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APPENDIX M – Environmental Impact Statement

Statement of heritage impact

Prepared for Lake Lyell Project Pty Ltd



Lake Lyell Pumped Hydro Energy Storage Project

Statement of Heritage Impact

Lake Lyell Project Pty Ltd

E221111 RP9

November 2025

Version	Date	Prepared by	Reviewed by	Comments
1	11 July 2024	Antonella Skepasianos	Susan Lampard	Draft for client review
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5	26 November 2025	Adrian Caridi	Joel Mason	Final

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Executive Summary

EnergyAustralia Portfolio Holdings Pty Ltd (EnergyAustralia) in partnership with EDF power solutions Australia (EDFA), referred to as Lake Lyell Project Pty Ltd (LLP) as trustee, is developing the Lake Lyell Pumped Hydro Energy Storage (PHES) Project (the project). The project will have the capacity to store up to 3,080 megawatt hours (MWh) of energy and generate at 385 megawatts (MW) for 8 hours or generate up to around 440 MW for a shorter period.

EMM Consulting Pty Limited (EMM) has been engaged by LLP to prepare and submit a Statement of Heritage Impact (SoHI) to assess the potential historical heritage (built and archaeological) impacts of the project as part of the environmental impact statement (EIS). A separate Aboriginal cultural heritage assessment (ACHA) (Appendix L of the EIS) addresses potential impacts on Aboriginal cultural heritage.

The project will be constructed in a landscape that was opened for settlers through the construction of roads to Bathurst from the 1820s to the 1830s. The No.2 Stockade was built on Cox's River in 1832 to support the construction of Mitchell's line. Archaeological resources associated with the Stockade occupation have been previously recorded in the project area. Land holdings were sporadically taken up from the 1840s, with the region south of Farmer's Creek more heavily occupied than the north, much of which became reserve land. Although the No. 2 Stockade is within the project area, it is located outside both the disturbance footprint and the construction envelope, therefore no impacts are anticipated for this site.

During field investigations, three sites were identified. One site (LLH001) was identified within the project area's construction envelope, situated approximately 30 metres (m) outside the north-western boundary of the disturbance footprint. The site consists of the remains of a mid to late 20th century ancillary structure that was ephemeral and likely abandoned. An assessment of the site's significance found that it does not meet the threshold for local significance.

Two additional sites were identified within the curtilage Lithgow Valley Colliery & Pottery Site (SHR #00078), the Lithgow Valley Pottery and Brickworks (LEP #A124), and the Pottery Estate Heritage Conservation Area (#C11) where the alternative workforce accommodation location (Town Camp) is proposed. The landscape is disturbed and varied, with terraced and heaped clay to the east and flatter ground to the west where artefact scatters are more concentrated. Scatters comprise bricks, tiles and pottery, with modern dumped material present in places. In the north-west of the footprint, within Zone I Area 1, two in-ground brick features were identified: a small brick footing consistent with a machinery base near the former boiler or engine house, and a curved brick wall segment attributed to a beehive pottery kiln. Both display mixed brick types and appear to continue beneath shallow capping fill, indicating high archaeological potential. Outside the footprint but within the heritage curtilage, the brick stack and clay store remain, with additional remnant brickwork; views to nearby heritage items to the north are largely screened by vegetation and intervening structures. Overall, the Town Camp area is likely to contain archaeological relics that contribute to the State significance of the Lithgow Pottery Estate, with archaeological value concentrated in Zone I.

The PHES project area has potential to contain unidentified historical relics linked to early colonial and pastoral use, but there are no heritage-listed items within the PHES disturbance footprint that would be directly impacted. Two nearby items, Highland House (#I169) and the Royal Hotel (#I062), may experience minor, temporary visual effects. For Highland House the effect is limited by distance. For the Royal Hotel any effect is expected to arise from temporary traffic management at the Magpie Hollow Road and Great Western Highway intersection. With standard controls, residual indirect impacts are minor and can be managed through the measures in Chapter 10.

For the workforce accommodation, the Lakeside Camp sits within the PHES area and has no identified or listed heritage items within or near its boundary. The only heritage risk relates to possible unidentified relics, which can be managed through unexpected finds procedures.

The Town Camp sits within the curtilage of three heritage items: the Lithgow Valley Colliery and Pottery Site (SHR #00078), the Lithgow Valley Pottery and Brickworks (LEP #A124), and the Pottery Estate Heritage Conservation Area (#C11). Archaeological potential within this footprint ranges from low to high. Construction would result in adverse impacts to fabric, setting and the conservation area, and a major adverse impact to State significant historical archaeology through disturbance and potential removal of relics, which would diminish research potential. Indirect visual and vibration effects from the Town Camp are expected to be little to none, due to separation and screening. On balance, the Town Camp option would result in a major adverse heritage impact.

A summary of site-specific management and mitigation options are outlined in Table ES1.

Table ES1 Site management measures

Site ID	Site name	Site type	Significance/ grading	Impact type	Project modifications	Management or mitigation options
LLH001	Remains of ancillary structure	Archaeological	None	Physical – removal	Not necessary	None required as the site is not of heritage significance.
	No. 2 Stockade on Cox's River	Archaeological	Potentially local	None	Not necessary	Site be made known in the construction environmental management plan (CEMP) and identified as a no-go area.
SHR #00078, LEP #A124, #C11	Lithgow Valley Colliery and Pottery Site, Lithgow Valley Pottery and Brickworks, and Pottery Estate Heritage Conservation Area	Archaeological and conservation	State	Construction directly in areas of low, moderate, and high archaeological potential	To minimise historical heritage impacts, the Lakeside Camp is the preferred alternative	If the alternative town camp is chosen for the temporary workforce accommodation, then the following must be completed in compliance with the development control plan (DCP): • Archaeological assessment/investigation that will inform the extent and nature of the archaeology and surviving relics. The research potential of this site is part of the State significance, thus further investigation is required. • Detailed design of camp to consider the design policies from the DCP. • Prepare an 'Integrated Interpretation Plan'. • Photographic archival recording.

Definitions and abbreviations

Item	Definition/abbreviation
ACHA	Aboriginal Cultural Heritage Assessment
CEMP	Construction Environmental Management Plan
Development footprint	The extent of actual surface disturbance proposed by the project and assessed in the EIS. All operational components of the project will be within the development footprint.
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
ECI	Early contractor involvement
EIS	Environmental Impact Statement
EMM	EMM Consulting Pty Limited
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
GL	Gigalitre
ha	Hectare
km	Kilometre
LEP	Local Environmental Plan
LGA	Local government area
LTO	Land Titles Office
MNES	Matters of national environmental significance
MW	Megawatt
NSW	New South Wales
Planning Systems SEPP	*State Environmental Planning Policy (Planning Systems) 2021*
Project area	The maximum area considered for the project based on the extent of land where EnergyAustralia holds landholder agreements
REZ	Renewable energy zone
SEARs	Secretary's environmental assessment requirements
SHR	State Heritage Register
SSD	State Significant Development
SSI	State Significant Infrastructure
the project	Lake Lyell Pumped Hydro Energy Storage Project

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1 Introduction

1.1 Overview

EnergyAustralia Portfolio Holdings Pty Ltd (EnergyAustralia) in partnership with EDF power solutions Australia (EDFA), referred to as Lake Lyell Project Pty Ltd (LLP) as trustee, is developing the Lake Lyell Pumped Hydro Energy Storage (PHES) Project (the project). The project will have the capacity to store up to 3,080 megawatt hours (MWh) of energy and generate at 385 megawatts (MW) for 8 hours or generate up to around 440 MW for a shorter period. At a basic level, it will consist of upper and lower water reservoirs, a pipeline connecting them, and a hydro-electric power station connected to the national energy grid that is capable of generating or consuming electricity.

The project is located approximately 5 kilometres (km) west of Lithgow and 110 km west of the Sydney central business district, shown in Figure 1.1 and Figure 1.2. The project takes advantage of existing infrastructure (i.e. Lake Lyell) associated with Mt Piper power station which will be decommissioned in the coming decades and allows Lake Lyell to continue to serve a specific purpose in electricity generation (consistent with its existing use).

In June 2024, the Minister for Planning and Public Spaces declared the project to be Critical State Significant Infrastructure (CSSI). Accordingly, approval for the project is required under Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). This requires the preparation of an environmental impact statement (EIS) for the project in accordance with Secretary's environmental assessment requirements (SEARs) and the approval of the Minister. EMM Consulting Pty Limited (EMM) has been engaged by LLP to prepare the EIS.

This Statement of Heritage Impact (SoHI) is an appendix to the project's EIS and should be read in conjunction with it. The SoHI addresses the SEARs issued for the project.

1.2 Assessment approach and requirements

This SoHI has been prepared with reference to relevant guidelines, policies and industry requirements, and following consultation with stakeholders, including relevant government agencies and the community, as detailed in the assessment methodology in Chapter 4 and satisfy the SEARs.

1.2.1 Secretary's environmental assessment requirements

This assessment has been prepared in accordance with the requirements of the NSW Department of Planning, Housing and Infrastructure (DPHI) and relevant agencies, which are set out in the SEARs for the project, issued on 17 November 2025. The SEARs identify matters which must be addressed in the EIS. Table 1.1 lists individual requirements relevant to this SoHI and where they are addressed in this report.

Table 1.1 Historic heritage related SEARs

Requirement	Section addressed
Heritage – including:	
• An assessment of the impact to historic heritage prepared by a suitably qualified heritage consultant in accordance with the *Guidelines for preparing a statement of heritage impact* (DPE 2023).	This report

1.3 Purpose of this report

This SoHI supports the EIS for the project. It documents the historical development of the project area, initiatives built into the project design to avoid impacts to historical heritage values, and the management of those values into the future.

The specific objectives of this assessment are to:

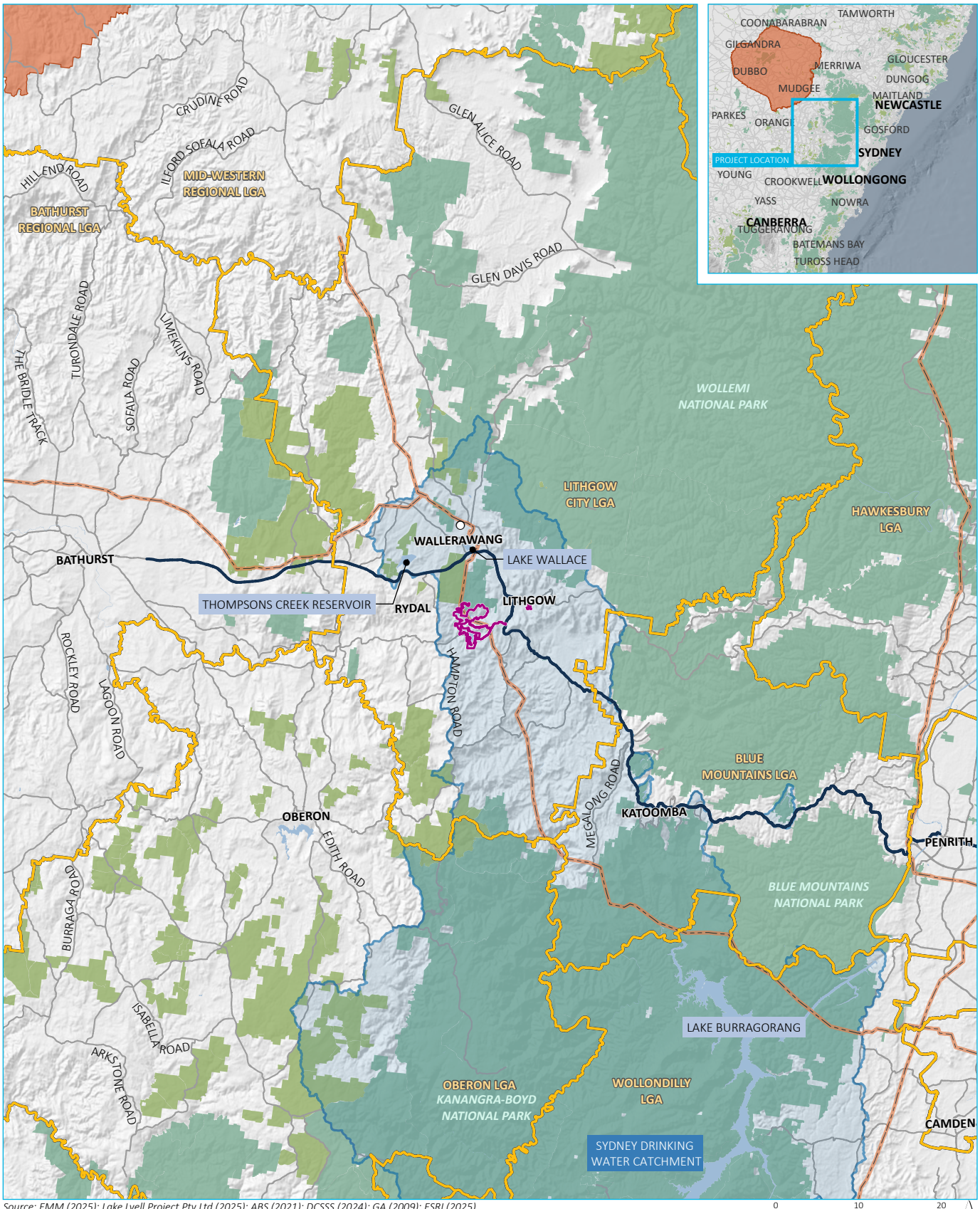
- address the SEARs for the project (see Chapter 9)
- describe the existing environment including currently identified heritage items, and the built and natural landscape
- understand the historical development of the project area, what the drivers were and more recent changes
- achieve an understanding of surviving and potential heritage values, including built, archaeological, and significant landscapes
- assess the impact of the project on all listed and unlisted heritage values
- identify historical heritage constraints in the project area and impacts arising from the project
- provide management measures to reduce the impacts from the project on historical heritage values wherever possible
- where impacts are unavoidable, consider compensatory measures that are appropriate for the project.

This SoHI has been prepared in accordance with the legislative requirements set out in Chapter 3.

1.4 Authorship and acknowledgements

The report was prepared by Antonella Skepasianos, Archaeologist (EMM); Amelia O'Donnell, Historian (EMM); and Adrian Caridi, Archaeologist (EMM).

Quality assurance and technical review was provided by Dr Susan Lampard – Associate Archaeologist.



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); ABS (2021); DCSSS (2024); GA (2009); ESRI (2025)

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KEY

- Project area

Existing environment

- Mt Piper Power Station
- Major road
- Great Western Highway
- 330 kV transmission line
- Named waterbody
- NPWS reserve
- State forest
- Local government area
- Sydney Drinking Water Catchment
- Central West Orana Renewable Energy Zone

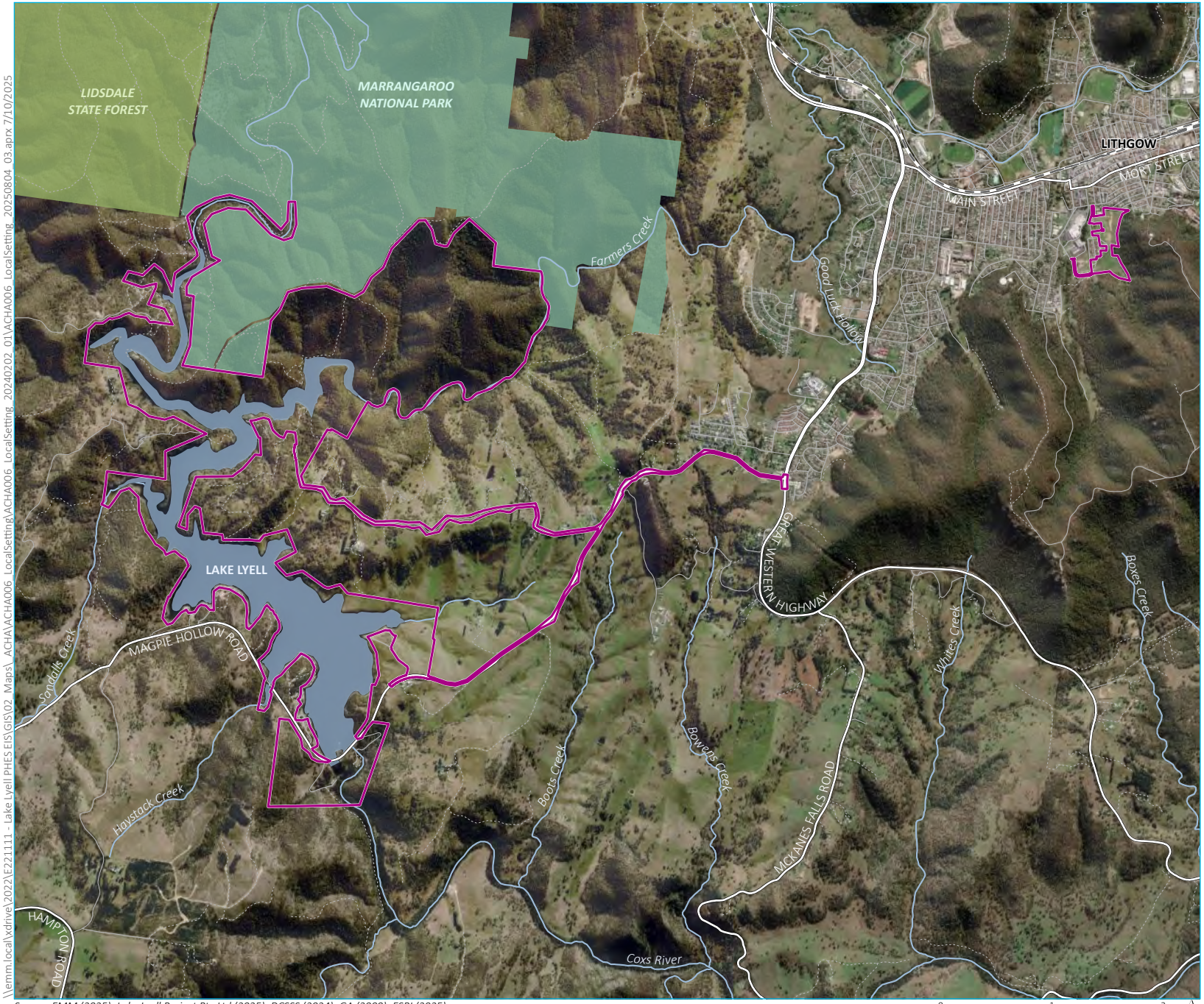
INSET KEY

- Major road
- NPWS reserve
- State forest
- Central West Orana Renewable Energy Zone

Regional context

Lake Lyell PHES
Statement of Heritage Impact
Figure 1.1

EMM creating opportunities



KEY

- Project area

Existing environment

- Rail line
- Major road
- Minor road
- Vehicular track
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

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Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); ESRI (2025)

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Local context

Lake Lyell PHES
Statement of Heritage Impacts
Figure 1.2

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2 Project description

A detailed description of the project, including an overview of its design, construction and operation is provided in the project's EIS. The EIS (specifically Chapter 3 and Appendix B) should be read in conjunction with this report. A summary of the project's key elements is provided below.

The project design, as shown in Figure 2.1, can be broadly categorised into:

- Pumped hydro generation components – including a 5.3 gigalitre (GL) upper reservoir to be constructed behind the southern ridge of Mount Walker, a 33.5 GL lower reservoir (existing Lake Lyell), inlet/outlet structures, and an underground powerhouse, surge shaft and waterway tunnels.
- Transmission connection components – including a new high voltage switchyard and connection to the existing 330 kilovolt (kV) transmission line that runs through the site.
- Site access and ancillary facilities – including upgrade of existing and construction of new access roads and bridges, a diversion and infill of a section of Lake Lyell, administration and utilities.
- Other construction components or works – including geotechnical investigations, temporary workforce accommodation, site work pads, laydown areas and facilities, and spoil management.

Construction will be completed in stages, including:

- Pre-construction/enabling works – consisting of initial access works (internal and external roads), geotechnical investigations, site establishment and preparation of the worker's accommodation camp.
- Main works – consisting of all other construction activities needed to enable operation of the project.

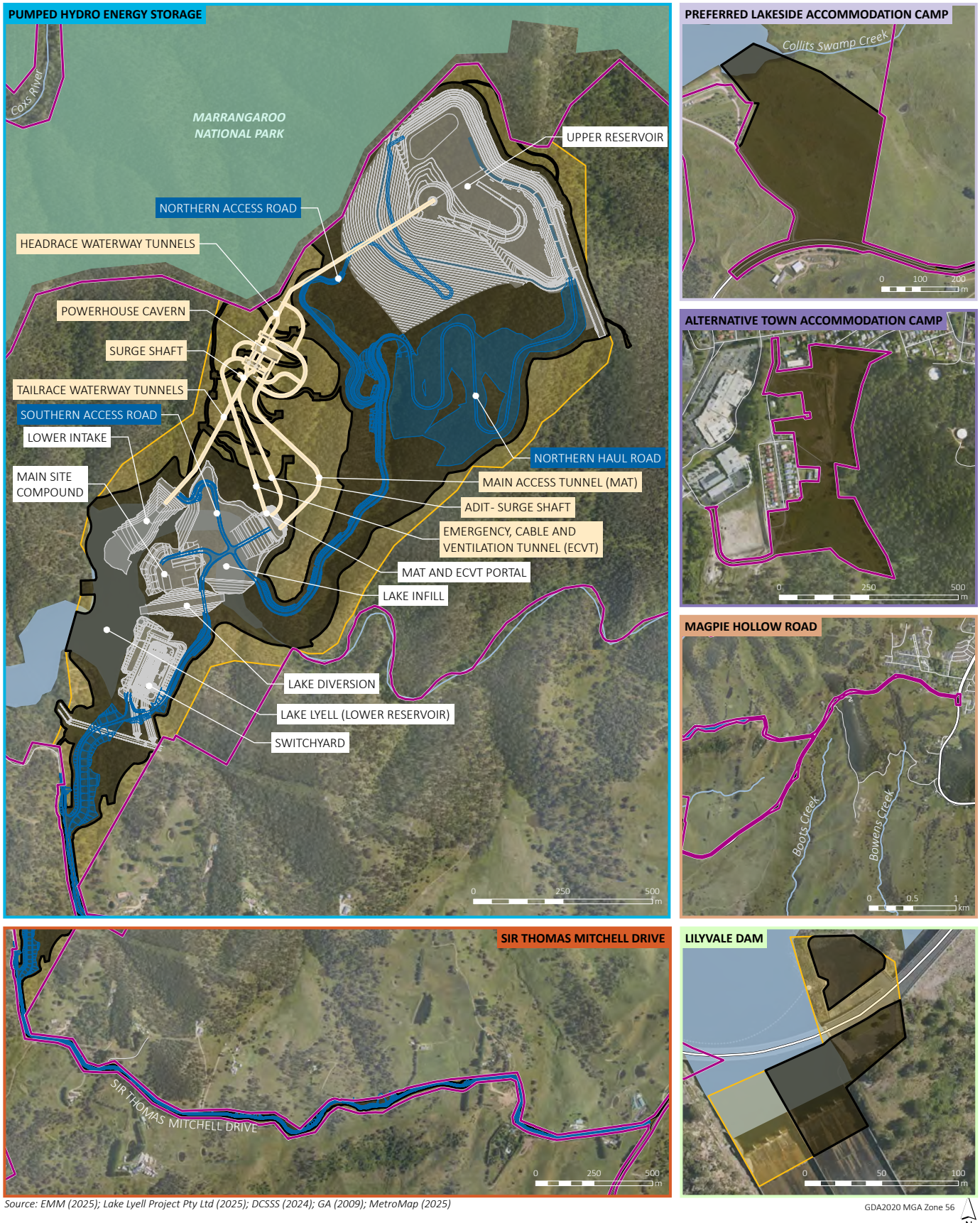
During operation, the project will act as an electrical energy storage system through the conversion of electrical to kinetic energy to gravitational energy and back via water as it is transferred from the elevated upper reservoir to a lower reservoir. The project will provide services to the wholesale 'spot' market on the National Electricity Market (NEM), and support ancillary services used to manage the power system reliably.

After the 80 to 100 year design life of the project, the asset may remain viable for a plant refurbishment and extension of life as has been seen for other older assets globally. Following the plants final refurbishment or once it has reached the end of its serviceable life then the project would look to return the site to a more natural state and encourage community beneficial use.

2.1 Project terms and study area

A number of technical terms have been utilised throughout this report for the discussion of historical heritage. These are explained in the definitions and abbreviations. For the purposes of this technical report, the project area will be divided into two differently labelled portions to best discuss the heritage impacts of each. These include:

- PHES project area: including the pumped hydro, Lake Lyell, Lilyvale Dam laydown, Magpie Hollow Road (including the intersection upgrades at Sir Thomas Mitchell Drive and the temporary intersection modifications at the Great Western Highway), and the preferred Lakeside Camp location.
- Town Camp project area: comprising the project boundary in the Pottery Estate at Lithgow for the alternative Town Camp location.



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); MetroMap (2025)

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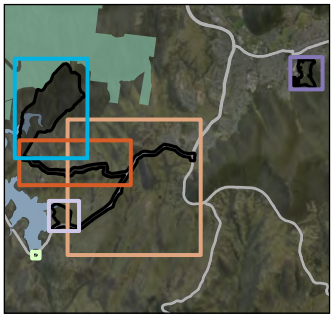

KEY

- Project area
- Permanent road
- Above ground design
- Underground design
- Construction envelope
- Disturbance footprint

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve

Project overview

Lake Lyell PHES
Statement of Heritage Impacts
Figure 2.1

EMM creating opportunities

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3 Statutory framework

3.1 Legislation

In NSW, heritage sites (both heritage items and archaeological relics) assessed to be of local or State significance are protected by two main pieces of legislation: the EP&A Act and the NSW *Heritage Act 1977* (Heritage Act). An additional layer of protection is added by the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) in relation to world, national or Commonwealth listed heritage items.

3.1.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is a Commonwealth Act that provides a legal framework for the protection of the environment. The EPBC Act definition of environment includes places of natural, Indigenous and historic heritage value. Under the EPBC Act, heritage places can be listed on:

- World Heritage List (WHL) – places inscribed on the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List.
- National Heritage List (NHL) – places of significance to the nation.
- Commonwealth Heritage List (CHL) – items belonging to the Commonwealth or its agencies.

The EPBC Act requires actions on Commonwealth land (Section 26) and actions undertaken by a Commonwealth agency (Section 28) to be assessed to determine whether they are likely to have a significant impact on the environment. Heritage places may be listed on a statutory register, such as the WHL, NHL, CHL or State-based registers, or may be an unlisted item identified by a Commonwealth agency.

Additionally, actions that may impact on Matters of National Environmental Significance (MNES) must also be assessed for impacts. MNES that relate to heritage include identification on the WHL or NHL. Under the EPBC Act, an action that may have a significant impact on a MNES is deemed to be a 'controlled action' and can only proceed with the approval of the Commonwealth Minister for the Environment. An action that may potentially have a significant impact on a MNES is to be referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for determination as to whether or not it is a controlled action. If deemed a controlled action the project is assessed under the EPBC Act for approval.

The project will not have a significant impact on any world heritage properties or places listed on the NHL or CHL, and the EPBC Act is not discussed further.

3.1.2 NSW Environmental Planning and Assessment Act 1979

A framework for formally assessing cultural heritage values as part of the development and assessment process is provided within the EP&A Act. It requires that environmental impacts are considered before development is carried out and that appropriate measures to avoid, mitigate or ameliorate impacts are developed; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits.

In accordance with the EP&A Act, local governments are directed to prepare planning instruments which regulate land use and planning. Local environmental plans (LEPs) and development control plans (DCPs) are examples of these. These documents provide guidance on planning decisions, identify environmentally sensitive areas, and include the identification of heritage items. Due to the size, economic value or impacts, some types of development are assessed as State Significant Development (SSD) or State Significant Infrastructure (SSI). Where a project is identified as SSD or SSI, the NSW Department of Planning, Housing and Infrastructure directs the proponent to prepare an application for SEARs, which define the various studies and guidelines for the preparation of an EIS and supporting technical reports.

The project has been declared to be SSI and CSSI and an EIS is required to address the SEARs.

i Lithgow Local Environmental Plan 2014

Part 5, Section 5.10 of the Lithgow Local Environmental Plan 2014 (Lithgow LEP) addresses the conservation of heritage significance within the Lithgow Local Government Area (LGA). The objectives of the Lithgow LEP in relation to heritage are:

a) to conserve the environmental heritage of Lithgow

b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views

c) to conserve archaeological sites

d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

To achieve these objectives, development consent is required to demolish, move, alter, disturb or excavate a heritage item, an Aboriginal object or a building, work, relic or tree within a heritage conservation area. Schedule 5 of the Lithgow LEP provides a list of heritage items, conservation areas and archaeological sites within the Lithgow LGA. An assessment of this list, coupled with additional heritage register searches, affirms that there are no listed sites either within the project area or in its immediate vicinity, as outlined in Table 5.1 and Table 5.2.

ii Lithgow Development Control Plan 2021

The Lithgow Development Control Plan 2021 (Lithgow DCP 2021) supplements the objectives of the Lithgow LEP 2014 by providing detailed development guidelines across the LGA. Chapter 4 of the Lithgow DCP sets out consent requirements and general controls for development involving heritage items, places or conservation areas, with specific provisions addressing matters such as design, scale, materials and archaeological management.

Additionally, Chapter 9 – *Pottery Estate Precinct* – provides site-specific planning controls for this historically significant locality. It sets out locality-based requirements to guide subdivision, built form and heritage and cultural conservation, ensuring future development in the precinct aligns with the objectives of Clause 7.12 of the Lithgow LEP 2014.

3.1.3 NSW Heritage Act 1977

The Heritage Act is legislation for the promotion and conservation of the heritage places, items, and objects of NSW. The Heritage Act is administered by the Heritage Council of NSW whose role is to advise the Minister with responsibility for heritage on matters relating to the conservation of the State's heritage. In practice, this power is largely delegated to Heritage NSW.

i State Heritage Register

Under the Heritage Act, items of significance to the State are be recognised on the State Heritage Register (SHR). Items on the SHR cannot be demolished, nor can they be damaged, developed, altered or excavation undertaken without approval from the Heritage Council of NSW (or its delegate) under Section 59 of the Act. Section 59 extends to relics inside the item's curtilage.

Separate approvals under the Heritage Act are not required for CSSI projects under Section 5.23 of the EP&A Act. This includes approvals to undertake works to a State Heritage Register item (ss 57(1) and 60) and permits for excavation that may disturb historical archaeological relics (ss 139 and 140). Heritage management will instead be addressed through the CSSI approval and its conditions, in consultation with Heritage NSW, including any unexpected finds requirements unless expressly modified.

ii Archaeology and relics

The Heritage Act also protects 'relics', regardless of their listing status. It applies to all NSW land that is not listed on the SHR. Section 4(1) of the Heritage Act (as amended 2009) defines ‘relic’ as follows:

> A “relic” means any deposit, artefact, object or material evidence that:
>
> (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
>
> (b) is of State or local heritage significance.

Section 139(1) of the Heritage Act states that:

> A person must not disturb or excavate any land knowingly or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.

Section 146 requires persons to notify the Heritage Council of NSW within a reasonable time if an unanticipated relic is discovered. The Heritage Act identifies the category of ‘works’, which refers to historical infrastructure, and is viewed as separate to that of archaeological ‘relics’ under the Heritage Act. ‘Works’ may be buried, and are therefore archaeological in nature, but exposing a ‘work’ does not trigger reporting obligations under the Heritage Act unless it is of demonstrable significance.

iii State Government Heritage and Conservation (s170) Registers

Section 170 of the Heritage Act requires State government agencies to establish and maintain a register of heritage items, to be known as a Heritage and Conservation Register. State agencies are required to undertake due diligence with regard to the care, control and management of items listed on their Section 170 Heritage and Conservation Register. Additionally, State agencies must notify the Heritage Council of NSW 14 days in advance if they intend to remove an item from their register, transfer ownership, cease occupation, demolish. Section 170 does not place statutory requirements on individuals or non-State government entities.

3.2 Identifying listed heritage items

Statutory and non-statutory registers were reviewed as listing on statutory registers provides a basis under which the item or place is protected. Statutory listings provide legal protection for heritage items under the legislation outlined above. Statutory registers reviewed as a part of this assessment include:

- WHL – this register is made under the EPBC Act.
- NHL – this register is made under the EPBC Act.
- CHL – this register is made under the EPBC Act.
- State Heritage Register SHR – this register is made under Part 3A of the Heritage Act. Items on the SHR undergo a rigorous assessment process and must reach a high significance threshold to be included. Inclusion on the SHR is directed by the Minister for Heritage.
- Section 170 register – this register is made under Section 170 of the Heritage Act. It is a register of heritage items that are owned or managed by state government authorities. Items on the Section 170 register may also be listed on other registers. Demolition, change to fabric and change of ownership require notification to the Heritage Council of NSW.

- Schedule 5 of the Lithgow LEP.

- State Heritage Inventory (SHI) – the SHI is not a single statutory register, but a central collection of State and locally listed statutory heritage items maintained by the Heritage Division.

Non-statutory listing is an acknowledgment of a site's or place's importance to sections of the community. Listings on such registers do not place legal requirements on development, but nevertheless influence the future of such listed items. Non-statutory registers reviewed as a part of this assessment include:

- National Trust of Australia, NSW (NT) – the NT is made up of autonomous state chapters. Each chapter is a community-based and non-government organisation, with a mandate to conserve and promote Australia's natural and cultural heritage. Classification by NT is a strong acknowledgment of heritage significance and while statutory constraints are not applicable, classification offers protection through visibility and community action.

- Register of the National Estate (RNE) – the RNE is an archived list of heritage items that were protected under the now repealed Commonwealth *Heritage Commission Act 1975*, which was replaced by the EPBC Act. While many items were transferred from the RNE to the NHL or CHL, those that were not, remain on the RNE as an indication of their heritage value.

4 Assessment methods

This SoHI has been prepared in accordance with the relevant government assessment requirements, guidelines and policies. This report and associated field survey were undertaken using the principles of The Australian International Council on Monuments and Sites, Charter for Places of Cultural Significance (also known as the Burra Charter, Australia ICOMOS, 2013) and the *NSW Heritage Manual* (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996). Use of these documents satisfies the requirements of the SEARs.

The Burra Charter defines the concept of cultural significance as 'aesthetic, historic, scientific, social or spiritual value for past, present or future generations' (Australia ICOMOS 2013, Article 1.2). It identifies that conservation of an item of cultural significance should be guided by the item's level of significance.

The Heritage Manual comprises the following guidance documents:

- *Assessing Heritage Significance* (DPE 2023a)
- *Statements of Heritage Impact Guidelines* (DPE 2023b)
- *Investigating Heritage Significance* (Heritage Council NSW 2022)
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Branch 2009).

These documents have been used to guide this SoHI and are referenced throughout to demonstrate compliance with the SEARs.

4.1 Research sources

Research for this report was conducted using primary sources such as maps, plans and gazettes etc, which were accessed through online portals such as:

- Land Registry Services NSW
- National Library of Australia: Trove Online
- Historical aerial photographs (Land Insight & Resources)
- State Library of NSW (Mitchell Wing).

4.2 Field survey methods

EMM conducted an archaeological field survey of the PHES project area over a 2 week period from October to November 2023 as part of the preparation of this SoHI. Additionally, an archaeological field survey of the alternative Town Camp to be constructed at the 'Pottery Estate', Magpie Hollow Road, and Lilyvale Dam laydown area was conducted on 23 July 2025.

4.2.1 Objectives

The purpose of the field surveys was to record historical cultural heritage with potential to be impacted by the project, record features of interest and their significance and identify management measures required prior to construction.

4.2.2 Data collection methods

Site locations and their details were recorded with digital tablets using site recording forms created by EMM on the Survey123 application for ArcGIS (Esri© software). The digital tablets had a location accuracy of up to ±3 metres (m), similar to hand-held non-differential GPS units (~5 m). The Survey123 forms allowed for a site's location, details and representative photographs to be linked together, which avoids potential post-fieldwork issues around data integrity.

4.2.3 Survey plan

The initial field survey was conducted on a single occasion for a duration of two weeks between 30 October 2023 to 9 November 2023 and was undertaken by Megan Sheppard Brennand, Senior Archaeologist (EMM) and Nicolas Reilly, Archaeologist (EMM).

Targeted sections of the project area were walked to identify historical heritage sites and assess the presence of non-Aboriginal artefacts with the potential to meet the criteria for archaeological relics. Given the landscape and historical context of the area, it was determined that achieving 100% coverage of the project area was not practical. Instead, a targeted field strategy was implemented, focusing on key sites within the project area that were identified through a desktop review outlined in Chapter 6.

Further field survey was conducted on a single occasion on 23 July 2025 and was undertaken by Joel Mason, Senior Historical Archaeologist (EMM) and Adrian Caridi, Archaeologist (EMM). This field survey involved investigating the landscape of the alternative Town Camp project area and a search of evidence on the surface of archaeological resources and extant structures associated with the Pottery Estate. Additional surveys were conducted for the expanded PHES project area, including the Lilyvale Dam laydown area, intersection of Sir Thomas Mitchell Drive and Magpie Hollow Road and also the intersection of Great Western Highway and Magpie Hollow Road.

5 Existing environment

5.1 Introduction

Understanding the environmental context is crucial for predicting archaeological potential, including the likelihood of finding archaeological artefacts within the landscape, how they are spread spatially, and their state of preservation. The PHES project area is within the parish of Lidsdale in the county of Cook. Access to water, soil landscapes, geomorphology and land disturbance are characteristics that would have been valuable to settlers of the region. Records of the subdivision and subsequent ownership of the land within the project area have the ability to demonstrate the existence of dwellings for settlers, as well as their archaeological 'leftovers'.

The Town Camp project area is situated near the centre of Lithgow, off Silcock Street. It is bounded by the urbanised environment of Lithgow to the north and west, while the south and east are mountainous dense forest. It is situated within the parish of Lett, county of Cook.

As such, the landscape features of the project areas are an important guide to determine potential sites or historical structures that would have included huts, cottages, homesteads, outbuildings, as well as critical water sources including stock tanks and wells.

5.2 Landscape overview

Bioregions are relatively large land areas characterised by broad, landscape-scale natural features and environmental processes that capture large-scale geophysical patterns at an ecosystem scale. Sub-regions delineate significant geomorphic patterns within a bioregion, and are based on finer differences in geology, vegetation and biophysical attributes.

The PHES project area is within the South Eastern Highlands bioregion, inland from the coastal bioregion of Sydney Basin. It covers the dissected ranges and plateau of the Great Dividing Range. This project area lies within two subregions, Hill End and Bathurst. Hill End, which encompasses the northern portion of the project area, is characterised by hilly to mountainous plateaus becoming deeply entrenched into channels of the Turon and Macquarie River. The geology of the subregion consists of slates, sandstones and volcanic rock with numerous quartz veins running throughout. The Hill End subregion is considered of ecological significance due to its location as a break in the Great Dividing Range. This gap provides a link between coastal and inland NSW including an overlap between tropical and temperate climate zones (Macfarlane et al. 2017).

The landscape is characterised by steep to very steep hills on Carboniferous granite with granite rock outcrop and steep cliffs in the northern part of the project area (north of the Farmers Creek arm of Lake Lyell). South of the Farmers Creek arm, the topography is lower and flatter and the landform elements are more varied with broad rounded crests and slopes descending down to Lake Lyell and the Farmers Creek arm of Lake Lyell.

5.3 Heritage listings

The PHES and Town Camp project areas fall within the Lithgow LGA. A search of National, State and local heritage registers was conducted on the 14 July 2025.There are no listed heritage items in PHES disturbance footprint. Heritage items within 2 km of the PHES project area are shown in Figure 5.1 and summarised in Table 5.1. As the PHES project area is situated within a rural landscape, a larger buffer is required to produce an understanding of the broader surrounding heritage significance. A viewshed analysis is included in the figure to illustrate lines of sight from the listed heritage items (in Table 5.1) to the project area.

A search of National, State and local heritage registers was conducted on 10 July 2025 of the Town Camp project area. There are three listed heritage items in this disturbance footprint. These are the State significant Lithgow Valley Colliery & Pottery Site (SHR #00078), and the locally significant Lithgow Valley Pottery and Brickworks (LEP #A124) and Pottery Estate Heritage Conservation Area (#C11). Heritage items within a buffer of 300 m of the Town Camp disturbance footprint are shown in Figure 5.2 and summarised in Table 5.2. As the Town Camp project area is situated within the urban Lithgow township, a smaller buffer zone was applied due to the reduction in available sightlines within the urban environment.

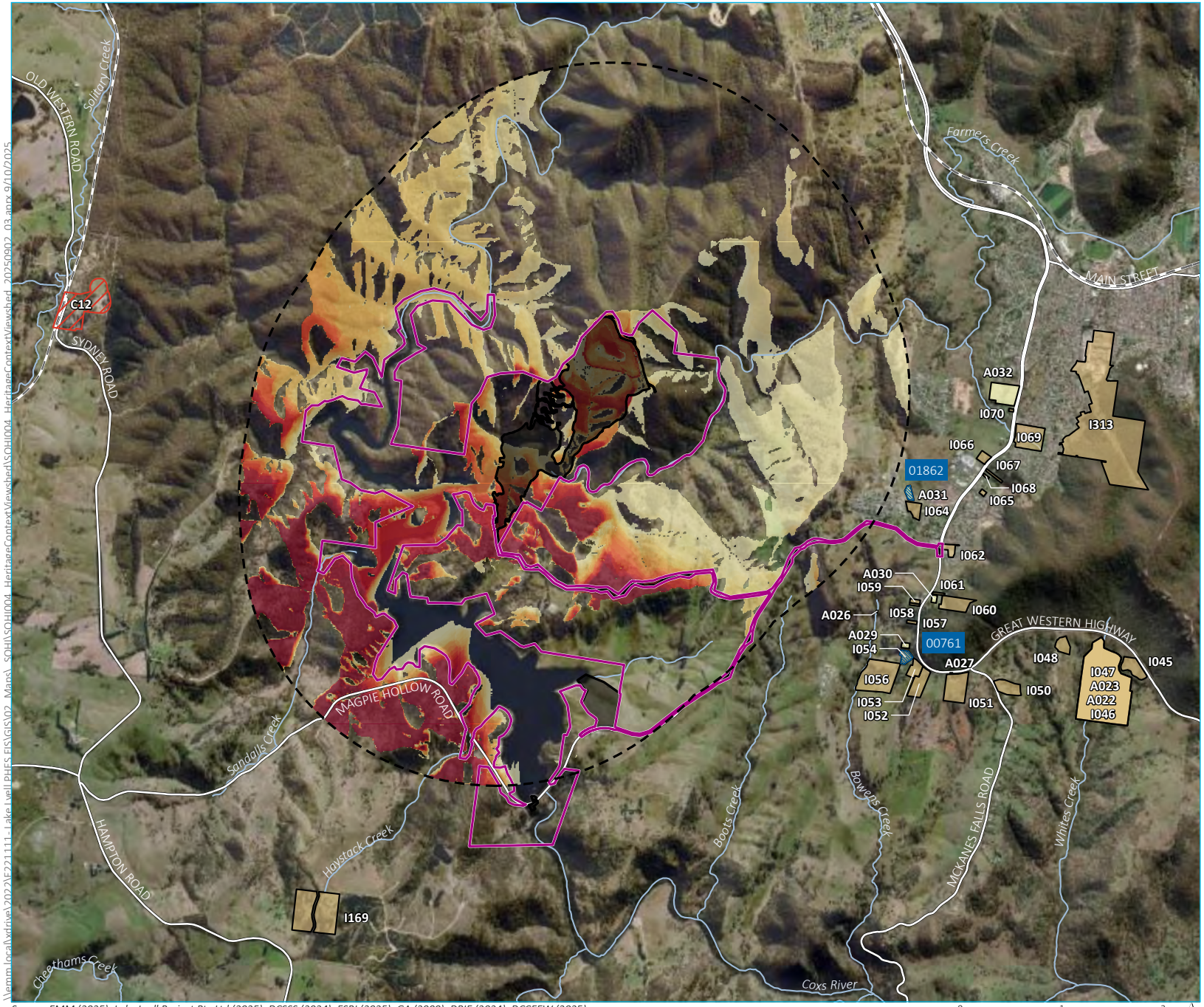
Table 5.1 Register search for the PHES project area

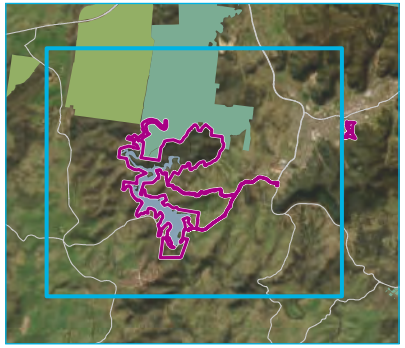
Register	Register listing	Item number	Distance to closest PHES project boundary
WHL	None	N/A	N/A
NHL	None	N/A	N/A
CHL	None	N/A	N/A
SHR	*Lithgow Heavy Anti-Aircraft Gun Stations and Dummy Station*	#01862	~400 m north
	Bowenfels National School Site	#00761	~1 km south
Section 170	None	N/A	N/A
Archaeological sites	*Former Eagle & Child Inn*	#A022	~1.7 km south-east
	Forty Bends Cemetery	#A023	~1.7 km south-east
	Bowens Creek Bridge Abutments	#A026	~800 m south
	Road culvert and sustaining wall at Emoh	#A027	~1.15 km south-east
	Old Catholic Cemetery	#A029	~900 m south
	Gun Emplacements	#A031	~400 m north
	Bowenfels Presbyterian Cemetery	#A030	~400 m south
	Lithgow General Cemetery	#A032	~1.5 km north-east
Heritage conservation areas (HCAs)	*Rydal*	C12	~2 km north-west
NT – non-statutory	None	N/A	N/A
RNE – non-statutory	None	N/A	N/A
Lithgow LEP	*Stone and Timber Cottage*	#I045	~2 km south-east
	Forty Bends Cottage	#I046	~1.7 km south-east
	Forty Bends Monte Vista	#I047	~1.7 km south-east
	Daintree	#I048	~1.4 km south-east
	Gonna-Do	#I050	~1.33 km south-east
	Emoh (Emu Store/Corderoy's Store)	#I051	~1.2 km m south-east
	Umera (Bowenfels Inn, Tricks House)	#I052	~1.13 km south

Register	Register listing	Item number	Distance to closest PHES project boundary
	Ben Avon (former Royal Hotel)	#I053	~1.06 km south
	National School Group	#I054	~1 km south
	Co-operative Slaughter yards	#I056	~1.1 km south
	Somerset House	#I057	~680 m south
	Parsonage Farm	#I058	~520 m south
	Presbyterian Church & Sessions Hall Sth Bowenfalls	#I059	~470 m south
	Cottage and outbuildings	#I060	~400 m south
	Caldwells house	#I061	~360 m south
	Royal Hotel	#I062	Abutting east of project area
	Airdrie	#I064	~200 m north
	Fairview	#I065	~620 m north-east
	Sweet Briar	#I066	~900 n north-east
	Cottage (former Cooerwull Academy)	#I067	~830 m north-east
	Kanangra	#I068	~800 m north-east
	Former Cooerwull Academy	#I069	~1.2 km north-east
	Rankin	#I070	~1.45 km north-east
	Highland House	#I169	~1.4 km south-west
	Small Arms Factory	#I313	~1.45 km north-east

Table 5.2 Register search for the Town Camp project area

Register	Register listing	Item number	Distance to closest project boundary
WHL	None	N/A	N/A
NHL	None	N/A	N/A
CHL	None	N/A	N/A
SHR	*Lithgow Valley Colliery & Pottery Site*	SHR #00078	In project area
Section 170 (Department of Education)	*Lithgow Public School*	#5064550	~300 m north-east
	Lithgow Public School - Buildings B00A, B00B, B00D-B00F, B00I and B00J	#5064544	~300 m north-east
Lithgow LEP	*House*	#I268	~200 m north-west
	House	#I269	~200 m north-west
	Cottage – Duplex	#270	~190 m north-west
	Terrace	#I271	~180 m north-west
	Lithgow Valley Colliery Office	#I272	Abuts north-east
	Former LVC Managers Residence	#I273	Abuts north-west
	Hillcrest	#I275	~200 m east
	Lithgow Public School Group	#I278	~300 m north-east
	Lithgow Catholic Presbytery	#I308	~180 m north
	Terrace	#I323	~260 m north-west
	Charles Lewins Memorial Rotunda	#I332	~290 m north-west
	Tattersals Hotel	#I335	~300 m north
	War Memorial Statue	#I364	~290 m north-west
	Commercial Hotel	#I382	~300 m north-west
Archaeological sites	*Lithgow War Memorial*	#A122	~290 m north-west
	Lithgow Valley Pottery and Brickworks	#A124	In project area
	Lithgow Valley Colliery Quoits Field	#A186	Abuts south-west
HCAs	*Cook St*	#C2	~160 m north-east
	Eskbank St	#C3	~225 m north-east
	Lithgow Main St	#C7	~200 m north-west
	Pottery Estate Heritage Conservation Area	#C11	In project area
NT – non-statutory	None	N/A	N/A
RNE – non-statutory	None	N/A	N/A





KEY

- Project area
- Disturbance footprint
- Main works buffer (2.5 km)
- State heritage register

Lithgow Local Environmental Plan 2014

- Conservation Area- General
- Item- Archaeological
- Item- General

Existing environment

- Rail line
- Major road
- Named watercourse

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); ESRI (2025); GA (2009); DPIE (2024); DCCEEW (2025)

0 1 2 km

GDA2020 MGA Zone 56

N

Heritage context with viewshed analysis- PHES

Lake Lyell PHES
Statement of Heritage Impacts
Figure 5.1

EMM creating opportunities

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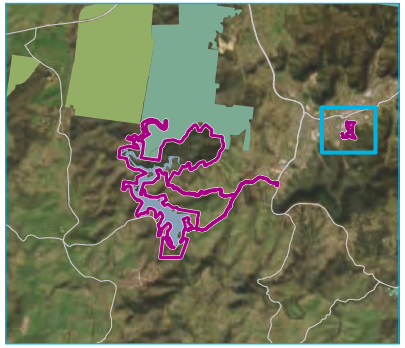

KEY

- Project area
- Disturbance footprint
- Main works buffer (300 m)
- s170 listing
- State heritage register

Lithgow Local Environmental Plan 2014

- Conservation Area- General
- Item- Archaeological
- Item- General

Existing environment

- Rail line
- Major road
- Named watercourse
- Named waterbody

Town camp visibility

- Highly visible
- Not very visible

Heritage context with viewshed analysis- town camp

Lake Lyell PHES
Statement of Heritage Impacts
Figure 5.2

EMM creating opportunities

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); ESRI (2025); GA (2009); DPIE (2024); DCCEEW (2025)

0 250 500 m
GDA2020 MGA Zone 56
N

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6 Historical summary

6.1 Historical themes

The Australian and NSW heritage systems employ a series of historic themes to guide the understanding of history and historical investigation in the Nation and State. As part of any historic heritage assessment, it is important to review the historic themes when undertaking research on an area or place to provide proper context. The State and National themes are complementary to enable the historian to present a unified understanding of how an area fits into Australian history. The historic themes are also an important guide when assessing an item's heritage significance. They provide information on how an item may be historically significant at the local, State or National level.

Finally, historic themes help to develop interpretation and management strategies for items of heritage significance. A full list of these themes can be found on the Heritage NSW website. Historic themes in the project area were identified based on the historical background (as described below) and the results of the historical survey (Chapter 7). The Australian and NSW historic themes relevant to the project area that have been used in this report are listed in Table 6.1.

Table 6.1 Historical themes

Australian theme	NSW theme	Local theme
1. Tracing the natural evolution of Australia	Environment – naturally evolved	There are two aspects to this theme: 1. Features occurring naturally in the physical environment which have significance independent of human intervention. 2. Features occurring naturally in the physical environment which have shaped or influenced human life and cultures.
2. Peopling Australia	Aboriginal cultures and interactions with other cultures	Activities associated with maintaining, developing, experiencing and remembering Aboriginal cultural identities and practises, past and present; with demonstrating distinctive ways of life; and with interactions demonstrating race relations.
	Convict	Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788–1850) - does not include activities associated with the conviction of persons in NSW that are unrelated to the imperial 'convict system': use the theme of Law & Order for such activities.
3. Developing local, regional and national economies	Agriculture	Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture.
	Environment – cultural landscape	Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings.
	Pastoralism	Activities associated with the breeding, raising, processing and distribution of livestock for human use.
	Transport	Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements.
4. Building settlements, towns and cities	Land tenure	Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal.
	Utilities	Activities associated with the provision of services, especially on a communal basis.

Australian theme	NSW theme	Local theme
5. Working	Labour	Activities associated with work practises and organised and unorganised labour.
8. Developing Australia's cultural life	Domestic life	Activities associated with creating, maintaining, living in and working around houses and institutions.
	Leisure	Activities associated with recreation and relaxation.
9. Marking the phases of life	Birth and Death	Activities associated with the initial stages of human life and the bearing of children, and with the final stages of human life and disposal of the dead.

Source: Heritage Council of NSW, 2001

6.2 Historical context

6.2.1 The environment of pre and early contact

The study area sits broadly at the intersection of three Aboriginal language groups, on the fluid edges of Wiradjuri, Darug and Gundungurra Country. Wiradjuri Country was known as the land of the three rivers because life centred around the Wambool (Macquarie River), the Karare (Lachlan River) and the Murrumbidjeri rivers (the Murrumbidgee River) (Umwelt 2016, 15). Tindale (1974, 201) records Wiradjuri custodianship covered an area of 97,100 km^2 extending from the Murray River in the south, the edge of the grasslands at Hay in the west, and the Blue Mountains ridge in the east. Darug Country was divided into freshwater (inland) and saltwater (coastal) country, and custodianship covered an area of approximately 6,000 km^2 from Parramatta in the east through to the Blue Mountains and from the Hawkesbury River in the north to Appin in the south (Tindale 1974, 193). Gundungurra Country covered approximately 10,700 km^2 around the catchments of the Wollondilly and Cox's rivers, Goulburn, Berrima and Camden, and some territory west of the Great Dividing Range (Tindale 1974, 193).

The density of occupation and art sites between Hartley Vale and Capertree indicates the region likely sustained a sizable population prior to European contact (Jack 2000, 11). Plant and animal resources in the valley would have been at their best in the winter months, when the carbohydrate load of swamp plants was at its maximum and prey species such as the swamp rat and wombat had their breeding season (Gollan 1987, 27–28). Summers may have been spent on the eastern slopes or in the Hawkesbury estuary (Gollan 1987, 27–28).

The first major contact between Europeans and clans of the Wiradjuri, Darug and Gundungurra who frequented the Lithgow region, came with the crossing of the Blue Mountains in 1813 (Parry 2008). As was the case with many Aboriginal groups elsewhere, the people of the Cox's River valley were decimated by diseases, including measles and smallpox, introduced by Europeans. In addition, Europeans settlement of the region from c.1820 resulted in the dispossession of traditional occupation and resource-gathering lands from Aboriginal people. Despite Government attempts to influence Aboriginal people to relinquish their traditional practices, engagement with European society continued to be negotiated alongside traditional lifeways. Traditional skills were valued by the European settlers and individuals served as labourers, guides, and trackers well into the twentieth century (Umwelt 2016, 16; Jack 2000, 9–10). Today, the contemporary traditional custodians of the study area maintain their cultural links to Wiradjuri, Darug and Gundungurra country, family and aspects of traditional life. They fulfil their cultural responsibilities to care for country and for their cultural heritage places across the Lithgow region.

6.2.2 Exploration

The Blue Mountains were a major barrier in the expansion of the NSW colony. Aboriginal people knew there were viable ridgetop routes through the Blue Mountains from the Hawkesbury-Nepean valley and Southern Highlands but early European explorations into the mountains were not successful (Comber Consultants 2009, 15; Jack 2000, 1). By 1810, drought, insect plagues, and soil exhaustion meant additional arable land was needed to support the colony (National Museum of Australia 2022). In the winter of 1813 Gregory Blaxland, William Lawson, and William Wentworth opened the first passage through the Blue Mountains from Penrith into the west plains of NSW (Comber Consultants 2009, 15; Jack 2000, 1). Descending into the Lithgow area, the party noted the region comprised well-watered grassy meadows (Jack 2000, 12).

Following the expedition, Governor Macquarie sent Surveyor George Evans to confirm the reports and determine if the land beyond the mountains was suited to agriculture (Edward Higginbotham & Associates 2013, 10). Evans confirmed the land was good and Macquarie dispatched William Cox to construct a cart road from Emu Plains to Bathurst Plains, which was completed in early 1815 (EHA 2013, 10). To assist in road construction and settlement in the districts west of the Blue Mountains, a government provision depot was built on the Cox's River at Hartley, approximately 9 km south-east of the project area (Comber Consultants 2009, 28). The Cox's River was subject to exploration in 1819, when John Jamison sent Thomas Jones and three Darug guides – Gilderoy, Millot and Nagga – to trace its route of the Cox's River from Hartley (Comber Consultants 2009, 20). European settlers moved into the region soon after (Jack 2000, 16).

6.2.3 Early settlement

Until 1825, free settlers were awarded grants of land from the Colonial Government with portions dependant on sex, family size, social status, and government/military position (State Library of NSW 2023). James Walker and station overseer Andrew Brown established the *Wallerawang* pastoral station on the Cox's River, approximately 9 km north of the project area, sometime between 1820 and 1824 (Wilson 1917, 550). Walker, however, was not officially granted the 200 acre (80.9 hectare) block until 1839 (Wilson 1917, 550; Jack 2000, 19). Rudimentary huts would have been constructed over the station for shepherds and stockmen, and workers practiced small-scale agriculture for self-sufficiency, growing fruits, vegetables, wheat and fodder crops (Jack 2000). Both sheep and cattle were grazed on *Wallerawang* but sheep became the primary industry of the region (Jack 2000, 18–19).

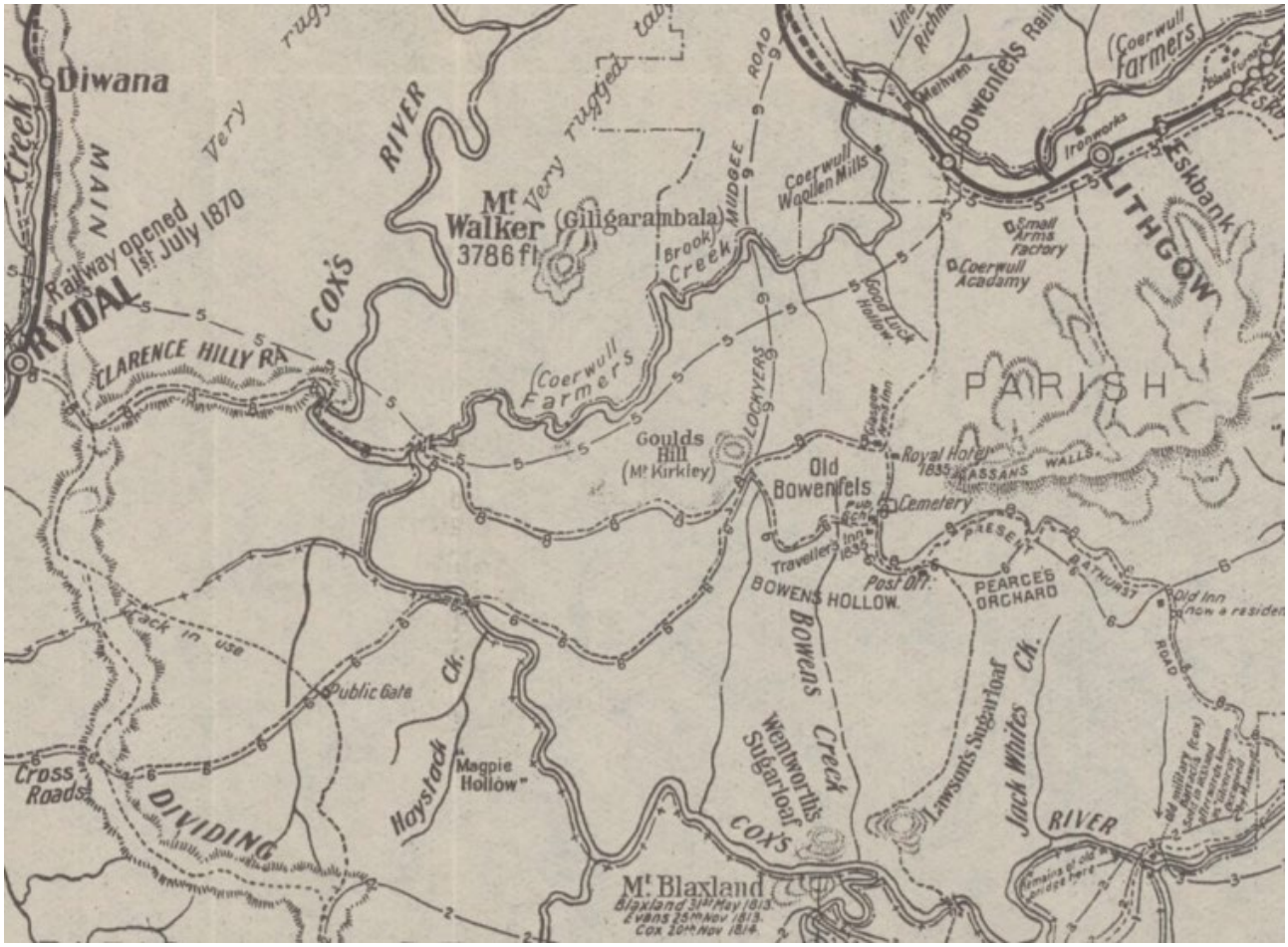
Soon after coming to the area, Walker and Brown established a stock route connecting Lithgow to the western plains, which later became the Mudgee Road (Jack 2000, 16). Despite the early presence of Walker and Brown in the region, settlement was slow because of the transport difficulties posed by the poor condition and steep gradients of Cox's Road and the 1823 Bell's Line of Road from Richmond (Niche Environment and Heritage Pty Ltd 2019, 47).

6.2.4 Transport routes

To improve transport routes west, various roads were constructed from Mount Victoria over the 1820s and 1830s (Jack 2000, 13–14). Three routes pass through/ near the project area (Plate 6.1). In 1827, Hamilton Hume and Assistant Surveyor George Bowen led an expedition to discover alternative routes west, which avoided the steep descent from Mount York (Wilson 1917, 557). The party found three routes into and through the Lithgow Valley and the south-most route passed through the project area in the vicinity of the historical Farmer's Creek and Cox's River Junction (Hume 1827, 3). Between, 1828 and 1829 Major Edmund Lockyer discovered and built a road along a new line of descent that passed north of Hassans Walls, meeting Cox's road at the Macquarie River (Jack 2000, 14). Lockyer's road passed through the south portion of the project area, crossing Cox's River approximately 500 m north of the historical junction of Haystack Creek (Plate 6.1). A causeway on Lockyer's road collapsed after it was built leading to the construction of a new road (Wilson 1917, 554).

In 1830, Surveyor General Thomas Mitchell marked a new road to Bathurst, which would become the Great Western Highway (Jack 2000, 14; Sue Rosen Pty Ltd 1992, 6). Mitchell's route crossed the Cox's River at the foot of Mount Walker, passing through the project area in the same location as Hume and Bowen's route, before following a single ridge west towards Solitary Creek (Plate 6.1) (Sue Rosen Pty Ltd 1992, 6). Mitchell's road was constructed using convict labour (Sue Rosen Pty Ltd 1992, 6).

Sections of the road east of Lithgow had been completed by 1832 and in March 1832, 120 convicts and military regiments were transported from Wisemen's Ferry to the Cox's River to continue the route through the Lithgow Valley (Sue Rosen Pty Ltd 1994, 14). Assistant Surveyor John Lambie oversaw the construction of a stockade on the Cox's River to house the convict gangs and overseeing regiments working on the road, which was completed in 1835 (Sue Rosen Pty Ltd 1994, 14).



Source: Wilson 1917

Plate 6.1 **Detail from 'Map showing the various attempts to find the best route from Mt Victoria to the Western Country NSW', Alex Wilson, 1914. Number 5 is the route of Hume and Bowen, 1827; number 8 is Mitchell's Road, c.1834–1835; and number 6 is Lockyer's Road, c.1828–1829**

i Cox's Stockade No.2 and burial site

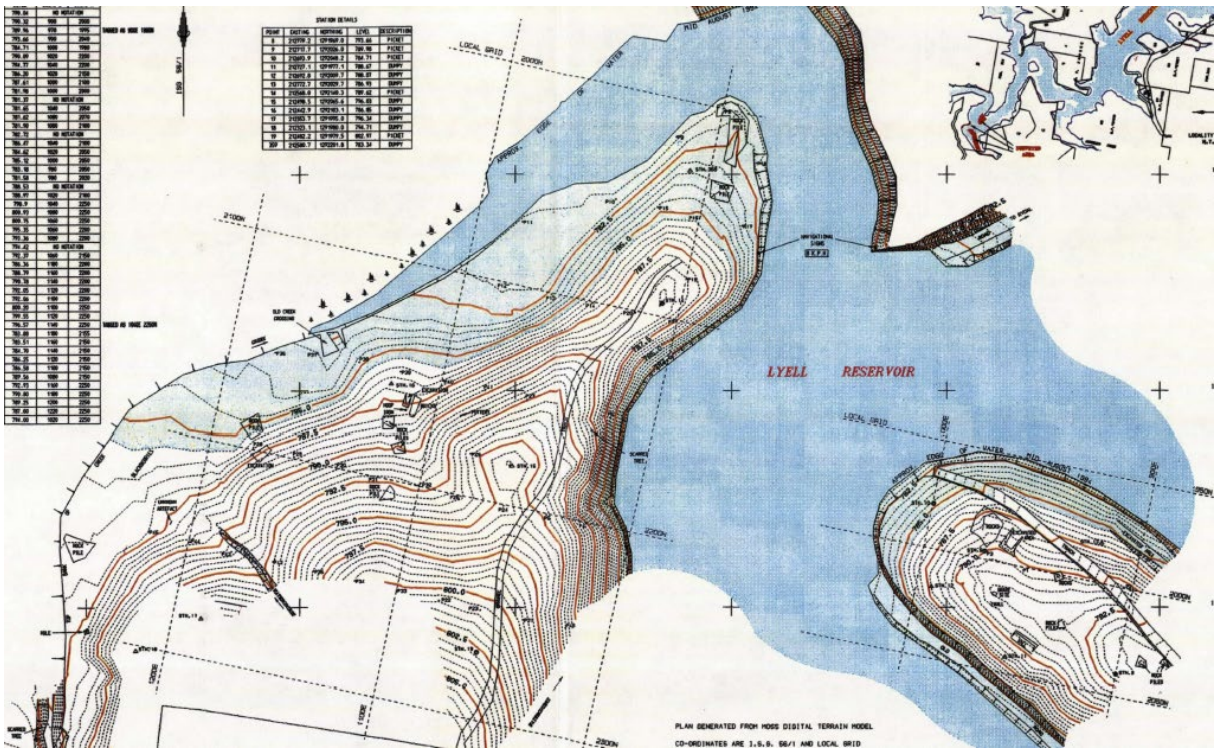
Cox's Stockade No.2 was built on west bank of Cox's River in the vicinity of present-day Lot 11 DP 751651 and Lot 5 DP 1181411 (Sue Rosen Pty Ltd 1994) and is in the project area (Plate 6.2). The Cox River stockade, depicted in Plate 6.3, was described in detail by surveyor William Romaine Govett:

> This Stockade was built… nearly in the form of a square, the huts for the prisoners being erected of bark, facing inwards, and joined together, except at the entrance. The inner square is divided into several compartments for the different companies of prisoners, by rail-fencing .... about four yards back from these huts, on the outside, was erected a strong fence of split timber all round, about fourteen or fifteen feet in height, having two great gates at the entrance. Fronting this gateway on either side, were erected the soldier's barracks, in two rows. These were also built of bark and split wood, with mud chimneys, and some of them were plastered and white-washed inside; and at the head of these barracks stood the officers' quarters, forming a kind of parallelogram with the Stockade. These quarters consisted of a shingle cottage, with two tolerably-sized rooms, back kitchens, &c., having a verandah in front .... On one side was the hospital and storehouse, and the tents of the commissary; on the other were the cooking shed, and butchers' and bakers' houses, the overseers' and constables' huts, &c. These buildings, all erected in a hurry, and in a very little time, being of course merely temporary, formed as it were, a little town… (Govett in Sue Rosen Pty Ltd 1992, 12)

The stockade had capacity for up to 800 individuals and housed four ironed road gangs (Sue Rosen Pty Ltd 1994, 6). Cox's Stockade No.2 was the labour centre of the later phases of Mitchell's road construction and was still in use following the completion of the road c.1835 (Sue Rosen Pty Ltd 1994). It is believed the stockade may have continued to be used by the colonial Government until 1839 or 1840 and, as many of the structures were built to be temporary or moveable, much of the stockade infrastructure was likely moved elsewhere at abandonment (Sue Rosen Pty Ltd 1994, 6, 30; 1992, 8).

A burial site associated with convict stockade is also located in the project area. The burial site is located on the east side of the Cox's River on a small ridge in Lot 27 DP 751651 (Plate 6.2) (Sue Rosen Pty Ltd 1992, 3). The site contains a double plot that is surrounded by a stone wall, rebuilt in 1981, which is believed to be part of a larger cemetery (Sue Rosen Pty Ltd 1992, 25).

The stockade was partially inundated with the flooding of Lake Lyell in 1982 (Sue Rosen Pty Ltd 1992, 23). Sue Rosen and others completed historical and archaeological investigations of the stockade site and areas around the dam as part of the Lake Lyell catchment expansion works in the 1990s (Sue Rosen Pty Ltd 1992; 1994; Rosen and Pearson 1997).



Source: Rosen and Pearson 1997:20

Plate 6.2 **Plan of the 1990s archaeological investigations of the Cox's River Stockade No.2 and burial site**



Source: State Library NSW, call no: XV/1

Plate 6.3 **'Convict stockade at Cox's River Crossing near Hartley', c.1831. The view of the image is facing north-east**

6.2.5 Pastoralism

The construction of Mitchell's Road made the Lithgow region more accessible to settlers, but the harsh landscape of the Cox's River Valley and surrounds was not particularly attractive to pastoralists or farmers (Jack 2000, 18). Bernard O'Reilly of Cullenbenbong, c. 20 km south of the project area, noted the Cox's River gorges did feature grassy flats suitable for grazing but the majority of the landscape was a labyrinth of ravines and ranges (Jack 2000, 20). Nevertheless, the Cox's River and its tributaries meant the area was well watered and the gorges formed warm and sheltered grazing land in the winter (Jack 2000, 18, 20). As a result, a handful of settlers took up land from the 1830s (Jack 2000, 18, 20).

Walker's overseer Andrew Brown was granted 1,640 acres (664 hectares), approximately 3.5 km east of the project area, in 1839 (Jack 2000, 19; Niche Environment and Heritage Pty Ltd 2019, 47). Brown appears to have occupied the property, known as *Cooerwull*, prior to the grant as a flour mill had been constructed on the holding in 1837 (Jack 2000, 28). Brown extended their holdings to include c.700 acres (284 hectares), known as *Esk Bank*, on Farmer's Creek c.1840 (also Cooerwul Creek) (Niche Environment and Heritage Pty Ltd 2019, 47). Further, Brown acquired a 98 acres (40 hectares) property, *Hermitage*, north of Farmer's Creek in 1844 (Niche Environment and Heritage Pty Ltd 2019, 47). Both Walker and Brown's properties were used as processing centres and rest pastures for stock transported from their large runs on the western plains to the Sydney market (Jack 2000, 19–20).

A plan of the project area from 1841 indicates four property lots were in the project area at the time of survey (Plate 6.4). Captain George Deedes of the 17th Regiment took up command of the Cox's River Stockade in July of 1834 and was granted 20 acres (8 hectares) adjoining the commissariat area (Rosen and Pearson 1997, 66; NSW Land Registry Service, n.d.). The property was historically Lot 11 in the Parish of Lidsdale, County Cook (NSW Land Registry Service, n.d.). Deedes constructed a cottage on the property, which was occupied by commandant McCumming following Deedes departure from the stockade (Rosen and Pearson 1997, 66). As the property was connected to the stockade it is possible the cottage was demolished as part of the abandonment of the site (Rosen and Pearson 1997, 66). The lot east of Deedes grant was designated as a Reserve, which was extended south and west in 1861 (Plate 6.5) (NSW Land Registry Service, n.d.). Moving south, Joeseph and James Collitts (also Collits and Collett) were each granted 100 acres (40.5 hectares) on the east bank of Cox's River at the Haystack Creek junction in 1840 and 1841, respectively (NSW Land Registry Service, n.d.). The properties were historically Lot numbers 17 and 18 in the Parish of Lett, County of Cook (NSW Land Registry Service, n.d.). Joeseph Collitts owned an inn at Little Hartley, where sheep and cattle sales were held (Jack 2000, 23). The property lots were situated on Lockyer's road, which passed by Collitts' Inn, and it is possible the river front properties were used as holding yards prior to sales.

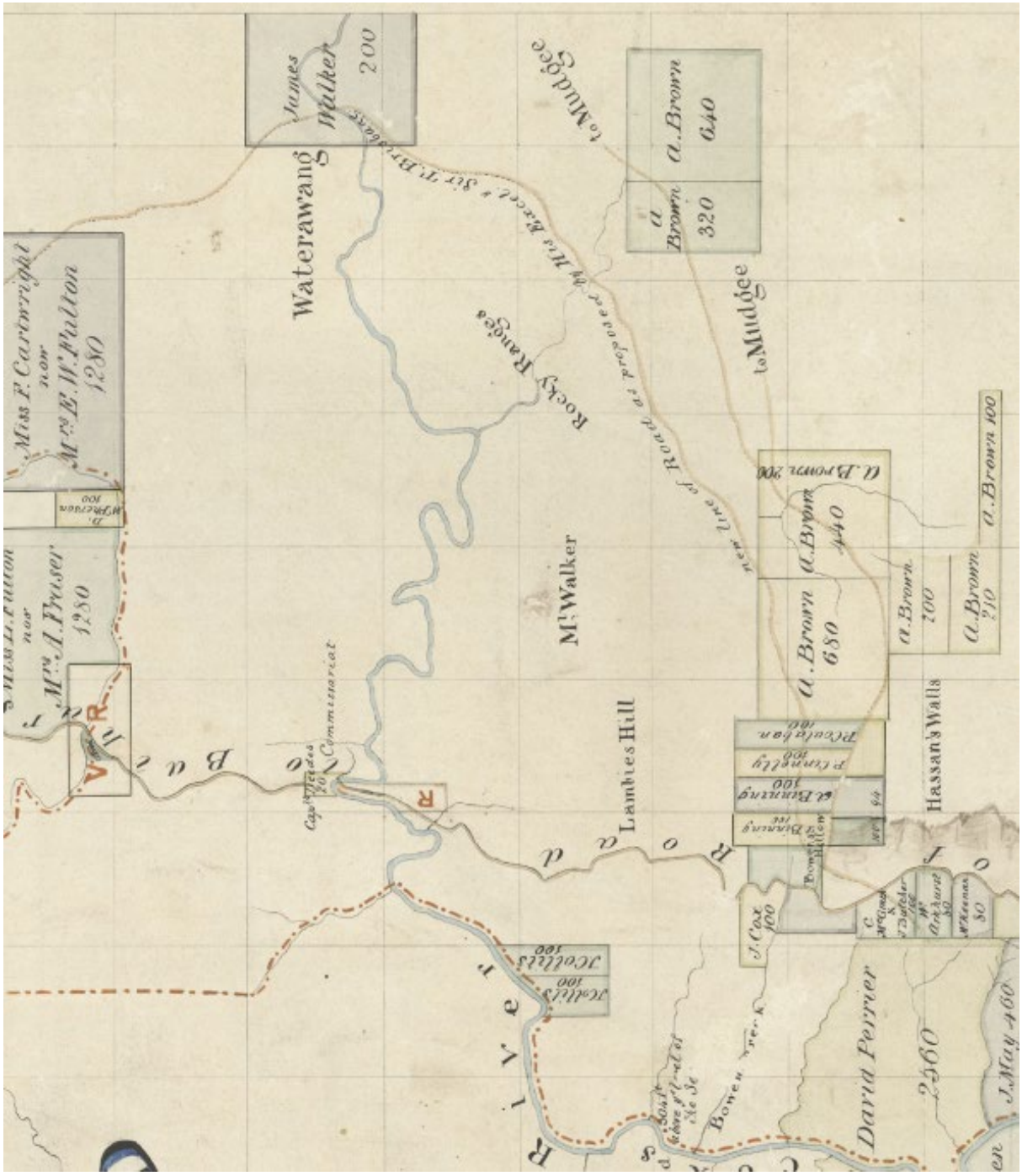
Settlement around the Cox's River remained slow into the 1860s (Niche Environment and Heritage Pty Ltd 2019, 47). Small holdings south of Farmer's Creek were subdivided and granted to various individuals, including John H.V Lyell over the 1850s (Crown Plan c120-1507). But land north of the creek remained unsettled (NSW Land Registry Service, n.d.).

Pastoralism continued as the primary industry in and around Cox's River into the second half of the nineteenth century (Jack 2000). Wool production was the main economic focus of farms and from 1857, Brown's mill was extended to include a tweed factory that sourced wool from local farms (Jack 2000, 21, 28). Fodder crops, primarily oats, were also produced to support the pastoral industry through the cold Lithgow winters (Jack 2000, 27). Tanneries were also established in the region and Brown began a small-scale coal mine on *Cooerwull* in the 1850s to feed their steam-powered flour and tweed-mills (Jack 2000, 27).

The opening of the Zig Zag railway in 1869 simplified transport routes between Lithgow and Sydney and supported the growth of the township as an industrial centre (Jack 2000, 31–32). The railway line was extended through Wallerawang and Rydal from 1870 and arrived in Bathurst in 1876 (Jack 2000, 32). Collieries were sunk near the project area over the 1870s and oil and shale, as well as other minerals were also exploited across the valleys (Jack 2000, 32–50). In addition, iron smelters and industrial wool mills were established in Lithgow over the late nineteenth century (Jack 2000, 51, 62). Parish maps from 1890 and 1892 indicate mining leases were located on the west bank of Cox' River in or close to the project area boundary, in the vicinity of current Lot 16 DP 626299 and the Lidsdale State Forest (Plate 6.5) (NSW Land Registry Service, n.d.).

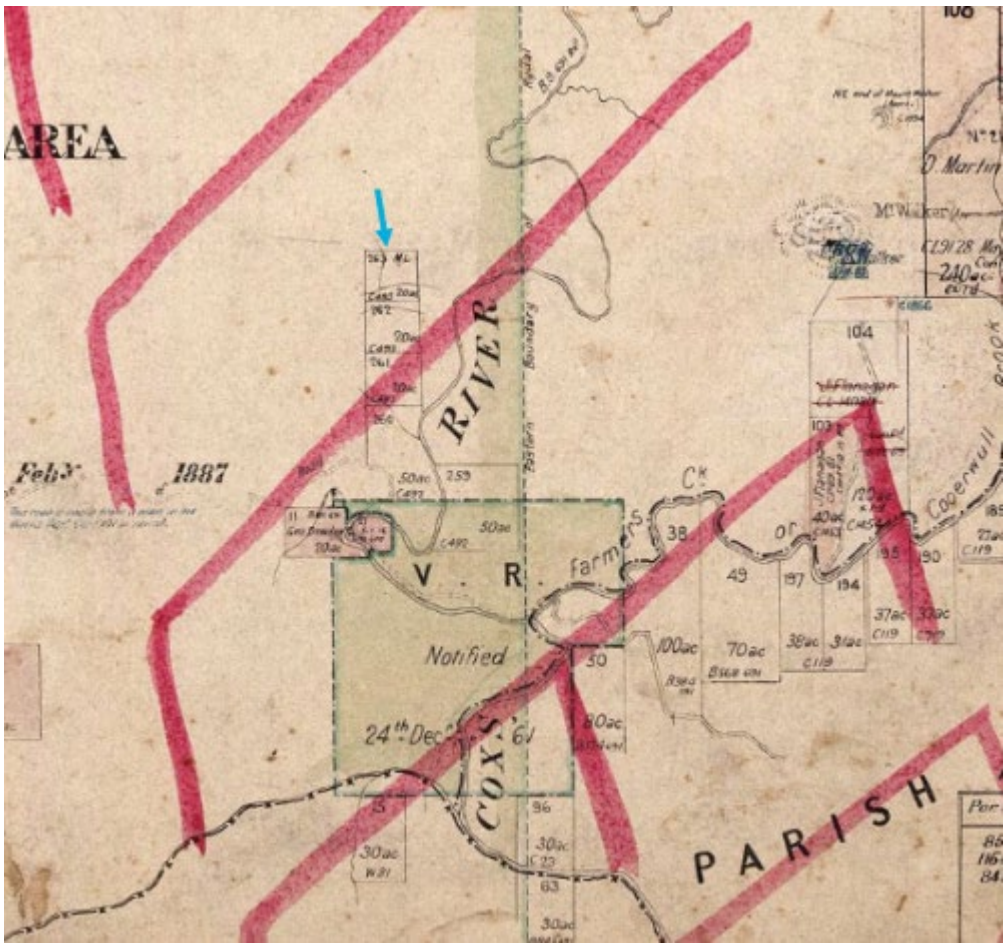
Land ownership laws in NSW were restructured with the introduction of *The Crown Land Acts 1884* (NSW Land Registry Service 2020). New forms of land tenure were introduced including grazing licences, homestead leases, conditional leases, and pastoral leases (NSW Land Registry Service 2020). The previously unsettled arable/grazing land on Cox's River north of Farmer's Creek were subdivided into leaseholds at this time (NSW Land Registry Service, n.d.). Further, the north-reaches of the project area were included as part of the Warragamba Rivers Storage Catchment Area in 1914 and the Lidsdale State Forest, which was declared on 19 May 1919 (NSW Land Registry Service, n.d.).

Sheep grazing continued as the major industry in the Cox's River region into the 20th century and the wool mills of Lithgow played a key role in clothing the troops during the Second World War (Jack 2000, 26, 51). Orcharding rose to prominence in the district over the first decades of the 20th century; however, it is not clear if the practice occurred in the project area (Jack 2000, 29–30). The area around Lake Lyell retains a pastoral function into the present and farmsteads are located throughout the project area.



Source: State Library NSW, call no. Z/M3 812.26/1841/1

Plate 6.4 **Settlement in the project area from 'Map of the neighbourhood of Cox's River showing the estates of the late Dr. Redfern', 1841**



Source: HLRV

Plate 6.5 Parish of Lidsdale map, 1892. The blue arrow shows a block of mining leases in the vicinity of the project area

a Lot 103 DP751651 [historical Lot 104]

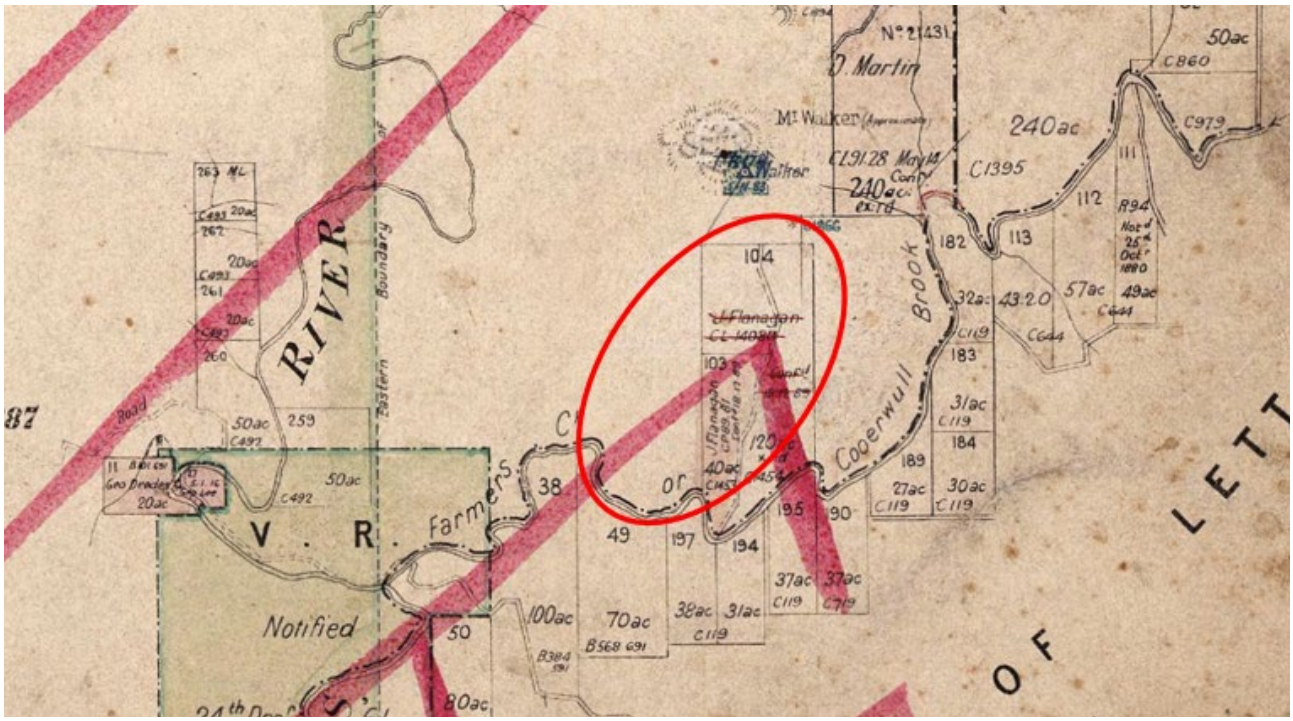
The current Lot 103 DP751651 contains historical Lots 103 and 104 in the Parish of Lidsdale, which were subdivided for Conditional purchase/lease following *The Crown Lands Act 1884* (Plate 6.6 and Plate 6.7). Historical Lot 103 covered 40 acres (16 hectares) and the 1892 Parish of Lidsdale plan notes the property was taken up as Conditional Purchase by James Flanagan on 18 December 1889 (Plate 6.6). Similarly, the 100 acres (40.4 hectares) of Lot 104 were taken up by Flanagan as a Conditional leasehold on the same date. Crown plans of the properties, however, suggests the Conditional Purchase of Lot 103 was forfeit in May 1901 and the land was reclassified as a leasehold from 1914 (Crown Plan 1453–1507). The Crown Plan describes the landscape of the properties as very steep and stony but well grassed with good soil (Crown Plan 1453–1507). James Flanagan is recorded at Cox's River in 1922 and it is noted he was growing tomatoes in a paddock (*Lithgow Mercury*, 10 March 1922:6). It is not clear, however, if Flanagan resided on the leaseholds at this time nor if the tomatoes were on the property lots or another landholding in the region.

Between 1923 and 1932, Lots 103 and 104 were amalgamated into the current boundary of Lot 103 DP751651 (NSW Land Registry Service, n.d.). The 1932 Parish of Lidsdale records the 685 acre (277 hectare) lot was classified as a Special Leasehold, which was granted to Mary Ann Williams in 1938 (*Government Gazette of the State of New South Wales*, 1 September 1939:4435). Special Leases were areas of Crown Land, available as leasehold, that had a designated purpose, such as the locations of wool washing establishments, tanneries etc, and/or had additional terms beyond those of a Conditional Lease (Land and Property Information NSW 2013, 3).

The conditions of the Special Lease of Lot 103 DP751651 were primarily related to preventing soil erosion as the area formed part of the Warragamba Rivers Storage Catchment Area, and are summarised as:

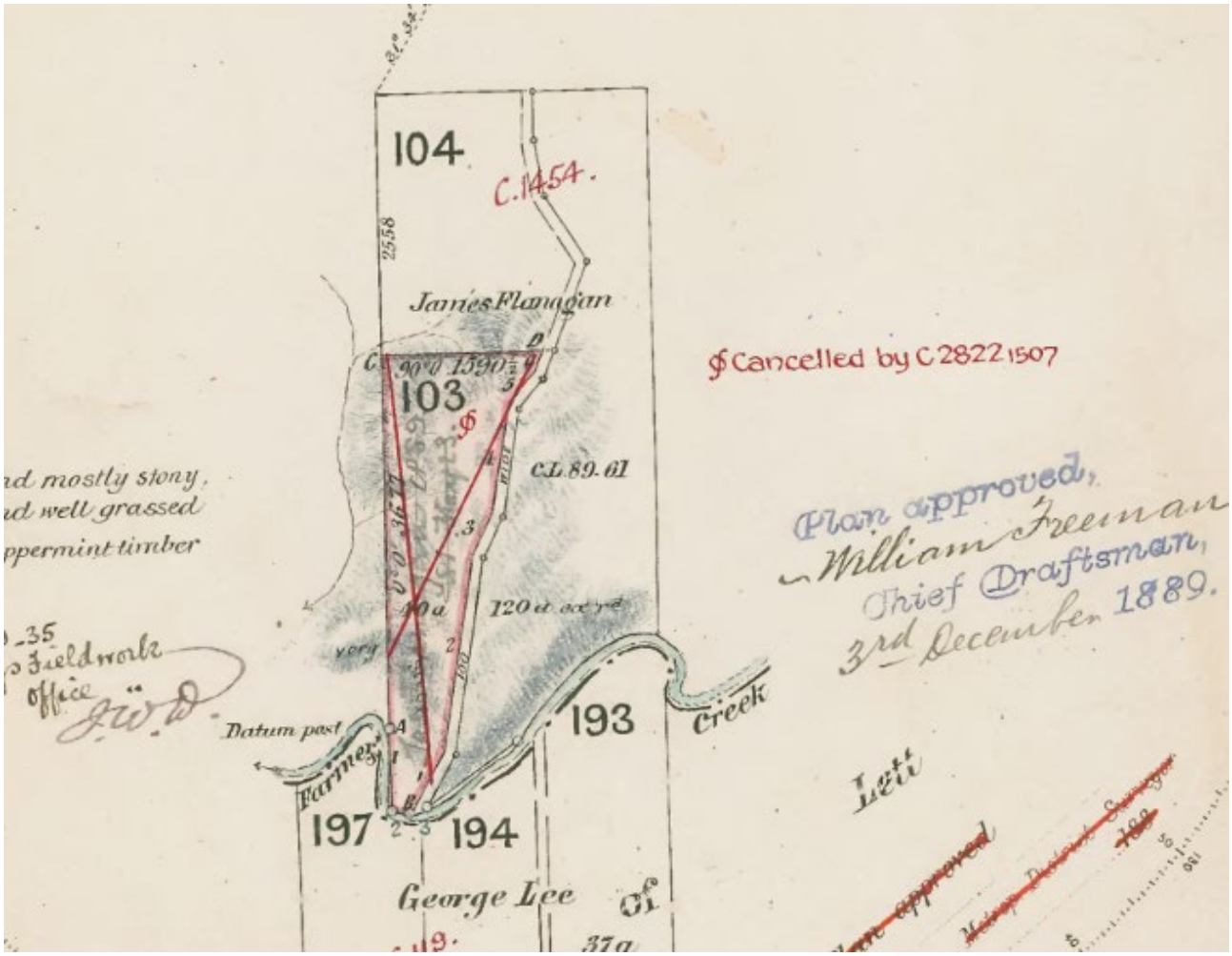
- agricultural activity could not take place within 60 m of Farmers Creek/Cooerwull Brook or on steep slopes
- all timber within 60 m Farmers Creek/ Cooerwull Brook and 20 m of other waterways was to be retained
- all timber on steep slopes, along ranges and ridgelines was to be retained
- at least 10 strong and straight trees per acre were to be retained on the remain land
- the lease must live on the property as their primary residence over the whole term of the lease (*Government Gazette of the State of New South Wales*, 1 September 1939:4435).

Given the topography of the lease it is unlikely large-scale crop production took place on the property, but the land would have been suitable for grazing purposes. In March 1953, the property was reserved from sale for the purposes of soil conservation (NSW Land Registry Service, n.d.). Lot 103 DP751651 was purchased by Bernard Dicker in c.1972 and its soil conservation reserve status was revoked in 1973 (NSW Land Registry Service, n.d.).



Source: HLRV

Plate 6.6 Parish of Lidsdale map, 1892. Approximate location of the investigation area outlined in red



Source: Crown Plan 1453–1507

Plate 6.7 Crown plan of historical lots 103 and 104 in the Parish of Lidsdale, County Cook, 1889

6.2.6 Lake Lyell

Lake Lyell is an artificial waterbody that was created when the Cox's River was dammed in 1982 to create a catchment to supply cooling water for the Wallerawang power station (Delta Electricity n.d.). The Mt Piper power station, 25 km west of Lithgow, was commissioned between 1992 and 1993 and the Lake Lyell catchment area was extended to supply water to Mt Piper (Sue Rosen Pty Ltd 1992; Delta Electricity n.d.). Wallerawang power station has been decommissioned and Lake Lyell continues to supply cooling water to the Mt Piper power station. In addition, the lake is open to the public for recreation (Lake Lyell Recreation Area n.d.).

6.2.7 Lithgow Pottery Estate

The Lithgow Pottery Estate is located across present-day Lots 2 to 6 DP1005128 and Lot 26 DP1244557. The construction of Main Western Railway line through Lithgow in 1869 improved transport links to and from the Lithgow Valley coal seams and resulted in the establishment of collieries through the valley (Jack 1996, 6). A group of five entrepreneurs from Bathurst purchased historical Lots 54 and 87, in the Parish of Lett, County Cook from Thomas Brown and established the Lithgow Valley Colliery Company (Jack 1996). The Lithgow Valley Colliery Company began works in September 1872 and by 1876 the Company had produced 11,300 tonnes of large and small coal, also known as slack coal (High Ground Consulting 2004, 11). The Lithgow Valley coal seams were overlaid with bands of clay and shale, which was excavated as a waste product as coal was mined (High Ground Consulting 2004).

Soon after the colliery was established, the Company decided to exploit the waste clay and shale, as well as the unprofitable small coal through a brickworks (Jack 1996). The proposed Town Camp would be located on the former brickworks, and later pottery, site.

The Lithgow Valley Colliery brickworks was established east of the colliery site by 1876 (High Ground Consulting 2004). Initially, the company leased the land but later purchased the site (Jack 1996). A brickmaker named Aston was employed and the bricks were produced in a clamp-kiln (High Ground Consulting 2004). In 1876, the company ordered pipe making machinery from England and manufacturing sanitary and agricultural pipes began in 1878 (High Ground Consulting 2004; Jack 1996). A pottery kiln was installed in 1878, and the first domestic pottery was produced by the Lithgow Valley Pottery, under the guidance of Staffordshire potter James Silcock, in May of that year (High Ground Consulting 2004). By 1880, the pottery and brickworks included:

> …all the latest machinery for the manufacture of pipes, sanitary and agricultural, and some of the best machines for brickmaking were imported. These have been erected in spacious sheds, and are driven by a powerful steam-engine; and so well connected is everything by the system of manufacture, from the digging of the clay until the brick, or pipe, or piece of pottery, is fashioned and afterwards burnt in the kiln, that not a foot of space, nor a minute of time, nor a particle of power is wasted… *(The Sydney Morning Herald*, 26 June 1880, 7).

A round pottery kiln was added in 1881 and profits of the colliery were invested into the brickworks and pottery developing the site further over the following decade (Plate 6.8 and Plate 6.9) (High Ground Consulting 2004). Plate 6.9 shows that by 1889 the brickworks and pottery included:

- a standard gauge tramline connecting the brickworks and pottery to the colliery
- five rectangular intermittent kilns
- at least four bottle ovens built into workshops
- three beehive downdraft kilns
- storage shed, additional buildings, open-air stockpiles, and quarries at the east side of the site (High Ground Consulting 2004).

The economic depression of the 1890s and competition from Sydney firms resulted in the closure of the domestic ware side of the Lithgow Valley Pottery in November 1896 (Lithgow Tourism Information 2024; High Ground Consulting 2004). In May 1905, the pottery was leased to Staffordshire potter Arthur Brownfield, who commenced operations under the name Australasian Brownfield's Pottery Limited (High Ground Consulting 2004). Brownfield reconditioned and modernised the existing pottery works and installed new Ruston-Proctor steam engine, a new globe mill, pug mill, and steam roller-crusher between June and July of 1906 (High Ground Consulting 2004). Brownfield's tenure, however, was short lived as he was forced into liquidation in April 1907 (High Ground Consulting 2004). The Lithgow Valley Colliery Company regained control of the pottery but it was never reopened (High Ground Consulting 2004). Some of the pottery sheds were demolished and the building materials sold (High Ground Consulting 2004). Additionally, brickworks and pipeworks staff were known to have taken old pottery stock for their own purposes throughout the early 20th century (High Ground Consulting 2004).

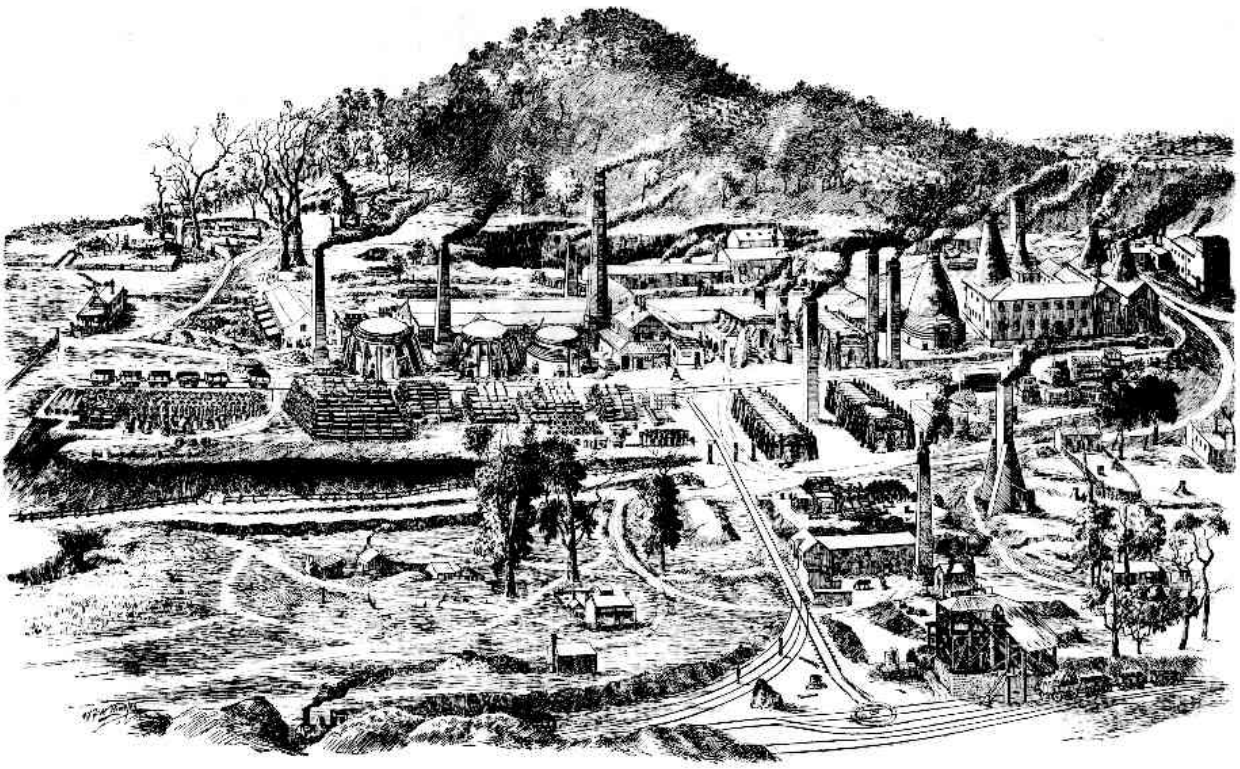
Separate to the production of pottery, Lithgow Valley Colliery Company continued to fund the production of bricks and pipes and an 18 chamber Sercombe continuous kiln was built between 1900 and 1901 (High Ground Consulting 2004). A quoits field was constructed at the Lithgow Valley Pottery and Brickworks site, adjacent to creek below Hassans Walls Road, for employees and the community prior the Second World War (Lithgow Tourism Information 2024; High Ground Consulting 2004). The works continued to produce bricks and pipes until the end of the Second World War (High Ground Consulting 2004). The Company sold the entire contents of the brick, pipe, and pottery works in January 1946, which included the fabric of all the works' buildings (High Ground Consulting 2004). The majority of the works was demolished by the new owner following the sale and the site as essentially abandoned (High Ground Consulting 2004). Plate 6.10 shows the development of the Lithgow Valley Pottery Estate from c.1880.

The site was left empty for a number of decades following the closure of the works. But, in the 1970s, potters established a pottery studio in the remaining store building (High Ground Consulting 2004). The last surviving kiln, pipe-kiln no.4, also known as Big Ben, collapsed in 1977 (High Ground Consulting 2004). In 1980, the Heritage Council of NSW commissioned an archaeological survey of historical sites in Lithgow, including the Pottery Estate, and in 1981 a portion of the site was subject to archaeological excavation (Higginbotham 1982; High Ground Consulting 2004).



Source: ("Lithgow Pottery and Brickworks" 1880)

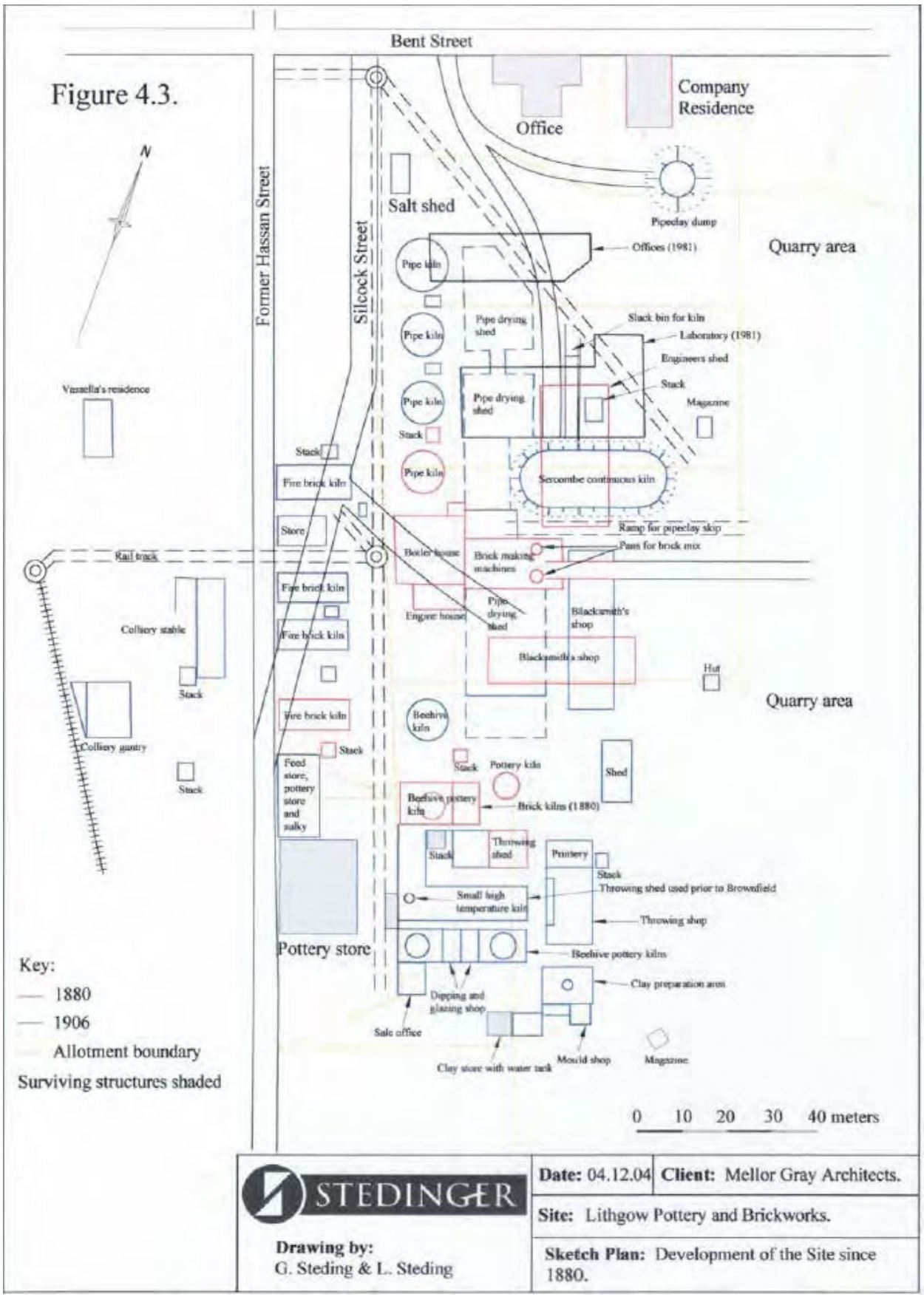
Plate 6.8 Photograph of the Lithgow Colliery Brickworks and Pottery, c.1880



THE LITHGOW VALLEY COLLIERY AND POTTERIES.

Source: (Illustrated Sydney News, 7 March 1889, 23)

Plate 6.9 Illustrated view of the Lithgow Valley Colliery Brickworks and Pottery, 1889



Source: (High Ground Consulting 2020, 8)

Plate 6.10 Development of the Lithgow Brickworks and Pottery site from 1880

6.3 Archaeological sensitivity

This section provides a summary of the archaeological potential and sensitivity of the project area based on the historical context. Factors that contribute to the area's archaeological potential, such as squatting and subsequent historical phases that could be reflected in the archaeological record are explored below. Previous land disturbance has also been considered when determining archaeological potential and sensitivity in the project area.

The purpose of this report, at least in part, is to determine if archaeological resources and/or relics are likely to exist in the project area that may be impacted by the proposed activity (Chapter 2), and to assess whether these resources are of significance (Chapter 8). The following assessment of archaeological potential is based on the definitions of 'relics' as outlined in Section 4(1) of the Heritage Act (as amended 2009), as they apply to the particular historical setting of the project area, and applies the definitions of potential and disturbance presented in Table 6.2 and Table 6.3. Where there are high and moderate levels of archaeological potential in combination with nil, low or moderate levels of disturbance, the area holds archaeological sensitivity. These areas are shown on Figure 6.1. To determine whether the potential archaeological resources in the areas of sensitivity are likely to be relics, as defined by the Heritage Act, a significance assessment is provided in Chapter 8.

Table 6.2 Levels of archaeological potential applied to potential resources in the project area

Level of archaeological potential	Explanation
High	Known, intensive activity has occurred (during the historical phase) that is likely to result in an archaeological resource. The activity is geographically constrained and is not likely to have been subject to subsequent disturbance.
Moderate	Known activity likely to result in an archaeological resource has occurred (during the historical phase). The activity is geographically constrained but may have been subject to subsequent disturbance.
Low	Known activity that may have resulted in an archaeological resource has occurred (during the historical phase). The activity is not geographically constrained and/or is likely to have been subject to substantial subsequent disturbance.
Unlikely	No known historical activity has been identified within a geographically constrained area that is likely to result in an archaeological resource and/or an area where subsequent subsurface impacts have been extensive.

Table 6.3 Definitions of disturbance levels informing assessment of archaeological potential

Level of disturbance	Definition
High	The historical site or feature has been subject to subsequent development that clearly demonstrates subsurface disturbance has taken place that would have a major impact on any archaeological deposits or relics.
Moderate	The historical site or feature has been subject to subsequent development that clearly demonstrates subsurface disturbance that would have an impact on any archaeological deposits or relics; however, archaeological evidence may remain.
Low	The historical site or feature has been subject to subsequent development however known subsurface disturbance has not been identified.
Nil	The historical site or feature has been subject to no known subsequent development of subsurface impacts that would have a direct impact on any archaeological deposits or relics.

6.3.1 PHES project area

i Early settlement

The Cox's River region was first settled by James Walker and Andrew Brown between 1820 and 1824 (Wilson 1917, 550). The project area was not taken up by settlers during the first decade of occupation, but Walker and Brown may have de-pastured stock in the sheltered gorges during the winter, mustering the sheep and cattle back to their stations in the spring (Jack 2000, 18, 20).

While there is no evidence of pre-1830 occupation of the project area it is possible that stock was grazed in ravines along the Cox's River. Therefore, it is possible ephemeral structures, such as pens, were erected in the project area to contain animals transported into the gorges for winter grazing. Nevertheless, without specific evidence or documentation, any incursion into the project area during this phase remains speculative.

Evidence of pre-1830s occupation is not anticipated in the project area.

ii Transport routes and Cox's River No.2 Stockade complex

Alignments of Hamilton Hume and Assistant Surveyor George Bowen 1827 road, Major Lockyer 1828–29 road, and Mitchell's c.1835 road all pass through the project area. Evidence of the survey and building of the road may survive as survey marks, mile markers, gradings and cuttings, bridge footings and, remnants of the old road surface. In addition, evidence of travellers, such as camp sites may flank the old road alignments. Previous archaeological investigation in the project area found sections of Mitchell's road cuttings on the north-west banks of Lake Lyell (Rosen and Pearson 1997).

A stockade was erected on the west bank of the Cox's River to house the convicts, who worked on Mitchell's line and their military overseers (Sue Rosen Pty Ltd 1994). This report considers the stockade complex to include the primary stockade on Lot 11 DP 751651 and Lot 5 DP 1181411, Captain Deedes' 1834 grant and cottage, and the burial/potential cemetery site on Lot 27 DP 751651. Archaeological investigations by Sue Rosen and others in the 1990s found surface evidence including, mounds, rubble piles, stone rows and artefacts (Rosen and Pearson 1997). Moreover, excavation uncovered evidence of buildings including chimney bases, compact clay floors, partial wall foundations, building platforms, and domestic and architectural artefacts (Rosen and Pearson 1997). Investigations also revealed the subsurface archaeological resources were generally at a 0 centimetres (cm) to 30 cm depth and as a result the stockade site had been impacted by the construction and demolition of a 1950s survey station cottage, domestic and heavy vehicles, use as a recreation place, inundation, and other unidentified post-convict activities.

More recently, the raising of the Lake Lyell catchment in the 1990s and continued use of the area as a recreation zone may have further impacted archaeological resources associated with the road alignments, convict occupation, and stockade complex.

There is moderate potential for archaeological resources associated with early road alignment and the occupation of the stockade to survive in the project area.

iii Pastoralism

The sporadic subdivision of land grants for farming purposes from the 1840s created the distinct spatial pattern of properties in the project area. The distance from commercial centres influenced the layout of homesteads and farms. Initially, basic structures such as bark gunyahs, tents, or temporary huts were used by landholders, with more permanent huts and cottages built near water sources. In addition, permanent homesteads may have featured outbuildings, such as kitchens and toilets, gardens, water source, such as cisterns and tanks, and rubbish disposal areas. Farm buildings, machinery, animal pens, and structures associated with water management were also built over the landholdings and fenced paddocks may have been introduced in the later 19th century. As sheep and wool were the primary industries of the region through the 19th and 20th centuries it is probable shearing sheds, sheep dips, and wool processing buildings also featured on local farms. All these features have the potential to survive as built and archaeological resources in the project area. Conversely, lots in the project area may not have been occupied but used as supplementary grazing land for larger properties in the local area or boarder region meaning homestead complexes may not be present on all sites.

The inundation of Lake Lyell has likely impacted farm sites that were located on Cox's River. In addition, late 19th and 20th century farms outside of the flood zone may have been disturbed by later occupation and natural disasters such as bushfires.

There is moderate potential for archaeological resources associated with late 19th and 20th century pastoralism and agricultural practices in the project area.

iv Previous disturbance and land use

The landscape of the project area was subject to land clearance and alteration during the construction of road alignments Hume and Bowen, Lockyer, and Mitchell between 1827 and c.1835. Further clearance and earthworks occurred during the construction of the Cox's River No. 2 Stockade. The 1831 painting of the stockade shows stockade peninsula and surrounds had been cleared of trees and scrub (Plate 6.3). The hills in the middle ground of the image also appear to be partially devoid of trees, and may represent locations where timber was sourced to build the stockade and associated structures. In addition, cuts can be seen through the hills along the road route on the left side of the image, likely Bloody Cutting Road.

Land would have also been cleared for grazing land as settlers moved into the region from the 1840s. Aerial photographs dating from 1958 to the present give an insight into historical land use and disturbance in the project area (Annexure A). The 1958 aerial only shows the south portion of the project area. Even so, much of this area can be seen to retain remnant native vegetation. However, extensive tree clearance had occurred along the old alignment of Magpie Hollow Road, on the Cox's River bank flats, and along the Collits Swamp Creek valley. The 1966 aerial includes the whole project area and indicates remnant vegetation was present over the majority of the north portion of the project area with tree coverage becoming more dense north of Farmer's Creek and the former Mitchell Road/Great Western Highway alignment.

Changes to the landscape are not observable prior to the construction of Lake Lyell in 1982. Aerials from 1984 onwards confirm major disturbance occurred in the project with the flooding of Cox's River and Farmers Creek to create Lake Lyell. Additionally, disturbance from the construction of dam infrastructure is also visible around the banks of the Lake. The expansion of the Lake Lyell catchment in the 1990s is not obvious in aerials from the 1990s until 2011, likely the result of drought and shifting water levels. The project area has changed little following the establishment of Lake Lyell in the 1980s.

v Archaeological potential within PHES project area

Previous archaeological investigation in the project area indicates portions of early road alignments and archaeological resources associated with the No. 2 Stockade at Cox's River, erected during the construction of Mitchell's 1830s road, survive in the development footprint. Rosen and Pearson (1997, 11) assessed the stockade complex, including the extant portions of Mitchell's Road in that area, to be of 'high cultural significance because of its rarity, its associative and representative qualities relative to the convict era and because of its historic, social and scientific significance'. Therefore, Rosen and Pearson (1997, 11–14) suggested the complex should be listed on the Register of the National Estate, now defunct. The complex is not currently listed on any statutory or non-statutory heritage registers. Surviving archaeological resources associated with the complex would reach the threshold for relics as defined by the Heritage Act.

The development footprint encompasses an area that was sporadically settled from the 1840 and exhibits a primarily pastoral and farming history. Despite the Cox's River dams potentially flooding nineteenth and early twentieth century farm sites, it is possible that the development footprint may contain early and potentially significant archaeological sites that were formed by settlers, who utilised the area for pastoral, agricultural and domestic activities. These sites could hold research value, providing insights into rural pastoralism throughout the later part of the nineteenth and early twentieth centuries. This includes providing an enriched understanding of the historical development and practices of pastoralism during its formative stages. Such sites could provide valuable information about the ways in which settlers adapted to and interacted with the landscape, technology, and local ecosystems. Given the potential early dates of these properties, it is possible sites in the project area could meet the NSW significance criteria (Department of Planning and Environment (NSW) 2023a), as assessed in Chapter 8. More recent evidence of pastoral activity, however, may not meet the threshold for relics or significance as defined by the Heritage Act.

6.3.2 Town Camp project area

i Pottery Estate

The Lithgow Valley Colliery Company established the brickworks, and later pottery, sometime between 1872 and 1876. The pottery ceased production in 1907 and brick and pipe works continued production until 1945. The majority of structures of the Pottery Estate were demolished in 1946.

Archaeological investigations on Lots 2 and 3 DP1005128 performed by Edward Higginbotham in 1981 found sub-surface remnants of the Sercombe continuous kiln (c.1900–1901), two drying floors, a rail siding, the base of a chimney stack, and stratified deposits up to a depth of 1,830 millimetres (mm) (High Ground Consulting 2020). Additional non-invasive archaeological investigations of the Lot 4 DP1005128 and Lot 26 DP1244557 by High Ground Consulting in 2004, 2014, and 2020 has outlined areas of archaeological potential in the Pottery Estate and the north portion of the Estate has been divided into three zones based on archaeological sensitivity (Plate 6.11) (High Ground Consulting 2020). High Ground Consulting (2020) notes archaeological resources associated with the brick, pipe and pottery works may include footings, floors, rail tracks, remnant pottery, bricks, pipes, and tiles, and other artefacts or deposits.

During the field assessment of the project area, several features related to the earlier phases of the Pottery Estate were identified, these included a brick footing, a brick beehive pottery kiln, and a concrete block that are all located in areas of high archaeological potential and may relate to pipe and brick making complex.



Source: (Lithgow City Council 2021, 30)

Plate 6.11 Pottery Estate zones of archaeological sensitivity and potential, including overlay of 1906 pottery and schematic brickworks plan

ii Previous disturbance and land use

The Pottery Estate has undergone extensive disturbance since the mid-20th century. Most of the original industrial buildings, including the Engineer's Shed, Blacksmith's Shop, chimney stacks and other structures, were demolished following the closure of operations in 1946, when the site was abandoned and its assets auctioned. The place then remained largely inactive until 1970, when a pottery studio was established.

In 2014, the site was subject to large-scale levelling and capping, with clean fill placed across much of the property. This material was recorded at depths of up to 750 mm, though towards the north-western portion it tapers out, leaving little fill in places and exposing subsurface remains (see Section 7.4). Along the eastern boundary, the former clay quarries were infilled, resulting in low-lying ponds within the deposited material.

Today, only the Pottery Store, a chimney stack, and the clay store survive as standing structures. Brick footings remain visible near Silcock Street, along with scattered surface artefacts including pottery sherds, drainage pipes, and bricks. A remnant concrete slab survives in the north-west, brick footings related to former kilns and mounds of redeposited soil are present across the eastern and southern margins. These mounds appear to contain both imported material from nearby construction and soils mixed with brick and pottery debris from the site itself.

Demolition processes and subsequent ground works have caused substantial subsurface disturbance, particularly where structural footings were removed. Footings for kilns and chimneys may have extended to depths of around two metres, and their removal would have disrupted stratified deposits. Nevertheless, archaeological investigations nearby by Higgenbotham (1982) demonstrate that intact deposits can survive at depth, in some cases exceeding 1.8 m, and similar remains may still be preserved beneath parts of the site.

Despite the scale of demolition, infilling, and later activity, the site retains potential for significant subsurface archaeological remains and structural features associated with the former pottery and brickworks complex to survive in situ.

Table 6.4 Aerial imagery of the Town Camp

Aerial	Comment
 **1969**	Pottery store, stack, clay store, magazine and shed buildings still exist in the area, clay quarry area is unfilled.
 **1975**	Most buildings have been demolished, except for the pottery store, stack, clay store and shed. Clay quarry is partially filled in and trees and vegetation are beginning to fill the area.

Aerial	Comment
 **1984**	Northern shed is demolished and current NSW Rural Fire Service (RFS) building is built across the north, Pottery store, stack, and clay store still exist. Clay quarry is still partially filled.
 **1998**	Pottery store, stack, and clay store still exist. Clay quarry is filled in, tree vegetation along the border of the clay quarry and Pottery Estate becomes denser, roads in order to facilitate the infill of the quarry location appear across Zone I.

Aerial	Comment
 **2004**	Pottery store, stack, and clay store still exist. Infill has settled across clay quarry and vegetation begins to grow, spoil has been deposited across the top of Zone I.
 **2013**	Pottery store, stack, and clay store still exist. Spoil and deposited material are scattered throughout the site across Zone I and II. Most of the vegetation has been cleared.
 **2014**	Pottery store, stack, and clay store still exist. Deposited fill is placed across large portions of the site with particular focus around the clay quarry area (Zone III) and majority Zone I.

Aerial	Comment
 **2024**	Pottery store, stack, and clay store still exist. Area is mostly cleared, infilled and levelled. Trees are mostly removed except for around pottery store. Paved access roads to the north lead into the quarry.

iii Archaeological potential of Town Camp project area

Previous archaeological investigation in the Pottery Estate in which the proposed Town Camp project area sits divides the site into three zones of archaeological potential, ranging from low to high, for archaeological resources associated with the Lithgow Valley Colliery Company's brick and pottery works (Plate 6.11). These zones, as described by High Ground Consultancy (2020, p 8–10), are reproduced below:

- Zone I Area 1 (High archaeological potential, north-west): The north-west area covers Lot 4 DP 1005128 and areas located to its east and south within Lot 26 DP1244557. This is an area of high archaeological potential. This area was an important part of the pipe and brick making complex. Potential archaeological sites in this area include a boiler house, engine house, brick making workshop, pipe making shed, blacksmith's shop (c.1880), blacksmith's shop (c.1906), a beehive kiln and drying shed for pipes. Construction of Silcock Street may have disturbed and covered down-draft brick kilns and rail tracks. These would have been located where the road turns south-east between the present Emergency Control Centre and the former pottery store. Tram tracks, a turn table and portions of brick kilns may survive along the west boundary if they have not been covered by Silcock Street (Section 7.4).

  This area is wholly included in the Town Camp project area.

- Zone I Area 2 (High archaeological potential, central): This area comprised the pottery preparation area from the original manufacturing complex and is of high archaeological potential. It once contained a throwing shop, clay preparation shop, and mould shop. Adjacent to the west of this area is the extant pottery store, brick stack and clay store.

  This area, and the area with the extant structures, are outside the Town Camp project area.

- Zone II Area 3 (Moderate archaeological potential, south): This area with moderate archaeological potential had a powder magazine in the early 20th century as part of the original manufacturing complex. No other known structures have been located here.

  This area is outside the Town Camp project area.

- Zone III Areas 4 and 5 (Low archaeological potential, north-east and east): Both these areas have been deemed as having low archaeological potential. These two areas were primarily used as a clay quarry for production at the manufacturing complex. There is low potential for archaeological resources to be found here.

  Both these areas are included in the Town Camp project area.

The Lithgow Valley Colliery & Pottery Site is listed on the State Heritage Register (SHR #00078) (State Heritage Inventory Online 2020). With regard to the site's research value and archaeological potential the State Heritage Inventory Listing states:

> A great deal of disturbance has diminished the practicality of realising the archaeological potential of much of the area. There are however two small areas containing substantial intact portions of brickwork an important concretion of pipewares and other industrial remains. These are probably not in-situ but should be investigated before any development takes place (State Heritage Inventory Online 2020).

The statement of significance was last updated in 2020. Surviving archaeological resources associated with the estate would reach the threshold for relics as defined by the Heritage Act. Table 6.5 summaries the archaeological potential of the Town Camp project area.

Table 6.5 Summary of archaeological potential in the Town Camp project area

Zone	Archaeological potential	Possible resources	Disturbance levels
Zone 1 Area 1 (north-west)	High	Boiler house, engine house, brick-making workshop, pipe-making shed, blacksmith's shops, beehive kiln, drying shed (c.1880 and c.1906). Surface evidence of brick features likely from boiler/engine house and beehive kiln.	Moderate
Zone 1 Area 2 (central)	High	Pottery preparation area, throwing shop, clay preparation shop, mould shop. Adjacent extant pottery store, brick stack and clay store.	Moderate
Zone 2 Area 3 (south)	Moderate	Powder magazine (early 20th century).	Moderate to High
Zone 3 (Areas 4 and 5)	Low	Clay quarry area for manufacturing complex.	High



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); Stedinger Associates (2004); DCSSS (2024); GA (2009); MetroMap (2025)

0 100 200 m
GDA2020 MGA Zone 56

KEY

- Project area

Archaelogical potential

- Low potential
- Moderate potential
- High potential

Existing environment

- Major road
- Minor road
- NPWS reserve (refer to inset)
- State forest (refer to inset)

Area of archaeological potential - town camp

Lake Lyell PHES
Statement of Heritage Impacts
Figure 6.1

EMM creating opportunities

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7 Field assessment

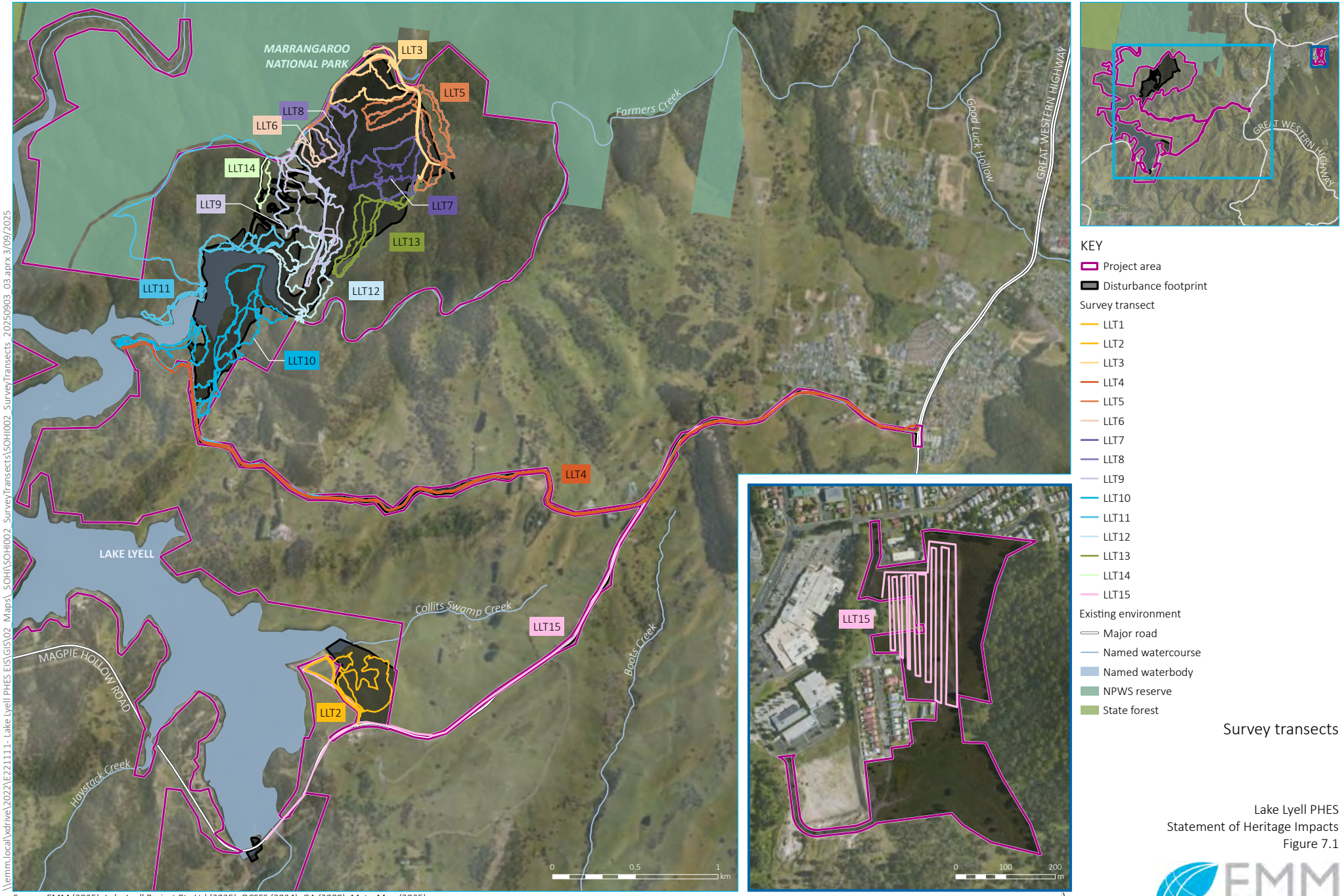
7.1 Overview

EMM archaeologists conducted a historical heritage survey of the project area between 30 October 2023 and 9 November 2023. To ensure full coverage of the PHES proposed areas of potential impact, the survey targeted the disturbance footprint; and each transect aligned with discrete landforms where feasible, with participants spaced approximately 10 to 20 m apart. This setup allowed for the survey of areas approximately 100 m in width. Given the landscape and historical context, the likelihood of built structures in the project area was considered low. Instead, the survey focused on open area exposures where the ground surface was visible, aiming to identify potential artefact scatters or evidence of surviving structural foundations. However, due to poor visibility across the entire project area, the assessment calculations assume that the survey participants could identify and inspect exposures within 5 to 10 m either side of their respective transect. Overall, the survey comprised 13 discrete transects, extending over ~109 km and encompassing ~175 hectares of observation across the project area (Figure 7.1). The transects were on average ~4 km in length, ranging between ~580 m up to ~11 km. All parts of the surveyed area were investigated, except for areas considered too steep to traverse and those inaccessible due to heavy overgrowth of blackberry bushes to the south of Farmers Creek.

The PHES project area is within a landscape formed by natural and artificial agents, which involves deliberate and ancillary activities including the construction of Lake Lyell in 1982. The landform in the project area displays a combination of natural landscapes, natural and artificial waterbodies and additional infrastructure. Within the project area boundaries, the terrain consists mainly of bushland and steep mountain slopes, with Mount Walker being a prominent feature. Additionally, infrastructure such as the Line 76/77 electricity transmission line passes through the project area. Beyond the project area, the landscape becomes more developed, with residential communities such as Bowenfels, South Bowenfels, Lithgow, and Littleton to the east, and Rydal to the west. The rural surroundings also feature homesteads, tourism establishments, and agricultural properties, contributing to the region's rural character.

During the field survey, one site was identified within the PHES project area. The site is outlined in Section 7.3.

An additional historical heritage survey was conducted for the Town Camp accommodation project area and additional works on 23 July 2025. This survey targeted the area of the Town Camp that interacts with the Lithgow Valley Colliery & Pottery Site (SHR #00078), Lithgow Valley Pottery and Brickworks (LEP #A124), and Pottery Estate Heritage Conservation Area (#C11), aiming to identify potential artefact scatters or evidence of surviving structural foundations associated with the Pottery Estate heritage listings.



Survey transects

Lake Lyell PHES
Statement of Heritage Impacts
Figure 7.1

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); MetroMap (2025)

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EMM creating opportunities

7.2 PHES Site description

The project area is topographically characterised by mountain slopes and saddles (Plate 7.1; Plate 7.2) dotted with granite outcrops (Plate 7.3) and grassy terraces adjacent to creeks, notably Farmers Creek (Plate 7.4). The terrain consists mostly of steep mountain slopes that undulate at drainage lines, eventually emptying into Farmers Creek. The current banks of Farmers Creek likely represented alluvial terrace landforms before the creation of Lake Lyell and the subsequent increase in water levels.

Disturbance was primarily observed in the development of tracks and roads across the project area (Plate 7.5; Plate 7.6). To the north of Farmers Creek, tracks have been created primarily on mountain saddle and ridgeline landform which may have displaced historical resources that may have been present prior to the installation of the respective tracks. The flooding of Lake Lyell is also likely to have significantly affected potential historical resources in the area, both by submerging sites but also by eroding sites that would not have been subject to wave action prior to the increase in water. Other discrete pockets of disturbance were observed, primarily caused by the popularity of the area among campers and four-wheel drivers.

The remnant vegetation of the project area is visible to the north of Farmers Creek and is largely characterised by open eucalyptus forest (Plate 7.7). Large eucalyptus species dominated the canopy with native grasses and shrubs common in the understorey. The primary difference on southeastern facing mountain slope where dense ferns were observed (Plate 7.8).

Located east of Lake Lyell and north of Magpie Hollow Road, the proposed Lakeside Camp is composed of highly undulating landscape, sloping down towards the west and Lake Lyell (Plate 7.9 and Plate 7.10). These hills are covered with low lying grasslands and native shrubs.

At the south of Lake Lyell, the Lilyvale dam overlooks the lake to the north and the sloping dense vegetation to the south. The location of the proposed laydown area is the currently asphalt and bitumen paved viewing area and dam spillway (Plate 7.11 and Plate 7.12).

Included in the PHES project area is the intersection of Sir Thomas Mitchell Drive and Magpie Hollow Road planned to be upgraded (Plate 7.13). The intersection is currently a two-lane road of paved bitumen bounded by trees and undulating grassy hills.

The intersection of the Great Western Highway and Magpie Hollow Road is currently a wide paved bitumen road, bounded by vegetation and buildings (Plate 7.14). Adjacent to the east this project area is the heritage item of the Royal Hotel (#I062).

The field survey included the investigation of the disturbance footprint within the project area. A single site was identified within the construction envelope for the PHES project. The Lakeside Camp, Lilyvale dam laydown area, and the to-be-updated Sir Thomas Mitchell Drive intersection portions of the PHES project area identified no sites or sightlines with heritage items. Although not in the project area at the Great Western Highway, the heritage item of the Royal Hotel (#I062) is adjacent to the project area.

A summary of sites identified during the PHES field survey is presented in Section 7.3 and Figure 7.2.



Plate 7.1 Eastern portion of the disturbance footprint, showing steep hillslope (view south)



Plate 7.2 Western portion of the disturbance footprint, showing descent to the valley and background mountains (view south)



Plate 7.3 Southern portion of the disturbance footprint, showing decent of granite outcrop (view south-east)



Plate 7.4 Southern portion of the disturbance footprint with Farmer's Creek visible (view south-east)



Plate 7.5 Northern portion of the disturbance footprint , access track cut within open eucalpyt forest (view west)



Plate 7.6 Central portion of the disturbance footprint, showing vehicle access track (view east)



Plate 7.7 Western portion of the disturbance foorptint. Primarily open eucalpt forest within minimal ground visibility (view south)



Plate 7.8 Eastern portion of the disturbance footprint. featuring a hillslope with dense fern cover, contrasting with the western portion of the footprint (view north)



Plate 7.9 Lakeside Camp accomodation (view north-west)



Plate 7.10 Lakeside Camp accomodation (view north-east)



Plate 7.11 Lilyvale dam laydown area and view of Lake Lyell (view north)



Plate 7.12 Lilyvale dam spillway (view south-west)



Plate 7.13 Intersection of Sir Thomas Mitchell Drive and Magpie Hollow Road (view north-east)



Plate 7.14 Intersection of Great Western Highway and Magpie Hollow Road, with Royal Hotel (#I062) in background (view east)

7.3 Identified sites in the PHES project area

This section focuses on identified sites within the PHES project area and immediately adjacent. Sites identified through the preliminary desktop review that are outside these areas, such as the No. 2 Stockade on Cox's River, are not included because the potential for direct impact from the project is little to none.

Field survey identified one site within the construction envelope, immediately outside the north-west boundary of the disturbance footprint (LLH001 in Figure 7.2). This site had not been identified during the documentary research, which included exploring parish and Crown plans and historical aerial photographs. The site was located on a gently inclined hillside within a clearing of open eucalypt forest and had poor ground visibility. The structural remains included corrugated iron sheeting, fragments of concrete blocks, scrap metal, and timber posts – evidence of a former standing structure. The site's characteristics indicate an association with later 20th century pastoralism, as outlined in Chapter 6. The structure likely featured external cladding and roofing of corrugated iron, supported by timber posts. The presence of a fence line and wire remnants suggest the structure may have been used for agricultural purposes, possibly as a holding pen or stockyard. The structure may have been a temporary storage shed or shack with a stockyard attached. The surrounding scrap metal, possibly once used as feeding troughs, supports this interpretation. Its proximity to the access road to the north suggests it may have been associated with rural properties on the outskirts of the project area. Aside from an esky, no surface artefacts indicating historical domestic use of the site were found, suggesting either continued use or a more modern origin for the structure. Photographs of the site are shown in Plate 7.15 to Plate 7.18.



Plate 7.15 Site LLH001 located in a clearing within an open eucalypt forest. Visible are a standing timber fence post with wire, alongside fallen posts and corrugated iron sheeting (view north-east)



Plate 7.16 Structural remains of LLH001 consisting of timber posts, corrugated iron sheeting, scrap metal and concrete blocks (view west)



Plate 7.17 Base of hillslope within site LLH001. showing scattered pieces of scrap metal, possibly remnants of buckets or drums (view south)



Plate 7.18 Access road in fronting site LLH001. Corrugated iron sheeting and scrap metal visible in foreground (view north)

7.3.1 Royal Hotel (#I062)

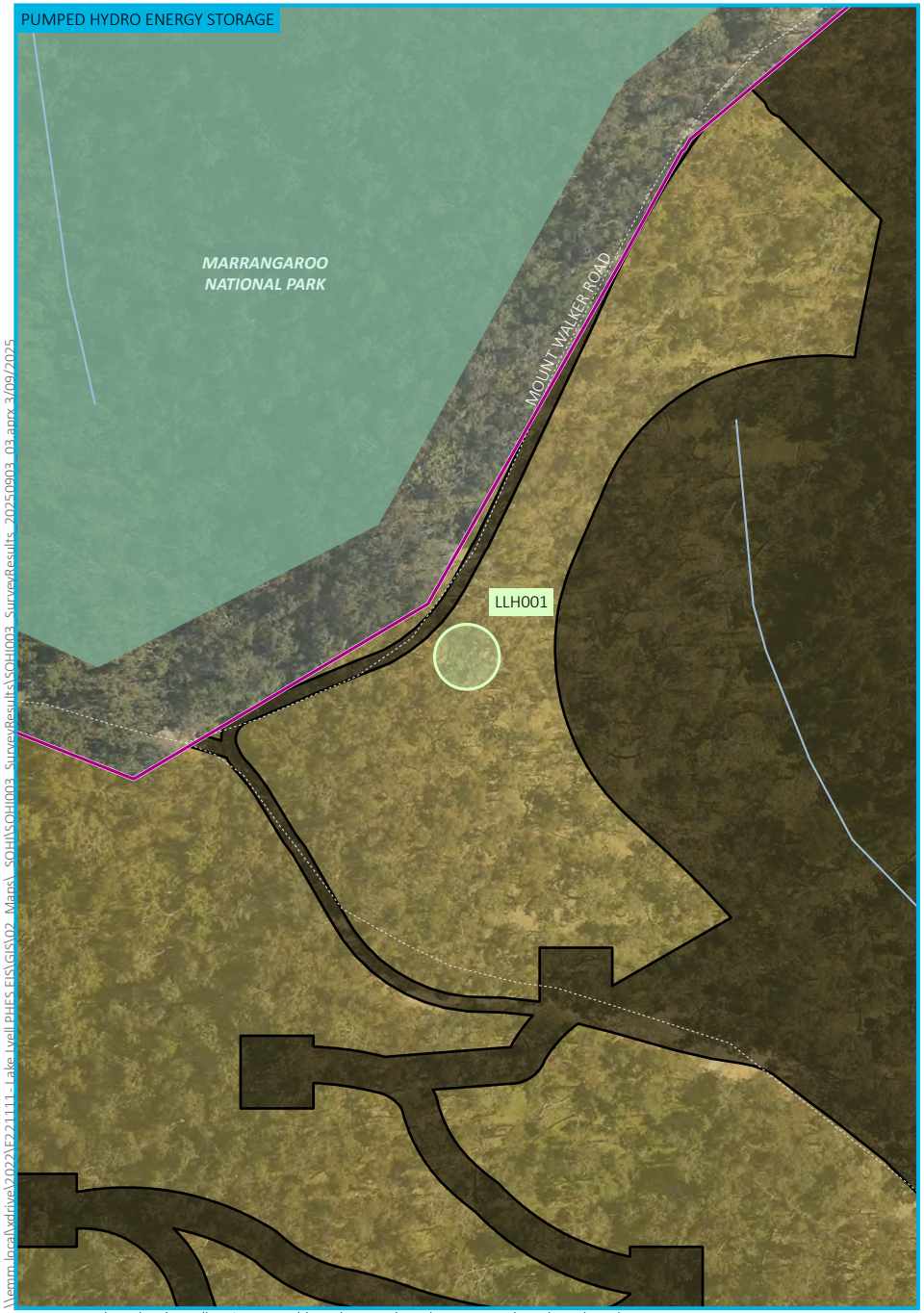
This heritage item was identified adjacent to the PHES project area, at the intersection of Magpie Hollow Road and Great Western Highway adjacent to where the temporary intersection modifications at the Great Western Highway will occur. The following description has been taken verbatim from the State heritage inventory LEP listing:

> A rectangular symmetrical stone inn building, two storeyed with attic rooms and dormers. Two chimneys project above the hipped roof alignment, originally 12 pane windows now mostly altered. An early sandstone addition at one side with gabled roof remains together with a later unsympathetic brick parapet addition. A sandstone rectangular outbuilding at rear has been heightened in brickwork raising the gabled roof. Sandstone blocks probably from the verandah are located within the front facade alterations. Colonial Georgian Stone/tin. (State Heritage Inventory Online 1998)

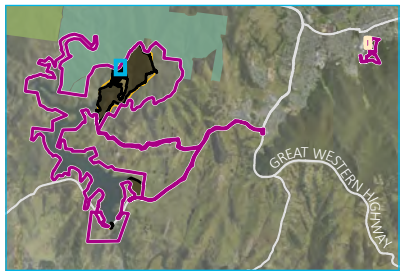
The survey inspected the Royal Hotel and its surroundings along the Great Western Highway.



Plate 7.19 Royal Hotel (#I062) (view east)







KEY

- Project area
- Disturbance footprint
- Construction envelope

Survey result

- Town camp findings
- LLH001

Existing environment

- Vehicular track
- Watercourse/drainage line
- NPWS reserve
- State forest

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); MetroMap (2025); GA (2009)

0 50 100 m

GDA2020 MGA Zone 56

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Survey results

Lake Lyell PHES
Statement of Heritage Impacts
Figure 7.2

EMM
creating opportunities

7.4 Town Camp site

Situated near the centre of the Lithgow township, the Town Camp project area overlaps with the heritage items of Lithgow Valley Colliery & Pottery Site (SHR #00078), Lithgow Valley Pottery and Brickworks (LEP #A124), and Pottery Estate Heritage Conservation Area (#C11).

The landscape is comprised of undulating grassed areas that slope up towards the east. The site survey suggests the landscape is disturbed, with the east showing hills of heaped clay and terraced earth (Plate 7.20 to Plate 7.26). While observed around the entire project area, the flatter areas in the west of the project area showed larger concentrations of artefact scatters (Plate 7.27 to Plate 7.30). The artefact scatters were mostly comprised of bricks, tiles, and pottery, although found throughout the site were scatters of broken concrete blocks and modern dumped rubbish and asphalt (Plate 7.31 to Plate 7.32). There was also a spoil heap in the south-east corner of the site, where mounded fill and landscaping were dumped with visible brick and artefact inclusions (Plate 7.33 to Plate 7.35).

In-ground brick features occur in the north-west of the project area near the modern concrete bollards, within Zone I Area 1 (see Sections 6.3.1i and 6.3.2i). They comprise a northern brick footing and a southern beehive pottery kiln previously identified by High Ground (2014). Both show a mix of frogged and unfrogged bricks (Plate 7.35 to Plate 7.38). Artefact scatters, spoil heaps and other remnant features in this locality reinforce the high archaeological potential.

i Brick footing [235664, 6291219 (GDA2020 Z56)]

The northern feature is located approximately 25 m from the northern boundary of the pottery estate, adjacent to RFS service station, within Zone I Area 1. The exposed plan measures about 45 cm by 75 cm with approximately seven courses visible, equating to roughly 20 bricks. Orientation is east to west, and the footing extends under the capping fill, which is about 25 mm thick here. Brick dimensions are 12 cm by 4 cm, and the footing appears to continue beneath surface for at least 40 cm, with an estimated base depth of about 4 cm below ground level as it is likely that these are base bricks. The location of this footing is consistent with the former boiler room and engine room buildings that can be seen Stedinger Associates (2004) Pottery site plan (Plate 7.53).

ii Southern beehive pottery kiln [235667 6291186 (GDA2020 Z56)]

The southern feature is a curved brick wall segment within Zone I Area 1. The exposed arc is approximately 2.5 m long, and about one course visible, totalling around 22 bricks. The segment faces north-south. It is partly buried beneath capping fill, with the surrounding fill thickness of 10 mm; note recent tapering of fill toward the road if applicable. Condition is partially intact and poor with many of the bricks cracked or damaged. The location and form are consistent with the beehive kiln attributed to the c.1906 phase of the works (Plate 7.37 to Plate 7.38). The kiln fabric appears to continue beneath the surface for at least 2 m, with the kiln base likely at about 10 mm below ground level.

It should be noted that this project area does not cover the entirety of these pottery site's heritage curtilages. Outside the project area, but inside the heritage curtilage, is the pottery store and associated fencing. Inside this fencing are two extant brick structures, and the remains of two other features. The north-most extant structure is a brick stack (Plate 7.40 to Plate 7.42) and the south most structure is a clay store (Plate 7.43 to Plate 7.45). Both these structures are made of bricks. The visible bricks show no frogging and iron inclusions in their fabric. In the ground between these structures were the remnants of another brick footing or pathway, like the other brick footing/pathway features, made of a mixture of brick types (Plate 7.46 and Plate 7.47). Based on the location of this feature, it is likely associated with the small high temperature kiln or the dipping and glazing shop (Plate 6.10). Additionally, within this fenced area and adjacent to the project area were the remnants of a brick structure (Plate 7.48 to Plate 7.50). The remaining four walls are partially demolished and are made of the same unfrogged bricks with iron inclusions as the extant brick structures.

Heritage items in the vicinity of this project area are two heritage items: *Lithgow Valley Colliery Office* (#I272) (Plate 7.51) and the *Former LVC Managers Residence* (#I273), both 85 m north of the Town Camp project area (Plate 7.52). Due to vegetation and other structures present north of the project areas, sightlines to these items are heavily obscured.



Plate 7.20 **Town Camp landscape (view east)**



Plate 7.21 **Town Camp landscape (view south)**



Plate 7.22 **Town Camp landscape (view north-east)**



Plate 7.23 **Town Camp landscape and clay pile (view south-west)**



Plate 7.24 **Town Camp landscape (view west)**



Plate 7.25 **Town Camp landscape with pottery café in background (view west)**



Plate 7.26 Town Camp landscape (view south-east)



Plate 7.27 Artefact scatter with frogged brick



Plate 7.28 Artefact scatter in north-west of project area



Plate 7.29 Artefact scatter in centre of project area



Plate 7.30 Artefact scatter of bricks in west of project area



Plate 7.31 Concrete block in north-west of project area



Plate 7.32 Dumped rubbish in east of project area



Plate 7.33 Spoil heap in south-east corner of project area (view south)



Plate 7.34 Artefact scatter around spoil heap (view south)



Plate 7.35 Detail of brick artefact scatter atop spoil heap



Plate 7.36 North most brick footing feature in north west of project area



Plate 7.37 Detail of north most brick footing feature in north west of project area



Plate 7.38 South most brick beehive pottery kiln in north-west of project area



Plate 7.39 Detail of south most brick beehive pottery kiln feature in north-west of project area



Plate 7.40 Stack in heritage curtilage but adjacent to the project area (view west)



Plate 7.41 Stack in heritage curtilage but adjacent to the project area (view east)



Plate 7.42 Detail of stack in heritage curtilage but adjacent to the project area (view east)



Plate 7.43 Clay store in heritage curtilage but adjacent to the project area (view south-east)



Plate 7.44 Clay store in heritage curtilage but adjacent to the project area (view south)



Plate 7.45 Detail of clay store in heritage curtilage but adjacent to the project area (view west)



Plate 7.46 Brick pathway in heritage curtilage but adjacent to the project area



Plate 7.47 Brick pathway in heritage curtilage but adjacent to the project area



Plate 7.48 Remnants of brick structure in heritage curtilage but adjacent to the project area (view south)



Plate 7.49 Detail of wall of remnants of brick structure in heritage curtilage but adjacent to the project area (view south-east)



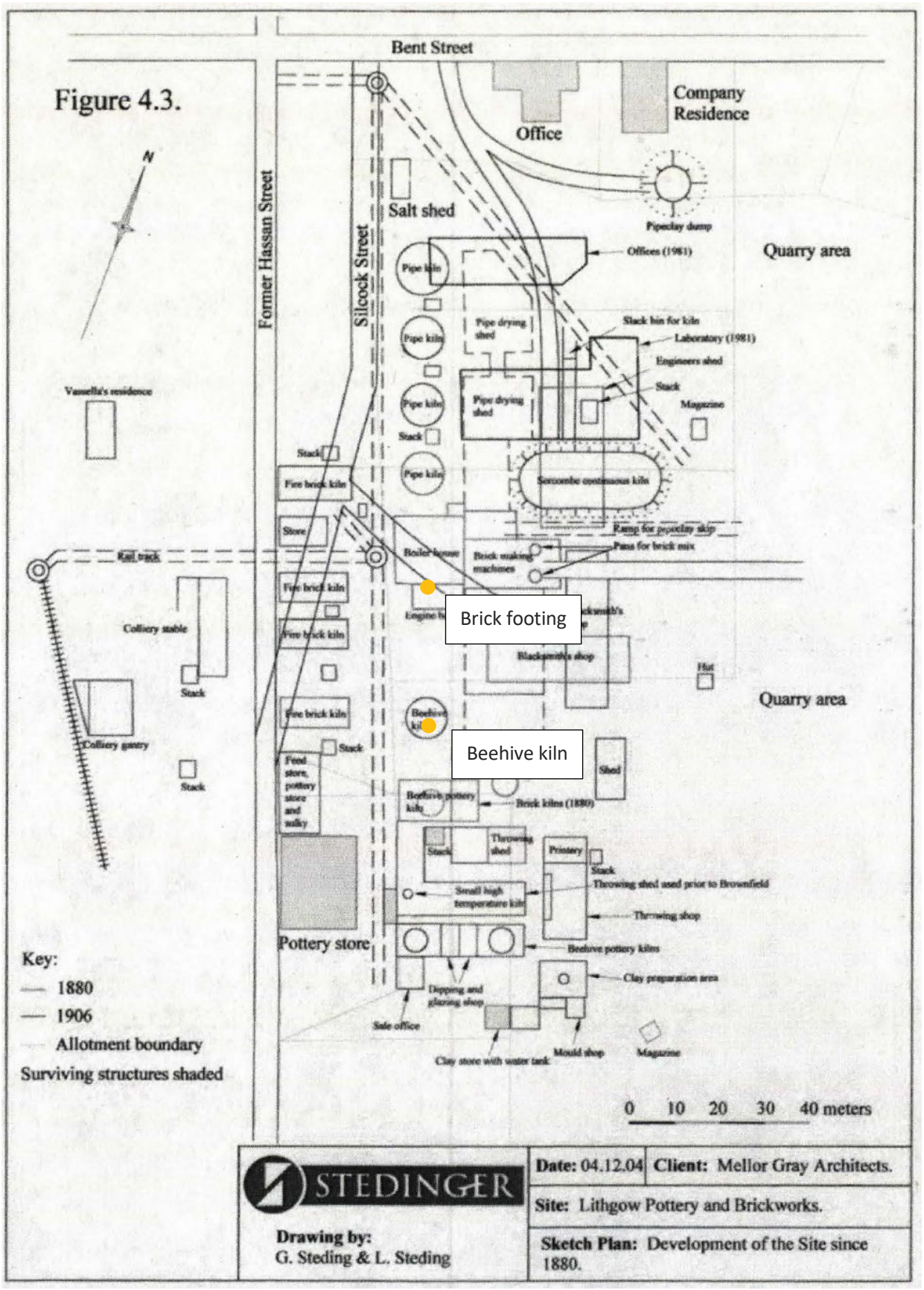
Plate 7.50 Detail of wall of remnants of brick structure in heritage curtilage but adjacent to the project area (view south-west)



Plate 7.51 Lithgow Valley Colliery Office (#I272) (view south-east)



Plate 7.52 Former LVC Managers Residence (#I273) (view south)



Source: High Ground (2020)

Plate 7.53 Survey results overlaid with Stedinger Associates (2004) Pottery site plan

8 Assessment of significance

8.1 The significance framework

In NSW, historical value is ascribed to buildings, places, archaeological sites and landscapes modified in the Australian historical period for purposes other than traditional Aboriginal use. The assessment of heritage significance is based on the Burra Charter (Australia ICOMOS 2013) and further expanded upon in *Assessing Heritage Significance* (DPE 2023a). The heritage manual lists seven criteria to identify and assess heritage values that apply when considering if an item is of State or local heritage significance, which are set out in Table 8.1. It also identifies the heritage gradings for which DEHS001 has been assessed against.

Table 8.1 NSW heritage assessment criteria

Criterion	Explanation
a)	An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area) (*Historical Significance)*.
b)	An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area) *(Historical Association)*.
c)	An item is important in demonstrating aesthetic characteristics and/ or a high degree of creative or technical achievement in NSW (or the local area) *(Aesthetic/creative/technical achievement)*.
d)	An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural, or spiritual reasons. *(Social, cultural, spiritual Significance)*.
e)	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area) *(Research Potential)*.
f)	An item possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area) *(Rarity)*.
g)	An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments) *(Representativeness).*

Source: *Assessing Heritage Significance* (DPE 2023a, p.21).

8.2 Assessment of identified sites in the PHES project area

This section exclusively assesses sites within the disturbance footprint and construction envelope, as these are the areas where potential impacts may occur. Sites outside this area, such as the No. 2 Stockade on Cox's River, are not assessed here as they will not be impacted, and their significance does not warrant evaluation in this context. However, previous archaeological investigations have determined that the Cox's River site holds research significance, potentially reaching the threshold for local significance (Rosen and Pearson 1997).

A single site (LLH001) was identified within the construction envelope (Figure 7.2). However, this site does not contribute to the historical significance of the project area. While present, its ability to contribute to the narrative of the project area's historical context is minimal.

The assessment of significance outlined in Table 8.2 found that the site does not meet the criteria for local heritage significance, and should archaeological resources associated with the site exist, they would not meet the threshold for relics.

Table 8.2 Significance assessment – LLH001

Criterion	Assessment
a) Historical significance	The site was located in historical Lot 104 in the Parish of Lidsdale, County Cook. Neighbouring Lots 103 and 104 were taken up as a conditional purchase and conditional lease, respectively, but local farmer James Flanagan in 1889. It is not clear if Flanagan occupied the properties during their ownership. The Lots were included in the Warragamba Rivers Storage Catchment Area in 1914. Between 1923 and 1932 Lots 103 and 104 were amalgamated into the current boundary of Lot 103 DP751651. Lot 103 DP751651 was reclassified as a Special Lease, which was granted to Mary Ann Williams in 1938. The conditions of the Special Lease controlled tree removal to prevent soil erosion in the catchment area and ensured the property was occupied over the term of the lease. It is likely the archaeological resources observed in Lot 103 DP751651 relate to use of the property as a Special Lease land. This historical context sheds light on the evolving strategies employed to maximise the productivity and sustainability of land use, contributing to our understanding of historical patterns and the course of pastoralism and agricultural history in the Cox's River region. **LLH001 does not meet Criterion (a) for local significance.**
b) Historical Association	LLH001 does not demonstrate an association with a significant event, person or groups of people. **LLH001 does not meet Criterion (b) for local significance.**
c) Aesthetic/creative/ technical achievement	LLH001 does not reveal any particular aesthetic or architectural characteristics. **LLH001 does not meet Criterion (c) for local significance.**
d) Social, cultural, spiritual Significance	There is no evidence that the site has strong or special associations with a particular community or cultural group. **LLH001 does not meet Criterion (d) for local significance.**
e) Research Potential	LLH001 is unlikely to yield novel insights on the historical uses of the project area. **LLH001 does not meet Criterion (e) for local significance.**
f) Rarity	LLH001 is not rare in this region. The property does not possess uncommon, rare or endangered aspects of NSW's cultural history. **LLH001 does not meet Criterion (f) for local significance.**
g) Representativeness	LLH001 is likely a shack or shed with a stockyard attachment but does not exhibit any key features typical of this type of site. Additionally, since the site type is not definitively confirmed, its representativeness is unable to be determined. **LLH001 does not meet Criterion (g) for local significance.**

In summary, LLH001 does not meet the above criteria and is therefore not considered to be historically significant at a local level. The site consists of the remains of what was likely a temporary shack or shed with an attached stockyard, but it holds no heritage significance. Most of the site is not intact or in situ, with the exception of a single timber fence post. The scattered structural remnants provide little insight into the original use and purpose of the structure.

The site type is neither rare nor does it possess any historical, associative, aesthetic, social, research, or representative elements that would justify heritage listing. Furthermore, the archaeological resource, if present, is unlikely to contribute to an understanding of the site type or the broader historical context within the project area or overall region. While the site is not intact, it likely once represented a mid to late twentieth-century ancillary structure that was ephemeral and likely abandoned. Given its lack of significance and minimal intact fabric, LLH001 is not considered a heritage item and does not warrant further consideration.

8.3 Significance assessment of the Town Camp project area

As the Town Camp temporary accommodation is situated within the curtilage of Lithgow Valley Colliery & Pottery Site (SHR #00078), and the locally significant Lithgow Valley Pottery and Brickworks (LEP #A124) and Pottery Estate Heritage Conservation Area (#C11), the following significance assessment is provided. Table 8.3 reproduces the significance assessment from the SHR and LEP listings of the site (State Heritage Inventory Online 2020; 2019). As the Town Camp project area does not cover the entire curtilage of the pottery estate, the portions that do fall within the boundaries have been separately assessed in the third column of Table 8.3 to provide an understanding of the significance of the area potentially impacted by the proposed Town Camp.

Table 8.3 Significance assessment – Lithgow Pottery site

Criterion	SHR assessment	Town Camp project area
a) Historical significance	The Lithgow Pottery & Brickworks was a pioneer of colonial pottery making and also demonstrated innovation over an extended period. It also played an important role in the economic development of Lithgow. Drastic alterations to this site over time have reduced its ability to demonstrate this aspect of its significance. **The Lithgow Pottery Estate meets Criterion (a) for State significance.**	Within the Town Camp footprint, contribution to historical values is concentrated in Zone I where high archaeological potential is predicted. The archaeological relics in Zone I may inform our understanding to the production layout and brickmaking history of the works. Zone III it is unlikely archaeological material found in this area would contribute much to history beyond what has already been documented. Relics in Zone I within the Town Camp area are likely to demonstrate the production layout and brickmaking history of the works, and therefore contribute to State historical significance.
b) Historical Association	The works have clearly identified associations with Patrick Higgins (Railway contractor), Edward Gell (Architect), James Silcock (pioneer potter) and Arthur Brownfield (innovative potter). It also has strong associations with the Lithgow Valley Colliery Company. **The Lithgow Pottery Estate meets Criterion (b) for State significance.**	Associative values are held across the whole SHR curtilage. In the Town Camp footprint, they are expressed where operational infrastructure survives, especially in Zone I, including the footings of the beehive kiln and brick footings related to the associated structures identified during the field survey.
c) Aesthetic/ creative/ technical achievement	The archaeological resource of this site is likely to have high aesthetic significance. Archaeological remains exposed in situ, like footings excavated by Higgenbotham in 1981, are expected to have high display value. **The Lithgow Pottery Estate meets Criterion (c) for State significance.**	The item's State value is not primarily aesthetic; any aesthetic value would arise only if archaeology is exposed and shown to possess such qualities. Within the Town Camp area, significance is better framed as technical evidence of industrial processes preserved in subsurface remains. These are likely to occur in Zone I. The Town Camp project area is likely to contain archaeological relics that contribute to the State significance of the Lithgow Pottery Estate.
d) Social, cultural, spiritual Significance	The remaining buildings on this site are held in high esteem by the Lithgow community and feature in many local tourism promotions and documentation. The pottery products of the former works are also highly collectible. There is a high potential for community interest in archaeological investigations, given the potentially substantial nature of the archaeological resource. **The Lithgow Pottery Estate meets Criterion (d) for Local significance.**	Social esteem focuses on Lithgow pottery products and the surviving buildings outside of the Town Camp footprint. The Town Camp footprint contributes indirectly to community interest through the potential to investigate and interpret archaeology, rather than through standing fabric. The Town Camp area contributes to social value indirectly by enabling investigation and interpretation of archaeology that keeps the site's story legible to the community.

Criterion	SHR assessment	Town Camp project area
e) Research Potential	The site holds the potential to contribute archaeological evidence of the sub-surface construction, organisation and operation of 19th century brick, pipe and pottery works at a State level. **The Lithgow Pottery Estate meets Criterion (e) for State significance.**	Research potential in the Town Camp area is high in Zone I, where previous work immediately north of the site confirmed substantial in-situ remains with stratified deposits to about 1.83 m. Evidence of the beehive kiln and other structures are evident on the surface beneath a shallow deposit. The Town Camp area is likely to contain deposits with strong research value that materially contribute to the site's State research potential.
f) Rarity	The Lithgow Pottery & Brickworks was unique in being integrated with the adjoining Lithgow Colliery and adjacent clay quarries. Developments on and around the site since 1980 have obliterated almost all traces of these relationships, thereby eliminating many of the characteristics which contributed to the site's rarity. The site is however considered likely to contain rare archaeological resources. **The Lithgow Pottery Estate meets Criterion (f) for State significance.**	If preserved and investigated, the Town Camp area may hold rare archaeological resources, particularly in Zone I. Survival of kiln fabric and related features within the project area would help retain rare attributes of the integrated clay products complex and contribute to State rarity value.
g) Representative ness	The archaeological resource at the site may have the potential to provide physical evidence that is representative of late 19th and early 20th century industrial complexes. **The Lithgow Pottery Estate meets Criterion (g) for State significance.**	If preserved and investigated, remains in the Town Camp area can provide representative physical evidence of late-19th to early-20th century brick, pipe and pottery production, including the relationships between kilns, drying floors and tramways. Remains in the Town Camp area can provide representative physical evidence of late 19th and early 20th century brick, pipe and pottery production, including relationships between kilns, drying floors and tramways.

8.3.1 Statement of significance – Lithgow Pottery Estate

Lithgow Pottery and brickworks is of State heritage significance as an important producer of basic industrial products for wide-ranging markets over a period of 69 years and distinguished tableware for 20 years. The pottery founded by James Silcock in 1879 continued by other skilled potters and refounded in 1905 by Arthur Brownfield, brought Staffordshire skills to create colonial wares capable of competing with British imports. However it was not a financial success and the high collectability of Lithgow wares today gives the pottery a higher national profile than it enjoyed whilst operating. Industrial and agricultural pipes remained an economic strength of the Lithgow Valley Colliery Co. for more than thrice the life of the pottery. Despite strong competition from Sydney makers of ceramic pipes and from the Hoskins firm's iron pipes, Lithgow products were used in many important drainage and sewerage plants throughout New South Wales. The brick production was very large, up to 50,000 bricks a day after the Sercombe kiln was installed in 1901 and is reflected in many major public works in the state as well as private houses in Lithgow.

The site is historically rare because of its relationship of clay products with a major colliery and an adjacent clay pit; the exceptionally high esteem in which its domestic pottery products are held and its economic importance within the Lithgow region. It is also representative of pipeworks and of successful brickworks in the state showing investment in up-to-date technology after 1901 as well as traditional brick-kiln technology.

> The site's significance of its potential contribution to understanding clay-products technology in the period 1876 to 1945 is dependent entirely on the integrity of the subsurface archaeological record. A great deal of disturbance has diminished the practicality of realising the archaeological potential of much of the area. There are however two small areas containing substantial intact portions of brickwork an important concretion of pipewares and other industrial remains. These are probably not in-situ but should be investigated before any development takes place.
>
> The pottery produced enjoys extremely high local esteem, as evidenced by the new building opened in 1996 at Eskbank House Museum in Lithgow specially to house its collection of pottery from this site. Although the pottery was in fact of minor economic significance and survived for only twenty years on a site used for other clay products for 69 years, its products are visible and collectable where pipes, chimney pots, tiles and bricks have for the most part remained functional and less well regarded. As an aspect of Lithgow Valley Colliery, the most long-lived of all Lithgow enterprises, the clay products division offered employment and company facilities (such as quoiting) which were a significant part of Lithgow life for a century.
>
> (State Heritage Inventory Online 2020)

Within the Town Camp footprint, the contribution to significance is concentrated in Zone I near Silcock Street, where kiln and machinery remains are expected; the area contributes to Criteria A, B, E, F and G at a State level through subsurface archaeology, with Criterion D indirect via interpretation, and Criterion C framed as technical rather than aesthetic.

9 Heritage impact assessment

9.1 Impact assessment method

The assessment of a project's impacts to the heritage significance of a place or an item is to understand change, if it is beneficial to the place or item, and how changes can be managed to best retain significance. The historical landscape in Australia, be it rural or urban, is by social agreement, a significant aspect of our identity (refer to Chapter 6). That agreement is codified in legislation, the intent of which is to encourage the conservation of cultural heritage by incorporating it into development where feasible. In many situations avoiding impacts is impossible, but the aim is to reduce those impacts by either project re-design or managing the loss of information through methods that reduce and/or record significance before it is removed.

The framework around assessing significance and therefore suitable levels of impact is to understand how the place or item came to be, how important it was (and may be still) in the development of the local area or the state (the colony at the time) and providing guidance on its management. This is what this report aims to do.

9.2 Types and sources of impact

Two main types of impacts have been predicted to occur as a result of the project: physical and visual. These types are described as follows:

- Physical impacts are those impacts that will materially affect the features and sites that are present within the development footprint whether they were found or if they are unanticipated.
- Visual impacts are those impacts that will affect the views and the setting of the cultural landscape and nearby built items within the development footprint and surrounds.

9.2.1 Project summary

The project includes the establishment of new infrastructure outlined in Chapter 2. It is expected that excavation for the power waterway tunnels, access tunnels and the powerhouse cavern will include drilling, boring and blasting methods. Construction of the upper reservoir will include civil excavation and construction, quarrying, drilling, and blasting. Intake/outtake works will also include excavation within the Farmers Creek arm of Lake Lyell.

Temporary and permanent ancillary facilities will be constructed during the construction phase. While design details remain in development, the facilities are likely to include rock and aggregate crushing, concrete batching plants, stockpiling areas, storage areas, offices, amenities, first aid facilities and water supply and sewage management. This includes the temporary traffic management installed at the intersection of Magpie Hollow Road and Great Western Highway, upgrades to the intersection of Sir Thomas Mitchell Drive and Magpie Hollow Road, and the Lilyvale Dam laydown area.

Additionally, temporary workforce accommodation facility is proposed to be constructed at one of two sites: the Lakeside Camp or the Town Camp. See Chapter 2 for more information on these sites as alternatives being considered.

Therefore, the construction and land preparation anticipated for the project will result in impacts to the upper soil profile. Activities such as the construction of new access roads, a rockfill gully dam, a power waterway and an underground powerhouse will require earthworks, which could result in the total removal of the upper soil profile, within which archaeological material is typically documented.

The primary type of impact that may arise from the project is physical impact, which involves material effects on the features and sites within the disturbance footprint, whether the features or sites have been previously identified or if they are unanticipated. The project disturbance footprint does not pass into the area/s previously identified to contain early road sections or archaeological recourse associated with the Cox's River No.2 Stockade complex. However, while one site (LLH001) was identified within the PHES construction envelope, it does not hold any heritage significance. Therefore, the physical impacts from the construction and operation of the project will have a little to no impact, as there are no known historical heritage values in the PHES construction envelope.

9.3 Levels of impact

Under the *Material Threshold Policy* (Heritage NSW 2020), the impact assessment must assess the proposed works against the listed criteria. The listed criteria are defined as the assessment against the heritage significance criteria in the SHR listing. For example, if a site is listed criteria a) historical, b) association, e) research potential and f) rarity, then the impact assessment needs to determine whether the project would erode (or impact) the ability of the item to demonstrate significance under those four criteria.

The impact definitions are reproduced from the policy (Heritage NSW 2020, p.4) in Table 9.1. The MTP was developed for application to SHR listed items, but has been adapted when necessary in reference with items of local significance. The following statement of heritage impact identifies the scale of the impact to the listed criteria defined in Section 7.3.

Table 9.1 Scale of impact to heritage significance

Impact	Definition
Total loss of significance	Major adverse impacts to the extent where the place would no longer meet the criteria for listing on the SHR.
Adverse impact	Major (that is, more than minor or moderate) adverse impacts to State heritage significance.
	Moderate adverse impacts to State heritage significance
	Minor adverse impacts to State heritage significance.
Little to no impact*	An alteration to State heritage significance that is so minor that it is considered negligible. * Little to no impact (as opposed to no impact) acknowledges that any change will result in some level of impact/alteration to State heritage significance.
Positive impact	Alterations that enhance the ability to demonstrate the State heritage significance of an SHR listed place.

Source: Heritage NSW 2020, p.4

To assist in determining what is a major, moderate or minor impact, the following has been used as a guide:

- Major impact – Change to all or most significant aspects of the place, such that its heritage significance against the listed criteria are substantially reduced or destroyed. A major impact is defined as a proposal that would impact over 50% of the fabric of the building and/or construction of the new structure wholly within the heritage.
- Moderate impact – Change to some significant aspects of the place, such that some of its heritage significance is partially reduced. A moderate impact is defined as a proposal that would impact between 26% and 49% of the fabric of the heritage items and/or construction of the new structure partially within the heritage curtilage.

- Minor impact – Minor change to significant aspects of the place, such that some of its heritage significance is slightly reduced. A minor impact is defined as a proposal that would impact between 1% and 25% of the fabric of the heritage item and/or construction of the new structure partially within the heritage curtilage.

9.4 Assessment of impacts of the PHES project area

9.4.1 Direct impacts

No items of heritage significance have been identified within or in the vicinity of the construction envelope. This includes the location of the temporary accommodation at the Lakeside Camp, which has no items of heritage significance situated within the proposed curtilage.

The identified site, LLH001, does not meet the threshold of local significance and, as such, the impact on known heritage significance within this construction envelope is considered little to none. Additionally, there will be no direct impact on Cox's Stockade No. 2, as it is outside the disturbance footprint and construction envelope (approximately 1.6 km west). However, while unlikely, there is potential that subsurface archaeological resources, not identifiable through surface inspection, may have survived within the project area or disturbance footprint.

Table 9.2 provides a summary of the potential impact on historical heritage items within the construction envelope.

Table 9.2 Potential direct impacts to items within the PHES project area

ID	Heritage item name	Potential impact	Matters for consideration impacted	Likely scale impact
LLH001	Remains of ancillary structure	The item is within the construction envelope and may be removed	None – the item does not hold heritage significance	Little to no impact

9.4.2 Indirect impacts

Construction and operation of the project are expected to have minimal indirect impact on heritage values that have been formalised through inclusion on statutory heritage registers. The nearest heritage item, *Highland House* (#I169), is located approximately 1.4 km south-west of the project area and around 3.4 km from any proposed areas of active disturbance, ensuring that no direct impacts will occur to the item. Additionally, due to the considerable distance, no indirect vibrational impacts are anticipated. A Visual Impact Assessment (EMM, 2025) has confirmed that sightlines do exist from Highland House to the project infrastructure (Plate 9.1). While the project will be permanently visible from the heritage item, the assessment concluded that the magnitude and scale of the visual change are low. Therefore, although the project can be seen from Highland House, the visual impact is considered minor. Other heritage values within a 2 km radius have been assessed and confirmed to have no visual impacts, as there are no lines of sight from these items to the project infrastructure.

There will be no indirect impacts to the No. 2 Stockade on Cox's River. This site is located outside the disturbance footprint and construction envelope, and the potential for direct impact is low. Additionally, the significant distance between the site and the construction activities ensures that there will be no indirect vibrational impacts. The distance also mitigates any potential visual impacts, as the site will not be within sightlines of the project infrastructure. Consequently, the No. 2 Stockade on Cox's River will remain unaffected both visually and structurally by the construction and operation of the project.

There are no heritage items in the vicinity or within sightlines from the Lakeside Camp, the intersection of Sir Thomas Mitchell Drive and Magpie Hollow Road or the Lilyvale Dam laydown area. Therefore, no indirect impacts anticipated from these project elements.

The PHES project area also includes the Magpie Hollow Road intersection at the Great Western Highway. This abuts the heritage curtilage of Royal Hotel (#I062) (Plate 7.14). The proposed plan of this intersection is for the installation of a temporary, signalised intersection modifications to allow for construction traffic. Therefore, little to no indirect impacts are anticipated for this heritage items as the proposed works will result in temporary visual changes to an already existing road infrastructure.



Plate 9.1 Rendered view of project infrastructure visible from the vicinity of Highland House (#I169)

9.4.3 Matters of consideration

Table 9.3 provides an assessment against the matters for consideration of the identified site LLH001.

Table 9.3 Matters for consideration - LLH001

Matter	Discussion	Impact assessment
Fabric and spatial arrangement	The fabric of this site potentially must be removed entirely, indicating a permanent change to the fabric and spatial arrangement. However, this fabric does not meet the threshold for heritage significance. Therefore, little to no impact on this matter.	Little to no impact.
Settings, views and vistas	This site does not contain notable settings, views or vistas. Therefore, little to no impact on this matter.	Little to no impact.
Landscape	While this site is situated within a vegetated landscape, this site or its surrounding landscape does not have any heritage significance. Therefore, little to no impact on this matter.	Little to no impact.
Use	The fabric associated with this site is primarily remnants of building materials and fencing, indicating it is no longer in use for its original purpose. Therefore, little to no impact on this matter.	Little to no impact.
Demolition	There is no planned demolition at this site. Therefore, little to no impact on this matter.	Little to no impact.
Curtilage	As this site does not contain heritage significance, there is no associated curtilage. Therefore, little to no impact on this matter.	Little to no impact.
Moveable heritage	While majority of the remnant fabric of this site is potentially moveable, none of it meets the threshold for heritage significance. Therefore, little to no impact on this matter.	Little to no impact.
Aboriginal cultural heritage	Refer to the ACHA prepared for this EIS.	Not in scope.
Historical archaeology	As there is no known historical significance or association of this site's fabric or surrounding landscape. Therefore, little to no impact on this matter.	Little to no impact.
Natural heritage	While this site is situated within a natural environment, there is no natural heritage associated with this site. Therefore, little to no impact on this matter.	Little to no impact.

Matter	Discussion	Impact assessment
Conservation areas	This site does not sit in a conservation area. Therefore, little to no impact on this matter.	Little to no impact.
Cumulative impacts	There are no cumulative impacts anticipated for this site. Therefore, little to no impact on this matter.	Little to no impact.
The conservation management plan (CMP)	There is no CMP associated with this site. No impact on this matter.	Not relevant.
Other heritage items in the vicinity	There are no heritage items in the vicinity of this site. Therefore, no impact on this matter.	Not relevant.
Commonwealth / National heritage significance	There are no items of Commonwealth or Nation heritage significance at this site or in the vicinity. Therefore, no impact on this matter.	Not relevant.
World heritage significance	There are no items of World heritage significance at this site or in the vicinity. Therefore, no impact on this matter.	Not relevant.

9.5 Assessment of impacts of the Town Camp project area

9.5.1 Direct Impacts

The identified Lithgow Valley Colliery & Pottery Site (SHR #00078), Lithgow Valley Pottery and Brickworks (LEP #A124), and Pottery Estate Heritage Conservation Area (#C11) will be partially directly impacted by the Town Camp project area. The construction of the temporary workforce accommodation at this site will require earthworks to facilitate the construction of roads and buildings.

According to the archaeological zoning plan in the Lithgow DCP, the project area includes Zones I to III (see Section 6.3):

- Zone I (high potential): less disturbed areas where earlier structures such as kilns, workshops and tramways were located. Test excavation is required before any works proceed.
- Zone II (moderate potential): areas of more limited remains or past disturbance (e.g. former powder magazine location). Works in these areas should be monitored by a qualified archaeologist during bulk excavation and service trenching.
- Zone III (low potential): areas such as the infilled clay pits on the eastern side of the site, where archaeological potential is low and can be managed through an unexpected finds protocol.

Largely, the works will be contained within Zone III area, with all of the accommodation, car parking and roads being located in this zone.

The main entry, bus loop and covered bus shelter are proposed to be placed in Zone I, with the bus loop directly impacting the brick footings and beehive kiln location (Plate 9.2). Subsurface impacts to this area are likely to occur with the installation of this service and during its operation.

As the proposal is assessed under Division 5.2 of the EP&A Act, separate approvals under the Heritage Act do not apply (Section 5.23(1)(c)). Any disturbance to historical archaeology will be managed through the project's Conditions of Consent, including requirements such as an Archaeological Research Design and the nomination of an appropriately qualified Excavation Director. As such, while the camp may be temporary in duration, the earthworks required may cause permanent impacts on subsurface relics in Zone I, reducing their archaeological integrity and diminishing the future research potential of the site.

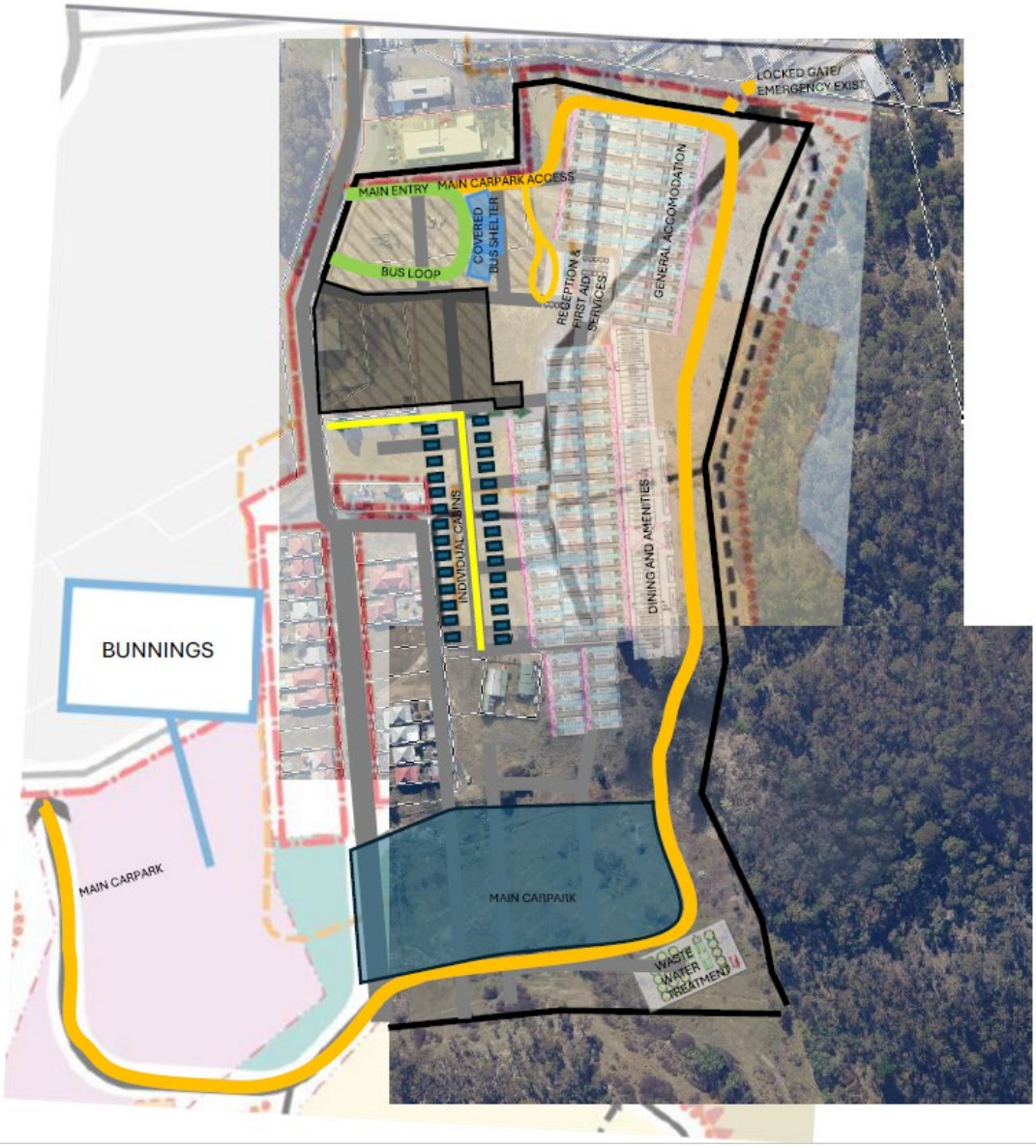


Plate 9.2 Draft Town Camp layout

9.5.2 Indirect Impacts

If selected as the chosen accommodation location, the construction and operation of the Town Camp will introduce a temporary visual presence within the Pottery Estate setting for the duration of the construction works of the PHES. From public vantage points on Silcock Street there may be minor visual intrusion in relation to the brick stack and clay store. With curtilage buffers and view corridors maintained, low building heights and recessive finishes, landscape screening, and controlled lighting, the visual effect during operation is minor. On decommissioning and site reinstatement the residual visual change reduces to little to no impact. The temporary occupation also creates an opportunity to implement the Lithgow DCP's interpretation objectives through an Integrated Interpretation Plan and design-stage integration of archaeology so the Pottery Estate's values remain legible throughout the camp tenure (Table 9.5).

9.5.3 Matters of consideration

Table 9.4 provides the matters for consideration of the Lithgow pottery site, being the location of the proposed alternative Town Camp project area.

Table 9.4 Matters for consideration – Lithgow Pottery site

Matter	Discussion	Impact assessment
Fabric and spatial arrangement	As discussed in Section 8.3.1, the Town Camp project area does not contain any of the extant above-ground fabric such as the brick stack, clay store, or collapsed brick structures as these exist within the Pottery Estate outside of the project footprint. There will however be direct impacts on surviving State significant archaeological resources within the disturbance footprint. These include visible brick footings, the mapped location of the beehive kiln (within the proposed bus loop), artefact scatters, and spoil heaps containing brick rubble. Excavation and associated works in these areas are likely to disturb or remove archaeological fabric. In addition, the spatial arrangement of the site will be permanently altered as remnant archaeological resources are impacted or removed. Major adverse impacts are anticipated, due to the permanent loss of archaeological relics (particularly the beehive kiln) and the consequent reduction in the site's research potential.	Major adverse impacts.
Settings, views and vistas	The proposed Town Camp is largely positioned in the eastern Zone III area. From public vantage points on Silcock Street, key views to the surviving pottery store and brick stack can be retained if building height, setbacks and landscaping are managed. Temporary accommodation, parking, lighting and fencing will change the local visual character, particularly during the camp's tenure, and may reduce legibility of the historic place if insufficient curtilage and view corridors are maintained. The Lithgow DCP requires new development to respect curtilage, built form, scale, height, setbacks, landscaping and materials around significant heritage elements. Moderate adverse visual–setting impacts are likely during the camp's operation, with the potential to reduce to minor should the recommendations in the Lithgow DCP followed (see Table 9.5).	Minor – Moderate adverse impacts.
Landscape	The Pottery Estate's State significance is not derived from landscape plantings or the fabric of the fence. Its values are historical, technical and archaeological, with research potential dependent on the integrity of subsurface deposits. Existing tree lines and remnant fences within the Town Camp footprint are assessed as non-significant features. Removal of later tree lines or modern fencing: **minor adverse** setting impact, provided view corridors and curtilage to the pottery store and brick stack are maintained. Regrading that flattens key landforms that express historic activity (spoil mounds, quarry edges) or that constrains interpretation around significant fabric: **moderate adverse**. If it coincides with **Zone I** archaeology (e.g. near kiln locations), assess under the archaeology section and treat as **major** where relics are removed.	Minor adverse impacts regarding fence and tree line removal. Moderate – major adverse impacts to earthwork activity.
Use	The site is no longer used for its original purpose as a pottery and brick manufacturing site. Most of the site is either cleared or used for dumping building materials. Use of the site for the Town Camp would be a change from the current use, but would not disrupt a historical use. Therefore, little to no impact on this matter is identified.	Little to no impact.
Demolition	Considering the lack of existing fabric and the cleared landscape, there is no proposed demolition at this site. Therefore, little to no impact on this matter is identified.	Little to no impact.

Matter	Discussion	Impact assessment
Curtilage	The proposed Town Camp would not change the listed curtilage of the Pottery Estate; however, it will temporarily obscure people's ability to read the curtilage of the former pottery estate. Therefore it is considered a temporary little to no impact regarding this matter.	Little to no impact.
Moveable heritage	There is no known or visible moveable heritage that will be directly impacted by this proposed Town Camp site. Therefore, little to no impact on this matter.	Little to no impact.
Aboriginal cultural heritage	Refer to the ACHA prepared for this EIS.	Not in scope.
Historical archaeology	The archaeological potential varies across the site with areas of low, moderate, and high levels of potential that will be directly impacted by the Town Camp (Section 6.3.2i) with the potential archaeological resources themselves form part of the site's State significance and form the control measures outlined in the DCP. The highest archaeological potential within the Town Camp area lies in Zone I, particularly the north-west sector that includes the mapped location of a beehive kiln and associated works. Prior assessments place the kiln, drying shed and related workshop areas in this zone, with tram tracks, a turntable and portions of brick kilns likely along the western boundary near Silcock Street. As currently laid out, the main entry, bus loop and shelter pass through Zone I and directly over the mapped beehive kiln location. If preserved and investigated, the beehive kiln and its immediate surrounds could address questions central to the site's research value. Major adverse impacts are likely where the bus loop and associated cuts, trenches and load/vibration overlap the mapped beehive kiln location in Zone I. The consequence would be permanent truncation or removal of kiln fabric and associated deposits, reducing the site's research potential and compounding earlier losses from demolition, road construction and capping. Zone II is not identified to have any impact as proposed works avoid this area. Zone III, impacts are minor as works remain within previously disturbed or capped ground.	Major adverse impacts in Zone I. No impacts to Zone II. Minor in Zone III.
Natural heritage	There is no natural heritage associated with this heritage site.	Not relevant.
Conservation areas	The Town Camp project area overlaps with the curtilage of the Pottery Estate Heritage Conservation Area (#C11). Although the proposed works are temporary, the construction and use of the site would erode the heritage significance of the potential archaeological resources and research opportunities, thus impacting on the significance of the conservation area. There does exist a DCP for the site which includes objectives and guidelines for potential works occurring at the site. These outlined in Table 9.5. Whilst the DCP doesn't apply to the project (as CSSI), the works do not currently comply, and further archaeological investigations is required. As such, the current design suggests there to be major adverse impacts on this matter.	Major adverse impacts.

Matter	Discussion	Impact assessment
Cumulative impacts	The Town Camp would introduce another layer of cumulative change. Earthworks and temporary accommodation, services, roads and the bus loop will involve new ground disturbance within the capped surface, and in Zone I the bus loop aligns with mapped kiln fabric. Where cut, trenching or load/vibration intersect relics, this will compound previous losses and further segment deposits, making future research more difficult. Overall cumulative impact is assessed as **moderate adverse**, rising to **major adverse** in Zone I where the bus loop and associated works intersect State-significant relics, due to the permanent reduction in research potential and the compounding effect of earlier demolition, road construction and capping.	Moderate to Major adverse impacts.
The CMP	There is no CMP associated with this site.	Not relevant.
Other heritage items in the vicinity	As outlined in Table 5.2, there are many heritage items in the vicinity of the Lithgow pottery site. The closest include the *Lithgow Valley Colliery Office* (#I272) and the *Former LVC Managers Residence* (#I273), which abuts the project area. Visual impacts to other heritage items are not anticipated, due to the distance and sightlines obscured from vegetation and urban infrastructure, and the temporary nature of the Town Camp. However, there may be visual and vibrational impacts onto the surrounding urban environment. Furthermore, there are extant structures related to the pottery site (brick stack and clay store) not in the project area. These are likely to have indirect visual and vibrational impacts due to their proximity to the project area. Therefore, it is likely for there to be little to no impact on this matter as there will be no direct impacts onto heritage items in the vicinity, but there is a likelihood of indirect impacts.	Little to no impact.
Commonwealth/ National heritage significance	There are no items of Commonwealth or Nation heritage significance at this site or in the vicinity. Therefore, little to no impact on this matter.	Not relevant.
World heritage significance	There are no items of World heritage significance at this site or in the vicinity. Therefore, little to no impact on this matter.	Not relevant.

Table 9.5 Pottery Estate Development Control Plan

Development control	Assessment and/or Level of impact
Land uses within the SHR (A124) site 1. Any works requires approval (or exemption) under the Heritage Act. When a development application (DA) is lodged with Council for demolition/ development, the Integrated Development Process (Section 4.46 EP&A Act) commences and the application will be referred to the Heritage Council for concurrence. 2. Where any use/development of the A124 SHR site in the Pottery Estate is proposed, consideration is to be given to land uses/built form that are capable of embracing and celebrating the unique Lithgow history and the heritage significant archaeology. This may potentially involve education/tourism components that can communicate the site's important history and historical archaeological relics. 3. Where an initial development/subdivision is proposed within the area covered by A124 SHR, an "Integrated Interpretation Plan" shall be prepared by a qualified Heritage Consultant to provide key guidance and better coordination of the Pottery Estate interpretation.	1. Statutory frameworks must be complied with for works at this site. 2. It is unlikely the current designs of the proposed plan will be able to embrace the unique Lithgow history. Therefore, adverse impacts are identified. 3. See Chapter 10 for recommended mitigation measures.

Development control	Assessment and/or Level of impact
Works involving Ground Disturbance 4. Future building works/excavation within the SHR area must be informed by an understanding of the extent and nature of the archaeology. This will require future investigations of the historical archaeological relics located within the SHR site, with a view to ensuring the long-term conservation of SHR listed State significant archaeology. 5. Test excavations are to be carried out in those areas considered to have high or moderate archaeological potential (Zone I) to clarify the extent of existing subsurface disturbance and the intactness of surviving archaeology. As part of this investigation, spoil heaps, 'traces of foundations' and archaeological features should be examined. The spoil heaps and features are located in Zone I of the previously prepared Archaeological Zoning Plan. Depending on the results of any testing, further investigations (e.g. an open area excavation) may be required prior to any future works involving ground disturbance. Note: Archaeological excavations are a form of mitigation rather than conservation. It is Heritage NSW standard practice to conserve State significant archaeology in situ. 6. Given the high display potential of subsurface remains, it is important that architectural and structural drawings be finalized following the results of archaeological investigations so that archaeology may be integrated at the design stage to achieve a conservation outcome. 7. Where future works may involve the disturbance or destruction of surface or sub-surface deposits, works or historical archaeological relics, approval will be required under an Integrated Development Application (IDA) and/or a Section 60 approval under the Heritage Act prior to the commencement of those works. Appropriate management documents such as an Archaeological Research Design and Methodology and a nominated Excavation Director would be required to support those applications. Based on the prior Archaeological Zoning Plan for the site, the methodology would be likely to include monitoring by a qualified archaeologist for areas of moderate archaeological potential (Zone II). The monitoring program may need to apply during the initial stages of construction, including during bulk excavation works and the digging of service, footing and pier trenches. Note: Given the heritage significance of A124 and Heritage NSW principle of conserving archaeological sites in situ, a methodology to mitigate impact through a monitoring program only may not be sufficient. 8. In all areas of the site, the unanticipated discovery of substantial or potentially significant historical archaeological relics are to be reported immediately to the designated archaeologist. Note: Section 146 of the Heritage Act states that the discovery of historical archaeological relics in any circumstances are to be reported immediately to the NSW Heritage Council (Heritage Act, Section 146). Note: While the Zone III area to the east of A124 SHR is not a heritage item or within a heritage conservation area, there is still some potential for significant archaeological evidence.	As part of the recommended mitigation measures for this site, further archaeological investigation is required in addition to an unexpected finds procedure. If this is not complied with, there will be major adverse impacts onto the archaeology of this site.
Development Controls – Subdivision 9. With respect to the area within the archaeological heritage item A124 (Lithgow Valley Pottery and Brickworks) there is a strong view by Heritage NSW that the SHR site within the Pottery Estate precinct should not be further subdivided and should be within a single lot ownership to ensure a more co-ordinated management/protection of historical archaeological relics in the context of any future development. Subdivision within the A124 site or in close proximity, is required to have regard to preliminary test excavations by a qualified heritage consultant to ascertain suitable lot layout/areas that mitigate segregation of key historical archaeological relics onto separate lots. Subdivision elsewhere in the Pottery Estate (in the vicinity of the A124 site) that includes areas containing historical archaeological relics is not permitted unless it can be established that proposed or future likely development on the created allotment(s) will not unreasonably impact historical archaeological relics or are managed appropriately, as determined by a qualified heritage consultant. Consideration is to be given at subdivision stage as to facilitating development that will have reduced potential/likelihood to interfere with any historical archaeological relics to mitigate risk of unexpected finds/imposts on future subdivided lot owners.	9. The proposed plans do not include subdivision but will include construction of accommodation to fit approximately 500 people.

Development control	Assessment and/or Level of impact
Any subdivision elsewhere within the Pottery Estate precinct that includes a heritage building/structure, is not permitted unless it can be demonstrated that the heritage item will maintain adequate curtilage (buffer) as determined by a qualified heritage consultant.	
Development Controls – former Lithgow Valley Pottery and Brickworks buildings 10. For new works and/or adaptive re-use of remnant Pottery Estate heritage buildings (Pottery building and brick stacks), consideration is to be given to the following: a) Use: the adaptive reuse of the Pottery Estate heritage buildings for a purpose that is appropriate to their heritage significance. Adaptive re-use must have regard to the relevant legislation of the National Construction Code (NCC) and other relevant Australian standards. b) Protection: Building works are to minimise removal and/or interference with significant heritage fabric or historical archaeological relics. New services to be sympathetically installed, especially where upgrading is required to satisfy fire or BCA requirements. c) Façade: Changes to the façade are to be avoided unless the change will help to restore or protect previous or existing characteristics of the building that affects heritage significance. d) Siting of new work: New work, where appropriate, is located behind the original building section. e) Design: The design of new work must respect the building street alignment, scale, design, massing, proportions, and period of the heritage structure and does not visually dominate the original building/structure. f) Repairs/reconstruction/detailing: Retain and repair original doors, windows, and other decorative elements to principal elevations. Where original windows, doors, facade detailing have been removed and replaced with modern materials, consideration is to be given to reconstructing original features. Authentic reconstruction is encouraged. Decorative elements are not to be introduced unless documentary or physical evidence indicates the decorative elements previously existed. g) Roof: The original roof line or characteristic roof elements are retained and remain identifiable and not dwarfed by any new works. The details and materials of the original roof (including ridge height and slopes) are complemented while allowing interpretation of the original form. h) Materials/Colours: New work must blend into the original building, but is still recognisable as new, by not attempting to mimic heritage details of the building. New materials and colour schemes are to be compatible with the existing finishes/period of the heritage listed pottery estate buildings. Note: Materials can be used to differentiate new work from original building sections where appropriate (e.g. the use of weatherboards where the original building is brick or by use of transitional materials between old and new). Painting and rendering face brick are to be avoided. Materials for pathways and driveways must be consistent with the character of the heritage item. i) Fencing: New and replacement front fences are to have regard to not obscuring building facades. New fence heights and materials/design/colour are to be appropriate to the character of the heritage item. Side fencing visible to the street are to be simple with a level of detail/height/materials that are compatible with the heritage item. Colour bond fences are not appropriate. j) Landscaping: Garden and ancillary structures must be appropriate to the heritage item in terms of scale, style, and materials. Large areas of hard paving are to be minimised. k) Service and new technologies: Air exhaust or ventilation systems, air conditioning, TV antennae and the like shall not be visible on the main elevation(s) of the building. Services and equipment are to be installed at the rear and/or within the roof space. Essential changes to cater for electrical or communications wiring, plumbing or other services should be limited to what is essential to permit the new use to proceed. Rainwater tanks are to be located at the rear, screened and not readily visible from any street frontage. l) Disabled Access: Modifications to facilitate accessibility must be sympathetic to the heritage values and heritage fabric of the original building. m) Photographic records: Photographic records of buildings are to be provided prior to the commencement of any demolition works.	a) The use of this site as an accommodation would not be appropriate to the heritage significance of the site as it would be unrelated to the historical use of the site. b) While the extant structures are not in the Town Camp project area, it is very likely that archaeological relics would be adversely impacted. c) There are no proposed plans to change the façade. d) The accommodation would be located behind the original buildings. e) The Town Camp would result in indirect temporary visual impacts onto the original buildings. f) There are no proposed plans to change this relevant original fabric. g) There are no proposed plans to change the roof. h, i, j, k, l, n) The final designs have not been selected, but if this camp site is chosen for the accommodation, this should be complied with in the detailed design. m) See Chapter 10 for recommended mitigation measures.

Development control	Assessment and/or Level of impact
n) Historical Interpretation: The adaptive re-use is to incorporate interpretation of the original Pottery & Brickworks use. An Interpretation Plan is to be prepared and submitted with each Development Application to allow the historical context of the site to be interpreted as part of new development through design elements such as landscaping, visual storyboards and/public art installations	

9.5.4 Consideration of alternatives

The project's peak workforce is expected to be approximately 600 full-time equivalent workers, 80% of which are expected to require temporary accommodation. For this reason, temporary accommodation for approximately 500 workers will be provided near the site. The considered alternatives are the Lakeside Camp, off Magpie Hollow Road, or the Town Camp, situated near the Lithgow town centre within the Pottery Estate. Only one of the camp locations will proceed, determined by the outcome of EIS consultation. The workforce accommodation camp will require a footprint of approximately 200 m x 200 m including a carpark. Buses will be provided to transport workers to and from the PHES project area.

Barges and other watercraft may be launched from the Lakeside Camp accommodation location or the end of Sir Thomas Mitchell Drive.

The indicative layout of the lakeside accommodation preferred camp is shown in Figure 9.1. The indicative layout of the Town Camp alternative is shown in Figure 9.2.

From these options, the Lakeside Camp will result in, overall, little to no historical heritage impact as there are no heritage items registered or identified items within this site. Nor are there any heritage listed items in or in the vicinity of this camp that will have sightlines impacted.

The Town Camp will result in major adverse impact as it is situated directly within the heritage curtilages of the Lithgow Valley Colliery & Pottery Site (SHR #00078), Lithgow Valley Pottery and Brickworks (LEP #A124), and Pottery Estate Heritage Conservation Area (#C11). Although the accommodation is temporary, the construction and use will result in adverse impacts on the conservation area and potential historical archaeology.

Therefore, considering the State heritage significance of the Lithgow pottery site and associated archaeology, the Lakeside Camp is the preferred option to minimise impacts to historical heritage.



Figure 9.1 Workforce accommodation camp – preferred Lakeside Camp



Figure 9.2 Workforce accommodation camp –alternative Town Camp

9.6 Statement of heritage impact

The construction of the project has the potential to affect the broader heritage value of the PHES project area. Impacts may occur to unidentified relics that are related to the early colonial uses of the project area, relics that belong to archaeological resources or structures that offer insights to the pastoral history of the project area. However, there are no heritage listed items in the PHES project area that will have direct impacts. Two heritage items were identified to have indirect visual impacts: Highland House (#I169) and Royal Hotel (#I062). The Highland House is at a distance where the visual impacts of the PHES will minor, and while the Royal Hotel is abutting the PHES project area, it will only concur visual impacts from the temporary traffic management installed at the intersection of Magpie Hollow Road and Great Western Highway. The impacts of the PHES project area can be managed through the implementation of the management measures listed in Chapter 10.

Regarding the two proposed sites for the temporary workforce accommodation, the Lakeside Camp (located within the PHES project area) will not have impacts onto identified or listed heritage sites, as there are none in the proposed boundary of this camp, nor in the vicinity. The only potential impacts are in relation to unidentified relics that may be found at this site.

The Town Camp site is located within the curtilage of three heritage items: Lithgow Valley Colliery & Pottery Site (SHR #00078), Lithgow Valley Pottery and Brickworks (LEP #A124), and Pottery Estate Heritage Conservation Area (#C11). This site contains State significance and varies in archaeological potential from low to high. The Town Camp would result in adverse impacts to the site's fabric, setting, and conservation area, and in particular, major adverse impact to the State significance historical archaeology. This would also impact the research potential of the site, as the historical archaeology may be disturbed and destroyed. Nevertheless, the Town Camp will incur little to no indirect impacts, with distances and obscuring vegetation preventing adverse visual and vibrational impacts. This suggests the Town Camp option for the accommodation facilities is likely to result in major adverse impacts onto the heritage significance of the site.

10 Management measures

10.1 Heritage management objectives

The overriding objective in managing heritage significance is the avoidance of impacts. Avoidance removes the need for mitigation or amelioration and is in keeping with the philosophy of the *Burra Charter 2013* (Australia ICOMOS 2013). In all cases where significant heritage values may be affected by a project, it is prudent to take a precautionary approach. The Burra Charter (Australia ICOMOS 2013) advocates a cautious approach whereby as much as necessary is done to care for the item and make it useable, but otherwise change it as little as possible so that its cultural significance is retained. With these principles in mind, the following management measures are proposed.

10.2 General heritage management measures

General measures for the management of heritage items within the project area are provided in Table 10.1.

Table 10.1 Description of management measures

Management measures	Description	Timing
Unexpected finds protocol to be included in a construction environmental management plan (CEMP) or similar.	Any unexpected finds or human remains discovered during construction will be managed through an unexpected finds protocol, which is to be included in the CEMP.	Construction

10.3 Site specific management measures

A summary of site-specific management and mitigation options are outlined in Table 10.2.

Table 10.2 Site management measures

Site ID	Site name	Site type	Significance/ grading	Impact type	Project modifications	Management or mitigation options
LLH001	Remains of ancillary structure	Archaeological	None	Physical – removal	Not necessary	None required as the site is not of heritage significance.
	No. 2 Stockade on Cox's River	Archaeological	Potentially local	None	Not necessary	Site be made known in the CEMP and identified as a no-go area.
SHR #00078, LEP #A124, #C11	Lithgow Valley Colliery & Pottery Site, Lithgow Valley Pottery and Brickworks, and Pottery Estate Heritage Conservation Area	Archaeological and conservation	State	Construction directly in areas of low, moderate, and high archaeological potential	To minimise historical heritage impacts, the Lakeside Camp is the preferred alternative	If the alternative Town Camp is chosen for the temporary workforce accommodation, then the following should be completed in compliance with the Lithgow DCP: • Archaeological assessment/investigation that will inform the extent and nature of the archaeology and surviving relics. The research potential of this site is part of the State significance; thus further investigation is required. • Detailed design of camp to consider the design policies from the Lithgow DCP. • Prepare an 'Integrated Interpretation Plan'. • Photographic archival recording.

11 Conclusion

The project will be constructed in a landscape that was opened for settlers through the construction of roads to Bathurst from the 1820s to the 1830s. The No.2 Stockade was built on Cox's River in 1832 to support the construction of Mitchell's line. Archaeological resources associated with the Stockade occupation have been previously recorded in the project area. Land holdings were sporadically taken up from the 1840s, with the region south of Farmer's Creek more heavily occupied than the north, much of which became reserve land. Although the No. 2 Stockade is within the PHES project area, it is located outside both the disturbance footprint and the construction envelope, ensuring that no impacts are anticipated for this site.

During survey, one site (LLH001) was identified within the PHES project area's construction envelope, situated approximately 30 m outside the north-western boundary of the disturbance footprint. The site consists of the remains of a mid to late 20th century ancillary structure that was ephemeral and likely abandoned. An assessment of the site's significance found that it does not meet the threshold for local significance.

The PHES project area will result in indirect visual impacts on two local listed heritage items. The nearest heritage item, *Highland House* (#I169), is located approximately 1.4 km south-west of the project area and around 3.4 km from any proposed areas of active disturbance, ensuring that no direct impacts will occur to the item. Additionally, due to the considerable distance, no indirect vibrational impacts are anticipated. A visual impact assessment (EMM, 2024) has confirmed that sightlines do exist from Highland House to the project infrastructure. While the project will be visible from the heritage item, the assessment concluded that the magnitude and scale of the visual change are low. Therefore, although the project can be seen from *Highland House*, the visual impact is considered minor. Additionally, there will be temporary little to no visual impacts to the *Royal Hotel* (#I062). The proposed plan of adjacent existing intersection is for the installation of a temporary, signalised intersection modifications to allow for construction traffic.

As no other items of heritage significance were identified within or in the vicinity of the PHES project area, the impact to known heritage values within the construction envelope is considered little to none, with no impacts to heritage values anticipated as a result of the proposed development. However, while unlikely, there is potential that subsurface archaeological resources, not identifiable through surface inspection, may have survived within the project area or construction envelope.

Other heritage values within a 2 km radius have been assessed and confirmed to have no visual impacts, as there are no lines of sight from these items to the project infrastructure.

Construction and operation in the PHES project area are expected to have minimal impact on heritage values that have been formalised through inclusion on statutory heritage registers.

For the potential locations of the temporary workforce accommodation, the options include the Lakeside Camp (in PHES project area) and the Town Camp (Town Camp project area). As with the rest of the PHES project area, the Lakeside Camp will result in little to no impact on heritage items as there are none in or in the sightlines of this area. However, the Town Camp project area directly impacts three heritage listed items: Lithgow Valley Colliery & Pottery Site (SHR #00078), Lithgow Valley Pottery and Brickworks (LEP #A124), and Pottery Estate Heritage Conservation Area (#C11). If this location was selected for the workforce accommodation, it would result in major adverse direct impacts on the historical archaeology, setting, and conservation area. Therefore, to minimise impacts onto historical heritage, the Lakeside Camp is the preferred option.

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Annexure A

Historical aerial photographs

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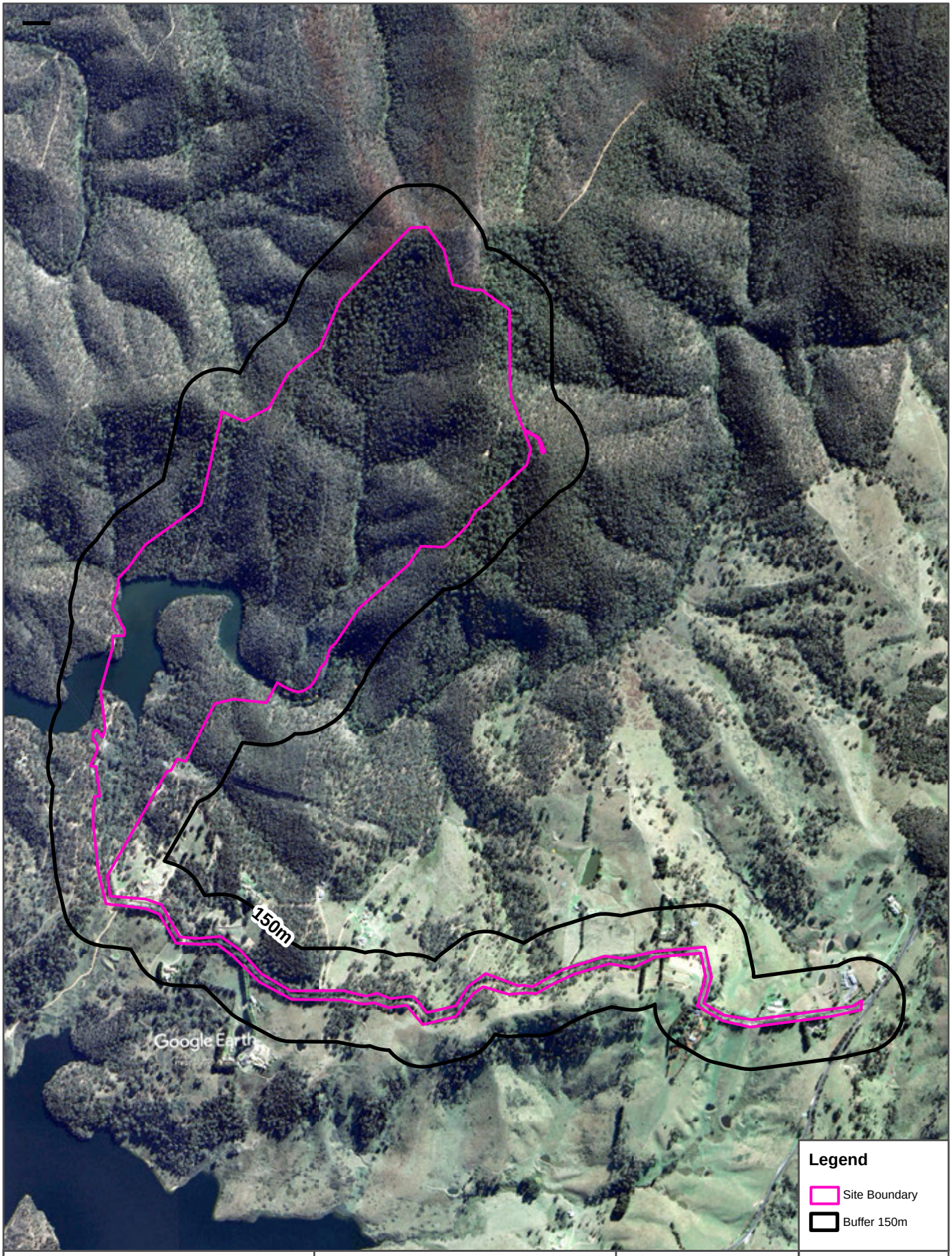
creating opportunities

Aerial Imagery 2025

South Bowenfels, Lake Lyell, NSW 2790 (Part 1 of 2)



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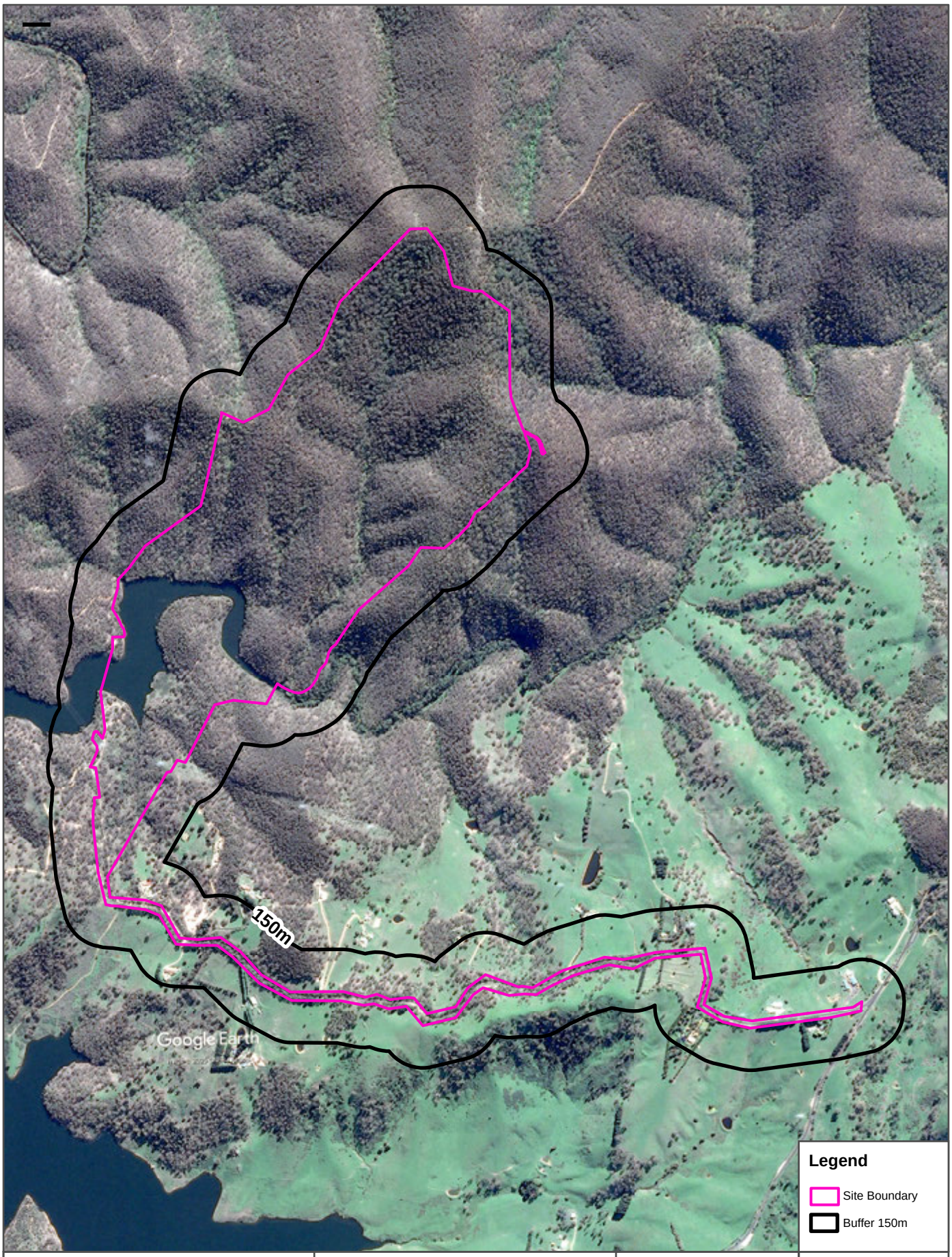

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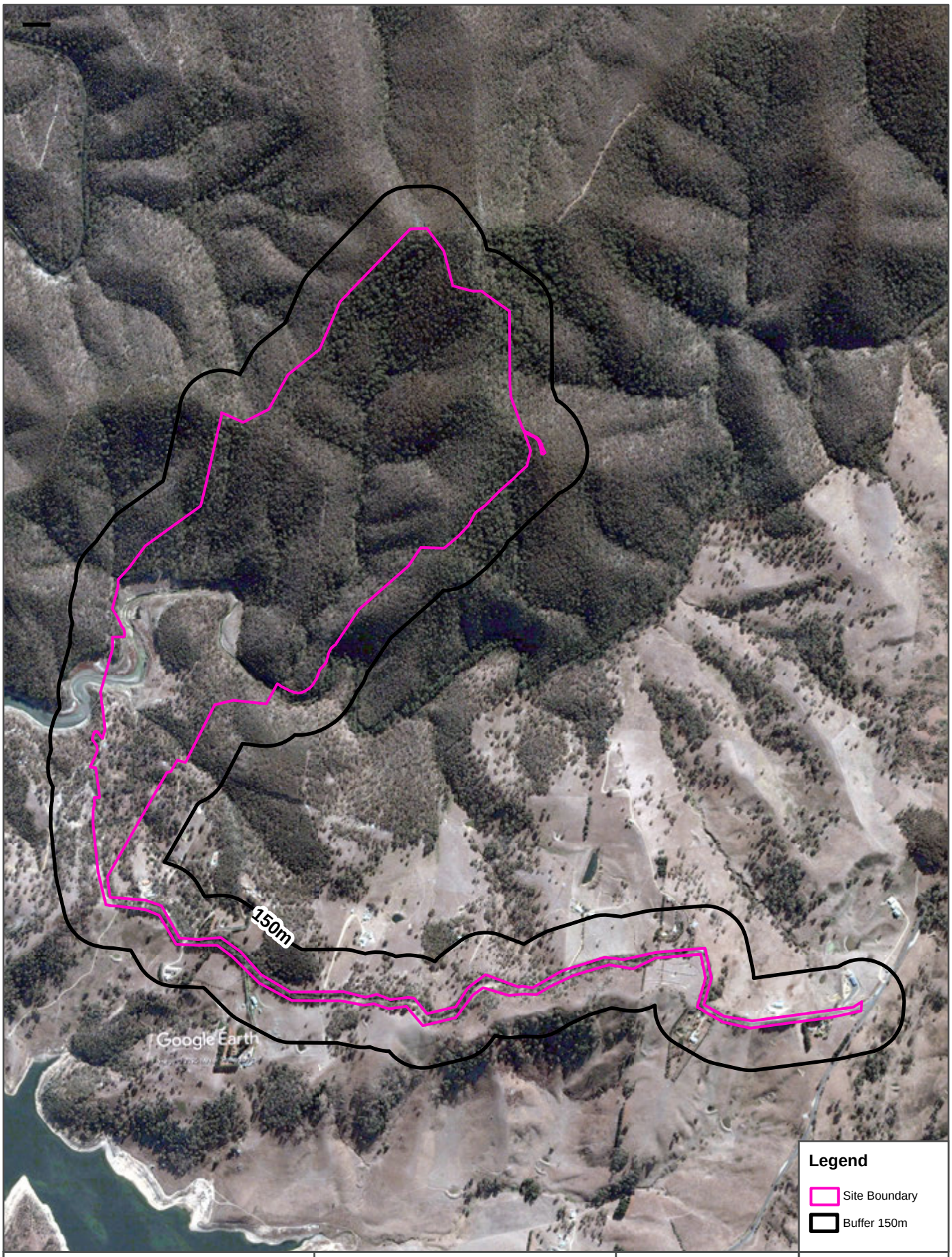
Coordinate System:
GDA 1994 MGA Zone 56

Date: 03 July 2025

Aerial Imagery 2006

South Bowenfels, Lake Lyell, NSW 2790 (Part 1 of 2)



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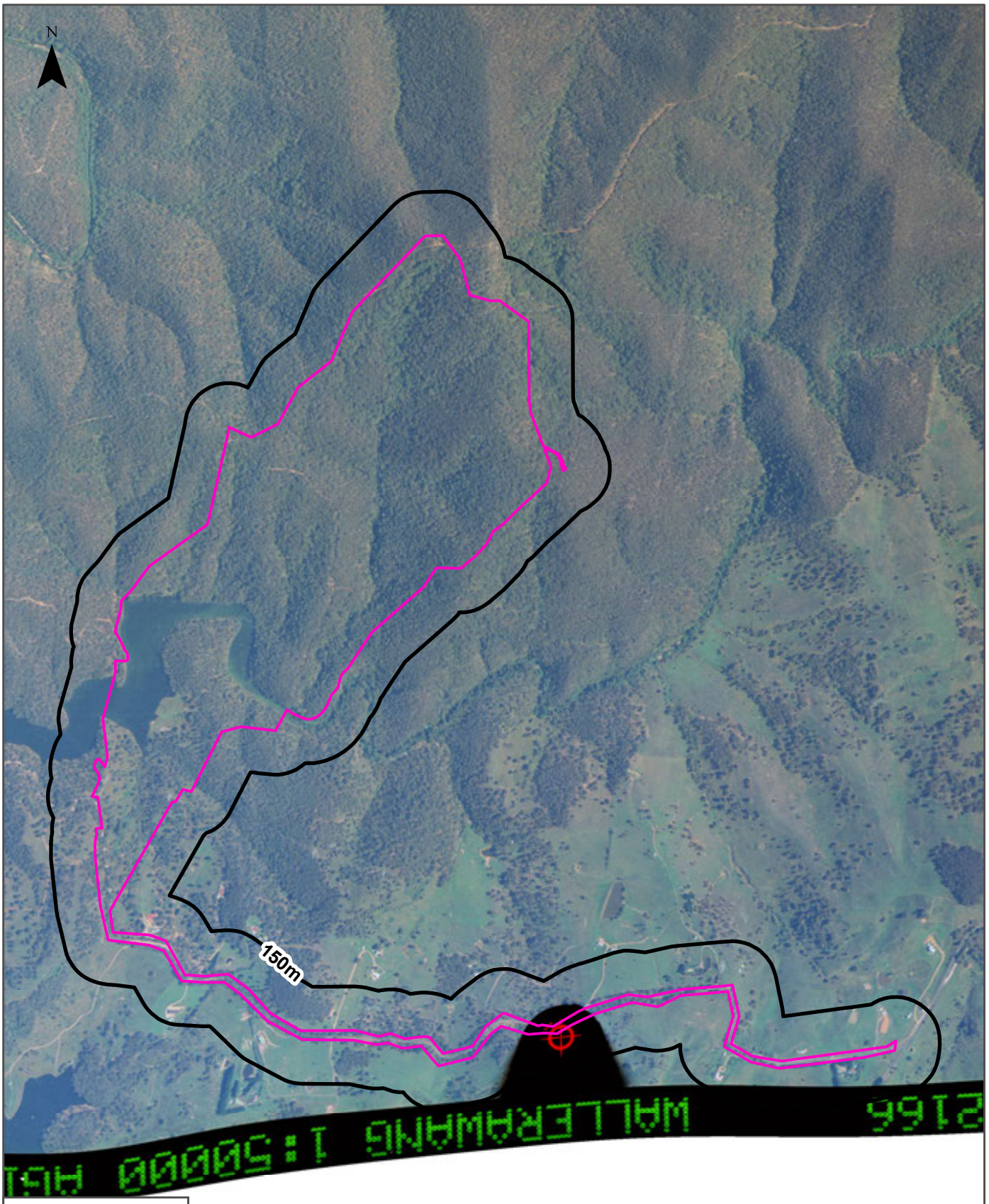
South Bowenfels, Lake Lyell, NSW 2790 (Part 1 of 2)



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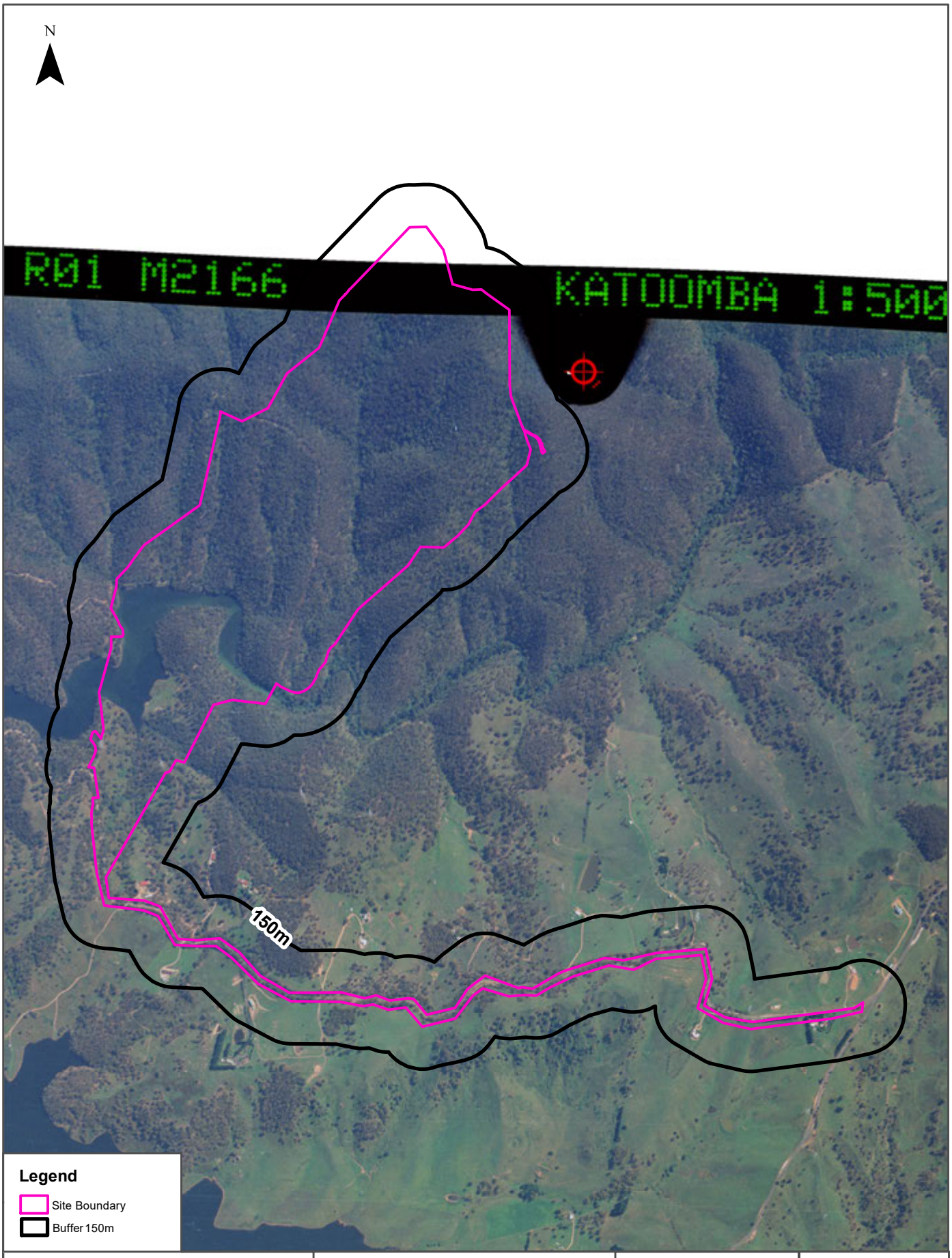

Aerial Imagery 1991

South Bowenfels, Lake Lyell, NSW 2790 (Part 1 of 2)



Legend

- Site Boundary
- Buffer 150m

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 03 July 2025
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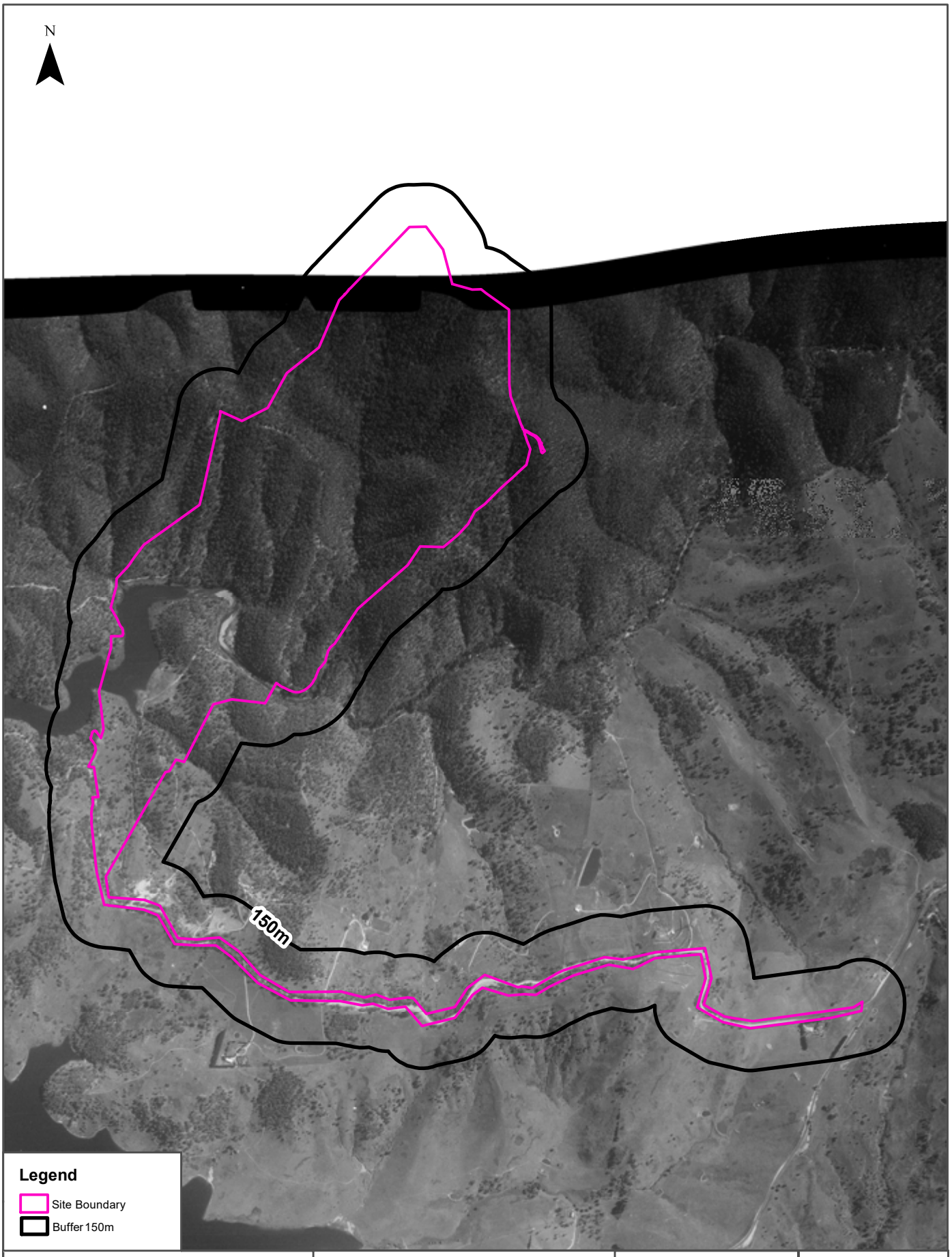

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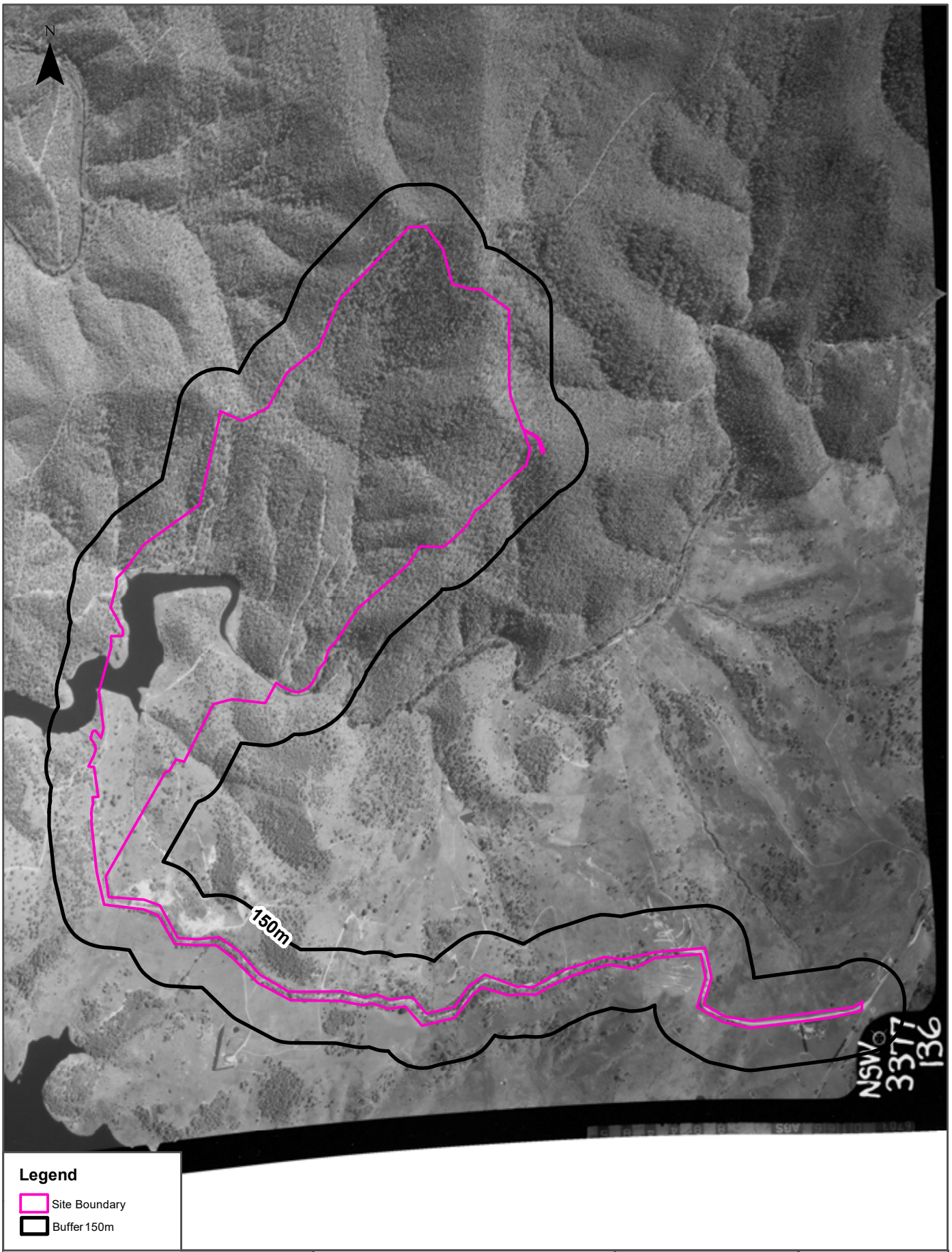

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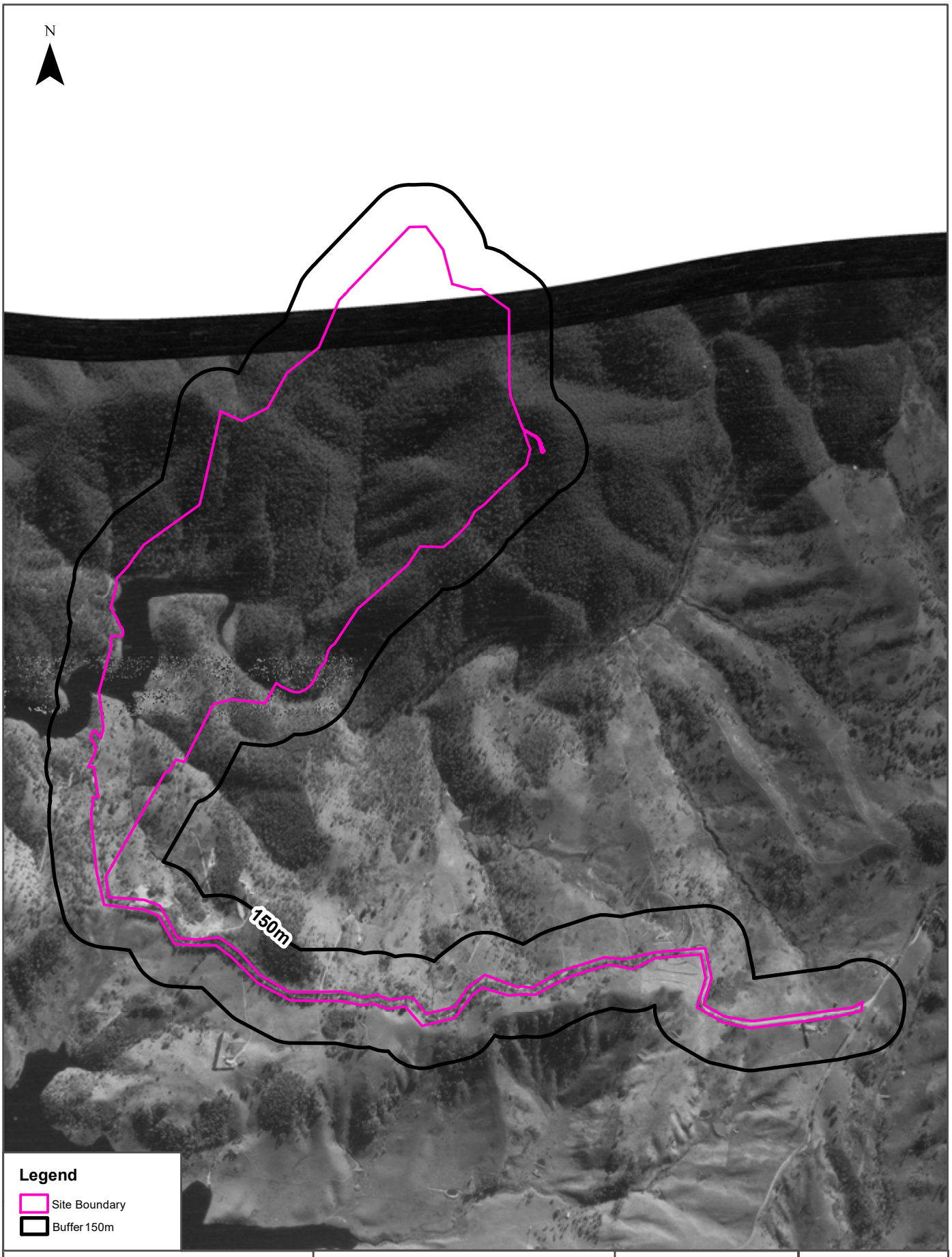

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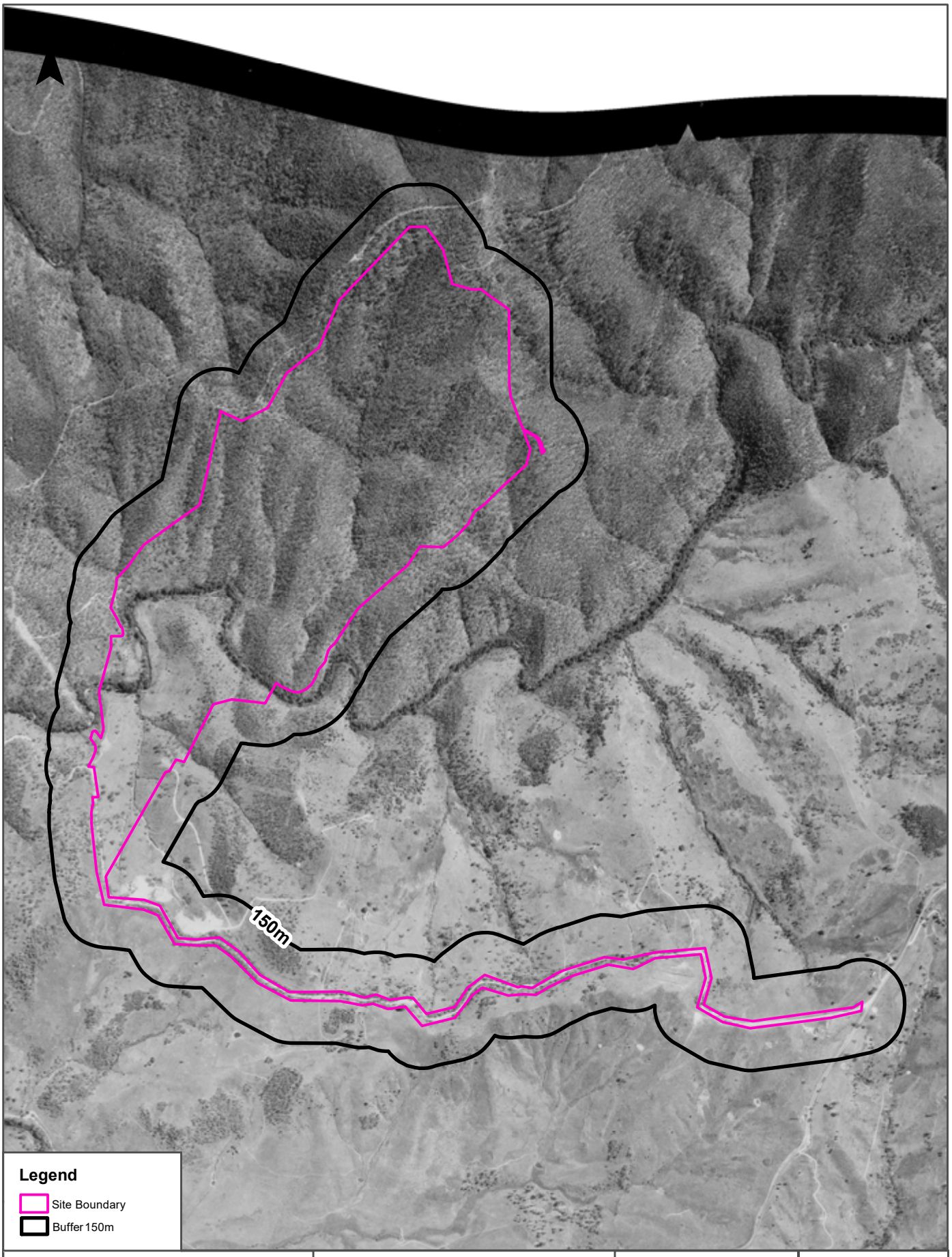

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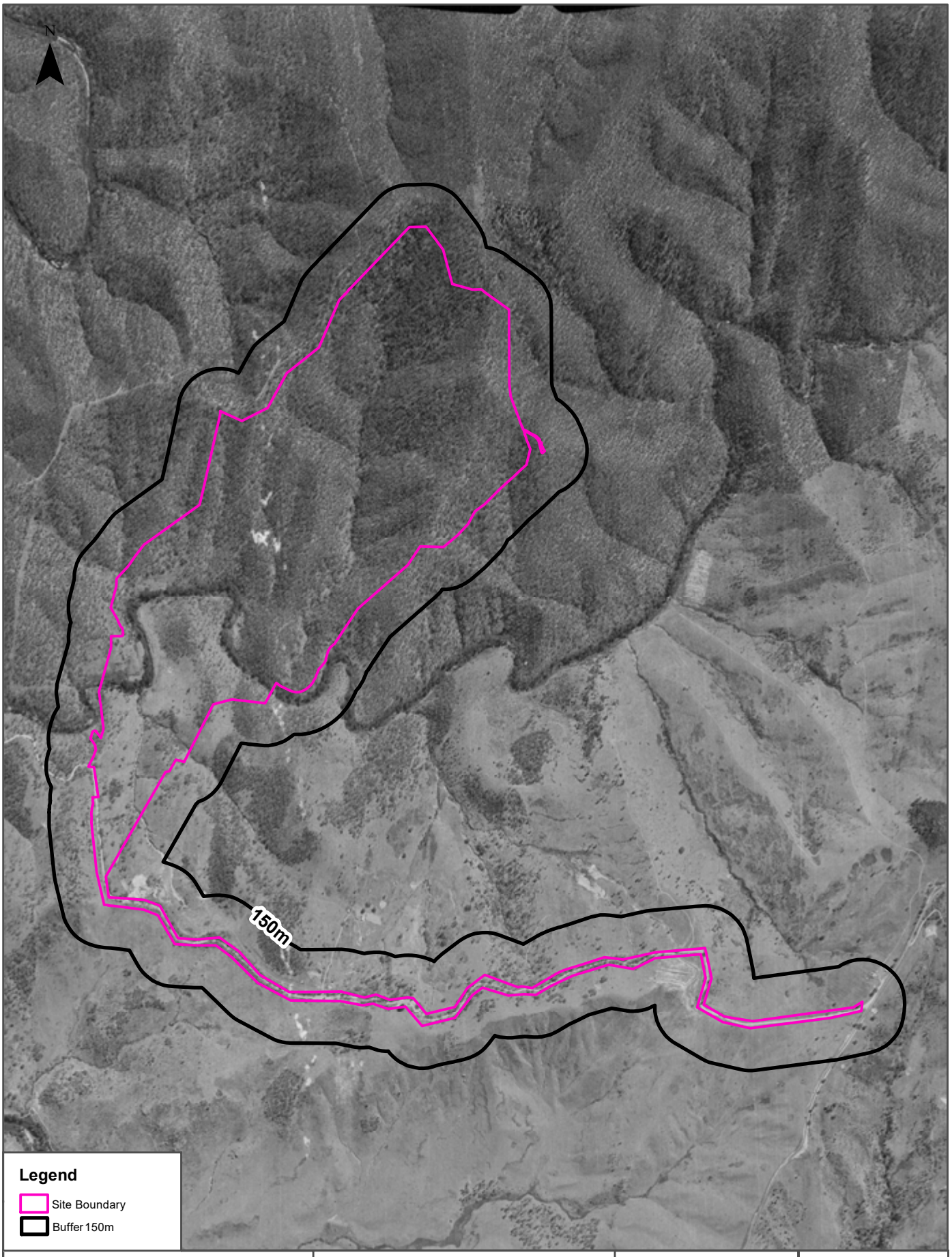

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Aerial Imagery 1954

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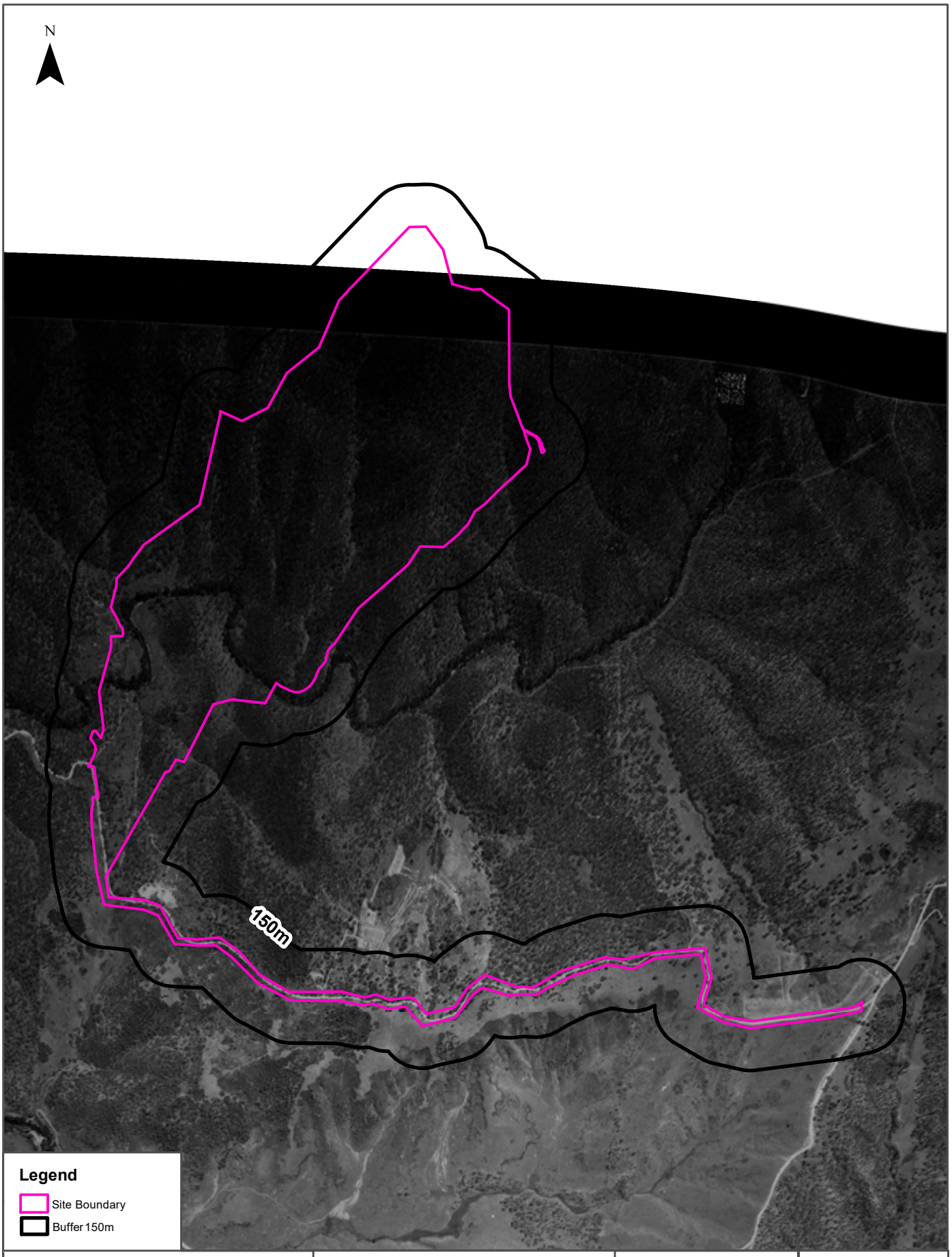

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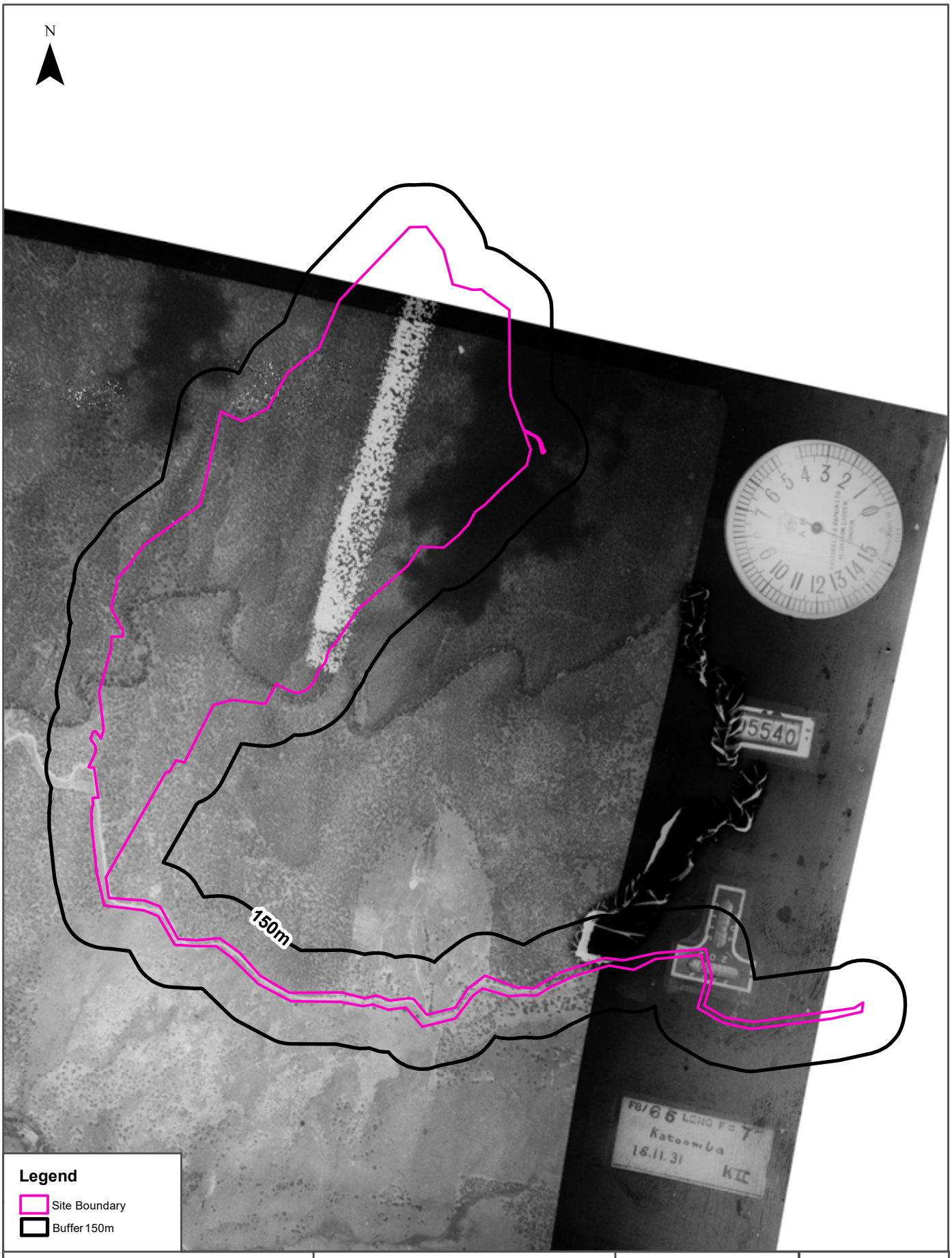

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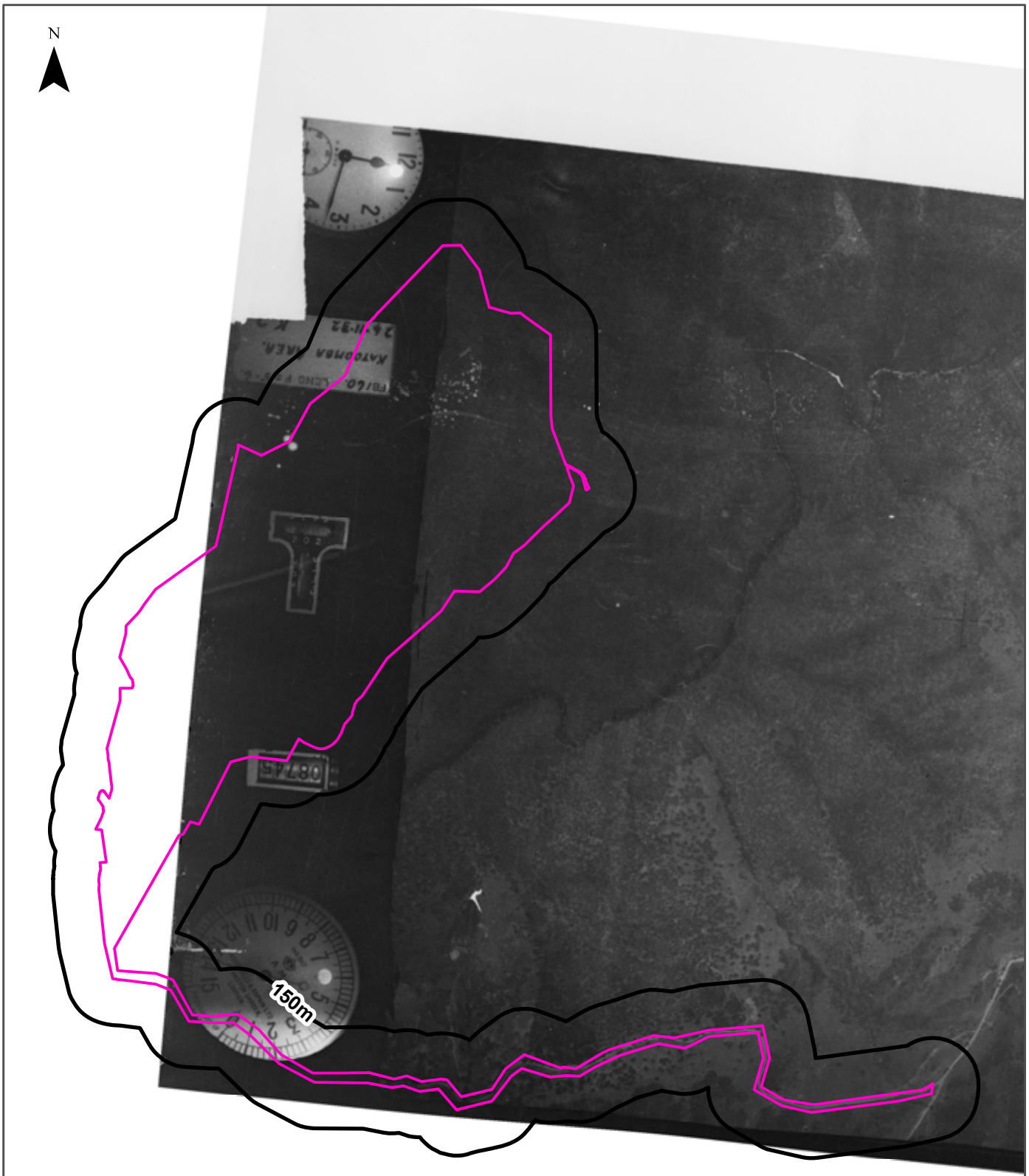


Legend

Site Boundary

Buffer 150m

Scale: 0 210 420 630 840 Meters	Data Source Aerial Imagery: © 2025 Geoscience Australia	Coordinate System: GDA 1994 MGA Zone 56	Date: 03 July 2025

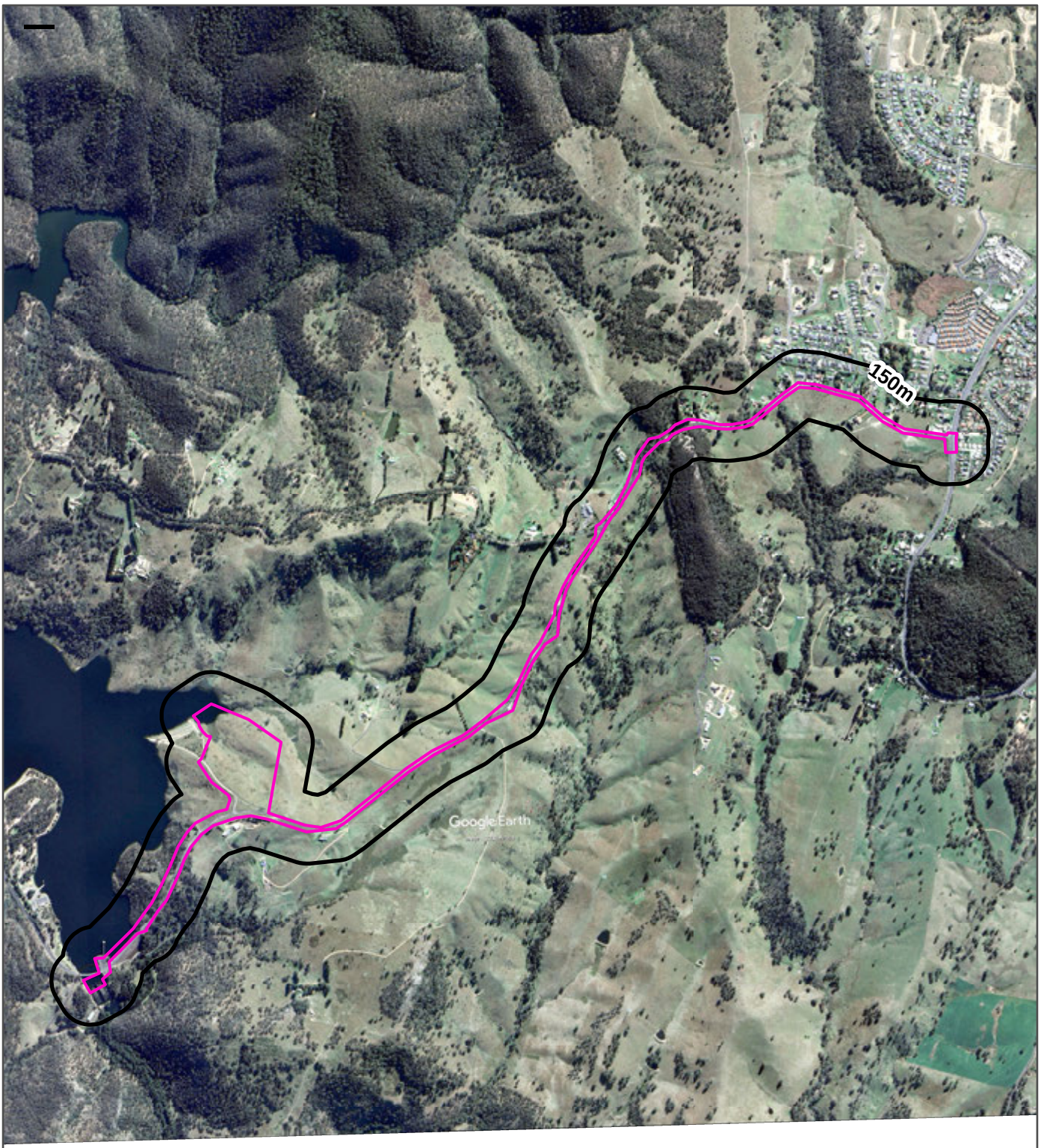
Aerial Imagery 1931

South Bowenfels, Lake Lyell, NSW 2790 (Part 1 of 2)



Aerial Imagery 2025

South Bowenfels, Lake Lyell, NSW 2790 (Part 2 of 2)



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GDA 1994 MGA Zone 56

Date: 03 July 2025

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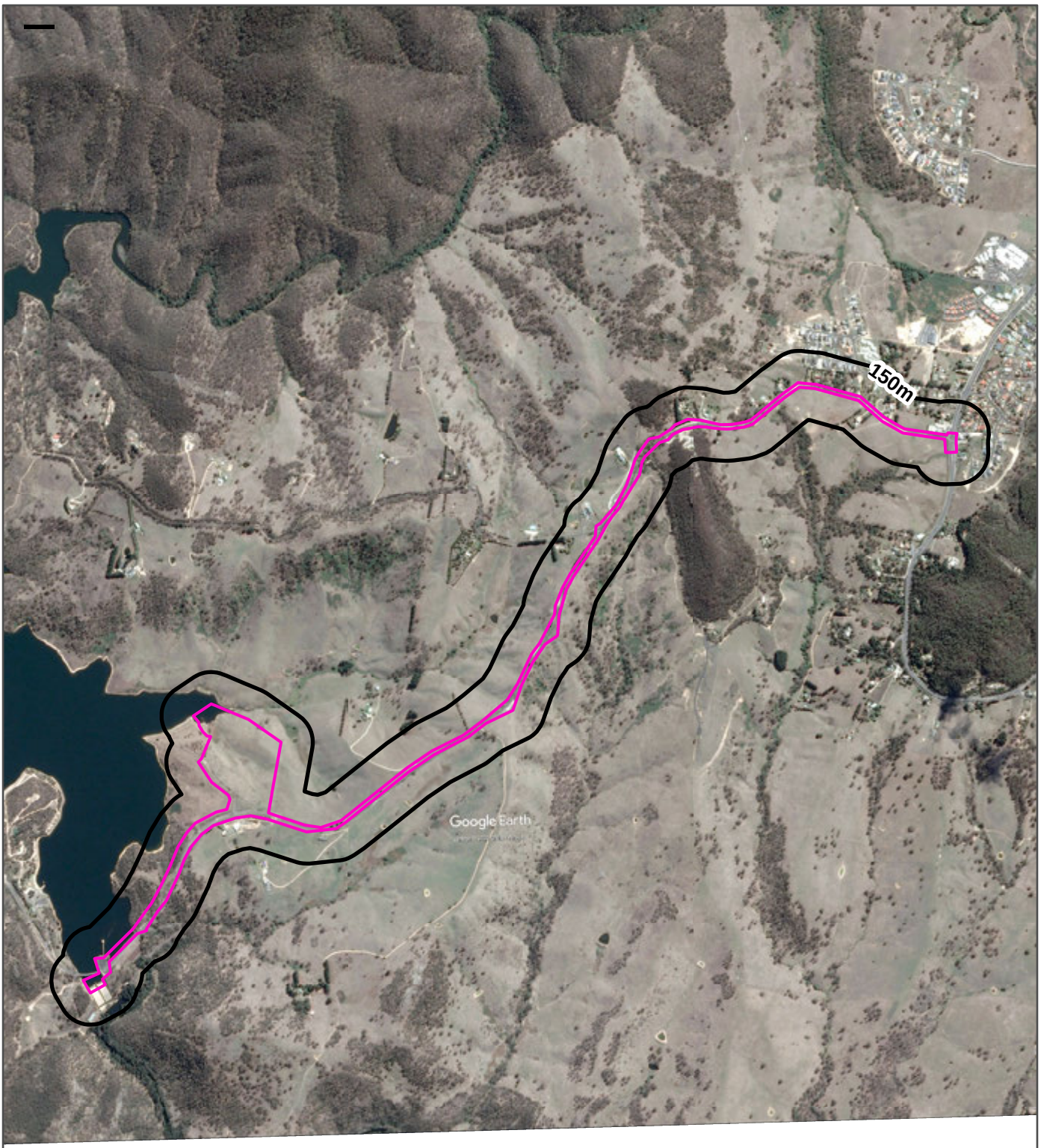

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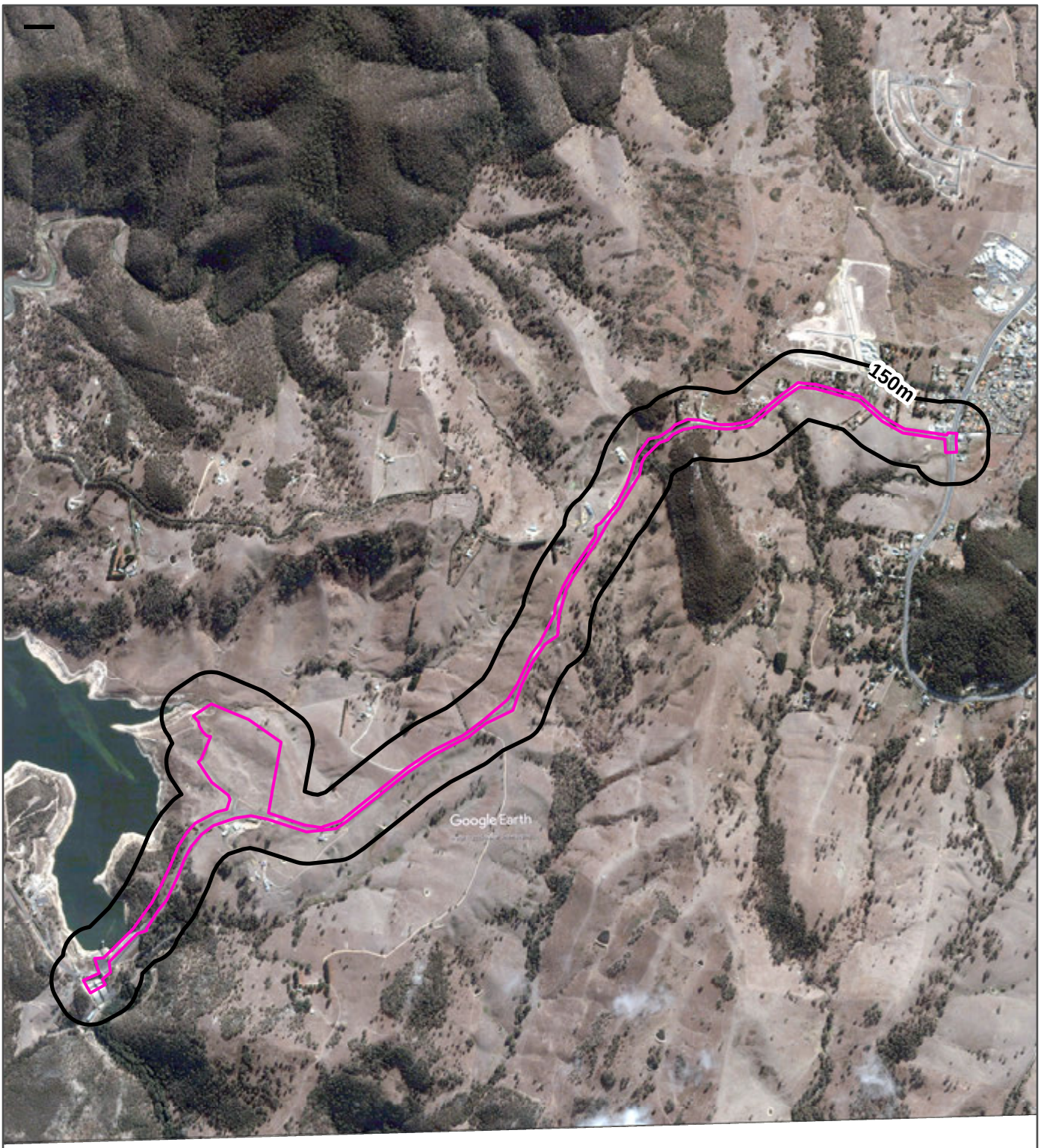

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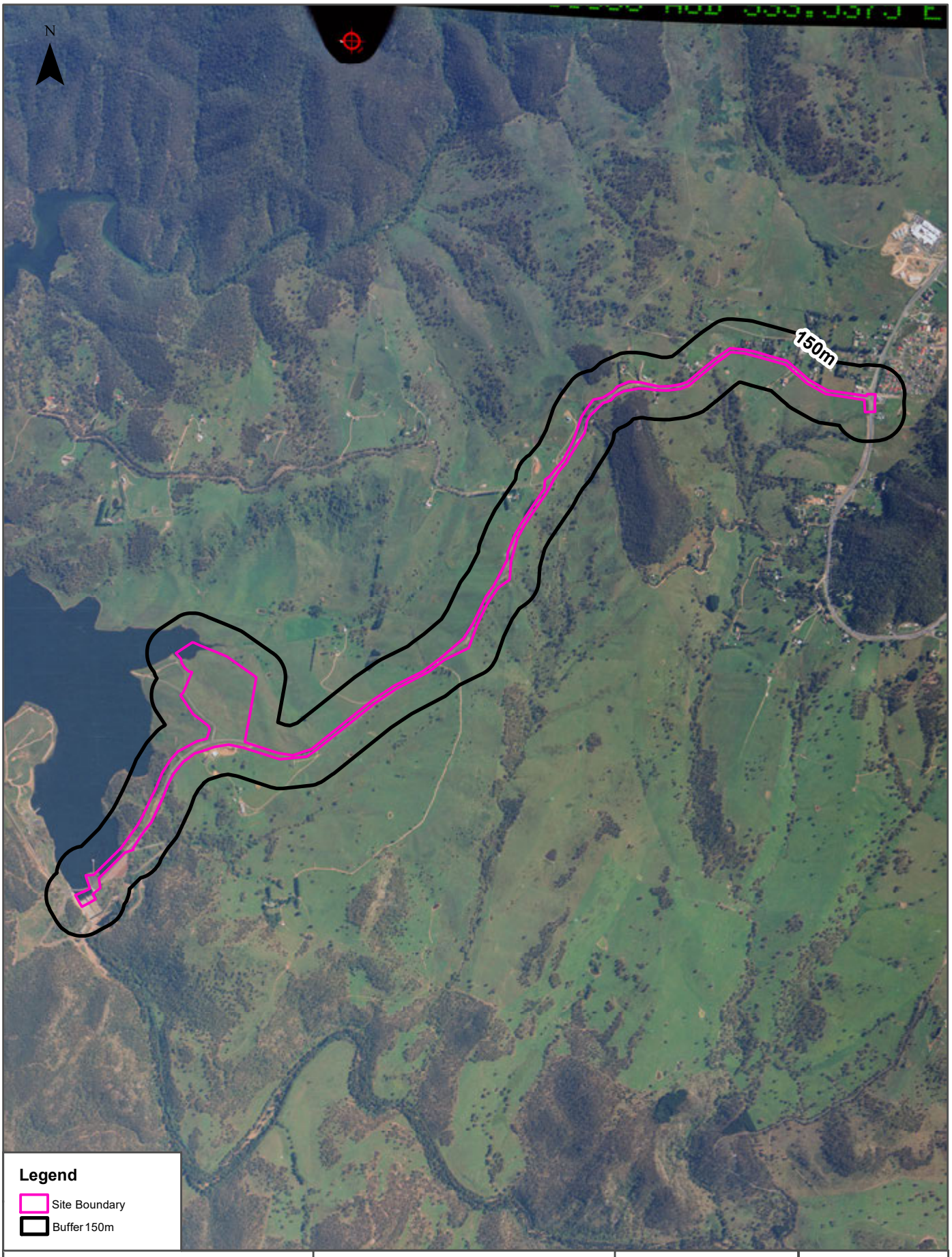

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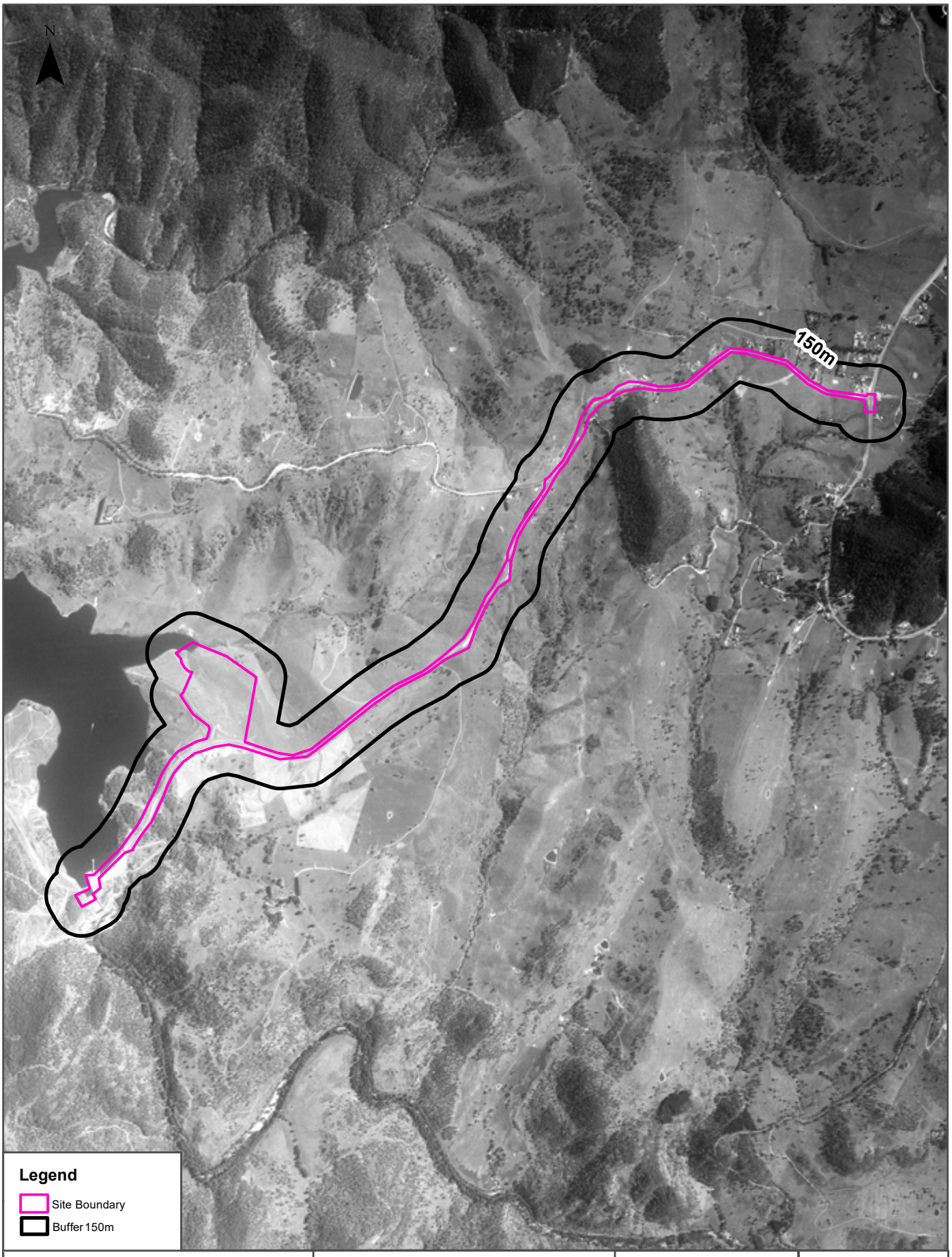

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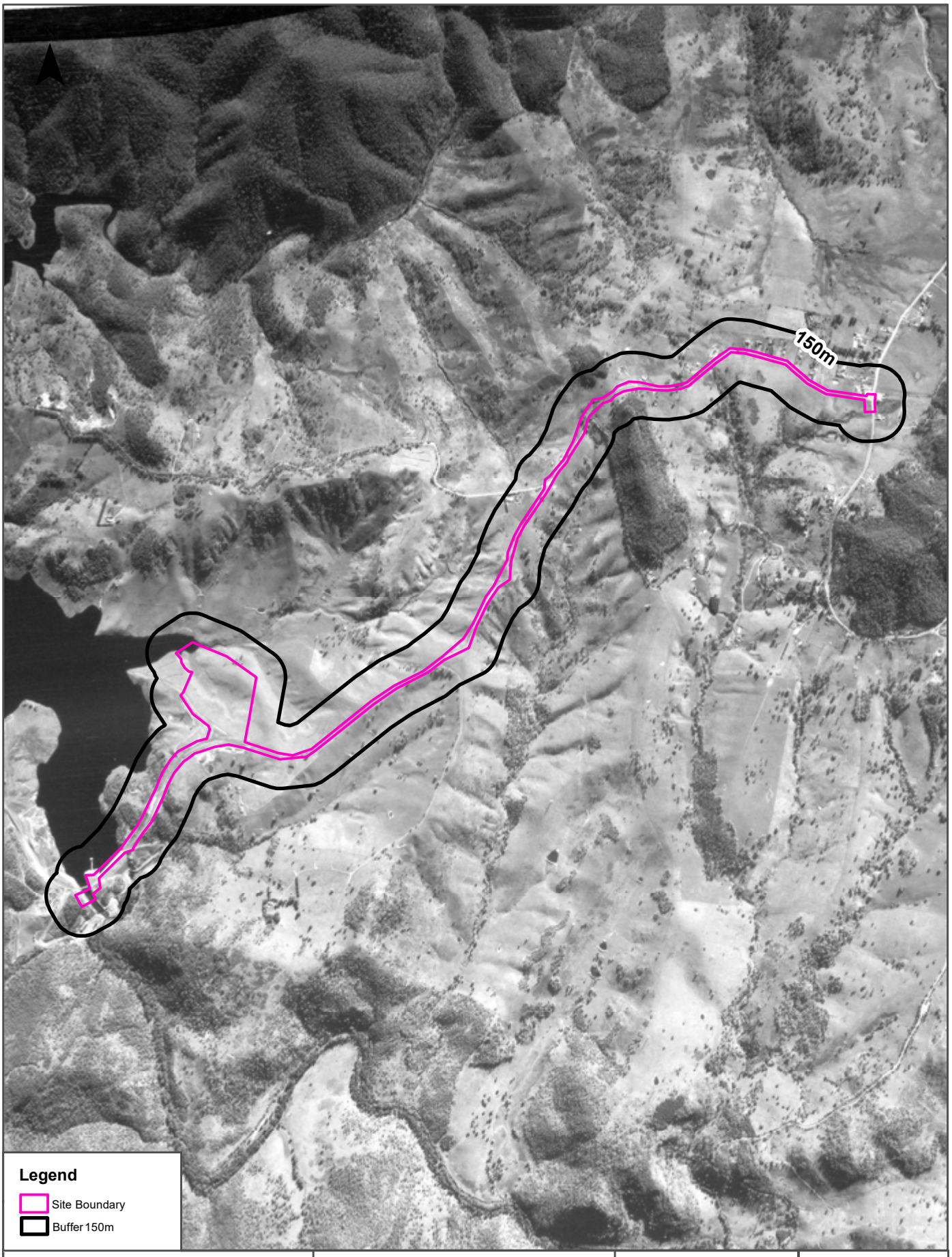

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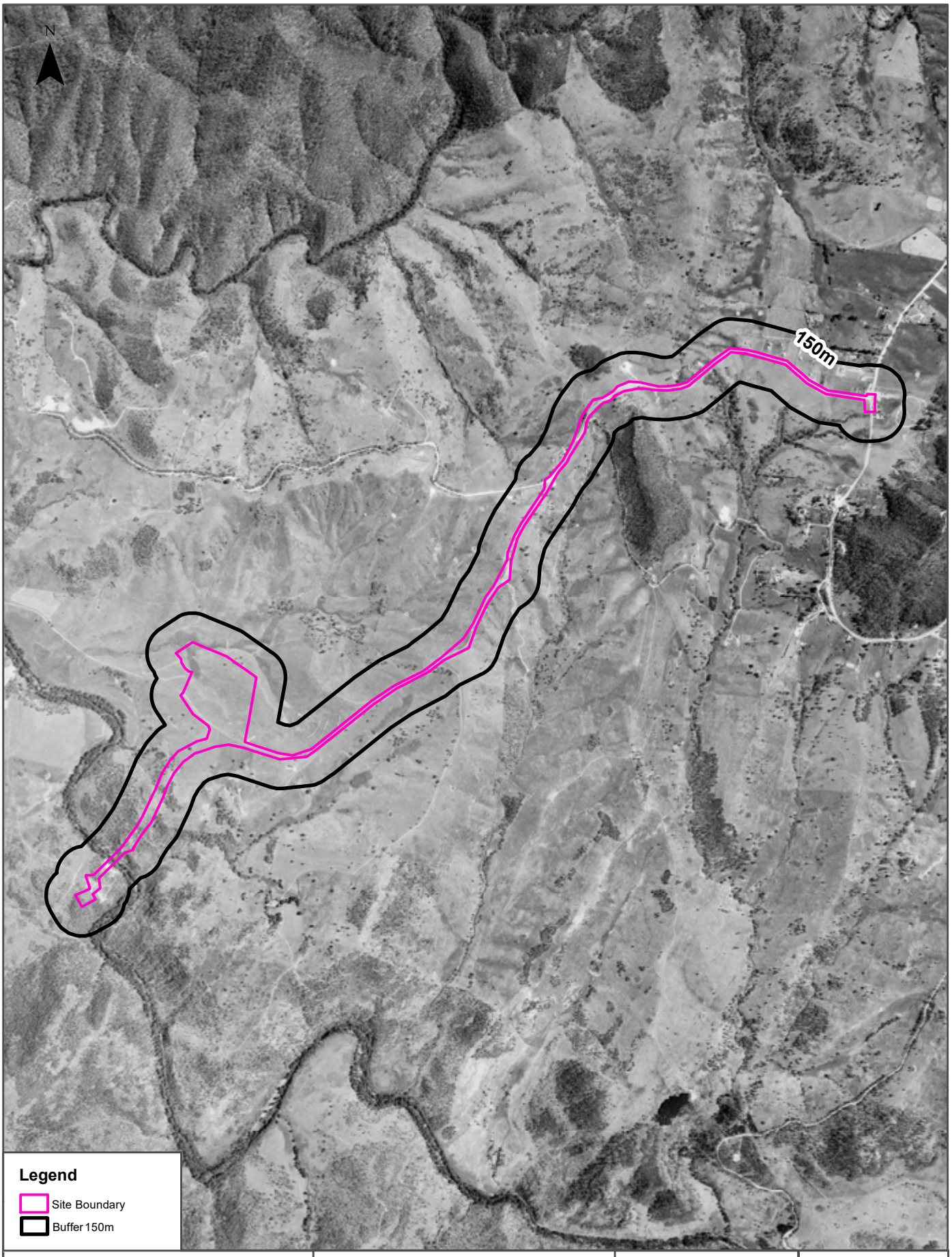

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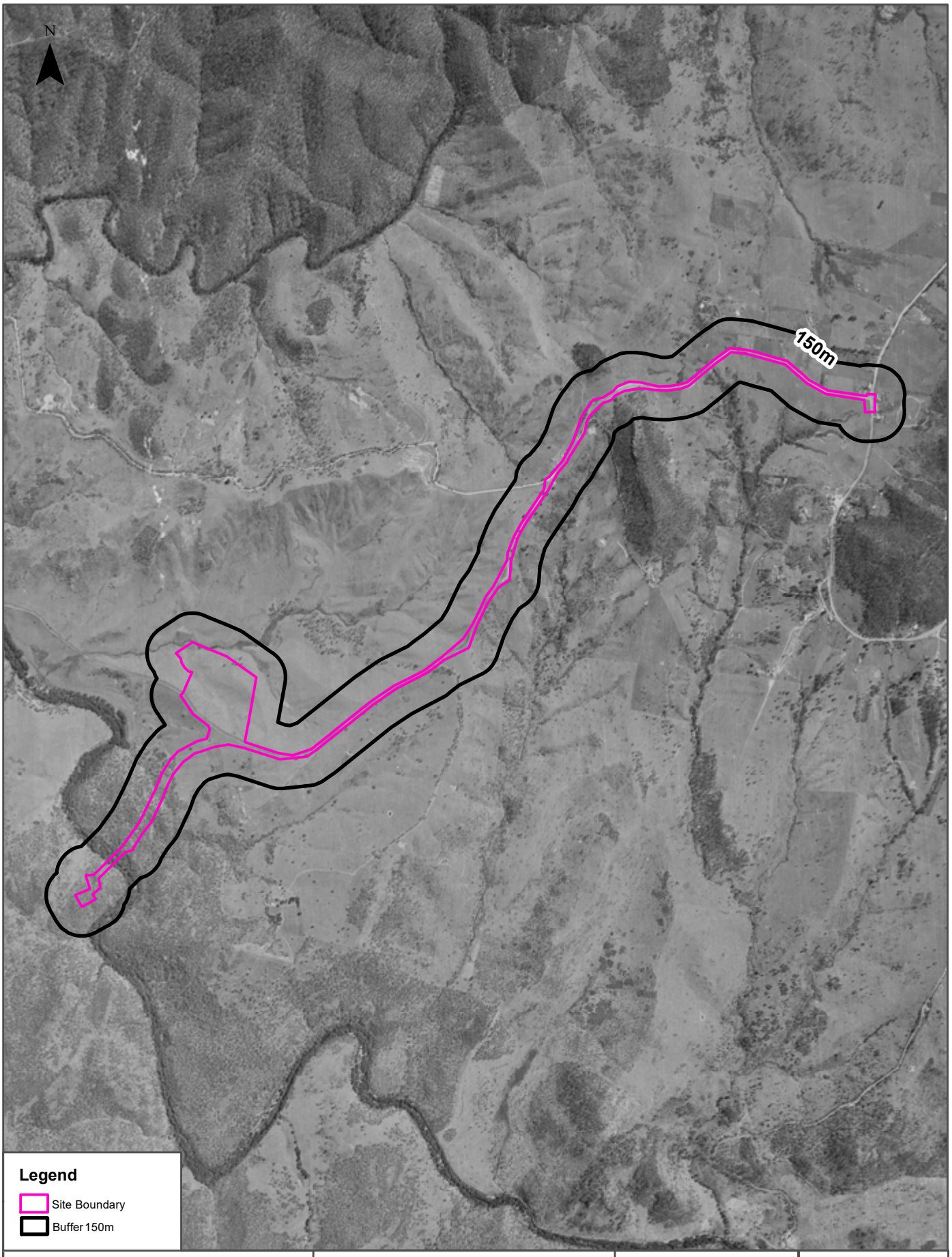

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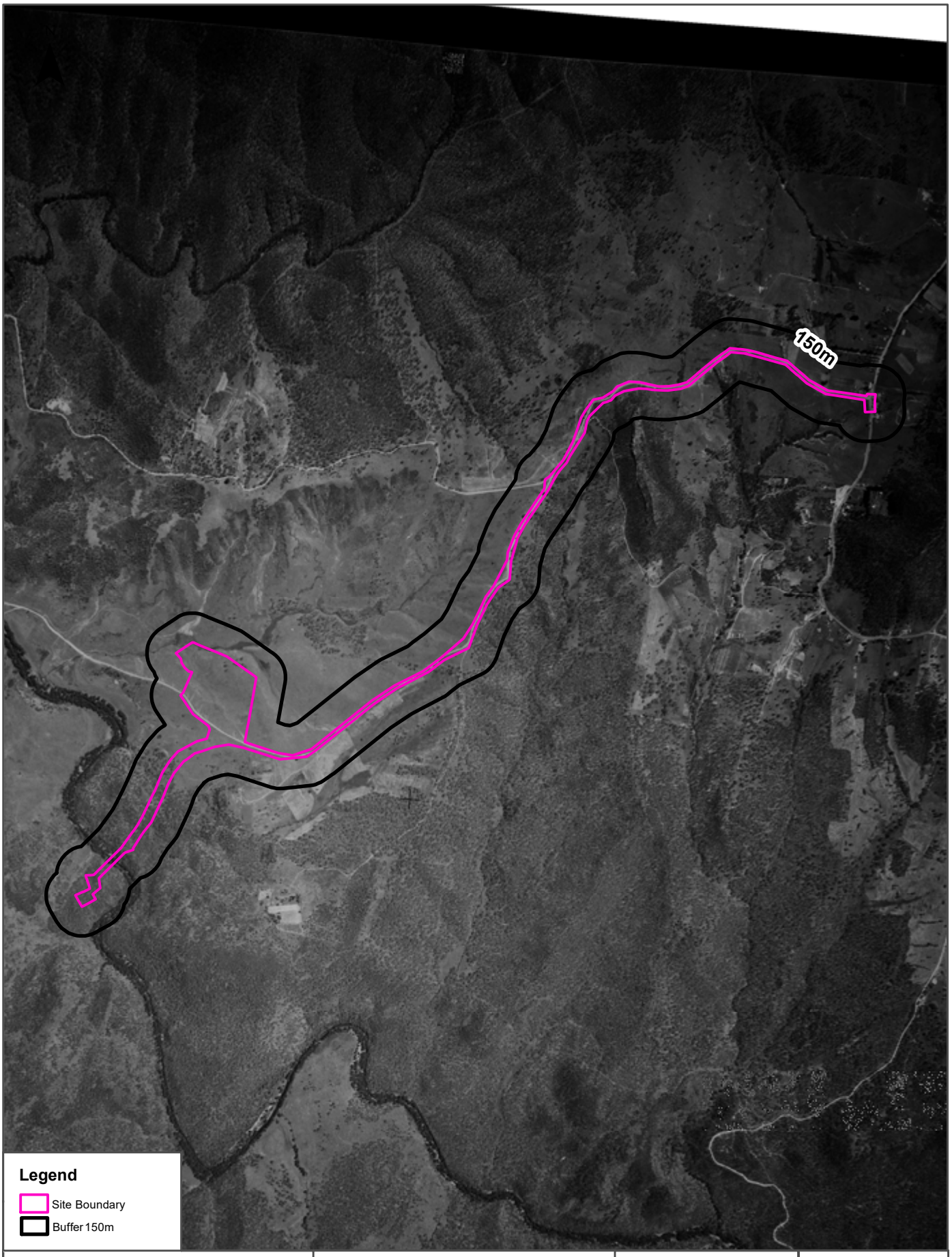

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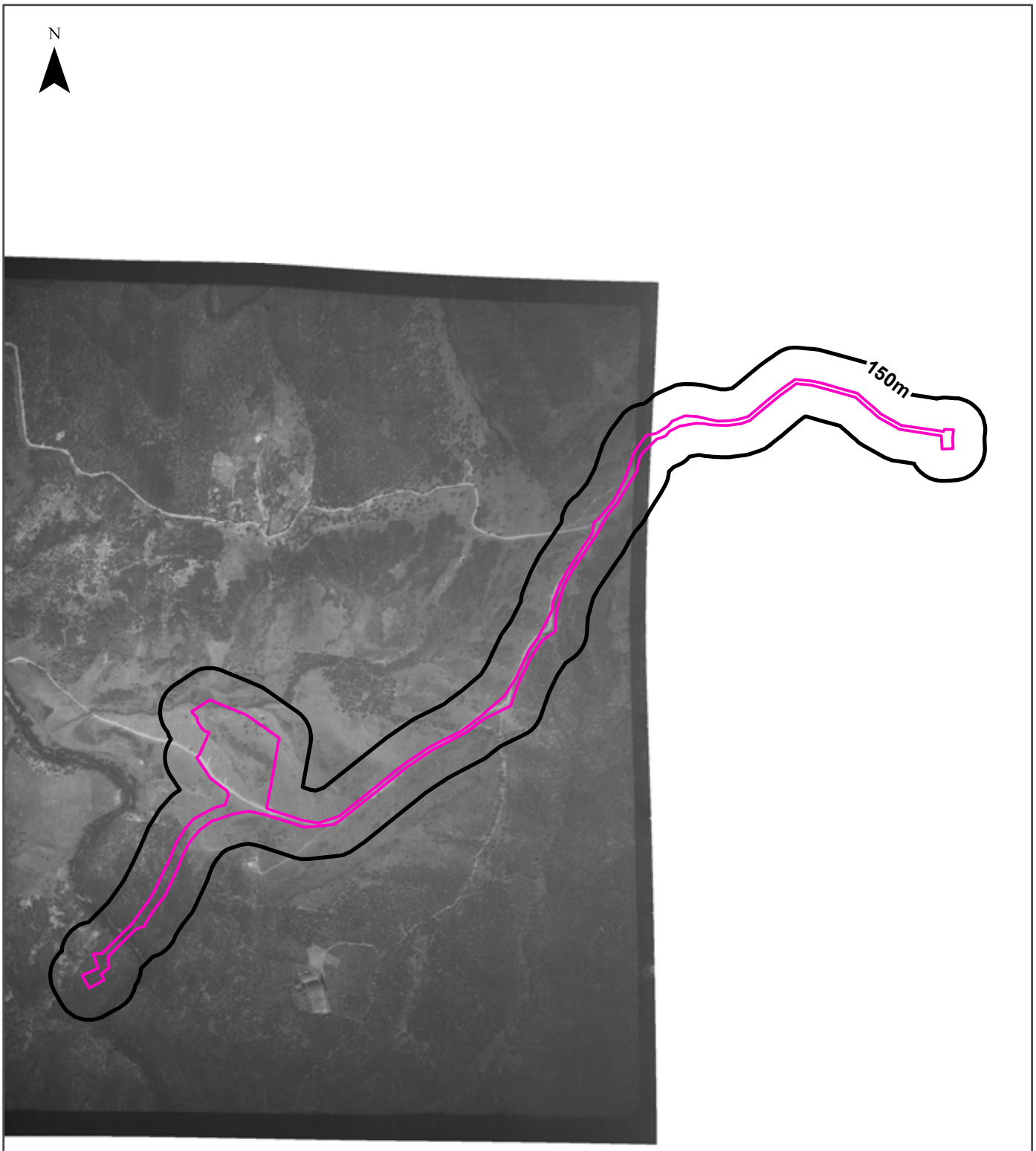

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Site Boundary

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Meters

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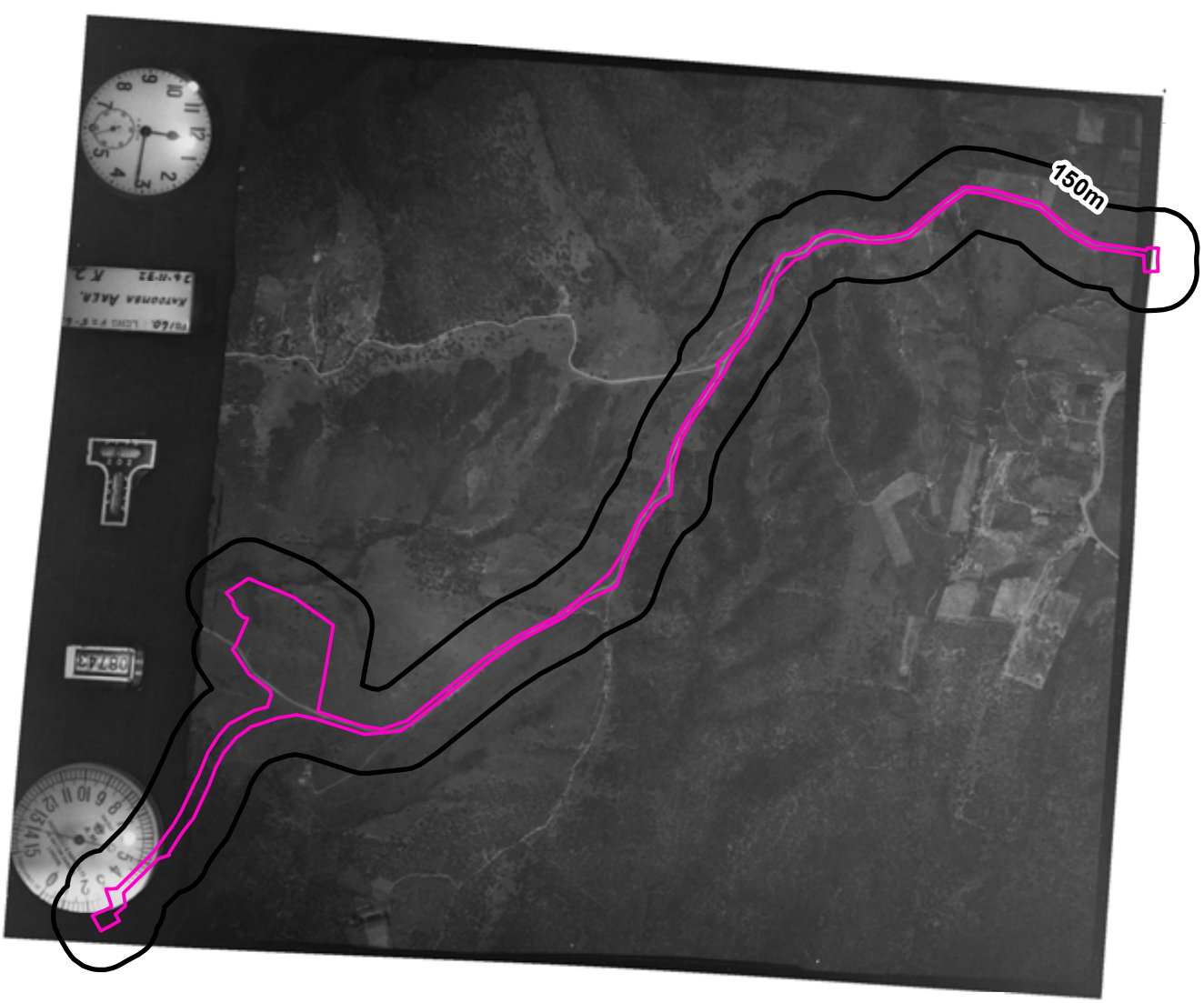

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Data Source Aerial Imagery: © 2025 Geoscience Australia

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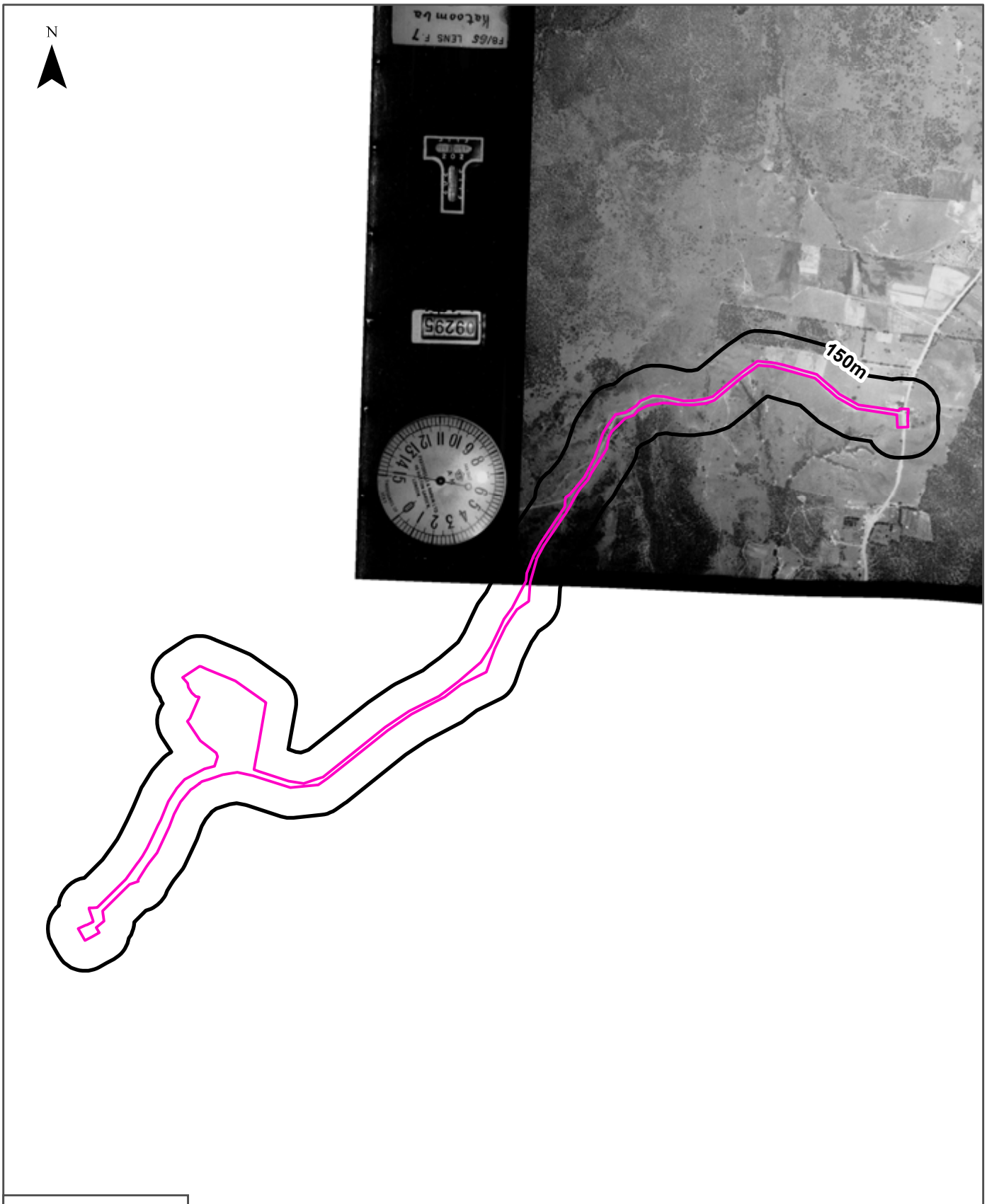

Aerial Imagery 2025

Pottery Estate, Lake Lyell, NSW 2790



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Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 July 2025

Aerial Imagery 2014

Pottery Estate, Lake Lyell, NSW 2790



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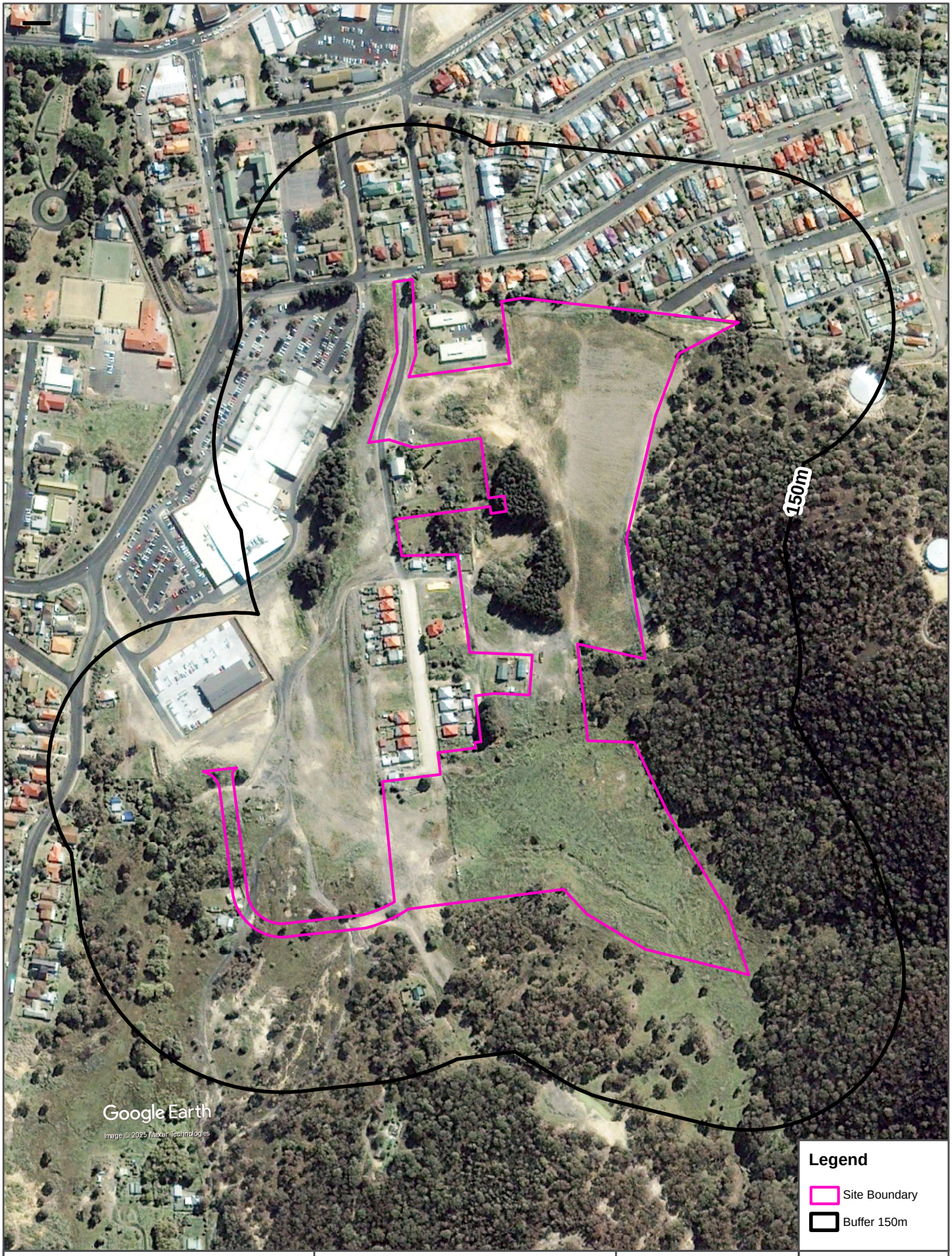
Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 July 2025

Aerial Imagery 2002

Pottery Estate, Lake Lyell, NSW 2790



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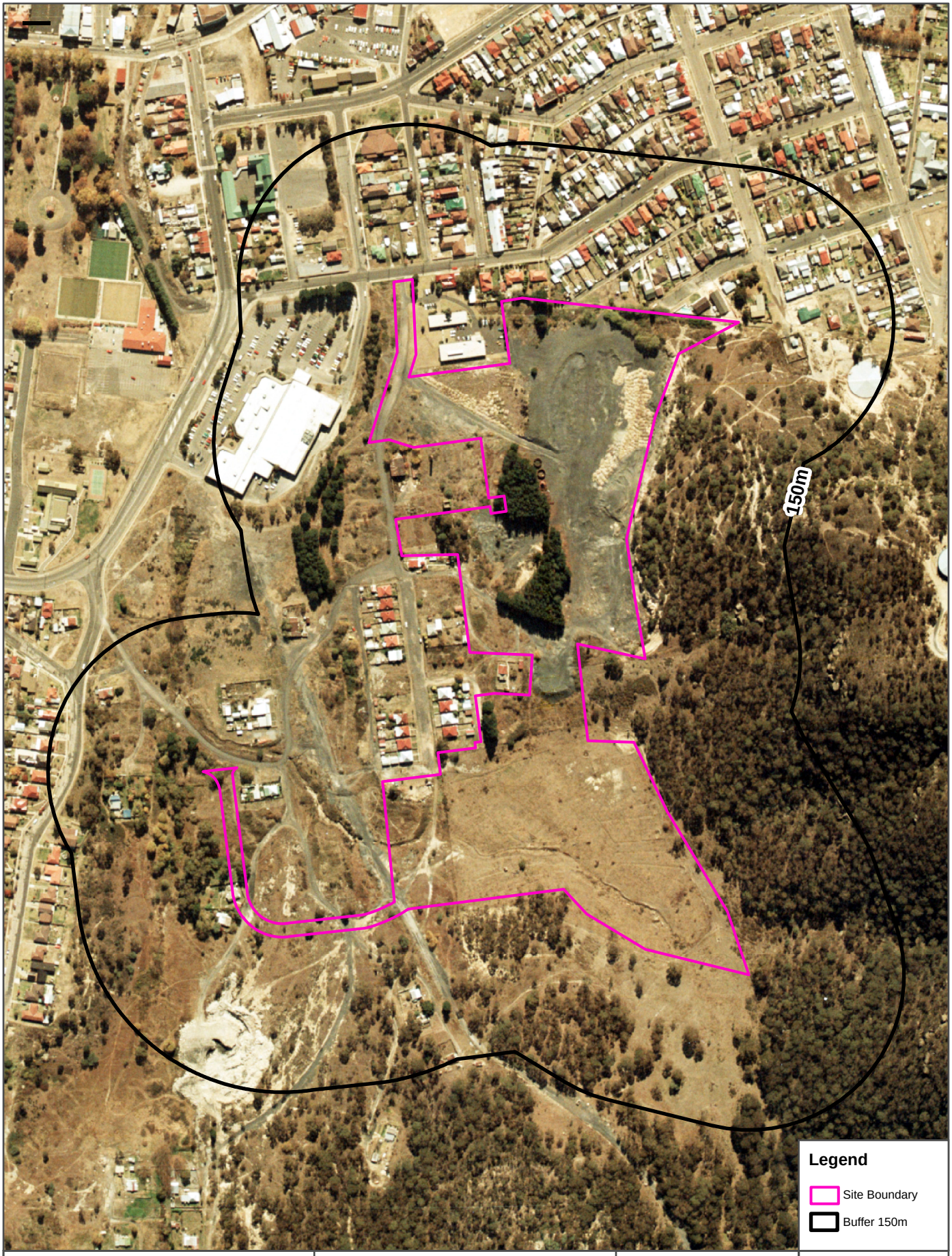
Pottery Estate, Lake Lyell, NSW 2790



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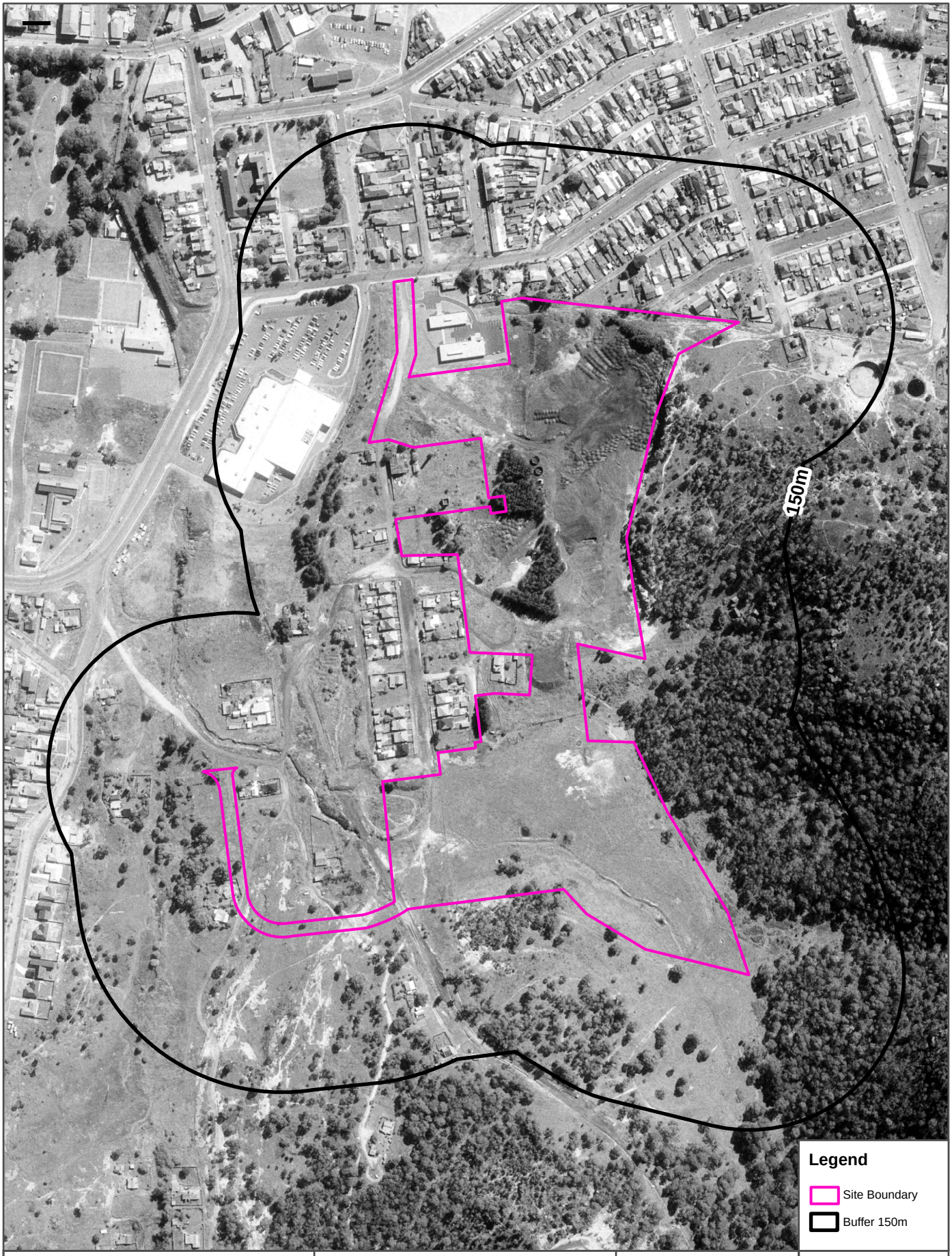
Pottery Estate, Lake Lyell, NSW 2790



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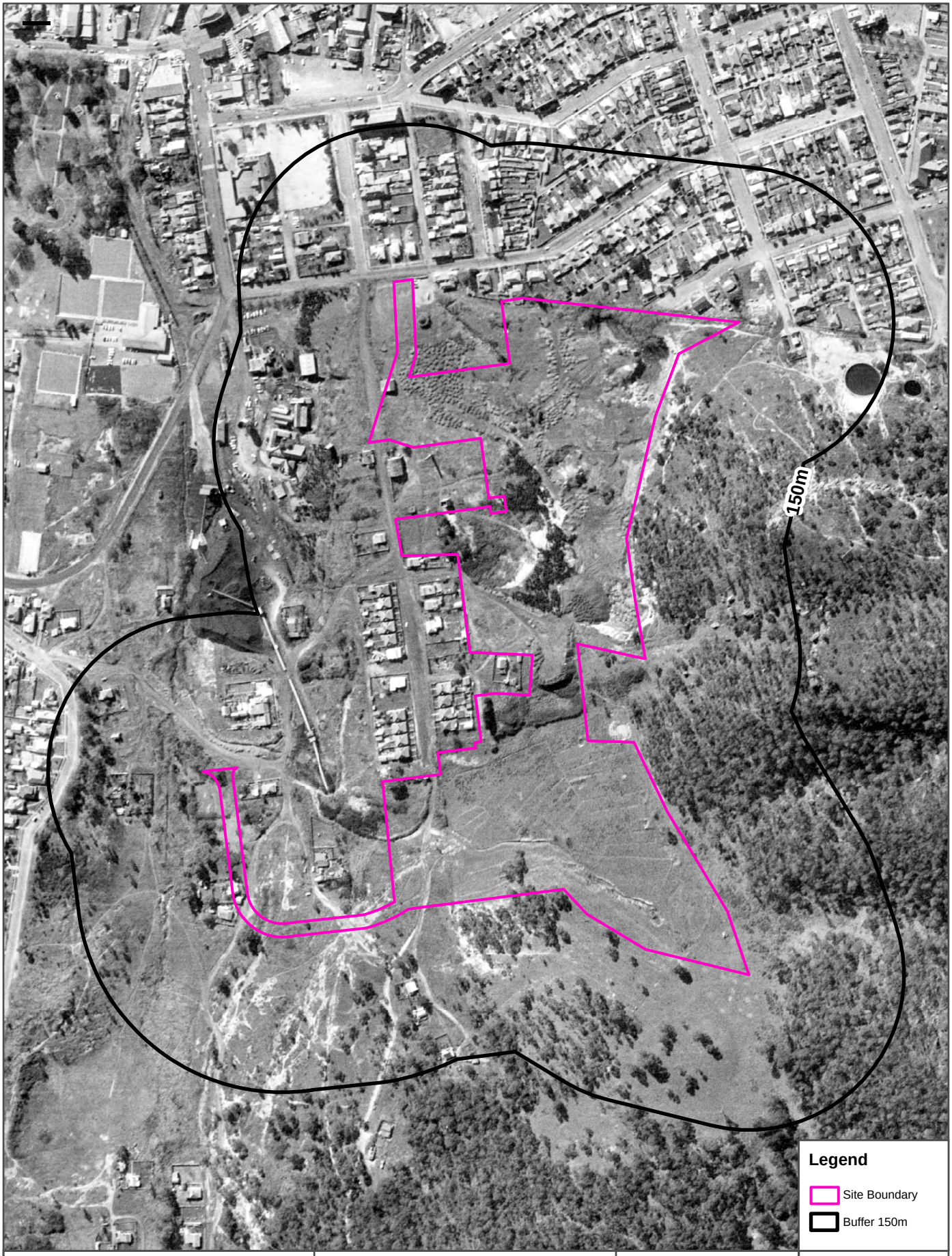

Aerial Imagery 1968

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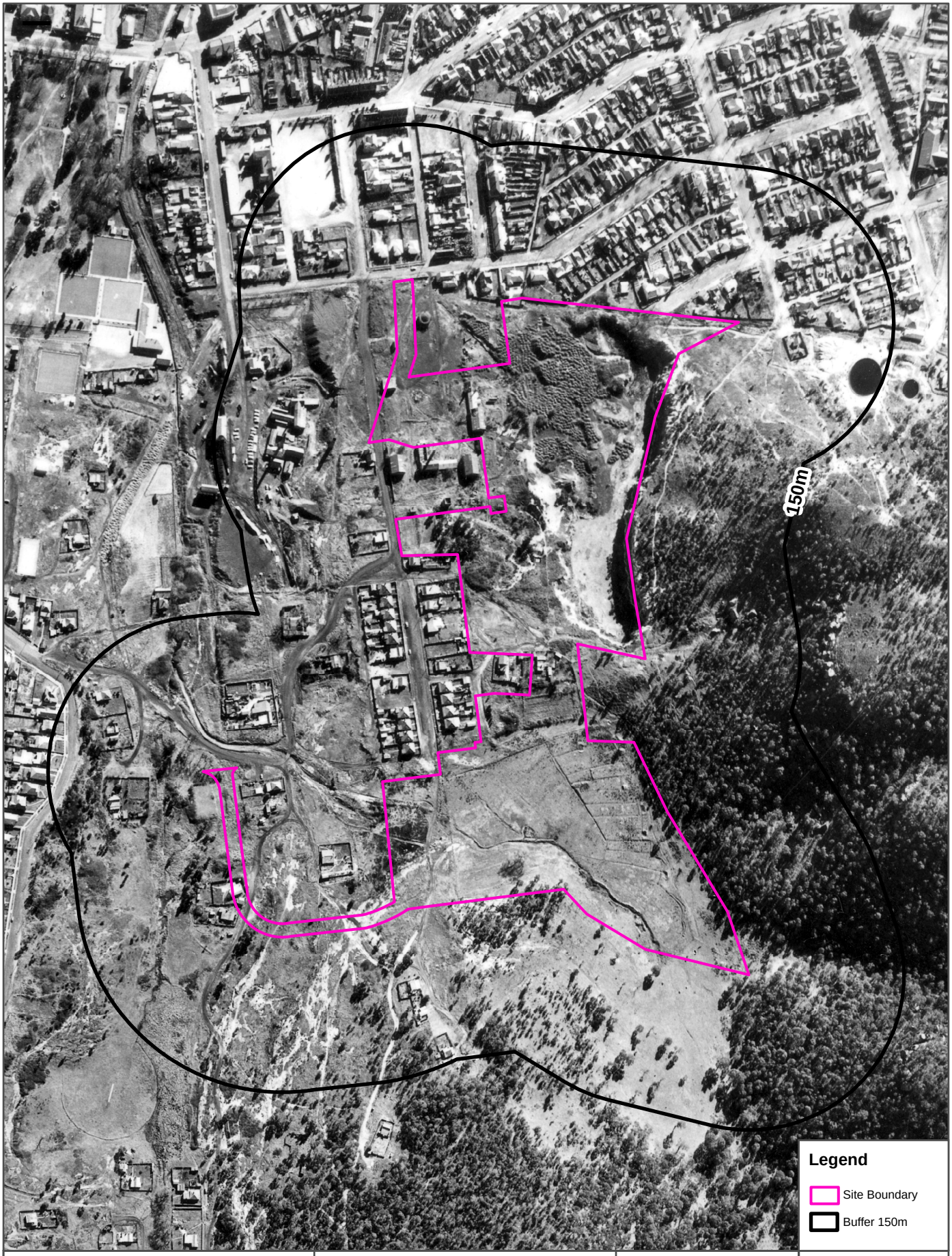

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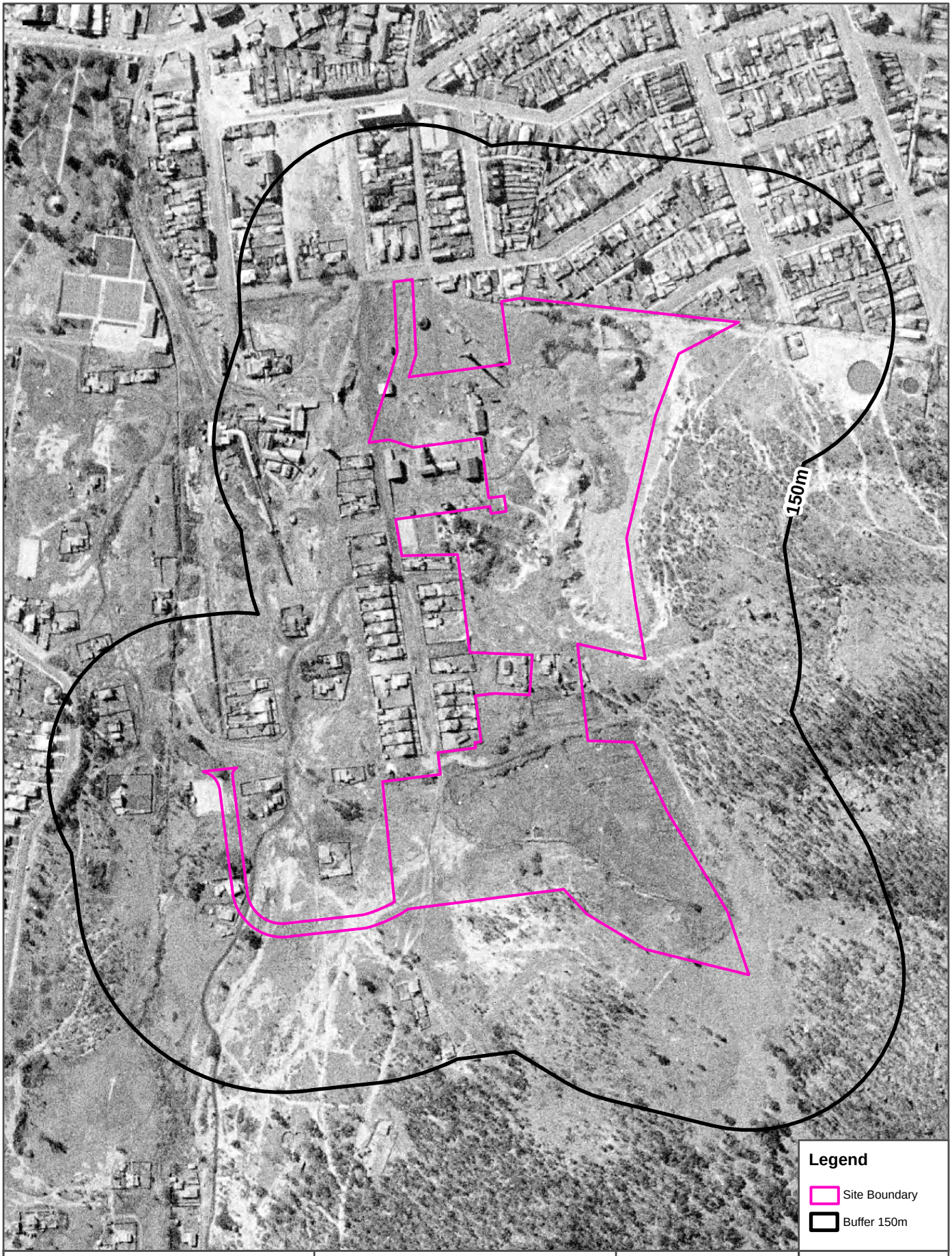


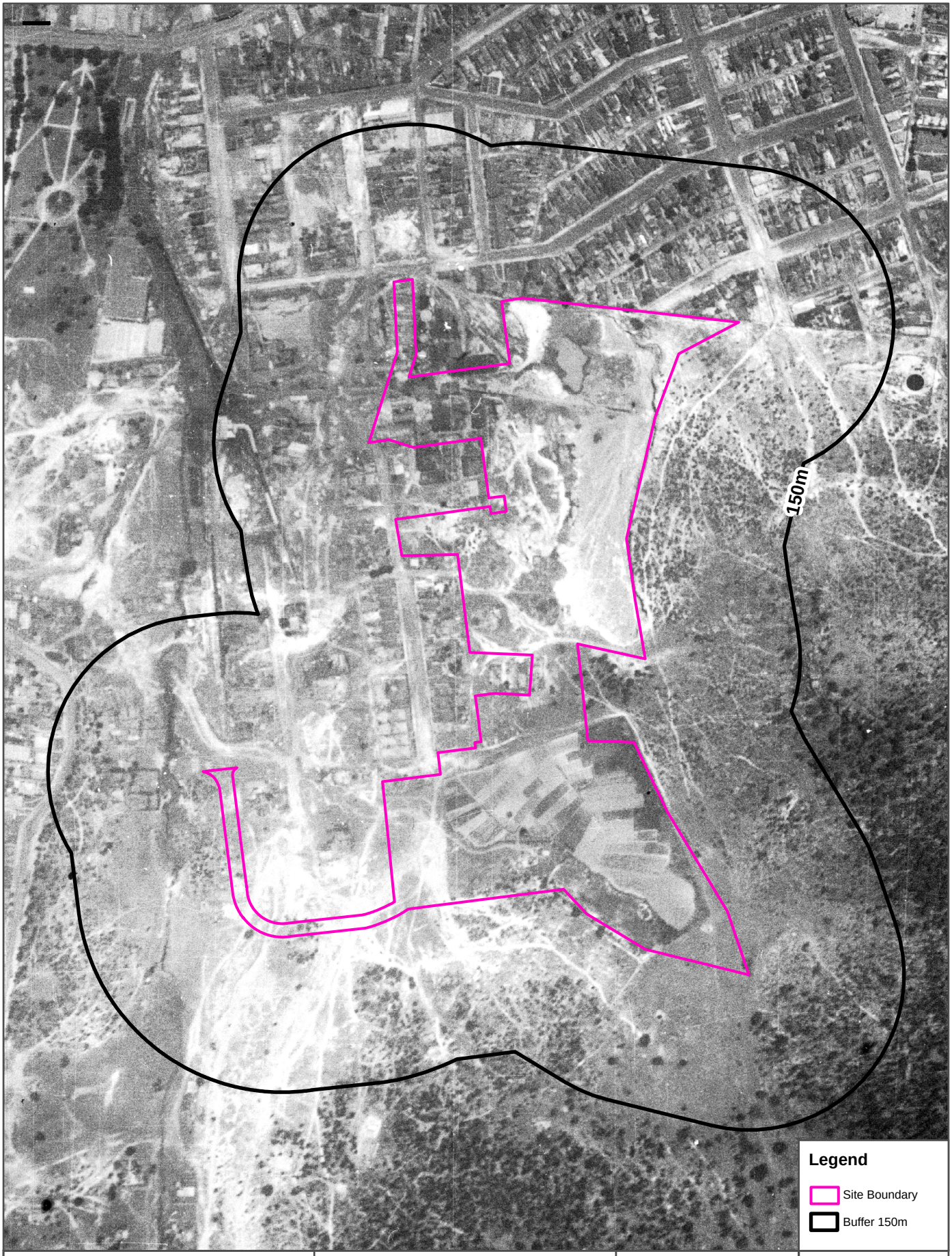
Aerial Imagery 1950

Pottery Estate, Lake Lyell, NSW 2790



Aerial Imagery 1931

Pottery Estate, Lake Lyell, NSW 2790





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