Transgrid

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Environmental Impact Statement

EnergyConnect (NSW – Eastern Section)

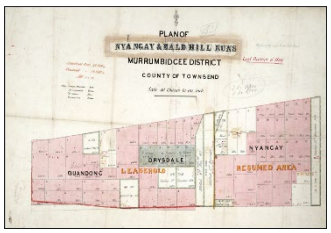
Technical paper 3 – Historic heritage impact assessment

EnergyConnect (NSW – Eastern Section)

Buronga to Wagga Wagga, NSW

Technical Paper 3 – Historic Heritage Impact Assessment

December 2021



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Executive summary

Transgrid (electricity transmission operator in New South Wales (NSW)) and ElectraNet (electricity distributor in South Australia (SA)) are currently investigating the proposed construction and operation of a new electrical interconnector and network support options between NSW and SA, with an added connection to north-west Victoria.

The proposal, focusing on the eastern section of EnergyConnect in NSW, would include the construction and operation of new high voltage transmission lines between the existing Buronga substation and existing Wagga Wagga substation, a new 330kV substation (referred to as the proposed Dinawan 330kV substation), upgrade and expansion of the existing Wagga Wagga substation as well as other ancillary infrastructure.

This technical paper, the Historical Heritage Impact Assessment, is one of a number of reports that form part of the Environmental Impact Statement (EIS) for the proposal.

Impact assessment

There are no heritage places listed on the World Heritage, National Heritage, the Commonwealth Heritage Lists or the State Heritage Register within the heritage study area. There is one (1) heritage item partly within the heritage study area that is on the NSW Department of Planning, Industry and Environment (DPIE) Historic Heritage Information Management System (HHIMS). The HHIMS is a register of historic heritage assets on National Parks and Wildlife Service (NPWS) estate and enables DPIE to meet its obligations under Section 170 of the *Heritage Act 1977*. In addition, 4 items were located during the survey which are assessed as having local significance although they are not on current lists.

Five places which have been previously assessed as having local heritage significance have been identified in the vicinity of the line however, none of these will be negatively impacted by the proposal. One heritage item, the Yanga Pastoral Station Complex, has been previously assessed as having state heritage significance; however, this has not been endorsed by the Heritage Council. This site will be traversed by the proposed transmission line and one of the elements of this complex, sheep yards in the Willows precinct, would be impacted.

The key impacts to historical heritage as a result of the proposal have been assessed to be the following

- The transmission line easement would pass through the curtilage of one listed heritage item (Yanga Pastoral Station Complex). The only element of that item that is within the construction area is a sheep yard that was identified during the survey.
- Three of the four unlisted heritage items identified during this heritage assessment, including one survey marker tree, a hut and an archaeological deposit associated with a former dwelling would each be impacted by the proposal.

Mitigation measures

The mitigation measures to manage potential heritage impacts of the proposal during the construction and operation phase include:

- Sites PEC-E-H2 survey marker tree, and the sheep yards in the Willows Precinct of the Yanga Pastoral Station Complex would be temporarily fenced during construction and vegetation clearance for the proposal, to avoid inadvertent impacts during works.
  If impacts cannot be avoided to the sheep yards based on the final construction impact area, they would be archivally recorded and the information added to the (HHIMS) for the Yanga Pastoral Complex

- The PEC-E-H3, Bundure railway station dwelling artefact scatter has potential to shed light on late 19th Century life at a remote railway outpost. It would be protected from impact during construction by a temporary exclusion fence; or subject to salvage excavation if this is not possible.

- PEC-E-H4 Hut Site, Nyangai Pastoral Holding requires further assessment/physical survey to confirm is current status and assess its significance

- Should the construction impact area for the proposal extend beyond the survey area, and closer to the heritage items identified in this report then further assessment would be carried out to determine the likelihood impact on the fabric or archaeological deposits associated with the heritage items

- During design refinement, the final location of transmission line structures and construction facilities would be determined with the aim to avoid or minimise impacts on all items assessed as having heritage significance, where feasible and reasonable. Where this is not possible items of moderate or high significance would be prioritised for avoidance or impact minimisation. Where impacts cannot be avoided, further assessment by an archaeologist would be carried out to determine the likelihood of occurrence and significance of potential impacts from the proposal in an addendum non-Aboriginal heritage assessment.

- If at any time during construction, any items of potential historic archaeological significance, or human remains are discovered, they would be managed in accordance with the unanticipated discovery protocol included in Appendix 1.

- Relevant Transgrid systems and procedures would be updated as required with protocols to avoid harm that would be implemented during operation.

- Features/items of heritage significance that will remain in-situ within the transmission line easement and along access tracks would be mapped and recorded within GIS systems managed by Transgrid to reduce the potential for inadvertent impacts to occur during maintenance activities.

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Abbreviations

Proposal Term/Acronym	Description
4WD	four-wheel drive
ACHAR	Aboriginal cultural heritage assessment report
ACT	Australian Capital Territory
CEMP	construction environmental management plan
CSSI	critical state significant infrastructure
CTMP	construction traffic management plan
DAWE	(Australian) Department of Agriculture, Water and the Environment
DCP	development control plan
DPI	Department of Primary Industries
DPIE	(NSW) Department of Planning, Industry and Environment
EIS	environmental impact statement
EMP	environmental management plan
EMS	environmental management system
EP&A Act	(NSW) Environmental Planning and Assessment Act 1979
EP&A Regulation	(NSW) Environmental Planning and Assessment Regulation 2000
EPA	(NSW) Environment Protection Authority
EPBC Act	(Commonwealth) Environment Protection and Biodiversity Conservation Act 1999
GIS	geographical information systems
ha	hectare
HV	high voltage
Infrastructure SEPP	(NSW) State Environmental Planning Policy (Infrastructure) 2007
kV	kilovolt
LEP	local environmental plan
LGA	local government area
MDBA	Murray-Darling Basin Authority
MW	megawatts
NEM	national electricity market
NP&W Act	(NSW) National Parks and Wildlife Act 1974
NSW	New South Wales
OEH	(former) NSW Office of Environment and Heritage to be referred to as the Environment, Energy and Science Group of DPIE from the 1 July 2019
QNI Upgrade	proposed Queensland and NSW interconnector
SA	South Australia

Proposal Term/Acronym	Description
SEARs	secretary environmental assessment requirements
SEPP	state environmental planning policy
SHI	state heritage inventory
SHR	state heritage register
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSI	state significant infrastructure
VMP	vehicle movement plan

Glossary

Proposal term	Description
brake/winch sites	A brake and winch site is a temporarily cleared area where plant and equipment is located for the purposes of spooling and winching a conductor into place on erected transmission line towers along a transmission line easement. Dependent upon the angle of line deviation, the location of the brake and winch site at that angle may or may not be within the nominated transmission line easement. The brake and winch site is only required for the construction phase of the proposal. It does not need to be maintained for ongoing operation and / or maintenance of the transmission line.
construction impact area	Refers to the area that would be directly impacted by construction of the proposal comprising the following: • construction of all proposal infrastructure elements (including the proposed transmission line alignment, transmission line easement, substation site works (at both the proposed Dinawan 330kV and upgraded and expanded Wagga Wagga substations), optical repeater infrastructure, and other ancillary works) • locations for construction elements such as construction compounds and accommodation camps, access tracks (excluding public roads proposed to be used for access routes), site access points, water supply points, laydown and staging areas, concrete batching plants, brake/winch sites and site offices. This area includes the operational impact area (including areas required for maintenance) as these areas would be established during the construction process. The area is identified based on realistic project component locations and areas however it is indicative at this stage. The area would be confirmed during finalisation of design and construction methodology and would be developed as part of the consideration of avoidance and impact minimisation.
EnergyConnect	An electrical interconnector of around 900 kilometres between the electricity grids of South Australia and New South Wales, with an added connection to northwest Victoria. In NSW, EnergyConnect comprises two sections – Western Section (which has been the subject of a separate environmental assessment and approval) and the Eastern Section (the proposal the subject of this EIS).
historic heritage study area	The study area for this assessment (the historic heritage study area) typically comprises a one-kilometre-wide buffer around the construction impact area of the proposed transmission line between the existing Buronga and Wagga Wagga substations, a distance of about 540 kilometres.
Historic heritage survey area	The area of land physically surveyed was a corridor 100m wide i.e. 50m either side of the proposed centreline and includes compound and accommodation camp and substation locations, where landholder access was available.
operational impact area	Refers to the area that would be directly impacted by permanent components of the proposal, including all proposed infrastructure elements such as the proposed transmission line easement, transmission line and transmission towers, any new or upgraded substation infrastructure and permanent access tracks.

Proposal term	Description
proponent, the	The proposal is proposed to be undertaken by NSW Electricity Networks Operations Pty Ltd as a trustee for NSW Electricity Operations Trust (referred to as Transgrid). Transgrid is the operator and manager of the main high voltage (HV) transmission network in NSW and the Australian Capital Territory (ACT) and is the Authorised Network Operator (ANO) for the purpose of an electricity transmission or distribution network under the provisions of the *Electricity Network Assets (Authorised Transactions) Act 2015*.
proposal, the	The proposal is known as 'EnergyConnect (NSW – Western Section)' as described in Chapter 5 and Chapter 6 of this document.
transmission line easement	An area surrounding and including the transmission lines, which is a legal right allowing for construction of the transmission line, along with ongoing access and maintenance of the lines and will be acquired from landholders either by agreement or pursuant to compulsory acquisition process. The easement width would be 80 metres wide.

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Figures and photographs (continued)

Tables

1. Introduction

1.1 Proposal context

Transgrid (electricity transmission operator in New South Wales (NSW)) and ElectraNet (electricity transmission operator in South Australia (SA)) are seeking regulatory and environmental planning approval for the construction and operation of a new High Voltage (HV) interconnector between NSW and SA, with an added connection to northwest Victoria. Collectively, the proposed interconnector is known as EnergyConnect.

EnergyConnect aims to reduce the cost of providing secure and reliable electricity transmission between NSW and SA in the near term, while facilitating the longer-term transition of the energy sector across the National Electricity Market (NEM) to low emission energy sources.

EnergyConnect has been identified as a priority transmission project in the NSW Transmission Infrastructure Strategy (NSW Department of Planning and Environment (DPE), 2018), linking the SA and NSW energy markets and would assist in transporting energy from the Southwest Renewable Energy Zone to major demand centres.

EnergyConnect comprises of several sections (shown on Figure 1.1) that would be subject to separate environmental planning approvals under the relevant jurisdictions. It includes:

- NSW sections including:
  - Western Section, which would extend from:
    - the SA/NSW border (near Chowilla in SA) to Transgrid's existing Buronga substation
    - Buronga substation to the NSW/Victoria border at Monak (near Red Cliffs in Victoria)
  - Eastern Section, which would extend from the Buronga substation to the existing Wagga Wagga substation
- a Victorian Section, which would extend from the NSW/Victoria border to Red Cliffs substation
- a SA Section, which would extend from Robertstown to the SA/NSW border.

Transgrid is currently seeking planning approval for the NSW – Eastern Section (the proposal), which is the subject of this EIS.

Transgrid has previously sought and received separate environmental planning approvals for the NSW – Western Section of EnergyConnect and Victorian Section. ElectraNet is responsible for obtaining environmental planning approval for the section of EnergyConnect located in SA.

1.1.1 Proposal objectives

The primary objective for EnergyConnect (including the proposal) is to reduce the cost of electricity by providing secure electricity transmission between NSW and SA in the near term and facilitate the longer-term transition of the energy sector across the NEM to low emission energy generation sources. More specifically, EnergyConnect (including the proposal) aims to:

- lower power prices
- improve energy security
- increase economic activity
- support the transition to a lower carbon emission energy system

Figure 1.1 Overview of EnergyConnect

1.2 The proposal

Transgrid is seeking approval under Division 5.2, Part 5 of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) to construct and operate the proposal. The proposal has been declared as Critical State significant infrastructure under Section 5.13 of the EP&A Act.

The proposal was also declared a controlled action on 30 September 2020 and requires a separate approval under the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proposal is subject to the bilateral assessment process that has been established between the Australian and NSW governments.

1.3 Proposal overview

1.3.1 Key features of the proposal

The key components of the proposal include:

- about 375 kilometres of new 330 kilovolt (kV) double circuit transmission line and associated infrastructure between the Buronga substation and the proposed Dinawan 330kV substation
- connection of the proposed transmission lines to the existing Buronga 330kV substation
- construction of a new 330kV substation around 30 kilometres south of Coleambally, referred to as the proposed Dinawan 330kV substation
- connection of the proposed transmission lines to the proposed Dinawan substation
- about 162 kilometres of new 500kV double circuit transmission line and associated infrastructure between the proposed Dinawan 330kV substation and the existing Wagga Wagga substation at Wagga Wagga, NSW

- upgrade and expansion of the Wagga Wagga substation to accommodate the new transmission line connections including the installation of new line bays, relocation and upgrade of existing bays and associated electrical and civil works (road, kerb, gutter, drainage works and earthworks)

- provision of three optical repeater structures and associated connections to existing local electrical supplies

- new and/or upgrade of access tracks as required

- ancillary works required to facilitate the construction of the proposal (e.g. laydown and staging areas, concrete batching plants, brake/winch sites, site offices and accommodation camps).

An overview of the proposal is provided in Figure 1.2. Further detail on the key infrastructure components of the proposal and construction activities are provided in Chapter 5 and Chapter 6 of the Environmental Impact Statement (EIS) respectively.

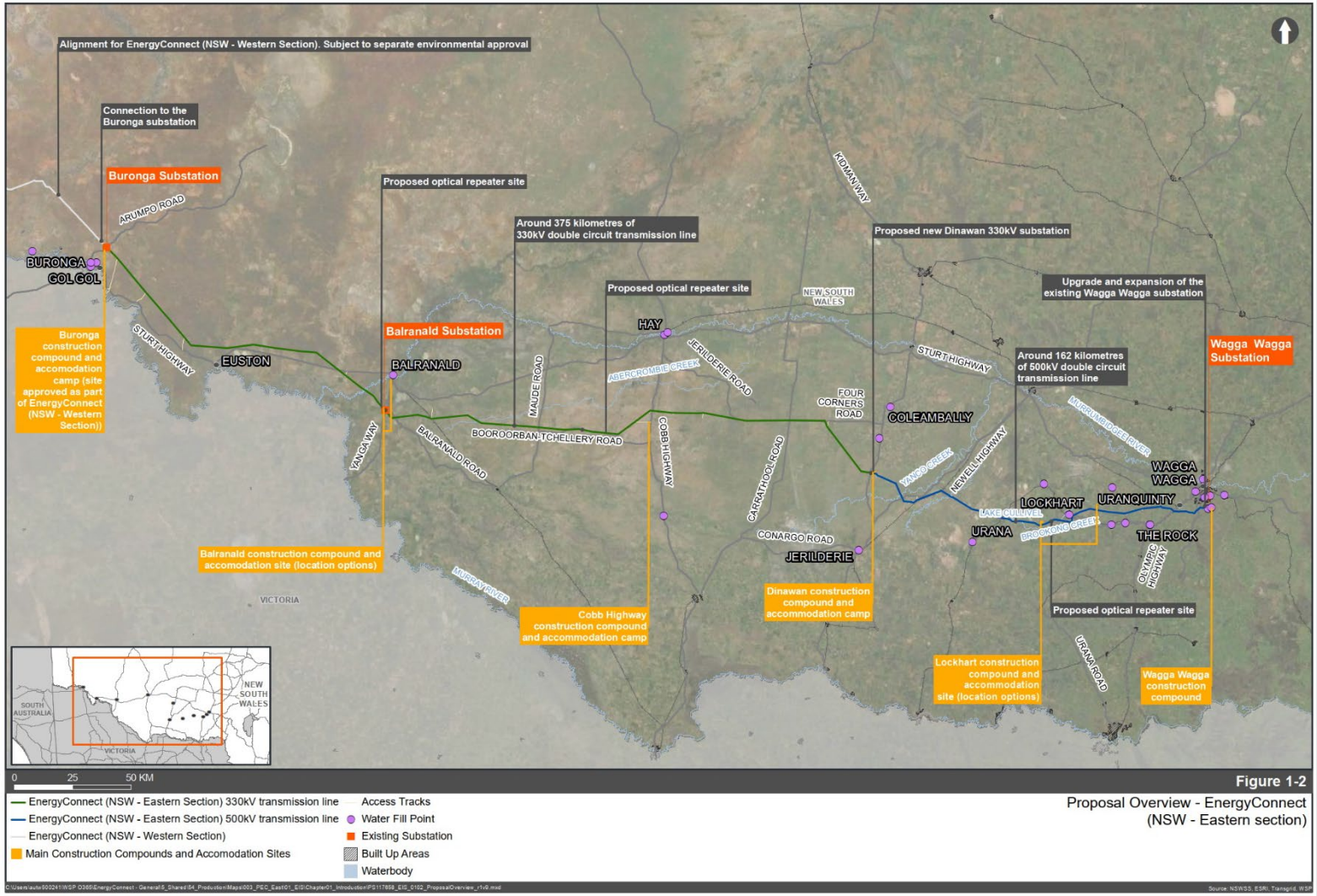

Figure 1.2 Proposal Overview – EnergyConnect (NSW – Eastern Section)

1.3.2 Construction of the proposal

Key construction works

Key construction works for the proposal would typically include (but not be limited to):

- site establishment works, which may include (but not be limited to):
    - establishment of construction compound and accommodation sites, access tracks and service relocations
    - vegetation clearance
    - transportation of equipment such as steelwork, high voltage plant, switchgear, between dock and site as part of the construction works
- ancillary works to facilitate the construction of the proposal (e.g. intermediate laydown and staging areas, concrete batching plants, brake/winch sites, site offices and accommodation camps)
- construction of the proposed transmission lines, which would include (but not be limited to):
    - access tracks to accommodate safe access of construction machinery and materials to each transmission line tower site
    - earthworks (including establishment of construction pads) and the construction of footings and foundations for each transmission line tower
    - erection and assembly of the new transmission line towers using crane(s) and or helicopter(s)
    - stringing of the conductors and overhead earth wires and optical ground wire
    - installation of earthing conductors
    - testing and commissioning of the transmission lines
- construction of the proposed Dinawan 330kV substation, which would include (but not be limited to):
    - civil construction works including earthworks
    - slab construction at the new substation site
    - electrical fit out with new substation equipment
    - testing and commissioning of the new substation equipment
- upgrade and expansion of the existing Wagga Wagga substation to enable the proposed connection and operation of the new transmission lines which would include (but not be limited to):
    - civil construction works including earthworks and slab construction at the expanded substation site
    - electrical fit out with new substation equipment
    - testing and commissioning of the new substation equipment
    - connection of the proposed transmission lines to the Buronga substation
- demobilisation and remediation of areas disturbed by construction activities.

A detailed description of construction works for the proposal is further described in Chapter 6 of the Environmental Impact Statement (EIS).

Construction program

Construction of the proposal would commence in late-2022 (enabling works phase), subject to NSW Government and Commonwealth planning approvals.

The main construction works for the transmission lines and substation facilities would take around 18 months. The upgraded and expanded Wagga Wagga substation and the proposed Dinawan 330kV substation are expected to be operational by late-2024. Site decommissioning and remediation would extend around six months beyond the commissioning (operational) phase, with estimated completion in mid-2025.

The final program would be confirmed as part of finalisation of the proposal infrastructure following approval of the proposal.

Indicative duration of transmission line construction activities

Construction at each transmission line tower would be intermittent and construction activities would not occur for the full duration at any one location. Figure 1.3 presents an indicative duration of construction activities associated with the transmission line towers. These durations could vary and breaks between activities may be shorter which may lead to longer inactive periods in subsequent stages of construction at an individual transmission line tower. Durations of any particular construction activity, and respite periods, may vary for a number of reasons including (but not limited to), multiple work fronts, resource and engineering constraints, works sequencing and location.

These activities would also have multiple work fronts, therefore (for example) foundation works, or tower erection would be occurring in several locations along the easement at the same time.

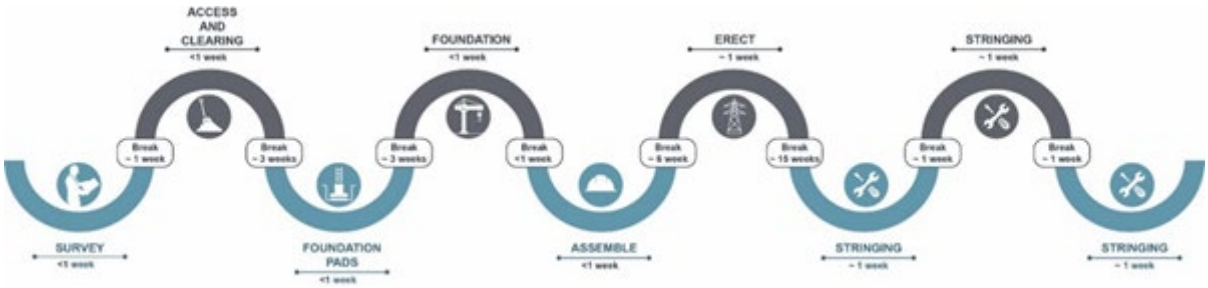

Figure 1.3 Indicative duration of construction activities at transmission line towers

1.4 Purpose of this technical paper

This technical paper is one of a number of technical papers that form part of the EIS for the proposal. The purpose of this technical paper is to identify and assess the potential impacts of the proposal in relation to historic heritage. It responds directly to the Secretary's environmental assessment requirements (SEARs) (refer to section 1.4.1)

1.4.1 Secretary's environmental assessment requirements

The proposal is being assessed as Critical State Significant Infrastructure (CSSI) under Division 5.2 of the *Environmental Planning & Assessment Act 1979* (Application Number: SSI-9172452). The NSW Department of Planning, Industry and Environment (DPIE) has provided the SEARs for the EIS, identifying heritage as a key issue that must be addressed.

The requirements specific to this assessment and where these aspects are addressed in this technical report are outlined in Table 1.1.

Table 1.1 Secretary's Environmental Assessment Requirements – Heritage

Reference	Secretary's Environmental Assessment Requirements	Section of report where addressed
Heritage	an assessment of the Aboriginal and historic heritage (cultural and archaeological) impacts of the project; and	The impact of the proposal on the identified historic heritage places is assessed in section 7.1
	adequate consultation with the local Aboriginal community and other relevant stakeholders, having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (OEH, 2010)	N/A –for Aboriginal heritage Impact Assessment see ACHAR (Aboriginal Cultural Heritage Assessment Report).

The requirements specific to historic heritage (cultural and archaeological) are addressed in this technical paper.

Aboriginal heritage impacts and community consultation are addressed in a separate technical paper: *EnergyConnect (NSW – Eastern Section) Buronga to Wagga Wagga, NSW: Aboriginal Cultural Heritage Assessment Report* (NOHC, 2021).

1.5 The historic heritage study area

The study area for this assessment (the historic heritage study area) typically comprises a one-kilometre-wide buffer around the construction impact area of the proposed transmission line between the existing Buronga and Wagga Wagga substations, a distance of 540 kilometres. The heritage study area has been applied to identify the constraints nearby to the proposal which may or may not be indirectly impacted by the proposal (including visual impacts). Access tracks are located within the historic heritage study area.

The historic heritage study area is located in regional western NSW across a number of Local Government Areas (LGAs), being the following: Wentworth Shire; Balranald Shire; Murray River; Edward River; Hay Shire; Murrumbidgee; Federation; Lockhart Shire; and Wagga Wagga LGAs.

1.6 Structure of this report

The structure and content of this report is as follows:

- Chapter 1 – Introduction: Provides a summary of the proposal and outlines the purpose of this report
- Chapter 2 – Heritage framework: Provides an overview of the statutory context and heritage listings
- Chapter 3 – Study methodology: Provides a description of the study methodology
- Chapter 4 – Historical context: Provides a brief overview of the historical context of the historic heritage study area
- Chapter 5 – Physical context: Provides a description of the proposal area and results of the heritage survey
- Chapter 6 – Heritage significance: Provides an assessment of significance for potential historic heritage items and sites identified within the proposal area
- Chapter 7 – Proposed activity: Provides a description of the proposed activity and the anticipated impacts of the proposal, if any.

- Chapter 8 – Cumulative impacts considering other current projects in the vicinity of the proposal.
- Chapter 9 - Mitigation measures: Provides management recommendations and mitigations measures to avoid and minimise harm
- Chapter 10 – References: Identifies the key documents referenced in this report.

1.7 Authorship and contributors

This report was prepared by:

- Susan McIntyre-Tamwoy (Bachelor of Arts (Hons) from University of Sydney and Doctorate from James Cook University)
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- Ngaire Richards (Bachelor of Arts Informatics (Hons) from the University of Sydney)

This report was edited by Nicola Hayes. Geographic information system (GIS) support was provided by Joel Mason (Masters of Archaeological Science from the ANU).

Field survey was carried out by Navin Officer Heritage Consultants (NOHC) archaeologists:

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- Ngaire Richards
- Nicola Hayes
- Ricardo Servin
- Susan McIntyre-Tamwoy

1.8 Limitations

Access to the full length of the historic heritage survey area of the Proposal was limited at some locations as a result of landowner restrictions. Figure 1.4 shows areas of the historic heritage survey area that were not able to be physically surveyed as part of this historic heritage impact assessment. At locations where physical survey was not able to be completed, the area was viewed from the nearest available public vantage point, such as a road, as well as using aerial maps, parish maps and photographs.

All relevant historic heritage items have been included in this historic heritage impact assessment. The information fields in the State Heritage Inventory (SHI) were often incomplete for listed items and the basis for assessments were not stated. As such, reassessment of the historic heritage significance of these items against incomplete listing information was not possible.

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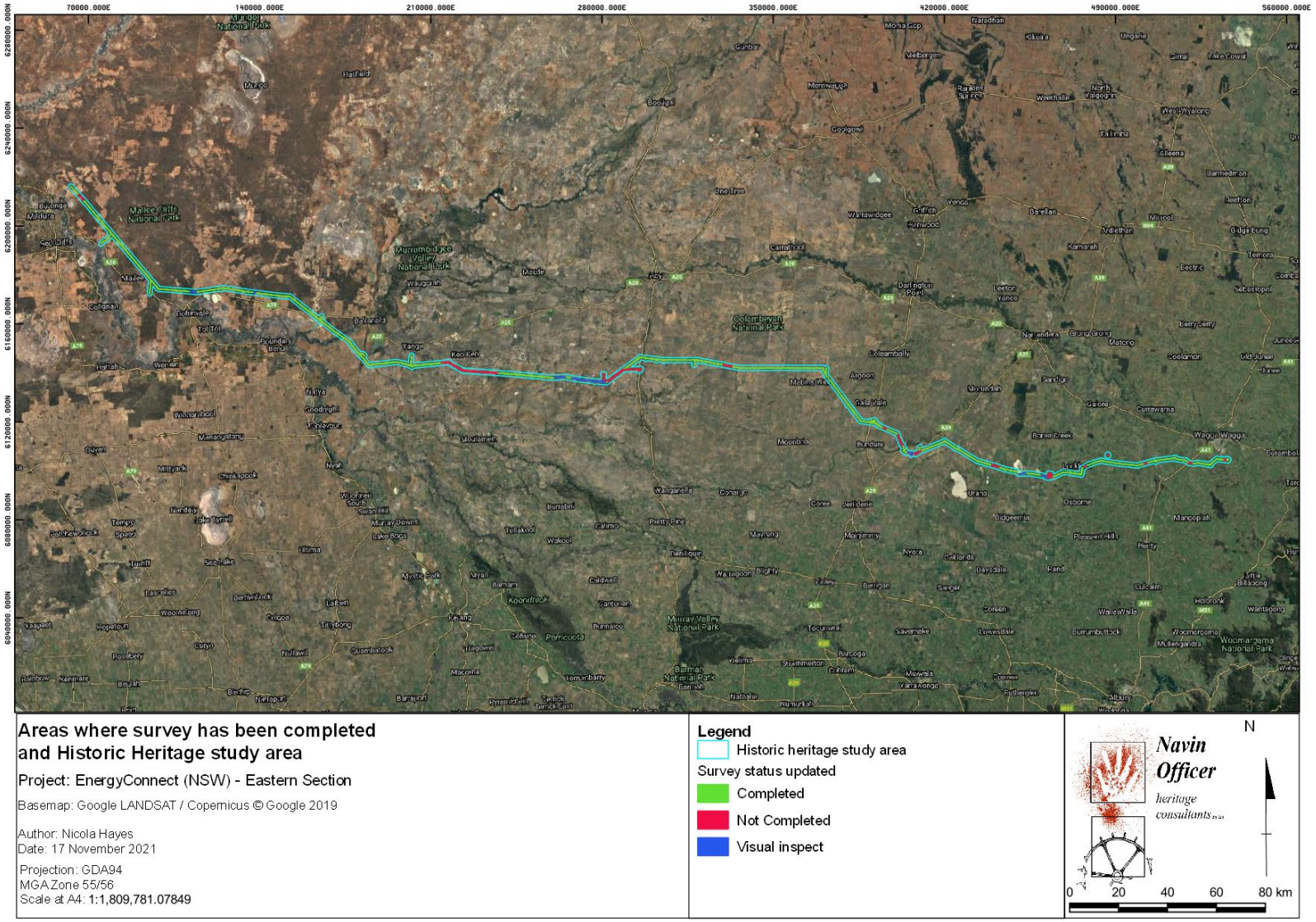

Figure 1.4 Areas where survey has been completed

2. Legislation, guidelines and policy

2.1 Commonwealth legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) is the Australian Government's national environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places – defined in the EPBC Act as matters of national environmental significance (NES). To this end, it establishes:

- the National Heritage List – a list of Indigenous, historic and natural places of outstanding significance to the nation, and
- the Commonwealth Heritage List – a list of Indigenous, historic and natural heritage places owned or controlled by the Australian Government.

The EPBC Act also establishes requirements for environmental approval of activities that will have a significant impact on a declared World Heritage property – heritage places of outstanding universal value included in the World Heritage List established by UNESCO and recognised under the 1972 World Heritage Convention.

There are no heritage items within the historic heritage study area that are on the World Heritage, National Heritage, or Commonwealth Heritage Lists.

2.2 State legislation

2.2.1 Heritage Act 1977 (NSW)

The *Heritage Act 1977* (Heritage Act) is intended to promote understanding and conservation of the State's heritage and provides for identifying and registering items of State heritage significance. It protects items of environmental heritage which are defined as '*those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance*'.

Heritage significance is defined in section 4A as follows:

> *State heritage significance, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.*
>
> *local heritage significance, in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.*

The Heritage Act does not differentiate between Aboriginal non-Aboriginal and natural heritage and listed items may include any of the types of place or items. Certain Aboriginal and natural heritage sites may be protected under the Heritage Act and included in related listings in addition to explicit protection under other legislation.

Items that have been identified by the Heritage Council of NSW as being of significance to the State are listed on the State Heritage Register (SHR). Any impacts to such items are closely regulated through permits.

In addition, to the protection offered to items of recognised State heritage significance, the Heritage Act also requires government instrumentalities (NSW government agencies and State-owned corporations) to establish and maintain a register of their heritage assets, known as a Section 170 Heritage and Conservation Register. Such information is added to a state-wide database called the State Heritage Inventory (SHI). Items identified as being of local significance are also included in the SHI.

The Act also protects archaeological relics. A 'relic' is defined as:

> *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.*

There are no items listed on the SHR within the historic heritage study area.

There is one (1) heritage item partly within the historic heritage study area that is on the DPIE Historic Heritage Information Management System (HHIMS). The HHIMS is a register of historic heritage assets on National Parks and Wildlife Service (NPWS) estate, and meets the Department's obligations under Section 170 of the *Heritage Act 1977* to maintain a Heritage and Conservation Register (see Table 2.1) The HHIMS recording for the Yanga Pastoral Station Complex notes that the item meets the threshold for State significance, although the item is not currently listed on the SHR and therefore is not currently subject to the extra provisions of the Act that apply to state listed items.

Table 2.1 Heritage listed items partly within the construction impact area

Item name	Item type	Primary Address	Easting	Northing	Item ID
Yanga Pastoral Station Complex	Complex	Yanga National Park	738930	6155413	10607

2.2.2 Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that environmental impacts are considered in land-use planning and development approval processes. One of the objectives of the Act is to promote the sustainable management of built and cultural heritage.

The EP&A Act contains provisions enabling the making of environmental planning instruments. These include State environmental planning policies (SEPPs), which deal with matters of State or regional environmental planning significance within NSW; and Local Environmental Plans (LEPs), which guide planning decisions for local governments.

Planning approval pathways have been created in the EP&A Act to assess projects classed as State Significant Development (SSD) and State Significant Infrastructure (SSI). A range of development types can be declared to be SSD or SSI due to their size, economic value, or if they are in a sensitive environmental area. SSI projects may also be declared to be Critical SSI (CSSI) if they are of a high priority that 'is essential for the State for economic, environmental or social reasons.'

The proposal has been identified as CSSI under the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD). As the identification, assessment and mitigation of potential heritage impacts is managed by the environmental impact assessment process, the heritage provisions of environmental planning instruments do not apply, and the project does not require an approval or an excavation permit under the Heritage Act. Key issues which require detailed assessment are specified in the SEARs, and in the conditions of consent that are set when a project is approved.

There are a number of LEPs applicable to the heritage study area as the construction impact area traverses several LGAs. The environmental heritage schedules from relevant LEPs include:

a. *Wagga Wagga Local Environmental Plan 2010*
b. *Lockhart Local Environmental Plan 2012*
c. *Urana Local Environmental Plan 2011*
d. *Jerilderie Local Environmental Plan 2012*
e. *Murrumbidgee Local Environmental Plan 2013*
f. *Conargo Local Environmental Plan 2013*
g. *Hay Local Environmental Plan 2011*
h. *Wakool Local Environmental Plan 2013*
i. *Balranald Local Environmental Plan 2010*
j. *Wentworth Local Environmental Plan 2011*

Five (5) items are listed on LEPs within the historic heritage study area (Table 2.2). Two (2) of these sites are built heritage items, one is a liquid explosives store and the remaining item is a cemeteries or burial grounds. All are described as having local heritage significance.

Table 2.2 Listed heritage items within one kilometre of the proposed construction impact area

Listing Instrument	Locality	Item name	Item type	Address	Property description	Item no	Distance from construction impact area (m)
Wagga Wagga LEP 2010	Gregadoo	Ivydale	Item - General	10 Ivydale Road	Lot 2 DP333046	I72	150
	Gregadoo	Ivydale Woolshed	Item - General	9 Ivydale Road	Lot 66 DP757231	I73	340
	Uranquinty	Wyadra Grave Site	Item - General	12 South Boundary Road	Lot 48 DP754563	I285	380
	Uranquinty	Liquid Explosives Store	Item - General	88 Hanging Rock Road	Lot 11 DP228780	I287	40
Balranald LEP 2010	Lake Benanee	Burial Ground	Item- Aboriginal	Sturt Highway, east of Euston	Lot 1, DP 92444	I7	252

2.2.3 Policies and guidelines

Arising from the application of heritage legislation, a range of heritage practice standards and guidelines have been developed. Those directly applicable to this study shaped the methodology employed and are listed in section 3.1.

3. Study methodology

3.1 Overview

This report has been developed in accordance with principles of *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013* ('the Burra Charter', Australia ICOMOS 2013), and the following Heritage NSW guidelines:

- *Assessing Heritage Significance* (NSW Heritage Office 2001)
- *Statements of Heritage Impact* (Heritage Office & DUAP 2002)
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Branch, Department of Planning 2009).

This report reviews the heritage framework for the proposal, including relevant legislation and heritage listings; assesses the heritage impact of proposal, and makes recommendations to avoid and minimise harm, and mitigate any adverse heritage impacts.

Key components in the preparation of this report included:

- determination of required survey area
- historical research including heritage register and database search
- field investigation
- significance assessment
- impact assessment, and
- development of management and mitigation measures.

3.2 Historic heritage study area

The study area for this assessment (the historic heritage study area) typically comprises a one-kilometre-wide buffer around the construction impact area of the proposal between the existing Buronga and Wagga Wagga substations, a distance of 540 kilometres. This buffer was applied to identify any historical heritage items within the vicinity of the proposal, which may be indirectly impacted by the proposal.

3.2.1 Historic heritage survey area

Within the historic heritage study area, a narrower corridor was subject to survey (the historic heritage survey area). Field survey was carried out on foot in conjunction with the Aboriginal cultural heritage survey. The historic heritage survey area generally included a 100-metre-wide corridor along the proposed centreline with some broader sections where construction facilities are proposed, or design options are likely. The historic heritage survey area encompasses the construction impact area and was applied to allow for some design refinement to occur in consideration of surrounding heritage values if required. Water supply points were not surveyed but rather subject to desktop assessment only (see 3.7). At only three (3) of the proposed water supply points are infrastructure changes proposed. Existing water survey points would cause no new impact on the heritage values of listed items.

As detailed in section 1.7, access to the full length of the historic heritage survey area of the proposal was limited at some locations as a result of landowner restrictions. Based on the information identified from alternative methods where access has been limited to visual inspection from public land and desktop assessment, should access be granted to these restricted areas at a future date, additional field surveys to assess historic heritage impacts at most of these locations

is not required as there are no physical impacts and negligible visual impacts to these items arising from the construction of the transmission line. The exception to this is the property identified in this report as Nyangay pastoral holding on which an early hut site has been identified during the desktop research. In the latter case verification of the existence of and extant structure and /or archaeological deposit by field inspection is required.

The construction impact area and historic heritage study area is shown in Figure 3.1.

3.2.2 Construction impact area

The construction impact area refers to the area that would be directly impacted by construction of the proposal comprising the following:

- construction of all proposal infrastructure elements (including the proposed transmission line alignment, transmission line easement, substation site works (at both the proposed Dinawan 330kV and upgraded and expanded Wagga Wagga substations), optical repeater infrastructure, and other ancillary works)

- locations for construction elements such as construction compounds and accommodation camps, access tracks (excluding public roads proposed to be used for access routes), site access points, water supply points, laydown and staging areas, concrete batching plants, brake/winch sites and site offices.

This area includes the operational impact area (including areas required for maintenance) as these areas would be established during the construction process.

For this assessment, the construction impact area has been divided into subset disturbance areas. These subsets relate to the identified level of disturbance in each area to reflect construction and operational requirements – specifically:

- Disturbance area A, in which ground disturbance and tree clearing would be required

- Disturbance area A (centreline) in which ground disturbance would be required except in limited circumstances (refer definition below)

- Disturbance area B, in which ground disturbance is not required except in limited circumstances

Further detail of these areas is provided below in section 3.2.3. From time to time during construction and operation, high risk trees may be removed from within, or adjacent to, the easement but outside the construction impact area.

3.2.3 Disturbance areas

The disturbance areas identified below have been applied to this assessment– specifically:

- **Disturbance area A** - refers to an area at and around the transmission line towers, areas for brake and winch sites and for new/upgraded access tracks. The area also includes the proposed Dinawan substation site, the existing Wagga Wagga substation site and each of the main construction compounds and accommodation camps at Balranald, the Cobb Highway, Dinawan (Kidman Way), Lockhart and Wagga Wagga.

  It would include vegetation (including tree) removal and potential sub-surface impacts through construction activities such as grading, excavation, and full tree removal. Except in areas where only temporary disturbance is required (i.e. temporary access tracks and brake and winch sites), this area would also be subject to ongoing maintenance during operation (i.e. removal to ground level) for operational and safety requirements (including bushfire).

  This zone is a subset to the construction impact area (see definition above).

- **Disturbance area A (centreline).** Refers to a centreline area between the proposed transmission line towers in which all vegetation (including trees) would be removed during construction to ground level.

  In areas of known or potential heritage subsurface sensitivity (i.e. potential archaeological deposits (PADs)) sub-surface impacts in these areas would be avoided. In these areas vegetation would be cut to ground level and rootballs would be retained as necessary to avoid subsurface impacts.

  This area would also be subject to ongoing maintenance during operation (i.e. removal to maintain vegetation clearance requirements) for operational and safety requirements (including bushfire).

  This zone is a subset to the construction impact area (see definition above).

- **Disturbance area B,** in which ground disturbance is not required except in circumstances which would require vegetation removal to meet vegetation clearing requirements in the area. Refers to an area in the easement between transmission line towers in which removal of vegetation (including trees) would be undertaken where they have the potential to exceed vegetation clearance heights. This removal may result in temporary ground disturbance.

  Vegetation clearance heights are set by Transgrid for operational and safety requirements, including bushfire risk management.

  This area would also be subject to ongoing maintenance during operation. This zone is a subset to the construction impact area (see definition above).

These disturbance area subsets have been applied to this heritage assessment to determine the potential impact from the proposal based on the proposed alignment and infrastructure locations. There is potential for the final location of these disturbance areas to be modified in some areas based on design refinement. The design refinement process could potentially shift the tower locations and work sites along the alignment to avoid or minimise impacts where possible. This shift would change the location of disturbance area A, a (centreline) and B areas in applicable locations.

3.3 Desktop review

A desktop review of relevant background information relating to historic heritage within the historic heritage study area was undertaken, including:

- A review of relevant heritage registers and databases, including:
  - State Heritage Register
  - State Heritage Inventory
  - HHIMS database
  - Local Environmental Plan heritage registers
  - Section 170 registers for relevant government authorities
- A review of parish maps to identify historical properties along the proposal route

This information was used to map historic heritage items and properties relevant to the proposal and to assist in determining the historical context and setting of the proposal (refer to section 4 of this report).

A range of archaeological and historical data was reviewed to determine if known historical items were located within the historic heritage study area, to facilitate site prediction on the basis of known regional and local patterns of historical occupation, and to place the area within an archaeological and heritage management context. The review of documentary sources included heritage registers and schedules, regional and local histories, heritage studies; pastoral plans, current aerial imagery; and selected parish maps, historical aerial photographs, crown plans and land titles.

This report has been prepared with reference to the following previous reports and investigations:

- Wentworth Shire Heritage Study (Hassell Planning Consultants Pty Ltd and Pardoe 1989)
- Wakool Shire Community Heritage Study 2006 – 2007 (Heritage Archaeology n.d.)
- Lockhart Shire Community-Based Heritage Study (Black Mountain Projects Architects 2006)
- Wagga Wagga City Council Rural Heritage Study [FINAL DRAFT] (Peter Freeman Pty Ltd 2000)
- Wagga Wagga City Council Urban Heritage Study (Peter Freeman Pty Ltd 2002)
- Wagga Wagga Heritage Study Review (NGH Environmental 2013)
- Yanga Conservation Management Plan (Tonkin Zulaikha Greer Architects 2013)

3.4 Field survey and site assessment

The field investigation was carried out in tandem with the Aboriginal cultural heritage surveys and involved physical inspection of the historic heritage survey area across all accessible properties. Overall, 470km of the 540 km route has been surveyed. In the case of the remaining 70 discontinuous kilometres where physical survey was not able to be completed, the area was viewed from the nearest available public vantage point, such as a road, as well as using aerial maps, parish maps and photographs. Any features of historic heritage significance or potential significance, encountered along the historic heritage survey area were recorded.

3.5 Significance assessment

Where an identified item of historic heritage significance has been listed on a heritage register and has an existing prepared statement of heritage significance, then that assessment has been accepted. Where new potential historic heritage items or features were discovered as part of the field investigations, then it was assessed against the NSW assessment criteria (see Heritage Branch Department of Planning 2009), consistent with the guidance provided in *The Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS 2013).

Using the assessment of historic heritage significance, the proposal is considered, and an impact assessment made. The impact assessment for the proposal has considered the potential for direct and indirect impacts on heritage based on the disturbance areas as defined in Section 3.2.3.

3.6 Heritage impact assessment

Using the assessment of historic heritage significance, the proposal is considered, and an impact assessment made. The impact assessment for the proposal has considered the potential for direct and indirect impacts on heritage based on the disturbance areas as defined in Section 3.2.3.

The proposal components could impact heritage items in the following ways:

- total direct harm or disturbance to all surface and/or subsurface features at an item. This would generally result a total loss of heritage value at a site. An example of a direct impact for the proposal is the installation of a transmission towers.
- partial direct harm or disturbance, where direct impacts would occur to only some of the surface and/or subsurface features at an item. Partial direct harm generally results partial loss of value at a site. An example of a partial direct harm would be where part of a site is impacted due to the installation of an access track or transmission line infrastructure
- potential direct harm or disturbance (total or partial), where direct impacts are occurring adjacent to sites, or where vegetation clearance/maintenance requires the use of heavy machinery to be active near sites. Such impacts would likely be inadvertent.
- indirect impacts, including to the views to and from heritage items.

Indirect impacts could include impacts from vegetation clearance and visual impacts to cultural values and views.

To assist in understanding the impacts and how they apply across the construction impact area and in relation to the identified heritage items the proposed transmission line easement has been characterised in terms of the nature of disturbance into Disturbance Areas A and B. These terms are defined in Section 3.2.3.

Impact to heritage items through this study are assessed in the light of these potential impacts in section 7.

3.6.1 Cumulative impact assessment

The concept of assessing cumulative impacts aims to avoid discussing the impact of a development in isolation and aims to assess the impact in terms of the overall past and future degradation of a region's heritage resource.

The assessment of cumulative impacts of the proposal has considered projects that are currently under development, or at the planning state stage that may also influence the assessment of this project's proposal's potential impacts. Projects with the potential for cumulative impacts with the proposal were identified through a review of publicly available information and environmental impact assessments from the following databases:

- NSW Major Projects website (NSW Government, searched October 2020)
- Wagga Wagga, Narrandera, Edward River, Murray River, Balranald, Hay council websites (searched October 2021)
- Australian Government – Department of Environment and Energy, EPBC Public notices list (Australian Government, searched October 2020).

Cumulative impacts are discussed in section 8 of this report.

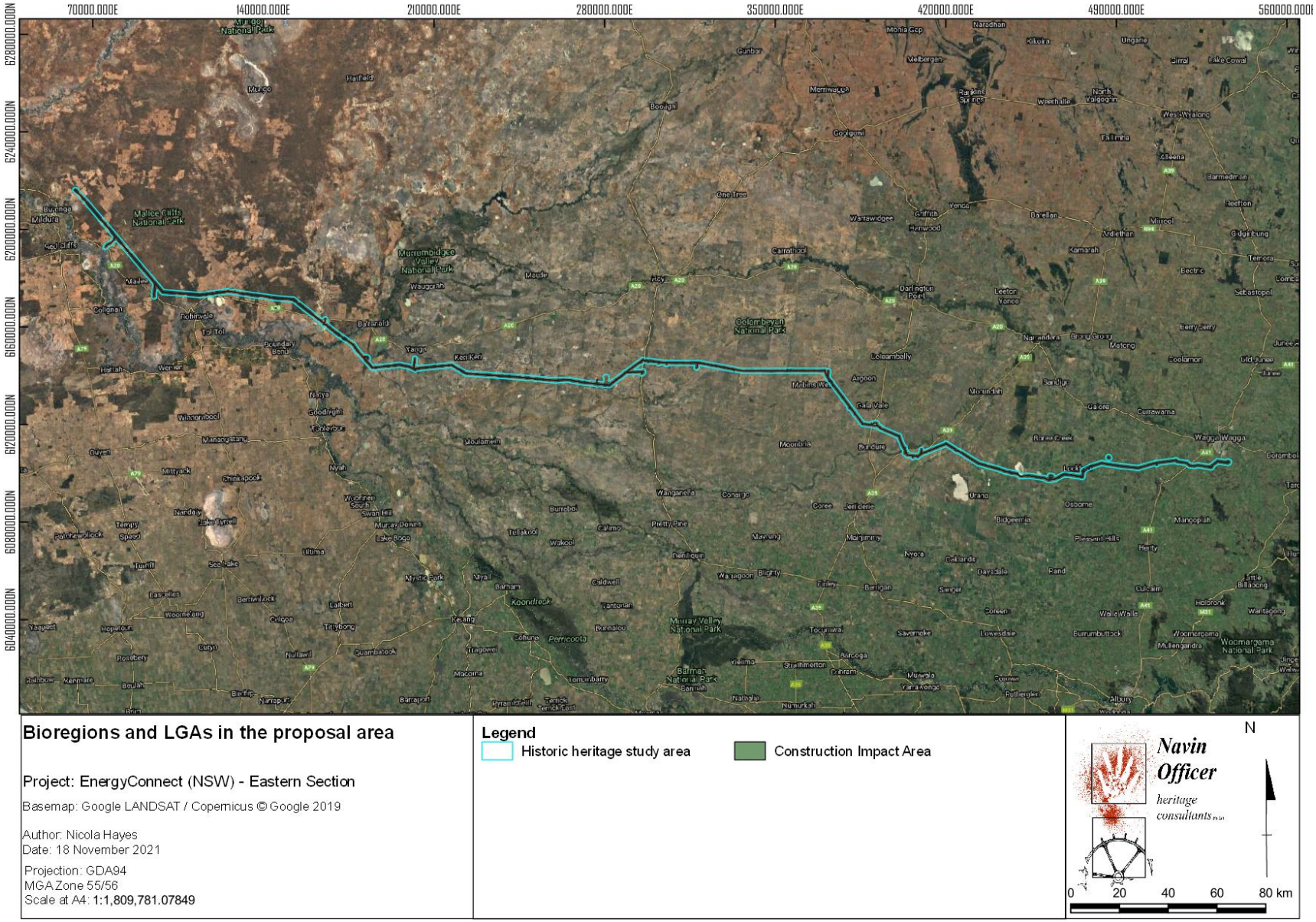

Figure 3.1 Overview of historic heritage study area and construction impact area

3.7 Desktop assessment of construction water supply points

There are 26 proposed construction water supply points for the proposal. One of these points requires installation of a new pipe, two are yet to be confirmed, and the remainder (23) are using existing infrastructure which would not have impact on heritage values. Table 3.1 lists the proposed new water supply point and the location of the two for which the connection type is yet to be confirmed. The new pipe would be a new short section of pipe between an existing connection point and the proposed Dinawan substation. It would require a small trench and installation of a pipe to connect water to the Dinawan substation site for construction (adjacent to the proposed transmission line alignment). The historic heritage survey area includes the location of this pipe.

There are no known heritage items within 200m of the new water supply points. While the connection type has not yet been determined for two water supply points, current advice is that impact to ground surface is not expected. Desktop assessment has revealed no heritage items within the immediate vicinity of these locations. Should the scope of works change with design finalisation process at the site and works proposed that will impact on listed heritage items then further assessment would be required to confirm no impacts to historic heritage items.

Table 3.1 New and TBC Indicative water supply points

Location	Typical use	Connection type
Wanaganella	All proposed uses	TBC
Ashfords Road	Office/Welfare, Dust suppression, earthworks, washdown	New pipe connecting to existing infrastructure
Gregadoo Waste Management	Dust suppression, earthworks, washdown	TBC

4. Historical context

4.1 Historical overview

This section provides a general overview of events relevant to understanding the historical context of the historic heritage study area.

In 1829-30, Captain Charles Sturt led an expedition to the interior of south-eastern Australia "for the purpose of tracing the Morumbidgee [Murrumbidgee River], or such rivers as it might prove to be connected with, as far as practicable" (Sturt 2001 [1833]). After reaching its junction with the Lachlan on 25 December 1829, the party proceeded by whale-boat and on 14 January 1830 were the first Europeans to reach a "broad and noble river", which was later named the Murray in honour of Sir George Murray, the secretary of state for the colonies (Gibbney 1967). Sturt published a popular account of the journey in 1833, as part of the 2-volume work *Two Expeditions into the Interior of Southern Australia*, including observations on soil, climate and natural resources. While his book is credited with adding to the geographical knowledge of the interior, his assessment of the agricultural and grazing potential of the region was less than favourable: he described extensive and barren plains along the lower Murrumbidgee characterised by red sandy soil and covered with saltbush, with adjacent alluvial land "so extremely small as scarcely to afford food for our cattle"; and the forested Murray valley was considered potentially flood-prone and likely to "require much labour before it could be brought under cultivation" (Sturt 2001 [1833]; Beissel 2001:7).

In 1836, Major Thomas Mitchell passed to the east of Wagga Wagga on the return journey from his expedition to trace the course of the Murray River upstream from the Darling, noting that much of the area along that part of the Murrumbidgee was settled (NGH Environmental 2013:4). However, the plains further west remained lightly occupied, perhaps because of the influence of Sturt's account (Beissel 2001:7).

From the late 1830s to the 1850s, large tracts of land along the Murrumbidgee and Murray Rivers began to be taken up by European settlers, who, like the explorers, followed the rivers inland. Pastoral runs were established along river and creek frontages, followed by the less well-watered 'back blocks' (O'Gorman 2012:71; Beissel 2016:8-11). This pattern of settlement is illustrated in an 1860 Reuss & Browne map showing pastoral runs in NSW (Figure 4.1).

The unauthorised occupation of Crown lands for pastoral purposes, known as squatting, ignored the 'limits of location' of the colony established by Governor Ralph Darling in 1826, which was extended to the nineteen counties surrounding Sydney in 1829 (State Library of New South Wales 2016). In an attempt to regulate squatting beyond these limits, the colonial government began to issue annual licences for depasturing stock on unsettled Crown lands in 1837. However, this approach meant there was no security of tenure providing incentive for squatters to make improvements to the holdings. The boundaries of squatting runs were also not formalised, as Crown surveys had not been undertaken (Campbell 1968:9-12). The 'Squatters' Act of 1846[1], enabled by Orders in Council of 1847, allowed squatters to apply for 14-year leases of their runs for pastoral purposes, which came with the pre-emptive right to purchase. By the 1840s, most of southeastern Australia had been leased (Stuart 2007:43-44).

The Robertson Land Acts (consisting of the *Crown Lands Alienation Act 1861* and the *Crown Lands Occupation Act 1861*) were introduced in 1861 and regulated the sale and lease of Crown lands. The Acts were considered a means to "unlock the lands" for small landowners to establish farms and enabled any person to select up to 320 acres (130 ha) of Crown land in the unsettled

[1] *An Act to amend an Act for regulating the sale of Waste Lands belonging to the Crown in the Australian Colonies, and to make further provision for the management thereof* (9 & 10 Vic. c104)

districts prior to survey (whether vacant or under pastoral lease, unless the leased land contained improvements) and purchase the freehold at £1 per acre. (Spooner 2005:56; Allen 2012:3-4). The sale was conditional on the selector residing on the land, paying a deposit of one quarter of the purchase price, and adding improvements to the value of £1 per acre (State Archives & Records 2015).

The management of pastoral runs was changed by the Crown Lands Act of 1884, which decentralised land administration and divided New South Wales into three districts: the Eastern, Central and Western Divisions. New types of land tenure were introduced, including grazing licences, homestead leases, conditional leaseholds, and pastoral leases. Each district had a local land board to administer leases and permits (Hanson, 1889; National Museum of Australia, 2021; NSW Land Registry Services 2020). Pastoral runs were divided into two equal areas; leasehold areas, for which a pastoral lease could be granted to a squatter, and resumed areas, which could be leased under an annual occupation license but were available for selection (Hanson 1889:ii; Stuart 2007:45). Pastoral maps were prepared recording the division of the runs into leased areas and resumed areas. The leased areas had usually undergone improvements, which were sometimes shown on the maps (NSW Land & Property Information 2013).

The pastoral holdings with runs located along the historic heritage study area are mapped in Figure 4.2, and identified in the Table in Appendix 2. The table also includes the name of the registered pastoral holder recorded in *The Pastoral Possessions of New South Wales* (Hanson 1889), a description of the improvements shown pastoral holding maps, as well as topographical features, transport routes (roads and railway lines), and land reserved from sale of lease (much of which was for purposes relating to the movement and watering of stock). An analysis of the maps across the historic heritage study area indicates typical improvements on these properties included tanks, drains, wells and pumps, and paddocks, yards and fencing. Ongoing drought in the 1880s led to an economic depression in the 1890s. Drops in wool prices resulted in pastoralists unable to pay the higher wages that shearers were paid prior to the 1880s. Shearers strikes occurred across Australia mainly in New South Wales, Victoria and Queensland and resulted in the formation of the Amalgamated Shearers Union of Australasia (ASU). Some of the station properties within the historic heritage study area such as Brookong and Yanga were settings for significant confrontations in this period of unrest. At Yanga (now the Yanga Pastoral Station Complex) the original woolshed was burned down during disputes between shearers and pastoralists in the 1890s when Yanga used non-union shearers (Tonkin Zulaika Greer Architects 2013:344).

Figure 4.1 Detail from *Reuss & Browne's map of New South Wales and part of Queensland shewing the relative positions of the pastoral runs, squattages, districts, counties, towns, reserves &c.* [1860] (National Library of Australia MAP NK 5928)

Large pastoral runs with river frontages and back blocks are shown along watercourses including the Murrumbidgee and Murray Rivers. The Lower Lachlan Squattage District is shaded in green, and the Murrumbidgee District in yellow. Modern place names are annotated on the map.

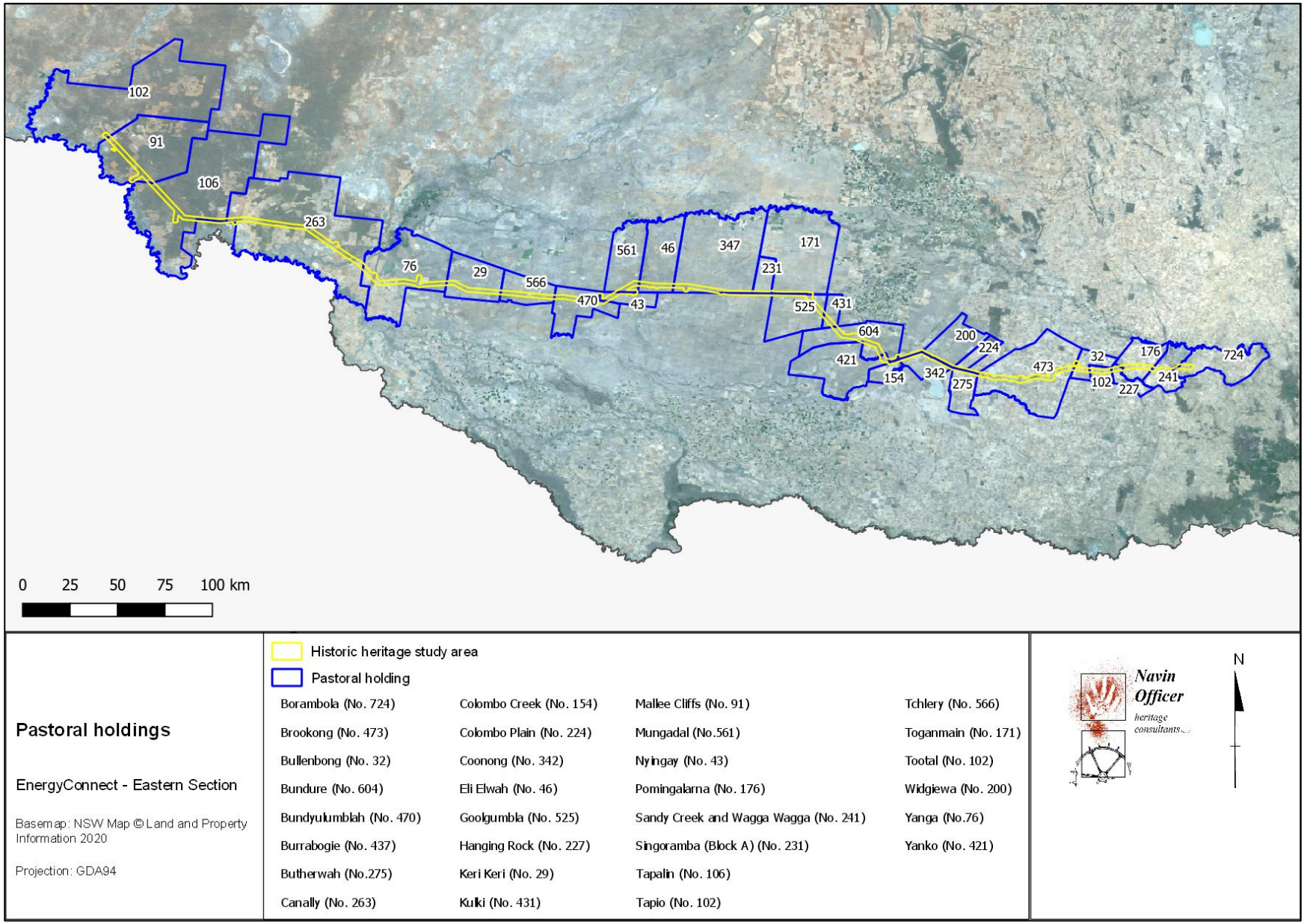

Figure 4.2 Map of historical pastoral holdings along the historic heritage study area

Until the mid-1850s, the primary means of transporting goods and supplies to inland pastoral properties was by cart and dray, or wagons drawn by horse or bullock teams, with wool and other produce carried on the return trip. Steamboat navigation of the Murray River commenced in mid-1853, and the Murrumbidgee by mid-1858 (Beissel 2008: 12; Bayley 1979: 48).

Between 1861 and 1870 the river boat or steamer trade encouraged growth in the region, with stations situated on river frontages able to take advantage of the river trade (Hassell Planning Consultants Pty Ltd 1989:12, 29). Settlements began to be established at points of exchange along the river, where steamships could renew their supplies of wood. A series of locks and weirs was completed on the Murray River by 1929 to assist with navigation and pumping (Hassell Planning Consultants Pty Ltd 1989:12).

The importance of river transport declined following the advent of the railways, which opened up new social and economic opportunities for rural communities; attracting small holders to settle in the Riverina, bringing in supplies, and transporting sheep and wool to market (Gammage 1986: 107-108; Beissel 2008:14).

Two sections of line pass through the historic heritage study area; The Southern Line and the Tocumwal branch line. The Southern Line, also known as the Southern Main Branch Line, was constructed in stages between 1855 and 1881, from Parramatta Junction (Granville) to Albury near the Victorian border and was connected to the Victorian Railways in 1883. Offshoots from this line branched out to service the rural community providing safe and cost-effective transport for passengers and produce. Many of these branch lines have since closed, including the one from The Rock to Oaklands. The Tocumwal branch line ran between Narrandera to Tocumwal. It opened to Jerilderie in 1884, and was extended to Berrigan (in 1896), Finley (1898) and Tocumwal (1914). The line closed in 1988, although the track and much of the associated infrastructure is still in place (Bozier 2021) (Figure 4.3).

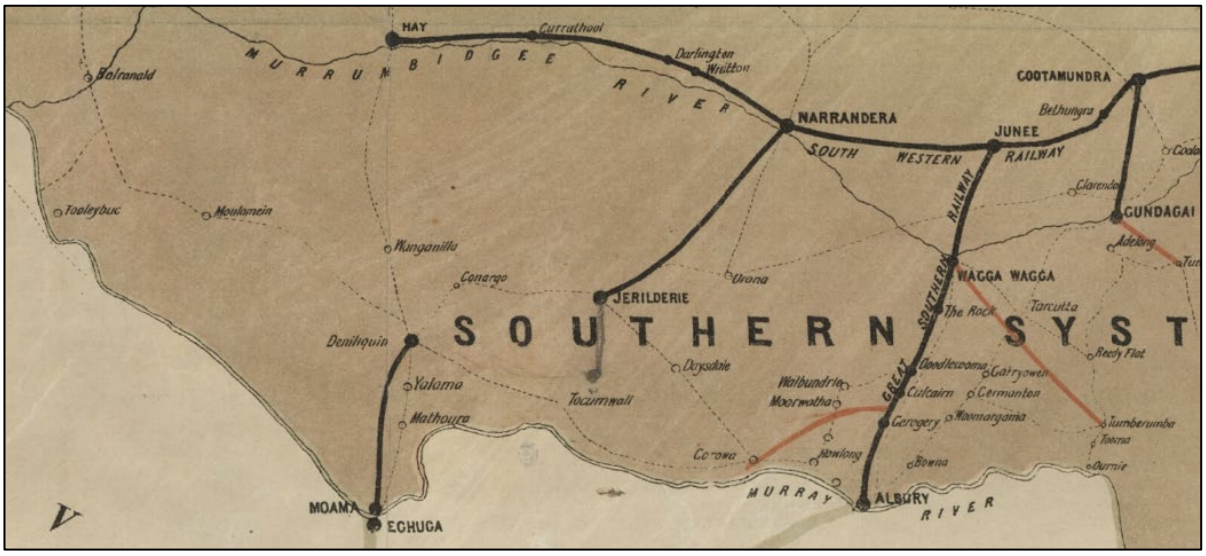

Figure 4.3 Detail from 1887 'Railway map New South Wales railways' showing the Great Southern Railway Line and Narrandera-Jerilderie section of the Tocumwal Branch line, with the extension of the line to Tocumwal sketched in (Department of Railways, SLNSW Z/M2 810gme/1887/1)

4.1.1 Towns and villages

Every village and town have their own history. Due to the changing climatic conditions across much of the historic heritage study area, the population in many places has swelled and shrunk over the years due to drought, changes in primary production, and accessibility of transport. The following places are localities within the historic heritage study area.

Buronga

Buronga was officially declared a village on 17 March 1939. Prior to this, the area was known as Hendy or Hendytown, located on the northern bank of the Murray River opposite the Victorian river port of Mildura (*The Sydney Morning Herald*, 5/7/1937, p.11; *The Argus*, 5/7/1937, p.9). The first steamboats started to provide transport for people and goods along the Murray in 1853. River transport was the vital route for wool to Echuca (the Victorian railhead) or to Goolwa in South Australia and declined only in the twentieth century.

It wasn't just travel along the river that was important, crossings across the River where essential to access services and transport goods. Punts were initially used at Wentworth (on the Darling), Abbotts Ford, Gol Gol and Pooncarie (Hassell Planning Consultants and Pardo 1989) where in some cases it was possible to ford the river during low water or times of drought. The last punt service closed following the opening of the Mildura Bridge in October 1927. This original bridge was designed to carry both road and rail transport (although the rail line did not proceed).

The Buronga Irrigation Area was proclaimed in 1956 and the bridge enabled the subsequent development of the village (*Government Gazette of the State of New South Wales* 3/4/1958, p.1015; Wentworth Shire Council 2010). The Mildura Bridge was replaced by the current George Chaffey Bridge in March 1985 (*Sunraysia Daily*, 22/10/1927).

The 1926 map of the Parish of Mourquong is annotated with the later additions of part of the Buronga Irrigation Area to the north of the village, the bridge across the Murray River, and adjacent punt before its closure (Figure 4.4).

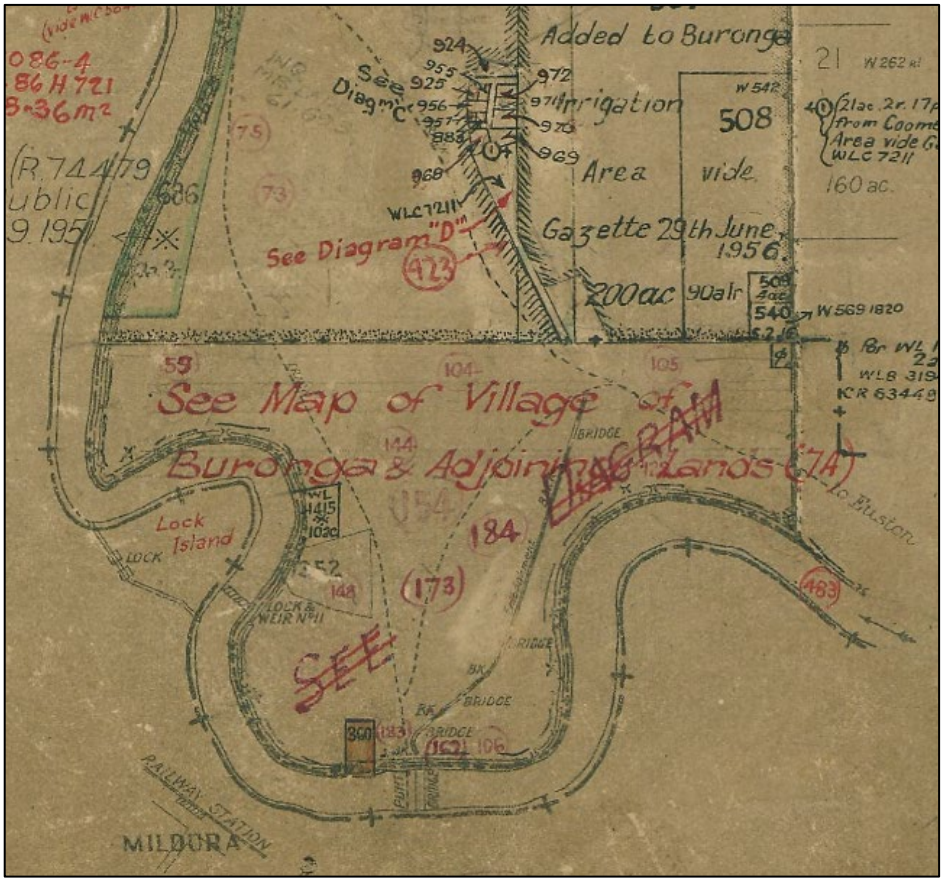

Figure 4.4 Detail from 1926 map of the Parish of Mourquong, Sheet 1, 4th Edition (Historical Land Records Viewer, Land Registry Services (HLRV LRS).

Gol Gol

Gol Gol was proclaimed as a township in 1866, but the village allotments were not occupied until the late 1870s. Gol Gol is located on the Murray River to the east of Buronga, was noted as being an historically important coach and steamer stop (Hassell Planning Consultants Pty Ltd 1989:21).

Lockhart

Lockhart was originally known as Green's Gunyah after Jacob Green (referred to as "Jimmy" or "Ned"), who owned a shanty inn on the south side of Brookong Creek, approximately two miles (~3.2km) from the current town (Black Mountain Projects Architects 2006:20, 29, 51; Cowin 1948). Located on Brookong Station, the inn reportedly became a change station for coaches running between Wagga and The Rock (Black Mountain Projects Architects 2006:51).

The site for the village was surveyed by Maurice Barlow, following a petition to the colonial government in 1894. The village was proclaimed on 30 December 1896 and was named Lockhart after the Commissioner of Crown Lands, Mr. C. G. N. Lockhart. In 1897, twenty blocks near the village (averaging 480 acres each) were opened for selection. Considered "first-class" for either grazing or agriculture, the land quickly sold (*Wagga Wagga Advertiser* 3/9/1896, p.2; Black Mountain Projects Architects 2006:52). At the time, the village contained a hotel and attached post-office, blacksmith's shop, store, and one or two residences, with occupation focussed on the north west side Urana Street (*Wagga Wagga Advertiser* 3/9/1896, p.2; 27/4/1897, p.3) (Figure 4.5).

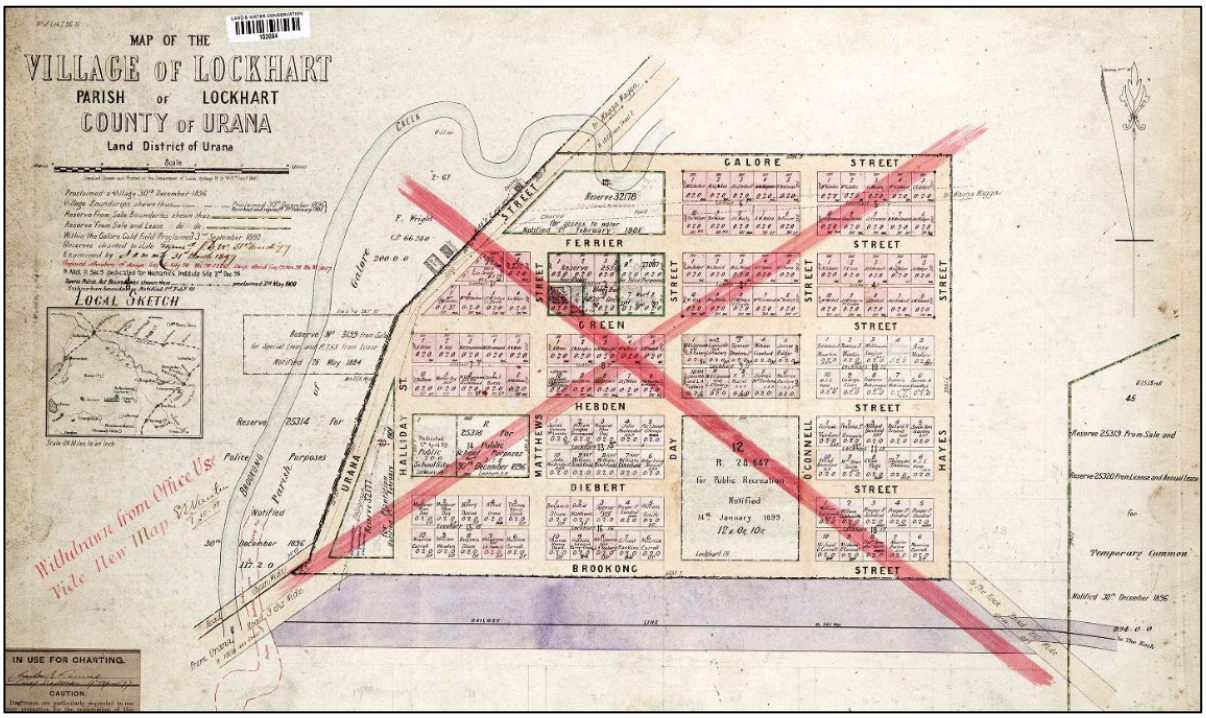

Figure 4.5 Map of the village of Lockhart, Sheet 1, 1st Edition (HLRV LRS).

Uranquinty

The town of Uranquinty had its origins as a siding on the Great Southern Railway (the original station was known as Sandy Creek and opened in 1880). Stores and services developed around the station, where local farmers would bring their wheat to be shipped to Sydney (in NGH Environmental 2013:27). Initially proclaimed as the village of Glenrouth in 1888, the name was altered to Uranquinty in 1899 (*New South Wales Government Gazette,* 30/6/1899).

In 1941, the Department of Defence requisitioned land to build a training base for pilots as part of the Empire Air Training Scheme, and the Number 5 Flying Training School was established near the village (NGH Environment 2013:28).

In 1948, the base was converted into a migrant reception and housing centre expected to accommodate approximately 1,000 women and young children, until private homes could be found by the families. The men were to be sent as laborers throughout NSW and Victoria for two years, in accordance with the terms of the Commonwealth Immigration Scheme (*The Sydney Morning Herald* 8/2/1949). “The Uranquinty migrant camp had a profound impact on the towns, as the post war migrants were part of the first wave of change that shifted Australia from a largely British to a multicultural society” (Wilton & Bosworth 1985, cited in NGH Environment 2013:9). The Royal Australian Air Force (RAAF) decided towards the end of 1951 to convert Uranquinty back to a RAAF base to train pilots for service in Korea. At the time, there were 900 residents at the Uranquinty Migrant Centre, many of whom were moved to Bonegilla, Victoria: “Most of the migrants have left the local immigration camp and their place has been taken by Airmen, who are preparing for the incoming trainees” (*Daily Advertiser* 10/12/1951, p3).

Wagga Wagga

In 1832, former convict George Best established a pastoral run which he named ‘Wagga Wagga’ on the south side of the Murrumbidgee River. Many of the early European settlers in this area were convicts; the NSW census papers from 1841 indicate that 31.6 percent of the Wagga population were serving convicts, and 25 percent former convicts (Swan 1970:26-27).

Wagga Wagga was gazetted as a village on 23 November 1849 and grew quickly, becoming an important junction between Sydney and Melbourne during the goldrushes in the 1850s. A substantial red brick post office was built on Fitzmaurice Street in 1869 which was used as a post and telegraph office. The towns of Wagga Wagga North and South were proclaimed on 20 March 1885. The Wagga Wagga telephone exchange opened in 1890, and by 1913 work had begun on installing the line underground as private subscribers grew (NGH Environmental 2013:11).

Sheep breeding in Australia increased in the 1840s, influenced by the growth of the textile trade in Europe. The demand for wool from English manufacturers meant that wool prices were high (NGH Environmental 2013:20). The population increase gold rushes led to an increase in demand for meat, and the Riverina played a notable role as a fattening site for sheep destined for the domestic Victorian market.

Agricultural production gained in importance from the 1870s. The extension of the Main South railway line to Wagga Wagga in 1879 made it possible to transport wheat out of the region for sale in Sydney. By 1901, NSW had emerged as Australia's primary producer of wheat, and the Riverina accounted for around one third of the area under cultivation (NGH Environmental 2013:10-11).

5. Physical context

5.1 Location of proposal

The proposal extends for approximately 540 kilometres between the existing Buronga substation to the existing Wagga Wagga substation. The proposal is located within the Wentworth Shire, Balranald Shire, Murray River, Edward River, Hay Shire, Murrumbidgee, Federation, Lockhart Shire and Wagga Wagga LGAs in regional western NSW.

5.2 Environmental context

Australia's landscapes have been classified into bioregions as part of a national and regional framework for conservation planning and assessment (NPWS 2003) (Figure 5.1). The classification system is based on physical environmental attributes including climate, lithology, geology, landforms and vegetation (Thackway and Cresswell 1995). These large, geographically distinct areas of land have been further refined into more localised and homogenous geomorphological units known as subregions (Department of Agriculture, Water and the Environment, n.d.).

The proposed transmission line easement extends across three different bioregions: the Murray Darling Depression, Riverina and NSW South Western Slopes.

5.2.1 Murray Darling Depression bioregion

The Murray Darling Depression Bioregion covers a broad swathe of southwestern NSW, as well as northwestern Victoria, and eastern South Australia and is characterised by extensive undulating plains, linear and parabolic dunes, and lakes. The bioregion includes the Murray, Murrumbidgee, Lachlan, Darling, Barwon, Yanda River and Peacock Creek catchments and is dominated by a hot semi-arid climate with predominantly winter rainfall, and hot summers and mild winters. The vegetation consists mainly of mallee shrublands with a chenopod shrub understorey, rosewood–belah open woodlands and blue bush chenopod shrublands. Leasehold grazing is the major tenure in rangeland areas, and small freehold blocks exist on the interface with the cropping zone.

The sediments of the basin are Tertiary and Quaternary deposits formed during by shallow seas, and later lakes, and rivers. Aeolian sands of the Woorinen formation overlay many of these deposits forming the dunes and sandplains that characterise the bioregion today. Other geomorphic categories in the region include alluvial plains, playas, and basins.

5.2.2 Riverina bioregion

The Riverina bioregion is characterised by extensive riverine floodplains with low relief, associated with the Murray, Murrumbidgee and Lachlan Rivers. The climate is dominated by dry semi-arid climate and characterised by hot summers and cool winters. The geology and geomorphology of the bioregion is similar to that of the Darling Riverine Plains Bioregion. The upper catchment landscape is a series of overlapping, low gradient alluvial fans. The lower tract of the river is a floodplain with overflow lakes.

The bioregion is dominated by river channels, floodplains, back plains, swamps, lakes and lunettes that are all of Quaternary age. The region comprises three overlapping alluvial fans centred on the eastern half of the Murray Basin. Modern river channels consist mostly of sandy soils and more saline heavy grey and brown clays towards the outer perimeter of the floodplains on the higher rarely flooded terraces. Sandy soils also form levees, old channels, dunes and lunettes. As soil and water salinity increase downstream on the Murrumbidgee, saline clays become evident on lake floors.

Vegetation is predominated by chenopod shrublands and associated grasslands. Other vegetation types include box woodlands, mallee woodlands, native grasslands and wetlands.

5.2.3 NSW South Western Slopes bioregion

The Southwestern Slopes bioregion comprises an extensive area of foothills and isolated ranges comprising the lower inland slopes of the Great Dividing Range extending from north of Cowra through southern NSW into western Victoria. The bioregion is dominated by a sub-humid climate characterised by hot summers and no dry season. Geology, soils and vegetation are complex and diverse but typified by granites and meta-sediments, texture contrast soils and a variety of eucalypt woodlands.

The bioregion lies wholly in the eastern part of the Lachlan Fold Belt which consists of a complex series of north-to-north westerly trending folded bodies of Cambrian to Early Carboniferous sedimentary and volcanic rocks. Limited areas of Tertiary basalt with underlying river gravels and sands occur, and as the country becomes lower to the west and north, wide valleys filled with Quaternary alluvium and occasional lakes become the dominant landscape form.

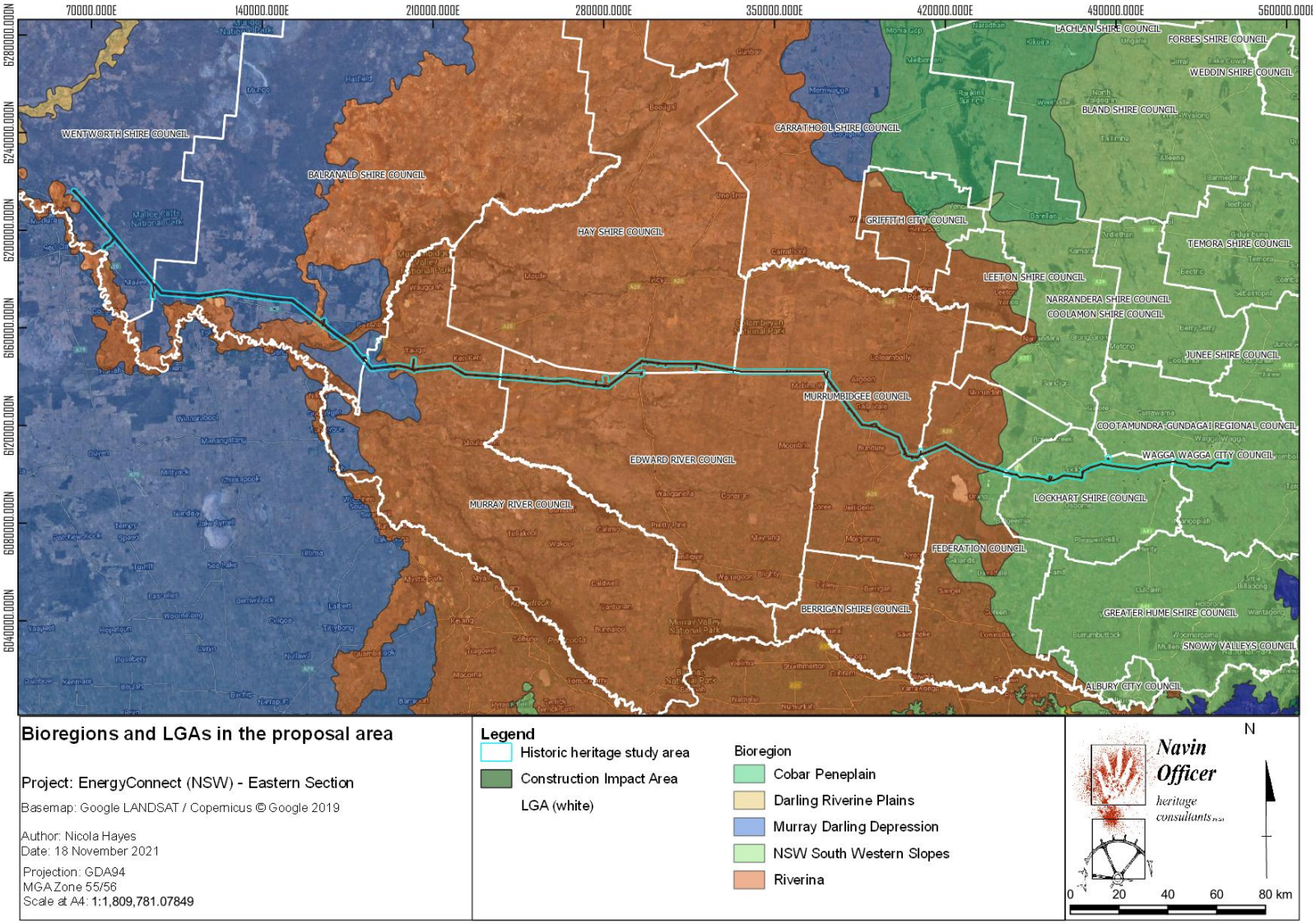

Figure 5.1 Bioregions and LGAs across the historic heritage study area

5.3 Land use

The historic heritage study area has been subject to varying degrees of disturbance by historical activities. The native vegetation was variably cleared in the historic period and is now a mixture of open pasture, mallee scrub and open forest.

In the western parts of the heritage study area, land use is predominantly large sheep stations, and in the eastern extent, smaller sheep and cattle farms dominate. Land use, particularly around Lockhart and Wagga Wagga, includes cropping activities to grow fodder and other crops such as canola. Properties subject to overstocking and cropping have been heavily degraded, and laser levelling is evident over much of the central and eastern parts of the historic heritage study area.

The length and changing landscape within the Historic heritage study area means that land use varies widely across length of the proposal. Much of the land is currently privately owned and used for agriculture or grazing, however other land uses include infrastructure developments, forested areas (Yanga State Conservation Area, Cullivel State Forest and Brookong State Forest). The proposal also crosses or runs parallel to transport routes (roads and railway lines). Many of these are currently in use, however some are now abandoned.

The historic heritage survey area runs roughly parallel to, and follows, established transmission lines along much of its length. Installation and maintenance of the transmission lines have also disturbed the ground including access tracks and ground works for the high voltage cable.

Figure 5.2 Examples of the views along the proposed transmission line easement parallel to existing transmission line X5, showing existing disturbance

5.4 Listed heritage items in the vicinity of the historic heritage study area

A number of listed heritage places occur in the vicinity of the historic heritage study area. Their physical relationship to the proposal is shown on Figure 5.3 to Figure 5.6. In most cases the proposal would have no physical impact on these items, but it has the potential to be visible from the locations of some of the items. The exception to this is the Yanga Pastoral Station Complex which the construction impact area traverses. This will be discussed in more detail in section 5.4.2.

The closest listed items to the construction impact area (Table 2.2) are listed below with distance from construction are at closest point noted.

- Burial Ground Balranald LEP 2010 #I7 ~250m
- Yanga Pastoral Station Complex HHIMS #10607 – 0m
- Parkers Sheep Yards; Willow Precinct HHIMS #10626 ~695m
- Wyadra Grave site Wagga Wagga LEP 2010 #I285 ~380m
- Liquid explosives store, Uranquinty Wagga Wagga LEP 2010 #I287 ~40m (edge of property, building not visible)
- Ivydale Woolshed Wagga Wagga LEP 2010# I73 ~340m
- Ivydale Wagga Wagga LEP 2010 #I72. ~150

The only one of these directly impacted by the proposal is the Yanga Pastoral Station Complex as part of this property is traversed by the proposal.

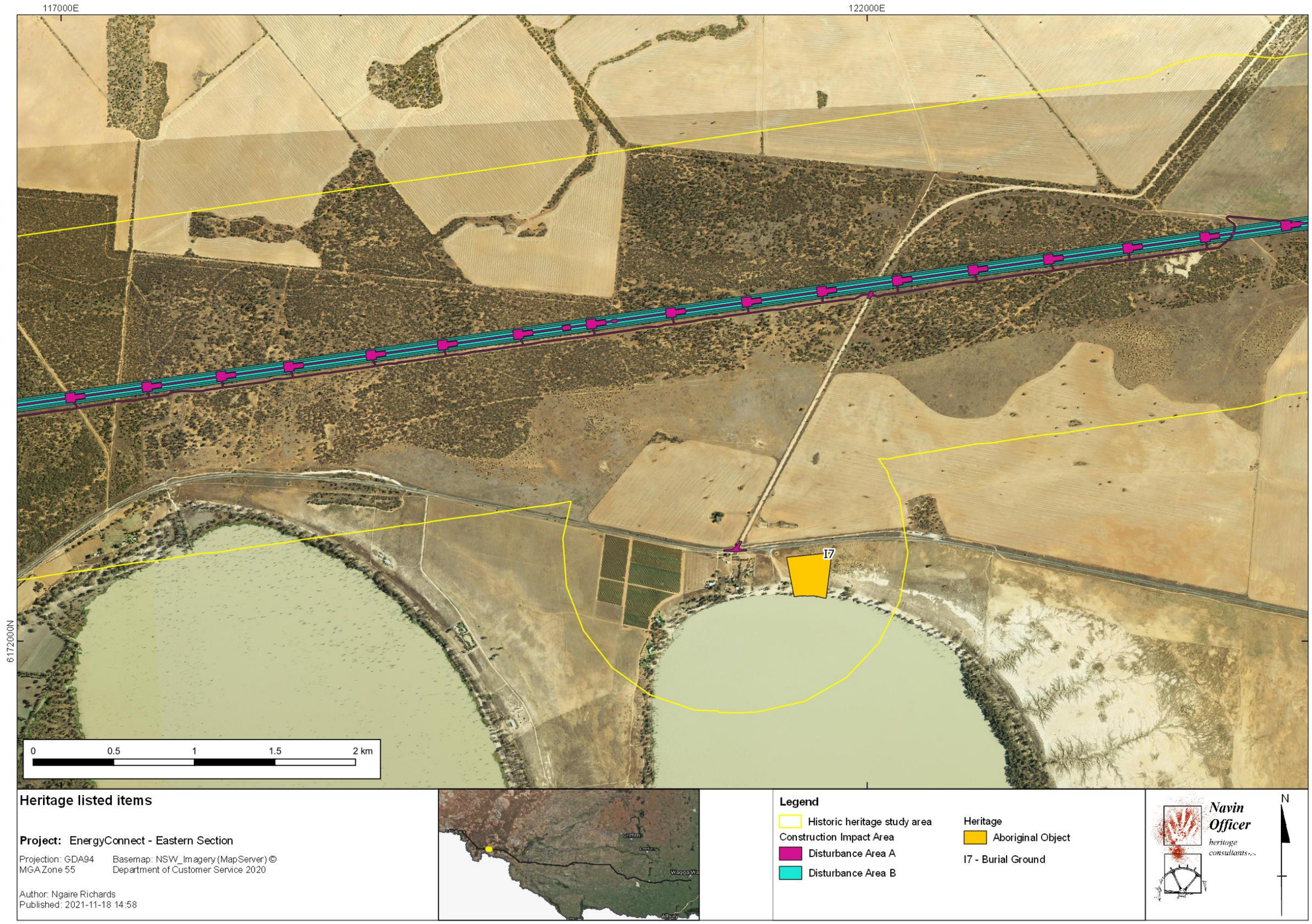

Figure 5.3 Listed historic heritage items in the historic heritage study area – map 1 (Balranald)

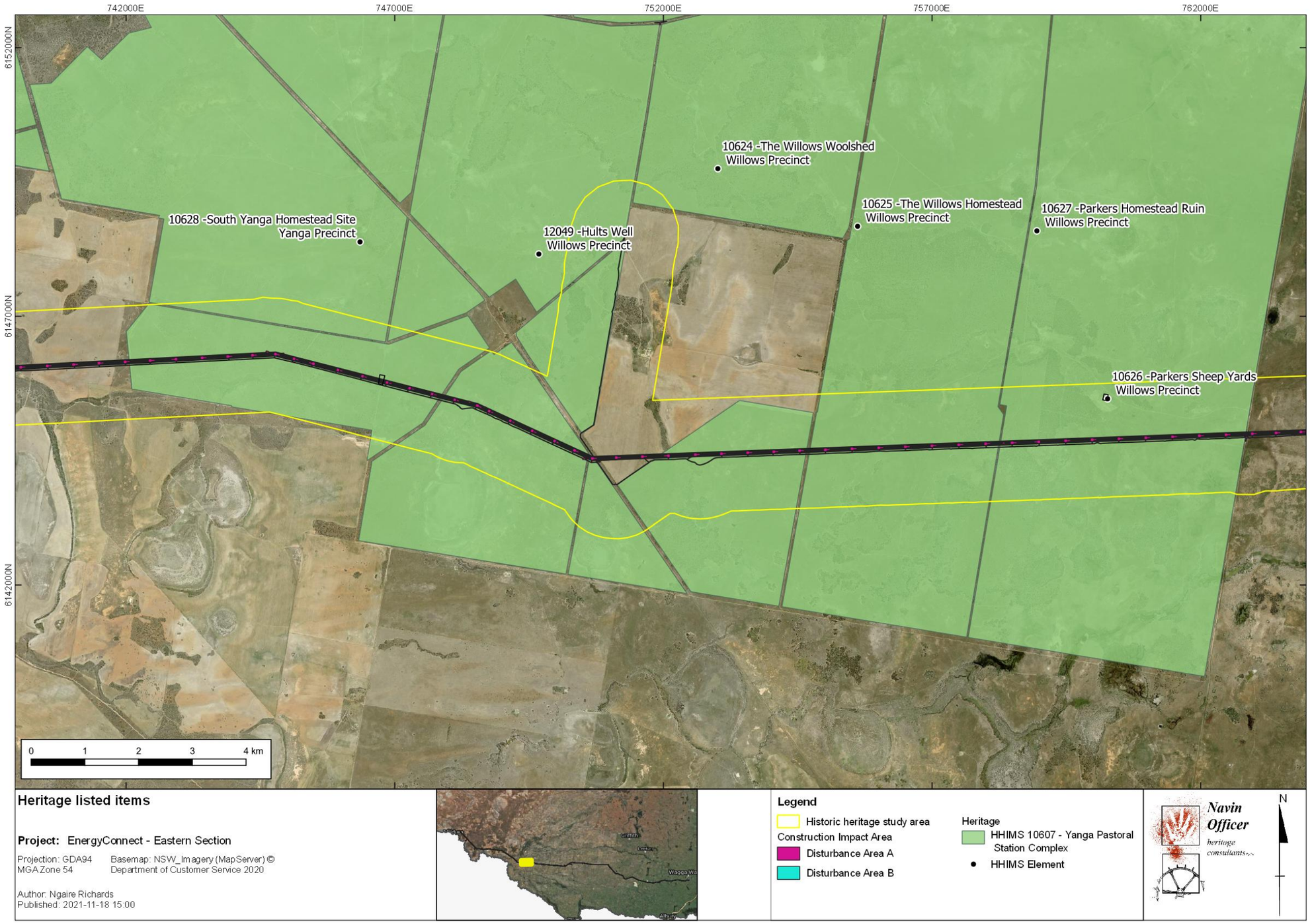

Figure 5.4 Listed historic heritage items in the historic heritage study area – map 2a (Yanga)

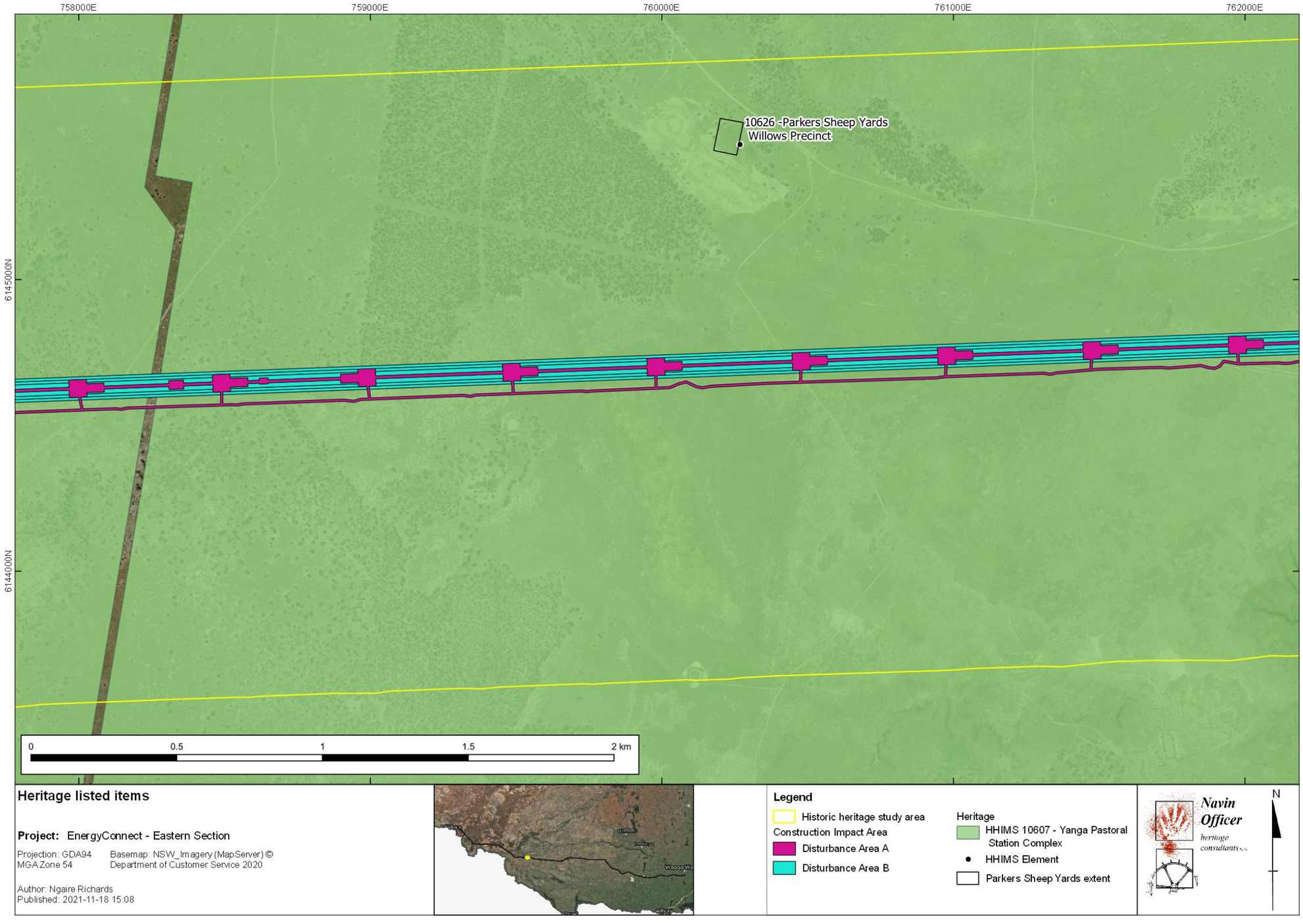

Figure 5.5 Listed historic heritage items in the historic heritage study area – map 2b (Yanga detail)

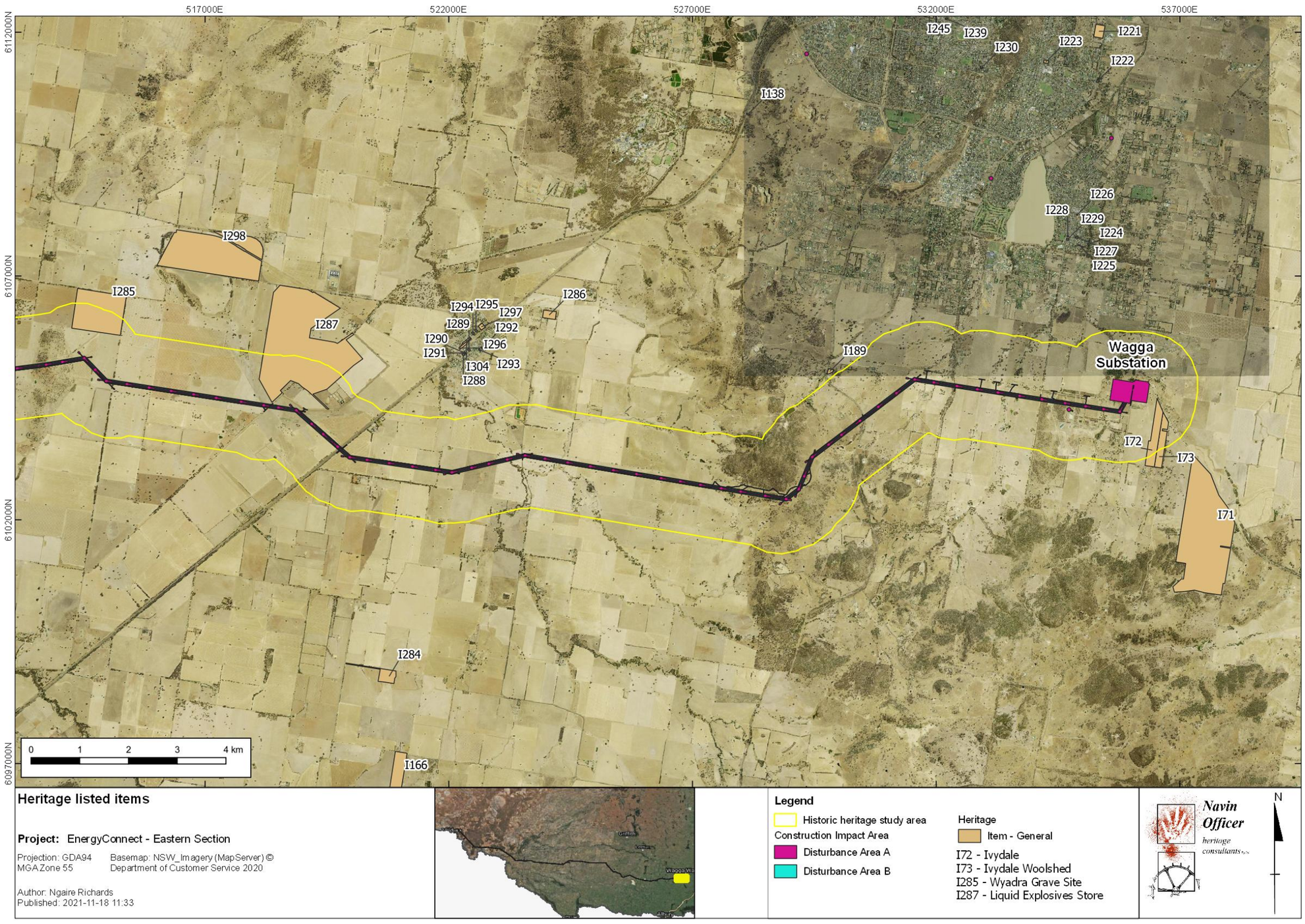

Figure 5.6 Listed historic heritage items in the historic heritage study area – map 3 (Wagga Wagga)

5.4.1 Burial ground

A pre-contact burial ground on the northern shore of Lake Benanee is listed on the Balranald LEP as an Aboriginal heritage item with local significance (#I7). No heritage listing sheet for the site is available; however, the site was recorded by Hope in the 1980s, and the area described as follows:

> *There are two access tracks from the Sturt Highway, which runs about 250 m north of the northern shore of the lake. These join at a car parking area, with toilet blocks, and a further track runs across a wide sandy beach to the lake shore to allow boat launching. The tracks and parking area are surfaced with gravel brought in from elsewhere.*
>
> *In 1984…*[illegal] *sand quarrying near the picnic area was disturbing burials. When Hope visited the site, it was obvious that the burials were only part of the archaeological material present. A fairly even scatter of mussel shell was observed over virtually the whole of the lunette surface inspected (about 1 km east from the westernmost access road). Some of this was extremely fragmented, probably as a result of the long-term exposure to weathering, but some consisted of well-preserved shells apparently* in situ.
>
> *The shell and the two disturbed burials observed were in a sandy clay matrix which was grey in colour, possibly due to a component of charcoal (Clark and Hope 1985: 81-83).*

The burial ground is located outside the proposal, approximately 320m east of the intersection of Benanee Road and the Sturt Highway (Construction Area A) and 252m away from the associated construction impact area at its closest point.

5.4.2 Yanga Pastoral Station Complex

The Yanga Pastoral Station Complex is listed on the HHIMS (Item ID 10607) and includes Yanga National Park, Yanga State Conservation Area and Yanga Nature Reserve (collectively referred to as the 'Yanga parks'). The Yanga Pastoral Station complex has been divided into different precincts based on natural divisions in the landscape and historic land use patterns. The historic heritage study area traverses two of these precincts; the Yanga Homestead and Willows precincts (Figure 5.7).

One site element, 'Parkers Sheep Yards; Willows Precinct' (HHIMS #10626) has been identified in the Willows precinct within the historic heritage study area. It is described in the HHIMS listing sheets as " wooden fences with wire fences, pine, hand axed".

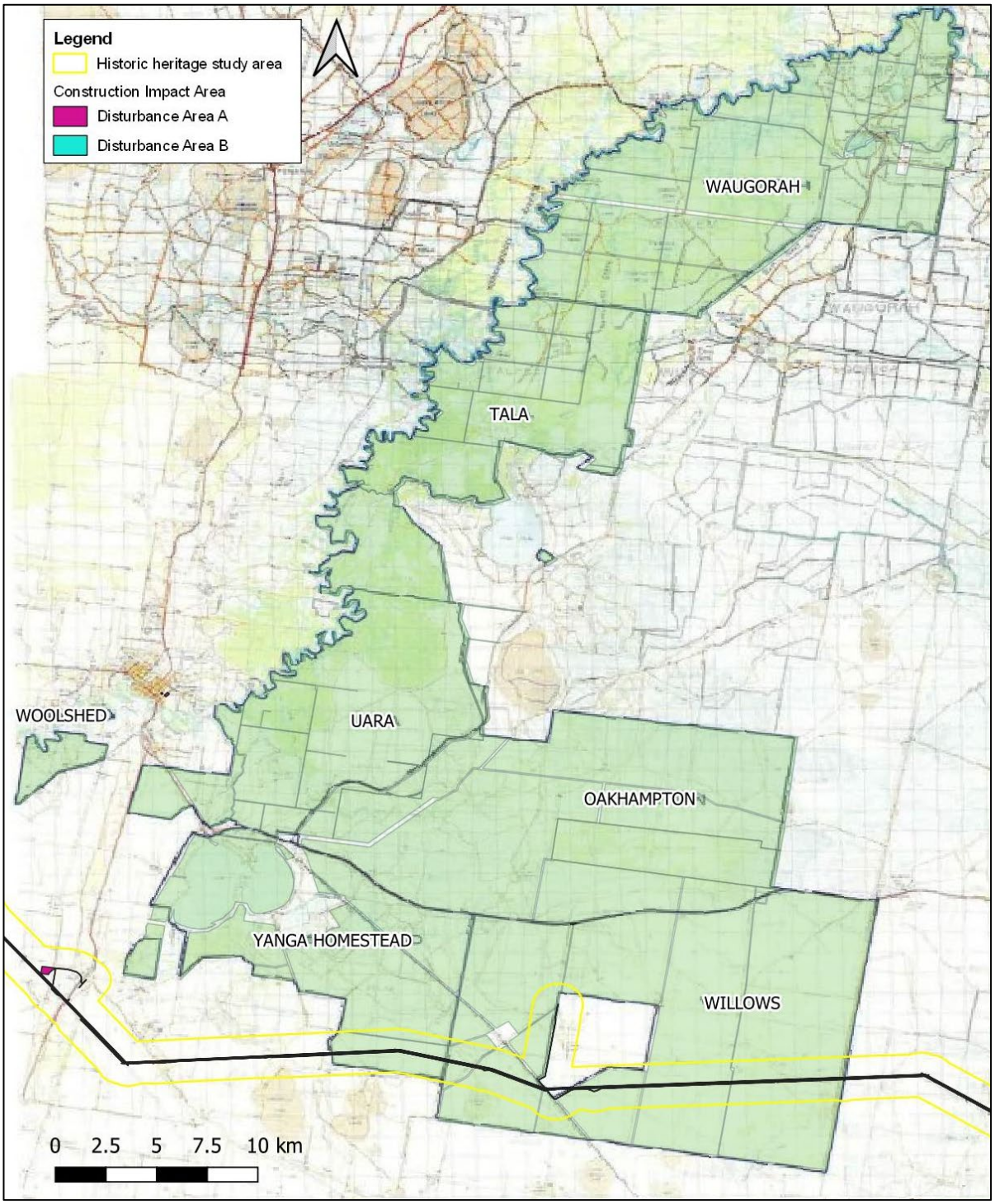

Figure 5.7 Precincts within the Yanga Pastoral Station Complex (Tonkin Zulaikha Greer Architects 2019:16)

5.4.3 Wyadra grave site, Uranquinty

This site is located on South Boundary Road Lot 48, DP 754563. It is listed as an item of local heritage significance on the Wagga Wagga LEP (item I285) but is missing from the State Heritage Inventory. It is over 500m from the construction impact area. This property could not be accessed but was viewed from the road (see Figure 5.8). While the grave could not be sighted, the proposed powerline only faintly visible in the far distance is illustrative of how the visual amenity of the grave in its rural context will not be impacted by the proposal.

Figure 5.8 Looking southward into the paddock in which the Wyadra Grave exists

5.4.4 Liquid explosives store, Uranquinty

This site is located 40m outside the construction impact area at 88 Hanging Rock Road (see Table 2.2). The Liquid Explosives Store is recorded as a brick building with gable ended walls forming parapets at either end, and a corrugated iron roof. There are bands of horizontal windows with frosted glass. The Explosives Store is of brick and timber with a hip roof supported on timber brackets. The site is also recorded as having a mass of piles of debris and concrete slabs.

The site is listed on the *Wagga Wagga LEP 2010* (item I287) as an item of local heritage significance. Its historical significance is as a remnant of the RAAF School from 1941-1947 and 1952-1958 and Migrant Camp [1948-1952] which were located here. Both the Flying School and Migrant Camp operated independently to the town but stimulated the community financially and socially. The RAAF School at Uranquinty which commenced construction in September 1941. Pilots were trained in Wirraway aircraft. Most pilots were transferred to Point Cook in 1947 and from 1948 until 1952 it was used as a Migrant Camp as part of Australia's post-war immigration scheme. From 1952 until 1958 pilots were trained here for the Korean War. The base was closed down in 1958 and operations were transferred to Point Cook.

This property could not be accessed as was viewed from the nearest road vantage point. Photos were taken toward the reported location of the heritage item; however, no structure could be seen within the paddock. The proposed powerline will be out of view along the far horizon in the photos (see Figure 5.9).

Figure 5.9 Looking south from the road and fence line across the paddock in which the liquid explosives store is reportedly located

5.4.5 Ivydale and Ivydale woolshed, Gregadoo

Ivydale woolshed is located at 10 Ivydale Road, Gregadoo, Lot 2, DP 333046. It is listed on the *Wagga Wagga LEP 2010* (item I73) and the property is 340 m from the construction impact area

Ivydale is listed on the *Wagga Wagga LEP 2010* (item I72) and is located at 83 Ashfords Road Gregadoo, Lot 63, DP 757231 and the property is 150 m from the construction impact area. It is listed as an item of local historic significance although no supporting evidence is recorded.

There is an error in the listing as the detail for both items defaults to the woolshed. Both items are located outside the construction impact area and are southeast of the Wagga substation (see Figure 5.6).

Figure 5.10 Top left from road near proposed Dinawan substation looking towards Ivydale; top right view looking west from Ivydale Road towards where the new transmission line would be constructed next to the current one which is visible in the distance (homestead is off frame to the right); bottom view of the homestead from the Ivydale road

5.5 Survey results

5.5.1 Summary

There are few historical heritage sites (structures and /or archaeological sites) are present within the historic heritage study area. The sparse nature of settlement in the area, combined with harsh environmental conditions also means that any existing remains are often in poor condition. There are many ephemeral signs of historical activities such as isolated farm machinery either abandoned where it failed and / or was dragged or pushed to a location out of the way of ongoing activities. While these may be picturesque, they hold no inherent heritage value.

Figure 5.11 Example of abandoned farm machinery along the proposed route

The field survey identified three new potential historical heritage items and two new historical archaeological sites within the historic heritage survey area. A description of the results of the field survey in relation to these items is included in sections 5.5.3 to 5.5.6.

Survey results for the Yanga Pastoral Station Complex which was identified as within the construction impact area as part of the desktop review are described in section 5.5.2 and one heritage feature within the complex - the Yanga Stockyards, was recorded.

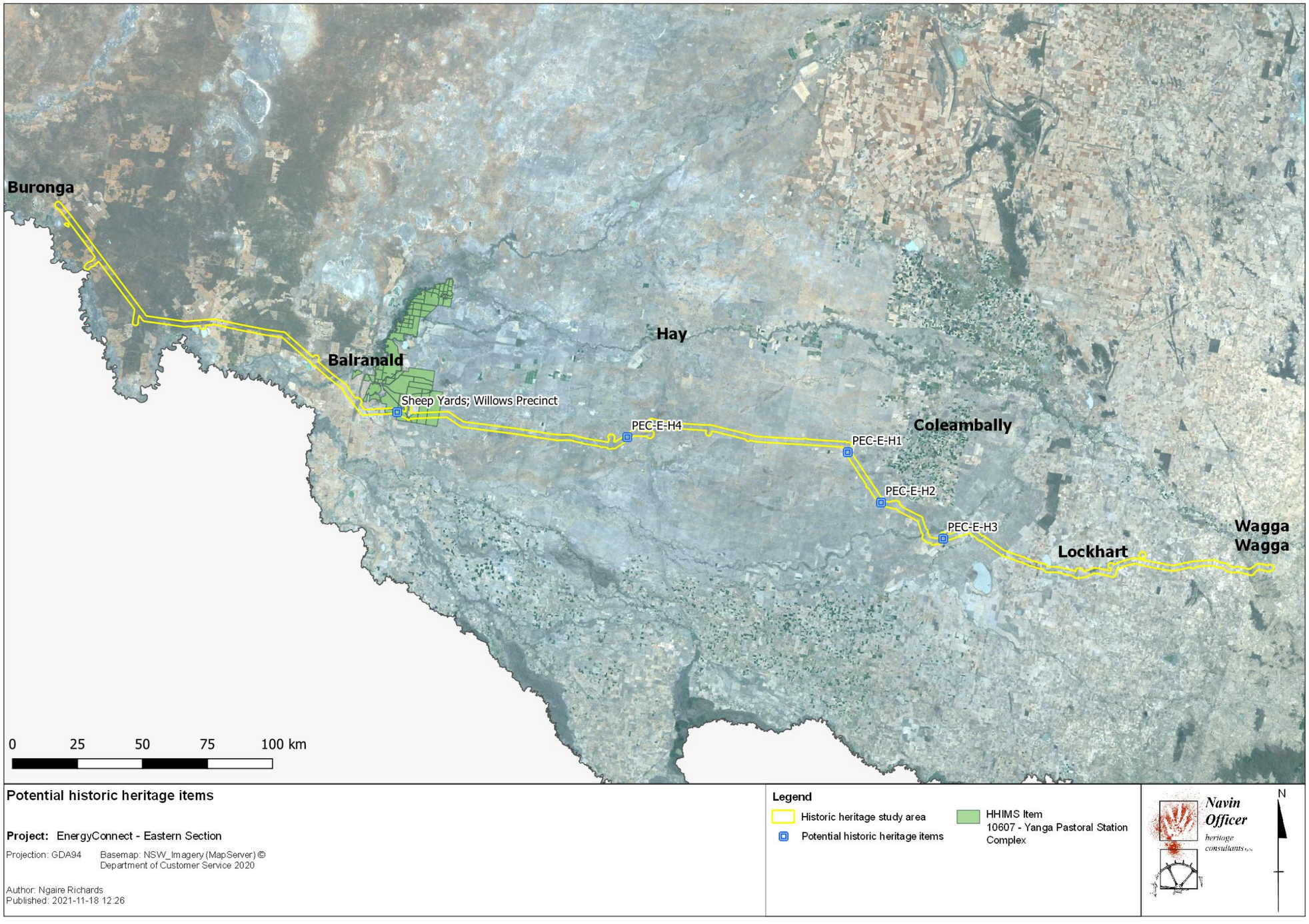

Figure 5.12 Potential historic heritage items

5.5.2 Sheep yards; Willows precinct, Yanga Pastoral Station Complex

GDA2020 MGA Zone 54: 746690.6145740

The Willows precinct was part of the Yanga pastoral run and was used for seasonal grazing in the nineteenth century (Tonkin Zulaikha Greer 2013:83). The remains of sheep yards were identified within the Willows precinct (near the boundary with the Yanga precinct) within the curtilage of the Yanga Pastoral Station Complex. The yards are constructed of post-and-rail-and-wire fencing, with rail at the top and woven wire mesh at the bottom (Figure 5.13).

Figure 5.13 Sheep yard within the Yanga Pastoral Station Complex

5.5.3 PEC-E-H1 (survey marker tree)

GDA2020 MGA Zone 55: 371666, 6139126

This site consists of a survey marker tree located within the historic heritage survey area in the locality of Mabins Well. The tree is a eucalypt species of an estimated eight metres high, the tree is dead. The tree has a scar with “BM 196 CN” on it, the scar measures 55 x 40 centimetres and faces southeast. The scar also has hatchet marks on it.

A blazed tree may indicate a permanent mark, or a cadastral boundary corner is located nearby. “BM” indicates it is a benchmark tree. It may be associated with Murrumbidgee irrigation district. BM trees usually refer to features surveys such as for terrain or river surveys (Spooner and Shoard 2016: 384) Marshall, I. H & Board of Surveyors of New South Wales (2004).

Apart from the inherent heritage significance of such marks which document the changes to the historic landscape since European settlement, the following information is relevant:

> *Section 24(1) of the Surveying and Spatial Information Act 2002 states a person must not remove, damage, destroy, displace, obliterate or deface any survey mark unless authorised to do so by the Surveyor-General.*

Figure 5.14 PEC-E-H1 Survey Marker Tree close up and the same tree and its setting looking northwest

5.5.4 PEC-E-H2 (survey marker tree)

GDA2020 MGA Zone 55: 385578.3, 6120614.7

This site consists of a survey marker tree located within the historic heritage survey area. The tree is a black box of an estimated 10 metres high. The tree has a scar with “BM FH 445” on it, the scar measures 64 x 29 centimetres and faces south. The scar also has hatchet marks on it.

“BM” indicates it is a benchmark tree and is likely associated with Murrumbidgee irrigation district. BM trees usually refer to features surveys such as for terrain or river surveys (Spooner and Shoard 2016: 384). Apart from the inherent heritage significance of such marks which document the changes to the historic landscape since European settlement, the following information is relevant:

> *Section 24(1) of the Surveying and Spatial Information Act 2002 states a person must not remove, damage, destroy, displace, obliterate or deface any survey mark unless authorised to do so by the Surveyor-General.*

Figure 5.15 PEC-E-H2 survey marker close up of scar and the same tree in landscape setting looking northward

5.5.5 PEC-E-H3 (Bundure railway station artefact scatter)

GDA2020 MGA Zone 55: 410256.8, 6108230.6

This site is an artefact scatter across an area of approximately 15m x 15m, with fragmented artefacts including glass, ceramics, buttons, and building material (stone and brick fragments) and rail spikes exposed along the current fence line and around the base of a pepper tree (Figure 5.16-Figure 5.17). Possible location of a structure associated with the former railway station located near the disused Tocumwal branch line, it is approximately 300 m northeast of the Bundure station, which opened in 1884. At this time, the surrounding Bundure pastoral property was owned by the New Zealand and Australian Land Co., of Glasgow.

The land was originally part of the large pastoral station of the same name. The original Bundure homestead was destroyed by fire caused by lightning strikes in 1934.

> *From the aboriginal "Bundoora", meaning "place of meeting of many kangaroos")*
> *The name Bundure is an English version of the original Bundoora. This run was first taken up by John D. Atkins in 1850 and was estimated to be 100,000 acres. It was transferred then to J. W. Peppers. Thence it passed to O. Brown, who transferred it to John Kennedy in 1858. In 1865 it was owned by J. and G. DeSailly, and in 1871 the New Zealand and Australian Land Co., of Glasgow, became the owners, and have remain ed the owners down to the present time. (Jerilderie Herald and Urana Advertiser 21/9/1950, p1)*

Figure 5.16 Artefact scatter within the survey area, straddling fence line between railway reserve and the survey area

The station itself is still visible as a raised platform area with the station identification sign now indecipherable. There are no extant buildings.

Figure 5.17 In this photo, taken in 2000 the station name can still be faintly seen (Bozier 2021). PEC -E-H7 is on the fence line, out of frame to the right

Figure 5.18 Bundure Station sign (NOHC September 2021)

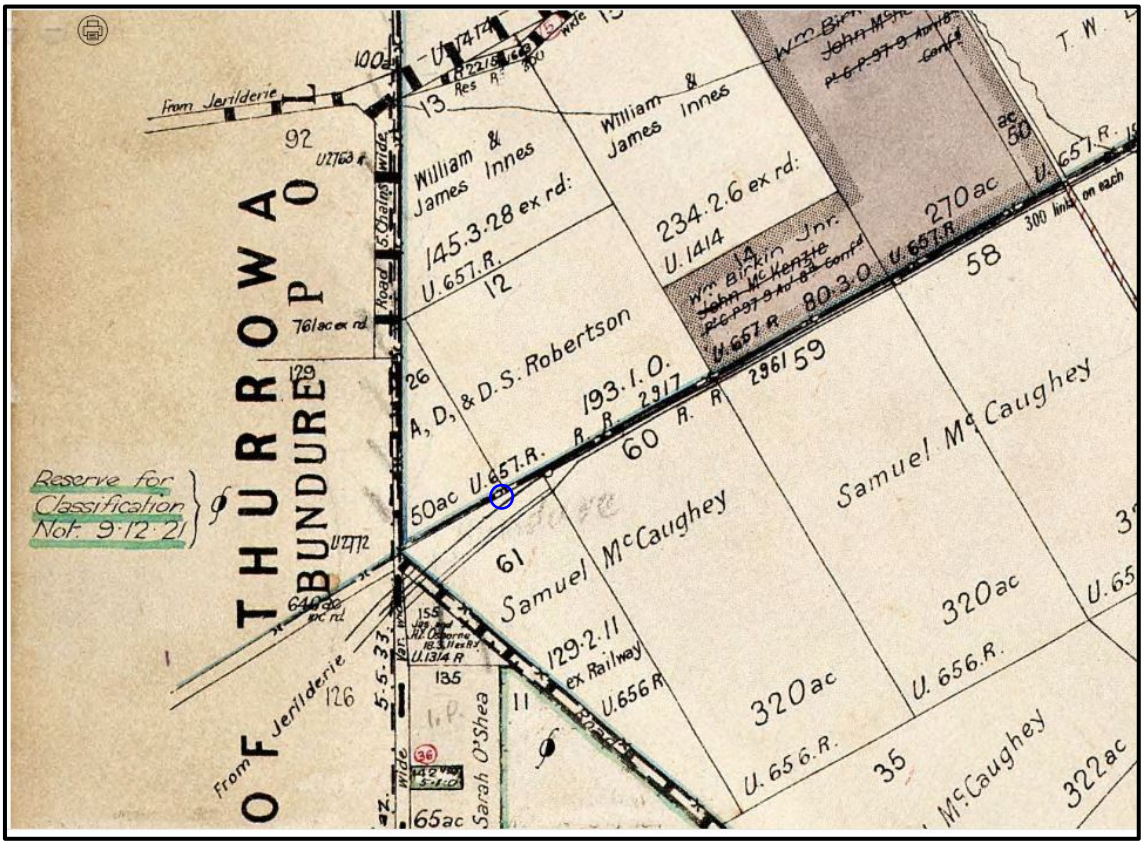

Figure 5.19 Detail from 1916 map of the Parish of Colombo, Sheet 1, 3rd Edition (HLRV LRS)

The location of PEC-E-H3 is circled in blue.

5.5.6 PEC-E-H4 (Hut site, Nyangay pastoral holding)

GDA2020 MGA Zone 55: 286795.6139823

A review of the pastoral map, showing the Nyangay (sic) & Bald Hill Runs (undated, however likely c1880s) identified the site of two huts, a tank and cultivation paddock on the Bald Hill Run on Portions 5 and 12, Parish of Quandong, County of Townsend.

By the 1840s, squatters had begun occupying land in the Riverina, moving into less favourable country to the west of Wagga. Nyingay was a "back block", located between the Murrumbidgee and Billabong Creek, to the south of the holdings of Mungadal and Eli Elwah which had Murrumbidgee River frontage.

At the time of the introduction of the *Crown Lands Occupation Act* 1861, the Nyingay squatting run was held by Dr. Thomas and Gideon Lang. The Lang brothers were pastoralists who purchased a number of holdings in the area from the late 1840s, including the neighbouring runs of Mungadal (in 1848), Pevensey (1849) and Eli Elwah (*The Riverine Grazier*, 10/11/1893, p. 2; *The Sydney Morning Herald*, 10/8/1849, p. 4.). In 1864, the run was converted into a lease (*New South Wales Government Gazette*, 12/1/1864, p. 82).

In 1867, the Nyingay station was offered by the Lang's for sale by private contract, with 12,0000 sheep included. Improvements noted on the property included "a house, with store, men's hut, out-station huts, and two first rate wells and dams complete, &c" (*The Argus,* 18/4/1867, p. 3.). It was purchased by Mr Michael Curtain for £13,200 (*The Ballarat Star*, 2/5/1867, p. 2.).

While previously regarded as little value, by the mid-1870s Nyingay was considered of almost equal worth to the stations with river frontages on the Murrumbidgee because of its rich pasturage. A newspaper article mentions that a "large and comfortable" residence had been erected (*The Riverine Grazier*, 4/8/1875, p.2).

An undated (post-1884) plan of the Nyangay holding indicates the hut site was within the leasehold area. Parts of Portion 5 and Portion 12 are shaded yellow, indicating the site was within a proposed Improvement Purchase. Improvements indicated by notations on the map included 2 huts, a tank, and a cultivated paddock (Figure 5.20).

By 1878 M. Curtain had died (*The Riverine Grazier*, 16/11/1878, p. 4), and on the 1880 map of the parish of Quandong, the landholders of Portion 44 (78 acres), formerly that part of Portion 12 with improvements, are shown as P.B. & R. J. Curtain, the Trustees of the late M. Curtain (Figure 5.22).

Portion 44 was sold to Patrick Bonaventure Curtain and Robert John Curtain of Bald Hill Run as improved Crown lands in 1886. The partnership of P.B. & R. J. Curtain as sheep farmers was dissolved in 1891, and the title of the property was transferred to Patrick Bonaventure Curtain who continued the business (*New South Wales Government Gazette*, 29/5/1891, p. 4030). He applied for an extension of the pastoral lease on Nyingay in 1894 (*The Riverine Grazier*, 24/4/1894, p. 2).

In 1899, Portion 44 was purchased by Dalgety and Company Limited, and was sold in 1917 to grazier Robert (Roy) Carstairs Simson of the neighbouring Mungadal Station (Certificate of Title (CoT) Vol. 805 Fol. 177).

It is located within a section of the historic heritage study area which has not been surveyed.

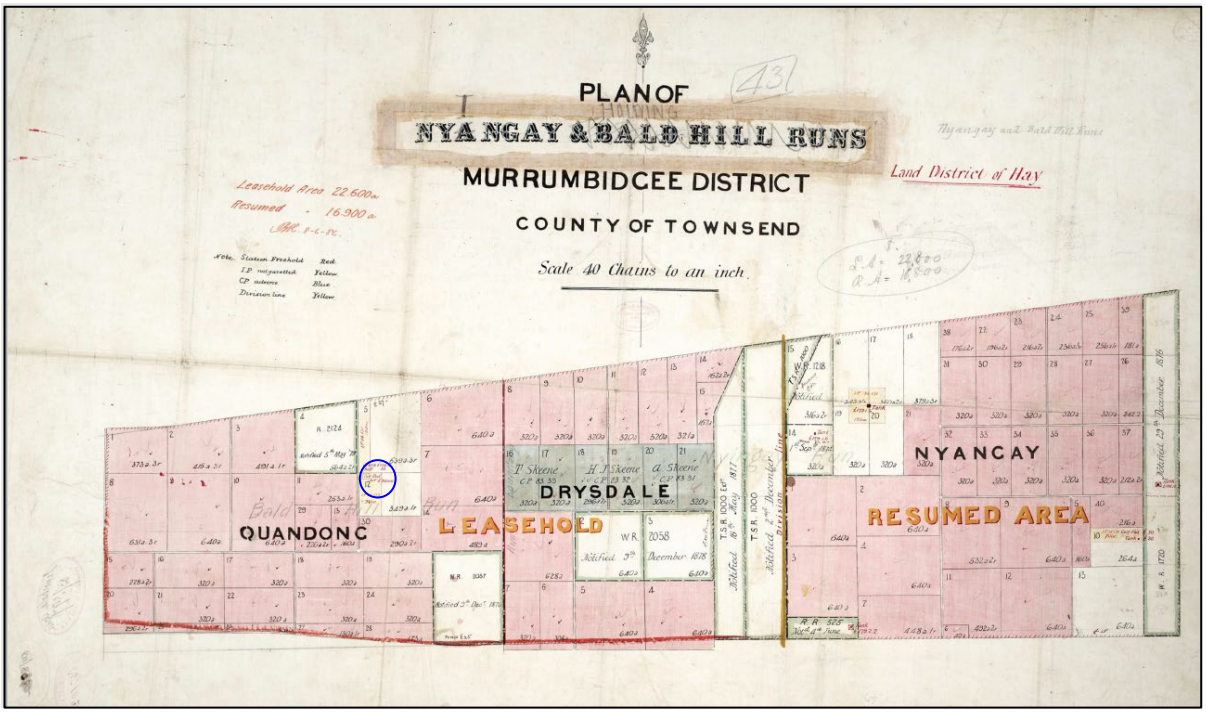

Figure 5.20 Undated plan of Nyangay [sic] Holding (formerly Nyingai & Bald Hill Runs) (Source: HLRV LRS). Item of interest marked by blue circle

The location of PEC-E-H4 is circled in blue.

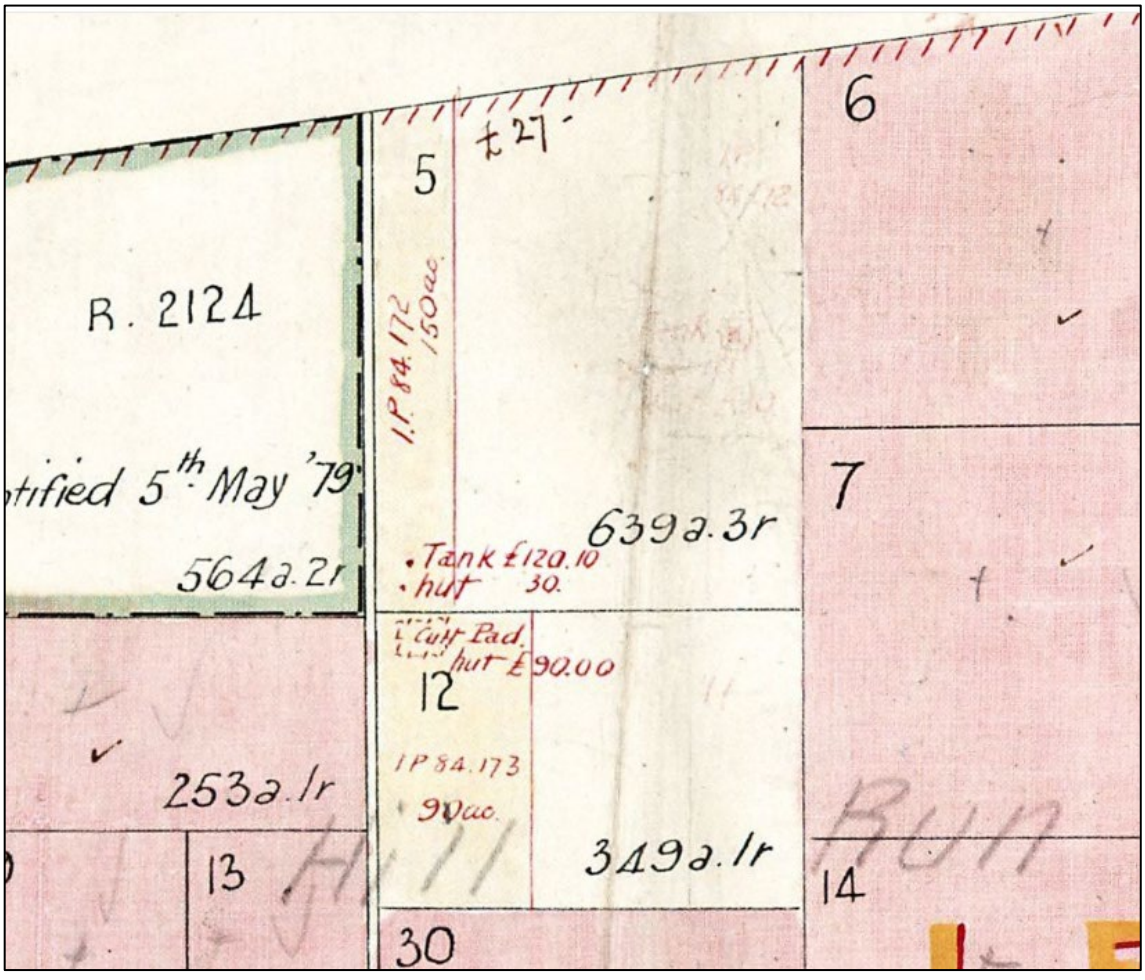

Figure 5.21 Detail of plan showing improvements on Bald Hill Run (Source: HLRV LRS)

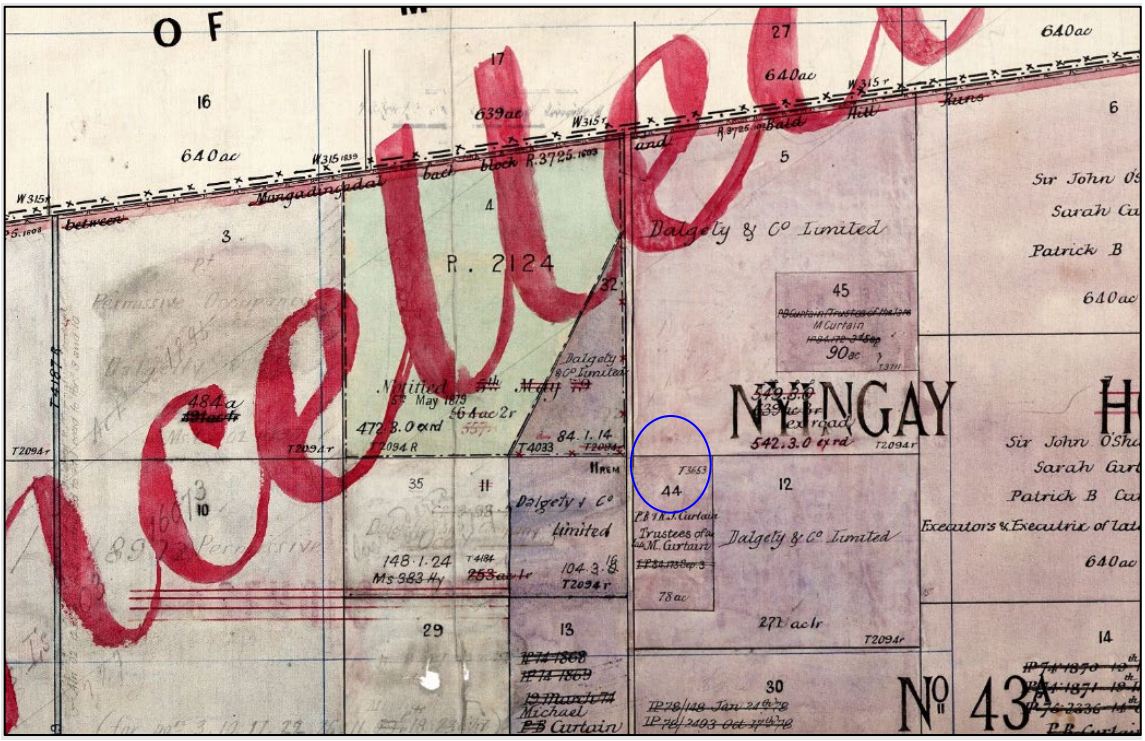

Figure 5.22 Detail of map of the Parish of Quandong, Sheet 1 Edition 1 (1880-1904) (Source: HLRV LRS)

The location of PEC-E-H4 is circled in blue.

5.6 Analysis of historical heritage survey and discussion

The archaeological survey confirmed the finding of the scoping study (NOHC 2020) that the potential for historic sites across the historic heritage study area generally and within in the construction impact area specifically, is low. The paucity of historical archaeological sites found within the historic heritage survey area is not surprising. The arid landscape, and boom and bust nature of the hydrological features across the region, particularly prior to regulation of the Murray/Darling system in the early 20th century, has resulted in relatively low population of permanent pastoral settlers. The low rainfall has historically (on average) only supported low densities of stock per acre, thus requiring large property holdings and large pastoral blocks. In many cases these pastoral blocks were not initially fenced, as required significant labour and fencing materials. During much of the 19th century, the labourers in the pastoral industry lived within the vicinity of the station homesteads, due to the large distances and long travel times, resulting in relatively focussed loci for historical domestic occupation.

6. Heritage significance

6.1 Assessing heritage significance

This report assesses the significance of each item recorded during the field assessment for its cultural significance. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* defines cultural significance as 'aesthetic, historic, scientific, social or spiritual value for past, present or future generations' (Australia ICOMOS, 2013). Assessing the cultural significance of a place involves identifying the range of values that are present and assessing them against relevant criteria, in order to define why a place is important and inform future planning and management.

The publication 'Assessing Heritage Significance' (NSW Heritage Office, 2001) provides the procedural basis for assessment of heritage significance of an item or place. This is achieved by evaluating the place or item's significance in reference to specific criteria that can be applied at a national, state or local level. The criteria are:

> ***Criterion (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)*
>
> ***Criterion (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)*
>
> ***Criterion (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)*
>
> ***Criterion (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*
>
> ***Criterion (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);*
>
> ***Criterion (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)*
>
> ***Criterion (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).*

These criteria are used to assess the heritage significance of each item. This report also identifies if the heritage item meets the heritage significance criteria at a local or state level. Each item is also given a statement of significance which summarises the significance of that item.

Different components of a place may make a different relative contribution to its heritage value. For example, loss of integrity or condition may diminish significance. In some cases, it is constructive to note the relative contribution of an item or its components. Table 6.1 provides a guide to ascribing grades of significance to different components of a place.

Table 6.1 Gradings of significance (NSW Heritage Office, 2001:11)

Grading	Justification	Status
Exceptional	Rare or outstanding item directly contributing to an item's local or State significance.	Fulfils criteria for local or State listing
High	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing
Intrusive	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing

6.1.1 Assessing historical archaeological significance

Many, although not all historic heritage items have the potential to have associated archaeological deposits the significance of which may not always be obvious from visual inspection of land surfaces. The historical archaeological assessment identifies the probable extent, nature and integrity of known and potential historical archaeological resources and provides an assessment of the potential significance of archaeological relics. It is based on a review of the historical context of the project area, information obtained from historical maps, plans and aerial photographs, and general observations made during the field investigation.

A summary of historical archaeological potential is provided for each site identified, in accordance with the identified phases of historical development, the types of historical archaeological resources or features which may be present, the integrity of the remains, and the potential for archaeological remains to survive. The intactness (or surviving condition) of potential archaeological remains has been assessed as follows:

- High – Potential archaeological remains associated with a particular historical activity are likely to survive intact.
- Moderate – Potential archaeological remains associated with a particular historical activity may survive but are likely to have been subject to some disturbance.
- Low – Potential archaeological remains associated with a particular historical activity are unlikely to survive.

Historical archaeological significance refers to the heritage significance of known and potential archaeological resources. The aim of an archaeological significance assessment is to identify whether these resources are of cultural value and meet the definition of a 'relic' under the Heritage Act (that is, if they are of State or local heritage significance). A statement of archaeological significance summarising the heritage values of an archaeological site can then be used as the basis for determining appropriate management options (Heritage Branch, Department of Planning, 2009:2).

The document *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Branch, Department of Planning NSW, 2009) clarifies how the evaluation criteria above relate to historical archaeological sites and provides a series of questions for each criterion that assist the assessment of relics. By using this guideline archaeological sites or 'relics' can be assessed and compared with other sites. The criteria include:

- Archaeological Research Potential (current NSW Heritage Criterion E)
- Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B & D)
- Aesthetic or technical significance (NSW Heritage Criterion C)
- Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G).

6.2 Heritage Significance of items recorded during survey

Each of the items identified during the survey have been assessed in the subsections below. The Yanga Pastoral Station Complex is the only item that had previously been identified and assessed. For that item the listed statement of heritage significance is used.

6.2.1 Yanga Pastoral Station Complex (HHIMS Item ID 10607)

The Statement of Significance from the HHIMS listing sheet for the Yanga Pastoral Station Complex is as follows:

> *The landscape in the Yanga precinct, in the interzone between the eastern fluvial and western aeolian zones is unique and the lunette sequence at Lake Yanga demonstrates the regional effects of climate change on the history of the Murray- Darling Basin and has research potential.*
>
> *Yanga Precinct has representative examples of Callitris mixed woodland and chenopods and some areas of River Red Gum Forest along creek lines and the lake edge. Yanga lake and the lunette have high aesthetic value particularly when filled with water and provide extensive recreational opportunities.*
>
> *The precinct has Aboriginal heritage values. Yanga is an Aboriginal name first recorded in the 1840s. Pelican Point is associated with the Eaglehawk and Crow Aboriginal storyline. A significant Aboriginal midden and a burial site is located at Pelican Point. Other Aboriginal occupation features such as shells and scarred trees (in areas where there are trees) occur across the landscape. Pelican Point was occupied by Aboriginal families until the early 20th century as were sites on the north shore of Yanga Lake in the mid to late 20th century. Throughout the settlement history Aboriginal people worked at the homestead and used area for camping and fishing. Aboriginal people have strong current associations with the area.*
>
> *The historic cultural landscape including the Homestead group and the moveable collection, demonstrate the features of a central western pastoral station homestead and is significant in NSW. The precinct is at the transition between the river country and the dry country in the east used for grazing in winter. The Homestead location responds to need, elevated from flooding, between the black and red country, near water and in a beautiful physical setting.*
>
> *The area includes several potential historical archaeological sites associated with the 1840-1853 squatting phase demonstrating the pattern of use. These are a station site and a hut and yard site south of the lake and a hut site at the location of the current homestead. These have research potential. There is also a c1860 homestead site on Yanga Creek adjacent to the former bridge.*

Yanga Lake regulator is a major engineering structure built in c1913 to retain water in the lake and demonstrates technical achievement. There is research and educational potential to understand these pastoral land and water management practices. The south breeding paddock southwest of the lake was the site of a modern irrigation scheme designed for cropping and of some significance illustrating alternate activities as the wool industry became less profitable.

The former rail line and Yanga Lake siding traversed the precinct, significant for its demonstration of the achievement of two states working cooperatively but ultimately unsuccessful in promoting closer settlement. The ongoing uses of fishing and boating for both recreation and subsistence have some significance and are represented at the Homestead and Yacht Club site.

The Homestead group is significant as the base for the visiting owners and the resident managers and for the overall property management, illustrated in detail by the extensive records and collection and the physical fabric. The Yanga homestead group demonstrates the full range of buildings, gardens and infrastructure needed for self-sufficiency. The homestead ensemble demonstrates daily and seasonal life on a large property, little changed since 1900, and the contents enhance the ability to understand the place. This is a rare example, intact and publicly accessible with educational and research potential. The main building shows aesthetic excellence as an Australian homestead with refined overall design and detailing. The early ancillary buildings, the Stables and Carriage Shed demonstrate vernacular technique.

The sheep yard identified during the survey in the Willows precinct of the Yanga Pastoral Station Complex has not previously been assessed as an element of this item. It is considered to have **moderate** heritage significance. The yard is similar to other sheep yards within the complex and is representative of the pastoral history of the property. While it does not fulfil the criteria for local significance on its own, it contributes to the overall significance of the site.

6.3 PEC-E-H1 (Survey marker tree)

Assessment

Criterion (a) The site is not important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area). The site is assessed as not significant against this criterion

Criterion (b) The site does not have a 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). The site is assessed as not having significance against this criterion

Criterion (c) This site is not important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area) and is therefore not significant against this criterion

Criterion (d) This site does not have a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons and therefore is assessed as not having significance against this criterion

Criterion (e) This site does not have 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). The site is assessed as not having significance against this criterion

Criterion (f) Survey marker trees are increasingly rare and uncommon within the landscape, and therefore is assessed as having significance against this criterion at a local level.

Criterion (g) This site is not important in demonstrating the principal characteristics of a class of NSW's heritage, and therefore is assessed as not having significance against this criterion.

Summary statement of significance

This type of item is increasingly rare and uncommon, and further research is likely to yield more detail regarding the provenance, age, and function of this specific item. The item is assessed as meeting criterion (f) at a local level.

6.4 PEC-E-H2 (Survey marker tree)

Assessment

Criterion (a) The site is not important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area). The site is assessed as not significant against this criterion

Criterion (b) The site does not have a 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). The site is assessed as not having significance against this criterion

Criterion (c) This site is not important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area) and is therefore not significant against this criterion

Criterion (d) This site does not have a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons and therefore is assessed as not having significance against this criterion

Criterion (e) This site does not have 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). The site is assessed as not having significance against this criterion

Criterion (f) Survey marker trees are increasingly rare and uncommon within the landscape, and therefore is assessed as having significance against this criterion at a local level

Criterion (g) This site is not important in demonstrating the principal characteristics of a class of NSW's heritage, and therefore is assessed as not having significance against this criterion.

Summary statement of significance

This type of item is increasingly rare and uncommon, and further research is likely to yield more detail regarding the provenance, age, and function of this specific item. The item is assessed as meeting criterion (f) at a local level.

6.5 PEC-E-H3 (Bundure railway station artefact scatter)

Assessment

Criterion (a) The site is not important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area). The site is assessed as not significant against this criterion

Criterion (b) The site does not have a 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). The site is assessed as not having significance against this criterion

Criterion (c) This site is not important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area) and is therefore not significant against this criterion

Criterion (d) This site does not have a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons and therefore is assessed as not having significance against this criterion

Criterion (e) This site does not have 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). The site is assessed as not having significance against this criterion

Criterion (f) The advent of railway transport in the Riverina and western NSW was a significant milestone for rural communities and the closure of these lines led to a gradual diminishment of some communities in some localities. Archaeological evidence of the domestic life of people who worked on these railway outposts is increasingly rare and uncommon within the landscape, and therefore the site assessed as having potential significance against this criterion at a local level

Criterion (g) This site is not important in demonstrating the principal characteristics of a class of NSW's heritage, and therefore is assessed as not having significance against this criterion.

Summary statement of significance

The Bundure artefact scatter has moderate potential to yield information about the people who lived and worked adjacent to the Bundure railway station from the late 19th century to the mid-20th century. The site has the potential to be of local historical archaeological significance.

6.6 PEC-E-H4 (Hut site, Nyangay pastoral holding)

This potential site was identified on the Nyangay pastoral map, showing the Nyangay & Bald Hill Runs, and is located within an area that was unable to be accessed for survey. The site was identified from archival research reviewing historical maps of pastoral runs. There is insufficient data to assess the significance of the site at this stage. It is likely to present as an archaeological site only and visual inspection is required once site access is available to confirm status of the item.

7. Impact assessment

Proposal components and activities which have been assumed to have the potential to cause direct impact in the construction impact area include:

- proposed Dinawan 330kV substation construction
- Wagga Wagga substation upgrade and expansion
- construction compounds and accommodation camps at Balranald, Cobb Highway, the Dinawan substation site, Lockhart and Wagga Wagga
- optical repeater site installations
- new access track constructions.
- direct impacts could result from excavation and boring/piling as part of transmission tower installation, surface impacts associated with brake and winch equipment for line stringing and surface impacts associated access track construction/upgrade.

To assist in understanding the impacts and how they apply across the construction impact area and in relation to the identified heritage items the proposed transmission line easement has been characterised in terms of the nature of disturbance into Disturbance Areas A and B. These terms are defined in section 3.2.3.

7.1 Heritage impact assessment

The proposal aims to avoid heritage items as a first principle. Impacts to historical heritage items and sites are discussed below and summarised in Table 7.1.

Indirect impacts, depending on the site type, site context, and its archaeological and cultural significance, may not result in a loss of heritage value. Indirect impacts may occur to areas beyond the indicative disturbance areas; however, the impact would be dependent on several factors, including spatial extent of the site, nature of the site, depth of deposits, and the works being conducted adjacent to these areas. Whilst the number of sites potentially indirectly impacted have not been quantified, construction planning and management for the proposal would ensure that indirect impacts that could potentially result in a loss of heritage values due to physical disturbance would not occur (including physical disturbance from surface water drainage or other mechanism).

Any future changes to design including, tower positions etc would consider the location of heritage items, and direct or indirect impacts would be avoided in the first instance. If impacts cannot be avoided, further assessment may be required.

7.1.1 Impact to heritage items within the historic heritage survey area

This section considers the likely impact of the proposal on the heritage items located within the historic heritage survey area.

Table 7.1 Summary of indicative impacts to historic sites in the heritage survey area

Site name	Description	Listed significance	Disturbance area	Impact to item	Will proposal impact the significance of an item?	Can significance be protected through mitigation
Yanga pastoral Station Complex	Large pastoral property / National Park (while current listing is local- the overall property has potential State significance)	Local	A/B	Indirect (but see element below)	Minor	Yes
Yanga Pastoral Station Complex	Sheep yard; Willows precinct	Local	B	Direct	Yes	Yes
PEC-E-H1	Survey marker tree	Local	B	Total direct	Yes	Yes
PEC-E-H2	Survey marker tree	Local	N/A	No impact	No	N/A
PEC-E-H3	Bundure railway station dwelling, artefact scatter	Local	B	Potential direct	Yes	Yes
PEC-E-H4	Hut site, Nyangay pastoral holding	Potential Local	A	Potential direct	Significance is yet to be established	Likely possible through design finalisation.

Yanga Pastoral Station Complex (HHIMS Item ID 10607)

This Yanga Pastoral Station Complex is listed on the HHIMS which is maintained by DPIE as their s170 Heritage and Conservation Register. The construction impact area traverses the Willows and Yanga Homestead precincts of this heritage listed property (Figure 7.1). The sheep yards within the Willows Precinct, identified during the heritage survey, are within the construction impact area (see Figure 7.2) and are not specifically listed on the HHIMS.

There are many other elements of the Yanga Pastoral Station Complex that have been identified as contributing to the heritage value of the listed property and which are included on the list of items in the HHIMS. These include the Yanga homestead, outbuildings, residences and farm improvements. Most of these elements are located outside the construction impact area and would not be directly impacted. The nearest of these is 'Parkers Sheep Yards; Willows Precinct' (HHIMS #10626) which is approximately 695m to the north (see Figure 5.5).

In order to understand the range of impacts across the property refer to Figure 5.4, which maps the disturbance areas A and B across the property. Given that the sheep yards occur in the proposed easement but away from tower locations a historic heritage exclusion zone would be established prior to construction commencing at this location to avoid direct physical impacts to the Yanga Pastoral Station Complex.

The proposed alignment traverses a substantial section of this heritage property however the historic heritage survey did not identify further elements or structures within the construction impact area. The proposed alignment is located parallel and to the north of an existing 220kV powerline easement While potential direct impact on sheep yards would be managed through the historic heritage exclusion zone as noted above, indirect impacts are harder to define. The property is managed as a heritage conservation area both for its Aboriginal, historical and natural heritage. It is also a tourist destination with a focus on the heritage buildings especially the main homestead complex. The historical structures are set within a rural cultural landscape that is susceptible to visual impacts. The proposed alignment avoids visual impact to the Yanga homestead which is some distance away and its location adjacent to the existing easement means that any long-term visual impact is minimised and confined to the southern portion of the property.

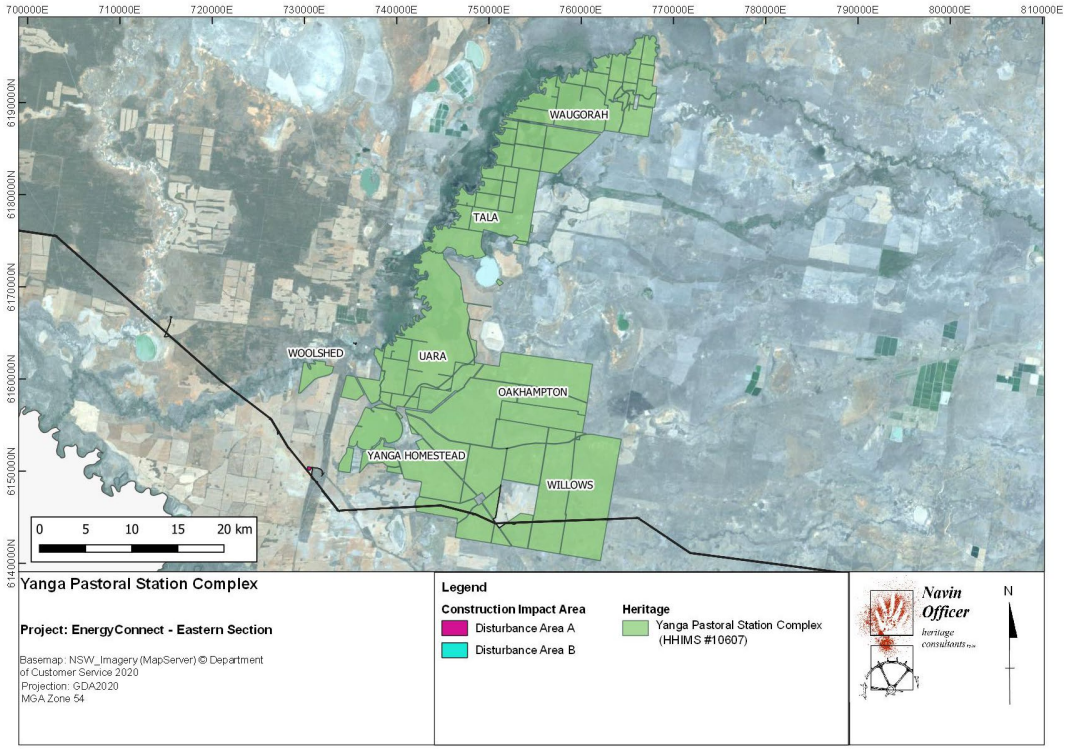

Figure 7.1 The Yanga Pastoral Station Complex in relation to the construction impact area

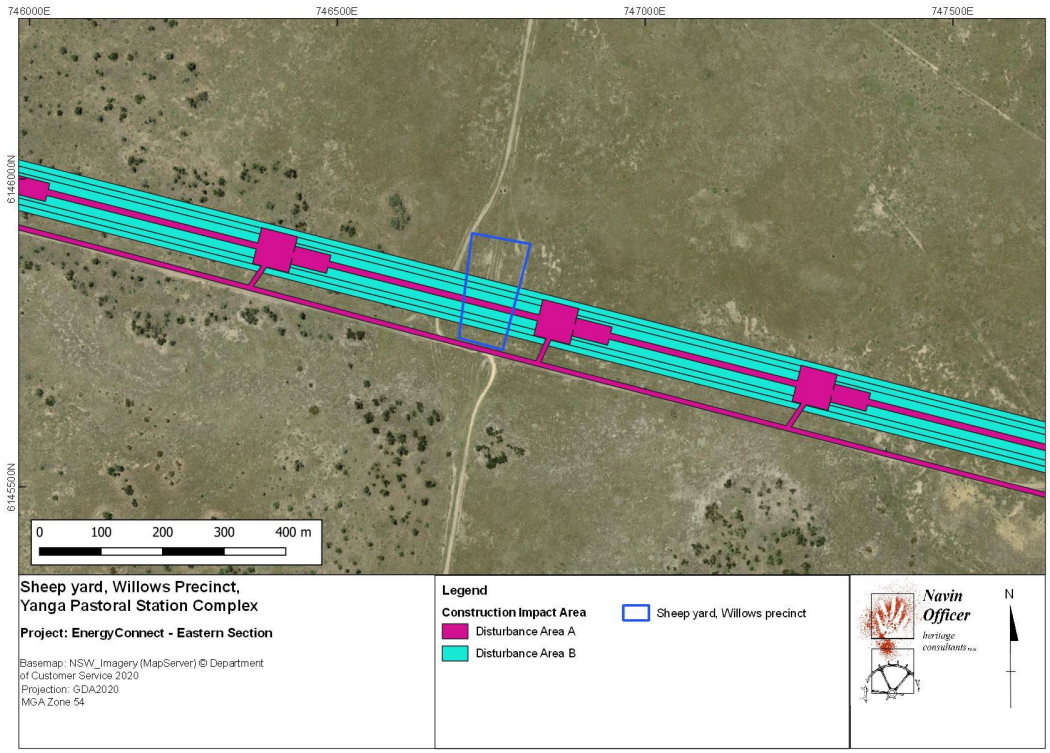

Figure 7.2 The sheep yards, Willows precinct, within the Yanga Pastoral Station Complex in relation to the construction impact area

PEC-E-H1 (survey marker tree)

The tree is on the boundary between disturbance area A and B and therefore potentially within the area that will be subject to tree clearance or pruning/trimming to maintain appropriate clearance between the transmission line conductors. It should be noted that some survey marks in NSW are protected under other legislation not related to their heritage value[2]. Harm to this item should be avoided, and exclusion fencing installed to protect it during construction. While the transmission line once constructed will be visible the visual impact to this type of item posed by the transmission line is considered negligible and will reduce once the disturbance area naturally revegetates to grassland.

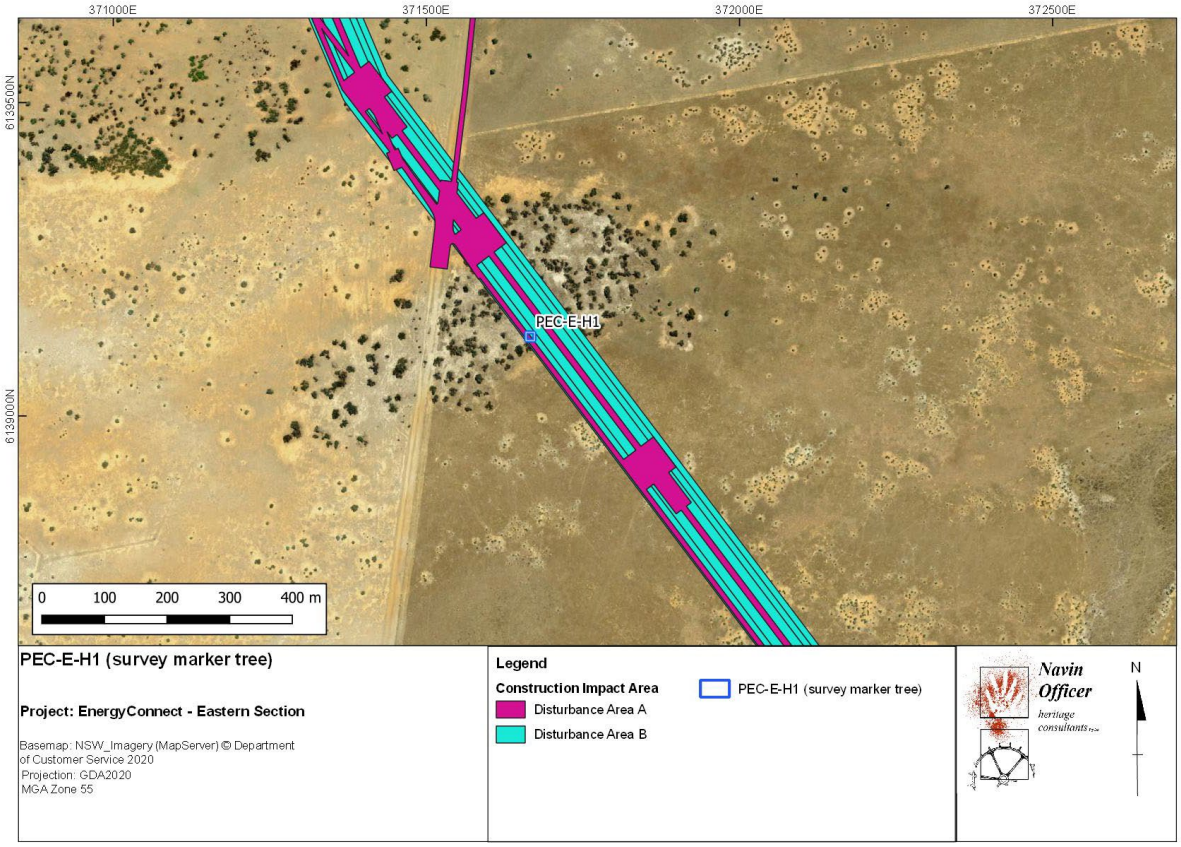

Figure 7.3 Location of PEC-E-H1 in relation to the construction impact area

[2] See Surveying and Spatial Information Regulation 2017
https://legislation.nsw.gov.au/view/html/inforce/current/sl-2017-0486#statusinformation

PEC-E-H2 (survey marker tree)

This tree is around 50 metres outside the construction impact area and will not be harmed during construction. As with any known heritage item in proximity to the construction impact area the location of this item will be noted on relevant plans. The relevant protocols to avoid and manage any potential harm to historic heritage items would be communicated to all relevant construction personnel prior to construction commencing in that area. Visual impact is considered negligible.

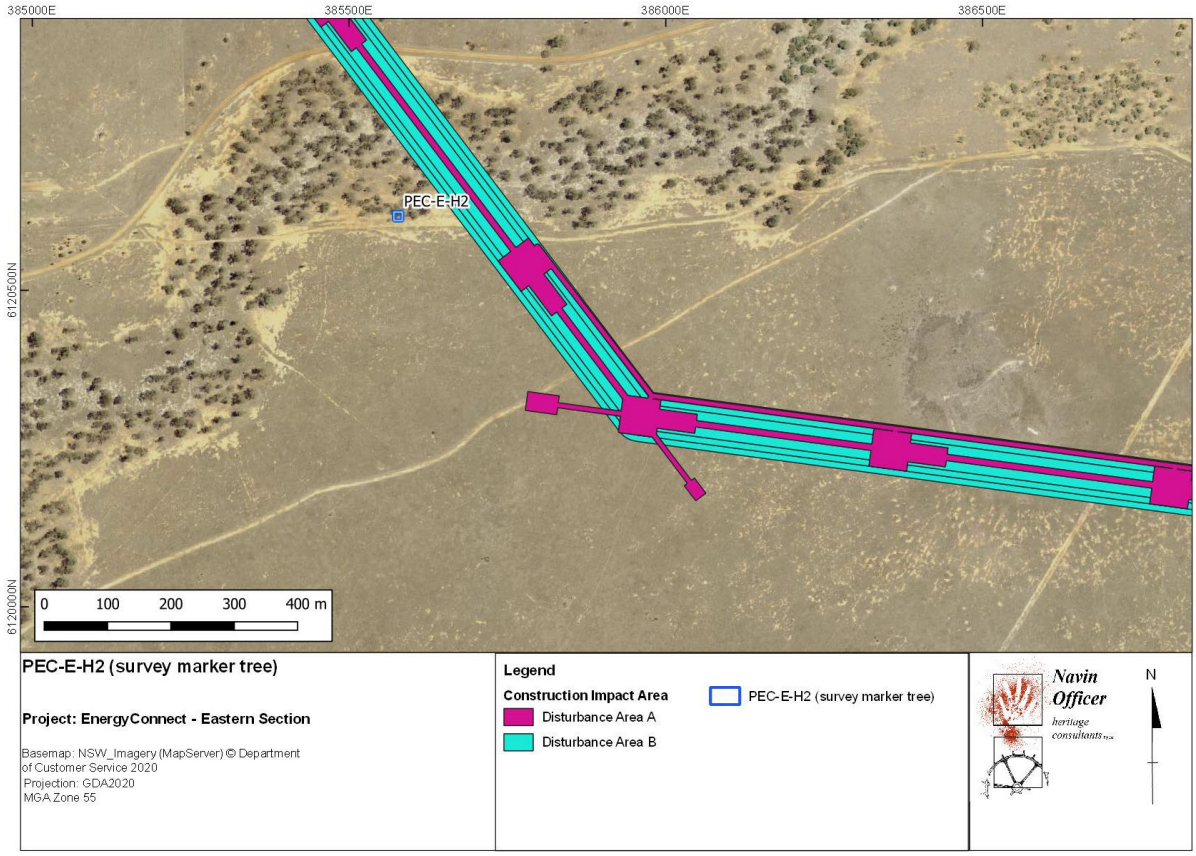

Figure 7.4 Location of PEC-E-H2 in relation to the impact construction area

PEC-E-H3 (Bundure Railway Station artefact scatter)

This site is located within the construction impact area. As it is an archaeological deposit, the site is susceptible to damage by vehicle movement or track grading. The condition of the deposit is likely to be variable as there has been some clearing of debris on the railway side of the fence. Given its location on the edge of the construction impact area, impact may be avoided by creating a fenced exclusion zone around the artefacts scatter during construction. If impact cannot be avoided the site should be subject to archaeological salvage. This is an archaeological site only, the only structure associated with the site is the station platform sign and the earthen platform itself both of these are outside the construction impact area and are not on any current heritage list. While the transmission line will be visible from the site. The visual impact will not affect the significance of the archaeological deposit.

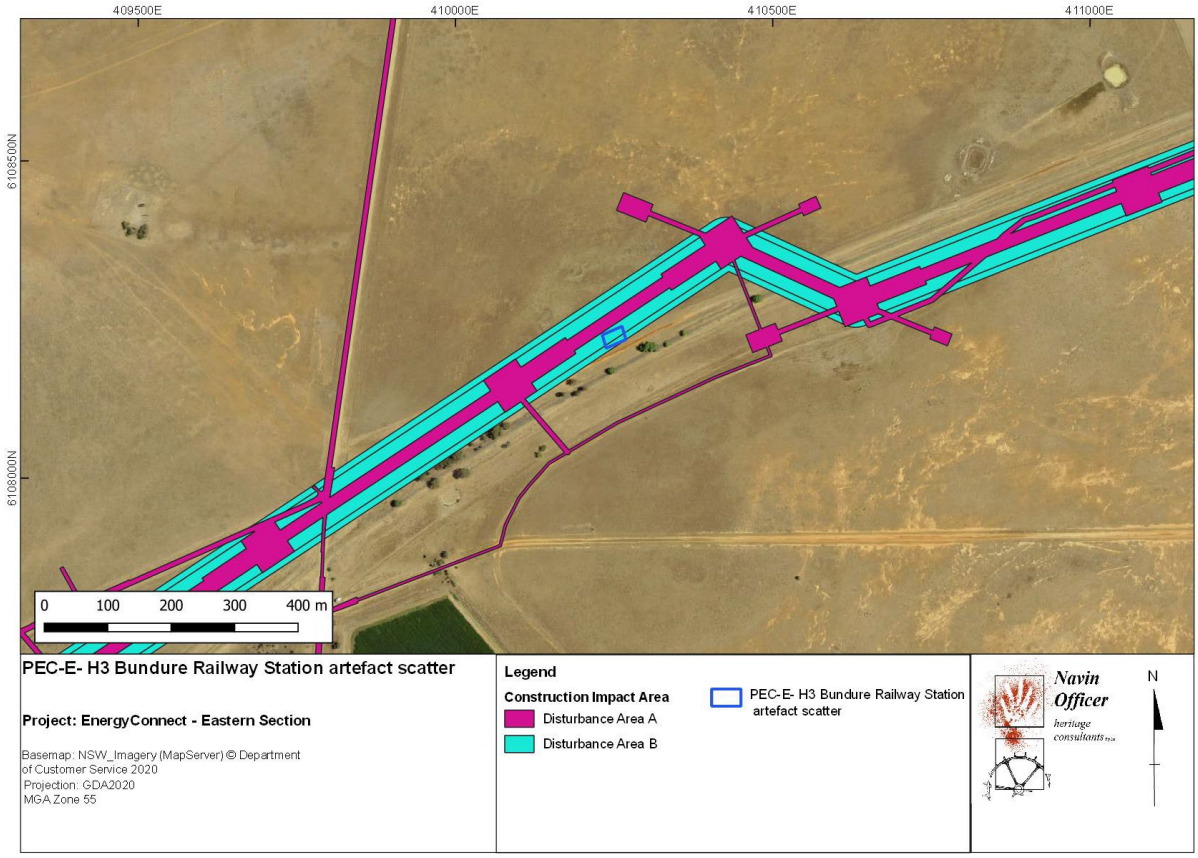

Figure 7.5 The location of the artefact scatter in relation to the construction impact area

PEC-E-H4 (Hut site, Nyingay pastoral holding)

The site is located within the construction impact area. However, the location of the hut has only been identified through desktop research and its physical existence and its structural and/ or archaeological integrity has not yet been verified by survey as this property was not accessible. This area will be subject to archaeological survey when access is available to determine if the structure is extant and /or if any archaeological potential is associated with it. At that time, the potential for impact on any identified remains can be assessed. Finalisation of the design will attempt to avoid or minimise direct impacts to this item. The design finalisation will include options for siting the tower and access track design to minimise impacts.

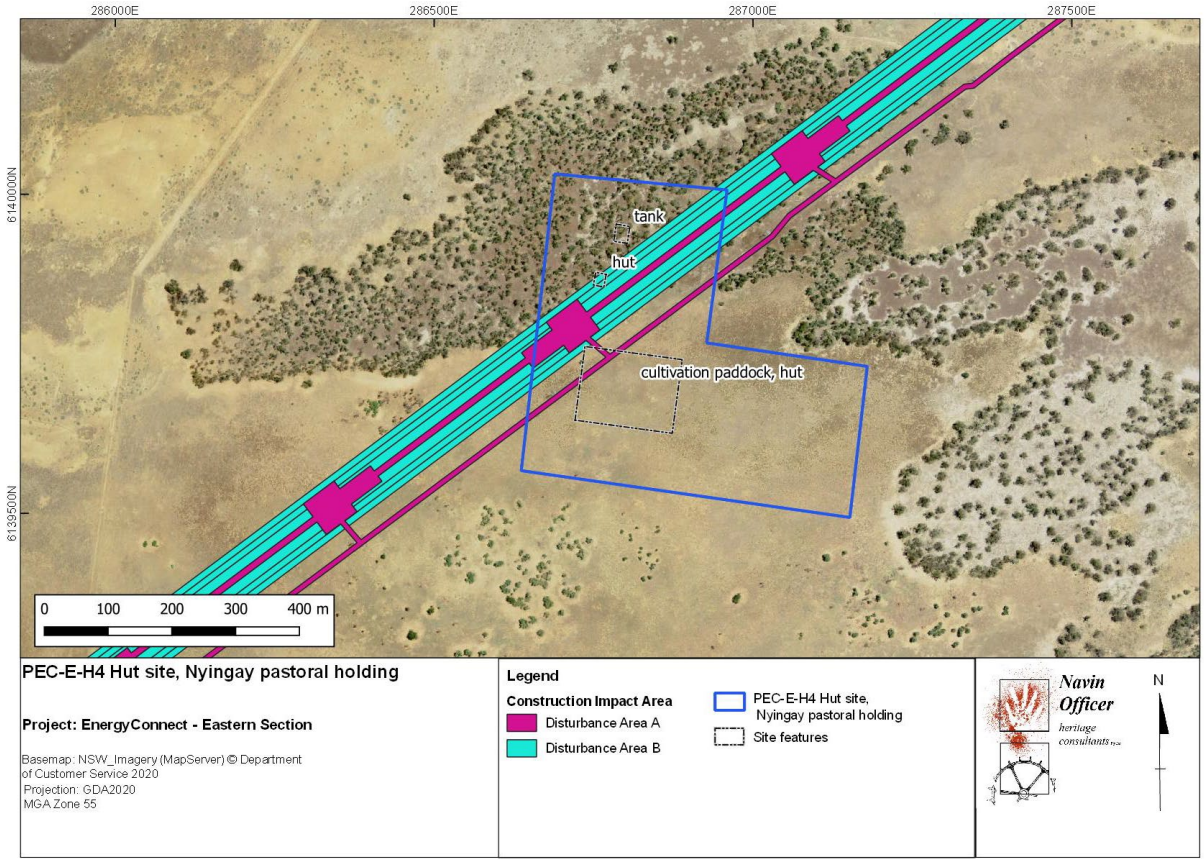

Figure 7.6 The location of PEC-E-H4 in relation to the construction impact area

7.1.2 Impact to listed properties in the heritage study area but outside the heritage survey area

Several heritage items listed for their local heritage significance occur in the vicinity of the proposal. The potential for impact to the heritage values of these places is discussed below.

Lake Benanee Burial Ground

This heritage item is listed on the Balranald LEP and is 250 metres from the construction impact area. It will not be impacted by the proposal. Should the proximity of the proposed construction activity change after final design then this heritage item would need active protective measures. In this area the construction Impact area related to the upgrade of an existing intersection approximately 252m from the nearest point of this heritage item (see Figure 5.3). The transmission line itself would be just over a kilometre northward of the item and will be screened by existing vegetation.

Ivydale and Ivydale woolshed

The homestead and the woolshed are each listed as separate items of local heritage significance. They are located close to the existing substation which is proposed for expansion. The woolshed and the homestead are 340 m and 150m respectively from the construction impact area. Neither heritage item would be impacted by the proposal. While the substation is likely to be visible from parts of the Ivydale property, due to existing vegetation around the homestead the construction impact area is not visible in views from the homestead.

Wyadra grave site

This site is located within a rural paddock and could not be sighted from the nearest vantage point along the paddock boundary. It is outside the construction impact area. The proposed power line would, as is the case with the current powerline X5, be barely visible from this heritage item. Any visual impact will be minor.

Liquid explosives store, Uranquinty

While the study area crosses the edge of the property, the proposal would have no direct or indirect (including visual) impact on the heritage item. The survey team did not have access to this property so was unable to confirm whether or not the physical structure still exists. The property was viewed from the road/property fence line and no structure as described on the heritage listing was visible. Regardless of whether or not the structure still exists, it is clear that the proposed powerline located on the far horizon would have no direct or indirect impact on this item (refer Figure 5.9).

8. Cumulative impacts

8.1 Projects considered

The desktop review of publicly available information and desktop registers identified seven projects in the vicinity of the proposal which are either currently under development, or at the planning stage, which may have the potential to generate cumulative impacts to historic heritage. The projects are Energy Connect - Western section, Buronga Solar Farm, Buronga Landfill Expansion, Buronga Gol Gol residential expansion, Inland Rail Albury to Illabp, Uranquinty Solar farm, Gregadoo Solar Farm.

8.1.1 EnergyConnect (NSW – Western Section)

The EnergyConnect (NSW – Western Section would comprise around 135 kilometres of new 330kV double circuit transmission line and associated infrastructure between the SA/NSW border and the existing Buronga substation, upgrade of the Buronga substation and upgrade of the existing 22 kilometre 220kV single circuit transmission line between the Buronga substation and the NSW/Victoria border at Monak. EnergyConnect (NSW – Western Section) has been approved.

The EnergyConnect (NSW – Western Section) was approved in September 2021. Construction of the proposal is scheduled to commence in early-2022 (enabling phase). The construction of the transmission lines would take about 18 months while the Buronga substation upgrade and expansion would be delivered in two components and be operational by mid-2023.

The transmission line easement passes through the property boundary (curtilage) of three listed heritage items (Nulla Nulla Woolshed, Nulla Nulla Homestead and Sturts Billabong) (NOHC 2021). In addition, two unlisted heritage items (survey marker trees) have been identified. Given the distance of the proposal from these items the proposal will not have any direct impact to the items associated with the listings and would not have any impact on the significance of the items.

8.1.2 Buronga Solar Farm

The Buronga Solar Farm development includes a 400 MW solar farm with energy storage and associated infrastructure located adjacent to the proposal Buronga substation. The EIS for the project is currently being prepared. The proposal would also involve the construction of a 220kV or 330kV transmission line for connection to the existing Buronga substation. The construction schedule for the proposal is identified as being about 18 to 24 months from site establishment to completion (noting commencement subject to approval from DPIE).

The EIS for the development is currently under preparation and would be located adjacent to the Buronga Substation portion of the proposal. The preliminary environmental assessment (Renew Estate 2018) found that there are no historic heritage items recorded within 5 km of the proposal site. The closest historic heritage items are approximately 10km from the proposal site, near the town of Mildura to the southwest. The proposal was considered unlikely to impact any historic heritage items due to the significant distance of the proposal site from any listed historic heritage items

8.1.3 Buronga Landfill Expansion

The proposal includes the expansion to the existing Buronga landfill to allow for an increase in the total quantity of waste that can be accommodated from 30,000 tonnes to 100,000 tonnes of general waste per annum. The proposal would consist of the construction of multiple additional landfill cells over the next 30 years comprising a volume of about 4.8 million cubic metres over an area of about 395,000 square metres (including the current active landfill cell).

A preliminary scoping report (Tonkin 2020) found that the site is already in use as a landfill facility and no historic assessment was completed.

8.1.4 Buronga – Gol Gol residential expansion

Wentworth Shire Council is proposing new subdivisions to provide about 500 new large residential housing allotments in the Buronga – Gol Gol growth area, about 10 kilometres to the west of the study area

There are three locally significant heritage items in Buronga - Gol Gol listed in the Wentworth Local Environmental Plan 2011. Wentworth Shire Council in 2020 found that here is high potential for additional items of European heritage to be present in the study area (Wentworth Shire Council 2020).

8.1.5 Inland rail – Albury to Illabo

ARTC is proposing to upgrade the Albury to Illabo section, along the 185 kilometres of existing operational narrow-gauge railway from the Victorian/New South Wales border to Illabo in regional NSW. The proposal would provide clearance of the existing 'Main South' corridor to operate 1,800 metres long, 6.5 metres high, double stacked trains and includes the provision of dual track in areas for train passing. The proposal is made up of discrete sections of proposed upgrade, including upgrades within the existing rail corridor at Uranquinty, The Rock and within the centre of Wagga Wagga.

Subject to planning approval, construction is planned to commence in mid-2023 and complete by late 2024. Operations to commence in 2025.

The current proposal crosses the Inland Rail proposal. The scoping report for the project (ARTC 2020) found that there are 102 historic heritage sites within or adjacent to (within 200m buffer) the proposal site. It was identified that the proposal would have potential to result in impacts to known heritage sites including temporary and long-term impacts.

8.1.6 Uranquinty Solar Farm

Origin Energy is proposing to develop a commercial scale solar photovoltaic site and associated battery storage at Uranquinty. The proposal would have a capacity of up to 200 megawatts (MW) of renewable energy production for the local electricity supply. The site is located northwest of Uranquinty village along Uranquinty Cross Road, around 15 kilometres southwest of Wagga Wagga. Given current timing for the proposed solar farm, there is the potential for the proposal and the solar farm construction periods to overlap.

The scoping report for this proposal (GHD 2021) identified no heritage items in the project area. The closest listed heritage items are about 140 metres west of the site – Wise Grave (item #I218) and about 170 metres south of the Liquid Explosives Store (item #I287). Based on this historic heritage was not considered to be a constraint for the proposal site.

8.1.7 Gregadoo Solar Farm

The Gregadoo Solar Farm will be located about 13 km south-east of Wagga Wagga. The project is proposed to comprise construction, operation and decommissioning of a maximum 47 MW solar farm and associated infrastructure. Construction is expected to commence mid-2021.

NGH Environmental (2017) identified 4 items listed on the SHR under the NSW Heritage Act, 352 items listed under the Wagga LEP and by state agencies and 5 Aboriginal places. The closest listed heritage items are the "Ivydale" dwelling and woolshed located approximately one kilometre south-east of the proposal area. The site inspection did not identify any structures or items that potentially have historic significance. No further historic heritage assessment was completed for this project.

8.2 Cumulative impact assessment

Of the projects considered, the Inland Rail -Albury to Illabo proposal stands out with 102 historic heritage items within or adjacent to that proposal. Many of these related to railway heritage including stations, signal boxes, footbridges but also included residential and commercial buildings, as that proposal traverses between and through townships. Several of the items are of State significance. Most of the other projects have few or no historic heritage items which will be impacted by the proposal.

The current proposal avoids townships within which many of the regions identified heritage items are located. Furthermore, the areas traversed by this proposal have not historically been subject to high levels of impact from residential, commercial, or government development. The sparse and spread-out nature of European settlement of the area means that sites of historical significance are few. The linear nature of the proposal, as well as the large spans between tower location impacts (around 500 metres) results in large areas where direct impacts can be managed through heritage exclusion zones during construction and a very limited impact footprint.

Therefore, the cumulative impacts of the projects considered on the historic heritage of the region are potentially high, with most impacts arising from the Inland Rail proposal. The contribution of the current proposal to these cumulative impacts is however low. No items on the State Heritage Register are directly impacted, and only one site of potential State significance, the Yanga Pastoral Station Complex will be partially impacted by the current proposal.

9. Mitigation measures

9.1 Environmental management

Environmental management for the proposal would be carried out in accordance with the environmental management approach as detailed in Chapter 24 (Environmental management) of the EIS. CSSI project do not require approvals under the *Heritage Act NSW 1977.* Management of heritage impacts would be achieved via preparation and implementation of a heritage management sub-plan, prepared as part of the Construction Environmental Management Plan. The sub-plan would manage impacts for historical heritage and archaeology, and would include (but not be limited to):

- appropriate heritage mitigation measures, including identification, protection and/or management of heritage constraints within or adjacent to construction areas
- details of management measures to prevent and minimise impacts to heritage items/sites (including additional investigations, recordings, or measures to protect items/sites that would not be directly impacted in the vicinity of construction works)
- procedures for unexpected finds, including procedures for dealing with human remains (refer to Appendix 1 of this technical paper)
- heritage monitoring and compliance management
- induction requirements.

9.2 Mitigation measures

The mitigation measures to manage potential historical heritage impacts of the proposal during the pre-construction, construction and operational phases of the proposed transmission line (Table 9.1) are listed below.

Table 9.1 Mitigation measures

Reference	Mitigation measure	Timing	Applicable location(s)
NAH1	The final construction methodology would be developed to avoid or minimise harm to heritage items PEC-E-H1 (Survey Marker Tree) and the sheep yards on the Yanga Pastoral Station Complex as far as practicable. If harm to these items can be avoided, temporary exclusion fencing would be installed to protect any elements of these items to be retained during construction. If harm to the sheep yards on the Yanga Pastoral Station Complex cannot be avoided, consultation would occur with NPWS. Where requested, archival recording of the sheep yards would occur, and the records would be provided to NPWS.	Pre-construction and construction	Transmission line.

Reference	Mitigation measure	Timing	Applicable location(s)
NAH2	The final construction methodology would be developed to avoid ground disturbance within the curtilage of PEC-E-H3 (Bundure railway station dwelling artefact scatter) where practicable. If ground disturbance within the curtilage can be avoided, temporary exclusion fencing would be installed to protect relevant parts of the item from harm during construction. If ground disturbance within the curtilage cannot be avoided during construction, the parts of the artefact scatter that could be harmed would be salvaged and analysed and managed in accordance with their determined significance, prior to the commencement of any activity that could harm the heritage items present.	Pre-construction and construction	Transmission line
NAH3	The locations of known heritage items in close proximity to the construction impact area and the relevant protocols to avoid and manage any potential harm to the items would be communicated to all relevant construction personnel prior to construction commencing in that area.	Pre-construction and construction	Transmission line
NAH4	PEC-E-H4 would be subject to heritage survey and assessment when site access is available. If the site is found to contain or has the potential to contain features of heritage conservation significance, the final construction methodology would be adjusted as far as practicable to avoid harm. If harm can be avoided, temporary exclusion fencing would be installed to protect relevant parts of the site during construction. If parts of the site that contain or have the potential to contain features of heritage conservation significance would be subject to ground disturbance during construction, an archaeologist would recommend appropriate measure mitigation/management measures, which might include archaeological excavation and salvage (where appropriate). The archaeologist's recommendations would be implemented prior to the commencement of any activity that could harm the features of heritage conservation significance.	Pre-construction and construction	Transmission line

Reference	Mitigation measure	Timing	Applicable location(s)
NAH5	During design refinement, the final location of transmission line structures and construction facilities would be determined with the aim to avoid or minimise impacts on all items assessed as having heritage significance, where feasible and reasonable. Items of moderate or high significance would be prioritised for avoidance or impact minimisation. Where impacts are not avoided, further assessment by an archaeologist would occur and be documented in an addendum non-Aboriginal heritage assessment.	Pre-construction	All locations
NAH6	If at any time during construction, any items of potential historic heritage archaeological significance, or human remains are discovered, they would be managed in accordance with an unanticipated discovery protocol that is aligned with the protocol in Appendix 1 of this Historical Heritage Impact Assessment.	Construction	All locations
NAH7	Features/items of heritage significance that would remain in-situ within the transmission line easement and along access tracks would be mapped and recorded within GIS systems managed by Transgrid to reduce the potential for inadvertent impacts to occur during maintenance activities.	Operational	Transmission line and access tracks
NAH8	Relevant Transgrid systems and procedures would be updated as required with protocols to avoid harm to heritage items and implemented during operation.	Operational	Transmission line and access tracks.

9.2.1 Residual impacts or uncertainties

Following the implementation of mitigation measures, further impacts to heritage items identified in this assessment are not anticipated. Some uncertainty remains around the significance and potential impact to PEC-E-H4 (Hut site, Nyangay pastoral holding). This site was identified through archival research only and its current state including whether or not there is an extant structure and / or archaeological deposit surviving in this location has not yet been verified as access to the property was unavailable at the time of survey.

Whilst the assessment concluded there is a low risk of impacts to historical archaeology, some potential for relics to be encountered during construction of the proposal would remain. In these instances, the process of mitigation outlined above would be implemented for the proposal to prevent residual impacts occurring.

The historic heritage impact assessment is based on several assumptions to develop an understanding of potential impacts to heritage and retain flexibility during design refinement. This includes consideration of the construction impact area described in Chapter 8.

During design refinement, the final location of transmission line structures and construction facilities would be determined with the aim to avoid or minimise impacts on all items assessed as having heritage significance, where feasible and reasonable. Where this is not possible items of moderate or high significance would be prioritised for avoidance or impact minimisation. Where impacts are not avoided, further assessment by an archaeologist would be carried out to determine the likelihood of occurrence and significance of potential impacts from the proposal in an addendum non-Aboriginal heritage assessment.

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Appendix 1

Unanticipated discovery protocols

Protocol to follow if Aboriginal object(s) or historical relics (other than human remains) are encountered

In the event that object(s) which are suspected of being Aboriginal object(s) or relic(s) are encountered during development works, then the following protocol will be followed.

1. Cease any further excavation or ground disturbance, in the area of the find(s):

    a. the discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be temporarily halted, and

    b. the site supervisor and the Principal will be informed of the find(s).

2. Do not remove any find(s) or unnecessarily disturb the area of the find(s).

3. Ensure that the area of the find(s) is adequately marked as a no-go area for machinery or further disturbance, and that the potential for accidental impact is avoided.

4. Note the location and nature of the finds, and report the find to:

    a. relevant project personnel responsible for project and construction direction and management, and

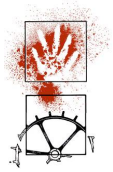
    b. report the find to the Heritage NSW.

5. Where feasible, ensure that any excavation remains open so that the finds can be recorded and verified. An excavation may be backfilled if this is necessary to comply with work safety requirements, and where this action has been approved by Heritage NSW. An excavation that remains open should only be left unattended if it is safe and adequate protective fencing is installed around it.

6. Following consultation with the relevant statutory authority Heritage NSW and, where advised, any other relevant stakeholder groups, the significance of the finds should be assessed, and an appropriate management strategy followed. Depending on project resources and the nature of the find(s), this process may require input from a consulting heritage specialist.

7. Development works in the area of the find(s) may re-commence, if and when outlined by the management strategy, developed in consultation with, and approved by the relevant statutory authority.

8. If human skeletal material is encountered, the protocol for the discovery of human remains should be followed (refer attached).



Protocol to follow in the event of the discovery of suspected human remains

The following protocol will be actioned if suspected human material is revealed during development activities or excavations.

1. All works must halt in the immediate area of the find(s) and any further disturbance to the area of the find(s) prevented.

    a. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and

    b. The site supervisor and the Principal/Project manager will be informed of the find(s).

2. If there is substantial doubt regarding a human origin for the remains, then consider if it is possible to gain a qualified opinion within a short period of time. If feasible, gain a qualified opinion (this can circumvent proceeding further along the protocol for remains which are not human). If conducted, this opinion must be gained without further disturbance to the find(s) or the immediate area of the find(s). (Be aware that the site may be considered a crime scene that retains forensic evidence). If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

3. Immediately notify the following of the discovery:

    a. the local Police (this is required by law)

4. Co-operate and be advised by the Police and/or coroner with regard to further actions and requirements concerning the find area. If required, facilitate the definitive identification of the material by a qualified person (if not already completed).

5. In the event that the Police or coroner instigate an investigation, construction works are not to resume in the designated area until approval in writing is gained from the NSW Police.

6. In the event that the Police and/or Coroner advise that they do not have a continuing or statutory role in the management of the finds then proceed with the following steps.

7. If the finds are not human in origin but are considered to be archaeological material relating to Aboriginal occupation then proceed with Protocol for the discovery of Aboriginal objects (other than human remains).

8. If the finds are **Aboriginal or probably Aboriginal in origin**:

    a. Heritage NSW archaeologist or Aboriginal Heritage Officer

    b. representative(s) from the registered Aboriginal parties (RAPs), and

    c. the project archaeologist (if not already notified).

    d. ascertain the requirements of Heritage NSW, the Project Manager, and the views of the Aboriginal Focus Group (AFG), and the project archaeologist;

e. based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:

   i. avoiding further disturbance to the find and conserving the remains *in situ*

   ii. conducting archaeological salvage of the finds following receipt of any required statutory approvals

   iii. scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial

   iv. recovering samples for dating and other analyses, and/or

   v. subsequent reburial at another place and in an appropriate manner determined by the AFG.

9. If the finds are **non-Aboriginal in origin**:

   a. ascertain the requirements of the Heritage Branch, Project Manager, and the views of any relevant community stakeholders and the project archaeologist.

   b. based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:

      i. avoiding further disturbance to the find and conserving the remains *in situ*

      ii. conducting archaeological salvage of the finds following receipt of any required statutory approvals

      iii. scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial

      iv. recovering samples for dating and other analyses, and/or

      v. subsequent reburial at another place and in an appropriate manner determined in consultation with the Heritage Office and other relevant stakeholders.

10. Construction related works in the area of the remains (designated area) may not resume until the proponent receives written approval in writing from the relevant statutory authority: from the Police or Coroner in the event of an investigation, from Heritage NSW in the case of Aboriginal remains outside of the jurisdiction of the Police or Coroner, and from the Heritage Branch in the case of non-Aboriginal remains outside of the jurisdiction of the Police or Coroner.

Appendix 2

Pastoral holdings and runs located along the historic heritage study area

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
Western	Tapio	102	Mr. James Ormond	West Paringa block A	-	-
				Gall Gall	-	Reserve from sale for water supply (R. 164) - 6 Aug 1875 Temporary Common (R. 330) – 1 Dec 1877
	Mallee Cliffs	91	Commercial Bank of Adelaide of South Australia	Mallee Cliff East	Tank	Water Reserve (W.R. 339) – 1 Dec 1877 Travelling Stock Reserve (T.S.R. 362) – 29 Jul 1878
				Paringi	Tank, Drain & Fence Well & Pump	Reserve from sale for water supply (R. 168) – 17 Aug 1875 Reserve from sale for access to water (R. 418) – 4 Aug 1879
				Mallee Cliff	-	Reserve from sale for water supply (R. 168) – 17 Aug 1875 Reserve from sale for access to water (R. 418) – 4 Aug 1879
	Tapalin	106	Commercial Bank of Adelaide of South Australia	Arael	Tank & Drain	-
				Mount Dispersion Northeast	Tank, Drains, Horse Paddock, Fences 2 Tanks Tank & Drain Horse Paddock	-
				Matalong	-	-
				Mendook	Horse Paddocks & Fence	-
				Rainding North	-	-
				Rainding	-	-

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
	Euston	221	Mr. William Taylor	Boomiaricool	Fence Loura Paddock Scrubby Paddock	Mallee
	Canally	263	Hon. James MacBain, Alexander McCallum, William and Henry Walker	Benongal	Gum post, and 5 - wire fence	-
				Caringy	Drop fence mallee post 6 wires Drop fence mallee & 6 wire	Camping Reserve (C.R. 387) – 30 Sep 1878 Travelling Stock Reserve (T.S.R. 381) – 19 Aug 1878 Mallee, oak, pine etc: scrub
				Kungarie	-	Water Reserve (W.R. 220) – 31 Aug 1875
				Manie Upper	-	Travelling Stock Reserve (T.S.R. 360) – 29 July 1878
				Loogalle	Mallee drop fence	Plain
				Kungaie Plains West	Mallee drop fence	Mallee, oak, pine etc: scrub
				Merowa	Mallee drop fence Mallee brush fence	Mallee, oak, pine etc: scrub

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
Central	Yanga	76	English, Scottish, and Australian Chartered Bank	Yangar	Tanks Tank	Water Reserve (W.R. 691) – 14 December 1869 Hop bush, mallee etc. Travelling Stock Reserve (T.S.R. 1442) – 3 Dec 1875 Reserve from sale for public purposes (R. 2670) – 5 Nov 1880 Reserve from sale for public purposes (R. 2090) – 21 Apr 1879
	Keri Keri	29	Mr. John Cumming	Moulamein block A	-	-
				Moulamein block B	Tank dam	Extension of Water Reserve (W.R. 1384Aa S Extn) – 23 Nov 1875
	Tchelery	566	Australasian Mortgage and Agency Company	Windouran block A	Tank & Yards Tank & Yards	Travelling Stock Reserve (T.S.R. 1216) – 1 Sep 1874
				Windouran block B		Travelling Stock Reserve (T.S.R. 2032) – 14 Oct 1878 Extension of Travelling Stock Reserve (T.S.R. 2032) – 14 Oct 1878
	Bundyulumblah	470	Mr. David Moore	Bundyulumblah	-	-
				Thelaka or Dry Lake	-	Forest Creek Water Reserve (W.R. 1392) – 13 July 1875 Reserve from sale for public purposes (R. 2440) - 7 Jun 1880
				Miranda block A	-	-
				North Carroonboon	Fence	-
	Nyingay	43		Nyingay	-	-

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
			Messrs. Patrick B. Curtain and Michael F. Curtain	Bald Hill	Fence Tank 2 Huts Cultivation paddock	-
	Mungadal	561	Mr. Colin William Simson	Mungadingadal back	-	Swampy Poligonium
	Warwillah	688	The Hon. William Campbell, M.L.C.	Wanganella block B	-	-
	Eli Elwah	46	Messrs. James and George Russell	Eli Elwah block A	Cooba Dam Fence	Reserve for public purposes (R. 1301) – 19 Jan 1875 Railway Reserve (No. 525) – 4 Jun 1867 Curtains Creek
				Eli Elwah block B	-	-
	Burrabogie	347	Mr. Fitzwilliam Wentworth	Mulberrygong block A	Fence	-
				Mulberrygong block B	Fence	-
				Burrabogie block A	Fence	-
				Burrabogie block B	Fence	Reserve for water supply and access (R. 2413) – 10 May 1880
	Singoramba (Block A)	231	Mr. Samuel McCaughey	Singorambah Block A	Fence Tank	Reserve from sale for water supply (R. 2153) – 21 April 1879 Travelling Stock Reserve (T.S.R. 2173) – 21 Apr 1879

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
	Toganmain	171	Mr. Thomas Robertson	Singorambah block B	Tank	Travelling Stock Reserve (T.S.R. 2173) – 21 Apr 1879
				Singorambah block C	-	Reserve from sale for water supply (No. 1522) – 8 Feb 1876 Eublebundie Creek Extension of Reserve from sale for water supply (No. 1523) – 19 Jul 1880
	Googgumbla	525	Mr. Samuel McCaughey	Yanco block C	-	[no detailed plan]
				Yanco block D	-	[no detailed plan]
	Kulki	431	Australian Joint Stock Bank (Leaseholder) Charles Smith McPhillamy (Licensee)	Yanco block E	-	-
	Bundure	604	New Zealand and Australian Land Company of Glasgow	Bundure	Wire subdivision fences 6 wire fences Tanks Yards	Reserves for water supply (R. 1204 and R. 1205) – 11 Aug 1874 Reserves for public camping and watering place (R. 223 and R. 1663) – 7 Oct 1876
				Yanko block G	-	-
				Yanko block H	Wire subdivision fences Tank Yards	-

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
	Yanko	421	Sir. Samuel Wilson	Thurrowa	No detailed map	[no detailed plan]
	Colombo Creek	154	Mr. William Grant	Colombo Creek	-	-
	Coonong	342	Mr. Samuel McCaughey	Coonong	Fence Boundary Gums	Railway line - Jerilderie to Narrandera Deep watercourse Reserve for water supply (R. 1649) – 16 Sep 1876 Route from Colombo to Gillenbah Colombo Creek Coonong Creek The Two-Mile Swamp Reserve pending final selection of routes for travelling stock (T.S.R. 990) – 29 Jul 1874 Reserve from sale for camping and access to water (No. 969) 10 October 1873 Route from Urana to Narrandera (known as "Mailman's Track")
	Widgiewa	200	Mr. John Sutcliffe Horsfall (Licensee) Mr. J. Cochran (Leaseholder)	Widgiewa		Coonong Creek Westerly extension of Reserve for travelling stock (R. 990) – 17 Sep 1874 Reserve pending final selection of routes for travelling stock (T.S.R. 990) – 29 Jul 1874
	Colombo Plain	224	Messrs. John and Isaac Rudd	Colombo Plain	-	Travelling Stock Reserve (No. 996) – 2 Dec 1873

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
	Butherwah	275	Messrs. Theodotus John Sumner and William Faed	Butherwah	-	Reserve for preservation of timber (R. 2103) – 10 Mar 1879 Reserve pending final selection of routes for travelling stock (T.S.R. 990) – 29 Jul 1874 Urana Gold Field – proclaimed 16 Nov 1876
	Brookong Greens Gunyah Lockhart in Galore Gold Field	473	The Hon. William Halliday, M.L.C.	Brookong or Urana Creek		Urana Gold Field – proclaimed 16 Nov 1876 Brookong Forest Reserve (No. 1695 – 7 Oct 1876 West extension of Reserve for water supply (R. 665 west extension) – 6 Mar 1874 Water reserve (R. 669) – 14 Dec 1869 Route from Urana to Wagga Wagga Travelling Stock Reserve (T.S.R. 895) Travelling Stock Reserve (T.S.R. 991) – 2 Dec 1873 Brookong Creek Reserve for preservation of timber (F.R. 2317) – 24 Nov 1879 (R. 3443) - Reserve for water supply (R. 2443) – 14 May 1880 Lockhart Reserve from Conditional Purchase – 22 Feb 1884 Reserve for temporary common (R. 25319 from sale R. 25320 from license and annual lease) – 30 Dec 1896 Road (Lockhart - The Rock) Railway line (The Rock to Oaklands)

Division	Pastoral holding	Holding no.	Name of holder(s)	Runs	Improvements	Features within historic heritage study area
	Bullenbong	32	Commercial Banking Company of Sydney	Tollendool	-	-
	Tootal	102	Mr. Edward Ashcroft	Tootool	-	-
	Hanging Rock	227	Mr. John King	Hanging Rock	-	-
	Pomingalarna	176	Union Bank of Australia (Leaseholder) Messrs. Angus Mackay and David Copland (Licensees)	Collingully	-	-
				Uranquinty	-	Reserve for water supply (W.R. 1459) – 26 Oct 1875 Extension of Reserve for water supply (W.R. 911) – 10 Nov 1876 Great Southern Railway (Albury to Sydney)
	Sandy Creek and Wagga Wagga	241	Mr. Edward Charles Pearson	Wagga Wagga	-	Great Southern Railway (Albury to Sydney) Coroborable Creek Reserve for water supply or other public purposes until surveyed (W.R. 313) – 23 Dec 1865
				Sandy Creek	-	-
	Borambola	724	Messrs. Donnelly (Executors of the late J. Donnelly)	Gumly Gumly		Unnamed tributary of Six Mile or Stringy Bark Creek Reserve from lease for access (R. 732) – 5 Nov 1883 Reserve for water supply (W.R. 1370) – 14 May 1875 Unnamed tributaries of Tea Tree Creek