

TECHNICAL REPORT

INLAND
RAIL 

7

Non-Aboriginal heritage assessment and statement of heritage impact

NARROMINE TO NARRABRI ENVIRONMENTAL IMPACT STATEMENT

ARTC

The Australian Government is delivering
Inland Rail through the Australian
Rail Track Corporation (ARTC), in
partnership with the private sector.



ARTC Inland Rail

Narromine to Narrabri Project

Non-Aboriginal Heritage Assessment and Statement
of Heritage Impact
Technical Report 7

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Executive summary

The proposal

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a high performance and direct interstate freight rail corridor between Melbourne and Brisbane, via central-west New South Wales (NSW) and Toowoomba in Queensland. Inland Rail is a major national program that will enhance Australia's existing national rail network and serve the interstate freight market.

The proposal consists of about 306 kilometres of new single-track standard gauge railway with crossing loops. The proposal also includes changes to some roads to facilitate construction and operation of the new section of railway, and ancillary infrastructure to support the proposal.

The proposal would link the Parkes to Narromine section of Inland Rail located in central western NSW, with the Narrabri to North Star section of Inland Rail located in north-west NSW.

Australian Rail Track Corporation Ltd (ARTC) ('the proponent') is seeking approval to construct and operate the Narromine to Narrabri section of Inland Rail ('the proposal').

The proposal is State significant infrastructure and is subject to approval by the NSW Minister for Planning and Public Spaces under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also determined to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and requires approval from the Australian Minister for the Environment.

This report

This Non-Aboriginal Heritage Assessment and Statement of Heritage Impact has been prepared on behalf of ARTC for the proposal to support the environmental impact statement (EIS) for the proposal and responds to the Secretary's Environmental Assessment Requirements (SEARs) for non-Aboriginal heritage.

The assessment presented in this report has considered potential impacts to non-Aboriginal heritage items within the study area, being the proposal site associated with the rail alignment, with a 500-metre zone on either side of the alignment, to account for potential construction or operation impacts. The impact of the proposal on each heritage item is assessed, for direct, potential direct, and indirect impacts. Level of impacts on the heritage significance of each heritage item in the study area has been assessed based on the definitions and framework for assessing severity of impacts from the *EPBC Act Significant impact guidelines 1.2* (Department of Sustainability Environment Water Population and Communities 2013). Appropriate management measures are identified to avoid, minimise, and manage impacts to the heritage items.

Identified heritage items

Within the study area, there are seven listed heritage items and 15 potential heritage items identified during the assessment. These include seven items listed on local environmental plans, 11 of the potential heritage items assessed as being of local heritage significance, and four potential heritage items which did not meet thresholds for heritage significance, during the assessment. Within these heritage items, seven have areas of archaeological potential within the study area.

Of the total 18 heritage items in the study area, 12 heritage items would be directly or indirectly impacted by the construction of the proposal, and three heritage items would be subject to impact during operation of the proposal.

Impacts from the proposal

No items listed on the State Heritage Register would be impacted by the proposal.

The table below provides a summary of items that would be impacted during construction and operation of the proposal.

Table E.1 Heritage items potentially impacted by the proposal

Item name	Heritage significance	Impact type	Impact description	Level of impact
Drinane Public School (former)	Local	Direct	Construction: Construction of the rail alignment and associated construction infrastructure. Demolition of heritage buildings.	Major
"Kickabill" homestead and woolshed	Local	Direct Potential direct	Construction: Utility relocation within curtilage. No impact on key heritage buildings. Vehicle/machinery operation in vicinity of heritage building.	Negligible
		Indirect - visual	Operational: Visual impact to rural landscape setting.	Minor
Woodvale Park Private Cemetery (I22)	Local – Gilgandra (LEP)	Direct	Construction: Construction of the rail alignment. Construction compound. Access road. No physical impact on grave site location, following confirmation of location.	Negligible
Curban Inn site (A96)	Local – Gilgandra LEP	Direct Potential direct	Construction: Road realignment. Possible requirement to remove archaeological deposits.	Minor
"Allandale" homestead	Local	Direct Potential direct	Construction: Utility relocation within curtilage. No impact on key heritage buildings.	Negligible
		Indirect - visual	Operational: Visual impact to rural landscape setting.	Minor
Corrugated iron hut with chimney	Local	Direct	Construction: Construction of the rail alignment. Demolition of heritage item.	Major

Item name	Heritage significance	Impact type	Impact description	Level of impact
"Digilah" homestead	Local	Direct	Construction:	Negligible
		Indirect - visual	Construction of the rail alignment within curtilage. No impact on key heritage buildings.	
		Indirect – visual	Operational: Visual impact to rural landscape setting.	Minor
Convict road remains, Baradine	Local	Direct Potential direct	Construction: Construction of the rail alignment. Requirement to remove archaeological evidence of road. Construction compound in close proximity to road remains.	Minor
"The Aloes" homestead and graves	Local	Direct Potential direct	Construction: Construction of the rail alignment. Vehicle/machinery operation in vicinity of structures and graves.	Negligible
Rocky Creek Mill Site	Local	Potential direct	Construction: Vehicle/machinery operation in vicinity of heritage item.	Negligible
Graves of the Dingwell children	Local	Direct	Construction: Construction of the rail alignment. Removal of the graves and skeletal remains.	Major
Two storey barn/shed, Bohena Creek	Local (potential)	Direct	Construction: Utilities relocation. Demolition of heritage item.	Major

Mitigation measures

Construction phase

Management measures would be implemented during construction to manage potential impacts to items of heritage significance from construction works in the vicinity of heritage items. This includes selection of construction equipment to minimise vibration, and delineation of exclusion areas to avoid inadvertent works occurring within the curtilage of heritage items. Other measures across the proposal include procedures for the discovery of historical heritage materials, features or deposits, and human remains during construction, and heritage induction training for contractors working on the proposal

Site-specific management measures would also be applied at specific sites that have been identified as being subject to impact due to the activities associated with construction of the proposal.

Archival photographic recording would be completed prior to any works that have the potential to impact on the following items:

- Drinane Public School (former), Kickabil
- corrugated iron hut with chimney, Mount Tenandra
- two-storey barn, Bohena Creek.

If the following heritage items cannot be avoided during development of the detailed design, a detailed archaeological assessment, research design and methodology to support archaeological investigation would be prepared for those small areas of the items which would be subject to impacts:

- Curban Inn site, Curban
- Convict Road, Baradine.

At the site of the graves of the Dingwell children, in Euligal State Forest, the graves and human skeletal remains would be managed in accordance with the *NSW Government Health Procedures - Exhumation of Human Remains* (NSW Health, 2013), and *Skeletal Remains – Guidelines for the Management of Human Skeletal Remains under the Heritage Act 1977* (NSW Heritage Office, 1998). Approval would be sought in accordance with the requirements of the Public Health Regulation 2012, Exhumation and re-internment would be undertaken in accordance with the terms of the approval and an exhumation plan of management prepared to support the application for approval. Detailed archaeological assessment, research design and methodology would be prepared to undertake archaeological investigation during the removal of the graves, by an appropriately qualified Excavation Director, in accordance with the NSW Heritage Council's Excavation Director criteria (NSW Heritage Council, 2011). Development of a strategy for appropriate reburial of the remains in an appropriate nearby location, memorialisation and interpretation signage would be undertaken with consultation with relevant stakeholders.

Operation phase

To minimise visual impacts identified for "Kickabil" homestead and woolshed, "Allandale" homestead, and "Digilah" homestead, opportunities to include plantings to screen the visual outlook from the key homestead buildings would be considered during development of the urban design and landscape plan for the proposal.

Glossary and abbreviations

Acronym / term	Definition
ARTC	Australian Rail Track Corporation
CEMP	Construction Environmental Management Plan
CHL	Commonwealth Heritage List
EIA	Environmental impact assessment
EIS	Environmental impact statement
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i> (NSW)
Existing rail corridor	The corridor within which existing rail infrastructure are located. The rail corridor is defined by ARTC to mean everywhere within 15 metres of the outermost rails; or within the boundary fence where boundary fences are provided and are closer than 15 metres; or if the property boundary is less than 15 metres, the property boundary; or a permanent structure such as a fence, wall or level crossing separating the operating rail corridor from other land.
Heritage listed	An item, building or place included on statutory lists maintained by a local, State and/or the Australian Government.
Landscape	All aspects of a tract of land, including landform, vegetation, buildings, villages, towns, cities and infrastructure.
Landscape character	The combined quality of built, natural and cultural aspects that make up an area and provide its unique sense of place.
Level crossing	A place where rail lines and a road cross at the same elevation.
LEP	Local Environmental Plan
Local road	A road used mainly to access properties located along the road.
NHL	National Heritage List
NSW	New South Wales
OEH	(former) Office of Environment and Heritage
The proposal	Defined as the construction and operation of the Narromine to Narrabri section of Inland Rail.
The proposal site	Defined as the area that would be directly affected by construction of the proposal (also known as the construction footprint). It includes the location of proposal infrastructure, the area that would be directly disturbed by the movement of construction plant and machinery, and the location of the compounds and laydown areas that would be used during construction.
Rail alignment	The exact positioning of the track, accurately defined both horizontally and vertically, along which the rail vehicles operate.
Rail corridor	The corridor within which the rail tracks and associated infrastructure would be located.
Relic	A relic is defined by the NSW Heritage Act as ‘any artefact, object or material evidence which relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and which is of State or local heritage significance’.

Acronym / term	Definition
RNE	Register of National Estate
SEARs	Secretary's Environmental Assessment Requirements
Section 170 Register	A register of heritage assets which must be maintained under section 170 of the <i>Heritage Act 1977</i> .
SHR	State Heritage Register
SSI	State significant infrastructure
Study area	Includes the proposal site plus a 500 metre buffer either side of the proposal site.
SUGAR	Sydney University Giant Air-shower Recorder
TSR	Travelling stock reserve
Visual impact	The impacts on the views from residences workplaces and public places. This can be positive (ie a benefit or an improvement) or negative (ie adverse or a detraction).

1. Introduction

1.1 Overview

1.1.1 Inland Rail and the proposal

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a high performance and direct interstate freight rail corridor between Melbourne and Brisbane, via central-west New South Wales (NSW) and Toowoomba in Queensland. Inland Rail is a major national program that will enhance Australia's existing national rail network and serve the interstate freight market.

The Inland Rail route, which is about 1,700 kilometres long, involves:

- using the existing interstate rail line through Victoria and southern NSW
- upgrading about 400 kilometres of existing track, mainly in western NSW
- providing about 600 kilometres of new track in NSW and south-east Queensland.

The Inland Rail program has been divided into 13 sections, seven of which are located in NSW. Each of these projects can be delivered and operated independently with tie-in points on the existing railway.

Australian Rail Track Corporation Ltd (ARTC) ('the proponent') is seeking approval to construct and operate the Narramine to Narrabri section of Inland Rail ('the proposal').

1.1.2 Approval and assessment requirements

The proposal is State significant infrastructure and is subject to approval by the NSW Minister for Planning and Public Spaces under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also determined to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and requires approval from the Australian Minister for the Environment.

This report has been prepared by the JacobsGHD Joint Venture as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to support the application for approval of the proposal, and address the environmental assessment requirements of the Secretary of the NSW Department of Planning, Industry and Environment (the SEARs), dated 9 September 2020.

1.2 The proposal

The proposal consists of about 306 kilometres of new single-track standard gauge railway with crossing loops. The proposal also includes changes to some roads to facilitate construction and operation of the new section of railway, and ancillary infrastructure to support the proposal.

The proposal would be constructed to accommodate double-stacked freight trains up to 1,800 metres long and 6.5 metres high. It would include infrastructure to accommodate possible future augmentation and upgrades of the track, including a possible future requirement for 3,600 metre long trains.

The land requirements for the proposal would include a new rail corridor with a minimum width of 40 metres, with some variation to accommodate particular infrastructure and to cater for local topography. The corridor would be of sufficient width to accommodate the infrastructure currently proposed for construction, as well as possible future expansion of crossing loops for 3,600 metre long trains. Clearing of the proposal site would occur to allow for construction and to maintain the safe operation of the railway.

1.2.1 Location

The proposal would be located between the towns of Narromine and Narrabri in NSW. The proposal would link the Parkes to Narromine section of Inland Rail located in central western NSW, with the Narrabri to North Star section of Inland Rail located in north-west NSW.

The location of the proposal is shown in Figure 1.1.

1.2.2 Key features

The key design features of the proposal include:

Rail infrastructure

- a new 306 kilometre long rail corridor between Narromine and Narrabri
- a single-track standard gauge railway and track formation within the new rail corridor
- seven crossing loops, at Burroway, Balladoran, Curban, Black Hollow/Quanda, Baradine, The Pilliga and Bohena Creek
- bridges over rivers and other watercourses (including the Macquarie River, Castlereagh River and the Namoi River/Narrabri Creek system), floodplains and roads
- level crossings
- new rail connections and possible future connections with existing ARTC and Country Regional Network rail lines, including a new 1.2 kilometre long rail junction between the Parkes to Narromine section of Inland Rail and the existing Narromine to Cobar Line (the Narromine West connection)

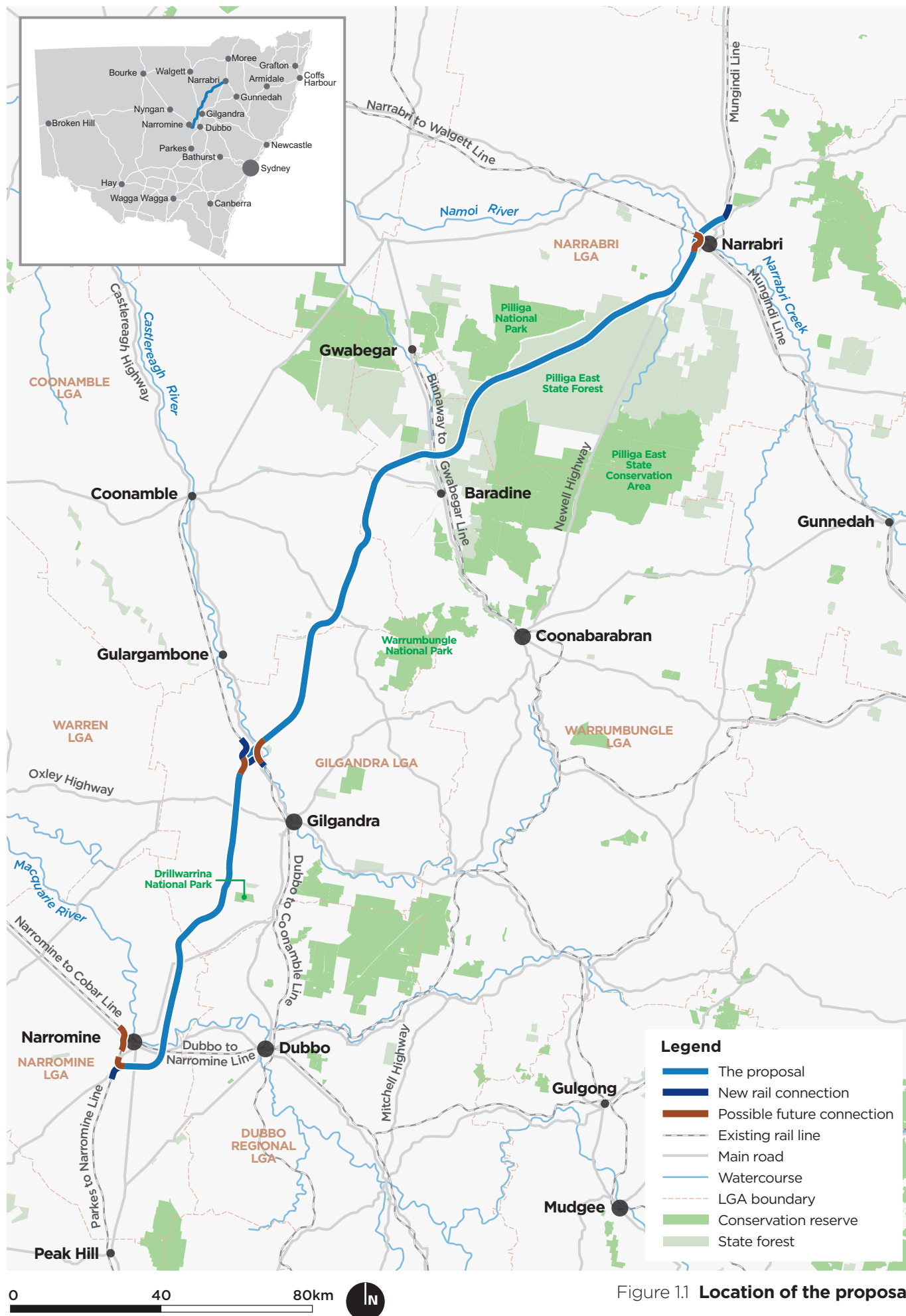
Road infrastructure

- road realignments at various locations, including realignment of Pilliga Forest Way for a distance of 6.7 kilometres
- limited road closures.

The key features of the proposal are shown in Figure 1.2.

Ancillary infrastructure to support the proposal would include signalling and communications, drainage, signage and fencing, and services and utilities.

Further information on the proposal is provided in the EIS.



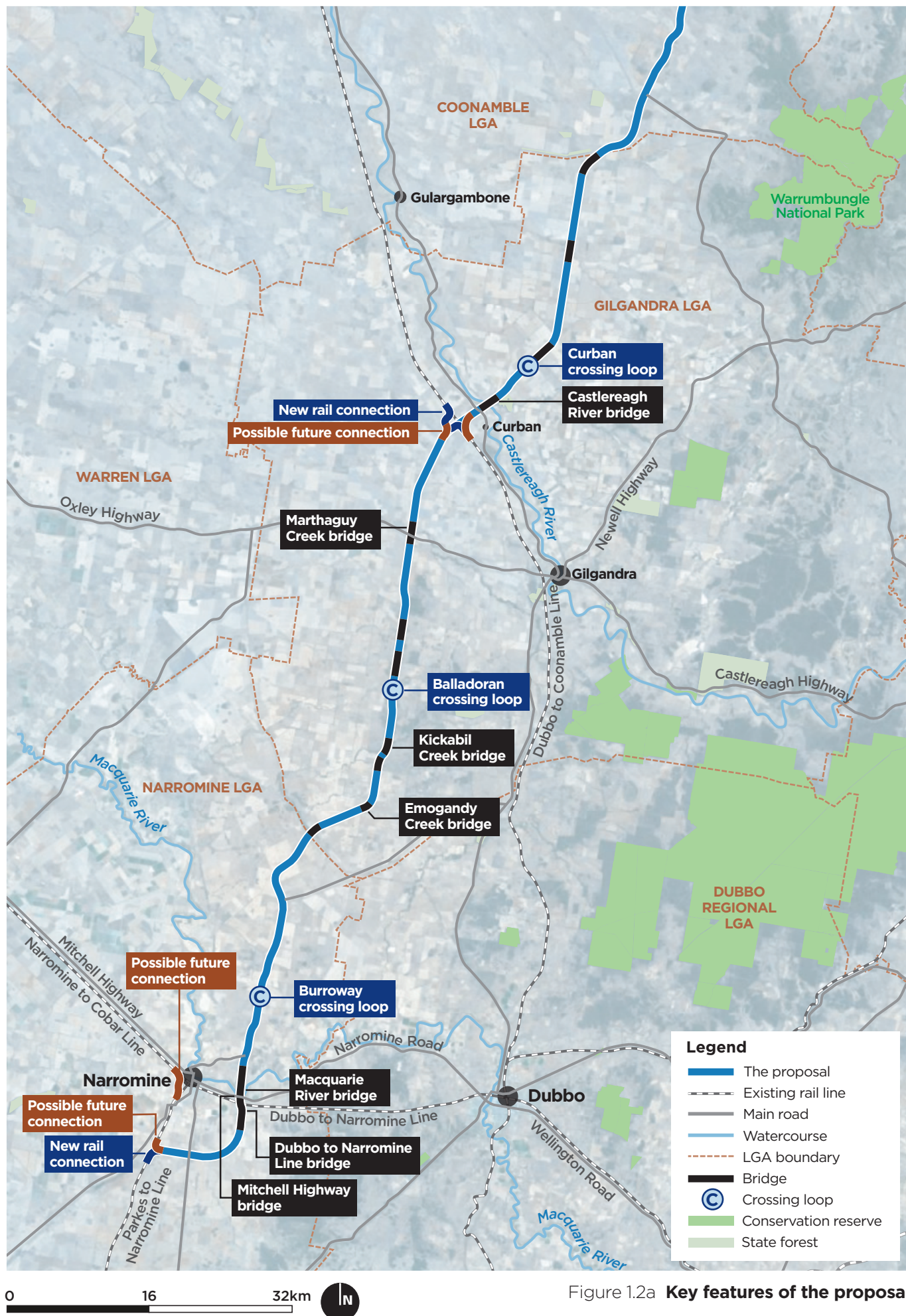


Figure 1.2a Key features of the proposal

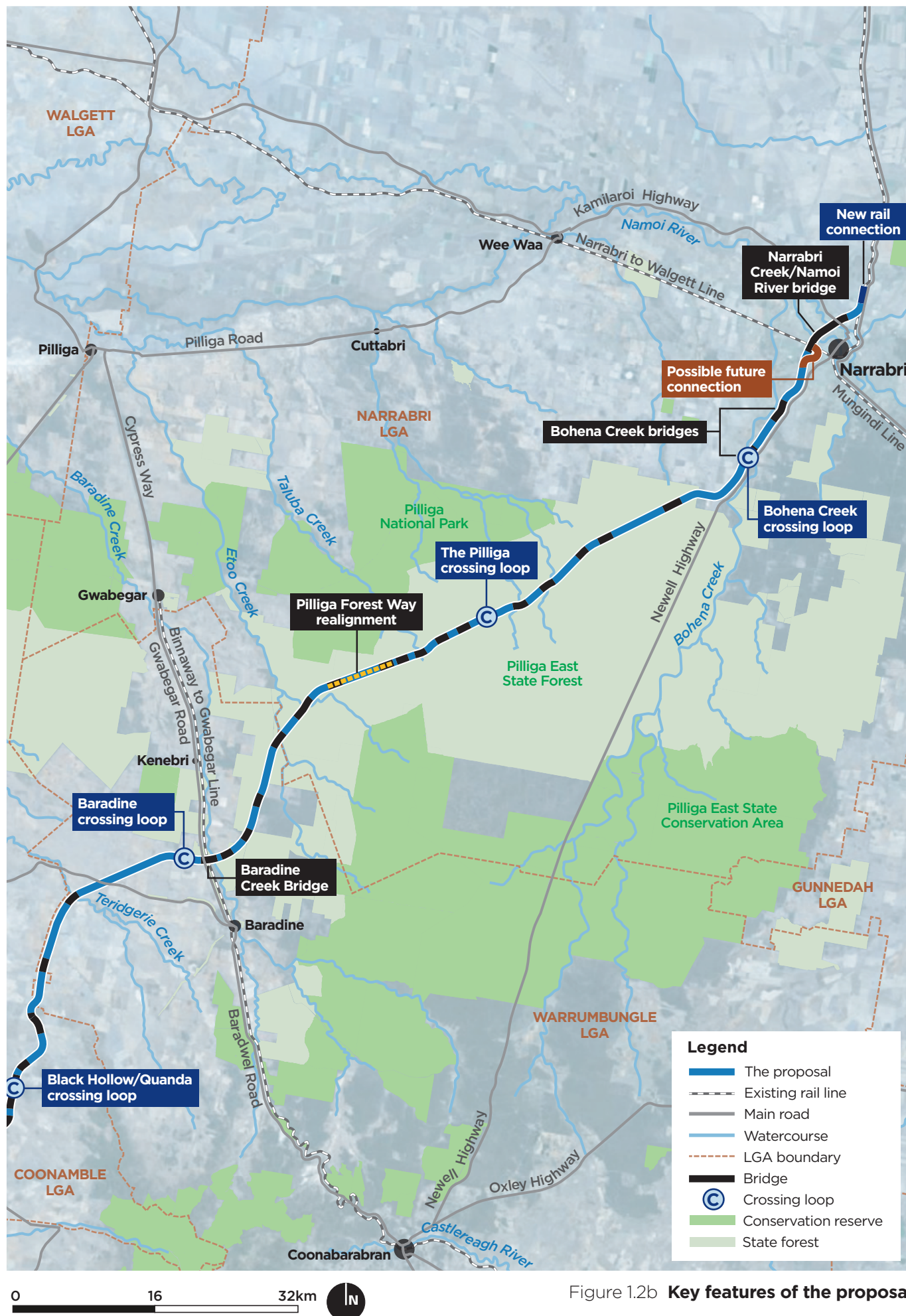


Figure 1.2b Key features of the proposal

1.2.3 Construction overview

An indicative construction strategy has been developed based on the current reference design to be used as a basis for the environmental assessment process. Detailed construction planning, including programming, work methodologies, staging and work sequencing would be undertaken once construction contractor(s) have been engaged and during detailed design.

Timing and work phases

Construction of the proposal would involve five main phases of work as outlined in Table 1.1. It is anticipated that the first phase would commence in late 2021, and construction would be completed in 2025.

Table 1.1 Main construction phases and indicative activities

Phase	Indicative construction activities
Pre-construction	<ul style="list-style-type: none">Establishment of areas to receive early material deliveriesDelivery of certain materials that need to be bought to site before the main construction work
Site establishment	<ul style="list-style-type: none">Establishment of key construction infrastructure, work areas and other construction facilitiesInstalling environmental controls, fencing and site servicesPreliminary activities including clearing/trimming of vegetation
Main construction works	<ul style="list-style-type: none">Construction of the proposed rail and road infrastructure, including earthworks, track, bridge and road works
Testing and commissioning	<ul style="list-style-type: none">Testing and commissioning of the rail line and communications and signalling systems
Finishing and rehabilitation	<ul style="list-style-type: none">Demobilisation and decommissioning of construction compounds and other construction infrastructureRestoration and rehabilitation of disturbed areas

Key construction infrastructure

The following key infrastructure is proposed to support construction of the proposal:

- borrow pits:
 - borrow pit A – Tantitha Road, Narromine
 - borrow pit B – Tomingley Road, Narromine
 - borrow pit C – Euromedah Road, Narromine
 - borrow pit D – Perimeter Road, Narrabri
- three main compounds, which would include a range of facilities to support construction ('multi-function compounds'), located at:
 - Narromine South
 - Curban
 - Narrabri West
- temporary workforce accommodation for the construction workforce:
 - within the Narromine South multi-function compound
 - Narromine North
 - Gilgandra
 - Baradine
 - within the Narrabri West multi-function compound.

The key construction infrastructure are shown in Figure 1.3.

Other construction infrastructure would include a number of smaller compounds of various sizes located along the proposal site, concrete batching plants, laydown areas, welding yards, a concrete pre-cast facility and groundwater bores for construction water supply.

1.2.4 Operation

The proposal would form part of the rail network managed and maintained by ARTC. Train services would be provided by a variety of operators. Inland Rail as a whole would be operational once all 13 sections are complete, which is estimated to be in 2025.

It is estimated that Inland Rail would be trafficked by an average of 10 trains per day (both directions) in 2025, increasing to about 14 trains per day (both directions) in 2040. This rail traffic would be in addition to the existing rail traffic using other lines that the proposal interacts with.

The trains would be a mix of grain, bulk freight, and other general transport trains. Total annual freight tonnages would be about 10 million tonnes in 2025, increasing to about 17.5 million tonnes in 2040.

Train speeds would vary according to axle loads, and range from 80 to 115 kilometres per hour.

1.3 Purpose and scope of this report

The purpose of this report is to assess the potential non-Aboriginal heritage impacts from constructing and operating the proposal. The report:

- addresses the relevant SEARs listed in Table 1.2
- describes the existing environment with respect to non-Aboriginal heritage
- assesses the impacts of constructing and operating the proposal on non-Aboriginal heritage
- recommends measures to mitigate and manage the impacts identified.

The methodology for the assessment is described in section 3.

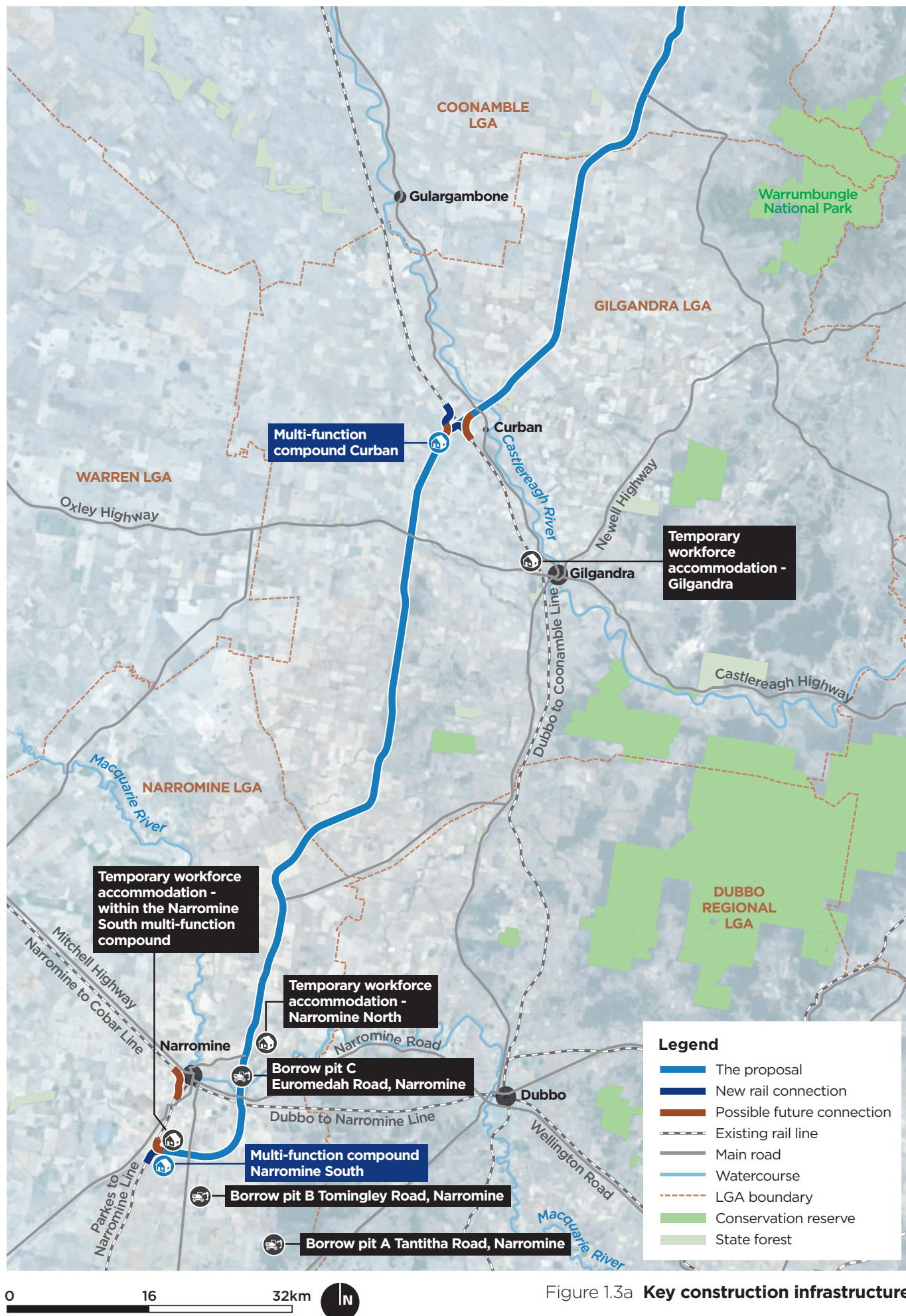


Figure 1.3a **Key construction infrastructure**

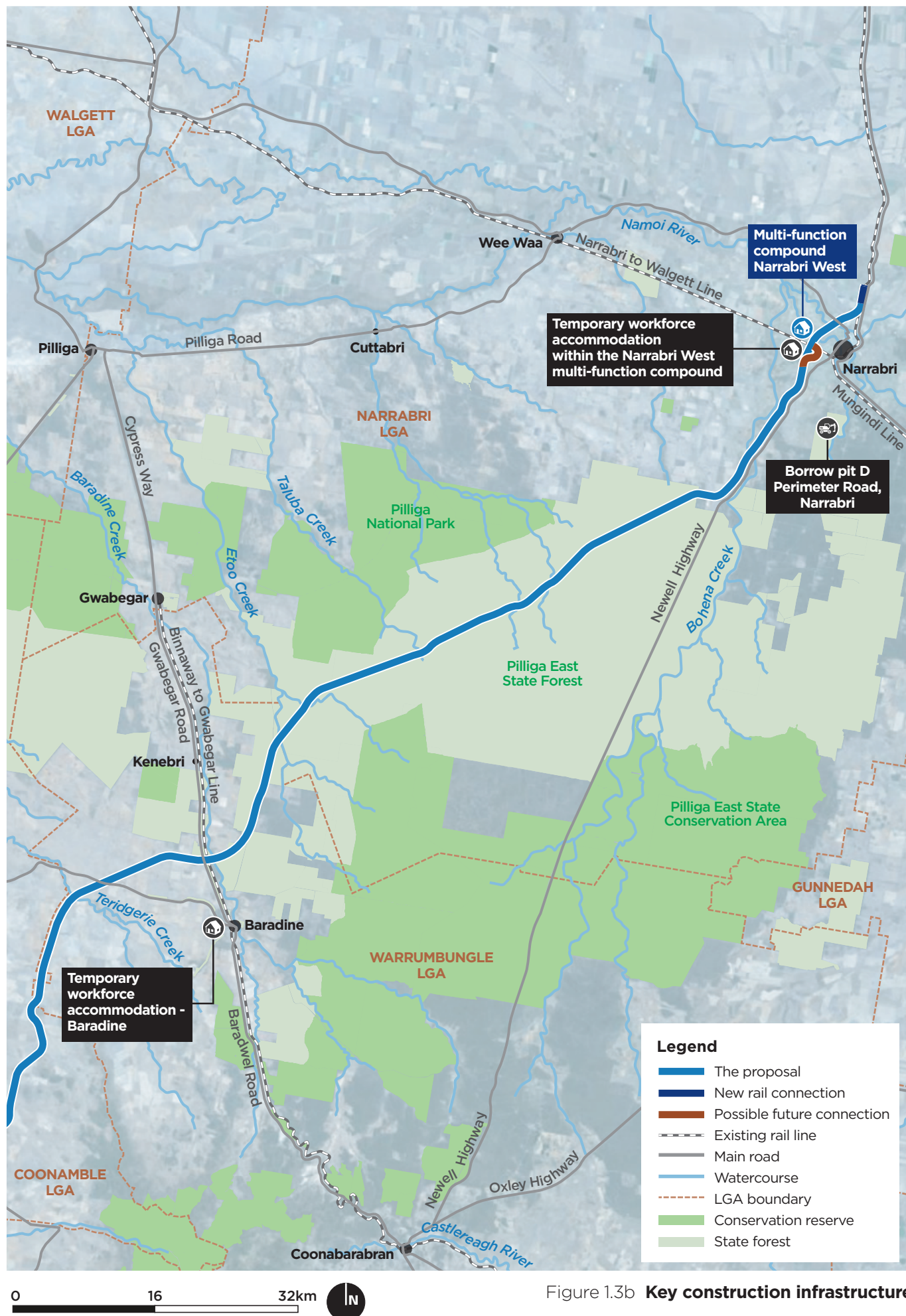


Figure 1.3b **Key construction infrastructure**

Table 1.2 SEARs relevant to this assessment

SEAR number	Requirements	Where addressed in this report
14.1	The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of:	Section 3 details the methodology used in this assessment to identify heritage items, assess the significance of heritage items, and assess the impacts on heritage items.
14.1	(c) Environmental heritage, as defined under the <i>Heritage Act 1977</i> ; and	Section 6 identifies heritage items within the study area which meet the definition of environmental heritage. Section 7 assesses the impacts to all of these heritage items.
14.1	(d) Items listed on the National and World Heritage lists	None are situated in the study area.
14.4	Where impacts to State or locally significant heritage items are identified, the assessment must:	-
14.4	(a) Include a statement of heritage impact for all heritage items (including significance assessment);	Section 7.4 and 7.5 provides a statement of heritage impact for each heritage item which is impacted by the proposal. – Impact assessment Section 6 provides a significance assessment for each heritage item within the study area.
14.4	(b) Consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant);	Section 7.1 considers vibration and visual impacts across the proposal. Section 7.4 considers construction impacts to each heritage item, and section 7.5 considers operational impacts to each heritage item. Section 3.6.1 of the methodology describes the impacts which have been considered throughout the assessment.
14.4	(c) Outline measures to avoid and minimise those impacts in accordance with the current guidelines; and	Measures to avoid or minimise impacts are discussed in each of the sub-sections in Section 7. The measures are summarised clearly in section 8, with general measures applicable across the proposal provided in section 8.1, and site-specific measures provided in section 8.2.

SEAR number	Requirements	Where addressed in this report
14.4	(d) Be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria),	Section 3.8 provides details of each of the heritage consultants who contributed to this assessment, including their qualifications and their role in the assessment.

1.4 Structure of this report

The structure of the report is outlined below.

- Section 1 – provides an introduction to the report
- Section 2 – provides an outline of the applicable legislative context relating to heritage and archaeology
- Section 3 – describes the methodology for the non-Aboriginal heritage assessment
- Section 4 – provides an overview of the existing environment, including an historical background for the study area, literature review and database searches to identify known and potential heritage items
- Section 5 – contains the results of the field survey and information regarding additional potential heritage items identified during the field survey
- Section 6 – includes the significance assessment of listed heritage items and potential heritage items to identify whether the item is of local or State significance
- Section 7 – provides an assessment of impacts on significant heritage items during construction and operation of the proposal
- Section 8 – summarises the methods of mitigating impacts on significant heritage items
- Section 9 – provides the conclusion.

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2. Legislative context

2.1 State legislation

2.1.1 Environmental Planning and Assessment Act 1979

The proposal is State significant infrastructure (SSI) by operation of Part 5 Division 5.2 of the EP&A Act, *State Environmental Planning Policy (State and Regional Development) 2011* and *State Environment Planning Policy (Infrastructure) 2007*. As SSI, the proposal needs to be approved by the NSW Minister for Planning and Public Spaces, and the application for approval needs to be supported by an EIS.

Under section 5.23 of the EP&A Act, the requirement for specified authorisations, and the specified provisions of any legislation that may prohibit a State Significant Infrastructure project, including the requirement in the *Heritage Act 1977* for a heritage approval or an excavation permit, do not apply if planning approval has been given for the project.

Land use planning, including zoning and development control, is governed primarily by Local Environmental Plans (LEPs) made under the EP&A Act. LEPs include lists of local heritage items and local heritage precincts, and provide controls on development which may affect those items or be located in those precincts. Although LEP controls do not apply to SSI, relevant LEP lists were reviewed for the purpose of preparing this report.

2.1.2 Heritage Act 1977

The *Heritage Act 1977* (the Heritage Act) provides several mechanisms by which items and places of heritage significance may be protected. The Act is designed to protect both listed heritage items, such as standing structures, and potential archaeological remains or relics. Different parts of the Act deal with these different situations.

Approvals under Part 4 or an excavation permit under Section 139 of the Heritage Act are not required for an approved project under Part 5, Division 5.2 of the EP&A Act, however, this assessment follows the intent of the Heritage Act and has addressed the SEARs.

State Heritage Register

The Heritage Council of NSW maintains the State Heritage Register (SHR). Only those items which are of State heritage significance in NSW are listed on the SHR. Listing on the SHR controls activities such as alteration, damage, demolition and development.

Approved projects to which Part 5, Division 5.2 applies do not require approval under Part 4 of the Heritage Act (eg a Section 60 approval) for items on the SHR. The requirement to assess the potential impacts of State significant infrastructure on heritage is provided by the SEARs.

Archaeological relics

Part 6 Division 9 of the Heritage Act protects archaeological 'relics' from being 'exposed, moved, damaged or destroyed' by the disturbance or excavation of land. This protection extends to the situation where a person has 'reasonable cause to suspect' that archaeological remains may be affected by the disturbance or excavation of the land. It applies to all land in NSW that is not included in the SHR. A 'relic' is defined by the Heritage Act as:

Any deposit, object of material evidence which relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and has local or state significance.

Section 139 of the Heritage Act requires any person who knows or has reasonable cause to suspect that their proposed works will expose or disturb a 'relic' to first obtain an Excavation Permit from the Heritage Council of NSW (pursuant to Section 140), unless there is an applicable exception (pursuant to Section 139(4)).

Section 146 of the Heritage Act requires any person who is aware or believes that they have discovered, or located, a relic must notify the Heritage Council of NSW providing details of the location and other information required.

Section 170 register

Section 170 of the Heritage Act requires State government agencies to maintain a 'heritage and conservation register' of heritage items which are owned or occupied by the agency. ARTC is subject to this requirement as a result of specific provisions in the *Transport Administration Act 1988*. ARTC's heritage and conservation register was reviewed for the purpose of preparing this report.

2.2 Commonwealth legislation

2.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) provides a legal framework to protect and manage prescribed Matters of National Environmental Significance (MNES). The MNES relevantly include the World heritage values of a listed World heritage place and the National heritage values of a listed National heritage place.

The EPBC Act also provides for the management by Commonwealth agencies of National heritage places and separately listed Commonwealth heritage places.

ARTC is not a Commonwealth agency under the EPBC Act, but the National Heritage List (NHL) and the Commonwealth Heritage List (CHL) provide important resources for evaluating heritage significance and impacts as part of this report.

Under the EPBC Act, an action will need approval from the Minister for the Environment if the action has, will have, or is likely to have a significant impact on MNES. The proposal has been declared a controlled action and approval under the EPBC Act is required, but only in relation to specified threatened species and ecological communities which are listed under the EPBC Act. Therefore, EPBC Act approval in relation to heritage matters is not required.

In determining whether to grant approval, the Environment Minister must consider, relevantly, the likely impact on MNES.

Commonwealth Heritage List

The CHL is a list of properties owned by the Commonwealth that have been assessed as having significant heritage value. Any proposed actions on CHL places must be assessed for their impact on the heritage values of the place in accordance with *Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies (Significant Impact Guidelines 1.2)*. The guidelines require the proponent to undertake a self-assessment process to decide whether or not the action is likely to have a significant impact on the environment (as defined in the EPBC Act on Commonwealth land or where the proponent is a Commonwealth agency), including the heritage value of places. If an action is likely to have a significant impact an EPBC Act referral must be prepared and submitted to the Minister for approval.

National Heritage List

The NHL is a list of places with outstanding heritage value to Australia, including places overseas. Any proposed actions on NHL places must be assessed for their impact on the heritage values of the place in accordance with *Matters of National Environmental Significance (Significant Impact Guidelines 1.1)*. The guidelines require the proponent to undertake a self-assessment process to decide whether or not the action is likely to have a significant impact on a matter of National Environmental Significance, including the national heritage value of places. If an action is likely to have a significant impact an EPBC Act referral must be prepared and submitted to the Minister for approval.

Register of the National Estate

The Register of the National Estate (RNE) was formerly compiled as a record of Australia's natural, cultural and Aboriginal heritage places worth keeping for the future. The RNE was frozen on 19 February 2007, which means that no new places have been added or removed since that time. From February 2012 all references to the RNE were removed from the EPBC Act. The RNE is maintained on a non-statutory basis as a publicly available archive.

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3. Methodology

3.1 Relevant guidelines and policies

This assessment has been prepared in accordance with the following guidelines:

- *Assessing Heritage Significance* (NSW Heritage Office, 2001)
- *Statements of Heritage Impact* (NSW Heritage Office, 2002)
- *Historical Archaeology Code of Practice* (NSW Heritage Office, 2006)
- *Assessing Significance for Historical Archaeological Sites and Relics* (NSW Heritage Division, 2009)
- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS, 2013).

3.2 Study area

The study area is defined as the proposal site plus areas within 500 metres of the proposal site.

A broader study area was considered in the initial desktop assessment and field survey stages of the assessment, and was subsequently refined to the 500 metre buffer either side of the proposal site defined above.

The significance assessment of listed and potential heritage items has been prepared for all items identified within the study area. The impact assessment has considered impacts to all identified heritage items, conservation areas or areas of archaeological potential that are located within the study area.

3.3 Desktop assessment

This stage of the proposal was essential to identify significant non-Aboriginal heritage items within and near the study area. The desktop assessment guided the scope and focus of the field survey. The desktop assessment also informed the later significance assessment.

The desktop assessment involved the following tasks:

- Searches of all available non-Aboriginal heritage registers for the proposal, including the SHR, relevant Section 170 Heritage and Conservation Registers, National Trust of Australia (NSW) list, Register of the National Estate, Commonwealth Heritage List, National Heritage List, and World Heritage List.
- Searches of the following LEPs: Narromine LEP 2011; Gilgandra LEP 2011; Coonamble LEP 2011; Warrumbungle LEP 2013 and Narrabri LEP 2012.
- A literature review, which involved archival research of early maps, plans, land records, previous heritage assessments, heritage studies and conservation management plans, and the Phase 1 Environmental Report for the proposal (GHD, 2016), to identify known heritage items.
- Review of LIDAR imagery, recent aerial imagery, historical maps and survey plans for the study area to identify potential areas of historical occupation/development. These assisted in informing targeted areas for field survey.

- Consultation with local historical societies to identify and source further information on potential heritage items.
- Identification of historic themes relevant to the study area from the Australian Heritage Commission's Australian Historic Themes Framework, to help inform likely types of heritage items within the study area and support assessment of significance of individual heritage items.

3.4 Field survey

A field survey was undertaken from 29 January 2019 to 1 February 2019 to refine non-Aboriginal heritage constraints for the Feasibility Design, and to provide details to inform significance assessment and impact assessment for the proposal. This field survey was undertaken across a broader area than that defined as the current study area for this assessment. Additional targeted field surveys were undertaken in July 2019 and October 2019 to investigate the presence of non-Aboriginal heritage in the location of proposed borrow pits, and the findings have been included in this report where relevant.

3.4.1 Aims of the field survey

The field survey of listed and potential heritage items identified in desktop assessment aimed to:

- understand the location and nature of listed heritage items
- understand the physical nature and description of potential heritage items to assist in assessing their heritage significance
- determine if potential heritage items identified in the desktop assessment were located within the proposal site
- understand the potential for impacts to heritage from the proposal and inform measures for mitigating impact.

3.4.2 Field survey organisation and recording

The survey was organised with the items at Narromine visited first, and Narrabri visited last. The survey was undertaken by car and the route followed the alignment of the study area as closely as possible. Listed and potential heritage items identified as part of the desktop assessment were visited in linear order from north to south. Each item was mapped using GPS coordinates, photographed using a digital camera and described on a recording sheet and field notes. Where previously unidentified potential heritage items were identified during the field survey these were recorded in the same way.

3.4.3 Field survey participants

The main field survey was undertaken by:

- Deborah Farina (Senior Archaeologist, Jacobs)
- Clare Leivers (Project Archaeologist, Jacobs).

Owing to the inherent difficulties in locating sites in the Pilliga forests, Darren Worrall of the Forestry Corporation NSW guided the survey team through the Pilliga East State Forest on 31 January 2019.

The additional targeted field surveys for borrow pits and haul roads were undertaken by:

- Neville Baker (Baker Archaeology) – July 2019
- Andy Roberts (Senior Archaeologist, Jacobs) – October 2019.

3.4.4 Limitations

The extent and detail able to be obtained from the field survey was affected by property access limitations. At the time of survey, it was not possible to secure permission to access private properties for a considerable proportion of the study area. For those items where access was not possible, these were viewed from public areas and roadside locations where possible and as much detail as was able to be viewed was recorded. This has subsequently affected the significance assessment and impact assessment, detailed in section 3.7. Areas within the proposal site where no property access was available at the time of original survey would be investigated during detailed design by an appropriately qualified heritage specialist.

3.5 Significance assessment

Heritage significance in NSW is assessed using the gazetted heritage significance criteria (refer Table 3.1) detailed in *Assessing Heritage Significance* (NSW Heritage Office, 2001) which are based on principles established in the *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS, 2013). In order to be considered of heritage significance, an item must fulfil at least one of the criteria. In addition to the significance criteria, the intactness and integrity of an item should also be assessed when assessing significance and grading.

Significance assessment were prepared for each heritage item or potential heritage item situated within the study area (section 6). Places outside the study area that were identified in the desktop assessment or the field survey prior to the study area being refined were not assessed for their significance. Assessments of archaeological potential are also included within section 6.

For those items where physical access was not possible, the heritage significance was assessed on the basis of the desktop findings, and the limited information collected in the field. In some instances, further, more detailed inspection may better support the assessments made, and these are noted in the individual significance assessments in section 6.

Table 3.1 NSW heritage significance criteria

Criterion	Description	Short title
(a)	An item is important in the course, or pattern of NSW's cultural or natural history (or the cultural or natural history of the local area).	Historical significance
(b)	An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).	Associative significance
(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).	Creative/technical significance
(d)	An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.	Social significance
(e)	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).	Research potential

Criterion	Description	Short title
(f)	An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	Rarity
(g)	<p>An item is important in demonstrating the principal characteristics of a class of NSW's:</p> <ul style="list-style-type: none"> • Cultural or natural places; or • Cultural or natural environments <p>(or a class of the local area's</p> <ul style="list-style-type: none"> • Cultural or natural places; or • Cultural or natural environments). 	Representativeness

3.6 Impact assessment

3.6.1 Impacts considered

Impacts to heritage items are considered arising from the following:

- **Construction impacts** - impacts arising from the construction of the proposal, such as:
 - rail alignment
 - borrow pits
 - sediment dams
 - relocation of essential services
 - road realignments
 - temporary haul roads
 - construction compounds
 - temporary workforce accommodation.
- **Operational impacts** - impacts associated with the operation of Inland Rail, such as visual impacts (changes to the visual appearance of an item or its setting), and vibration from rail operations directly impacting heritage structures.
- **Cumulative impacts** – where the impacts generated by this proposal, when considered in conjunction with impacts of nearby relevant projects may result in an overall impact that is greater than each stand-alone project.

3.6.2 Definition of impacts

For the purposes of this assessment, the following categories of impact were considered:

- **Direct impact.** This is defined as planned, intentional physical change occurring to a heritage item from proposal activities occurring within the heritage boundary, which results in the significant diminution of the historical heritage values of that heritage item. Direct impact may include minor and peripheral changes, or large-scale removal and destruction, including demolition, archaeological disturbance, and the requirement for architectural noise treatment.
- **Potential direct impact.** This is defined as incidental physical impacts and consequences occurring to a heritage item from proposal activities occurring adjacent to or within the heritage boundary, which result in the significant diminution of the historical heritage values of that heritage item. Potential direct impact may include a variety of changes including inappropriate access by vehicles, which can be managed or mitigated by appropriate measures.

- **Indirect impact.** This is defined as a secondary impact to a heritage item or to its surroundings (where those surroundings contribute significantly to the historical heritage values of that item or place), where this occurs outside the heritage boundary, and the impact is a consequence of the proposal. The potential for indirect impact varies according to the nature of the heritage item, and its proximity to the proposal. Indirect impact may include vibration, settlement, visual impact, social impact, impact to landscapes and vistas, changes to ongoing use, changed associations, or change to access. Assessments of indirect impact were completed based on site-specific characteristics.

3.6.3 Levels of impacts

The level of impact on the heritage significance of each heritage item in the study area has been assessed based on the definitions and framework for assessing severity of impacts from the EPBC Act Significant impact guidelines 1.2 (Department of Sustainability Environment Water Population and Communities, 2013). These Commonwealth guidelines have been used as no similar definitions or guidelines exist for any particular state jurisdiction.

The following criteria were used to assess the level of impact:

- the scale of the proposed work and its impact
- the intensity of the proposed work and its impact
- the duration and frequency of the proposed work and its impact.

The levels of impact used in this assessment are defined in Table 3.2. For impact to meet a certain level it must generally have two or more of the characteristics noted. The level of impact assigned to each heritage item is based on the level assessed following implementation of management or mitigation measures.

Table 3.2 Definitions of levels of impacts

Two or more characteristics	Scale	Intensity	Duration/frequency
Major	Medium – large	Moderate – high	Permanent/irreversible
Moderate	Small – medium scale	Moderate	Medium – long term
Minor	Small/localised	Low	Short term/reversible
Negligible	Little or no physical impact; or little or no impact on heritage significance from physical impacts; or potential physical impacts can be prevented through implementation of management measures (eg reduction of vibration).		

3.6.4 Cumulative impacts

Cumulative impacts occur when impacts from a project interact or overlap with impacts from other projects and potentially result in a larger overall impact. Cumulative impacts may also occur when projects are constructed consecutively, resulting in construction fatigue for local receivers.

Relevant projects were identified for this assessment based on criteria including location overlapping or adjacent to the current proposal, timeframe for construction overlapping or recently completed, size and scale of impacts, and status as approved or under statutory environmental impact assessment. This cumulative impact assessment is based on the broad requirements set out by the SEARs. There are currently no NSW or Australian Government guidelines on assessing cumulative impact.

3.7 Limitations and exclusions

ARTC has undertaken consultation with stakeholders and the community for Inland Rail since 2006. Targeted consultation for the Narromine to Narrabri section of Inland Rail commenced in 2015, with the aim of keeping all stakeholders and the community informed of the proposal status. Throughout this consultation, ARTC has requested access to properties in the form of formal written land access agreements, to enable field investigations to be undertaken to inform the route selection, design development and environmental assessment phases. Where access was not granted by the property owner no detailed field investigations have been undertaken. This has been a constraint to the heritage assessment and a staged investigation program was developed to manage the property access limitations.

Where access to locations of listed and potential heritage items identified by the desktop assessment was possible, a further assessment of the heritage significance and the potential impacts was possible, as per standard professional practice. For those items where access was not possible, heritage significance and potential impacts were assessed using available knowledge sources, including historical heritage databases, historical mapping and documentary sources, previous heritage studies and aerial imagery, and the limited information collected in the field. In relation to any doubts as to significance of and impacts to these places, a conservative, cautious approach has been adopted.

3.8 Authorship

The assessment was carried out by a team of suitably qualified heritage consultants as listed in Table 3.3.

Table 3.3 Heritage consultants carrying out this assessment

Name	Qualifications	Role
Deborah Farina	Master of History (current) Bachelor of Arts (Archaeology/ Paleoanthropology) Bachelor of Laws	Assessment lead Primary author Field survey – main study area
Clare Leever	Graduate Diploma of Archaeology Bachelor of Archaeology	Field survey – main study area Report preparation
Alexandra Seifertova	BA (Hons) Archaeology BA Archaeology and Studies of Religion	Report preparation
Rose Overberg	Masters in Archaeology and Heritage Management Bachelor of Arts (Archaeology/Anthropology) Bachelor of Science (Honours) (Geology)	Technical review and advice
Dr Karen Murphy	PhD (Historical Archaeology) Bachelor of Arts (Honours) (Archaeology)	Report preparation and update
Fiona Leslie	Bachelor of Arts (Honours – Historical Archaeology) Bachelor of Arts / Bachelor of Science (Plant Ecology and Anthropology)	Technical review and advice
Andrew Roberts	Master of Letters (by thesis) Bachelor of Arts (Archaeology and Palaeoanthropology)	Field survey – haul roads
Neville Baker	BA Hons (Prehistory)	Field survey – borrow pits

4. Existing environment

This section provides a summary of the existing environment in relation to non-Aboriginal heritage within the study area. It begins with identifying relevant historical themes, then includes a contextual history for the study area and the region in which it sits, the results of heritage register searches for the study area, and a review of previous heritage studies and assessments relevant to the proposal.

4.1 Australian historic themes

Based on the background history and literature review of the study area, relevant historical themes have been identified which reflect the history and nature of development the study area and its surrounds. These themes assist in identifying likely heritage items in the study area, and assessing the significance of potential heritage items. Table 4.1 presents a summary of the identified themes presented in the Australian Historic Thematic Framework.

Table 4.1 Australian historic themes for the study area

Theme	Sub-theme	Sub-sub-themes/Notes
2. Peopling Australia	2.2 Adapting to diverse environments	Because of the often-harsh climate and low resources, both Aboriginal and non-Aboriginal people needed to adapt to their surroundings to survive.
	2.4 Migrating	2.4.4 Migration through organized colonization
	2.6 Fighting for land	2.6.1 Resisting the advent of Europeans and their animals 2.6.2 Displacing indigenous people
3. Developing local, regional and National economies	3.3 Surveying the continent	3.3.2 Looking for overland stock routes
		3.3.4 Looking for land with agricultural potential
		3.4.2 Mining
		3.4.4 Making forests into a saleable resource
		3.4.5 Tapping natural energy sources
	3.5 Developing primary production	3.5.1 Grazing stock
		3.5.2 Breeding animals
		3.5.3 Developing agricultural industries
	3.7 Establishing communications	3.7.1 Establishing postal services
		3.7.2 Developing electric means of communication
	3.8 Moving goods and people	3.8.7 Building and maintaining roads
	3.11 Altering the environment	3.11.1 Regulating waterways
		3.11.2 Reclaiming land
		3.11.5 Establishing water supplies
	3.12 Feeding people	

Theme	Sub-theme	Sub-sub-themes/Notes
	3.14 Developing an Australian engineering and construction industry	3.14.1 Building to suit Australian conditions
		3.14.2 Using Australian materials to construction
	3.16 Struggling with remoteness, hardship and failure	
	3.22 Lodging people	
4. Building Settlements, Towns and Cities	4.1 Planning urban settlements	4.1.1 Selecting township sites
	4.2 Supplying urban services (power, transport, fire prevention, roads, water, light and sewerage)	
	4.5 Remembering significant phases in the development of settlements, towns and cities	
5. Working	5.8 Working on the land	
8 Developing Australia's Cultural Life	8.14 Living in the country and rural settlements	

4.2 Historical context

4.2.1 Introduction

The study area is approximately 306 kilometres in length and its history is varied. Although most of the study area developed following the break-up of large pastoral stations in the mid-19th century, some areas have developed for other reasons resulting in their own unique history. To provide a context for the known and potential non-Aboriginal heritage within the study area, this section is broken into subsections reflecting those used in the description of the rail route. However, owing to its unique landform and history, The Pilliga is treated as a separate item.

Although the study area was settled by various non-Aboriginal people at different times, there are some common themes. These general historical themes are discussed below.

The study area is located within the region referred to as the Darling Plains (see Figure 4.1) by the Heritage Council in their regional histories (NSW Heritage Office and Department of Urban Affairs and Planning, 1996). This area is defined as that bounded by the Warrumbungle and Nandewar ranges in the east, the Western Division in the west and the Liverpool Plains in the south. The region is characterised by the upper reaches of the Namoi, Macquarie and Bogan Rivers draining into the Upper Darling River. The major agricultural pursuits are wool, wheat and cotton-growing, with oats in the east, oil and fodder grains elsewhere.



Source: HO & DOUAP, 1996:79

Figure 4.1 Darling Plains region

4.2.2 Exploration

John Oxley undertook a survey of the interior of NSW from Bathurst in May 1818, arriving in the present-day location of Narromine in June of that year. He and his party followed the route of the Macquarie River until it reached the Macquarie Marshes, before turning north east towards the Pilliga forests. This section of Oxley's exploration included the discovery of the Castlereagh, Peel and Hastings Rivers. The party followed the Hastings to the coast and named it "Port Macquarie". The journey ended at Newcastle in November 1818 (Dunlop, 1967).

Oxley's explorations opened up the Liverpool Plains to agriculture. However, they also suggested the presence of an inland sea, to which the explored rivers flowed. A decade later, in 1828, Captain Charles Sturt received permission to trace the course of the Macquarie River with fellow explorer, Hamilton Hume. The party left the government station at Wellington Valley in December 1828. On 31 December Hume and Sturt conducted independent reconnaissances of the course of the Macquarie River to the Macquarie Marshes and the Bogan River respectively (Gibbney, 1967).

Shortly afterwards, in 1831, surveyor Sir Thomas Livingstone Mitchell was granted permission to explore the area between the Castlereagh and Gwydir Rivers. The party left Armidale in November 1831 and explored the Namoi as far as Narrabri, then cut across to the Gwydir near Moree. Mitchell charted the tributaries between the Gwydir and the Barwon rivers, however following the death of two of his party and theft of stores in skirmishes with Aboriginal people, the expedition was terminated in February 1832 (Baker, 1967).

4.2.3 Pastoralism

The land covering the proposal area was once taken up by squattages; large pastoral properties “squatted” on by entrepreneurial landholders operating outside of the limits of the Nineteen Counties that made up the colony of NSW by Ralph Darling in 1826. Government land grants were made within those nineteen counties, whilst grants were not made in the remainder of the country, owing to the inability of the early government to provide services such as police and post.

Nonetheless, large landowners and former convicts alike began grazing large flocks and herds outside of the Nineteen Counties (see Figure 4.2). Some squattages went on to become large pastoral properties that gave their names to their localities (such as “Narramine”, “Mount Tenandra” and “Tonderburine”), some were large but only operated by one or two people. Andrew Brown’s *Barradean*, for example, was thought to have been run by one or two convicts and an overseer, whilst others, such as *Narrabri*, became so well-known that towns grew up around them.

For the next twenty years squatters leased enormous parcels of land, leaving little for smaller farmers. By the 1860s, a series of reforms designed to break the squatters’ hold on land were introduced, most notably with the introduction of the *Crown Lands Alienation Act 1861* and the *Crown Lands Occupation Act 1861*, known informally as the *Robertson Acts*. These acts allowed the free selection of Crown land on certain conditions, such as the requirement that selectors live on the land selected for at least three years, and to make improvements to the value of no less than £1 per acre. The legislation spelt the end of the domination of land tenure by the squatters.



(Source: Pickard, 2008:59)

Figure 4.2 Typical shepherd's hut, c.1864

Pastoral runs in the study area

The following comprises a list of some of the better-known pastoral stations within the study area. The list is not exhaustive, as some were not permanently settled and often changed hands and/or went unused for years at a time.

Belar Station (see also Section 4.2.5) was located to the west of Coonabarabran and covered approximately 80,000 acres. Originally occupied by William Hayes (also known as “old Billy Hayes”), a free settler who arrived in the Colony in 1817, the *Belar* run included the *Cooanimon*, *Diringulla*, *Parmidman*, *Wambelong*, *Gerawa*, *Mobara*, *Walla Walla* and *Tenandra* stations (Binney, 2005:181). The *Belar* station was sold in July 1854 following Hayes’ death, with 17,000 sheep bought at fifteen shillings a head, and 600 cattle, purchased at £4 per head (Sydney Morning Herald, 1854:5). The *Tenandra* run covered part of the study area, in the vicinity of the “Mount Tenandra” homestead.

Bongeabong Station, also known as *Bungey* or *Bongegalong*, was located approximately 10 kilometres west of Gilgandra, both north and south of the Oxley Highway. Originally 57,100 acres, with 32,800 acres to the north of Marthaguy Creek and 24,300 to the south. The run was leased by J L Cheetham, from at least 1854.

Following the death of Cheetham in 1871, the run was put up for sale in 1872 and was described as follows:

Contains a very large area of very rich pasturage and is permanently watered by the Castlereagh River and the Marthaguy Creek, as well as by lagoons, and a good well close to the homestead. The improvements comprise dwelling house, store, stabling, yards, paddock, etc. (Sydney Morning Herald, 1872:7).

The northern section was resumed by the Government in 1886, with the remaining 24,300 left as leasehold.

The original homestead of the Bongeabong was on the northern banks of Marthaguy Creek, approximately four kilometres to the east of the current alignment of the proposal.

Curban run (also spelt “Curbin”) was originally settled by Robert Bennett from at least 1842. A sales advertisement in 1862 described the run as comprising three blocks, known as *Curbin*, *Carling Goin Goin* and *Willingelong*, with *Curbin* and *Carling Goin Goin* having frontage to both banks of the Castlereagh River and adapted equally for sheep and cattle. *Curbin* is advertised as having extensive improvements, including:

“a commodious dwelling-house of seven rooms, with an adjoining building containing dining room, two other rooms, kitchen, cellar, wash-house, and stores, coachhouse and shed, and large garden”. (Sydney Morning Herald, 1862:6).

Included with the Curban runs were 1,051 head of chiefly breeding cattle.

Millpullen Station, also known as Milpulling to the south of Bungey Station, also owned by the Cheetham family. James Leonard Cheetham originally owned the run, but transferred it to his son, Leonard Cahill Cheetham, in 1864 (Moriarty, 1864:163).

Narrabri run (see also section 4.2.5) was located on both sides of the Namoi River in the vicinity of the current township of Narrabri. Originally occupied by the Doyle family, it covered approximately 90,000 acres.

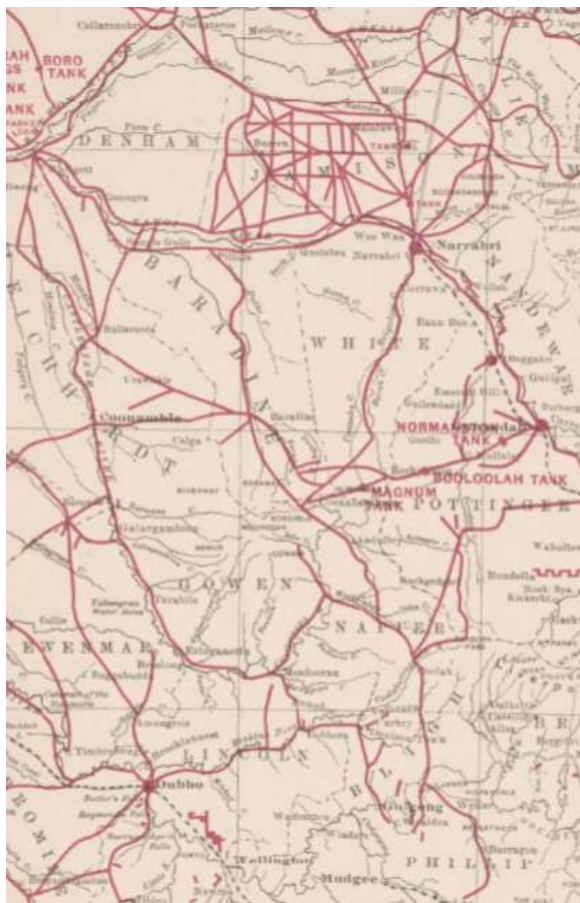
Narramine Station (see section 4.2.5) was located to the south of the Macquarie River surrounding the current township of Narramine. Originally run by John Christie (see section 4.2.5) and William Wentworth, it covered approximately 190,000 acres until 1884, when the NSW government resumed all but 20,000 acres.

4.2.4 Travelling stock reserves

As part of the activities associated with large pastoral stations, stock would often need to be moved from one place to another. In 1836, Charles Darwin noted when visiting James Walker's property, *Wallerawang*, near Lithgow that sheep were moved over a hundred miles from their grazing lands to be shorn (High Ground Consulting, 2009:33). Referred to as the "long paddock", the routes used to move stock from place to place became a network of travelling stock reserves (TSRs).

The origins of TSRs have not been extensively studied, although Spooner *et al* suggest that at least some TSRs followed existing traditional pathways of Aboriginal people (Spooner Firman and Yalmambirra, 2010:330). As many traditional Aboriginal pathways followed rivers, floodplains, lakes and marshes, it is feasible that drovers also followed these pathways to be close to water (Spooner Firman and Yalmambirra 2010:331). McKnight suggested that the first stock routes were developed in two stages: the first to "overland" stock to and from the pastoral stations, and the second to move the stock to key markets once they were established (McKnight in Bombell, 2014:13). Over time TSRs were surveyed, notified and gazetted, resulting in a network of TSRs across the eastern seaboard (see Figure 4.3).

Many of the original TSRs have been destroyed or neglected. At the time of writing the NSW Government has released a Draft TSR Plan of Management, which is on public exhibition until 21 December 2018 (<https://www.ils.nsw.gov.au/livestock/stock-routes>). The Draft Plan of Management indicates that one of its primary goals is to increase the number of interpretive sites explaining the importance of TSRs (New South Wales Local Land Services, 2018:15) and that the development of an Historical Significance Guide for TSRs is of high priority (New South Wales Local Land Services, 2018:19).



Source: National Library of Australia

Figure 4.3 Network of stock routes, tanks and wells, c.1888

4.2.5 Towns and villages

This section details historical information regarding localities within the study area where historical items or potential historical items have been identified, from south to north.

Narromine

As noted above, the first non-Aboriginal person to visit the Narromine area was John Oxley, who traced the course of the Macquarie River in 1818 (see Figure 4.4). Camping nearby on 13 June 1818, Oxley remarked that:

Our route during this day's journey was generally over a very level country, the land three or four miles back from the river very inferior to that on the borders of it, being covered with small trees and brush; the soil a light, red loam. The rich flats on the banks on either side were not flooded and were of the best quality: these flats seemed more extensive on the south than the north side of the river and were bounded by the fine hills, which were passed over on the return of the expedition last year.



Source: National Library of Australia

Figure 4.4 Detail from “A Chart of part of the interior of New South Wales by John Oxley, Surveyor General”, c.1822

This favourable report of extensive flats and fertile soil was encouraging enough to result in further explorations in the area. Charles Sturt sought to verify Oxley's findings in 1828, and Surveyor-General Thomas Mitchell sent Robert Dixon in 1833. Mitchell himself explored the area in 1835 on his way to the Bogan River. Word eventually spread of the availability of some good country between the Macquarie and Bogan Rivers (Narromine Local History Group, 2002:7).

By the 1840s the region was occupied by squatters and their pastoral runs. The Narramine station was located on the present site of the town and gave it its name (see Figure 4.5 and Figure 4.6). In 1866 Narramine was described as covering 57,200 acres with a capability of grazing 960 head of cattle (Bailliere and Whitworth, 1866:399).



Source: National Library of Australia

Figure 4.5 1860 Pastoral map showing the location of Narramine station



Source: State Library of New South Wales

Figure 4.6 “Panorama of Harvesting Wheat, Narramine Station, Narramine, 1903” by Melvin Vaniman

A newspaper article of 1866 describes the squattage of John Christie and William Wentworth. The pair owned a number of squattages in the far west of the state; Narramine was John Christie's residence. According to the article, Christie, a JP, kept his homestead “on a grand scale” and that anyone visiting the property “...cannot fail to observe the profuse and generous hospitality dealt out by its proprietor” (Dubbo Dispatch, 1866:3). The station imported sheep and cattle that were overseen by superintendents who lived on the property. Other runs associated with the Narramine run and also owned by Christie and Wentworth included the Haddon Riggs, Butterbone, Ganalgang, Marianbone, Gillawarna and Wambeanua. Overall, Christie and Wentworth ran 50,000 sheep and 10,000 cattle on their properties (Dubbo Dispatch, 1866:3-4).

Christie drowned in the Macquarie River in November 1869. An inquest found that his death was “committed by himself whilst labouring under a fit of temporary insanity” (Empire, 1868:3). Leaving no children, the Narramine station passed to his partner, before passing to Frank Mack and Sidney Austin in 1884 (Pastoral Review, 1926:510). In 1884, Narramine was transferred to Mack and Austin. The pastoral station was 190,000 acres at this time. All but 20,000 acres of the property was resumed by the Government for the town of Narramine, distinguished from

name of the pastoral run by the “o”. The remaining 20,000 acres is what passed to Mack and Austin (Figure 4.6) (The Pastoralists' Review, 1909:932). Narramine station has now been owned by the Browning family for three generations, and is an award-winning cropping station, currently growing wheat, canola and chickpeas.

The boundaries of the town of Narramine were notified on 16 July 1883, with the larger town and suburban boundaries notified on 20 March 1885. Town lots began to be sold at Dubbo in February 1887, and continued throughout 1887- 1890 (Chapman, 1883). The establishment of the town appears to have been instigated by the coming of the railway in May 1883. At the time of the opening of the railway station, it too was named “Narramine”, the same as the pastoral station, but was changed in 1889 to “Narromine”.

Coboco, Drinane and Kickabil

This cluster of localities is located approximately 30 kilometres north east of Narramine. Although once thriving communities, there is little remaining in the landscape of these pastoral runs.

Coboco is located on the Collie Road and was once part of the Bungey pastoral run until it was subdivided in the late 19th century. In the place of squattages, large agricultural properties, such as Fallonville, were established in the late 19th century. As with Kickabil the principal pursuits at that time were sheep grazing and wheat cropping. A public hall was established in 1912 and has since celebrated its centenary. It is located approximately 1.7 kilometres to the south east of the proposed alignment, on Collie Road.

Drinane is located approximately three kilometres north of Coboco and was named after a sheep station established in the late 19th century. A school was established on Old Mill Road in 1931 and survived until 2007, when it closed following dwindling class numbers (see Figure 4.7). The school buildings now sit vacant and deteriorating.

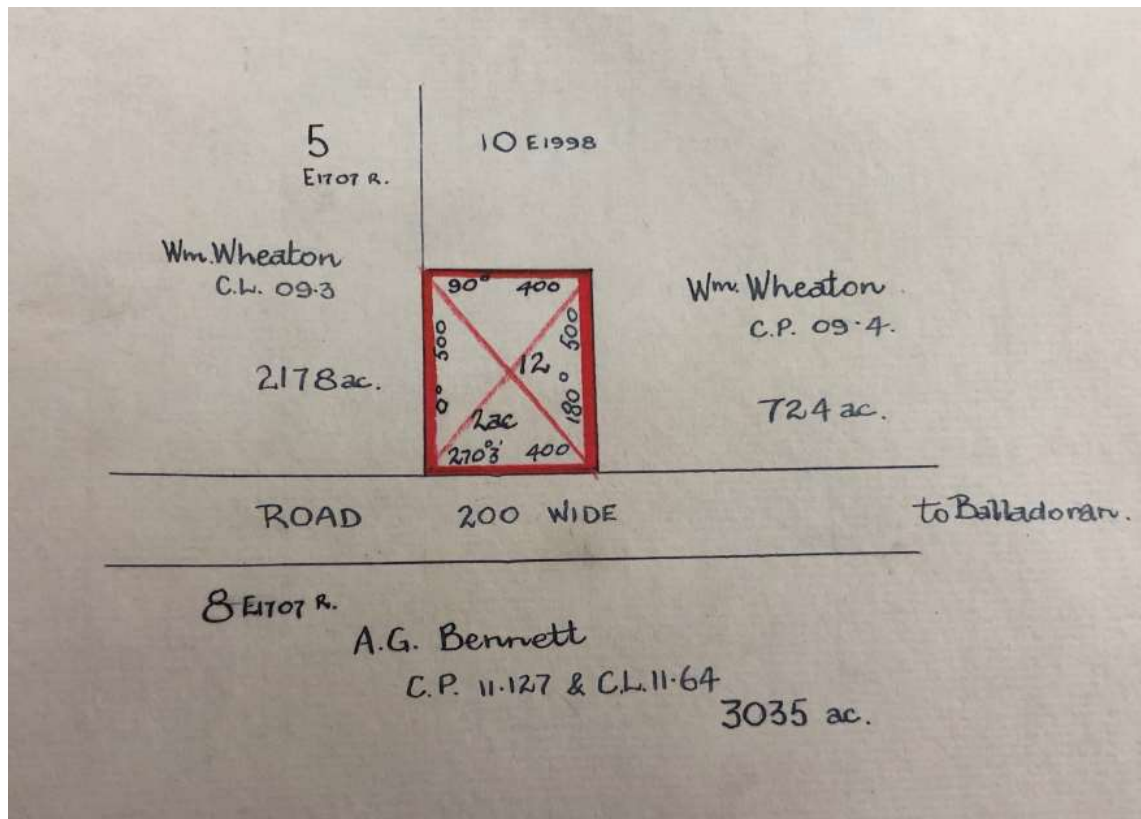


Source: NSW State Archives

Figure 4.7 Site plan of Drinane Public School (former)

Approximately five kilometres north east of Drinane is the locality of Kickabil. Although there is little remaining in the landscape, like Cobboco and Drinane, Kickabil took its name from an outstation of the Bungey station. The station was subdivided in the early 20th century and initially leased by John James Greig. Greig held the property until 1918. In form and fabric, Kickabil cottage appears to date from Greig's tenancy.

Farmer William Wheaton bought his property (Weealla) following the subdivision. In 1915 he donated a portion of his land for the construction of a school, and later, a public hall (see Figure 4.8). The school hall survived to at least the 1940s, whereas the school closed in the 1950s. Neither of these survive in the landscape and are located approximately one kilometre to the east of the eastern option in the Kickabil location.



Source: NSW State Archives

Figure 4.8 Land allotment for Kickabil Public School

Curban/Terrabile Village

The area surrounding the former village site of Terrabile, later known as Curban, was once part of the Curbin pastoral run owned by Robert Bennett from around the 1830s. In 1841, a census recorded 13 adult males, two adult females and two female children living at Curbin (High Ground Consulting, 2009:52).

Following the break-up of the Curbin run, a village was planned in 1865, bounded at the west by the eastern bank of the Castlereagh River and to its north and east by Terrabile Creek. The village was called "Terrabile" but was later known as "Curban", presumably after the pastoral run that was once at that location. The village contained a police station (est. 1878), and shortly afterwards the residents petitioned the Postmaster General for a post office. An inspection by the Postmaster General found that "Curban" was a stopping place between Gilgandra and Gulargambone, and that Mr Neil Morrison, a hotel keeper, was a suitable postmaster and his hotel suitable to establish a post office (Buchanan, 1878).

The hotel operated by Morrison changed hands the following year, and was taken up by Mr Joseph Brown, who also took over the role as postmaster. However, owing to Brown's failure to complete necessary paperwork and bonds, he was removed as postmaster and the wife of Curban's Constable Cusack was appointed as postmistress in July 1881, with the police station established as the new post office. A school also operated within the village from at least 1884 to the 1930s (see Figure 4.9).



Source: Gilgandra Shire Library

Figure 4.9 Curban School, c.1884

Later in 1881, the Postmaster General announced the acceptance of a tender from Cobb and Co to convey mail between Gilgandra, Curban, Gulargambone and Coonamble three times per week. The service was conducted by either two horse or four horse coaches, and the contract was for two years (Sydney Morning Herald, 1881:13). The Mountain View Hotel at Curban was selected as the staging place for these mail routes and were used as changing places for the horses on the mail route (see Figure 4.10).



Source: Gilgandra Shire Library

Figure 4.10 Curban hotel, store and post office, c.1900

Most of the village of Curban is no longer visible in the landscape. Although the town blocks were sold very quickly, the petition for the post office garnered only 29 signatures. The nearby town of Gilgandra was established in 1888, although a post office had been established there in 1867, a school in 1881 and a courthouse in 1884. In the 1880s Gilgandra superseded Curban in population, and the police station was moved from Curban to Gilgandra. The decline of Curban was exacerbated by the construction of the railway approximately five kilometres to the west of the village in 1903, thereby essentially bypassing it. The village enjoyed a brief revival in the early 20th century with the Curban soldier settlements bringing families to the neighbourhood (some of whom can be seen in Figure 4.11).

However, although the village of Curban was on high ground, it was bounded on three sides by permanent water courses of Terrabile Creek and the Castlereagh River, and therefore subject to flooding. In 1955 the flooding was extensive; the village hall was washed from its site in the old village and came to rest on the banks of the Castlereagh River.



Source: Gilgandra Library

Figure 4.11 Farewell of Mr and Mrs Barden, c.1926

“Mount Tenandra” homestead complex

The locality of Mount Tenandra is named after the nearby hill of the same name, and a prominent homestead at the intersection of the Gulargambone-Baradine Road and the Coonamble-Tooraweenah Road. Once part of the Belar sheep station, a squatter’s station, it was originally owned by pastoralist Thomas Dangar before being sold to the Orr family in the mid-19th century. In relation to the Belar station, according to reminiscences of the Coonabarabran area by Aboriginal woman Mary Jane Cain recorded in 1920, held by the State Library of New South Wales, the Orr family used Aboriginal and Chinese workers to help keep the sheep station going during the gold rush, as all of the European workers had left to seek their fortunes (Cain, 1920:6-7).

The homestead at Mount Tenandra was constructed in the 1870s and is connected with previous owners, such as William Kennedy and O E Friend. It was also used as the staging point for mail coaches travelling south and west of the Warrumbungle Range (High Ground Consulting, 2010:42). Until recently, the “Mount Tenandra” homestead had been used as bed and breakfast accommodation.

The alignment is to the east of the “Mount Tenandra” homestead. The homestead and outbuildings are not within the proposed alignments of either corridor.

Diagonally opposite the “Mount Tenandra” homestead is a travelling stock reserve and public watering place.

Baradine

One of the earliest settlers was Andrew Brown (1797-1894), who set up an outstation near the present day village of Baradine (Rolls, 1984:166). These early settlers were squatters, who took up large land holdings for grazing, all operating outside of the Colony’s Nineteen Counties. James Walker was a naval officer who arrived in the colony in 1823 and, along with his brother William and nephews Thomas and Archibald Walker, formed William Walker & Co., which engaged in shipping and whaling. Governor Brisbane granted James Walker 2,000 acres at Wallerawang in 1824, where he settled (Parsons, 1967). Andrew Brown emigrated from Scotland in c.1824 to take up a position as overseer at Wallerawang and was himself a pioneer settler in the Lithgow and Bowenfels area (Lithgow Tourism, 1996).

Andrew Brown established the *Barradean* run on behalf of James Walker in the 1830s. James Walker owned both *Biamble* and *Wallerawang* stations. Other squatters arrived in the 1840s, including Charles Fitsimmons, who established *Bugaldie Yaminginba*, and James Evans (*Dandry*) (High Ground Consulting, 2015a:5). The Walker family owned land in the Baradine area until 1967 (High Ground Consulting, 2006:52).

In 1864 the town of Baradine was planned. Referred to in an article reporting the legislative assembly, there was a delay in the sale of the land “at the Baradine Reserve, part of Mr Walker’s old run, on the road from the Namoi to Coonabarabran” as the surveyor had died (Maitland Mercury and Hunter River General Advertiser, 1864:2). On 4 July 1865, three country lots, three suburban lots and 40 town lots were offered for sale in the town of Baradine. By 1866, 30 people lived at Baradine and a post office was established the following year (High Ground Consulting, 2006:53).

While cattle and sheep were still the main focus of the area, timber getters and sleeper cutters began using Baradine as a base for forestry operations in the Pilliga. Sawmills were established in a number of locations both near Baradine and in the Pilliga in the mid to late-19th century. This industry continued after World War 1 with Baradine as the base of operations. Many of the town’s civic buildings date from this period (High Ground Consulting, 2006:53).

The Pilliga

While exploring the interior of the state in 1818, John Oxley described the Pilliga in less than glowing terms, “mere scrub” (13 August 1818), “desolate and forbidding” (17 August 1818) and “we saw no sign of natives, and the country seemed abandoned of every living thing” (Oxley, 1820). Oxley did note, however, that the country was “fruitful in new plants” (Oxley, 1820). After travelling further into the Pilliga, Oxley found that both the ground and rising waters from abundant rain made it “prudent” to turn back.

Despite this inauspicious first visit, settlers arrived in the Pilliga area in the 1830s, mainly to extend existing pastoral squattages on the Liverpool Plains. While squatters quickly settled land such as the fertile Liverpool Plains, the Pilliga appears to have been used as backblocks, or outstations. Many of the outstations were occupied sporadically, with some unused for many years at a time. These pastoral activities nonetheless left their mark in the landscape in the form of fence lines, tracks, roads as well as dwellings and outbuildings (High Ground Consulting, 2015b:3).

Andrew Brown was one of the earliest squatters in the region and settled to the west of the Pilliga, near the present village of Baradine. Cumbil run (spelt variously as “Cumbal” and “Cumble”) was used by the Dangar family in the southern portion of the Pilliga East State Forest and Cumbil State Forest to run sheep from around the 1840s, although it is not known how often it was used. “The Aloes” is thought to have been the homestead of the Cormie family, believed to have once been managers of the Cumbil Run (High Ground Consulting, 2006:47). Stock escaped from these and other nearby properties, leading to feral herds of animals subsisting in the forest. Currently, there are feral populations of pigs, goats, cattle and horses in the Pilliga.

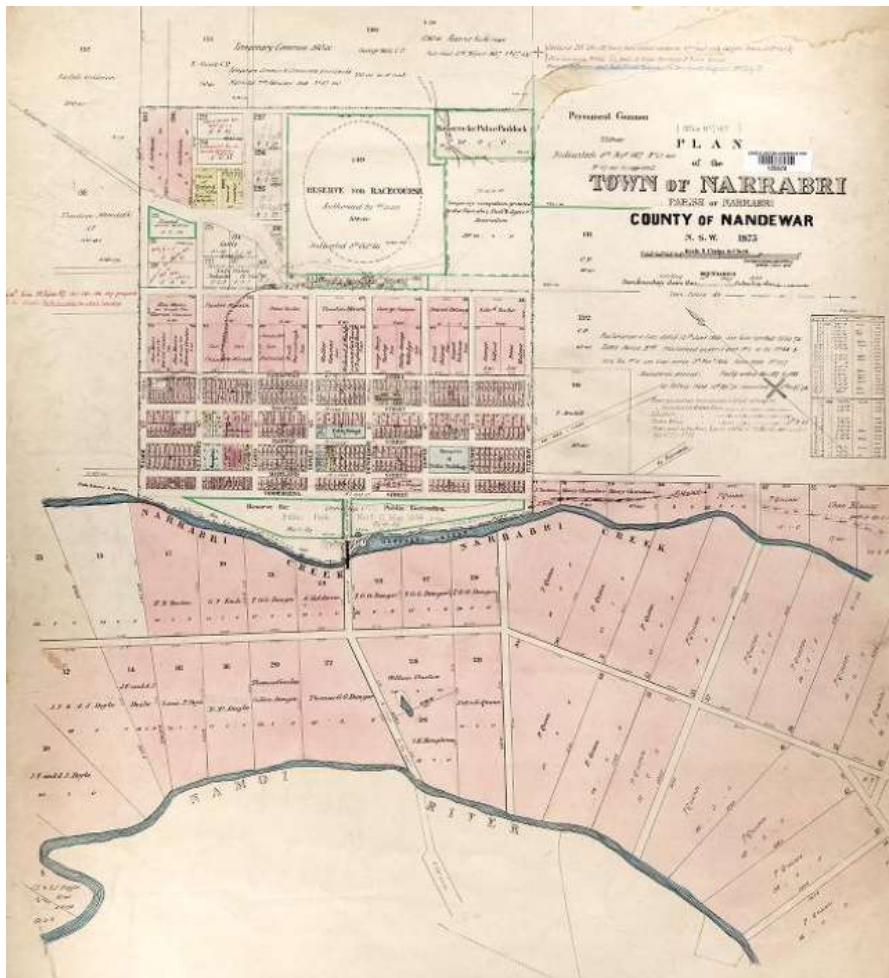
Forestry operations began operating in the mid to late-19th century with a number of sawmills springing up in and around the Pilliga. The Underwood family opened two saw mills in the Euligal State Forest, including one at Rocky Creek, which is in the study area (NSW Heritage Division, 2003). The mill was destroyed by fire in 1953. Now a campsite, the remains of the mill include a well and a windmill. With the coming of the railway to the district in the second half of the 19th century, sleeper-cutters also sourced their timber from the Pilliga, particularly ironbark, and established small, temporary camps for those activities, such as that at Plumb’s Well.

The Pilliga East State Forest was notified as a national forest in March 1917 and dedicated on 30 April 1937.

Narrabri

One of the earliest pastoral stations in the Narrabri area was the Killarney station. According to Doyle family tradition, the run was taken up by Andrew Doyle and Patrick Quinn on St Patricks Day 1834, on behalf of Mr Cyrus Matthew Doyle (Empire, 1874:4). Andrew had been sent by his father, Cyrus, along with four assigned servants and a group of Aborigines, to the area shortly after having been surveyed by Sir Thomas Mitchell (Doyle, 1966). The Killarney Station stayed in the Doyle family until 1880.

Wee Waa was the earliest settlement on the Namoi, established in 1847. The locality of Narrabri was referred to from around the 1850s, after the nearby pastoral run, but land for the town itself was not offered for sale until September 1860. By 1868 a post office (1861), a hospital (1864), a court house (1865) and a police station (1868) had been established, with a gaol and second court house built in the 1880s (see Figure 4.12). In 1897 the railway was opened and remains as an important transport link to the region.



Source: Historical Land Records Viewer

Figure 4.12 Plan of the Town of Narrabri, 1875

4.3 Statutory database results

4.3.1 Australian Heritage Database

A search of the Australian Heritage Database was undertaken on 28 January 2019, and updated on 28 February 2020 and 28 May 2020. There are no heritage items listed on the World Heritage, National Heritage or Commonwealth Heritage Lists within the study area.

4.3.2 State Heritage Register

A search of the SHR was undertaken for the study area on 28 January 2019, and updated on 28 February 2020 and 28 May 2020. There are no heritage items listed on the SHR within the study area.

4.3.3 Local Environmental Plans

A search of the relevant LEPs for the study area was undertaken on 28 January 2019, and updated on 28 February 2020 and 28 May 2020. Two local heritage items are situated within the proposal site, and one within 300 metres of the proposal site. Table 4.2 shows the heritage items, indicating which of those are within the proposal site, and which are in the broader study area (within 500 metres of the proposal alignment).

Table 4.2 Local heritage results

Item name	Address	LEP/Item number	Within proposal site
Woodvale Park Private Cemetery	Castlereagh Highway, Curban	Gilgandra, I22	Yes
Curban Inn site	East Coonamble Road, Curban	Gilgandra, A96	Yes
Terrable Creek Bridge	National Park Road, Curban	Gilgandra, I21	No – within 300 m

4.3.4 Section 170 registers

A search of Section 170 State Agency registers was undertaken on 28 January 2019, and updated on 28 February 2020 and 28 May 2020. The Narromine Railway Station is the only Section 170 listed heritage item within the study area. It is also listed on the Narromine LEP.

4.3.5 Historical Heritage Information Management System

A search undertaken of the Heritage NSW Historical Heritage Information Management System database on 28 January 2019, and updated on 28 February 2020 yielded no sites within the study area.

4.4 Additional desktop assessment for Narromine West Connection

Following the initial database searches another small area was added to the study area to accommodate a connecting line from the ARTC Dubbo to Narromine Line, and the Country Rail Network Narromine to Cobar Line, with the ARTC Parkes to Narromine Line (Narromine West Connection).

Searches of the Australian Heritage Database, the SHR, s170 Register and the Narromine LEP 2011 was undertaken on 27 February 2020. There were no items located within the proposal site, however four LEP-listed heritage items, as shown in Table 4.3, were located within 500 metres.

A review of current aerial imagery for the proposal site for Narromine West Connection does not indicate the potential for any previously unidentified heritage items, given it is an existing rail corridor and a small section of empty paddock. As the town of Narromine has been subject to heritage study and already has multiple LEP-listed properties, it is unlikely that any previously unidentified heritage items would be found in the broader study area in this location.

Table 4.3 Local heritage items Narromine West

Item name	Address	LEP/Item number	Within proposal site
Narromine Aerodrome and RAAF Base	Mitchell Highway, Narromine	Narromine, I14	No – 233 m
Timber House	12 Nymagee Street, Narromine	Narromine I16	No – 381 m
Hotel Narromine	116 Dandaloo Street, Narromine	Narromine, I10	No – 450 m
Narromine Railway Station	Burraway Street, Narromine	Narromine I11, ARTC s 170 Register	No – 498 m

4.5 Previous heritage assessments and studies

Given the length of the study area, there have been multiple heritage studies undertaken that investigate the non-Aboriginal heritage values of certain localities. The following subsections summarise relevant previous studies.

4.5.1 AECOM, 2016

GHD engaged AECOM Australia to undertake a historic heritage impact assessment for the Narrabri Gas project in 2016 (AECOM, 2016). The area examined for this project historically formed part of a squatters run and encompasses the northern area of the current study area. The survey component of this assessment identified 53 historic heritage sites including sawmill sites, timber loading ramps, timber extraction areas, habitation sites, Sydney University Giant Air-Shower Recorder (SUGAR) pits, logging tracks and other sundry sites. Of these 53 sites, the following were identified for protection from potential impacts to the landscape. These included:

- Cowallah Parish Plan Sawmill
- Logging Camp 7
- Cowallah Sites Complex
- Hardys Hut
- Pilliga 1 Oil Well
- SUGAR pits - located at the Leewood site and the intersection of Plumb Road and No Name Road
- Timber extraction areas 1, 2, 3, 4, 6, 10, 12, 18, 19 and 21 and timber lading ramp 1, 5, 6 and 9 and ramp associated with Timber Extraction Area 19.

Of these sites, the SUGAR Pits at Plumb Road and No Name Road, and some timber extraction areas are within the current study area but would not be impacted by the proposal.

4.5.2 Non-Indigenous Cultural Heritage Study NSW Western Regional Assessments Brigalow Belt South Bioregion, Curby and Humphreys, 2002

The NSW Resource and Conservation Assessment Council commissioned Pauline Curby and Andrea Humphreys to undertake a Non-Indigenous Cultural Heritage Study for Stage 2 of the Brigalow Belt South Bioregion in 2002 (Curby and Humphreys, 2002). Categorised into forestry areas, the study found a total of 188 heritage items. Of those, the following eight sites are located within or in close proximity to the current study area:

- Item No. 140 - Fire Tower Ruins (Pilliga East State Forest (SF))
- Item No. 142 - Robinson Hut Ruins and Rubbish Dump (Pilliga East SF)
- Item No. 143 - Dam Dug by Hand (Pilliga East SF)
- Item No. 148 - The Aloes Picnic Site and pastoral station (Cumbil SF)
- Item No. 150- Graves - Samuel Cormie d.1872 and unknown (referred to in Narrabri LEP as 'Aloes Well')
- Item No. 151 - Rocky Creek Mill Site (Euligal SF)
- Item No. 152 - House Site (Euligal SF)
- Item No. 153 - Grave (Euligal SF).

It should be noted that only the general locations of these items were given in this report. One of the tasks of the field surveys for the current proposal was to ground-truth these items.

4.5.3 Community Based Heritage Study of the former Coonabarabran Shire, High Ground Consulting, 2006

High Ground Consulting were commissioned by Warrumbungle Shire Council to compile a Community Based Heritage Study of the former Coonabarabran Shire 2005-2006 (High Ground Consulting, 2006). This study was located over 50 kilometres east of the N2N alignment. This heritage study identified multiple heritage items of local significance to be added to the Warrumbungle LEP. These included: 17 shops, stores and banks; two shearing sheds; four schools; four roads; five railways; six sundries (pool etc.); 11 public schools and social institutions; three physical features (rocks or mountain areas); two memorials; seven hotels and inns; seven houses and huts; four homesteads and associated buildings; four forestry mills, towers or offices; 10 churches; nine cemeteries and two Aboriginal places. In addition to these, 13 newly identified historic heritage items were recommended for SHR nomination. These included:

- 42 Dalgarno Street, Coonabarabran
- Anglo Australian Telescope
- Baradine Forestry Office
- Chalk Mine Area, Bugaldie
- Coonabarabran Business District
- Coonabarabran Courthouse
- Field Family Cemetery
- Neilson's Building, Coonabarabran
- Savoy Theatre, Coonabarabran
- Siding Spring Observatory
- Uliman homestead group, woolshed and sheep dip
- West Pilliga Forest Road Grid.

None of the above items are located within the current study area, however they are indicative of the types of heritage items that are found in the region.

4.5.4 Report on the Community Based Heritage Study of the Coonamble Shire, High Ground Consulting, 2010

High Ground Consulting were commissioned by Coonamble Shire Council to compile a community-based heritage study of Coonamble Shire in 2008-2010 (High Ground Consulting, 2010). This study was a thematic study which considered the heritage of the Coonamble Shire within the Australian Historic Themes Framework. The dominant themes of the Coonamble Shire were pastoralism, agriculture, migration and commerce. As with many areas within the study area, the Coonamble Shire was first settled by squatters on large pastoral runs, who operated sheep and cattle stations, and later wheat. These activities influenced the agricultural character of the landscape, as well as leading to migration of European, Indian and Chinese workers to the properties, as well as the increase commerce of nearby villages and townships. Other less dominant themes elucidated from the history of the Coonamble Shire were those of transport, mining and convict labour.

This report covers a section of the study area, including the "Mount Tenandra" homestead complex (see Section 5.3.13).

4.5.5 Umwelt, 2017

ARTC commissioned Umwelt Australia to undertake a non-Aboriginal heritage assessment as part of the environmental impact assessment of the proposed Narrabri to North Star Inland Rail project (Umwelt, 2017). The desktop component of this analysis identified three heritage items within the proposed rail corridor and 11 heritage items within 500 metres of the proposed corridor. Some of the corridor heritage items included:

- the Mehi River, Gwydir River and Croppa Creek underbridges – good examples of steel bridges on a pioneer line using American bridge technology, local significance
- Moree Railway station – important 1890s section of the Mungindi Line, rail head and junction of three branch lines, local significance
- Victoria Hotel –, local significance
- Moree Baths – local and national significance
- Edgeroi Woolshed – evidence of woolshed associated with one of the early land grants through to soldier settlement, local significance
- Anzac Day Crossing of the Boggabilla Line at Crooble – regional meeting point prior to departure to WW1 for families of servicemen and women, local significance
- Bellata – timber and corrugated iron structures fronting Railway parade, local significance.

Heritage impact statements were prepared for each of these sites.

None of the above items are located within the current study area, however they are indicative of the types of heritage items that are found in the region.

4.6 Conclusion

There are few listed heritage items within the study area. Although thematic studies have been undertaken in several local government areas, the identification of potential heritage items is limited to those items that appear in historical sources and/or those that can be viewed from public thoroughfares. Given that the study area is largely made up large, privately held pastoral properties, and that many of these properties have not been extensively surveyed, the items identified above are therefore likely to only be a representative sample of a much larger data set.

The background history and the previous heritage studies indicate the types of heritage items likely to be present in the study area, including those related to pastoralism (homesteads, woolsheds etc), timber getting and forestry activities, and towns/townships (houses, churches, railway stations etc). The background history has also identified places in the historical record that are likely still present in the landscape. Given the likelihood of previously unidentified heritage items being present in the study area, a field survey was undertaken to identify potential heritage items.

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5. Field survey

5.1 Summary of survey results

The LEP-listed heritage items and potential heritage items identified from previous studies and the historical research for this proposal, were targeted for field survey within, and in the vicinity of, the current study area. These are listed in Table 5.1. In addition to these heritage items to be targeted, additional potential heritage items were identified during the field survey. These are listed in Table 5.2. The four LEP-listed heritage items within study area surrounding the Narromine West Connection were not inspected as part of the field survey, as this part of the proposal was added after field survey was undertaken.

Where possible, the sites were accessed to undertake the survey, however in some locations, property access was not able to be secured. For sites identified in Table 5.2, these were all identified from roadways during the field surveys. Consequently, thorough inspections were not able to be undertaken.

The three-day field survey initially aimed to inspect 16 heritage items identified as part of the desktop assessment. Most of these were on private properties and could not be accessed, however most could be seen from public roadways. In addition to these items, a further 13 were identified during the field survey. Most of these were built heritage items on pastoral properties. Their apparent age, construction, fabric and settings were the key elements in identification as potential heritage items. All items within the Pilliga East State Forest were inspected extensively. The locations of all LEP-listed heritage items, potential heritage items, and those items identified during field survey are shown in Figure 5.36.

Table 5.1 Listed and potential heritage items identified from desktop assessment targeted for survey

Section	Items	Source	Within current study area ¹	Distance from proposal
Narromine-Curban	Drinane Public School (former)	History	Yes	Substantial overlap with proposal
	"Kickabil" homestead	History	Yes	Minor overlap with proposal
	Berida Homestead Group, Berida Woolshed Group and Shearers' Quarters	LEP	No	2.36 km
Curban-Mount-Tenandra	Former Curban railway station and cottage site	History	No	630 m, 770 m
	Curban/Terrabile village site	History	Yes	328 metres
	Curban Inn site	LEP	Yes	Minor overlap with proposal
	Woodvale Park Private Cemetery	LEP	Yes	Substantial overlap with proposal
	TSR 24829/PWP 684	History	No	760 m

¹ The study area was reduced to a 500 m buffer from the proposal site after field survey was carried out.

Section	Items	Source	Within current study area ¹	Distance from proposal
Mount Tenandra-Baradine	"Mount Tenandra" homestead complex	High Ground Consulting 2010	Yes	180 m
Baradine-Narrabri	Convict Road, Baradine	History	Yes	Minor overlap with proposal
	Bohena Creek Public School site	History	No	600 m
	TSR 51066, Narrabri	History	Yes	Adjacent
Euligal State Forest	"The Aloes" homestead and graves	Curby and Humphreys 2002	Homestead – No Graves - Yes	Homestead 550 m Graves ~20 m
	Rocky Creek Mill Site and graves	Curby and Humphreys 2002	Yes	Graves of Dingwell children – within proposal. Rocky Creek mill, house site and well – 160 m west.
	Ruins of fire tower	Curby and Humphreys 2002	Yes	Within proposal
Pilliga East State Forest	Plumb's Well camp	Curby and Humphreys 2002	No	4.2 km

Table 5.2 Additional potential heritage items identified during field survey

Item Name	Location	Within current study area ²	Distance from proposal	Heritage type	Lot/DP
John Christie Memorial	3096 Mitchell Highway, Narromine	No	900 m east	Memorial stone or grave	Lot 2, DP755119
"Kickabil" woolshed (now part of "Kickabil" homestead complex)	Kickabil Road, Kickabil (opposite Kickabil homestead)	Yes	Minor overlap with proposal	Woolshed	38/752585
"Lindley" homestead complex	Milpulling Road, Balladoran	No	1.2 km west	Homestead complex	6/752590
Corrugated iron house	National Park Road, Curban	No	1 km south east	Corrugated iron shack on site of Curban/Terribille village	Within road reserve

² The study area was reduced to a 500 m buffer from the proposal site after field survey was carried out.

Item Name	Location	Within current study area ²	Distance from proposal	Heritage type	Lot/DP
"Allandale" homestead	National Park Road, Curban	Yes	Minor overlap	Homestead	19/753375
"Wilgaleah" homestead complex	National Park Road, "Tonderburine"	No	1.21 km east	Homestead	88/753395
"Tonderburine" homestead complex	National Park Road, Tonderburine	No	690 m south east	Homestead complex	871/880599
Corrugated iron hut with chimney	Weenya Road, Mount Tenandra	Yes	Within proposal	Corrugated iron hut	79/754192
Woolshed, "Mount Tenandra" (now part of "Mount Tenandra" homestead complex)	Goorianawa Road, Mount Tenandra	Yes	180 m west	Woolshed associated with "Mount Tenandra" homestead complex	3/504368
House and outbuildings (ruin)	Goorianawa Road, Mount Tenandra	No	1.4 km west	House and outbuildings	53/754192
"Digilah" homestead	Goorianawa Road, Black Hollow	Yes	Minor overlap	Homestead and outbuildings	10/754246
Two storey barn/shed (ruin)	Newell Highway, Bohena Creek	Yes	Within proposal	Two-storey wooden barn/shed	1/757086
"Lucky Flat" bore	Pilliga Forest Way	Yes	Within proposal	Former bore site	N/A

5.2 Descriptions of listed heritage items

The following section describes observations made in the field regarding the listed heritage items identified in Table 5.1.

5.2.1 Woodvale Park Private Cemetery

The Woodvale Park Private Cemetery is located on the north east corner of the Castlereagh Highway and National Park Road, within the Woodvale Park property. It is listed on the Gilgandra LEP 2011 as a heritage item of local heritage significance. No access was available to the property at the time of the site visit.

According to an entry on the State Heritage Inventory, there are five graves dating from 1877-1893:

The cemetery is defined by star pickets that appear to have been set to form a fence. A brass memorial plaque has been set on to a steel post. This identifies five persons buried in the cemetery. (State Heritage Inventory, 2008).

No part of the cemetery was visible from the road.

There are five recorded graves within this private cemetery. The potential exists for unmarked graves within its extent. The archaeological potential is **high**.

5.2.2 Curban Inn site

This site is listed in Schedule 5 of the Gilgandra LEP 2011 as an archaeological site, with the inn site marked by a group of aloes (see Figure 5.1). The inn is located on high level ground to the north of the Castlereagh River and the west of Terrabile Creek and to the south of East Coonamble Road. Access to the site was via a dirt track leading from East Coonamble Road south west then circling to the south of the aloes. Some glass and ceramic artefacts were noted in the track, as were a group of three milky quartz Aboriginal artefacts.

Surface artefacts were noted in an adjacent track, however extensive vegetation cover prevented a comprehensive assessment of subsurface potential. There are no remaining built elements on this site with the actual location of the inn presumed to be beneath a large stand of aloe plants. Surface artefacts near the aloes included hand-cut nails, ceramic sherds of blue and white transferware and glass fragments. The archaeological potential is assessed as high.



Source: Jacobs, 2019

Figure 5.1 Site of the former Curban Inn, now an archaeological site, looking north

5.2.3 Terrabile Creek Bridge

The Terrabile Creek Bridge is listed on the Gilgandra LEP 2011 as a heritage item of local significance. The current bridge in this location was constructed in 2014 as a replacement of the early bridge (Barnson, 2017). It appears that the listed bridge has been removed and is no longer present in the LEP-listed location.

5.3 Descriptions of potential heritage items

The following section provides descriptions of the potential heritage items identified through desktop research and findings from the field survey. Details of the archaeological potential of these items is also discussed in this section.

5.3.1 John Christie Memorial

As noted in Section 4.2.3, John Christie was one of the original land owners of the Narromine Station, who drowned in the Macquarie River in 1868. During Aboriginal heritage surveys, a memorial was identified within the alignment corridor, to the south of the Macquarie River, east of Narromine (see Figure 5.2).

It is uncertain whether this marker is a grave marker or a memorial only. Historical research failed to locate details of a funeral for Christie. At a coronial inquest, Christie's death was ruled as "suffocation by drowning, whilst labouring under a fit of temporary insanity". As there was some evidence that his death was a suicide, he may not have been allowed to be buried in hallowed ground. A memorial plaque was placed in the Holy Trinity Anglican Church, Dubbo, by "one of his old servants", however no grave for John Christie has yet been located.



Source: Jacobs, 2019

Figure 5.2 Memorial stone of John Christie

5.3.2 Drinane Public School (former)

The former public school buildings are located on the northern side of Old Mill Road at Kickabil. Two of the remaining school buildings are located on the property boundary facing away from the road with a tennis court/playground adjoining. At least two other buildings were noted further north from the road.

The school buildings are of weatherboard construction, painted pink, with green corrugated iron roofing. Two tanks are located to the east of the buildings, between the school buildings and the tennis court. There is a large hole in the roofing in the western end of the western-most building, and the buildings are beginning to deteriorate (see Figure 5.3).



Source: Jacobs, 2019

Figure 5.3 Drinane Public School (former), looking north-west

5.3.3 “Kickabil” homestead

This homestead is located on the north east side of Kickabil Road and is a plain, single-fronted weatherboard building with a hipped, corrugated iron roof. A central entrance door is located in its south west elevation fronting Kickabil Road, flanked either side by doors to access the verandah covered by security screens (see Figure 5.4). It is probable that these flanking doors were originally windows that were later converted. A brick chimney is located in the north east roof line. There is a verandah running along the south west and south east frontages, but no awning. There is, however, steel framework erected for a verandah awning to be erected.

A modern annex is located on the north east elevation to the rear of the homestead, with weatherboard cladding to match the main homestead, and a skillion roof. The homestead precinct is surrounded by a wire fence on all four sides. The homestead frontage is aligned with Kickabil Road, suggesting its date of construction is commensurate with the construction of the road or later.



Source: Jacobs, 2019

Figure 5.4 “Kickabil” homestead, looking north-east

5.3.4 “Kickabil” woolshed

Located opposite “Kickabil” homestead, the woolshed is a rectangular, corrugated iron shed oriented north-south. The southern end is two-storeys and has an external ramp leading from a sheep pen to the upper level of the woolshed. The northern end comprises a single upper storey, supported by timber beams.

The north-south orientation of the shed is parallel with those of the old property boundaries. Kickabil Road, which runs a diagonal line, north-west to south east, is to the immediate north of the woolshed and the orientation of “Kickabil” homestead is aligned with Kickabil Road. This would suggest that the woolshed predates the road and therefore the cottage (see Figure 5.5). Parish maps for Kickabil indicate that Kickabil Road was a private road constructed as part of the Closer Settlement conditional lease and purchase of the block in 1917. Prior to that time, the land was part of the Balladoran pastoral run which was broken into north-south and east-west boundaries. Other structures dating from that time cannot be excluded.



Source: Jacobs, 2019

Figure 5.5 “Kickabil” woolshed, looking west

5.3.5 “Lindley” homestead complex

This homestead complex was located approximately 800 metres north of Milpulling Road, Balladoran, however its potential as a heritage structure was easily identifiable from the road by the form and character of the homestead together with the surrounding mature plantings, both typical of 19th century rural farmsteads (see Figure 5.6).



Source: Jacobs, 2019

Figure 5.6 Lindley homestead complex, looking north

5.3.6 Berida Homestead Group, Woolshed Group and Shearers Quarters

The Berida complex comprises a homestead with outbuildings, a woolshed with ancillary buildings and a shearers' quarters. They are listed on the Gilgandra LEP 2011 as items of local heritage significance. The field team visited the locality but found that this group is set well back from public roads, with an abundance of screening trees. It was therefore not photographed.

5.3.7 Former Curban Railway Station and Cottage site

The site of the former Curban Railway Station was located on the south western side of the Gilgandra-Coonamble Railway branch line and closed in 1974 (NSW RailNet, 2004). On the north eastern side of the line is a grain-loading facility, once served by a siding. The siding has been removed (see Figure 5.7 and Figure 5.8).

There is currently no visible evidence of the station aside from an embankment. Historical data suggests that the station was between two mature trees, one of which survives, and a hole with a stump marking the location of the other. Some ceramic and glass artefacts were noted in the vehicle access track.

The site has the potential for remains of the station, cottage and general deposits from us. There are no built elements visible on the surface, except an earthen embankment that supported the station platform. Several artefacts were noted on the surface near the platform, particularly along the exposure caused by the vehicle track, in the form of ceramic pieces and metal. Wooden planks, sleepers and corrugated iron was also noted on the site. The potential for subsurface remains is assessed as moderate.

In relation to the cottage, photographs from 2004 show that it was located to the south east of the platform, at which time it was still standing. The only visible evidence of the cottage observed in this field survey was a flattened terrace and a group of three exotic trees planted in a line near the south-western boundary fence.



Source: Jacobs, 2019

Figure 5.7 Curban Railway Station. Platform was located at right of tree



Source: Jacobs, 2019

Figure 5.8 Location of platform, between tree at left and hole marking former tree at right, looking north

5.3.8 Curban/Terrabile village site (including corrugated iron store)

The site of this village is on the north and south of National Park Road (see Figure 5.9). At the time of the site visit, both portions were recently ploughed. Apart from a corrugated iron structure there are no visible remains of the village.

The site of the former village of Curban/Terrabile may retain subsurface archaeological deposits, however it was noted in the field that extensive ploughing across the site may have removed the bulk of material. The site of the former Curban/Terrabile village was located on private land to the east of the corrugated iron hut at Curban noted in Table 5.2. The site is a field and was recently ploughed at the time of the site visit. Given the paucity of evidence of built items on the site and disturbance in the form of repeated ploughing the archaeological potential is assessed as low.

There is a corrugated iron structure likely the former store of the village of Curban. It was purchased by the Barden family in 1912 and operated by the Barden family until the 1950s. It is the only structure located within the block of the land formerly owned by Barden and is likely the store was rebuilt after the flood of 1955. It is constructed entirely of corrugated iron and has a medium pitched hipped roof and a large awning on its south-western elevation. A large tree is located hard against its north-western elevation obscuring many of the architectural features (see Figure 5.10). It is located in a prominent location near the intersection of the village's two main roads, National Park Road and East Coonamble Road.



Source: Jacobs, 2019

Figure 5.9 Western end of Curban/Terrabile village site, looking west. The Curban Inn site is located beyond the trees in the centre frame



Source: Jacobs, 2019

Figure 5.10 Corrugated iron house, looking east toward Curban village site and Castlereagh River (treeline)

5.3.9 “Allandale” homestead

This homestead is located on the western side of National Park Road approximately 9.2 kilometres north east of the Curban community hall. It is set approximately 350 metres from the main road, with outbuildings to the rear.

The main homestead is consistent with a late 19th century/early 20th century rural homestead, of weatherboard construction, a Dutch gabled iron roof and wraparound verandah. Tanks are located at either end of the homestead (see Figure 5.11).



Source: Jacobs, 2019

Figure 5.11 “Allandale” homestead, looking west

5.3.10 “Wilgaleah” homestead complex

This complex contained at least two residential buildings and numerous outbuildings. Not all were observable from the National Park Road frontage, and there is potential for more buildings to be present (see Figure 5.12). However, one late 19th century/early 20th century building was noted approximately 400 metres from the road.

The homestead is a simple, single-fronted structure with a gabled roof and a skillion-roofed awning on its eastern elevation. The homestead is of wooden construction with a corrugated iron roof, and a chimney in its south western corner. The façade of the southern elevation appears to be missing, although it is possible that the homestead may have been repurposed as a barn or other such building after the newer residence was built. Overall the structure appeared to be in poor condition with a substantial lean at the southern end of the awning and the northern elevation.

This older homestead is located approximately 600 metres south of the “Tonderburine” homestead complex (see Section 5.3.11) and may have some historical relationship with it.



Source: Jacobs, 2019

Figure 5.12 “Wilgaleah” homestead complex, looking west. The c. 19th century homestead is in centre of frame

5.3.11 “Tonderburine” homestead complex

This homestead is a markedly different in style, scale and form to other homesteads observed within the alignment. The “Tonderburine” homestead is Georgian-style oriented to the north-east. It comprises a large weatherboard homestead with a corrugated iron broken-backed roof and twin chimneys. There are two louvered dormer vents in front of the two chimneys, and a central gable in the encircling verandah (see Figure 5.13).

Aerial imagery also shows a separate building at the west of the main house, not visible from the road, which is consistent with a separate kitchen. A group of trees are located close to the homestead at its south east.

The homestead is located approximately 550 metres west of National Park Road; its condition was not able to be determined. However, the roof and verandah are rusty but intact.



Source: Jacobs, 2019

Figure 5.13 “Tonderburine” homestead complex, looking north-west

5.3.12 Corrugated iron hut with chimney, Mount Tenandra

This corrugated iron hut with external chimney is located on Wyeena Road, Mount Tenandra. It is an excellent example of a rural dwelling or workers’ hut (see Figure 5.14). It was constructed entirely of corrugated iron over a wooden frame, with the external chimney set into the northern wall. It is rectangular in shape with a hipped roof. Most of the corrugated iron is missing, with only the northern (chimney) end of the hut with intact walls. The roof is missing, showing the wooden framework.



Source: Jacobs, 2019

Figure 5.14 Corrugated Iron hut, Weenya Road, Mount Tenandra. Note ruins of external chimney at right

5.3.13 “Mount Tenandra” homestead complex

There were two residences and a number of outbuildings noted at this site. A former accommodation offering bed and breakfast, the red-roofed cottage in Figure 5.15 is a circa-1860s homestead, whilst closer to Goorianawa Road is a later cottage, now in ruins (see Figure 5.16).



Source: Jacobs, 2019

Figure 5.15 “Mount Tenandra” homestead complex, looking north-east. The main homestead is the red-roofed structure in centre frame



Source: Jacobs, 2019

Figure 5.16 “Mount Tenandra” homestead complex, looking east from Goorianawa Road. Note ruined structure in centre frame

A corrugated iron woolshed complex is located approximately 600 metres north of the “Mount Tenandra” homestead (see Figure 5.17). It was identified in the Coonamble Shire Community-Based Heritage Study in 2008-2010 (High Ground Consulting 2010) as “Mount Tenandra Woolshed & Shearers Quarters” and the “Mount Tenandra Woolshed Group”, however no historical information was presented nor was the item assessed for its significance.



Source: Jacobs, 2019

Figure 5.17 Woolshed associated with “Mount Tenandra”, looking east

5.3.14 TSR 24829/PWP 684

This TSR and public watering place at Mount Tenandra runs along the western side of Tooraweenah Road near the intersection with Goorianawa Road. At the time of the site visit, a large herd of cattle were grazing on the TSR (see Figure 5.18). The archaeological potential for TSRs is recognised, particularly if close to permanent water courses. Remains from multiple camps are expected, however the extensive use of the TSRs for the movement of stock would indicate that the potential for finding such remains is low.



Source: Jacobs, 2019

Figure 5.18 Travelling stock reserve 24829/Public Watering Place 684, looking north-west. Note cattle on the TSR/PWP

5.3.15 House and outbuildings (ruins), Goorianawa

This house and its outbuildings are located opposite the “Mount Tenandra” woolshed. It is a colonial-style weatherboard cottage with a fibro addition on its north-eastern elevation and a skillion addition at its western elevation (rear) (see Figure 5.19). The hipped roof was of corrugated iron construction, and a brick chimney was located between the fibro addition and the original north-eastern elevation.

In addition to the cottage were two separate outbuildings, one small corrugated iron structure and a wooden stable-like structure with a corrugated-iron roof. A dirt track commences at the north of the cottage and sweeps around the homestead buildings before continuing to the north-west. Aerial imagery shows that the track leads to another residence approximately 800 metres from the colonial cottage.



Source: Jacobs, 2019

Figure 5.19 Cottage, annex and outbuildings, cultural plantings at “Mount Tenandra”, looking south west

5.3.16 “Digilah” homestead

This homestead was identified through historical mapping and aerial photographs prior to the site visit. The aerial photographs show a roofline consistent with a 19th century homestead, with a number of various outbuildings. However, during the field survey, it was found that the major structures are located approximately 1.3 kilometres north of the road and surrounded by trees and therefore not visible from the road. As such, its heritage potential could not be confirmed in the field. Private property access was not possible at the time of the site visit and the property was therefore not visited.

5.3.17 Convict Road, Baradine

The former convict road is located approximately seven kilometres north west of the town of Baradine, on the eastern side of the Gwabegar-Baradine Road.

The former convict road comprises worked stone placed together to form a surface. It is approximately three metres wide and at least 600 metres in length, with approximately 100 metres of original fabric of the former road visible (see Figure 5.20 and Figure 5.21). The entire extent of the cadastral road reserve, which appears to have been bypassed by a change to the Gwabegar-Baradine Road is approximately 2.5 kilometres, and this has been mapped as the indicative curtilage.



Source: Jacobs, 2019

Figure 5.20 Original fabric of convict road, looking south



Source: Jacobs, 2019

Figure 5.21 Convict road, looking north

5.3.18 “The Aloes” homestead and graves

Now a picnic area within the Euligal State Forest, “The Aloes” was once the site of a homestead and sheep station owned by the Cormie family from around 1860. As noted in Section 4.2.5 above, it is believed that the Cormies were managers of the Cumbil Run, part of which covered this area.

There are no surface remains of the homestead, however two water tanks (see Figure 5.22), a septic tank and a windmill still remain. The homestead was believed to be in an open area to the north of the water banks, and sheep pens to the north of the homestead site (Darren Worrell, 31 January 2019, pers. comm).

Approximately 450 metres to the east are two graves in the bushland surrounded by cut pine logs (see Figure 5.23). It is believed that at least one of these graves is a convict burial and the other at least one member of the Cormie family. The logs are not the original grave surrounds but were replaced by Forestry NSW following a bushfire in the 1990s.

There may be expected to be the remains of the homestead and other domestic remains, as well as those associated with the pastoral operations. “The Aloes” homestead was occupied from the mid-19th century through to the 20th century. Primary uses were as a sheep and cattle station, and as outpost of the larger Cumbil pastoral station. Surface artefacts in the form of hand cut nails and blue and white transferware were noted on the site. However, owing to the site’s more recent use as a recreational facility, the potential for subsurface artefacts to be present is assessed as moderate.



Source: Jacobs, 2019

Figure 5.22 “The Aloes” homestead, looking north east



Source: Jacobs, 2019

Figure 5.23 Historic graves associated with “The Aloes”, looking south towards Pilliga Forest Way

5.3.19 Graves of the Dingwell children

On the eastern side of Pilliga Forest Way, approximately 150 metres south of the intersection with Coxes Road, are the graves of the Dingwell children, who died in the 1890s of diphtheria (see Figure 5.24). Like the graves associated with “The Aloes”, the interlaced logs are not the original grave surrounds. A kurrajong tree marking the graves is believed to have been planted as a marker (Darren Worrell, 31 January 2019, pers. comm.). The graves are situated across Pilliga Forest Way from the Rocky Creek Mill Site (see Section 5.3.20).



Source: Jacobs, 2019

Figure 5.24 Graves of the two Dingwell children, c. 1890s

5.3.20 Rocky Creek Mill Site

This site covers a large area of ground on both sides of Pilliga Forest Way, measuring approximately 12 hectares. The majority of the complex is on the western side of Pilliga Forest Way and south of Rocky Creek and comprises at least two separate occupation phases: one dating from the 1860s and being part of Henry Dangar's pastoral run, and the other dating from the 1950s comprising a saw mill and workers' camp. As with "The Aloes" homestead and graves, the Rocky Creek Mill Site is also now a picnic area (see Figure 5.25). The graves of the Dingwell children are situated across Pilliga Forest Way from the Rocky Creek Mill Site (see Section 5.3.19).

While there is little evidence of structures still remaining across the site, there is an abundance of surface artefacts relating to the saw mill and workers' camp phase. Ceramics, glass, nails, metal, car bodies, timber posts, wire, and other domestic refuse cover the ground in the southern area of the site away from the main picnic area. In relation to the saw mill activities, two ash mounds were noted, one in the east of the site, near the entrance from Pilliga Forest Way, and one at the north, adjacent to a windmill. A homestead site was identified along the Pilliga Forest Way frontage of the Rocky Creek Mill Site.

The archaeological remains of mill(s), pastoral residence, other domestic habitation and industrial remains of mill operations conducted on the site could be expected to be present. This site has surface and potential archaeological remains of both domestic and industrial remains of multiple dwellings, at least two mills and associated structures. Extensive habitation and industrial artefacts were noted across the site, as well as the limited remains of structures. Despite the site's recent use as a camping area, the sheer size of the site and extent of surface remains means the site's overall potential for subsurface artefacts is assessed as very high.



Source: Jacobs, 2019

Figure 5.25 View of eastern portion of Rocky Creek Mill Site, looking north east

5.3.21 Ruins of fire tower

There is little known about the construction of this fire tower, however it was mentioned in Curbey and Humphrey's 2002 study (Curby and Humphreys, 2002:122-123). These towers were an essential part of fire management practices in the Pilliga during the 1950s, with officers camping at the sites for a week at a time to keep a lookout for fires within the forest (Darren Worrell, 31 January 2019, pers. comm.).

All that remains are three stumps representing the support posts of the tower (see Figure 5.26), and the remains of a metal ladder nearby (see Figure 5.27).



Source: Jacobs, 2019

Figure 5.26 Posts remaining from fire tower



Source: Jacobs, 2019

Figure 5.27 Remains of ladder from fire tower

5.3.22 Lucky Flat bore

Lucky Flat bore was a bore site in the Pilliga and is now a camping ground. A plaque at The Pilliga Forest Way entrance to the site states that it was named the “Gordon Burrow Bore” after R J G (Gordon) Burrow, a former chief inspector of the Forestry Commission and district forester at Narrabri (see Figure 5.28).

The site is chiefly bushland, however the metal components of the bore remains, as does a reservoir located to the north of the bore (see Figure 5.29). The reservoir was empty at the time of the site visit.



Source: Jacobs, 2019

Figure 5.28 Memorial plaque at Lucky Flat



Source: Jacobs, 2019

Figure 5.29 Location of bore; reservoir located to the right of frame

5.3.23 Plumb's Well camp

This camp represents the remains of a sleeper cutter's camp from the 1930s. Little surface remains are evident, with the exception of small amounts of glass and metal (see Figure 5.30). Slabs of timber, sawn off the outside of whole logs to make sleepers were also noted in the eastern part of the camp (see Figure 5.31) as was a washing sink mounted to a tree near Pilliga Forest Way (see Figure 5.32).

Evidence of recent use was also noted, with empty cans and bottles from alcoholic beverages littering the ground. The ground was also extensively covered with leaf litter, obscuring the ground's surface. Some ground exposures were noted, however no remains of built heritage were observed.



Source: Jacobs, 2019

Figure 5.30 Plumb's Well camp, looking east



Source: Jacobs, 2019

Figure 5.31 Metal and timber slabs, Plumb's Well camp



Source: Jacobs, 2019

Figure 5.32 Basin mounted to a tree, Plumb's Well camp

5.3.24 Bohena Creek public school site (former)

The former school site is located on the northern side of McCarr's Crossing Road, in the locality of Bohena Creek. The only visible remains on the site are a series of posts, presumably fence posts for the school boundary (see Figure 5.33).

There were no surface artefacts identified on the site, however several fencing posts were noted delineating the lot reserved for the school (portion 23) within the larger block. Limited information is available relating to the school's construction and layout, however the site has a low potential for artefacts relating to former school sites.



Source: Jacobs, 2019

Figure 5.33 Bohena Creek former public school site

5.3.25 Two-storey barn/shed, Bohena Creek

This structure appeared to be a two-storey barn/shed and was observed through an electricity easement west of the Newell Highway, a short distance north of the intersection with Cains Crossing Road, Bohena Creek. Subsequent aerial imagery showed that the structure is located on the western bank of Bohena Creek.

The structure appeared to be of wooden construction with a corrugated iron roof (see Figure 5.34). Wooden palings were missing from the walls and the roof appeared to have been caved in. Its size, however, suggests that the building may have been of some importance when in use. Some historical sources note at least one sawmill and one "assessment camp" on the western side of Bohena Creek, however this two-storey barn/shed is as yet unidentified.



Source: Jacobs, 2019

Figure 5.34 Two-storey barn/shed, taken from Newell Highway, looking west

5.3.26 TSR 51066, Narrabri

This TSR is located on the north and south of Killarney Gap Road, Narrabri. As with other TSRs, there is little surface material to identify them. This TSR is located a short distance to the north of the Narrabri stock yards (see Figure 5.35).

The archaeological potential for TSRs is recognised, particularly if close to permanent water courses. Remains from multiple camps are expected however the extensive use of the TSRs for the movement of stock would indicate that the potential for finding such remains is low.



Source: Jacobs, 2019

Figure 5.35 Portion of TSR 51066, looking south west

5.4 Additional surveys

5.4.1 Borrow pits and haul roads

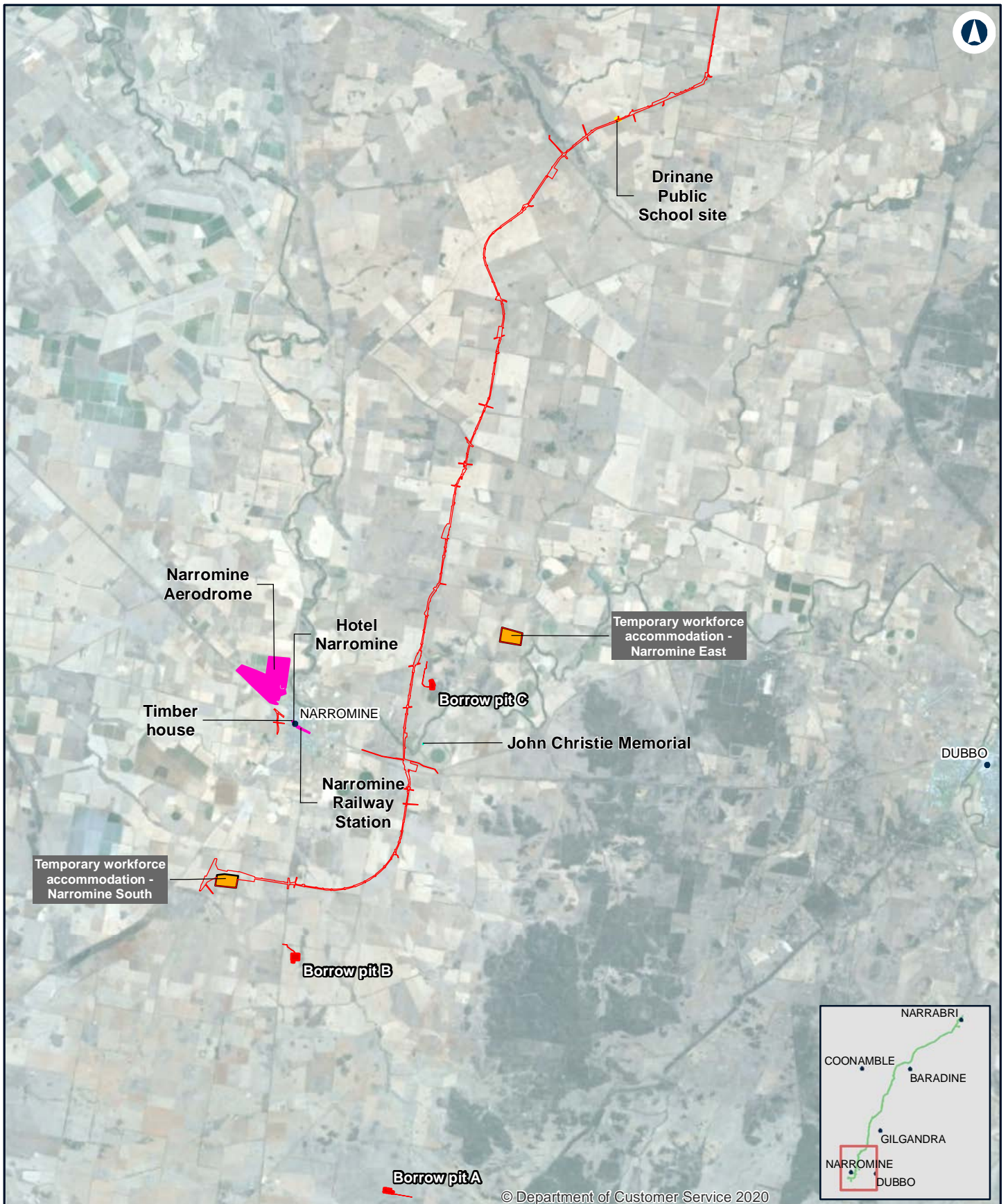
In addition to the field survey for the main part of the proposal study area, an Aboriginal and non-Aboriginal heritage survey was undertaken in July 2019 to inspect 25 proposed locations of borrow pits and associated haulage routes. Jacobs engaged Baker Archaeology to assist with this stage of the investigation. The survey team was led by Neville Baker of Baker Archaeology. Of these 25 locations, no known or potential items of non-Aboriginal heritage were identified. The results of this survey are included in the Aboriginal cultural heritage assessment for this proposal (JGHD, 2020a).

A further survey was undertaken by Andy Roberts (Senior Archaeologist, Jacobs) in October 2019 of the haul roads associated with the borrow pits. No heritage items or potential heritage items were identified as a result of that survey.

The number of borrow pits proposed for this proposal have since been reduced to four, being Borrow Pits A-D. There are no non-Aboriginal heritage items associated with the borrow pits or haul roads.

5.4.2 Narromine West Connection

This ancillary line is located on the western outskirts of the town of Narromine and its inclusion in the proposal design post-dates the field survey program. As a consequence, this area was not visited as part of the January-February 2019 program. However, as noted in section 4.4 above, a desktop assessment indicates that there are no listed heritage items within the proposal site, and four LEP-listed heritage items within the study area. The listed heritage items are all situated within the town of Narromine and are all at least 200 metres from the proposal site. Further, the desktop assessment indicated that it would be unlikely for previously unidentified heritage items to be present in or near the Narromine West Connection. As such, survey of the LEP-listed sites or the surrounding area is not necessary in order to assess this part of the study area.



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NARROMINE TO NARRABRI

Heritage items and potential heritage items identified from desktop assessment and survey

Figure 5.36a

0 3.5 7 Km

Coordinate System: GDA 1994 MGA Zone 55

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Paper: A4

Author: JacobsGHD

Scale: 1:260,000

Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

LEGEND

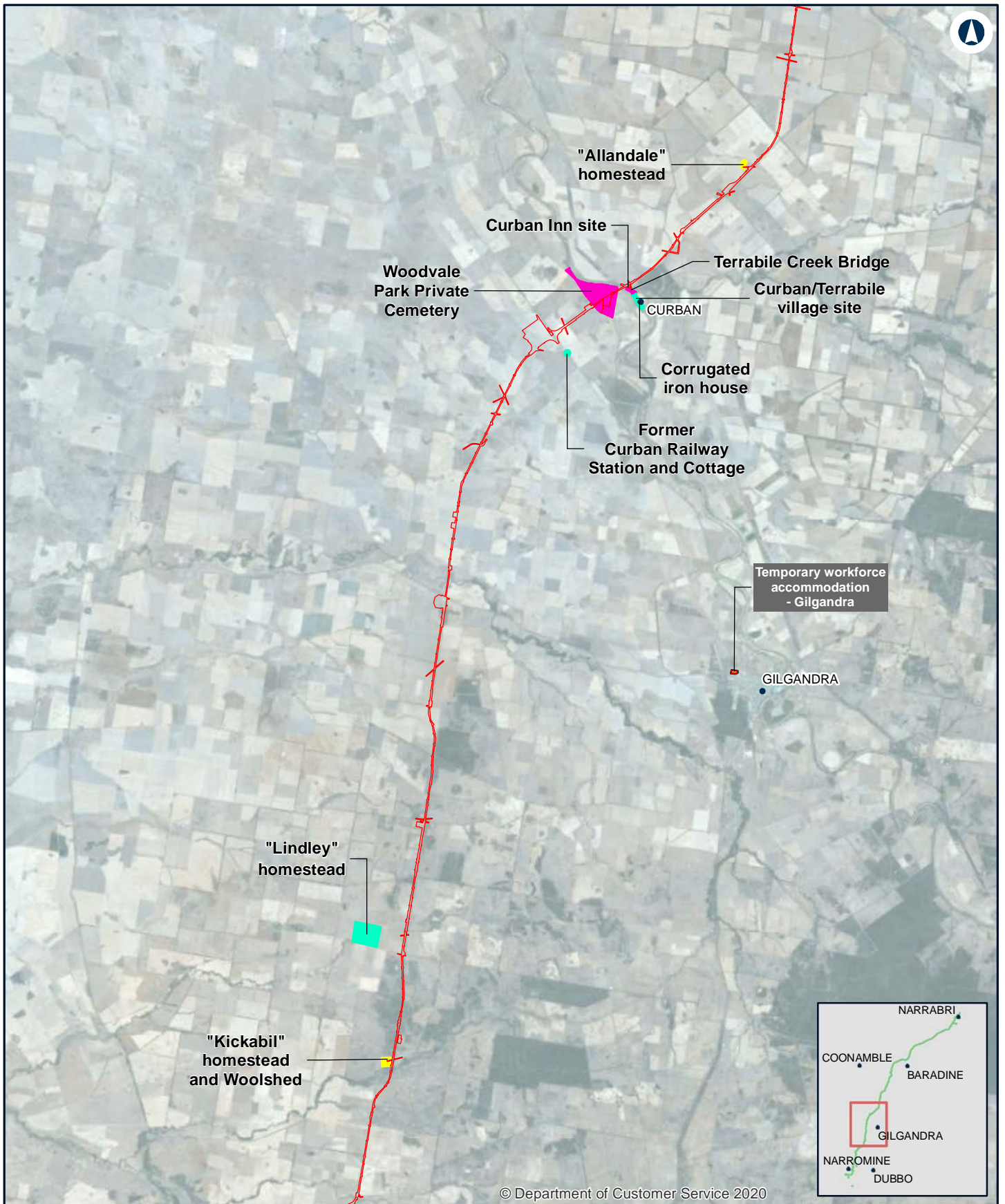
- The proposal site
- Borrow pit
- Temporary workforce accommodation

Heritage items

- LEP
- Assessed local
- Surveyed

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NARROMINE TO NARRABRI

Heritage items and potential heritage items identified from desktop assessment and survey

Figure 5.36b

0 3.5 7 Km

Coordinate System: GDA 1994 MGA Zone 55

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Paper: A4

Author: JacobsGHD

Scale: 1:260,000

Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

LEGEND

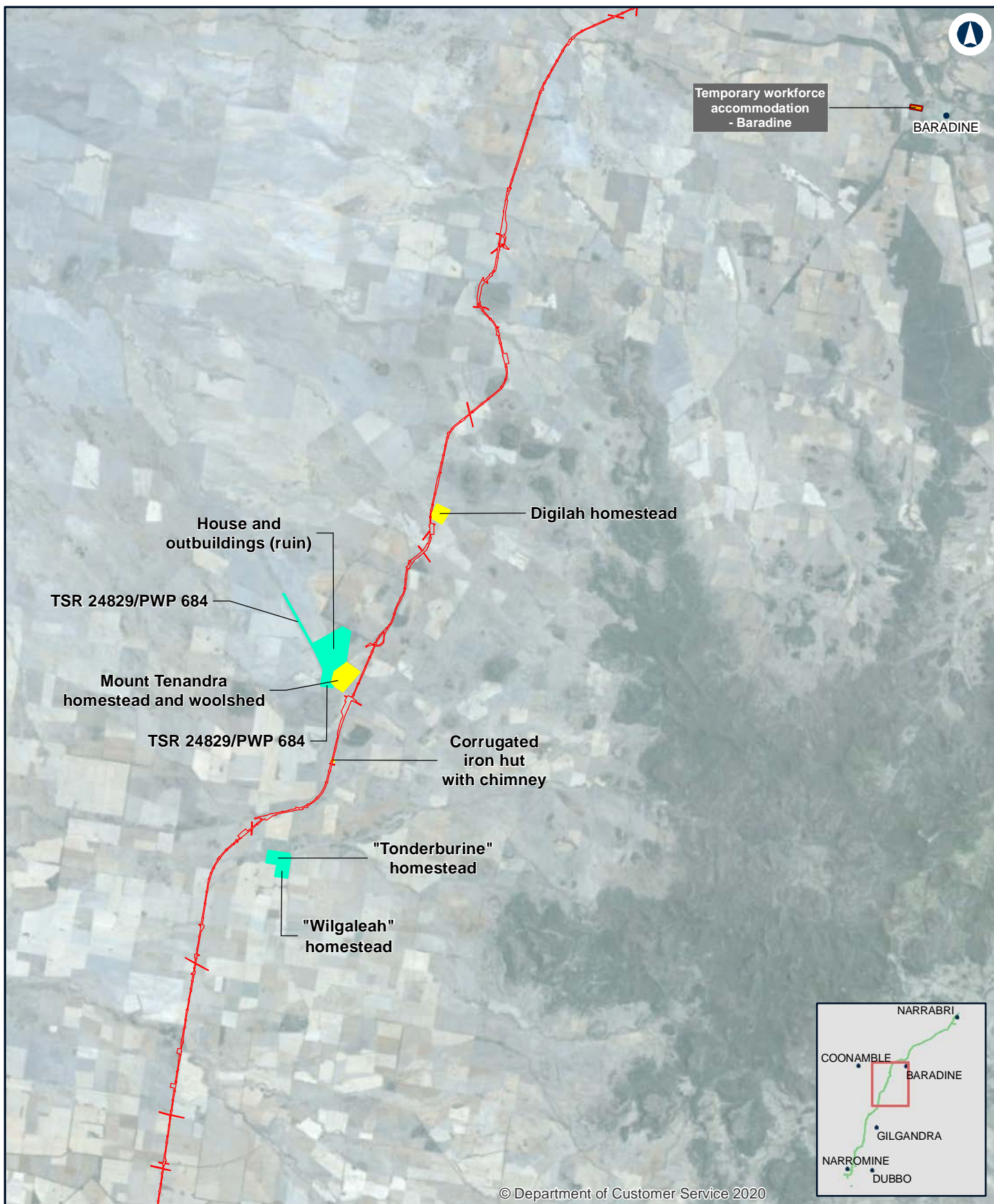
- The proposal site
- Temporary workforce accommodation

Heritage items

- LEP
- Assessed local
- Surveyed

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NARROMINE TO NARRABRI

Heritage items and potential heritage items identified from desktop assessment and survey

Figure 5.36c

0 3.5 7
Km

Coordinate System: GDA 1994 MGA Zone 55

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Paper: A4

Author: JacobsGHD

Scale: 1:260,000

Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

LEGEND

- The proposal site
- Temporary workforce accommodation

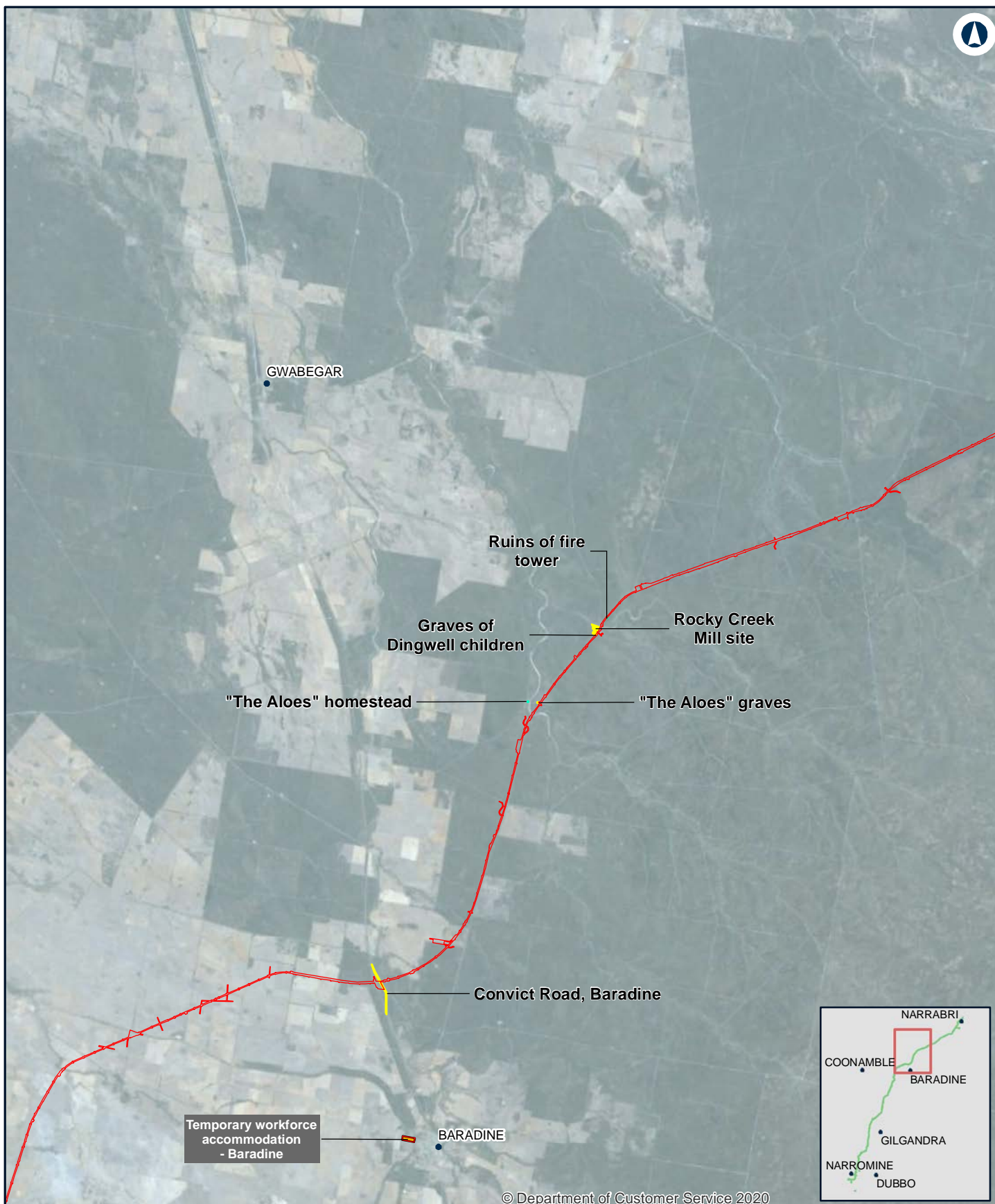
Heritage items

- Assessed local
- Surveyed

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NARROMINE TO NARRABRI

Heritage items and potential heritage items identified from desktop assessment and survey

Figure 5.36d

0 3.5 7 Km

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Date: 9/06/2020

Paper: A4

Author: JacobsGHD

Scale: 1:260,000

Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

LEGEND

- The proposal site
- Temporary workforce accommodation

Heritage items

- Assessed local
- Surveyed

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NARROMINE TO NARRABRI

Heritage items and potential heritage items identified from desktop assessment and survey

Figure 5.36e

0 3.5 7
Km

Coordinate System: GDA 1994 MGA Zone 55

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Date: 9/06/2020

Paper: A4

Author: JacobsGHD

Scale: 1:260,000

Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

LEGEND

- The proposal site
- Borrow pit
- Temporary workforce accommodation

Heritage items

- Assessed local
- Surveyed

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6. Significance assessment

The significance assessment for each LEP-listed item in the study area is provided here. In addition, each potential heritage item identified in the desktop or identified during the field survey, and situated within the study area, has been assessed. Those heritage items or potential heritage items surveyed which are situated outside the study area, are not assessed further. The heritage items here are presented in order from south to north along the proposal site.

6.1 Narromine Aerodrome and RAAF Base

Listed as I14 on the Narromine LEP, the statement of significance from the SHI is provided below:

A site of great significance in its association with WWII, in the formation of the RAAF and the training of pilots and other RAAF personnel. Narromine is also historically significant with respect to its association with the very earliest of aviators and includes landings by Capt. Wrigley and Serg. Major Murphy, (1919) Smith Bros (1920), C. Kingsford-Smith (1920). This aerodrome has strong social significance for the local community being a place where major air shows and community celebrations are held, and where there are many members of the community associated with the airfield now, and in the past. There is also an extended social importance beyond the limits of the Shire boundaries for such as for reunion of Women Air Pilots, and general pilot Fly-ins.

6.2 Timber House, 12 Nymagee Street

Listed as I16 on the Narromine LEP, the statement of significance from the SHI is provided below:

One of three weatherboard homes of similar design in the town, associated with Mr. O'Neill. This house displays some exceptional and unusual characteristics for its time. An interesting double gable roof with Mansart style vented gambrels at the ends, with another gable in the main roof echoed by a gable on the verandah roof, announces the entrance. An important addition in style to the house stock of the town.

An attractive weatherboard home, this house whose design is repeated elsewhere in the town, displays some exceptional and unusual characteristics. It is wrongly orientated towards the side of the block and not the street, a legacy of its relocation in 1945. It has an interesting double gable roof with Mansart style vented gambrels at the ends, while another gable in the main roof, and echoed in the verandah roof, announces the entrance. An important addition in style to the house stock of the town.

6.3 Hotel Narromine

Listed as I10 on the Narromine LEP, the statement of significance from the SHI is provided below:

An imposing large two storey brick hotel that became one of four hotels for the town largely servicing the rail transport system. The hotel is Victorian in style with cast iron Victorian lace decoration to the timber framed verandah, brick walls and original windows, doors and fanlights. The hotel has an important historical association with Mr. William O'Neill who had it built and in whose estate it remained until 1945. The hotel, at the time of its opening was said to bring new levels of comfort to travellers by offering two bars, two parlours, 1st and 2nd class bedrooms and private parlours.

6.4 Narromine Railway Station

Listed as I11 on the Narromine LEP, and on the Australian Rail Track Corporation Section 170 register, the statement of significance from the SHI is provided below:

Important link in the state railway system both historically and geographically with Narromine positioned as an important link initially to the inland wool and copper trade and later as a junction to the branch line of Peak Hill and mining assets.

Wool and livestock were the early mainstay and remained significant. Then important produce from the local district by 1894, in particular wheat, led to further development of the Railway especially for grain storage and handling.

Although much fabric has already been removed the remaining structures form a most important historical and socially significant complex, being the core reasons for the town's original existence and its development.

The railway system was also significant for the role it played in aspects other than produce and trade. Examples include transportation of children to school, people to hospital, mail, coal, flour and bread deliveries and its general central involvement in many varied aspects of everyday life.

Social involvement and respect for the remaining buildings and structures was demonstrated in 1995 when the Station buildings were restored largely through community efforts.

6.5 Drinane Public School (former)

Identified during the desktop assessment and field survey, the significance assessment completed for the Drinane Public School (former) is included in Table 6.1.

Table 6.1 Drinane Public School (former) significance assessment

Description	Assessment
Historical significance	The school was established in 1931 to provide education for children of the local area and operated until 2007. The two buildings on the Old Mill Road frontage appear to be original school buildings, whilst newer buildings are located north of these, evidencing the continuous use of the school during its operation. The item meets this criterion.
Associative significance	There are no known associations that satisfy this criterion. The item does not meet this criterion.
Creative/technical significance	The school and its setting are typical of rural schools established during the early 20 th century. It does not exhibit any creative or technical significance. The item does not meet this criterion.
Social significance	Additional research would be required to establish community attitudes towards the school. It does not, however, appear that the school has any special social significance to satisfy this criterion. The item does not meet this criterion.
Research potential	This site has limited scope for research and therefore does not meet this criterion.
Rarity	The school is a rare example of a school complex in the local area. Other schools were known in the area, eg Kickabil Public School but are no longer extant. The school therefore satisfies this criterion to a local degree. The item meets this criterion.
Representativeness	The school complex is broadly representative of a rural school complex. Its design and fabric (weatherboard cladding with corrugated iron roofing) is typical of early 20 th century school buildings built by the NSW Public Works department. The item meets this criterion.

6.5.1 Integrity and intactness

The school buildings have been unoccupied for over ten years and some buildings now show marked deterioration.

6.5.2 Statement of significance

The school is considered to have moderate local historical heritage significance and rarity value. It is a good example of a public-school building from the first half of the 20th century. Although broadly representative of its class, its survival is considered rare, particularly considering the number of other school buildings in the local area that have not survived (see Section 4.2.5).

6.6 “Kickabil” homestead and woolshed

Identified during the desktop assessment and field survey, the significance assessment completed for the “Kickabil” homestead and woolshed is included in Table 6.2.

Table 6.2 “Kickabil” homestead and woolshed significance assessment

Description	Assessment
Historical significance	The land comprising the “Kickabil” homestead was once part of the Bongeobong (Bungy) run and subdivided in 1904. The land comprising Kickabil cottage was first taken up by John James Greig, who stayed until 1918 before leasing it. The item meets this criterion.
Associative significance	There is no known associative significance. The item does not meet this criterion.
Creative/technical significance	There is no known creative/technical significance. The item does not meet this criterion.
Social significance	There is no known social significance. The item does not meet this criterion.
Research potential	There is limited research potential and restricted to agricultural structures and infrastructure. The item does not meet this criterion.
Rarity	The homestead is a typical rural homestead of the early 20 th century and is not considered rare. The woolshed appears to be intact and, on that basis, may have some rarity value. Further research is required to determine if the item meets this criterion.
Representativeness	The homestead and woolshed are representative of a rural farmstead concerned with wool-growing. The item meets this criterion.

6.6.1 Integrity and intactness

The homestead appears to have been recently renovated, with some windows and doors having been removed. However, overall it retains some heritage character. In establishing its integrity, further investigation, both internally and externally, would be required.

6.6.2 Statement of significance

The “Kickabil” homestead and woolshed represent a typical, late 19th/early 20th century rural homestead complex engaged in wool-growing. It has some local historical significance being one of the earliest farmsteads following the subdivision of the Bungy run, representing a change from large, privately owned pastoral runs to a smaller, family-run type of land ownership in the area.

6.7 Woodvale Park Private Cemetery

Listed as I22 on the Gilgandra LEP, the significance assessment of the Woodvale Park Private Cemetery site was sourced from the SHI and is summarised in Table 6.3.

While not able to be accessed during the field survey, the description of the Cemetery from the SHI is provided below. The description, condition and photographs date to 2008 (see Figure 6.1 and Figure 6.2), and it is uncertain whether the site still appears this way:

The cemetery is defined by star pickets that appear to have been set to form a fence. A brass memorial plaque has been set on a steel post. This identifies the five persons buried in the cemetery.

The cemetery appears to be well maintained generally in good condition.

The site is considered to have moderate archaeological potential.



(Source: SHI, Ray Christison, 2008)

Figure 6.1 Plaque at the site of the graves in Woodvale Park Private Cemetery



(Source: SHI, Ray Christison, 2008)

Figure 6.2 Star picket fencing surrounding the graves at Woodvale Park Private Cemetery

Table 6.3 Woodvale Park Private Cemetery significance assessment

Description	Assessment
Historical significance	The Woodvale Park Private Cemetery is the burial place of members of the Blowes and Markey families. It is an element of the late 19 th century development of the district and has local historical significance. The item meets this criterion.
Associative significance	The cemetery has direct associations with the Blowes and Markey families. It has local historical association significance. The item meets this criterion.
Creative/technical significance	The item does not satisfy this criterion.
Social significance	There is no known social significance attached to this item. The item does not meet this criterion.
Research potential	The site is considered to have moderate archaeological potential. The SHI does not however assess indicate the site has research potential against this criterion. The item does not meet this criterion.
Rarity	Private burial grounds were not uncommon in rural areas. The item therefore does not satisfy this criterion. The item does not meet this criterion.
Representativeness	The burial ground is representative of the development of the Curban district in the late 19 th century. The item meets this criterion.

6.7.1 Integrity and intactness

The cemetery is described in 2008 as being well maintained and having moderate archaeological potential. As there was no field survey of this site in 2019 due to no access being permitted, it is unknown whether the integrity and intactness remains unchanged.

6.7.2 Statement of significance

The Woodvale Park Private Cemetery is the burial place of five members of the Blowes and Markey families. It is representative of the development of the Curban district in the late 19th century. The cemetery has local historical and historical association significance and representativeness.

6.8 Curban Inn site

Listed as A96 on the Gilgandra LEP, the significance assessment from the SHI is provided in Table 6.4.

Table 6.4 Curban Inn site significance assessment

Description	Assessment
Historical significance	The former Curban Inn is a remnant of the early days of road transport in the Castlereagh region and the Cobb & Co route between Gulgong and Coonamble. It is also a rare survivor of the era of horse drawn coach transport that ended with the construction of the Dubbo to Coonamble branch line railway. The site has local historical significance. The item meets this criterion.
Associative significance	There are no known significant associations with this site. Does not meet this criterion.
Creative/technical significance	Does not meet this criterion.
Social significance	Does not meet this criterion.
Research potential	The former Curban Inn has some potential to provide information on the coaching stations established along mail routes in the 19 th century. Surface artefacts in the form of glass, nails and ceramics were noted. It therefore meets this criterion.
Rarity	Does not meet this criterion.
Representativeness	The former Curban changing station is representative of the extensive coaching routes that crossed NSW until well into the 20 th century. The item meets this criterion.

6.8.1 Integrity and intactness

As an archaeological site, it has minimal disturbance and therefore a moderate degree of integrity.

6.8.2 Statement of significance

The former Curban Inn site is a remnant of the early days of road transport in the Castlereagh region and the Cobb & Co route between Gulgong and Coonamble. It is also a rare survivor of the era of horse drawn coach transport that ended with the construction of the Dubbo to Coonamble branch line railway. The site has some potential to provide information on the coaching stations established along mail routes in the 19th century. It is also representative of the extensive coaching routes that crossed NSW until well into the 20th century. The site has local historical and technical/research significance, representativeness and a moderate degree of integrity.

6.9 Terrabile Creek Bridge

Listed as I21 on the Gilgandra LEP, the significance assessment from the SHI is provided in Table 6.5.

Table 6.5 Terrabile Creek Bridge significance assessment

Description	Assessment
Historical significance	Terrabile Creek Bridge represents the improvements undertaken on regional roads in the early 20 th century. It is also an example of the application of the style of timber bridge construction developed by engineer Percy Allan in 1894. It has local historical significance.
Associative significance	Terrabile Creek Bridge has no particular historical association significance.
Creative/technical significance	Terrabile Creek Bridge is a six span longitudinal timber bridge constructed to a design developed by Percy Allan in 1894. It has local aesthetic significance.
Social significance	The bridge has little social significance.
Research potential	Terrabile Creek Bridge is an example of a six span longitudinal timber bridge constructed to a design developed by Percy Allan in 1894. It has local technical/research significance.
Rarity	Terrabile Creek Bridge is a rare local example of an Allan six span longitudinal timber bridge.
Representativeness	Terrabile Creek Bridge is representative timber bridges constructed in the late 19 th century and early 20 th century.

6.9.1 Integrity and intactness

The SHI listing states that the Terrabile Creek Bridge has a high level of integrity. However the original bridge assessed here appears to have been replaced in 2014 and is no longer present. The Terrabile Creek Bridge, however still appears on the Gilgandra LEP.

6.9.2 Statement of significance

While the Terrabile Creek Bridge as assessed is of local heritage significance, its apparent replacement and removal means it is no longer of local heritage significance. It is however still listed on the Gilgandra LEP and as such the location is still technically a local heritage item.

6.10 Curban/Terrabile village site

Identified in the desktop assessment and field survey, the significance assessment prepared for the Curban/Terrabile village site is provided in Table 6.6. The Curban/Terrabile village site is a broader extension of the Curban Inn site adjacent to the north. A ruined corrugated iron building, possibly the village store, is still present on the site but is situated outside the current study area, so is not assessed here.

Table 6.6 Curban/Terrabile Village site significance assessment

Description	Assessment
Historical significance	<p>Originally known as “Terrabile”, and later “Curban”, the former village site was planned in 1865, and contained a police station, post office, store, hotel, village hall and school. It declined in the early 20th century with the construction of the railway bypassing the village. After a brief revival from occupation for the soldier settlement scheme, extensive flooding in 1955 saw the decline of the village. No standing structures remain.</p> <p>The Curban/Terrabile site demonstrates the historical development of townships in the region and reflects the changes in fortune associated with railway transportation and the effects of natural disasters.</p> <p>While there is historical significance associated with this site, as there are limited physical remains it does not meet this criterion.</p>
Associative significance	There are no known significant associations with this site. Does not meet this criterion.
Creative/technical significance	Does not meet this criterion.
Social significance	Does not meet this criterion.
Research potential	<p>The Curban/Terrabile village site has limited potential to provide information on the development and decline of small townships in the region. No surface evidence of the remains of structure or artefacts was noted. Extensive ploughing is likely to have removed the bulk of physical evidence. The archaeological potential is assessed as low.</p> <p>Does not meet this criterion.</p>
Rarity	Does not meet this criterion.
Representativeness	Does not meet this criterion.

6.10.1 Integrity and intactness

Given the paucity of evidence of built items on the site and disturbance in the form of repeated ploughing the integrity and intactness of archaeological evidence is likely to be low.

6.10.2 Statement of significance

The history of the Curban/Terrabile site demonstrates the historical development of townships in the region and reflects the changes in fortune associated with railway transportation and the effects of natural disasters. The Curban/Terrabile village site has limited potential to provide information on the development and decline of small townships in the region. No surface evidence of the remains of structure or artefacts was noted. Extensive ploughing is likely to have removed the bulk of physical evidence. The archaeological potential is assessed as low. As there is little or no physical material to demonstrate the historical significance of the site, it is not likely to meet the threshold for local significance.

6.11 “Allandale” homestead

Identified during the field survey, the significance assessment completed for the “Allandale” homestead is included in Table 6.7.

Table 6.7 “Allandale” homestead significance assessment

Description	Assessment
Historical significance	“Allandale” is a relatively intact, substantial farming complex surrounded by mature tree plantings. The complex includes a homestead and outbuildings. It was constructed in the early years of the 20 th century and formed part of the “Rosedale” estate conditionally purchased by Ralph Nalder in 1916. The Nalder family lived on this property until the 1950s. The item meets this criterion.
Associative significance	There is no significant associative value and the item does not meet this criterion.
Creative/technical significance	There is no creative/technical significance and the item does not meet this criterion.
Social significance	There is no known social significance and the item does not meet this criterion.
Research potential	There is little potential for research and the item does not meet this criterion.
Rarity	The item appears to be one of the few surviving farming complexes of the early 20 th century and fulfils this criterion to a local level.
Representativeness	The item is representative of an early 20 th century farming complex. The item meets this criterion.

6.11.1 Integrity and intactness

From the limited external inspection, the item appears to be relatively intact, however further inspection is warranted to establish its integrity.

6.11.2 Statement of significance

“Allandale” homestead is an early 20th century homestead with outbuildings and mature plantings. It is of heritage significance on the basis of its historicity, its relative rarity in the local area and its representativeness of early 20th century farming complexes.

6.12 Corrugated iron hut with chimney, Mount Tenandra

Identified during the field survey, the significance assessment completed for the corrugated iron hut and chimney is included in Table 6.8.

Table 6.8 Corrugated iron hut with chimney significance assessment

Description	Assessment
Historical significance	This structure was identified during the field survey along Gulargambone Road, approximately four kilometres south of the “Mount Tenandra” homestead complex. It comprised the remains of a corrugated iron shed with a sheet metal chimney. At the time it was recorded, it was surmised that it was the remains of a shepherd's hut or similar. Historical research has identified that the land was original part of the large Tenandra pastoral run, and the hut likely postdates the reservation of Weenya Road in 1889. Although not an uncommon element in the broader pastoral landscape, the hut has local historical significance as an operational element of one of the major local pastoral runs as well as being a marker of the gradual changes in land ownership and property division throughout the late-19 th and early-20 th century from extensive private runs to smaller conditional purchases and leases.
Associative significance	There is no known associative significance to this structure. The item does not meet this criterion.
Creative/technical significance	The structure is a partial ruin. Given that it was observed from a distance, it is not currently possible to determine if this item fulfils the criteria for creative/technical significance, though there is potential for this dependant on construction method and materials used.
Social significance	There is no known social significance to this structure. The item does not meet this criterion.
Research potential	The is no known significant research potential attached to this structure, however this should be confirmed via a detailed/close-up inspection of the item.
Rarity	Without information regarding the structure's history and purpose, an assessment of rarity cannot be currently completed.
Representativeness	The structure appears to be representative of vernacular construction consistent with boundary rider huts/shelters of the early-20 th century, with particular similarities to examples in rural Queensland and the Victorian Alpine regions. Without additional information regarding the structure's history and purpose, no further representativeness can be assigned to this item.

6.12.1 Integrity and intactness

As noted above, the structure is a partial ruin, with poor integrity and intactness. However, this assessment may be refined through a physical inspection of the site.

6.12.2 Statement of significance

The corrugated iron hut with chimney is an item of local historical significance, primarily in its relationship to the Tenandra pastoral run. In the absence of historical information to confirm the structure's history and/or purpose, its rarity and representativeness cannot be properly determined, however there may be potential for creative/technical significance and/or research potential – this should be confirmed or disproven through further research and a physical inspection of the item.

6.13 “Mount Tenandra” homestead complex

Identified from the desktop assessment and field survey, the significance assessment completed for the “Mount Tenandra” homestead complex is included in Table 6.9. Information from High Ground Consulting’s (2010) assessment was used to inform this assessment.

Table 6.9 “Mount Tenandra” homestead complex significance assessment

Description	Assessment
Historical significance	<p>This property dates from c.1860 and comprises a homestead, woolshed and a number of outbuildings and is one of several notable examples of large timber buildings which provide information on the pastoral and agricultural heritage of the Coonamble Shire and economic growth of the area. The homestead also served as a staging point for mail coaches travelling through the area south and west of the Warrumbungle Range.</p> <p>The item meets this criterion.</p>
Associative significance	<p>The homestead complex has associations with the high-profile previous owners of the run, including William Kennedy and O.E. Friend (a Director of the Permanent Trustee Company and the Commercial Banking Company of Sydney, Pitt, Son and Badgery amongst others).</p> <p>The item meets this criterion.</p>
Creative/technical significance	<p>The homestead building and woolshed retain examples of high-quality timber craftsmanship in both major and minor constructions. Although the homestead building has undergone a number of modifications and additions since its construction, these serve to reflect the history of occupation of the “Mount Tenandra” run and changes in technology that have occurred during its use. “Mount Tenandra” homestead complex demonstrates the ongoing expansion and adaptation of a late 19th century homestead, revealing aspects of vernacular design and mid-20th century functional design.</p> <p>The item meets this criterion.</p>
Social significance	<p>There is no known social significance attached to the item. The item does not meet this criterion.</p>
Research potential	<p>The homestead has the potential to provide information about the construction, modification and ongoing management of homesteads built during the 1860s.</p> <p>The item meets this criterion.</p>
Rarity	<p>The item is a relatively rare collection of mid-late 19th century agricultural buildings and homestead.</p> <p>The item meets this criterion.</p>
Representativeness	<p>The item is representative of a late 19th century pastoral complex.</p> <p>The item meets this criterion.</p>

6.13.1 Integrity and intactness

The item appears to be a relatively intact example of a mid-late 19th century head station of a pastoral run. Some intrusive modern outbuildings were noted, however overall it maintains a moderate level of integrity.

6.13.2 Statement of significance

The “Mount Tenandra” homestead complex is of local historical, associative and creative/technical significance and is of moderate research potential, as well as being a rare and representative example of the head station of an important pastoral run.

6.14 “Digilah” homestead

Identified during the field survey, the significance assessment completed for the “Digilah” homestead is included in Table 6.10.

Table 6.10 “Digilah” homestead heritage significance assessment

Description	Assessment
Historical significance	“Digilah” homestead is located on what was formerly the Wingideon Run of the Parmidman pastoral holding. The land was divided for resumption in 1885; and gazetted as a settlement lease area in 1901 (the homestead may have been constructed after this date, though this cannot currently be confirmed). Although the significance of the homestead cannot be fully determined without physical inspection, “Digilah” homestead may have local historical significance as an early-20 th century homestead complex constructed within a period of changes in land ownership and operation in the area – with large pastoral holdings broken up to allow for smaller landowners and smaller scale pastoral and/or agricultural enterprises attracting a growing population to the area. The item meets this criterion.
Associative significance	No associative significance has been identified for this item. It does not fulfil this criterion.
Creative/technical significance	Aerial imagery is insufficient to determine if “Digilah” homestead possesses creative/technical significance. Physical inspection is required. It currently cannot be determined if “Digilah” homestead fulfils this criterion.
Social significance	There is no known social significance attached to the item. It does not fulfil this criterion.
Research potential	Unknown. It currently cannot be determined if “Digilah” homestead fulfils this criterion.
Rarity	Unknown. It currently cannot be determined if “Digilah” homestead fulfils this criterion.
Representativeness	Unknown. It currently cannot be determined if “Digilah” homestead fulfils this criterion.

6.14.1 Integrity and intactness

Unknown. Physical inspection is required to determine the integrity and intactness of the “Digilah” homestead.

6.14.2 Statement of significance

Based on historical research, “Digilah” homestead has the potential of local historical significance. Without physical inspection, it is currently not possible to assess the item’s creative/technical significance, research potential, rarity, representativeness, integrity or intactness.

Due to restricted access during fieldwork, this information has been drawn from local council records and publicly available online records. Additional significance may be identified through a physical inspection of the heritage item.

6.15 Convict Road, Baradine

Identified from the desktop assessment and field survey, the significance assessment completed for the Convict Road, Baradine is included in Table 6.11.

Table 6.11 Convict Road significance assessment

Description	Assessment
Historical significance	<p>Known locally as ‘the Convict Road’, it is believed to have been constructed in the early 19th century. The convict era ended in NSW in 1846.</p> <p>The road demonstrates a significant period in the establishment of white settlement in the region.</p> <p>Convict assignment and labour in regional areas created a cheap labour force which assisted many early free settlers and pastoral runs.</p> <p>Colonial governments encouraged the assignment of convicts as it was far cheaper than maintaining them in penitentiaries or on road gangs. The road sits within a TSR and appears to conform with the alignment of a track that followed Milchomi Creek north from Baradine to the Pilliga – an alignment still in use in the early-20th century. It was a public road and connected a number of homesteads that were established along Milchomi Creek.</p> <p>The item meets this criterion.</p>
Associative significance	<p>If indeed convict-built, there is a strong association with convicts and early road infrastructure.</p> <p>The item meets this criterion.</p>
Creative/technical significance	<p>The road is partially constructed of rock that is not readily available in the local area. It is believed to have been carted from Goorianawa (30 km to the south-west).</p> <p>The road may either embody the engineering efforts of the early-19th century when the labour was highly intensive and the equipment generally crude, or an early macadamised road.</p> <p>This item meets this criterion.</p>
Social significance	<p>There is no known social significance for the item.</p>
Research potential	<p>There is a moderate archaeological research potential which may help determine if the road was laid by convicts to mitigate a boggy section of the road, or if it represents a later macadamised road surface. The road has also been referred to as ‘a Chinese market garden road’.</p> <p>The item meets this criterion.</p>

Description	Assessment
Rarity	<p>The Convict Road has local significance for its rarity as an early paved road. If convict-built, it would also be the only known local example of this type.</p> <p>If a later road surface, it may also be a rare surviving example of early formalised road surfaces throughout the rural/pastoral landscape.</p> <p>In either case, it is unusual (and accordingly rare) due to its use of rock not readily available in the local area for construction.</p> <p>This item meets this criterion.</p>
Representativeness	<p>The Convict Road is a representative example of roadbuilding at the time using convict or other early labour and the methods used in regional areas on isolated roads.</p> <p>This item meets this criterion.</p>

6.15.1 Integrity and intactness

With only a 600-metre stretch currently identified, the Convict Road at Baradine is of moderate integrity but as little of the road is left, poor intactness.

6.15.2 Statement of significance

Relics of further roads provide information on the patterns of settlement and transport within the area. The Convict Road also illustrates the pressures on transport networks in the area and the attempts that were taken to mitigate the geographical and climatic conditions.

Further research and recording are required to fully establish its significance and historical context; however, it is significant to at least a local level for its historical and creative/technical values, is of moderate research potential and is locally rare. Its representativeness cannot be determined without further research, comparative assessment and recording of the item.

6.16 “The Aloes” homestead and graves

Identified from the desktop assessment and field survey, the significance assessment completed for the “The Aloes” homestead and graves is included in Table 6.12. Information from Curby and Humphreys’ (2002) study was used to inform this assessment.

Table 6.12 “The Aloes” homestead and graves significance assessment

Description	Assessment
Historical significance	<p>This site has local historical significance as the homestead site of the Cormie family, the managers of the Cumbil Run. It is a remnant of pastoral activity which was driven out by the growth of the Pilliga forests.</p> <p>According to oral histories, on the Cumbil holding was a ‘6-room dwelling, milking yard, hay shed, garden, wool shed and yards’ (Curby and Humphreys, 2002:28), and it is assumed that the bulk of these structures were concentrated near the extant water tanks and Aloes plantings on the banks of Etoo Creek.</p> <p>The grave of Samuel Jervis Cormie has local historical significance in its relation to disease and medical care in isolated rural properties (particularly those such as diphtheria and whooping cough), but also to the history of child and infant mortality on the frontier, where significant improvements were not seen until the early years of the 20th century.</p> <p>This item meets this criterion.</p>

Description	Assessment
Associative significance	The graves have associative significance to the Cormie family, one an employee, the other a family member. This associations, however, are not of special association and therefore does not meet this criterion.
Creative/technical significance	Primarily an archaeological site, it does not fulfil the criteria for creative/technical significance. The graves retain no creative/technical significance as the grave surrounds are Forestry NSW installations post-1990s. This item does not meet this criterion.
Social significance	The site retains social significance as the burial ground for two of the past inhabitants of the area. The item meets this criterion.
Research potential	The site retains high research potential for archaeological remains of the homestead and outbuildings, a site for which there is very little documentary evidence. The item meets this criterion.
Rarity	The historical records indicate that although not densely population, there were a few pastoral stations throughout the Pilliga area, most of which have now been encompassed by the forest. It does not meet this criterion.
Representativeness	Although the graves are representative of a number of other burials within the forests of the area, the representativeness of "The Aloes" homestead site cannot be determined without further research and inquiry, including an archaeological investigation.

6.16.1 Integrity and intactness

"The Aloes" homestead and graves is of poor intactness and integrity due to the removal or recycling of the majority of building fabric compounded by damage and disturbance from bushfires. The item retains archaeological potential.

6.16.2 Statement of significance

"The Aloes" homestead and graves has historical significance at a local level for its association with the former managers of the Cumbil run, evidence of infant mortality and medical treatment availability during the early European occupation of the Pilliga region and nature as an early pastoral enterprise which has since been encompassed by the forest. It has a high research potential as an archaeological site which may retain in situ remains of the homestead and numerous outbuildings which are believed to have been located at the site and has not been deeply disturbed.

6.17 Rocky Creek Mill Site

Identified in the desktop assessment and field survey, the significance assessment completed for the Rocky Creek Mill Site is included in Table 6.13. Information from the Curby and Humphreys' (2002) study was used to inform this assessment. The graves of the Dingwell children identified with this site are assessed separately in Section 6.18.

Table 6.13 Rocky Creek Mill Site significance assessment

Description	Assessment
Historical significance	<p>The Rocky Creek Mill Site embodies a major feature of the history of the forest areas of this region, mostly relating to the 1890-1990 period (primarily prior to 1930). The former mill village exemplify a period when processing of timber was undertaken close to the timber source and mill operators had a monopoly of large areas of forest and is important as part of a collective cultural landscape of local heritage significance.</p> <p>The item meets this criterion.</p>
Associative significance	<p>The Rocky Creek Mill Site is of local associative significance due to its connection with Henry Dangar.</p> <p>The site is also local associative significance due to its association with prominent local family the Underwoods. Tom Underwood Snr and Jack Underwood established the sawmill at Rocky Creek in the 1920s and it was operated by the family until it burnt down in 1953.</p> <p>The item meets this criterion.</p>
Creative/technical significance	<p>With little evidence of structures across the site, it does not fulfil the criteria for creative/technical significance.</p> <p>The item does not meet this criterion.</p>
Social significance	<p>There is no known strong or special social significance. The item does not meet this criterion.</p>
Research potential	<p>The site possesses a high degree of research potential as due to its undisturbed nature, lack of documentary evidence and potential archaeological resource. There is a large amount of surface artefactual material, and some remnants of the sawmill operations (eg the ash mounds). It has the potential to add to the existing knowledge of daily life and activities in timber-related camps in the Pilliga forests.</p> <p>The item meets this criterion.</p>
Rarity	<p>The Rocky Creek Mill Site is not uncommon as a forest mill from the heyday of the Pilliga forest timber-getting. Although there is similarly little trace left of the Euligal mill and Wangmann's mill near Kenebri, surviving sawmill sites within the Coonabarabran Shire include Pincham's Mill at Baradine, Underwood's Mill at Kenebri, Wooleybah Mill and Ceelnoy Mill.</p> <p>The item does not meet this criterion.</p>
Representativeness	<p>The item is representative of other timber extraction areas previously identified in the Pilliga. It therefore meets this criterion at a local level.</p> <p>This item meets this criterion.</p>

6.17.1 Integrity and intactness

The Rocky Creek Mill Site is of moderate intactness, despite the loss of former structures and fabric. The surface scatters appear to have been present *in situ* for many years, despite being a public recreational area which suggests some degree of archaeological integrity and intactness.

6.17.2 Statement of significance

The Rocky Creek Mill Site is of local historical and associative significance through its place in the history of the Pilliga forests and their exploitation and its connection to Henry Dangar and prominent local families. It has a high degree of archaeological research potential.

6.18 Graves of the Dingwell children

Identified in the desktop assessment and field survey, the significance assessment completed for the Graves of the Dingwell children is included in Table 6.14. Information from the Curby and Humphreys' (2002) study was used to inform this assessment. The Rocky Creek Mill Site identified with this site are assessed separately in Section 6.18.

Table 6.14 Graves of the Dingwell children significance assessment

Description	Assessment
Historical significance	<p>The graves of the Dingwell children have local historical significance in their relation to disease and medical care in isolated rural communities (particularly those such as diphtheria and whooping cough), but also to the history of child and infant mortality on the frontier, where significant improvements were not seen until the early years of the 20th century.</p> <p>The graves are associated with the Rocky Creek Mill Site, a former timber mill village operating between 1890 and 1990 (mainly prior to 1930).</p> <p>The item meets this criterion.</p>
Associative significance	<p>There are no known associations with important historical figures.</p> <p>The item does not meet this criterion.</p>
Creative/technical significance	<p>With no surface evidence of the original graves or grave furniture, it does not fulfil the criteria for creative/technical significance.</p> <p>The item does not meet this criterion.</p>
Social significance	<p>There is no known strong or special social significance. The item does not meet this criterion.</p>
Research potential	<p>The integrity of the presence of human remains or other burial remains at the site is unknown. The site has some potential for research into burial practices and human disease and mortality in isolated frontier communities. The item meets this criterion.</p>
Rarity	<p>The Rocky Creek Mill Site is not uncommon as a forest mill from the heyday of the Pilliga forest timber-getting, nor is the association of graves with such mill settlements of this time period.</p> <p>The item does not meet this criterion.</p>
Representativeness	<p>The item does not meet this criterion.</p>

6.18.1 Integrity and intactness

There is no evidence of the original graves or grave surrounds on the surface. The integrity and intactness of the graves and their remains is not known. There is some potential for the presence of subsurface evidence of the graves.

6.18.2 Statement of significance

The Graves of the Dingwell children is of local historical through its place in the history of the Pilliga forests as well as the mortality and treatment of disease on the isolated frontier. It may have some degree of research potential.

6.19 Ruins of fire tower

Identified from the desktop assessment and field survey, the significance assessment completed for the ruins of fire tower is included in Table 6.15. Information from the Curby and Humphreys' (2002) study was used to inform this assessment.

Table 6.15 Ruins of fire tower significance assessment

Description	Assessment
Historical significance	The Ruins of fire tower are locally significant for the role the tower played in the detection and fighting of bushfires which may have threatened the lives of residents and resources of the Pilliga forests. Although probably built as a temporary structure, the tower retains some character in its isolated location in remote bushland. However, it does not meet this criterion.
Associative significance	There is no known associative significance for this item. The item does not meet this criterion.
Creative/technical significance	The item does not meet this criterion.
Social significance	There is no known special or social significance. The item does not meet this criterion.
Research potential	The site has no research potential and does not meet this criterion.
Rarity	The site is not rare, a number of these fire towers and lookout points were established throughout the area in hopes of early identification and management of bushfire danger. This item does not meet this criterion.
Representativeness	Previously a small shelter on timber support poles arranged in a triangle, the tower is believed to have been representative of fire towers of its time period within the forestry lands. However, it does not meet the threshold for this criterion.

6.19.1 Integrity and intactness

A ruin, the site has little integrity or intactness.

6.19.2 Statement of significance

The site is historically significant at a local level; however, the subsequent removal of the tower has removed almost all of its integrity, and greatly damaged its historical significance. It is not considered to fulfil the criteria for local heritage significance on this basis.

6.20 “Lucky Flat” bore

Identified during the field survey, the significance assessment completed for the “Lucky Flat” bore is included in Table 6.16.

Table 6.16 “Lucky Flat” bore significance assessment

Description	Assessment
Historical significance	Bores were integral in opening up the back country for settlement, away from permanent water sources, with the sinking of bores, excavation of tanks and installation of fences transforming the landscape and the way stock was managed. Stock routes often stretched between bores and tanks, which in some instances also encouraged small settlements. Aside from being a water bore, the “Lucky Flat” bore evidences no particular historical significance. The item does not meet this criterion.
Associative significance	Although a memorial plaque has been installed at the bore site, there is no indicator of a particular connection between the “Lucky Flat” bore and R J G Burrow. The item does not meet this criterion.
Creative/technical significance	There is no known creative/technical significance for this item. The item does not meet this criterion.
Social significance	There is no known social significance for this item. The item does not meet this criterion.
Research potential	The “Lucky Flat” bore has limited research potential. The item does not meet this criterion.
Rarity	“Lucky Flat” bore is one of a number of bores throughout the Pilliga and the wider Warrumbungle Range. The item does not meet this criterion.
Representativeness	This place is representative of a water supply bore, with a small above-ground, cast-iron monument capping the bore shaft. However, it does not possess any particularly notable characteristics. The item does not meet this criterion.

6.20.1 Integrity and intactness

The “Lucky Flat” bore site is of good intactness and integrity. The tank dam remains as it was excavated, and the monument and memorial plaque show no signs of damage or degradation.

6.20.2 Statement of significance

The “Lucky Flat” bore does not fulfil the requirements for any category of heritage significance as is not considered suitable for heritage listing.

6.21 Two-storey shed/barn, Bohena Creek

Identified from the field survey, the significance assessment completed for the two-storey shed/barn is included in Table 6.17.

Table 6.17 Two-storey shed/barn significance assessment

Description	Assessment
Historical significance	<p>There is little historical data indicating the use or purpose of this structure. Its size, materials, architecture and scale are suggestive of being a substantial structure and that it is not of recent construction.</p> <p>The item is located on the western side of Bohena Creek. A newspaper article dating from the 1950s indicated that there was an “assessment camp” and sawmills located on this bank at Bohena Creek. However, being situated on the “Calrossie” property, which has a residence on the eastern side of Bohena Creek on the Newell Highway, it could equally be related to pastoral usage.</p> <p>The item may potentially meet this criterion.</p>
Associative significance	<p>There is no known associative significance attached to this item.</p>
Creative/technical significance	<p>There is no known creative/technical significance attached to this item.</p>
Social significance	<p>There is no known social significance attached to this item.</p>
Research potential	<p>There is currently insufficient information to assess whether this item has research potential.</p>
Rarity	<p>The item is not considered rare at this time.</p>
Representativeness	<p>The item is not considered to have representative value at this time.</p>

6.21.1 Integrity and intactness

As noted above, this item is in a dilapidated condition, with the roof in a bad state of repair.

6.21.2 Statement of significance

Based on the limited information about the structure to date, it is unclear whether or not it would threshold at a local level of significance. It is a substantial structure which appears not to be of recent construction. Its usage may be related to timber milling, an “assessment camp”, or to pastoral usage on the property. Further physical inspection of the site would be required to understand its usage and its potential significance. While the significance of this item has not been established, it will be addressed for the remainder of this assessment as though it is of local significance.

6.22 TSR 51066, Narrabri

Identified from the desktop assessment and field survey, the significance assessment completed for the TSR 51066, Narrabri is included in Table 6.18.

Table 6.18 TSR 51066, Narrabri significance assessment

Description	Assessment
Historical significance	As part of the activities associated with large pastoral stations, stock would often need to be moved from one place to another. Referred to as the “long paddock”, the routes used to move stock from place to place became a network of travelling stock reserves (TSRs). While demonstrating the historical pattern and use of the land for pastoral activities, there is little physical evidence apart from their cadastral boundaries and continuing use to identify these as heritage items. This item does not meet this criterion.
Associative significance	There is no known associative significance attached to this item.
Creative/technical significance	There is no known creative/technical significance attached to this item.
Social significance	There is no known social significance attached to this item.
Research potential	The archaeological potential for TSRs is recognised, particularly if close to permanent water courses. Remains from multiple camps could be expected from their long-term use, however the extensive use of the TSRs for the movement of stock over an extensive period would indicate that the potential for finding early/historical remains is low. This item does not meet this criterion.
Rarity	The item is not considered rare at this time.
Representativeness	The item is not considered to have representative value at this time.

6.22.1 Integrity and intactness

The archaeological potential in relation to early use of the TSR and the presence of early camps is low. The ongoing continual movement of stock over an extensive period would have caused disturbance to such remains.

6.22.2 Statement of significance

While the TSR 51066 is of historical interest for its association with the pastoral industry, there is little potential for physical or archaeological remains associated with its use. As such it is assessed as not meeting the threshold for local listing.

6.23 Summary of items of heritage significance

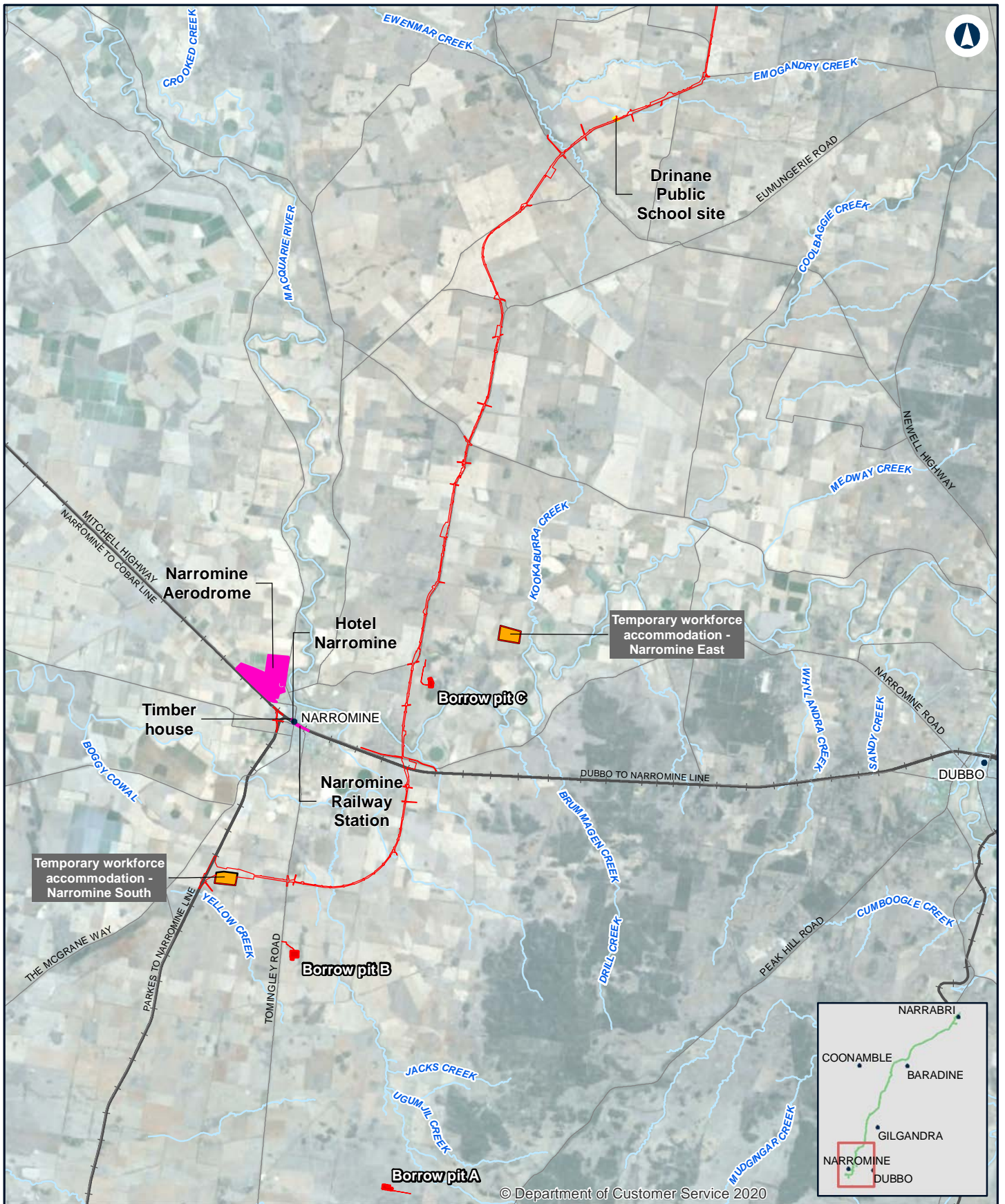
Table 6.19 provides the significance assessment of heritage items in the study area, including listed heritage items previously assessed, and newly identified heritage items assessed as part of this assessment. Those items assessed as being of heritage significance are mapped in Figure 6.3.

Table 6.19 Summary of heritage significance and archaeological potential of heritage items in the study area

Item	Significance level	Heritage significance criteria	Archaeological potential
Narromine Aerodrome and RAAF Base (I14)	Local – Narromine LEP	Historical, associative, social	No
Timber House, 12 Nymagee Street (I16)	Local – Narromine LEP	Associative, creative/technical	No
Narromine Railway Station (I11)	Local – Narromine LEP	Historical, social	No
Hotel Narromine	Local – Narromine LEP	Historical, associative, creative/technical	No
Drinane Public School (former)	Local	Historical, rarity, representativeness	No
“Kickabil” homestead and woolshed	Local	Historical, representativeness	No
Woodvale Park Private Cemetery (I22)	Local – Gilgandra LEP	Historical, associative, representativeness	Yes
Curban Inn site (A96)	Local – Gilgandra LEP	Historical, research potential, representativeness	Yes
Terrabile Creek Bridge (I21)	Local – Gilgandra LEP	Historical, aesthetic, research potential, rarity, representativeness ³	No
Curban/Terrabile village site	None	n/a	No
“Allandale” homestead	Local	Historical, rarity, representativeness	No
Corrugated iron hut with chimney	Local	Historical	No
“Mount Tenandra” homestead complex	Local	Historical, associative, creative/technical, research potential, rarity, representativeness	No
“Digilah” homestead	Local	Historical	No
Convict Road, Baradine	Local	Historical, associative, creative/technical, research potential, rarity, representativeness	Yes

³ It appears that the original bridge has been replaced in 2014 and is no longer present.

Item	Significance level	Heritage significance criteria	Archaeological potential
"The Aloes" homestead and graves	Local	Historical, social, research potential	Yes
Rocky Creek Mill Site	Local	Historical, associative, research potential, representativeness	Yes
Graves of the Dingwell children	Local	Historical, research potential	Yes
Ruins of fire tower	None	n/a	No
"Lucky Flat" bore	None	n/a	No
Two-storey shed/barn, Bohena Creek	Local (potential)	Historical	No
TSR 51066, Narrabri	None	n/a	No



NARROMINE TO NARRABRI

Listed heritage items and assessed heritage items within the study area

Figure 6.3a

0 3.5 7
Km

Coordinate System: GDA 1994 MGA Zone 55

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Date: 9/06/2020

Paper: A4

Author: JacobsGHD

Scale: 1:260,000

Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

LEGEND

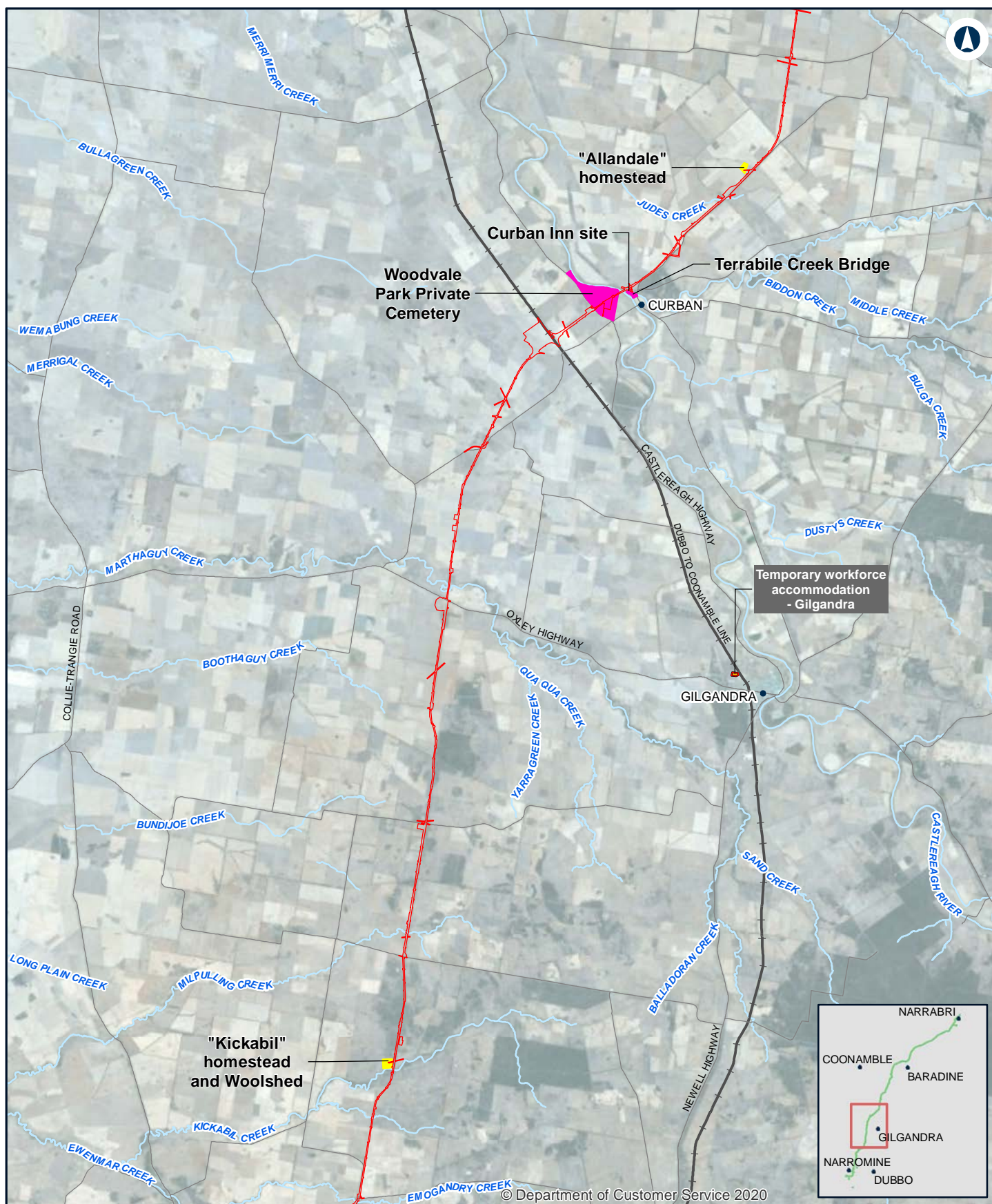
- The proposal site
- Borrow pit
- Temporary workforce accommodation

Heritage items

- LEP
- Assessed local

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NARROMINE TO NARRABRI

Listed heritage items and assessed heritage items within the study area

Figure 6.3b

0 3.5 7
Km

Coordinate System: GDA 1994 MGA Zone 55

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LEGEND

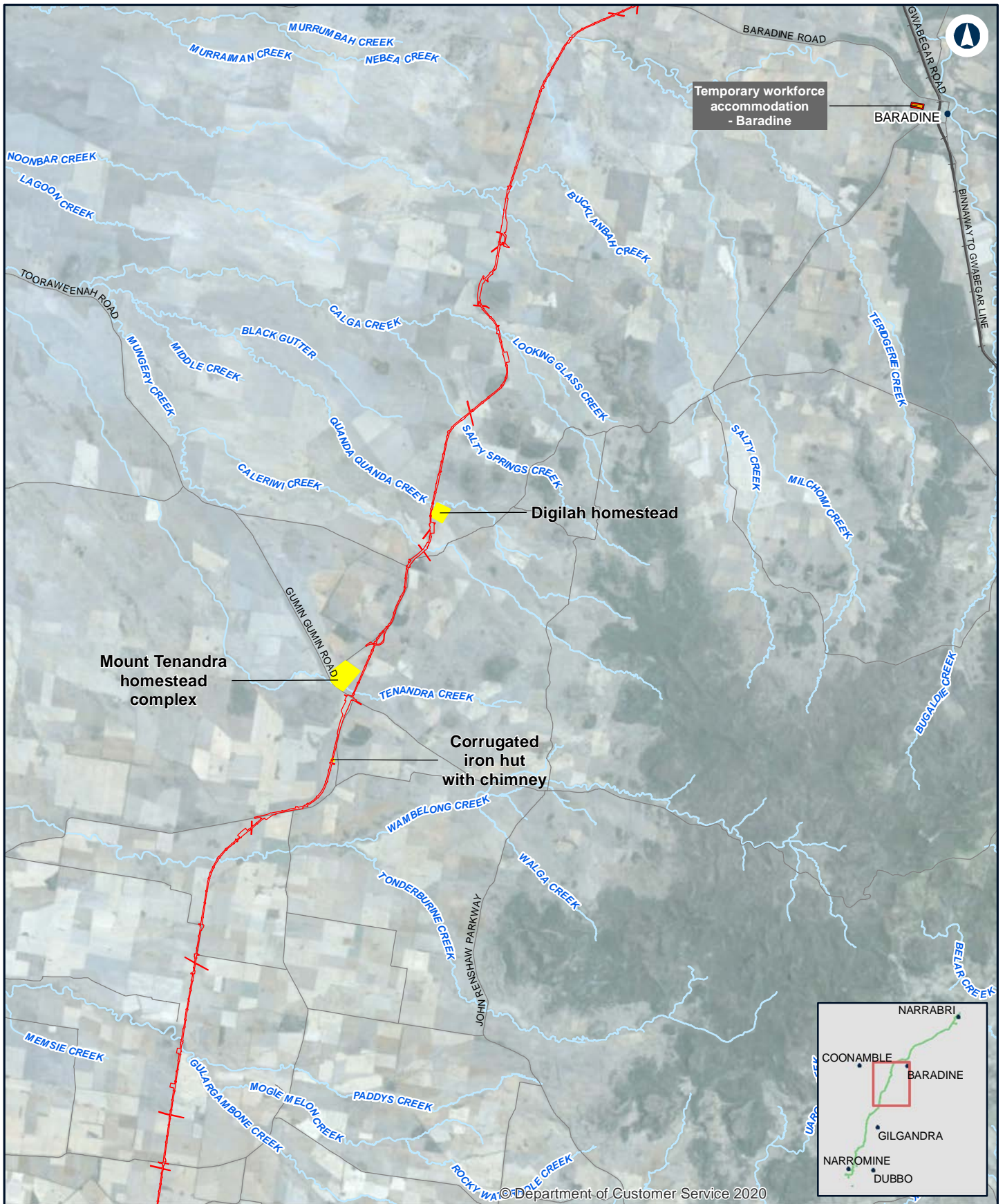
- The proposal site
- Temporary workforce accommodation

Heritage items

- LEP
- Assessed local

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NARROMINE TO NARRABRI

Listed heritage items and assessed heritage items within the study area

Figure 6.3c

0 3.5 7 Km

Coordinate System: GDA 1994 MGA Zone 55

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Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

LEGEND

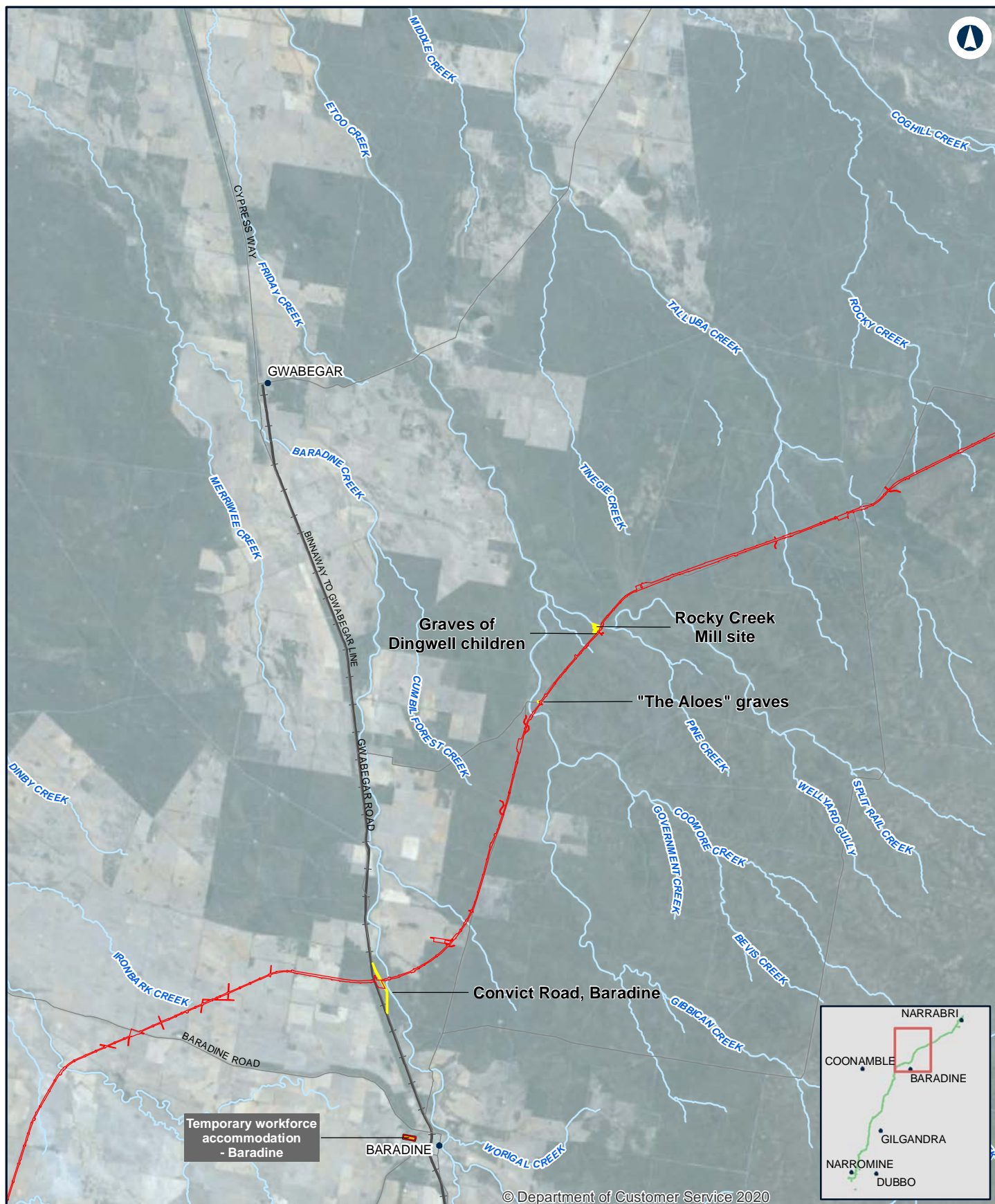
- The proposal site
- Temporary workforce accommodation

Heritage items

- Assessed local

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NARROMINE TO NARRABRI

Listed heritage items and assessed heritage items within the study area

Figure 6.3d

0 3.5 7 Km

Coordinate System: GDA 1994 MGA Zone 55

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Date: 9/06/2020

Paper: A4

Author: JacobsGHD

Scale: 1:260,000

Data Sources: Basemap layers: NSWSS; Heritage items: OEH; Footprints: GHDJACOBS

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7. Impact assessment

7.1 Potential impacts across the proposal

7.1.1 Vibration impacts on heritage structures

The listed and assessed heritage items located within 500 metres of the proposal site were provided to the noise and vibration specialists for assessment of potential vibration impacts. The detailed findings of these assessments are provided in *ARTC Inland Rail Narromine to Narrabri Noise and Vibration Assessment - Construction and Other Operations* (JGHD, 2020c), and *ARTC Inland Rail Narromine to Narrabri Noise and Vibration Assessment – Operational Rail* (KPMG, 2020).

Based on the relevant guidelines with consideration to structural damage, vibration impacts from general construction works activities should not be sufficient to cause damage if the equipment operates at distances greater than 35 metres from heritage structures.

During operation, the assessment adopted a conservative measure of ground-borne vibration of 3 millimetres per second, which equates to an allowance of around 15 metres from the rail alignment within which vibration may have the potential to cause structural damage.

The potential for vibration impacts to heritage structures is included in the assessment of impacts in each of the statements of heritage impact in Section 7.4 for construction impacts.

Once operational, no further vibration impacts on heritage items have been identified. All remaining buildings are located at least 200 metres away from the rail alignment and the operational noise and vibration assessment found that there would be no measurable or perceptible ground-borne vibration from railway operations that would impact on heritage buildings or structures.

Prior to the commencement of vibration intensive works within the minimum working distances for cosmetic damage for heritage items, the potential for damage to the item would be assessed by a suitably qualified person. Where there is potential for damage, alternative methods that generate less vibration would be investigated and substituted where practicable.

Where residual cosmetic damage risks remain, condition surveys would be carried out and vibration monitoring with real-time notification of exceedance would occur during the activity.

Site activities would be modified where practicable to avoid exceeding the cosmetic damage criteria. Any identified vibration-related damage to the items would be rectified.

7.1.2 Visual impacts to rural setting of heritage items

Detailed consideration of impacts on visual amenity and landscape for the proposal have been provided in the *ARTC Inland Rail Narromine to Narrabri Landscape and Visual Assessment* (JGHD, 2020b). There is the potential for temporary visual impacts on heritage items from the proposal, particularly related to construction compounds which would be established during construction and then subsequently removed following completion. The Woodvale Park Private Cemetery and the Convict Road would both be subject to impacts from the establishment of the compounds. The potential for these impacts is discussed in Section 7.4 on construction impacts.

Some of the heritage items in the study area are homestead complexes that have a rural setting which is of relevance to the heritage significance of the heritage item. There is the potential for visual impacts on these homestead complexes from the construction and operation of the Inland Rail proposal. These could include impacts on the view to and/or from the heritage item because of the permanent construction of the railway infrastructure through a landscape previously uncluttered by such construction. The impacts could also include the impacts on the setting and/or views during the operation of the Inland Rail when freight trains travel past the heritage item. Again, this would be due to trains travelling through a landscape previously without such visual and aural intrusion.

The potential for visual impacts to specific heritage items is included in section 7.5 on operational impacts.

7.2 Heritage items not impacted

Those listed and assessed heritage items that are situated in the study area but would not be impacted either directly or indirectly by the proposal are listed in Table 7.1. It has been assessed that due to the distance of the heritage item curtilage from the proposal alignment and/or the key heritage buildings/structures within the heritage curtilage being a sufficient distance, impacts would be unlikely to occur.

Table 7.1 Heritage items in the study area not impacted by the proposal

Item	Significance level
Narromine Aerodrome and RAAF Base (I14)	Local – Narromine LEP
Timber House, 12 Nymagee Street (I16)	Local – Narromine LEP
Narromine Railway Station (I11)	Local – Narromine LEP
Terrabile Creek Bridge (I21)	Local – Gilgandra LEP
“Mount Tenandra” homestead complex	Local

7.3 Heritage items potentially impacted

The proposal would impact on two listed heritage items and 10 heritage items assess as being of local significance. The potential impacts and the level of impact are summarised in Table 7.2. Detailed discussion of impacts and measures to mitigate and manage these impacts are provided in Section 7.4 for construction impacts, and in Section 7.5 for operational impacts

Table 7.2 Heritage items potentially impacted by the proposal

Item name	Heritage significance	Impact type	Impact description	Level of impact
Drinane Public School (former)	Local	Direct	Construction: Construction of the rail alignment and associated construction infrastructure. Demolition of heritage buildings.	Major
"Kickabill" homestead and woolshed	Local	Direct Potential direct	Construction: Access road / level crossing. No impact on key heritage buildings. Vehicle/machinery operation in vicinity of heritage building.	Negligible
		Indirect - visual	Operational: Visual impact to rural landscape setting	Minor
Woodvale Park Private Cemetery (I22)	Local – Gilgandra LEP	Direct	Construction: Construction of the rail alignment within curtilage. Construction compound. Access road. No physical impact on grave site location, following confirmation of location.	Negligible
Curban Inn site (A96)	Local – Gilgandra LEP	Direct Potential direct	Construction: Road realignment. Possible requirement to remove archaeological deposits. Vibration generating activities within 35 m of curtilage.	Minor
"Allandale" homestead	Local	Direct Potential direct Indirect - visual	Construction: Utility relocation within curtilage. Vehicle/machinery operation in vicinity of heritage building.	Negligible
		Indirect - visual	Operational: Visual impact to rural landscape setting.	Minor
Corrugated iron hut with chimney	Local	Direct	Construction: Construction of the rail alignment. Demolition of heritage item.	Major
"Digilah" homestead	Local	Direct Indirect - visual	Construction: Construction of the rail alignment within curtilage. No impact on key heritage buildings.	Negligible
		Indirect – visual	Operational: Visual impact to rural landscape setting.	Minor

Item name	Heritage significance	Impact type	Impact description	Level of impact
Convict Road, Baradine	Local	Direct Potential direct	Construction: Construction of the rail alignment. Requirement to remove archaeological evidence of road. Construction compound in close proximity to road remains.	Minor
"The Aloes" homestead and graves	Local	Direct Potential direct	Construction: Construction of the rail alignment. Vehicle/machinery operation in vicinity of structures and graves.	Negligible
Rocky Creek Mill Site	Local	Potential direct	Construction: Vehicle/machinery operation in vicinity of heritage item.	Negligible
Graves of the Dingwell children	Local	Direct	Construction: Construction of the rail alignment. Removal of the graves and skeletal remains.	Major
Two storey barn/shed, Bohena Creek	Local (potential)	Direct	Construction: Utilities relocation. Demolition of heritage item.	Major

7.4 Construction impacts

7.4.1 Drinane Public School (former)

Proposed works

- Construction of the rail alignment.

Impact assessment

There would be direct impacts to the key buildings associated with this former school. These are located close to Old Mill Road and would require demolition for the construction of the proposal as they are located directly within the footprint of the proposed rail alignment. An archival photographic recording of the site overall and the buildings to be demolished would be carried out in accordance with the guidelines *Photographic Recording of Heritage Items Using Film or Digital Capture* (Heritage Council of NSW, 2006).

Conclusion

The proposed works would be of small-medium scale, moderate-high intensity and would be permanent and irreversible. While information about the heritage item would be captured through archival recording, the level of impact on the heritage item as a result of the proposal would be **major**.

7.4.2 "Kickabil" homestead and woolshed

Proposed works

- Utilities work
- Rail alignment is outside the heritage curtilage.

Impact assessment

There would be direct impact within the heritage curtilage for the utility works proposed for the property in the form of overhead wires which are proposed to be raised. These are situated more than 50 metres from any heritage structure. The rail alignment is approximately 100 metres east of the heritage curtilage, and approximately 300 metres from the homestead buildings and woolshed building. The direct impact within the heritage curtilage would not impact on the heritage significance of the heritage item.

Physical impact may occur to key heritage buildings due to the proximity of construction activity, and the use of construction machinery and vehicles within close proximity. Standard construction measures (such as fencing of active construction areas and delineation of 'no-go' areas) would manage this risk.

Conclusion

As the proposed works would have little or no impact on the heritage significance of the heritage item, and the management measures would manage the risk of potential direct impacts, the level of impact on the heritage item would be **negligible**.

7.4.3 Woodvale Park Private Cemetery

Proposed works

- Construction of the rail alignment
- Construction compound to support construction
- Access road to construction compound from Castlereagh Highway.

Impact assessment

There would be a direct impact from the rail alignment, construction compound and access road within the LEP-listed heritage curtilage, however the exact location of the grave site within the listed curtilage is not clear.

A co-ordinate is provided in the SHI listing for the Cemetery, however this was not able to be confirmed as the location of the graves during the field survey as property access was not available. None of the graves are visible on either aerial photographs, nor were they visible from the surrounding public roads during the field survey. Given that the majority of the site is under agricultural production, it is likely that the graves would be located in an undisturbed area in the vicinity of the clusters of trees or near the road. This also concurs with the co-ordinate location provided in the SHI, which is situated near a cluster of trees and near the Castlereagh Highway.

The current access road from the construction compound to the Castlereagh Highway overlaps with the location of the SHI co-ordinate. This location would be the first location subject to detailed inspection to confirm the presence of the described star picket fencing and/or metal plaque. This would be done by an appropriately qualified archaeologist. Once the location of the graves is identified, it would be fenced to exclude access and delineated as a 'no-go' area.

Conclusion

Subsequent to confirming the location of the graves, there would be little or no impact on the heritage significance of the heritage item, and the management measures would manage the risk of potential direct impacts, the level of impact on the heritage item would be **negligible**.

7.4.4 Curban Inn site

Proposed works

- Road realignment on East Coonamble Road, east of rail alignment.

Impact assessment

It is proposed to realign a section of the East Coonamble Road to allow safer sight distances for the level crossing located to the west of the heritage item. The proposed road realignment would potentially extend into the northern perimeter of the Curban Inn Site, requiring the disturbance and removal of any archaeological items located in that area.

There would be direct impact on a small section of the heritage item along East Coonamble Road, where the road reserve overlaps with the LEP-listed heritage curtilage of the archaeological site.

Given the current width of the dirt road in this location, compared to the width of the road reserve, there would be the potential for the new road alignment to avoid the LEP-listed curtilage and therefore the sub-surface archaeological remains of the heritage item. This would be confirmed during detailed design. If the detailed design of the road realignment is able to avoid the LEP-listed heritage curtilage, standard construction measures (such as fencing of active construction areas and delineation of 'no-go' areas) would manage this risk.

If during detailed design the road realignment cannot be designed to avoid the LEP-listed heritage curtilage then a detailed archaeological assessment, research design and methodology would be prepared to undertake test excavation where the proposal would overlap with the heritage item. This would be undertaken by an appropriately qualified Excavation Director, in accordance with the NSW Heritage Council's Excavation Director criteria (NSW Heritage Council, 2011). This mitigation measure would realise the research potential of the heritage item by capturing as much archaeological site data as possible prior to disturbance. The remainder of the site would be subject to standard construction measures (such as fencing of areas and delineation of 'no-go' areas) to manage the risk of unnecessary disturbance to the rest of the site.

Conclusion

Even if the heritage item cannot be avoided, the proposed works would be of small/localised scale, of moderate intensity, but would be permanent/irreversible. Despite being permanent/irreversible, the archaeological investigation along the margin of the LEP-listed heritage item would recover as much archaeological site data as possible, with the bulk of the site protected from disturbance. The implementation of these measures would protect the remainder of the site and salvage any archaeology prior to the start of works. As such, the level of impact would be **minor**.

7.4.5 "Allandale" homestead

Proposed works

- Utilities work
- Construction of rail alignment, approximately 250 metres east.

Impact assessment

The rail alignment for the proposal runs along the National Park Road frontage of the property and would not impact on the homestead, approximately 300 metres to the west, nor within the heritage curtilage.

There would be direct impact within the heritage curtilage for utility works proposed for the property in the form of overhead wires which are proposed to be raised, running on a diagonal line from the rail alignment to a point around 10 metres away from the main homestead building. This would not directly impact the homestead building or other potential heritage buildings.

Physical impact may occur to key heritage buildings due to the proximity of construction activity associated with the utility relocation, and the use of construction machinery and vehicles within close proximity. Standard construction measures (such as fencing of active construction areas and delineation of 'no-go' areas) would manage this risk.

There is the potential that construction activities associated with this utility relocation work may generate vibration impacts that may affect the heritage structure.

Conclusion

The proposed works would be little or no impact on the heritage significance of the heritage item, and the management measures would manage the risk of potential direct impacts, the level of impact on the heritage item would be **negligible**.

7.4.6 Corrugated iron hut with chimney

Proposed works

- Construction of rail alignment.

Impact assessment

There would be direct impacts to the heritage item as it would require demolition for the construction of the proposal as it is located directly within the footprint of the proposed rail alignment. An archival photographic recording of the heritage item to be demolished would be carried out in accordance with the guidelines *Photographic Recording of Heritage Items Using Film or Digital Capture* (Heritage Council of NSW, 2006).

Conclusion

The proposed works would be of small-medium scale, moderate-high intensity and would be permanent and irreversible. While information about the heritage item would be captured through archival recording, the level of impact on the heritage item as a result of the proposal would be **major**.

7.4.7 “Digilah” homestead

Proposed works

- Construction of rail alignment.

Impact assessment

There would be direct impact within the heritage curtilage for the construction of the rail alignment. However, the key heritage buildings associated with the heritage item, including the main homestead building, are more than 350 metres east of the alignment. The direct impact within the heritage curtilage would not impact on the heritage significance of the heritage item.

Physical impact to key heritage buildings from construction activity and the use of construction machinery and vehicles is unlikely to occur due to the distance between the key buildings and the construction. However, in order to minimise unnecessary encroachment into the heritage curtilage, standard construction measures (such as fencing of active construction areas and delineation of 'no-go' areas) would manage this risk.

Conclusion

The proposed works would be little or no impact on the heritage significance of the heritage item, and the management measures would manage the risk of potential direct impacts, the level of impact on the heritage item would be **negligible**.

7.4.8 Convict Road, Baradine

Proposed works

- Construction of rail alignment
- Construction compound.

Impact assessment

The section of the potential convict-built road that has been inspected and comprises a visible worked stone surface runs along the eastern boundary of a proposed construction compound. The degree of overlap of the physical remains of the actual road, the cadastral road reserve, and the construction compound is unclear from current data, but the road and its physical remains are in such close proximity as to be potentially directly impacted by the construction and use of the compound. The Convict Road would be avoided by the compound by using standard construction measures (such as fencing of the compound and delineation of 'no-go' areas) to manage this risk.

Further north, the Convict Road would be subject to direct impacts from the construction of the rail alignment, where it crosses perpendicular to the Convict Road. Approximately 55 metres of the Convict Road would be subject to direct impact. A detailed archaeological assessment, research design and methodology would be prepared to undertake site recording, and/or test excavation where the rail alignment construction would overlap with the heritage item. This would be undertaken by an appropriately qualified Excavation Director, in accordance with the NSW Heritage Council's Excavation Director criteria (NSW Heritage Council, 2011). This mitigation measure would realise the research potential of the heritage item by capturing as much archaeological site data as possible prior to disturbance. The remainder of the site would be subject to standard construction measures (such as fencing of areas and delineation of 'no-go' areas) to manage the risk of unnecessary disturbance to the rest of the site.

Conclusion

The proposed works would be of small/localised scale, of moderate intensity, but would be permanent/irreversible to the Convict Road. Despite being permanent/irreversible, the archaeological investigation on a 55-metre section of the heritage item would recover as much archaeological site data as possible, with the bulk of the site protected from disturbance. The implementation of these measures would protect the remainder of the site and record any archaeology prior to the start of works. As such, the level of impact would be **minor**.

7.4.9 "The Aloes" homestead and graves

Proposed works

- Construction of rail alignment.

Impact assessment

The location of the archaeological site associated with "The Aloes" homestead is situated outside the study area (just over 500 metres west of the proposal site). There would be no impact to "The Aloes" homestead site from the proposal.

The three graves associated with “The Aloes” are located approximately 200 metres to the east of the homestead site, and are approximately 30 metres from the proposal site. At the time of the field survey, the graves were marked by a fence made of interlaced logs. Since the time of the field survey there have been a number of bushfires in the Pilliga forests, and the condition of the grave markers is unknown at this time. If the log fence has been destroyed and not replaced, the graves would be unmarked. Physical impact may occur to the graves due to the proximity of construction activity and the use of construction machinery and vehicles within close proximity. Standard construction measures (such as fencing of active construction areas and delineation of ‘no-go’ areas) would manage this risk.

Conclusion

As proposed works would have little or no impact on the heritage significance of the heritage item, and the management measures would manage the risk of potential direct impacts, the level of impact on the heritage item would be **negligible**.

7.4.10 Rocky Creek Mill Site

Proposed works

- Adjacent to construction of rail alignment.

Impact assessment

A homestead site was identified along the Pilliga Forest Way frontage of the Rocky Creek Mill Site. The proposal for construction of the rail alignment is on the opposite side of the road of Pilliga Forest Way, and is therefore not likely to directly impact the main part of the Rocky Creek Mill Site.

Physical impact may occur to the heritage item due to the proximity of construction activity, and the use of construction machinery and vehicles within close proximity. Standard construction measures (such as fencing of active construction areas and delineation of ‘no-go’ areas) would manage this risk.

Conclusion

The proposed works would have little or no impact on the heritage significance of the heritage item, and the management measures would manage the risk of potential direct impacts, the level of impact on the heritage item would be **negligible**.

7.4.11 Graves of the Dingwell children

Proposed works

- Construction of rail alignment.

Impact assessment

There would be direct impact to the graves due to the close proximity to the proposed alignment and being within the proposal site. The graves and human skeletal remains would be managed in accordance with relevant legislation and guidelines including the Public Health Regulation 2012 (NSW), *Heritage Act 1977* (NSW), *Work Health and Safety Act 2011* (NSW), *NSW Health Procedures – Exhumation of human remains* (NSW Health, 2013), and *Skeletal Remains – Guidelines for the Management of Human Skeletal Remains under the Heritage Act 1977* (NSW Heritage Office, 1998). A plan of management for exhuming and re-interring the graves would be developed in accordance with these requirements and included in the heritage management plan for the proposal. Approval for exhuming the graves would be sought in accordance with the requirements of Clauses 69 to 72 (Division 4 of Part 8) of the Public Health Regulation 2012.

The mandatory requirements under the Public Health Regulation 2012 include the following:

Under Clause 69 of the Public Health Regulation 2012 a person must not exhume a body unless the exhumation of the remains has been approved by the Director-General. An application for approval to exhume the remains of the body of a dead person may be made to the Director General by:

- *An executor of the estate of the dead person*
- *The nearest surviving relative of the dead person*
- *If there is no such executor or relative available to make the application a person who, in the opinion of the Director-General, is a proper person may make the application.*

An application is to be made in the approved form and it is to be accompanied by:

- *A certified copy of the death certificate relating to the dead person*
- *A statutory declaration as to the relationship of the applicant to the dead person and the dead persons wishes, if any, regarding the disposal of his or her body*
- *An application fee.*

Under Clause 71 of the Public Health Regulation 2012 the Director-General may:

- *Grant an approval to exhume the remains of a body*
- *Refuse the application.*

Under Clause 72, an exhumation cannot take place without an authorised officer or a Ministry of Health staff member present. A person must not proceed with an exhumation if the authorised officer or Ministry of Health staff member who is present at the exhumation, orders the exhumation to stop.

The exhumation would include archaeological investigation of the potential remains of burial goods, coffin materials, and skeletal remains. A detailed archaeological assessment, research design and methodology would be prepared to undertake the archaeological investigation during the removal of the graves. This would be included in the exhumation plan of management. This would be undertaken by an appropriately qualified Excavation Director, in accordance with the NSW Heritage Council's Excavation Director criteria (NSW Heritage Council, 2011). This mitigation measure would realise the research potential of the heritage item by capturing as much archaeological site data as possible prior to disturbance.

Consideration would also be made of the appropriate reburial and memorialisation of the human remains at an appropriate location, in consultation with appropriate parties, including any remaining family members. Other relevant stakeholders would include Heritage NSW, Narrabri and District Historical Society, Coonabarabran History Group, Narrabri Shire Council, NSW National Parks and Wildlife Service, and direct descendants of the Dingwell family. A nearby memorial and interpretation signage, potentially at the location of the Rocky Creek Mill Site, would be considered as part of this strategy prior to removal of the graves. The strategy for reburial and memorialisation would be included in the exhumation plan of management.

Conclusion

The proposed works would be of small-medium scale, moderate-high intensity and would be permanent and irreversible. While information about the graves and burials would be captured through archaeological investigation and the remains relocated elsewhere, the level of impact on the heritage item as a result of the proposal would be **major**.

7.4.12 Two-storey barn/shed, Bohena Creek

Proposed works

- Utility relocation.

Impact assessment

This two-storey barn/shed is located on the western bank of Bohena Creek. It is outside the rail alignment but is located underneath a proposed corridor for utilities relocation. The scope of works for the essential utility locations is as yet undefined, however direct impact to the heritage item would likely be required to demolish the barn/shed. An archival photographic recording of the site overall and the buildings to be demolished would be carried out in accordance with the guidelines *Photographic Recording of Heritage Items Using Film or Digital Capture* (Heritage Council of NSW, 2006).

Conclusion

The proposed works would be of small/localised scale, moderate-high intensity and would be permanent and irreversible. While information about the heritage item would be captured through archival recording, the level of impact on the heritage item as a result of the proposal would be **major**.

7.5 Operational impacts

There would be indirect visual impacts on the three heritage items due to a permanent change in their rural setting from the presence of the new rail infrastructure in the landscape, and due to the presence of freight trains travelling past the heritage items. These impacts apply to the following heritage items:

- “Kickabil” homestead and woolshed
- “Allandale” homestead
- “Digilah” homestead.

The rail line infrastructure would be located between approximately 300 and 400 metres from the key buildings within each of these heritage items. The significance of each of these items reflects the history of the pastoral industry in the region, demonstrated through the typical complex of residential homestead and outbuildings set within a cleared, open landscape setting with little other activity.

The presence of the new rail line infrastructure would be a physical intrusion to the landscape, however given the distance of this physical infrastructure from the key buildings, and the low elevation of rail infrastructure in the landscape, it would not visually dominate the heritage items. The presence of freight trains passing by the heritage items would also be a physical (visual and aural) intrusion into the setting. While the passing train would be at a greater elevation and more conspicuous than the rail infrastructure itself, the frequency of the trains travelling past would be around eight trains per day in 2025.

To minimise these visual impacts, opportunities to include plantings to screen the visual outlook from the key homestead buildings would be considered during development of the urban design and landscape plan for the proposal. The *ARTC Inland Rail Narromine to Narrabri Landscape and Visual Assessment* (JGHD, 2020b) provides further details on visual impacts and mitigation measures.

While the proposed infrastructure and operation would be permanent, in terms of visual impacts it would be localised to one side of the heritage item and of low intensity, and therefore the visual impacts on these heritage items is assessed as minor.

7.6 Cumulative impacts

7.6.1 Overview

For an EIS, cumulative impacts can be defined as the successive, incremental, and combined effect of multiple impacts, which may in themselves be minor, but could become significant when considered together. The methodology and projects considered for the cumulative impact assessment are provided in detail in the EIS (Part D chapter D1). The study area for the cumulative non-Aboriginal heritage assessment is the local government areas of Narrabri, Narromine, Gilgandra and Walgett. Three major projects in these local government areas were identified as having a cumulative impact and sufficient information to undertake a cumulative impact assessment. These include:

- Inland Rail – Narrabri to North Star
- Inland Rail – Parkes to Narromine
- Narrabri Gas Project.

There was insufficient information available to allow a cumulative impact assessment or no items of non-Aboriginal heritage impacted for the following projects:

- Silverleaf Solar Farm, Narrabri
- Gilgandra Solar Farm
- Narromine Solar Farm
- APA-Western Slopes Pipeline.

The locations of these projects are shown in Figure 7.1.

7.6.2 Construction and operation

Following a review of the heritage impacts of the relevant major infrastructure projects in the vicinity of the proposal, the following table (Table 7.3) lists the number of known and potential heritage items subject to potential impact in each of the relevant nearby projects.

Table 7.3 Impacts to non-Aboriginal heritage of relevant major infrastructure projects

Project	No of non-Aboriginal heritage items identified as impacted	Heritage items impacted
APA-Western Slopes Pipeline	1 (PEA, EIS in preparation)	Not applicable
Inland Rail, Narrabri to North Star	2	Underbridge, Moree Station, both partial with mitigation
Inland Rail, Parkes to Narromine	12 (six total, one partial and four not impacted)	Former station sites, cottage
Narrabri Gas Projects (Santos)	0	Not applicable
Silverleaf Solar Farm	0	Not applicable
Narromine Solar Farm	0	Not applicable
Gilgandra Solar Farm	0	Not applicable

It is noted that the majority of the heritage items impacted by the two Inland Rail projects are within the rail corridor and comprised former stations, sites of former stations, underbridge and other railway infrastructure sites. The only comparable item within the current study area is the

former Kickabil railway station and station master's cottage, which would not be impacted by the current proposal. It therefore concluded that overall, there is no appreciable cumulative impact in relation to the heritage items listed in Table 7.3.

In relation to Narrabri Gas Projects, there were 53 non-Aboriginal heritage items identified within that study area, mostly timber extraction sites. These sites were predominately assessed as having heritage significance as a group of sites of similar type which demonstrated similar heritage criteria, rather than each site having individual heritage significance. Exceptions were made for eight sites that had additional features and were recommended for exclusion from works. No timber extraction sites would be impacted as a result of the current proposal.

It is therefore assessed that overall the cumulative impacts to non-Aboriginal heritage as a result of this proposal is negligible.

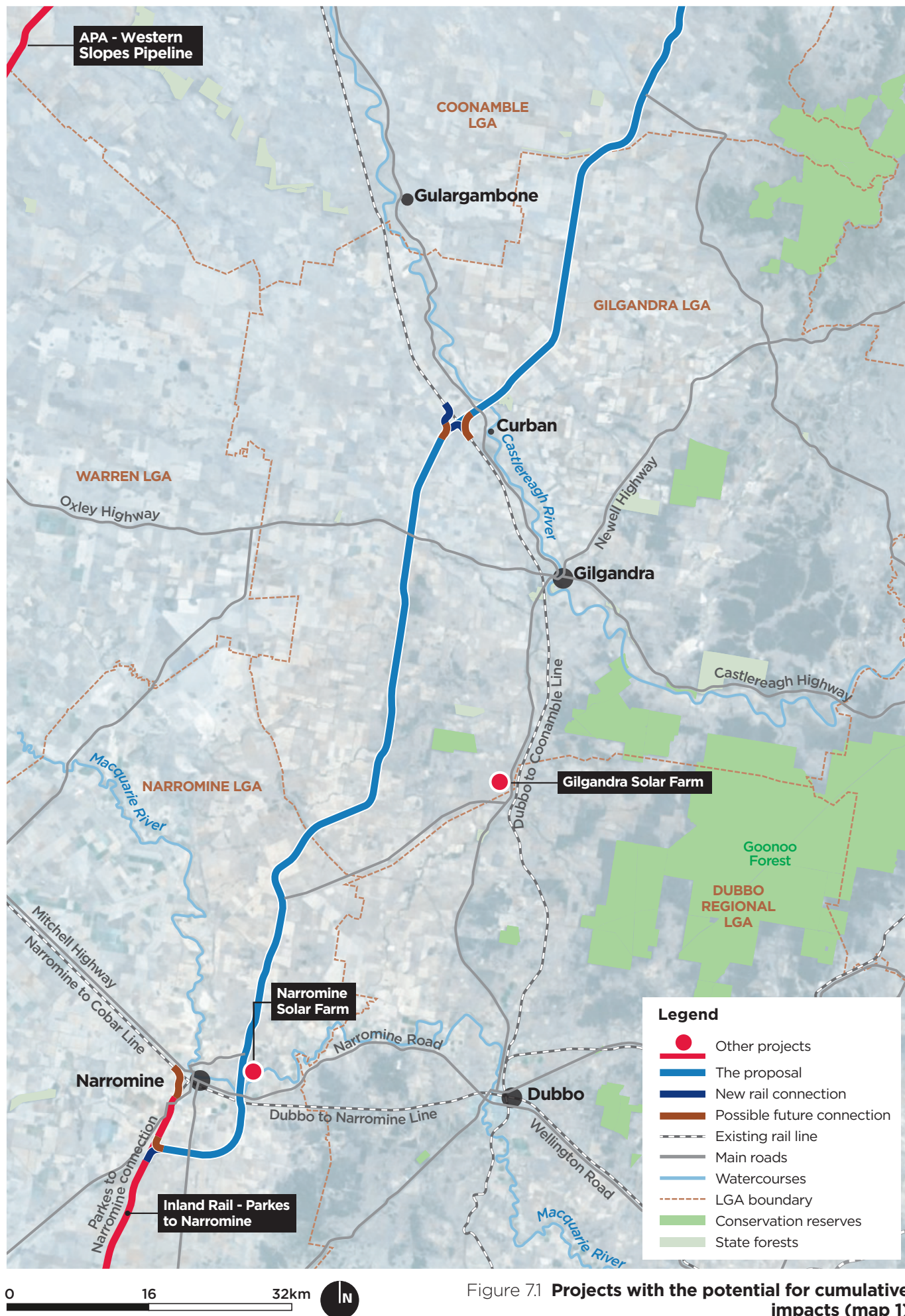
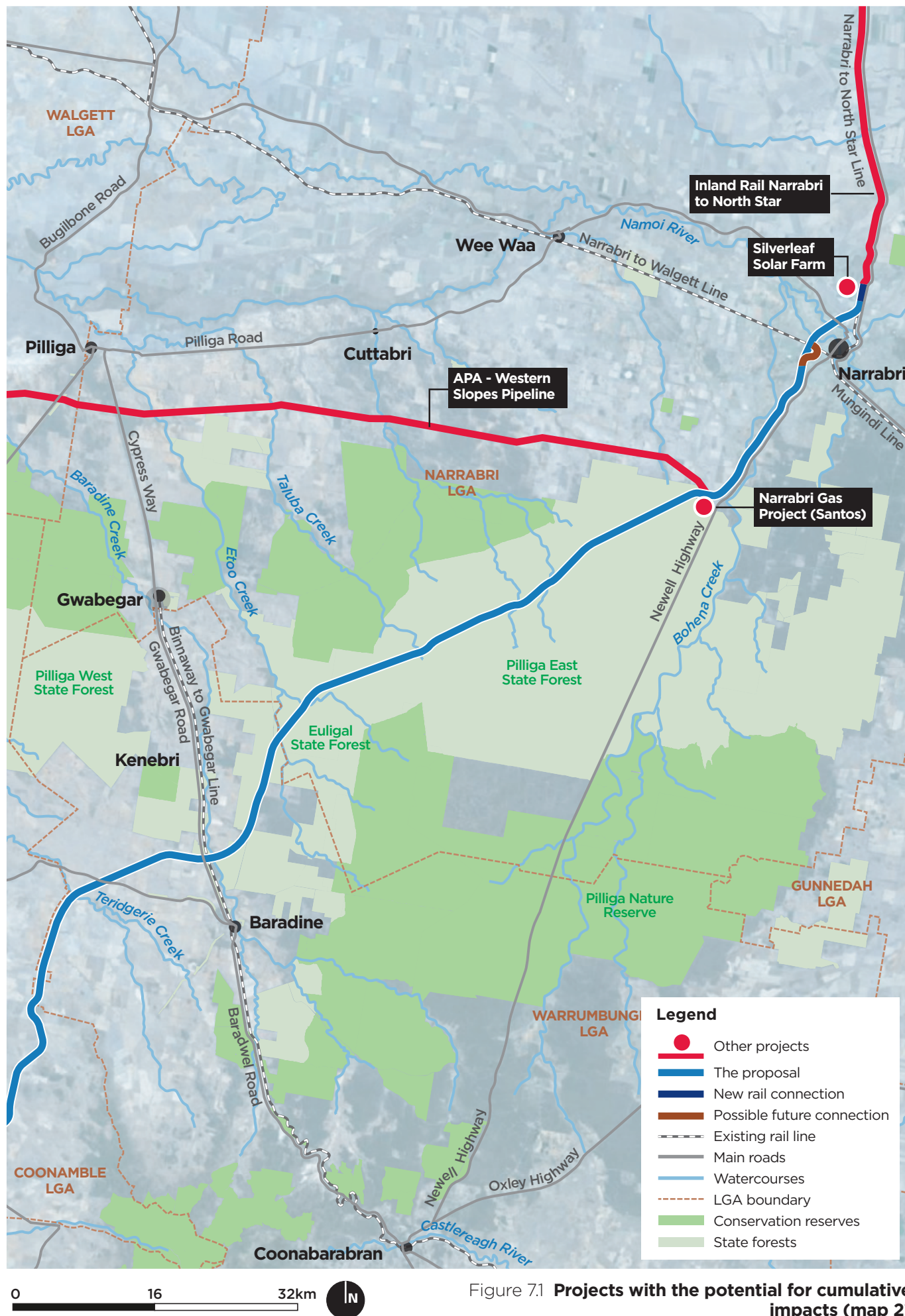


Figure 7.1 **Projects with the potential for cumulative impacts (map 1)**



8. Mitigation measures

8.1 General measures

8.1.1 General construction management

A heritage management plan would be prepared and implemented as part of the Construction Environmental Management Plan (CEMP). It would include measures to manage non-Aboriginal heritage and minimise the potential for impacts during construction. The plan would be prepared in consultation with the relevant heritage agencies and take into account the outcomes of further investigations during detailed design.

Management measures would be implemented during construction to manage potential impacts to items of heritage significance from construction works in the vicinity of heritage items. This includes selection of construction equipment to minimise vibration, and delineation of exclusion areas to avoid inadvertent works occurring within the curtilage of heritage items.

8.1.2 Vibration management

Construction activities would be conducted in a manner to ensure vibration levels do not exceed 3 millimetres per second at non-Aboriginal heritage items, where structures are present, where feasible and reasonable.

Where there is risk for the 3 millimetres per second threshold to be exceeded at the heritage item, structural condition assessments would be conducted at the heritage item prior to construction commencing to determine appropriate mitigation measures or monitoring approaches that would be implemented during vibration-intensive work.

8.1.3 Discovery of historical heritage materials, features or deposits

For managing the discovery of historical heritage materials, features or deposits during the construction of the proposal, a detailed procedure for managing the discovery of such heritage, would be prepared. If at any time during construction of the proposal, historical heritage materials, features and/or deposits are found, the procedure would be implemented.

8.1.4 Discovery of human remains

For managing the discovery of possible human skeletal material during the construction of the proposal, a detailed procedure for managing the discovery of such heritage, would be prepared. The procedure would be consistent with the requirements of *NSW Health Procedures – Exhumation of human remains* (NSW Health, 2013) and *Skeletal Remains: Guidelines for Management of Human Skeletal Remains under the Heritage Act* (NSW Heritage Office, 1998). In the event that construction of the proposal reveals possible human skeletal material the procedure would be implemented.

8.1.5 Heritage interpretation plan

An overarching Heritage Interpretation Strategy for non-Aboriginal heritage of the study area would be prepared during detailed design. This would include a broad framework that sets out the key interpretative themes and data that have been generated and would identify communication strategies. Detailed heritage interpretation plans for specific part of the Proposal, particularly where heritage items are proposed to be demolished or archaeological sites are proposed to be excavated, would be prepared during detailed design to specify how the recommendations within the Strategy would be implemented. This may include approaches such as interpretive signage at heritage items demolished or excavated, historical/artefact

displays at local museums or visitor centres, and online media about heritage items and history in the vicinity of the proposal.

8.1.6 Heritage induction training

Non-Aboriginal historical heritage awareness training would be provided for contractors prior to commencement of construction works to ensure understanding of potential heritage items that may be impacted during the proposal, and the procedure required to be carried out in the event of discovery of historical heritage materials, features or deposits, or the discovery of human remains.

8.2 Site-specific measures for construction and operational impacts

Table 8.1 and Figure 1.1 lists the mitigation and management measures that would apply at specific sites that have been identified as being subject to impact due to the activities associated with construction and operation of the proposal.

Table 8.1 Site-specific mitigation measures for construction and operational impacts

Ref	Issue/Impact	Recommended mitigation measure
MM1	<i>Avoiding and minimising impacts on non-Aboriginal heritage</i>	<p>Detailed design and construction planning would avoid direct impacts on identified items/sites of non-Aboriginal heritage significance as far as reasonably practicable. This would include small sections of the following listed items that overlap with the proposal site:</p> <ul style="list-style-type: none"> • Curban Inn site, Curban • Convict Road, Baradine. <p>The location of construction compounds and associated access routes would be reviewed to ensure, as far as practicable, they are not located in areas of medium or high archaeological potential.</p>
MM2		<p>The location of the graves at the Woodvale Park Private Cemetery listed item would be confirmed by an appropriately qualified archaeologist. Once confirmed, the location would be marked on plans, fenced on site, and avoided during construction.</p>
MM3		<p>In the event that the following items are unable to be avoided, an archaeological assessment, research design and methodology would be prepared. Test excavation would be undertaken by an appropriately qualified Excavation Director, in accordance with the NSW Heritage Council's Excavation Director criteria (NSW Heritage Council, 2011):</p> <ul style="list-style-type: none"> • Curban Inn site, Curban • Convict Road, Baradine.

Ref	Issue/Impact	Recommended mitigation measure
MM4	<i>Heritage interpretation</i>	<p>A Heritage Interpretation Strategy for non-Aboriginal heritage would be prepared. This would provide a framework for interpreting the heritage items (listed and potential) impacted by the proposal, set out the key interpretative themes, and identify communication strategies.</p> <p>The strategy would include interpretation requirements for specific parts of the proposal, particularly where heritage items are proposed to be removed or archaeological sites are proposed to be excavated. These may include approaches such as interpretive signage at heritage items that have been removed or excavated, historical/artefact displays at local museums or visitor centres, and online media about heritage items and history in the vicinity of the proposal.</p> <p>The strategy would be prepared with regard to <i>Interpreting Heritage Places and Items: Guidelines</i> (NSW Heritage Office, 2005), and the NSW Heritage Council's Heritage Interpretation Policy.</p>
MM5	<i>Archival recording</i>	<p>Archival photographic recording of buildings to be removed would be carried out prior to removal in accordance with Photographic Recording of Heritage Items Using Film or Digital Capture (Heritage Council of NSW, 2006) and 'How to prepare archival records of heritage items' (NSW Heritage Office, 1998) at the following sites:</p> <ul style="list-style-type: none"> • Drinane Public School (former) • Corrugated iron hut with chimney • two-storey barn/shed.
MM6	<i>Disturbance of grave sites</i>	<p>Graves and human skeletal remains at the graves of the Dingwell children would be would be managed in accordance with the requirements of relevant legislation and guidelines, including the Public Health Regulation 2012 (NSW), <i>Heritage Act 1977</i> (NSW), <i>Work Health and Safety Act 2011</i> (NSW), <i>NSW Health Procedures – Exhumation of human remains</i> (NSW Health, 2013), and <i>Skeletal Remains – Guidelines for the Management of Human Skeletal Remains under the Heritage Act 1977</i> (NSW Heritage Office, 1998). A plan of management for exhuming and re-interring the graves would be developed in accordance with these requirements and included in the heritage management plan for the proposal.</p> <p>Approval for exhuming the graves would be sought in accordance with the requirements of Clauses 69 to 72 (Division 4 of Part 8) of the Public Health Regulation 2012. The exhumation and re-interment process would be undertaken in accordance with the conditions of the approval and the exhumation plan of management.</p> <p>The exhumation plan of management would also include the following:</p> <ul style="list-style-type: none"> • An archaeological assessment, research design and methodology to undertake archaeological investigation during removal of the graves. The methodology would be developed and implemented by an appropriately qualified Excavation Director, in accordance with the NSW Heritage Council's Excavation Director criteria (NSW Heritage Council, 2011).

Ref	Issue/Impact	Recommended mitigation measure
		<ul style="list-style-type: none"> Strategies for appropriate reburial, memorialisation and interpretation signage developed, in consultation with appropriate stakeholders including Heritage NSW (Department of Premier and Cabinet), Narrabri and District Historical Society, Coonabarabran History Group, Narrabri Shire Council, NSW National Parks and Wildlife Service, and direct descendants of the Dingwell family.
MM7	<i>Visual impacts at heritage items</i>	Opportunities to include plantings to screen the visual outlook from potential heritage homesteads would be considered during development of the urban design and landscape plan.
MM8	<i>Avoiding impacts during construction</i>	<p>A heritage management plan would be prepared and implemented as part of the CEMP. It would include measures to manage non-Aboriginal heritage and minimise the potential for impacts during construction.</p> <p>The plan would be prepared in consultation with the relevant heritage agencies (local councils) and take into account the outcomes of further investigations and surveys during detailed design.</p> <p>The heritage management plan would define a requirement for non-Aboriginal historical heritage awareness training for site workers prior to commencement of construction works. The awareness training would promote an understanding of heritage items that may be impacted during the works, and the requirements of the unexpected finds procedure.</p>
MM9	<i>Unexpected finds including human skeletal remains</i>	<p>An unexpected finds procedure would be developed and included in the heritage management plan to provide a consistent method for managing any unexpected heritage or archaeological items and unexpected human skeletal remains.</p> <p>The procedure would define the requirements for managing any human skeletal remains discovered during construction in accordance with the relevant legislation and guidelines, including the Public Health Regulation 2012 (NSW), <i>Heritage Act 1977</i> (NSW), <i>National Parks and Wildlife Act 1974</i> (NSW), <i>Work Health and Safety Act 2011</i> (NSW), <i>Coroners Act 2009</i> (NSW), <i>NSW Health Procedures – Exhumation of human remains</i> (NSW Health, 2013) and <i>Skeletal Remains – Guidelines for the Management of Human Skeletal Remains under the Heritage Act 1977</i> (NSW Heritage Office, 1998).</p>
MM10	<i>Avoiding impacts to heritage items</i>	<p>The following heritage items would be fenced and marked on site plans within the CEMP as areas to be avoided during construction:</p> <ul style="list-style-type: none"> Curban Inn site, Curban graves within the Woodvale Park Private Cemetery “Kickabil” homestead and woolshed “Allandale” homestead “Digilah” homestead Convict Road, Baradine Rocky Creek Mill Site graves within “The Aloes” homestead.

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JacobsGHD

Level 3, 24 Honeysuckle Drive, Newcastle NSW 2300
PO Box 5403, Hunter Region Mail Centre NSW 2310
T: +61 2 4979 9999 F: +61 2 4979 9988 E: ntlmail@ghd.com

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