Arctic Jaeger	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sterna hirundo	Common Tern	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albigula	Little Tern	Not Sensitive	Endangered	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Thalasseus bergii	Crested Tern	Not Sensitive	Not Listed	Not Listed	JAMBA
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Turnix maculosus	Red-backed Button-quail	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Category 3	Vulnerable	Not Listed	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Not Sensitive	Vulnerable	Endangered	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Not Sensitive	Vulnerable	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Notamacropus parma	Parma Wallaby	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Nyctophilus bifax	Eastern Long-eared Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Petauroides volans	Southern Greater Glider	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Petaurus australis	Yellow-bellied Glider	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Petaurus norfolkensis	Squirrel Glider	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	Not Sensitive	Endangered	Vulnerable	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Phascogale cinereus	Koala	Not Sensitive	Endangered	Endangered	
Animalia	Mammalia	Phoniscus papuensis	Golden-tipped Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Sensitive	Not Listed	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Shearwater	Not Sensitive	Vulnerable	Not Listed	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Vespadelus troungtoni	Eastern Cave Bat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Not Sensitive	Endangered	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Reptilia	Eretmochelys imbricata	Hawksbill Turtle	Not Sensitive	Not Listed	Vulnerable	
Animalia	Reptilia	Hoplocephalus stephensii	Stephens' Banded Snake	Not Sensitive	Vulnerable	Not Listed	
Animalia	Reptilia	Pseudonaja modesta	Ringed Brown Snake	Not Sensitive	Endangered	Not Listed	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue-tongued Lizard	Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Angophora inopina	Charmhaven Apple	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Asperula asthenes	Trailing Woodruff	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Caesia parviflora var. minor	Small Pale Grass-lily	Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Caladenia tessellata	Thick Lip Spider Orchid	Category 2	Endangered	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Category 3	Vulnerable	Not Listed	
Plantae	Flora	Corunastylis sp. Charmhaven (NSW896673)		Category 2	Critically Endangered	Critically Endangered	
Plantae	Flora	Corybas dowlingii	Red Helmet Orchid	Category 2	Endangered	Not Listed	
Plantae	Flora	Cryptostylis hunteriana	Leafless Tongue Orchid	Category 2	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus parramattensis subsp. decadens		Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Eucalyptus parramattensis subsp. parramattensis		Not Sensitive	Endangered Population	Not Listed	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Fontainea oraria	Coastal Fontainea	Category 2	Critically Endangered	Critically Endangered	
Plantae	Flora	Genoplesium insigne	Variable Midge Orchid	Category 2	Critically Endangered	Critically Endangered	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Category 3	Not Listed	Extinct	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Sensitive	Not Listed	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Maundia triglochinos		Not Sensitive	Vulnerable	Not Listed	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Persicaria elatior	Tall Knotweed	Not Sensitive	Vulnerable	Vulnerable	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Pterostylis sp. Botany Bay	Botany Bay Bearded Orchid	Category 2	Endangered	Endangered	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Not Sensitive	Critically Endangered	Critically Endangered	
Plantae	Flora	Rhodomyrtus psidioides	Native Guava	Not Sensitive	Critically Endangered	Critically Endangered	
Plantae	Flora	Rutidosia heterogama	Heath Wrinklewort	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Not Sensitive	Endangered	Vulnerable	
Plantae	Flora	Tetradlea juncea	Black-eyed Susan	Not Sensitive	Vulnerable	Vulnerable	

Source: NSW BioNet Species Sightings

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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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