



**AUSTRALIAN
ZIRCONIA LTD**

(A wholly owned subsidiary of Alkane Resources Ltd)

Dubbo Zirconia Project

Historic Heritage Assessment

Prepared by

**OzArk Environmental and Heritage
Management Pty Ltd**

August 2013

**Specialist Consultant Studies Compendium
Volume 3, Part 9**

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Historic Heritage Assessment

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Single tree on top of a crest on the 'Grandale' property, near Toongi, NSW.

HISTORIC HERITAGE ASSESSMENT

**Dubbo Zirconia Project
August 2013**

**Report Prepared by
OzArk Environmental & Heritage Management Pty Ltd
for R.W. Corkery
on behalf of
Australian Zirconia Limited**



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EXECUTIVE SUMMARY

The Dubbo Zirconia Project (DZP; the Proposal) comprises the development, mining and processing of zirconium, niobium and rare earth element resources located near Toongi, approximately 25km south of the town of Dubbo (**Figure 1**).

The Proposal would comprise a small scale, open cut mine supplying approximately 1Mt of ore containing rare metals (zirconium and niobium) and rare earth elements (REE's) to a processing plant annually. The Proposal also incorporates the following four component areas which are collectively referred to as 'The Application Area'.

- The DZP Site.
- Toongi-Dubbo Rail Line and Natural Gas Pipeline Corridor.
- Macquarie River Water Pipeline.
- Public road network (Toongi Road and Obley Road).

The term 'DZP Site assessed area' reflects a very recent change to the Project Site boundary post OEH adequacy assessment. The DZP Site assessed area contains the preceding project site area of 2,507 hectares. This area was entirely assessed. The Application Area is now 2,864 hectares, reflecting the inclusion of an additional 357 hectares. This extended Application Area is shown in **Figure 15 (Appendix 2)**. The additional 357 hectares remain unassessed and will not be affected by the Proposal.

OzArk Environmental & Heritage Management Pty Limited has been commissioned by RW Corkery & Co Pty Limited (RWC) on behalf of AZL to prepare an historic heritage assessment in accordance with the Director-General's Requirements for the DZP, issued 4 May 2011 in accordance with the requirements in Part 2 in Schedule 2 to the *Environmental Planning & Assessment Regulation 2000*. This historic heritage assessment supports the 'Dubbo Zirconia Project Environmental Impact Statement' prepared by RWC to support the development application of AZL.

The field assessments within the Study Area were conducted between 22 May 2012 and 5 February 2013 during eight separate site visits.

One previously recorded historic heritage item falls within the proposed impact footprint of the Study Area.

A total of six previously unrecorded historic items were identified during the current assessment. Of these, four were described as historic sites (HS) and two were described as historic isolated finds (HIF).

Of the seven historic items located within the Study Area, three are assessed as holding **local heritage significance**: DZP-HS3 (Hyandra Rail Bridge), DZP-HS4 (Dundullimal/Miriam Timber Rail Bridge) and the previously recorded Dundullimal Rail Bridge. It is recommended that these items be placed on the Dubbo LEP and the State Heritage Inventory (SHI). This affords these items protection under the *Heritage Act 1977*. Recommendations in this report state that all items should be recorded at an appropriate archival quality prior to any impact to the structures. It is not recommended that these items require specific preservation, as none are representative of unique or rare aspects of NSW railway infrastructure.

Two sites (DZP-HIF1 and DZP-HIF2) were assessed as having nil heritage significance and would be avoided by the activities of the Proposal.

The remaining two sites (DZP-HS1 and DZP-HS2) were assessed as having nil heritage significance although it is recommended that these sites be recorded at an appropriate archival quality prior to modification to enhance the historic record of the district.

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1 INTRODUCTION

1.1 PROPOSAL OVERVIEW

Australian Zirconia Ltd (AZL or 'the Applicant') seeks development consent under Division 4.1 in Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to develop and operate the Dubbo Zirconia Project (the DZP or 'Proposal'), a mining and processing operation for the production of rare metal (Zirconium and Niobium) and Rare Earth Element (REE) products near Toongi, NSW (**Figure 1**).

The Proposal would comprise a small scale, open cut mine supplying approximately 1Mt of ore containing rare metals (zirconium and niobium) and rare earth elements (REE's) to a processing plant annually. The Proposal also incorporates the following four component areas which are collectively referred to as 'The Application Area'.

- The DZP Site.
- Toongi-Dubbo Rail Line and Natural Gas Pipeline Corridor.
- Macquarie River Water Pipeline.
- Public road network (Toongi Road and Obley Road).

The term 'DZP Site assessed area' reflects a very recent change to the Project Site boundary post OEH adequacy assessment. The DZP Site assessed area contains the preceding project site area of 2,507 hectares. This area was entirely assessed. The Application Area is now 2,864 hectares, reflecting the inclusion of an additional 357 hectares. This extended Application Area is shown in **Figure 15 (Appendix 2)**. The additional 357 hectares has not been assessed as they would not be affected by the Proposal.

OzArk Environmental & Heritage Management Pty Limited (OzArk) has been commissioned by R.W. Corkery & Co Pty Limited (RWC) on behalf of AZL to prepare an historic heritage assessment in accordance with the Director-General's Requirements (DGRs) for the Proposal, issued 4th May 2011 in accordance with the requirements in Part 2 in Schedule 2 to the *Environmental Planning & Assessment Regulation 2000* (EP&A Regs).

This historic heritage assessment supports the 'Dubbo Zirconia Project Environmental Impact Statement' prepared by RWC to support the development application.

Associated with the Proposal would be the construction of a 132kV Electricity Transmission Line (ETL) from the Geurie – Dubbo 132kV power line. This 132kV ETL Corridor is to be assessed separately to the Proposal under Part 5 of the *Environmental Planning & Assessment Act 1979* (EP&A Act) and is not considered as part of this Aboriginal Heritage Assessment.

1.2 TERMINOLOGY

The following terminology is used in this report to classify the Proposal:

- **Application Area:** The area which encompasses all aspects of the Proposal (excluding the 132kV ETL), including land that is owned by AZL but is not within the current design of the impact footprint.
- **Study Area:** The area which was studied for this assessment. This includes the impact footprint and some areas that are outside the Application Area which were surveyed before the current Application Area was finalised.
- Specific components of the Application Area are referred to as follows (refer to **Figures 1 to 5**).

- The land on which the proposed mining, processing, waste management and associated operations would occur is referred to as the DZP Site (**Figure 2**).
- A proposed water pipeline between the processing plant of the DZP Site and Macquarie River is referred to as the Macquarie River Water Pipeline (**Figure 3**).
- The Dubbo East Junction to Toongi section of the Dubbo-Molong Rail Line to be re-instated is referred to as the Toongi-Dubbo Rail Line. A natural gas pipeline is proposed for installation within this rail corridor, extending beyond Dubbo East Junction to Purvis Lane where the APA Group owned Central West Pipeline crosses the Merrygoen Rail Line. Combined this component of the Application area is referred to as the Toongi-Dubbo Rail Line and Gas Pipeline Corridor (**Figure 4**).
- The proposed realignment of portions of Obley Rd between the DZP Site and Dubbo are referred to as the Obley Road Alignment (**Figure 5**).
- **Survey Unit:** Discrete areas subject to physical inspection, with boundaries delineated by any combination of natural (topography, for example) and artificial (fences, for example) features, as well as arbitrary positions (impact zones).

1.3 PROPOSED WORKS

1.3.1 Location

The Proposal is located within the Dubbo Local Government Area (Dubbo LGA), in the Orana Region of New South Wales (**Figure 1**). The DZP Site extends over portions of seven farming properties to the north, east and south of the Village of Toongi (**Figure 2**). The Macquarie River Water Pipeline traverses two farming properties on, and to the north of the DZP Site (**Figure 3**). The Toongi-Dubbo Rail Line and Gas Pipeline Corridor would remain within the relevant rail easements (**Figure 4**) and the public road network would occur wholly within the road reserve (**Figure 5**), i.e. no resumption of freehold land would be required and the properties include privately owned land and Crown land. **Table 1** provides the land titles of the Application Area.

Table 1: Application Area Land Titles

DZP Site		Macquarie River Water Pipeline	Toongi–Dubbo Rail and Gas Pipeline Corridor
Part Lot 311 DP595631	Lot 271 DP593668	Lot 311 DP595631	Toongi – Dubbo Rail Reserve
Part Lot 35 DP753220	Part Lot 1 DP133581	Lot 27 DP753220*	Purvis Lane Reserve
Part Lot 18 DP753252	Lot A & B DP439352	Lot 62-63 DP753220*	Public Road Network
Lot 19 DP 753252	Part Lot A DP391069	Lot 30 DP753220*	Toongi Road Reserve
Lot 55 DP 753252	Lot B DP 391069	Lot 1-4 DP753226*	Obley Road Reserve
Lot X DP 405495	Lot 211 DP595631	Various public / crown road reserves	
Lot 1 DP818802	Lot 50 DP 753252		
Lot 7300 DP1149010 (Licensed for grazing)			
Unformed ‘Paper’ Road (Crown Land) separating Lot 311 DP55631 and Lots A & B DP439352			
Unformed ‘Paper’ Road (Dubbo City Council) separating Lot 1 DP818802 and Lot 7300 DP 1149010			
* By negotiation with landowner			

1.3.2 Objectives

The principal objectives of the Proposal are to:

- maximise the recovery of the rare metals and REE's contained within the Toongi ore body through efficient of mining and processing operations;
- minimise the consumption of water, power and chemical reagents required by the processing operations;
- minimise the disturbance footprint associated with the proposed activities;
- ensure that all waste by-products are managed to minimise the risk of pollution (short-term impact) or contamination (long-term impact);
- establish, re-establish and/or upgrade local/regional infrastructure for the purposes of the Proposal but which could also have beneficial uses for other industry/activities;
- undertake all activities in an environmentally responsible manner to ensure compliance with relevant criteria/goals or reasonable community expectations; and
- work cooperatively with the surrounding community, including the Aboriginal stakeholder groups and traditional owners, to build socio-economic capacity within communities affected by the Proposal.

1.3.3 Description of the Proposed Activities

As noted in Section 1.2.1, the Application Area for the Proposal incorporates four distinct areas, namely:

- the DZP Site;
- Toongi-Dubbo Rail Line and Gas Pipeline Corridor;
- Macquarie River Water Pipeline; and
- Obley Road realignment.

The following provides an overview of the activities to be undertaken within each of these areas.

DZP Site Operations

The following provides an overview of principal components and activities to be undertaken on the DZP Site (and illustrated on **Figure 2**).

- Extraction of approximately 19.5Mt of ore at a maximum rate of 1.1Mt per year from a shallow open cut developed to a maximum depth of 32m (355m AHD) (remaining above the groundwater table). At the proposed rate of mining, the open cut design proposed would provide for a mine life of 20 to 22 years.
- Extraction and placement of approximately 3.5Mt of waste rock (weathered material or rock containing insufficient grades of rare metals or REEs for processing) within a small waste rock emplacement (WRE) to the southwest of the open cut.
- Haulage of ore to a Run-of-Mine (ROM) Pad for crushing and grinding.
- Processing of the crushed and ground ore by:
 - Sulphation roast of ore and leaching to dissolve sulphated metals.
 - Solvent extraction, precipitation, thickening, washing and drying of the various rare metal and REE products.

The sulphuric acid required as part of the sulphation process would be manufactured within the DZP processing plant from imported raw sulphur.

- Construction and operation of a rail siding from the Toongi-Dubbo Rail Line and a Rail Container Laydown and Storage Area for the unloading and temporary storage of reagents and loading of products for despatch.

Other reagents would be transported to the DZP Site via the public road network, with sections of Obley Road and Toongi Road to be upgraded to accommodate the proposed increase in heavy vehicle traffic.

- Mixing of solid residues produced by the processing of the ore with crushed and washed limestone and transportation via conveyor to a Solid Residue Storage Facility (SRSF).
- Pumping of water used in the processing operations, which cannot be recycled, to a Liquid Residue Storage Facility (LRSF), comprising a series of terraced and lined crystallisation cells.
- Recovery and disposal of an estimated 6.7Mt of salt which would accumulate within the LSRF within a series of Salt Encapsulation Cells adjoining the WRE and SRSF.
- Other ancillary activities including equipment maintenance, clearing and stripping of the areas to be disturbed and rehabilitation activities.

The maximum development footprint on the DZP Site would be approximately 808ha (within the DZP Site of 2 864ha; see **Figure 2**). Component areas of disturbance are as follows:

- Open Cut Mine – 40.3ha.
- Waste Rock Emplacement Area – 20.4ha.
- ROM Pad – 4.2ha.
- Processing plant and DZP Site Administration Area (incorporating the processing plant and associated reagent storage areas, rail siding and container laydown areas and site offices and administration complex) – 43.3ha.
- Solid Residue Storage Facility – 102.8ha.
- Liquid Residue Storage Facilities (Evaporation Ponds) – 425.4ha.
- Salt Encapsulation Cell – up to 34.6ha.
- Soil Stockpile Areas – up to 129.4ha.
- Internal Haul Roads – 7.3ha

The ore body to be mined is a roughly elliptical stock in shape with outcrop dimension of 600m x 400m. Exploration completed by AZL has identified the ore body extends below a thin veneer of soil and recent sediments to be approximately 900m (east-west) x 500m (north-south) (surface area of 36ha) and appears to be a near vertical body of indeterminate depth.

While there is limited scope to modify the area of impact associated with the open cut, in order to minimise the impact of the mining operations, the Applicant has designed the mining sequence such that the initial 10 year mine plan develops the western half of the open cut with the eastern half developed and mined during the second 10 year mining period (see **Figure 2**).

The size and location of the other components of the DZP Site have been the subject of more detailed review, with impact minimisation a key consideration.

Macquarie River Water Pipeline

Processing operations would require up to 4.05GL of water annually which would be sourced (partially or completely) from the Macquarie River (under licence) and transferred to the DZP Site by water pipeline.

Figures 3 and 16 (Appendix 2) provide details of the proposed alignment of the Macquarie River Water Pipeline. The proposed alignment of the northern section of the pipeline has been recently altered so that is now up to 150m east of its previous position (**Section 4.5**). The key features of this are as follows.

- A pumping station which incorporates a dual water inlet, wet well and vertical mounted axial flow pump configuration.
- A 400mm to 450mm diameter HDPE pipeline within an embedded trench

The easement to be created for the Macquarie River Water Pipeline Corridor would be approximately 15.2ha (20m x 7.6km), although the actual area of disturbance within this corridor would be much less. An area not exceeding 2 500m² would be disturbed on the river frontage of the “Mia Mia” property to allow for the construction of the pumping station for water from the Macquarie River.

Toongi-Dubbo Rail Line and Natural Gas Pipeline Corridor

The processing operations require significant volumes of chemical reagents and other raw materials. While significant volumes of these reagents and materials would be delivered by road, the Applicant has identified the upgrade and use of the Toongi to Dubbo section of the currently disused Dubbo-Molong Rail Line as an opportunity to reduce the volume of traffic on the public road network.

Figure 4 provides the proposed alignment of the Toongi-Dubbo Rail Line, the key features of which are as follows.

- Upgrade of the Toongi to Dubbo section of the Dubbo-Molong Rail Line to a Class 1 track (92t gross/67t pay load capacity).
- Replacement or upgrade of steel bridges, culvert structures, and timber bridges.
- Reinstatement, civil works and installation back to the required standard at each of the 26 level crossings. Of these, seven are major crossings (of local roads), four of which occur in Dubbo (Wingewarra Street, Cobra Street, Boundary Road and Macquarie Street) and three (Cumboogle, Glengarra and Toongi) between the Macquarie River and the proposed DZP Rail Siding.

Figure 4 also identifies the proposed natural gas pipeline between the Central West Pipeline (of APA Group) at Purvis Lane, Dubbo, and the DZP Site which would deliver up to 970TJ/year of natural gas for the heating of various circuits within the processing plant.

Public Road Alignment

Significant quantities of the processing reagents and other raw materials would be delivered by road, via the Newell Highway, Obley Road and Toongi Road. To accommodate the proposed heavy vehicle traffic associated with this transport, the alignment and pavement depth of the two roads would be improved in several locations, with a number of creek crossings, rail level crossings and intersections to be upgraded. **Figure 5** provides the locations of these works.

A more detailed description of the Proposal is provided by Section 2 of the EIS, of which this assessment forms Part 9 of the accompanying *Specialist Consultant Studies Compendium*.

Figure 1: Locality Plan

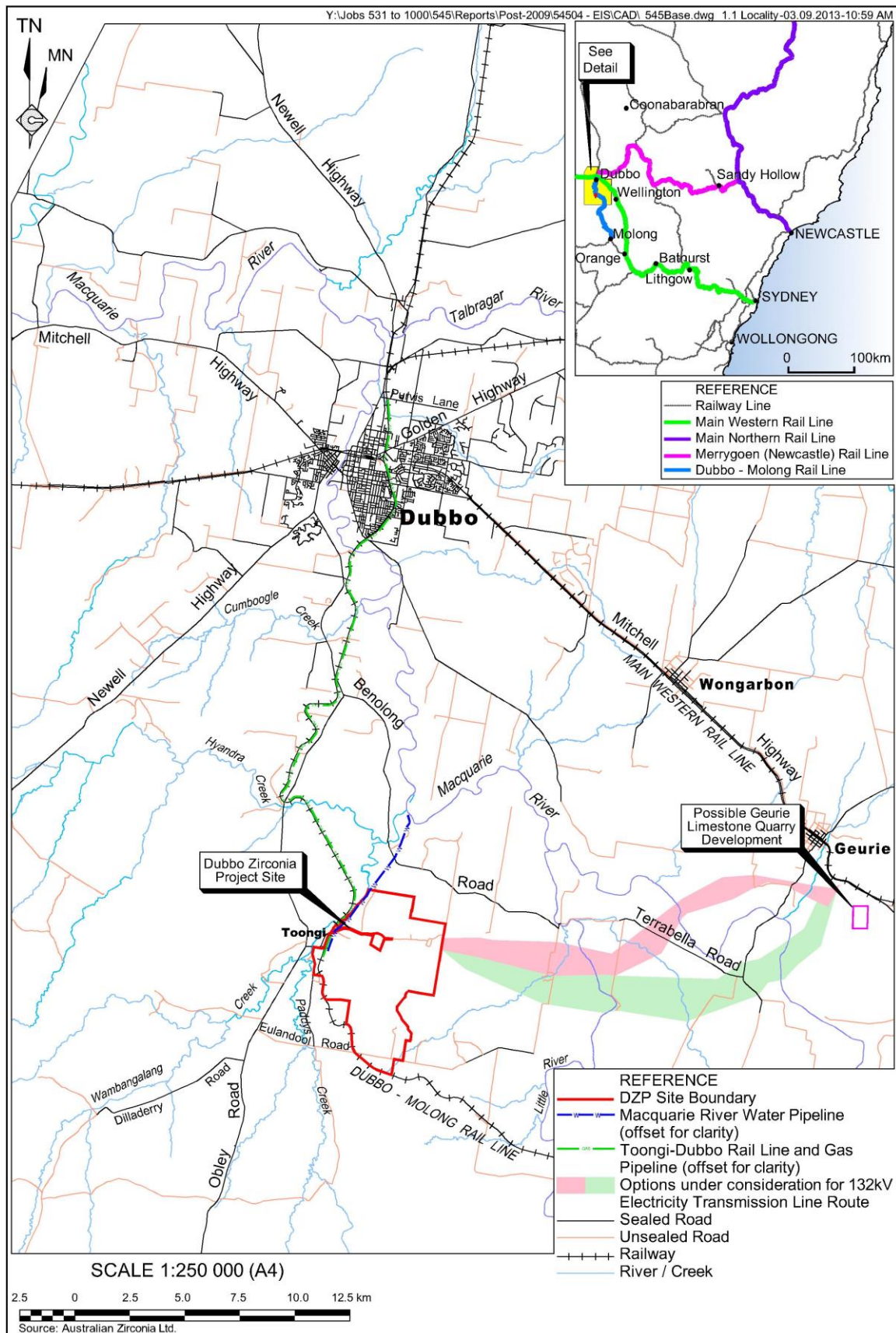


Figure 2: DZP Site Layout

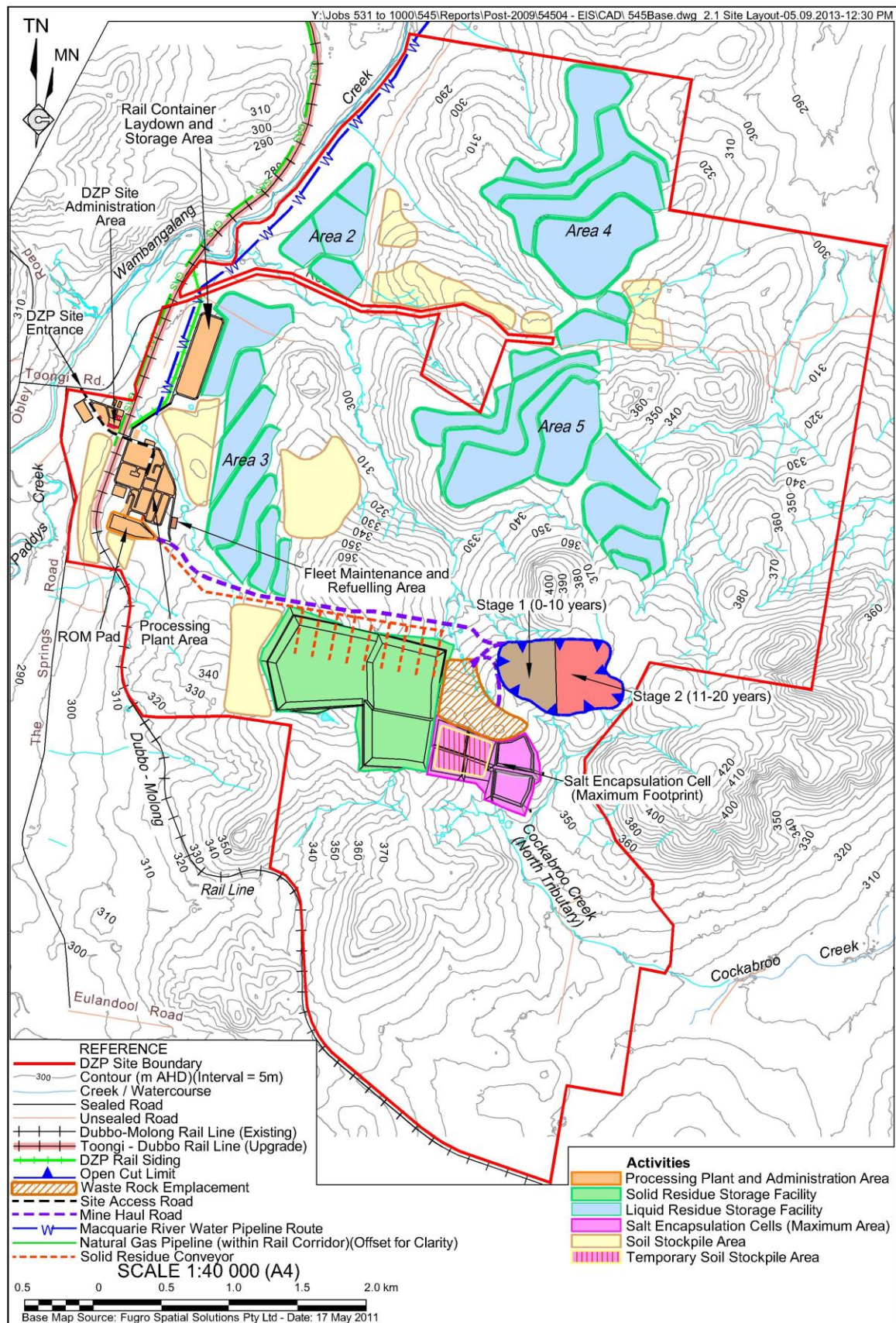


Figure 3: Macquarie River Water Pipeline and Pump Station to the North of the DZP site

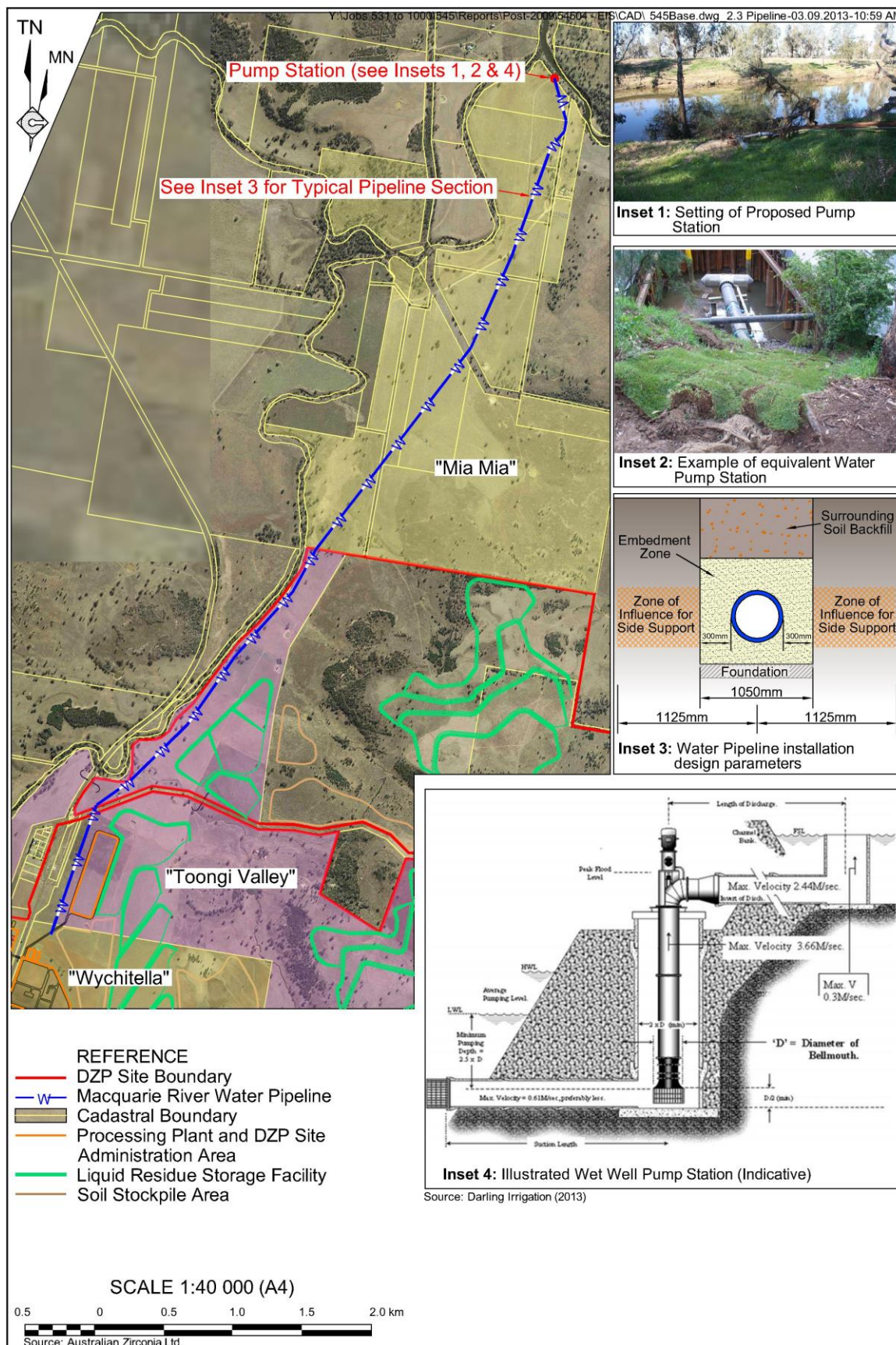


Figure 4: Toongi – Dubbo Rail Line and Gas Pipeline Corridor

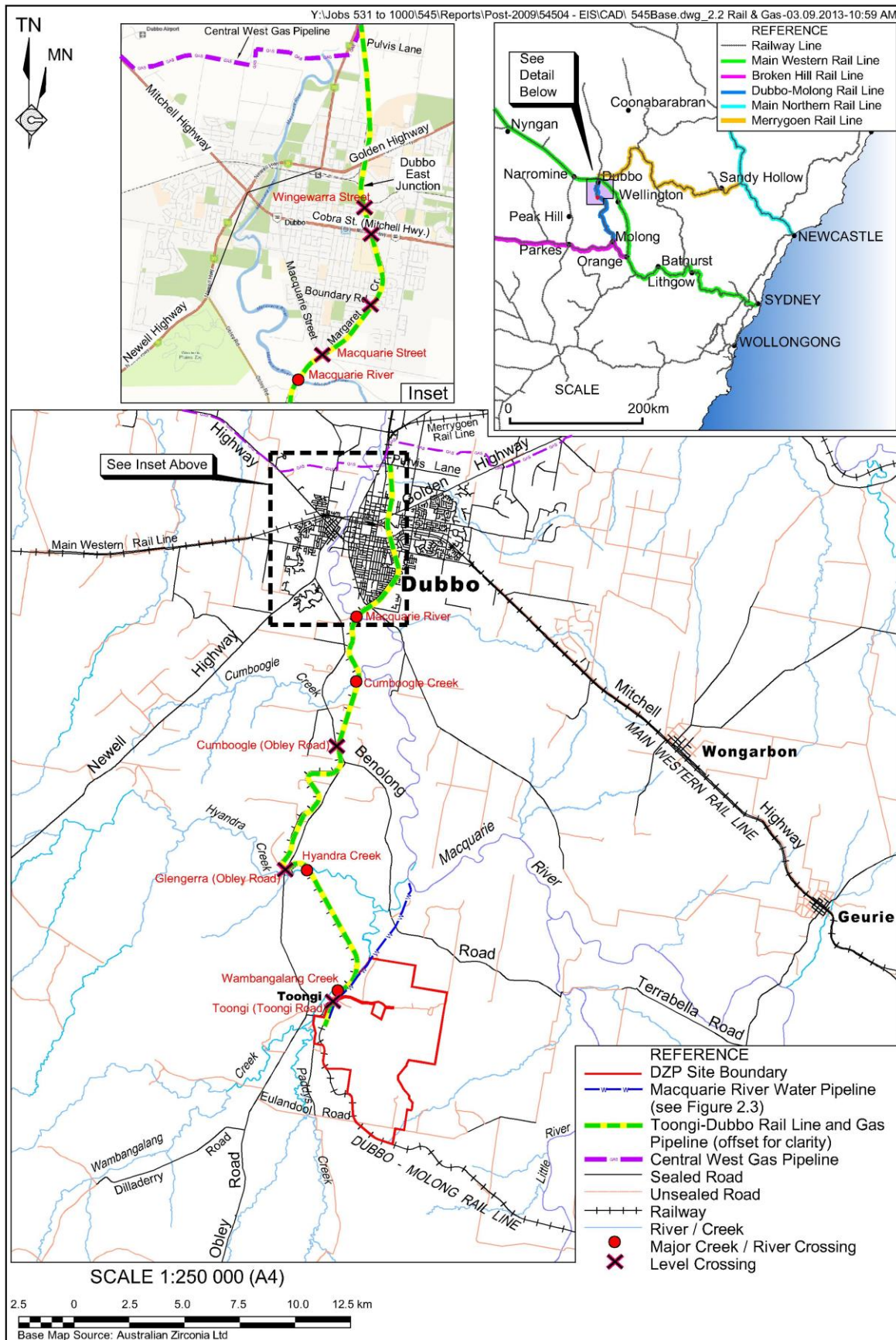
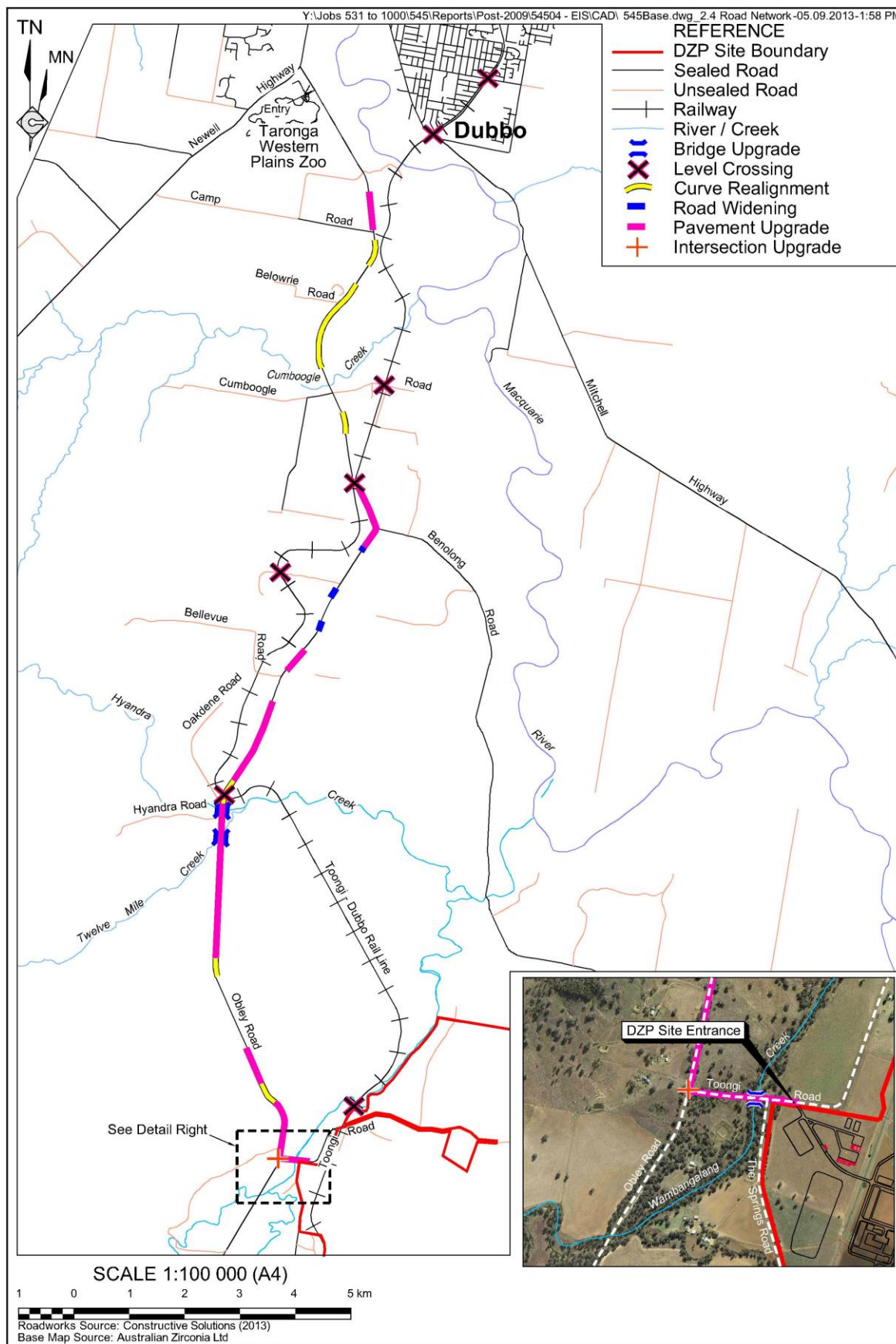


Figure 5: Public Road Network Upgrades



1.4 STUDY AREA

As noted in Section 1.2.1, the Proposal is located in the Dubbo LGA, with the DZP Site approximately 25km south of Dubbo (**Figure 1**). The DZP is a greenfield site contained within Exploration Licence (EL) 5548.

The Study Area is coincident with the four distinct component areas of the Application Area described in Section 1.2.3. As the Application Area had not been finalised in the early stages of this assessment, the Study Area is divided into Survey Units and covers a wider area than the finalised Application Area (**Table 2; Figures 6 and 7**). Many of the Survey Units, which are located within the four component areas of the Proposal, are named after the properties on which they occur.

Figure 6: Public Road Network Field Survey

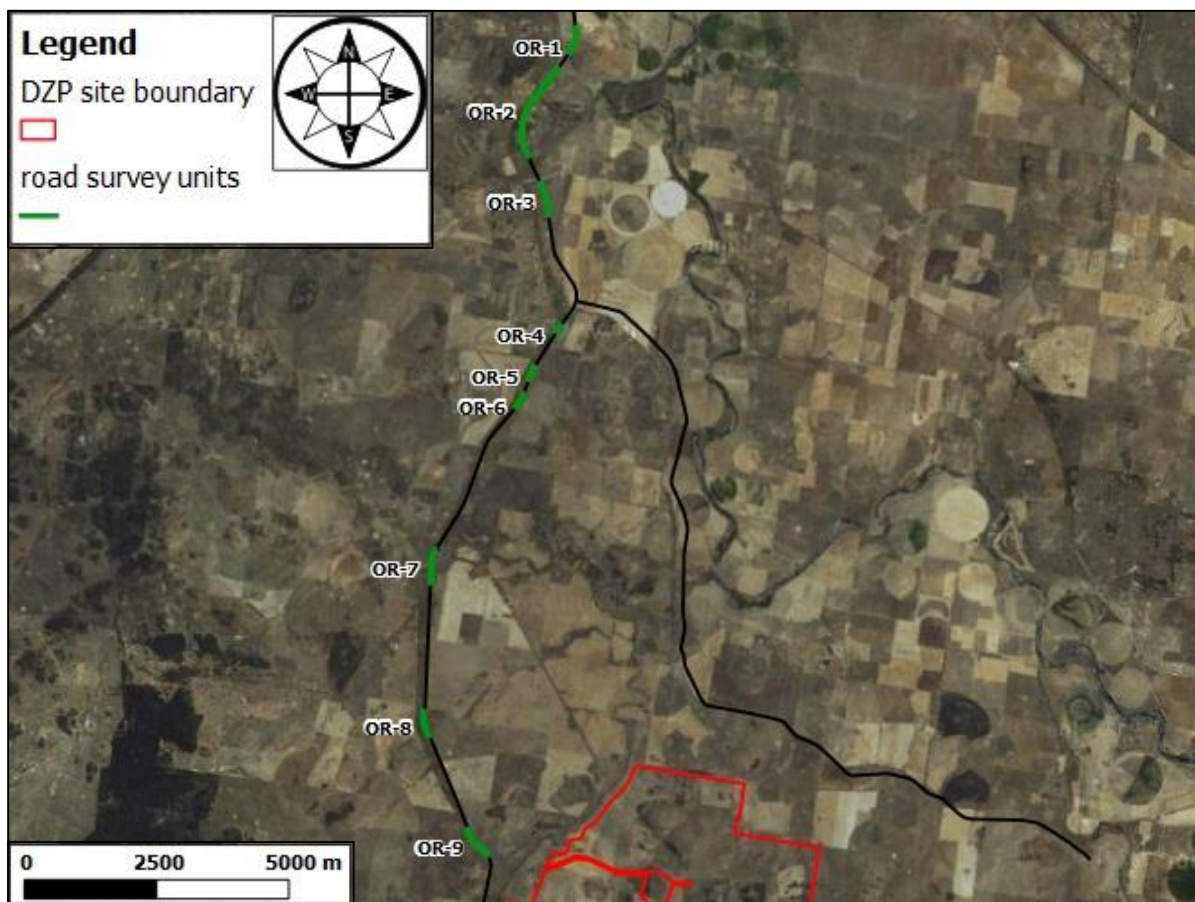


Table 2: Survey Units

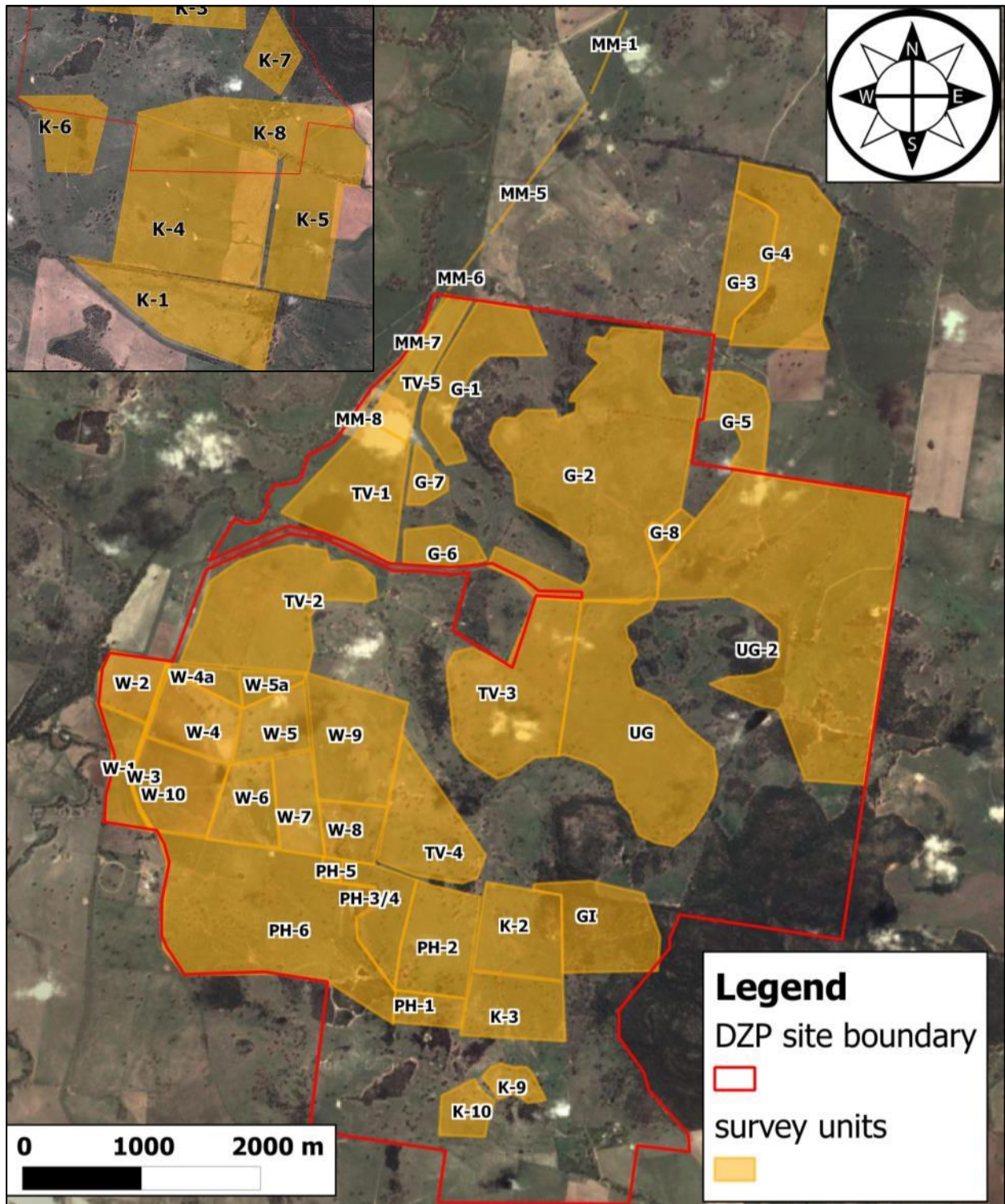
Survey Unit	Size (ha)		Survey Unit	Size (ha)
DZP Site			DZP Site (cont'd)	
UG-1	116.7		TV-5	24.5
UG-2 ¹	247		G-1	41.3
K-1	76.4		G-2	186.7
K-2	40.3		G-3	29.8
K-3	33.5		G-4	70.1
K-4	146.8		G-5	23.57
K-5	77.5		G-6	11.9
K-6	18.6		G-7	6.1
K-7 ²	48.6		G-8	5.9
K-8 ³	48.4		Toongi-Dubbo Rail Line and Gas Pipeline Corridor	
K-9	6.2		Dundullimal RB	NA: Area spot checked to confirm disturbance from existing rail line.
K-10	11.8		Cumboogle RB	
W-1	19.3		Hyandra RB	
W-2	18.8		Macquarie River Water Pipeline: Surveyed with a 20m buffer from centreline.	
W-3	3.0		MM-1	2.8 (703m L)
W-4	29.4		MM-2	1.2 (290m L)
W-4a	9.4		MM-3	1.6 (394m L)
W-5	23.5		MM-4	2.7 (668m L)
W-5a	8.2		MM-5	5.1 (1287m L)
W-6	26.5		MM-6	2.0 (496m L)
W-7	23.2		MM-7	3.5 (865m L)
W-8	18.9		MM-8	1.7 (422m L)
W-9	55.4		TV-H2O	2.3 (587m L)
W-10	37.5		Obley Road Alignment: Surveyed with a 20m buffer from centreline.	
GI	45.6		OR-1	2.3 (586m L)
PH-1	11.9		OR-2	7.5 (1874m L)
PH-2	41.6		OR-3	2.4 (602m L)
PH-3/4	26.6		OR-4	1.1 (266m L)
PH-5	2.6		OR-5	0.9 (230m L)
PH-6	31.5		OR-6	1.5 (364m L)
TV-1	56.5		OR-7	2.6 (645m L)
TV-2	85.0		OR-8	1.8 (449m L)
TV-3	86.1		OR-9	2.4 (603m L)
TV-4	47.5			

¹ Survey Unit includes land on Ugothery and Grandale properties.

² Incomplete survey. No longer in impact footprint.

³ Incomplete survey. No longer in impact footprint.

Figure 7: Survey Units of the DZP Site and Macquarie River Water Pipeline ^{4,5}



⁴ The DZP Site Boundary presented reflects the defined site boundary at the time of field survey. As illustrated on **Figures 1, 2 and 15 (Appendix 2)**, this has subsequently been updated and enlarged. As noted in Section 1.1, the additional 357ha would remain undisturbed and as such no further survey was required.

⁵ The inset indicates the configuration of survey units in the south of the DZP Site, prior to the survey of K-9 and K-10, that corresponded to previous impacts.

2 BACKGROUND TO THE PROPOSAL AND HISTORIC HERITAGE ASSESSMENT

2.1 PURPOSE AND OBJECTIVES OF THE ARCHAEOLOGICAL INVESTIGATION

The purpose of the current study is to inspect the Study Area in order to identify, assess and provide management recommendations for historic heritage.

The objectives of the current study are as follows.

- **Objective One:** Identify and document previously unidentified historic heritage within the Study Area.
- **Objective Two:** Assess the condition and significance of known and previously unidentified historic heritage within the Study Area.
- **Objective Three:** Provide recommendations for the management of historic heritage items in the light of Objectives One and Two.

2.2 DATE OF HERITAGE ASSESSMENT

Fieldwork was undertaken over 15 days (**Table 3**).

Table 3: Heritage Assessment Dates and Personnel

Survey Date	Archaeologist(s)*
22 May 2012	Dr Benton and Ms Streatfield
23 May 2012	Ms Streatfield
24 and 25 July 2012	Ms McCuiston and Mr Noyer
7 and 8 August 2012	Ms McCuiston and Ms Wilcox
11-13 September 2012	Ms McCuiston
18 and 19 October 2012	Ms McCuiston
17 to 19 December 2012	Ms McCuiston and Mr Harrop
5 February 2013	Mr Harrop
Note *: Refer to Section 2.3.1	

2.3 OZARK EHM INVOLVEMENT

2.3.1 Field assessment

The fieldwork component of the historic heritage assessment was undertaken by:

- Fieldwork director: Dr Jodie Benton (BA [Hons] & PhD – University of Sydney);
- Fieldwork director: Jenni Streatfield (BA [Hons] – Australian National University);
- Fieldwork director: Emily McCuiston (BA – University of Texas at Austin);
- Archaeologist: Joshua Noyer (BA – University of California, Santa Cruz); and
- Archaeologist: Morgan Wilcox (BArch [Hons] – La Trobe University, Melbourne).
- Archaeologist: Nick Harrop (BA [Hons] – University of Sydney).

2.3.2 Reporting

The reporting component of the historic heritage assessment was undertaken by:

- Report authors: Mr Kim Tuovinen (BA [Hons] – University of Sydney, Grad Dip Ed – Charles Sturt University, Grad Dip Arch – Flinders University), Ms McCuistion (BA-University of Texas at Austin) and Nick Harrop (BA[Hons]- University of Sydney);
- Reviewer: Mr Ben Churcher (BA[Hons] – University of Queensland, Dip Ed – University of Sydney);
- Contributor: Ms Heidi Kolkert (BA, BSc [Hons] under NSW Industry and Investment (I&I) Ethics Approval No 07 / 1601 & NSW Scientific Research License 11194; OzArk ecologist – contributed draft text outlining DZP project background).
- Contributor: Mr Mike Sutherland (General Manager, Alkane Resources Pty Limited, Dubbo; Mr Sutherland generously reviewed an early draft of the current document's local context and provided directions for additional research).
- Contributor: Scott Tourle (Landholder and operator of 'Oxley Downs'; local authority on Toongi and district history; Mr Tourle generously reviewed the current document's local context for historic accuracy).

2.4 BACKGROUND RESEARCH

Background research entailed the following investigations.

- **Primary source research.** The two most useful primary sources consulted were the archived historic newspapers sourced from the National Library of Australia's (NLA) *Trove* database⁶ and the archived historic parish maps located at the NSW Land and Property Information's (LPI) *Parish Maps Preservation Project* and *Pixel* websites⁷. The National Archives of Australia's (NAA) 'Your story, our history' collection of defence service records was consulted whilst investigation the Matchett brothers (Section 3.3.4.4).
- **Secondary source research.** The most significant secondary sources relating to the history of Toongi district are Dormer's two-volume history of the Dubbo region (Dormer 1987, Dormer 1988) and the community heritage studies commissioned by the Dubbo City Council (Hickson and Kass, 2002a, 2002b, 2002c, 2002d; Christo Aitken & Associates 2007).
- **Register searches.** As summarised in Section 2.5 below, the database search that proved most valuable to the current project in terms of identifying significant numbers of previously recorded historic heritage items was that of the NSW Office of the Environment and Heritage's (OEH) State Heritage Register/State Heritage Inventory (SHR/SHI)⁸.

⁶ National Library of Australia, *Trove*, <<http://trove.nla.gov.au>>.

⁷ NSW Land and Property Information, *Parish Maps Preservation Project*, <<http://parishmaps.lands.nsw.gov.au/pmap.html>>. Parish maps were also accessed via the LPI's *Pixel* viewer, <<https://six.nsw.gov.au/wps/portal/>>.

⁸ New South Wales Office of Environment and Heritage (OEH) Heritage Branch, State Heritage Register (SHR: for items holding state heritage significance) and State Heritage Inventory (SHI: for items holding local heritage significance). Database search available at <<http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx>>.

- **Oral histories.** Contact was made with the current landholders of each of the affected properties and information regarding property histories was sought. These discussions contributed significantly to the local context provided in Section 3.3. OzArk specifically acknowledges the contributions of Megan Brennan, Kevin Hyland, John Hyland, Gwen Harper, John Tucker, the Rotherys of “Toongi Valley” and the Greys of “Grandale”. Specific mention should also be made of Mr Scott Tourle’s generous review of a draft of the current document’s local historic context. The contributions of the local landholders have been invaluable.

2.5 DESKTOP DATABASE SEARCHES CONDUCTED

A desktop search was conducted on the following databases to identify any potential issues. The results of this search are summarised here in **Table 4**.

Table 4: Desktop-Database Search Results

Name of database searched	Date of search	Type of search	Comment
Australian Heritage Database http://www.environment.gov.au/heritage/ahdb/	15 October 2012	Dubbo LGA.	24 places on the search are within the search area. Of these, one, an Indigenous Place, is located within the Toongi area. Aboriginal heritage is discussed in the accompanying Aboriginal Heritage Assessment (OzArk 2012).
NSW Heritage Office State Heritage Register and State Heritage Inventory http://www.heritage.nsw.gov.au/	15 October 2012	Dubbo LGA	SHR: Three places on the search are located within close proximity to the Study Area. All are located in the vicinity of the proposed rail upgrade and none are situated within the Study Area. SHI: Eight places on the search are located at Toongi (i.e. within the environs of the Study Area). Of these, none are located within the proposed project impact footprint.
Department of Sustainability, Environment, Water, Population & Communities (SEWPaC) Protected Matters (EPBC Act) Database; http://www.environment.gov.au/erin/ert/epbc/index.html	15 October 2012	Dubbo LGA	No World Heritage or National Heritage places are located within the search area.
Local Environment Plan	15 October 2012	Dubbo LEP of 2011	260 places are listed within the Dubbo LEP. None are within the Study Area.

2.6 PROJECT CONSTRAINTS

Constraints of the survey were imposed by ground surface visibility, weather conditions and access issues, which commonly have an impact on the effectiveness of field survey.

Weather did not hinder survey significantly, though fieldwork was cut short due to rainy and cold conditions on 13 September 2012.

The survey crew was asked not to enter paddocks that were currently cropped; a number of areas, therefore, were not inspected.

A small area within the impact footprint of the Soil Stockpile Area was not surveyed. The area was designated as a soil stockpiling area following the completion of the last phase of survey

and is between survey areas G-6 and TV-3. It was decided that survey was not necessary for several reasons. Firstly, the landform is marginal in terms of suitability for occupation. The landscape in this area is undulating and there are no stable water sources nearby. Also, disturbance was high here from agricultural impacts. Finally, no sites were located within 1km of the unsurveyed area.

The realignment of the northern section of the proposed Macquarie River Water Pipeline was also not surveyed (See **Figure 3** and **Appendix 2, Figure 16**). The realignment is mostly within close proximity of the survey area, but deviates by 150m to the east at one point. It is within the same landform as the survey area, which is an alluvial plain with little potential. Furthermore, there were no sites recorded elsewhere on the same landform and there are substantial agricultural land-use disturbances such as ploughing and vehicle tracks. For these reasons it was deemed unnecessary to survey the realignment.

While ground surface visibility, weather, and access constituted constraints, none prevented an appropriate level of assessment from being carried out.

3 HISTORIC HERITAGE ASSESSMENT: BACKGROUND

3.1 INTRODUCTION

3.1.1 Australian and New South Wales Heritage Themes

The New South Wales heritage management system is framed by thirty-five historic themes. These themes help to contextualise historic data and to assess the significance of heritage items. The state-level themes cross-reference to a series of historic themes developed at a National level by the Australian Heritage Commission (NSW Heritage Branch n.d.). **Table 5** summarises the themes that are relevant to the environs of the current Study Area.

Table 5: Heritage Themes and Manifestations within the Study Area and Environs

Australian Theme	NSW Theme	Location, Historic Person or Heritage Item	Remarks
1. Tracing the natural evolution of Australia	Environment – naturally evolved	Roadside Reserve, cnr Strathmore and Benelong Roads, Benelong, 2830 (Hickson and Kass 2002c)	Regarded as holding local significance in Hickson and Kass (2002c). Statement of significance: 'An attractive small section of road side reserve that provides an example of the original vegetation and landscape' (2002c: SHI Number 1520041)
2. Peopling Australia	Ethnic influences	Immigrants: - Baird family - Tink family	Amongst the various settler families within the environs of the Study Area, at least two prominent individuals were first generation immigrants: Arthur Campbell Baird and his family (from Scotland) and John Tink and his family (from Cornwall).
3. Developing local, regional and national economies	Agriculture Mining Pastoralism Transport	Agricultural landscape. Railway infrastructure: - Cumboogle Rail Bridge. - Hyandra Rail Bridge. - Dundullimal Timber Rail Bridge. - Dundullimal Rail Bridge. - Dubbo Railway Precinct.	Agriculture and pastoralism are the themes that dominate the Study Area. Farming and grazing continue to represent the principal economic activity within the Study Area and environs, and the area's infrastructure and services have historically been organised to support local primary industries. A series of rail bridges along the Dubbo-Molong Rail Line are tangible reminders that rail transport facilitated trade and development in the Dubbo region during the twentieth century. Many of the original elements of these bridges have been removed, resulting in a loss of heritage value. However, as a collective unit they still have some value in representing the original bridges that demonstrate this theme, and are physically linked to the older elements of the railway line. Although it is located outside the proposed impact footprint, the Dubbo Railway Precinct is also situated in the environs and is regarded as holding State Heritage Significance.

Australian Theme	NSW Theme	Location, Historic Person or Heritage Item	Remarks
4. Building settlements, towns and cities	Towns, suburbs and villages Land tenure Accommodation	Toongi Village Property boundaries Homesteads: - The Meadows - The Springs - Eulandool - Wychitella - Cockleshell Corner	Although the Study Area is dominated by agricultural and pastoral properties, the western boundary lies adjacent to the small Village of Toongi. The history of Toongi is illustrative of the almost ephemeral nature of many small rural settlements in western New South Wales. Many of the early property boundaries that are indicated on early twentieth century parish maps remain in existence, evidenced by fence lines that have continued, despite repairs and replacements, for the best part of a century. A range of housing styles are represented within the Study Area's environs, including one rare pisé house at 'Wychitella'. The Study Area's environs also exhibit impressive examples of early pastoral buildings.
6. Educating	Education.	Wambangalang School.	The Wambangalang School is located outside but in the vicinity of the Study Area. It opened in 1928 and continues to provide educational services (as the Wambangalang Environmental Education Centre) in 2013.
7. Governing	Defence ⁹	Stories relating to the Owers of Wychitella. St Johns of Emmagool Anglican Church (Honour Board). RAAF Stores, Dubbo	The Study Area contains no military establishments, known sites of military engagements and no grand memorials, but the history of the Ower family's involvement in the First World War and also the existence of the Second World War honour board at St Johns of Emmagool Anglican Church testify to the local community's participation in global events. The RAAF Stores Depot in Dubbo was the largest stores depot of its kind in Australia at the conclusion of the Second World War. The Depot is an intact illustration of domestic Second World War era military built environments and is situated in a location selected for its strategic advantages (out of range of carrier borne aircraft, close to a railway enabled small spur lines to be built, the site could be camouflaged and disguised both as hills and as an extension of the extant urban landscape).
8. Developing Australia's cultural life	Religion Sport.	St Johns of Emmagool Anglican Church. Wychitella tennis courts.	Outside the Study Area but in the general vicinity, the St Johns of Emmagool Anglican Church provides a focal point for worship in the local district and is intertwined with other historic themes (Defence, Birth and Death) via the Second World War Honour Roll preserved there. The Wychitella tennis courts are illustrative of local families' commitment to tennis.
9. Marking the phases of life	Birth and Death. Persons.	Stories relating to the Ower family.	Although not memorialised in the landscape of the Study Area, the stories of the Ower family are a poignant reminder of the ways in which global conflicts touched the lives of people even in remote areas of Australia.

⁹ Thematically, 'Defence' is not examined in depth in the current document. Whilst the RAAF Stores Depot (former) is of State Heritage Significance, and is therefore noted as being located in the vicinity of the proposed works, the site does not fall within the project's impact footprint. It is therefore beyond the scope of the current assessment to investigate this theme in detail.

3.1.2 Timber bridges

Amongst the heritage structures extant within the Study Area are a number of timber rail bridges. Timber beam bridges constitute the oldest bridge types both globally and within New South Wales, both in the primitive form of fallen tree trunks (in the earliest instances) and as the timber beam bridges and timber openings (TOs) that were foundational to the early transport networks of New South Wales (RTA 2006). Timber bridges in New South Wales largely date to the nineteenth century and the early decades of the twentieth century, and comprise a significant portion of the state's road, pedestrian and rail heritage. The earliest known timber bridges in New South Wales were the log bridge built over the Tank Stream in Sydney Town in October 1788 and the timber bridge built over Duck River at Granville in 1797. Subsequent decades saw a boom in bridge building as road networks expanded beyond the original settlement at Sydney Town (RTA 2006).

The earliest of these bridges were designed to carry horse-drawn vehicles, with later timber bridges achieving carrying capacities of around 16 tonnes to accommodate steam engines. According to the then New South Wales Roads & Traffic Authority¹⁰ (RTA), at least one category of timber bridges – the timber truss bridge – cannot be upgraded beyond a carrying capacity of 42.5 tonnes (RTA 2011).

Road and rail timber bridges in New South Wales fall into two broad categories: timber beam bridges and timber truss bridges. Of these categories, it is the timber beam bridge that is most relevant to the current Study Area. A beam bridge is the simplest bridge design and consists of a horizontal beam on top of vertical supports. Such a design was suitable for both road and rail bridges prior to motorised transport. Timber beam bridges in New South Wales are subdivided according to date (pre- and post- 1894 bridges) and according to type (low- and high-level bridges)¹¹. Cheap to build, timber beam bridges comprised the majority of bridges in New South Wales for approximately 150 years. Whilst initially economical, these bridges eventually proved to have a number of shortcomings:

- Inadequate strength for faster and heavier transport.
- Deterioration of members due to construction details that allowed water penetration.
- Costly maintenance.
- Decreased durability as availability of high quality materials decreased.
- Increasingly apparent superiority of concrete and steel bridges.

As a result of these shortcomings, timber beam bridges were ultimately superseded by concrete and steel bridges. However, according to RTA 2006, approximately 4,000 timber beam road bridges and more than 4,000 timber beam rail bridges remained in existence in New South Wales during the first decade of the twenty-first century.

3.1.3 Historic building materials and styles

No examination of the Dubbo region's built heritage would be complete without giving consideration to the building methods employed in the construction of houses and commercial

¹⁰ Then RTA, now Roads & Maritime Services (RMS).

¹¹ Low-level: superstructure is submerged during most inundations. High-level: superstructure sits above the design flood level.

establishments. **Table 6** summarises the principal building materials / methods available to settlers and residents during the historic period in the wider Dubbo region.

Table 6: Historic Building Materials in Dubbo LGA.

Material / Method	Chronology in New South Wales	Composition	Remarks
Pisé.	Nineteenth century	Layered rammed earth walls, timber lintels at doorways and windows, verandas. Walls often protected with lime and sand render internally & externally.	Locally available, economical, technique was well-known in the area. Current heritage status: Rare. Seldom used method and poor preservation characteristics. Previously documented examples in Dubbo region: One, at Old Harbour Lagoon (Hickson and Kass 2002a; 2002c).
Wattle and Daub.	1788 to c.1900.	Vertical light timber poles woven with horizontal wattles, all daubed with mud and at times finished with lime or linseed wash. Overhanging roof.	A technique in use for approximately 6,000 years (Graham 2008). Examples documented in Hickson and Kass (2002a, 2002c, 2002d): Two, at Braithwaite Dairy (2002c) and Selector's Hut at Raymond Valley (2002d).
Stone.	Nineteenth century	Random rubble, coursed rubble and dimensioned dressed stones.	Rare in rural parts of Dubbo LGA. Probably limited by lack of stone suitable for building and the prestige associated with stone masonry. Examples documented in Hickson and Kass (2002a, 2002d): Six buildings: the former coach house at 'Murrumbidgee', the former silo and shearing shed at 'Boothenba', the school building at 'The Springs', the Serisier Vault, and the Beni Church's sills and Celtic cross.
Timber Slab.	Roofing: - Pre-1870s Dubbo: bark, thatch or shingles. - Post-1870s Dubbo: iron cladding available.	Two forms: Horizontal – split log slabs or round backs within a framework of vertical timber posts. Vertical – round back or bark side faced out, slabs chamfered and morticed into bottom and top timber wall plates. Could be lined with hessian or paper.	Vertical slab was considered easier and faster to build. Weatherproofing was poor, resulting in board and batten construction. Examples documented in Hickson and Kass (2002a): - Vertical slab: Three buildings: an early slab hut in Sunset Street, Ballimore (Hickson and Kass 2002c); the laundry and bath house at 'The Springs' (Hickson and Kass (2002d). - Horizontal slab: Three examples: meat house and end wall of laundry at 'The Springs' and the coach-house at 'The Springs' (Hickson and Kass 2002d).
Board and Batten.	Late nineteenth century to c.1930.	Dressed timber flat over joints in vertical timber slab buildings. Often omitted from interior walls.	An evolution of the vertical timber slab method. Most well-represented technique in the Dubbo LGA, however, condition is generally poor. Notable examples documented in Hickson and Kass (2002a): 'Maiala' homestead, cottages in Eumungerie (e.g. corner of Emu and Railway Streets and corner of Goonoo and Moonul Streets), examples in Wongarbon and Ballimore, farm houses at 'Bruah' on Mendoran Road, Dicky Gundi Inn.

Material / Method	Chronology in New South Wales	Composition	Remarks
Weatherboard.	Early nineteenth century onwards.	Pit sawn or split boards used for external cladding.	Origins: probably North American, however, the technique had also been used in Britain. Mass produced weatherboards available in New South Wales from 1850s. Locally harvested and milled Cypress timber widely used in Dubbo region. Examples documented in Hickson and Kass (2002a) include: the homestead at 'The Springs', St Johns Church of Emmagool, the homestead at 'Hillview', the 'Peppercorns' at Wongarbon, Eumungerie Anglican Church, Westella School.
Iron.	Origins: 1850s. Inland: widespread availability via railways (i.e. post 1870s).	Iron cladding combined with round pole frame provided an economical means of enclosing a large space. Corrugated iron cladding, either standard profile or mini-orb profile. Also flat sheets.	Early buildings that are now iron-clad are likely to have been originally clad with bark, thatch or flat tin shingles. Examples documented in Hickson and Kass (2002a) include: shearing shed at 'The Springs', woolshed at 'Cumboogle', woolshed at 'Barbigal', community halls at Toongi, Wongarbon, Coolbaggie and Westella. Flattened tin linings on rear shed of cottage at 37 Umangala Street, Wongarbon.
Brick.	Post-First World War	Wongarbon brick: a colourful, hard faced and smooth brick, similar to feature bricks of the 1980s and 1990s.	Regarded as a substantial material and suitable for long-term investments. Examples documented in Hickson and Kass (2002a) include: homesteads at 'Eulandool' and 'Cockle Shell Corner', work buildings and shearers' quarters at 'Mountain View' and 'Cockle Shell Corner'. Ballimore Inn, Bakers shop at Eumungerie, shop fronts at Wongarbon, Former Police House at Wongarbon.

3.2 HISTORIC SETTLEMENT IN THE REGION

The Dubbo region enters the historical record with the journeys of John Oxley in 1818. Following Oxley's journeys, non-Indigenous settlement in the Dubbo district would be founded on pastoralism. The first station at Dubbo dates approximately to 1824. By the 1820s, land was opened up adjacent to the Macquarie River for pastoral enterprises, with permits granted to G.J. Palmer and John Wylde. By 1828, Palmer was in possession of 13,000 acres, 6133 sheep and 1847 head of cattle. In that year, Palmer and Wylde employed George 'Dusty Bob' Smith at Dibilambil Station (now the site of the Old Dubbo Gaol). The following year, explorer Captain Charles Sturt arrived at the locality of 'Murrumbidgee' and camped at 'Dibilamble Station' with Smith.

The first successful and permanent run was Dulhunty's, claimed in 1833. Four miles south of the current city of Dubbo, Robert Venour Dulhunty occupied the property of 'Dubbo' (a Wiradjuri word for 'red earth') in 1837. Two years later, Dulhunty built a new house and named it 'Dubbo House'. His former house was converted into the 'Macquarie Inn' with Edward Land in charge. Also in 1839, 'Dubbo' Station was the birthplace of John Osborne, the son of John Osborne – the Dulhunty accountant – and his wife Jane.

The country to the north and east of the Macquarie River was at this time cattle country, whilst the runs to the south were predominantly sheep enterprises. Property owners were originally absentee landholders based in Bathurst, the Hunter Valley and Cumberland, whilst labour was largely convict and ex-convict. Cattle predominated over sheep in the district during the middle

decades of the nineteenth century as sheep enterprises required more workers than cattle stations. According to the *Dubbo Liberal and Macquarie Advocate* (DLMA), the Victorian gold rushes of the 1850s opened up new cattle markets to the south and a long-distance droving route was established (DLMA 13 April 1904: 2). At this time horses brought high prices: draught horses £50 to £60 and hackneys £30 to £40 (DLMA 13 April 1904: 2). In contrast, the departure of many of the diggers from the gold fields during the 1860s led to an increasing labour supply which, together with high wool prices, fencing and the effectiveness of strychnine against the dingo, saw sheep overtaking cattle in the Dubbo area. Following free selection in 1861, small-scale farming of wheat, sheep and orchards along the banks of the Macquarie and Talbragar Rivers expanded until, at the turn of the century, primary production at Dubbo was largely small-scale mixed agriculture in contrast to the earlier large-scale pastoralism of the earlier decades (HO and DUAP 1996: 80-83).

It was not until the 1840s that the locality of Dubbo began to develop. A store was opened in 1841 by Jean de Bouillon Emile Serisier on the south-eastern corner of Macquarie and Cobra Streets, and in 1846 the locality was proclaimed a place for Courts of Petty Sessions. The Governor subsequently (1847) instructed a Bench of four Magistrates to organise the construction of a court house and lock up. In 1848, George Smith granted permission to Serisier and Nicholas Hyeronimus to establish a trading post – Despointes and Co. – on Palmer's land. Serisier's connection with Despointes would end before the end of 1848 and he would open a new firm called Dubbo Stores. Hyeronimus also established the first hotel in the area ('Carrier's Arms'). By the end of the year, Dubbo had been surveyed by Surveyor Davidson and proclaimed a village. In November 1849 the village was gazetted. 1849 also saw the first hotel licence at Dubbo, first recorded murder at Dubbo, the commencement of regular mail deliveries (managed by J.E. Serisier, the first Postmaster at Dubbo) and the finalisation of Surveyor G. Boyle White's plans for the village. By the start of the following decade, Dubbo was home to 28 males and 19 females. The 1850s saw the commencement of religious services in Dubbo (Methodist services held in the first court house, and the construction of both Catholic and Church of England churches). Also built during the 1850s was Dubbo's first public school, erected in Macquarie Street, a bridge across the Macquarie River and a stock saleyard.

The 1860s saw ongoing developments in the village, including the erection of a second court house, a post office, second Catholic church, flour mill, soap works, Mechanics Institute, De La Salle College, Catholic boys' school (St. Aloysius) and hospital. The telegraph line from Wellington was completed in 1864 and the first bridge across the Macquarie River (White Bridge) was opened by the Governor and Sir Samuel Small in May, 1866. A newspaper, the *Dubbo Dispatch*, was established in the same year. 1866 also saw wheat transported to Dubbo from Thomas Baird at the property 'The Springs' (south of Dubbo).

Situated on the droving route from Victoria, Dubbo prospered throughout the late nineteenth century, particularly during the 1880s following the arrival of the railway in 1881 (HO and DUAP 1996: 83). By the twentieth century, Dubbo had grown to be the dominant town in the region with a population of some 3,409 at the turn of the century (Dormer 1988: 28) and 4,452 in 1911 (ABS 2010). By 2006, the population had grown to 37,843 (ABS 2010). The town's economic strength during the twentieth century remained founded on agriculture and its position on rail and road routes, with tourism providing a significant addition to primary industry during the latter half of the century (Dormer 1988: 389).

Since the town's inception, Dubbo's prosperity has revolved in large part around its position on key long distance transport routes. Prominent as a droving and Cobb & Co staging post during the nineteenth century, Dubbo was also the most western major business centre in New South Wales. In 1890, Dubbo's 34 hotels provided refreshment and accommodation to travellers (Blair 1986: 25), foreshadowing the town's late twentieth / early twenty-first century reliance on the tourism industry. Late Victorian expansionism and energy brought the railway to Dubbo with a suitably ebullient celebration incorporating a Triumphal Arch, an official opening by

Sir John Robertson, five-times premier of New South Wales and a race meeting (Dormer 1987: 100).

3.2.1 Railways

Railways played a significant role in the development of local communities and economies throughout the late nineteenth and twentieth centuries. The Orange to Dubbo railway line was built at a cost of £250,000, with the Wellington to Dubbo section built in only six months (Dormer 1987: 101). Of particular note is the extant Dubbo Railway Precinct – a state significant railway station and yard, built in 1881 and progressively modified since. The Precinct incorporates a station building (1881), platforms (1881), station master's residence (1881), signal box – type F (c. 1920), platform awnings, locomotive straight shed and buildings, water supply pump house (c. 1881), gantry crane, and a refreshment room and accommodation dating to 1924 (OEH, undated f). The Molong to Dubbo line, including the Dundullimal Rail Bridge, is relatively inconspicuous in the historical record. Built in 1925, this line paralleled the Orange to Dubbo line servicing smaller intervening communities (Railtrails Australia n.d.).

Built in 1925, the railway line linking Molong and Dubbo was 'built to provide easier grades for goods trains between Dubbo and Orange thereby avoiding the steeper grades via Wellington' (Fraser 2005: 104). The rail line was in operation until 1984.

The 1920s in Dubbo was a time of growth and anticipation of future development. Country people called out that 'our country money would better be spent on our country railways and roads than on building bridges to the North Shore and feeding people in Sydney, who won't work' (Dormer 1988: 94). 'With all these new railway lines nearing completion it is only a matter of time before Dubbo will be the greatest country town in Australia,' wrote Joseph John Alam, proprietor of the Model Stores (Dormer 1988: 90).

Associated with the railway are several bridges of various eras. The Dundullimal Rail Bridge (Section 3.3.2.1) spanning the Macquarie River was built in 1925. A wooden timber truss bridge is just east of the bridge. A second timber truss bridge which appears contemporaneous with the one near the Dundullimal Rail Bridge is located at the Hyandra Creek crossing. A fourth bridge of concrete and metal construction is located at the crossing of the Cumboogle Creek.

Over the last one hundred years there has been an ongoing movement to replace timber truss bridges, more actively so on the main lines and as needed on the branch lines (Fraser 2005: 168).

3.2.2 Geological and Paleontological Investigations

Whilst the Study Area has not been subject to prior mining, the locale does appear briefly in the geological and exploratory history of the region. A notification to the Mines Department by a layman – Mr Stanislaw Plen – of a possible uranium discovery during mid-1951 was reported breathlessly in the DLMA under the headline 'Report of Uranium Field at Dubbo to be Investigated: Polish Migrant Says He Detected Atom Bomb Material' (DLMA 10 July 1951). Mr Plen, having recently purchased a Geiger counter, had discovered an area of radioactivity along the Glengerra / Dubbo-Molong Rail Line in the vicinity of Toongi and requested any reward that might be on offer. A subsequent investigation to the north of Toongi in portions 39 and 19, Parish of Oxley, County of Gordon, on the western side of the Dubbo-Molong Rail Line (approximately 500m to the west of the current Study Area [Matheson 1952]) by Government Geologist J.C. Lloyd and Mr J. Daly of the Geophysical Section of the Bureau of Mineral Resources revealed that:

- A wide belt of felsite of probable Silurian age extended south from Dubbo to Parkes. These were overlain by Jurassic sandstones and grits at Toongi.

- A prominent ridge consisting of intrusive rock (quartz-felsite?) trended south-westerly from the railway line. This fine-grained geology was not radioactive.
- A half-mile diameter area was traversed with a Geiger counter revealing that the felsite gave a count of eight times the locale's normal background count. This reading was relatively constant throughout the assessment.
- The outcrop's uniform readings and the failure of the small samples to activate the Geiger counter were together taken to indicate that Mr Plen's deep-seated deposit did not exist. Instead, the radioactive material was disseminated throughout. The rock was thought to have a uranium content of 0.02 to 0.03 per cent (Lloyd 1951).

No reward was considered appropriate as the uranium content was not considered an economic grade. Nevertheless, Mr P.B. Nye, the Director of the Ministry of National Development did note that the uranium content was 'unusually high' and that the occurrence was 'of geological interest'. A subsequent investigation by R.S. Matheson in 1952 confirmed Mr Lloyd's findings (Matheson 1962). The matter appeared to end there, however, a flow of correspondence during 1954 between the Australian Atomic Energy Commission and the Department of Mines briefly revived the question of 'Plen's Radioactive Area at Toongi'. In a hand-written note dated 28 July 1954, Mr Lloyd reiterates the lack of economic grade uranium at Toongi and attributes Mr Plen's readings to 'a "mass-effect" resulting from traces of uranium disseminated throughout the material... probably amplified by the presence of radioactive potassium' (Lloyd 1954).

The area's geological features were again investigated during the 1960s, however by now, the interest was paleontological. A collection of fossil plants was presented to the Mining Museum by a certain Mrs K. Todd of Enfield, prompting a more detailed examination by John W. Pickett from the Department of Mines. The brief preliminary report indicated that Mrs Todd's collection – taken from the eastern side of the Dubbo-Molong Rail Line at Toongi (and therefore within or immediately adjacent to the current Study Area) – included eight identifiable plant varieties. Via comparison with other more securely dated samples, it was concluded that the Toongi deposit could be dated approximately to the late Triassic (Pickett 1969).

3.3 LOCAL CONTEXT

3.3.1 Introduction and Overview

The DZP Site of the Study Area is situated adjacent to the Village of Toongi (notified 6 March 1931). The hall and Village of Toongi were assessed as holding unclear / nil heritage significance as part of the Dubbo Rural Heritage Review conducted by Hickson and Kass on behalf of Dubbo City Council (2002c). The Toongi Village does not appear on the more recent *Dubbo Local Environment Plan* (LEP; 2011), New South Wales SHI or the New South Wales SHR (searches conducted during 2013).

A number of properties and structures holding local, state and national heritage significance are located in the local area. Of these, Dundullimal holds both state and national significance, whilst the remainder – The Meadows, The Springs, Eulandool and Cockleshell Corner – hold local significance. The Dundullimal Rail Bridge has been assigned local heritage significance by OzArk (2010). **Table 7** summarises previously documented historic heritage items. This table, along with **Figure 8**, show that no previously documented items that are listed on a local, state or federal governmental heritage databases are located within the Project's proposed impact footprint. It should be noted that the Dundullimal Rail Bridge is within the impact footprint. It has no previous heritage listing but is assessed as having local heritage significance here.

Table 7: Previously Recorded historic Heritage in the Vicinity of the Study Area

Item / Item #	Location	Listing / Level of Significance	Reference	Inside / Outside Proposed Impact Footprint
NSW State Heritage Register Items				
<i>Dundullimal</i> Dubbo LEP Item No: I179	Lot 1 / DP 800756, Obley Road, Dubbo, Dubbo LGA	NSW SHR, Dubbo LEP 2011, state	Dubbo LEP 2011 OEHR/SHR Search. Search date 3 December 2012. Search Criterion: LGA: Dubbo.	Out ¹²
<i>Dubbo Railway Precinct</i> Dubbo LEP Item No: I215	Lot RAIL, DP 758361	NSW SHR, Dubbo LEP 2011, state	Dubbo LEP 2011 OEHR/SHR Search. Search date 18 Feb 2013. Search Criterion: LGA: Dubbo.	Out
<i>RAAF Stores Depot (former)</i> Dubbo LEP Item No: I191	Lot 11 DP 1050240 formerly 1 and 2 DP 548568 (formerly Vol 11597 Fol 241).	NSW SHR, Dubbo LEP 2011, state	Dubbo LEP 2011 OEHR/SHR Search. Search date 18 Feb 2013. Search Criterion: LGA: Dubbo.	Out
NSW State Heritage Inventory Items				
<i>Cockleshell Corner</i> Dubbo LEP Item No: I6 Hickson and Kass (2002d) inventory number: 1520481 / 12	Lot 23 / DP 753252, The Springs Road, Toongi ¹³ , Dubbo LGA	NSW SHI, Dubbo LEP 2011, local	Hickson and Kass (2002d) Dubbo LEP 2011 OEHR/SHR Search. Search date 3 December 2012. Search Criterion: Suburb: Toongi.	Out
<i>Cootha</i> Dubbo LEP Item No: I178	Lot 9 / DP 753233 21 Obley Road, Dubbo LGA	NSW SHI, Dubbo LEP 2011, local	OEHR/SHR Search. Search date 18 Feb 2013. Search Criterion: LGA: Dubbo.	Out
<i>Grandstand, Dubbo Showground</i> Dubbo LEP Item No: I111	Lot 310 / DP 754308 Fitzroy Street, Dubbo LGA	NSW SHI, Dubbo LEP 2011, local	OEHR/SHR Search. Search date 18 Feb 2013. Search Criterion: LGA: Dubbo.	Out
<i>Holmwood</i> Dubbo LEP Item No: I134	Lot 302 / DP 1123136 Hennessy Road, Dubbo LGA	NSW SHI, Dubbo LEP 2011, local	OEHR/SHR Search. Search date 18 Feb 2013. Search Criterion: LGA: Dubbo.	Out

¹² The property 'Dundullimal' is bisected by the rail reserve containing the Dundullimal Rail Bridge. This rail reserve is subject to upgrades but does not constitute a component of 'Dundullimal' itself.

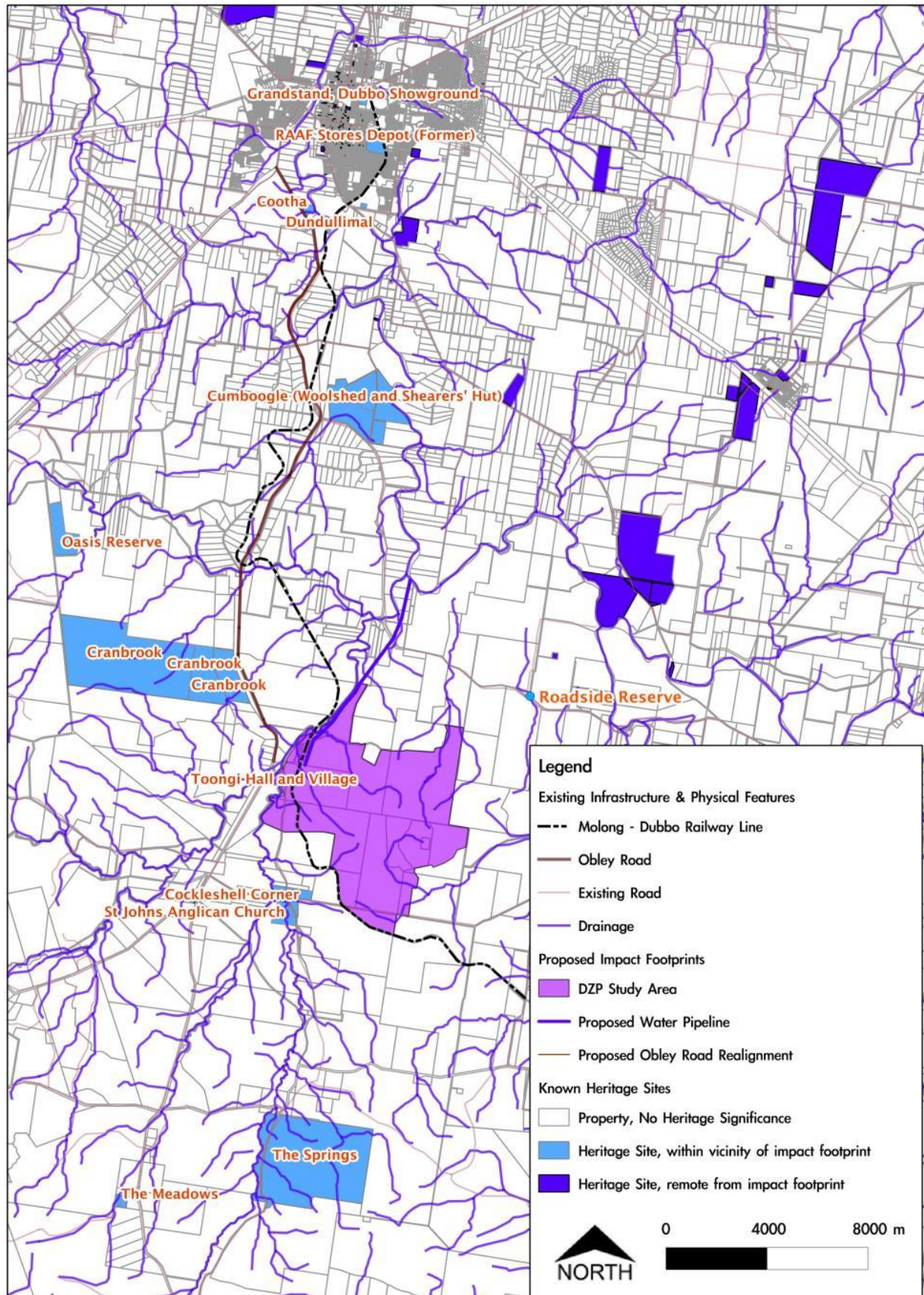
¹³ Suburb given as Ballimore in Dubbo LEP 2011.

Item / Item #	Location	Listing / Level of Significance	Reference	Inside / Outside Proposed Impact Footprint
<i>Eulandool</i> Dubbo LEP Item No: I226 Hickson and Kass (2002d) inventory number: 1520488 / 16	Lot 1 / DP 1040580, The Springs Road, Toongi, Dubbo LGA	NSW SHI Dubbo LEP 2011, local	Hickson and Kass (2002d) Dubbo LEP 2011 OEH SHR/SHI Search. Search date 3 December 2012. Search Criterion: Suburb: Toongi.	Out
<i>Meadows (The) Homestead and Outbuildings</i> Dubbo LEP Item No: I183 Hickson and Kass (2002d) inventory number: 1520502 / 21	Lot 1 / DP 753247, Obley Road, Toongi, Dubbo LGA	NSW SHI, Dubbo LEP 2011, local. Hickson and Kass (2002d) recommend state heritage significance.	Hickson and Kass (2002d) Dubbo LEP 2011 OEH SHR/SHI Search. Search date 3 December 2012. Search Criterion: Suburb: Toongi.	Out
<i>Springs (The) – Group Item¹⁴</i> Dubbo LEP Item No: I189 Hickson and Kass (2002d) inventory number: 1520508 / 22	Dubbo LEP: 29 Nullawa Road, Dubbo (Lot 33 / DP 753236). SHI: Paddys Creek Road), Toongi, Dubbo LGA	NSW SHI, Dubbo LEP, local. Hickson and Kass (2002d) recommend state heritage significance.	Hickson and Kass (2002d) Dubbo LEP 2011 OEH SHR/SHI Search. Search date 3 December 2012. Search Criterion: Suburb: Toongi.	Out
<i>Springs (The) – Cookhouse, Laundry, Store and Meatroom</i> Hickson and Kass (2002d) inventory number: 1520505 / 22				Out
<i>Springs (The) – Coach House, Saddlery Stables & assoc buildings</i> Hickson and Kass (2002d) inventory number: 1520507 / 22				Out
<i>Springs (The) – Main Residence</i> Hickson and Kass (2002d) inventory number: 1520503 / 22				Out
<i>Springs (The) – Schoolhouse</i> Hickson and Kass (2002d) inventory number: 1520504 / 22				Out

¹⁴ Hickson and Kass (2002d) also lists Springs (The) Shearing Sheds & Shearer's Huts (1520509 / 22). For the purposes of the current document, this item is considered to be a component of the Dubbo LEP 2011 item 'The Springs' (Item No. I189).

Item / Item #	Location	Listing / Level of Significance	Reference	Inside / Outside Proposed Impact Footprint
Dubbo Local Environmental Plan 2011 Items (not otherwise listed above)				
<i>Woolshed & Shearers' Hut</i> (AKA <i>Cumboogle Woolshed</i>) Dubbo LEP Item No: I14 Hickson and Kass (2002d) inventory number: 1520483 / 13	Lot 90 / DP 253576, Benolong Road, Dubbo LGA	Dubbo LEP, local	Hickson and Kass (2002d) Dubbo LEP 2011	Out
<i>Wambangalang School</i> Dubbo LEP Item No: I181 Hickson and Kass (2002c) inventory number: 1520011 / 30	271 and 272 Obley Road, Toongi, Dubbo LGA Lots 60 and 61 / DP 753247	Dubbo LEP, local	Hickson and Kass (2002c) Dubbo LEP 2011	Out
<i>Springs (The) Carved Tree</i> Dubbo LEP Item No: I190 Hickson and Kass (2002c) inventory number: 1520016 / 34	Toongi, Dubbo LGA	Dubbo LEP, local	Hickson and Kass (2002c) Dubbo LEP 2011	Out
<i>Oasis Reserve</i> Dubbo LEP Item No: I177 Hickson and Kass (2002c) inventory number: 1520045 / 68	Off Oasis Road, Dubbo LGA. Lot 97 / DP 820726, Crown Land Reserve #120087, Council Pin: 16120.	Dubbo LEP, local	Hickson and Kass (2002c) Dubbo LEP 2011	Out
<i>Cranbrook: Cottage, blacksmith's shop, shearer's quarters, outbuildings</i> Dubbo LEP Item No: I180 Hickson and Kass (2002c) inventory number: 1520047	Obley Road, Dubbo LGA Lots 1 and 2 / DP 121964; Lot 1 / DP 207722; Lot 33 / 753244.	Dubbo LEP, local	Hickson and Kass (2002c) Dubbo LEP 2011	Out
Items previously documented as historic places but not listed on local, state or national heritage databases				
<i>Toongi Hall & Village</i> Hickson and Kass (2002c) inventory number: 1520004 / 91	Lot 60 / DP 753244, Toongi, Dubbo LGA	No listings, unclear or nil significance.	Hickson and Kass (2002c)	Out
<i>Roadside Reserve</i> Hickson and Kass (2002c) inventory number: 1520041 / 93	Corner Strathmore and Benolong Roads, Benolong, Dubbo LGA	No listings, local	Hickson and Kass (2002c)	Out
<i>Dundullimal Rail Bridge</i>	Dubbo, GR 651050 / 6426990 (GDA Zone 55)	No previous listings, local	OzArk (2010)	In

Figure 8: Previously recorded items of historic heritage significance within and / or in the vicinity of the Study Area (Sources: Client, NSW Heritage Office, Dubbo LEP)



In terms of the land encompassed by the current Proposal, the DZP Site occupies all, or a portion of, the following properties:

- Grandale.
- Ugothery (**Plate 8**).
- Glen Idol (**Plates 1 to 3**).
- Karingle (**Plate 4**).
- Pacific Hill (**Plate 6**).
- Wychitella (**Plate 9**).
- Toongi Valley (**Plate 7**).

3.3.2 Toongi Village

Described by Hickson and Kass (2002c) and holding unclear or nil heritage significance¹⁵, Toongi is located on the banks of Paddys Creek. The settlement consists of several houses, a tennis court and a hall. Formerly heavily timbered, Toongi was settled relatively late in comparison to other areas in the district (Dormer 1988: 381). Originally taken up as a Settlement Lease by James Ower on 4 November 1897, the Village of Toongi was notified on 6 March 1931. At that time, the village notification consisted of a recreation reserve and school site, with village lots opened up for purchase on 17 April 1931 (Hickson and Kass 2002b).

Approximately 1.5km from the village, Toongi Hall is a timber-framed building with corrugated iron cladding on all sides; the windows are double hung timber framed. The roof is gable-ended with a skillion to one side. The building's timbers are entirely cypress pine. Four tennis courts flank one side of the building whilst a small timber-framed iron clad building, known colloquially as the 'Toongi Tavern', stands on the opposite side of the hall. The hall was built during the 1930s with labour and materials donated by local landholders including the Pascoe family – who provided timber from their property 'Cranbrook' – and the Wrights – who had moved to the district in 1913 and contributed labour to the hall construction. The hall includes an honour roll commemorating members of the local community who served in the Second World War (Hickson and Kass 2002c).

An additional element of the Toongi community was the Wambangalang School, which opened in 1928 and continues at the time of writing (in altered format) to provide educational services for the region (Hickson and Kass 2002a). Adjacent to the school is St Johns of Emmagool Anglican Church.

Finally, one portion of land in the village – Lot 1 DP 818802, Toongi, NSW – has been subject to a preliminary contamination assessment as a component of the DZP REF (Ground Doctor 2012). Ground Doctor (2012) discusses the history of the site in some detail, however, it is pertinent to note that the portion was leased by James Ower between 1910 and 1921. From 1921 to 1991, the site, owned by the New South Wales government, was a component of the railway corridor. During this period the site functioned as a government-operated grain storage and distribution location. It is likely that operations here have involved grain bagging, storage and loading on to trains. By 1951, the village boasted a timber bulkhead for wheat storage (100,000 bushel capacity). Ground Doctor (2012) notes that in 1959 the site consisted of a

¹⁵ An SHI inventory sheet was completed by Hickson and Kass, however the 'Assessed Significance' field remained blank. Additionally, the significance field for the Toongi Hall and Village entry in the summary table also remains blank. It is presumed that the study regarded Toongi Hall and Village as holding no heritage significance.

long rectangular shed in the south, two small storage sheds and a toilet. The site was supplemented through the addition of a steel silo in 1963 (Hickson and Kass 2002b). One of the village cottages was known as the gatekeeper's house and housed the gatekeeper who oversaw the railway crossing (Hickson and Kass 2002c). Privatisation of grain storage and distribution in 1991 led to the site being taken over by NSW Grain Corporation Limited. Operations ceased in 1993 due to the railway line's closure. Dismantling of the southern grain storage occurred between 1988 and 1995 and dismantling of the northern storage occurred between 1995 and 2000. In 2012, the site consisted of a concrete floor remnant of the northern storage and an asphalt floor remnant of the southern storage (Ground Doctor 2012).

3.3.3 Dundullimal - Property

Dundullimal (an Aboriginal word meaning 'hailstorm' or 'thunderstorm') is a pastoral property located on the southern bank of the Macquarie River at Dubbo. The Dundullimal homestead is regarded as holding national and state heritage significance (OEH, undated a). It is one of few surviving early pastoral homesteads and is the oldest building in Dubbo (c. 1842). Indeed it may be the oldest existing house outside Governor Darling's original Nineteen Counties. It consists of a fine example of an intact rough timber slab house with veranda and outbuildings. The homestead's roof is of boxwood shingles, currently covered by corrugated iron sheeting. The sophisticated ground plan of the house includes a dining room, sitting room, kitchen and two bedrooms. The joinery and finish within the house are unusual and well executed. The stone building behind the homestead is described as a barn or stable (OEH, undated a).

The first reference to the Dundullimal property by name is in a letter written by H.F. Gisborne in 1838. Charles and Dalmahoy Campbell are recorded as the first occupants of the property, with Dalmahoy applying for a de-pasturing licence in 1836 and Charles and Dalmahoy listed as licence holders in 1839. At that time H. Price is listed as superintendent and the buildings on the property included a slab hut, woolshed, stock (933 sheep, 360 cattle, 8 horses), 25 acres of wheat, 20 residents (13 free males, 1 free female, 5 male convicts and 1 female convict). Built c. 1842, the homestead itself was first owned by John Maughan, a British Army officer who jointly supervised the run with Alexander Cruickshank. Also present on the property during the 1840s were 12 residents, a cottage, store, stable, smithy, kitchen, woolshed and paddocks. Maughan had served in India and, in 1852, married his second wife, Aphrasia Kemmis. Maughan had arrived in New South Wales in 1828 and initially operated as a merchant in Sydney. During the 1830s, Maughan purchased land in the Wellington Valley and in the 1840s purchased licences for the 27,077 acre Dundullimal Station (1841), Bickanbeenie Station and Rocky Station on the northern bank of the Macquarie River. A significant local figure, Maughan was among a number of fellow land and stock owners who signed a petition supporting the establishment of a township at Montefiores (now Wellington), chaired the first public meeting at Montefiores in 1842, was appointed to the Wellington Bench, and purchased allotments in the new Village of Wellington in 1845 (OEH, undated a).

The Maughans lived at Dundullimal from 1852 to 1858. Purchased by E.B. Cornish and Walter W. Brocklehurst in 1858, Dundullimal changed hands twice more during the 1860s and 1870s. Cornish relinquished his interest in 1864 to Brocklehurst and his brother Edward. The lease and all freehold portions were transferred to Thomas Baird in 1871. By 1884, Baird was in possession of at least 5,000 acres. Baird retained Dundullimal until his death in 1914. His daughters – Kennedy McIntosh Fletcher, Annie E. Baird, Alice L. Palmer and Hannah M. Palmer – subsequently held the property as tenants-in-common. Hannah Palmer's son, Ralph Palmer, became property manager around 1927 and purchased his first quarter share in the property in 1943; he progressively acquired quarter shares from the other sisters until his purchase of the final share in 1961. The house was itself vacated around 1954 with the departure of Wallis Fletcher and, in 1955, was flooded for the first time. Having survived flooding, the house was also subject to vandalism and it is believed that Palmer consequently considered demolition of the house. Ralph Palmer retained sole freehold over the property until

1982. Palmer's descendants granted the homestead portion to the National Trust of Australia (NSW) in 1985 (OEH, undated a).

3.3.4 Dundullimal – Rail Bridge

The Dundullimal Rail Bridge is one of two J.W. Roberts standard design steel Pratt truss railway bridges built during 1925 on the now-disused Dubbo-Molong Rail Line across the Macquarie River (Fraser 2005: 104). The bridge is approximately 300m in total length and approximately 5m in maximum width. Two trusses span the river (67m) while the approach spans extend for 142m on the south-western bank of the Macquarie River and 91m on the north-western bank. Concrete piers support the superstructure. The bridge crosses the Macquarie River at GR 651050E 6426990N (GDA Zone 55) and GR 651093E 6427049N (GDA Zone 55). The bridge is regarded as holding local heritage significance (OzArk 2010).

3.3.5 Cootha

'Cootha' is located outside at 21L Obley Road, Dubbo. The property was originally a component of the Dundullimal run. The mid-Victorian homestead – probably built by William Baird after 1871 – on the property is one of only thirteen exposed and unpainted stone buildings recorded in the SHI. It holds local heritage significance (OEH, undated h.).

3.3.6 'The Meadows': 'The Springs' and 'Eulandool'

3.3.6.1 'The Meadows'

The Meadows is a pastoral property located adjacent to the western margin of the current Study Area. It has a largely intact collection of buildings and moveable heritage relating to the pastoral and domestic history of the property. The property was held by the Carr family for almost 100 years and previously by the Rorke and Donald families and was at one time leased by Syers Bros. Merchants of Bathurst. The Meadows holds local heritage significance (OEH, undated b.).

The homestead group consists of timber framed structures including a fenced homestead, sheds and farming equipment. The four-roomed homestead building exhibits a wide veranda. The kitchen building was modernised during the 1930s / 1940s, however the layout remained in its original form. A small external out house originally held a three seat pit toilet and is now dilapidated. The condition of the buildings is 'very poor'. Moveable farm heritage on the property consists of a horse-drawn stripper / header, a Fordson Tractor (c.1920s), steel legged chaff cutter dating to the early decades of the twentieth century, a grinder, a Jones brand horse-drawn mower-sieve and a tractor located under a fallen shed (OEH, undated b.).

Tenure history at The Meadows commences with the property's establishment by David Donald (c. 1837). Mr Donald employed a recent Scottish immigrant, Arthur Campbell Baird, as overseer in approximately 1840 and in 1853 entered a ten year partnership with the Bairds. In 1846 A.C. Baird took up 200 acres of the property and named that portion The Springs. In 1848, The Meadows was held by the Syer Brothers and the remainder of The Springs was held by David Donald (Scott Tourle, *pers. comm.*¹⁶). Upon David Donald's death, it appears that John and Margretta Jane Rorke purchased The Meadows and the family held the property until the 1890s. John Rorke is buried near the shearing shed in a grave marked by two stones, one of which states 'To John Rorke by his beloved wife, Margretta Jane Rorke died 16 September 1870, aged 70 years'. During the 1890s, the property was sold to the Carr family,

¹⁶ Mr Scott Tourle, The Outback House.

who would continue to hold the property for approximately 100 years. A photograph dating to 1909 of Mrs Eva Carr, described by Dormer as 'an accomplished horsewoman', depicts Mrs Carr on horseback together with her children – Marjory, Elyene, Harold and Noel – and two members of the Redshow family – Enid and Linda (Dormer 1988: 31).

3.3.6.2 'The Springs'

The Springs is a pastoral property located adjacent to the western margin of the current Subject Area. It has a largely intact collection of buildings and moveable heritage relating to the pastoral and domestic history of the property. The homestead and outbuildings are largely timber framed and clad. One building – the school house – is constructed from stone. The homestead complex consists of a homestead (c. 1858), dormitory, connected cookhouse, separate bath house, general store / wash house, a group of buildings relating to horses and vehicles (saddle shed, stables, carriage shed), a fowl house and an outhouse. The school house is a two roomed stone-built building with iron hipped roof, central chimney and timber framed front veranda. In addition to the listed components of The Springs property, a number of places are located in the vicinity that are historically related to The Springs: 'Wirroo' (a residence built by Andrew Strahorn Baird, c. 1900); 'Big Hill' (two ruined buildings, constructed c. 1890 by John Baird, and once part of The Springs); and 'Milbie House' (built c. 1900, consisting of a chimney and tank, remnants of building constructed to enable the Bairds to access 'residential status' in order to secure land under new closer settlement legislation). The Springs complex holds local heritage significance (OEH, undated c.).

The Springs was originally a component of The Meadows, one of the earliest pastoral runs south of Dubbo during the earliest years of European settlement in the region and held initially by David Donald. Taken up in 1846 and named by Scottish immigrants Arthur Campbell Baird and his wife, Isabella, The Springs consisted of 200 acres upon which the Bairds initially established a bark house near two eponymous springs of water. The history of land tenure at The Springs is complex and is, at times, intertwined with that at The Meadows. The Meadows property – including The Springs – was advertised for sale following David Donald's death and consequential dissolution of the partnership in 1861. The Springs homestead block was passed in at auction and was subsequently purchased by Arthur Baird at a cost of £201 (OEH, undated c.). By 1865, The Springs was listed by the Squatting Director of New South Wales as being owned by A.C. Baird and consisting of 20,000 acres (OEH, undated c.). Baird subsequently transferred ownership of the property to John Strahorn, whose daughter Jane would marry the Bairds' younger son, David Donald Baird in 1867. Strahorn then sold The Springs to David Baird in 1873. The Springs Pastoral Holding, No. 527, is listed as consisting of 11,740 acres of leasehold (annual rent: £97 16s 8d) and 12,382 acres of resumed area (annual licence: £58 0s 10d) in 1889, at which time the run was held by Mr David Donald Baird (Hanson 1889: 347). The property remains in the hands of descendants of the Baird family (predominantly the Tourle family) and is currently 3,714 acres (1,503ha). The 1870s also saw other sons of the Bairds taking up other significant properties in the district, viz. Thomas Baird at Terramungamine and Dundullimal and William Webb Baird at Cootha (OEH, undated c.).

The property is also significant in that it probably represents a location for early contact between Aboriginal and European people in the Dubbo region. According to Koettig (1985, in OEH, undated c.), John Oxley made the first sighting of Aboriginal people in the district in 1817 at Whylandra Creek and on the 15th of August he camped on Paddys Creek near The Springs. The significance of the environs of The Springs to the Aboriginal people is highlighted by Koettig's recordings of three carved trees (1985, in OEH, undated c.). Records are scarce, but it is likely that Aboriginal people remained active in the vicinity of Toongi into the historical period and many were employed by the Bairds as station-hands and / or helpers. At least three local Aboriginal men are named by the DLMA as working on the neighbouring 'Meadows' property: William Carr, William (King) Carr and Michael Mickey (DLMA 31 October 1916: 4). Michael Mickey, a prominent Dubbo boxer of the early twentieth century, is also mentioned in

relation to 'The Springs' in the NSW Department of Mines (Dubbo Division) Annual Report of 1915 (Berry 2006: 4).

The area to the south of Dubbo was predominantly sheep country during the nineteenth century. The Springs complex incorporates shearers' huts and a shearing shed: part of which was used for blade shearing until c. 1901 when machine shearing appears to have reduced the number of shearers employed in the shed from ten to between five and seven (although a number of years passed before machine tallies equalled the older blade tallies). A 6-Horse Power Britannia Type Marshall Steam Engine was purchased in 1907 and was used to power the shearing equipment until October 1956.

3.3.6.3 'Eulandool'

'Eulandool' is located to the southwest of the current Subject Area. It consists of a homestead and interconnected outbuildings (largely timber-framed and clad) dating to 1900. The main building is single storey and constructed of English garden wall bond. Low flat arches surmount window and door openings. Three sides of the building are surrounded by a veranda with bull-nosed iron roof. The building featured a wide central hall flanked by three rooms on either side. Marble fireplaces adorned four of these rooms and all rooms exhibited two sets of French doors leading onto the veranda. The outbuildings consisted of a bath house, 'long drop' toilet, kitchen, eat-in pantry, laundry and maid's room. 'Eulandool' holds local heritage significance (OEH, undated d.).

'Eulandool' was originally owned by Mr Rogers. It appears to have been constructed by the same builder as Cockleshell Corner. Mr Rogers sold the property to a Mr Strahorn, who sold it to a Mr Gerald Cater. In April 2002, Graham Coddington bought the property from Mr Cater's daughter, Geraldine Brown.

3.3.7 'Cumbooglecumbong Holding' / 'Whylandra Run': 'Cockleshell Corner', 'Pacific Hill', 'Glen Idol', 'Karingle', 'Wychitella', 'Toongi Valley', 'Grandale' and 'Ugothery'.

3.3.7.1 'Cumbooglecumbong Holding' / 'Whylandra Run'

The property that was eventually to be sub-divided into today's 'Cockleshell Corner', 'Pacific Hill', 'Glen Idol', 'Karingle', 'Wychitella', 'Toongi Valley', 'Grandale' and 'Ugothery' were originally part of the 'Cumbooglecumbong' holding / 'Whylandra Run' (Pastoral Map: Cumboogle Cumbong Holding, LPI Map #573322 Sheet 2, c.1886¹⁷; The Springs, 2nd Edn, 1899), held by William Lawson (Hickson and Kass 2002d: 341). Lawson (1774–1850) is notable as an explorer, accompanying Gregory Blaxland and William Charles Wentworth on the first successful European journey across the Blue Mountains and contributing to the opening up of the Mudgee region for European settlement, and as an early pastoralist in the new colony of New South Wales. In addition to success as an explorer and pastoralist, Lawson appears to have escorted Freycinet's scientific party over the ranges in 1819 to discover the first coal on the western side of the Blue Mountains at Hartley Vale. A Presbyterian, Lawson contributed to the establishment of the Scots Churches at Sydney and Parramatta. A prominent public figure, Lawson served as a magistrate (signing a letter approving trial by jury in 1825) and as a member of the Legislative Council during the 1840s (Dunlop 1967).

The first homesteads built on the Cumbooglecumbong run are no longer extant, having been destroyed by flooding in 1867 and 1874 (Hickson and Kass 2002d: 341). In 1839, the run was

¹⁷ The Cumboogle Cumbong Holding pastoral maps (LPI Map #573322 Sheets 1 and 2) contain two handwritten dates, viz. 15.10.86 and 25 Sept 86. Where reference to either sheet is made hereafter, the format is given as LPI Map #573322 Sheet 1 or LPI Map #573322 Sheet 2.

under the control of overseer D. McDonald and supported 19,499 head of sheep and 1,851 head of cattle. Slab huts on the run housed 94 people, many of whom were probably convicts. The run, whilst successful, has seen numerous owners. During the period 1840 to 1899, the run was held as follows:

- 1840 to 1851: William Lawson Junior (Hickson and Kass 2002d: 341).
- 1851: George Langley (Hickson and Kass 2002d: 341).
- Late 1850s: David Donald, died 1861 (Hickson and Kass 2002d: 341).
- 1865: W. Gardiner and Samuel (Hickson and Kass 2002d: 341).
- 1889: Commercial Banking Company of Sydney (Hanson 1889: 237).

By 1889, the property had been partially resumed, with the leasehold area consisting of 25,655 acres at an annual rent of £213 15s 10d (2d per acre), and the resumed area consisting of 26,884 acres at an annual licence fee of £126 0s 5d (£3 per section).

3.3.7.2 Cockleshell Corner

Cockleshell Corner is located to the southwest of the current Subject Area. It consists of a modified early Federation homestead associated with Elizabeth 'Granny' Harper¹⁸. Constructed in 1911, the homestead is a single storey dwelling with Flemish Bond double brickwork. Bull-nosed bricks are used at the openings of doors and windows. The building is surmounted by a multi-hipped roof with front-to-rear central box gutter and surrounded by a partially enclosed bull-nosed veranda. The house's three corbelled brick chimneys are original. The front door's side lights, high lights and tuckpointing are an exact match with the property's neighbour, 'Eulandool'. Internally, high pressed metal ceilings feature in many rooms. Significant external modifications include changes to the roof decoration (originally the bull-nosing was painted in alternate colour panels), replacement of French doors with double hung windows and the removal of external buildings. Cockleshell Corner holds local heritage significance (OEH, undated e.).

The property is associated with the Harper family. John Harper had emigrated from Scotland during the 1870s and was employed at 'The Springs' as a station overseer. John and his wife Elizabeth (*nee* Brown), formerly of Bathurst, took up 100 acres at Toongi and raised twelve children on the property. Following the deaths of their son David (in 1905) and John himself (in 1906), Elizabeth continued to farm, eventually increasing the property to 2,560 acres and erecting the current homestead building.

Also in 1911, Cockleshell Corner was a regular stopover point during Mr A. Graham's weekly mail service. Mr Graham changed, fed and stabled horses at the property before continuing on to Obley or Dubbo. Similarly, the teachers at the Emmagool School were accommodated on the property by Mrs Harper.

Following Mrs Harper's death in 1916, the property passed into the hands of her son John. It was later divided between John and his brother Andrew. In 1953 the property was sold to Mr William John Jackson. Mr Jackson remained at the property for 29 years. In 1982 the property was acquired by Ross and Helen Whiteley.

¹⁸ John and Elizabeth Harper acquired Cockleshell Corner and Pacific Hill during John's (d.1906) lifetime. John H.S. Harper (b.1890) took on ownership of Pacific Hill and he is a direction relation to Bruce Harper of Pacific Hill. Andrew James Harper took over Cockleshell Corner and later sold it to William 'Bill' Jackson (Scott Tourle, pers.comm.).

3.3.7.3 'Pacific Hill'

The portions of 'Cumbooglecumbong' that would eventually comprise 'Pacific Hill' and 'Cockleshell Corner' were resumed 15 September 1897 and subdivided into approximately six portions, each held by John Harper (Section 3.3.4.1) and totalling 2,560 acres (The Springs, 1st Edn, 1885). By 1899, 200 acres had been transferred to Elizabeth Harper, however, the 'Pacific Hill' portion of the property remained the property of John Harper (The Springs, 2nd Edn, 1899). By the 1920s and 1930s, R.C. Brown's name appears on the 'Pacific Hill' portions as executor of Mrs Harper's estate, however, it is largely crossed out and replaced by J.H.S. Harper (The Springs, 4th Edn, 1921; The Springs, 5th Edn, 1938).

Still held by members of the Harper family, Gwen Harper indicates that the 'Pacific Hill' house was built during the 1920s and that her 86 year old husband, Bruce, has lived on the property all his life (Gwen Harper¹⁹, *pers. comm.*). According to Mrs Harper, much of the property was cleared by Bruce with horse and dray.

3.3.7.4 'Glen Idol' and 'Karingle'

'Glen Idol' is currently held by Kevin and Anne Hyland and John and Sally Hyland. 'Karingle' is currently held by Bill and Lesley Hyland. The majority of the Hylands' land was originally a part of the Cumbooglecumbong run, although the most southerly portion of 'Karingle' was originally in fact a portion of 'The Springs' (Pastoral Map: The Springs Holding, LPI #573621, Sheet 1, c. 1886²⁰; Section 3.3.3.2). The lands now referred to as 'Glen Idol' and 'Karingle' were taken up by Henry Cyril Rogers during the late nineteenth century (The Springs, 1st Edn, 1885²¹). This land was listed as being held by the Government Savings Bank of N.S.W. by 1899 (The Springs, 2nd Edn, 1899) – probably indicating its purchase subject to mortgage (Land and Property Management Authority 2011: 9) – and subsequently passed into the hands of John Moore c.1911 (The Springs, 3rd Edn, 1911). Later parish maps list these portions as being held by the Rural Bank of N.S.W. (The Springs, 5th Edn, 1938), and as Kevin Hyland indicates that his father had purchased the land c. 1936 (K. Hyland, *pers. comm.*), it is considered likely that this purchase was also via a mortgage. Certainly, W. Hyland of Nubingerie is listed in the *Sydney Morning Herald* (SMH) as selling stock at the Flemington markets in 1940 (19 March 1940: 9). Mr Hyland also indicates that the Dowd family had held the property prior to the Hylands, as does Dormer (1988: 382), however, there is no reference to the Dowds on parish maps of the period. The Dowd name is remembered by the Dowds Hill trig point (TS1868DOWD), located on Crown Land (Lot 7002 / DP 1019855) surrounded by Mr W.T. Hyland's property (Lot 57 / DP 753252, Dubbo LGA). The trig point has borne this name since 11 July 1903 (The Springs, 2nd Edn, 1899²² and 3rd Edn, 1911).

Glenidol includes an historic stable, which has been modified and is now used as a shed/workshop (**Plate 10**). Construction includes rail ties for the walls, logs for support beams, and a corrugated iron roof. Some of the construction is clearly modern. There are logs with axe cut ends as well.

¹⁹ Gwen Harper, landholder, 'Pacific Hill'.

²⁰ The Springs Holding pastoral maps (LPI Map #573621, Sheets 1 and 2) contain one handwritten date, viz. 18.6.86. Where reference to either sheet is made hereafter, the format is given as LPI Map #573621, Sheet 1 or LPI Map #573621, Sheet 2.

²¹ Parish map: Parish of The Springs, County of Gordon, Dubbo Land District, 1st Edition, 1885. All subsequent references to Parish Maps follow the format <Parish Name>, <Edition>, <Year>. All parish maps referred to in the current report were accessed via the NSW Land & Property Information (formerly Land and Property Management Authority [LPMA]) Parish Map Preservation Project website (LPI n.d.), unless otherwise stated.

²² A handwritten entry on the 1899 map notes that the Dowds trig station was notified on this date.

3.3.7.5 'Wychitella' (variant spelling: Whychitella²³)

The house at 'Wychitella' is of pisé construction (M. Brennan²⁴, *pers. comm.*), a construction method that is today rarely represented by surviving buildings in the Dubbo region (Hickson and Kass 2002a: 28). In its heyday, the house appears to have exhibited a magnificent garden with palm trees (M. Brennan, *pers. comm.*), however, the garden is now somewhat altered.

Currently held by the Brennan family, the 'Wychitella' property is referred to by name at least as early as 1901 via a brief notice of the sale of 28 ewes, hoggets and wethers at a price of 7¼d (SMH 21 December 1901: 18). Earlier records are scarce; however, the first edition of the Benolong parish map (Benolong, 1st Edn, 1885²⁵) indicates that the property now referred to as 'Wychitella' was held during the late nineteenth century by James Hay Ower and had been part of Settlement Lease Area No 227 (notified 15 September 1897). Mr Ower 'took up "Wychitella" when it was first thrown open for selection' (DLMA 4 April 1924: 4).

The Ower family appears in several newspaper reports from the early twentieth century in the context of both farming and family matters. The terse entry indicated above (SMH 21 December 1901: 18) is echoed by a DLMA report five years later to the effect that J.H. Ower had transported 100 fat sheep to Flemington, with W. Ower in charge (DLMA 18 August 1906: 4). Mr Ower's approach to farming is provided in greater detail in his own words in the DLMA via a 'Public Opinion' letter on the subject of 'Destroying Foxes' (DLMA 10 June 1911: 5). Mr Ower reported his views on the looming problem of foxes: an animal that he regarded as being a potentially worse pest than rabbits. Regretting that few other farmers in the district were making any attempt to eradicate foxes, Mr Ower indicated that he had achieved great success by using strychnine baits (baited sheep offal covered with dust to prevent interference from birds). The SMH subsequently took up the story, reporting Mr Ower's success under the title 'War Against Foxes: Land Owner's Experiment' (SMH 12 June 1911: 6). Some months later, Mr Ower was the victim of a painful accident that occurred during hay carting. Whilst no bones were broken, the injury was apparently painful and resulted in Mr Ower spending some time 'in Dubbo under medical treatment' (DLMA 28 November 1911: 3).

In terms of family matters, two Ower weddings are reported in the DLMA: that of Miss Ethel Ower and Mr Jones of Ballambi Illawarra – 'an interesting wedding' after which 'the wedding party adjourned to a spacious booth erected near the house' (DLMA 31 August 1907: 4) – and that of Mr Francis W.J. Ower and Miss Hilda C. Buchanan, 'who had come all the way from Palmerston North, New Zealand' (DLMA 26 February 1910: 4). In an age when religious ministers were scarce in remote parts of New South Wales, the Owers also took the opportunity provided by Francis' and Hilda's wedding to avail themselves of the services of the officiating minister (Rev. W.H. Ash) for the baptism of three of Mr James Ower's grandchildren (DLMA 26 February 1910: 4). The Ower story appears to be told by the newspapers through all phases of life – birth, marriage and death – for Mrs Catherine Ower's passing was reported on 4 April 1924 (DLMA 4 April 1924: 4) and Mr James Ower's passing was reported on 7 November 1936 (SMH 7 November 1936: 16). Both passed away in Springwood, having relocated there following the sale of the property to the Matchett family.

The Ower family, having occupied 'Wychitella' for approximately 14 years, disposed of the property to Mr John George Matchett for £7,200 in 1913 (Dormer 1988: 382). Mr Matchett had moved there from the Whitton district in the Riverina (DLMA 23 October 1923: 2; DLMA 4 April 1924: 4). By 1914, the rabbit had become a significant pest in the district, evidenced by an advertisement calling for tenders for rabbit burrow digging over an area of 1,200 acres on the

²³ The spelling of the property name is generally provided in the primary sources as 'Wychitella', thus sharing its spelling with the town of the same name in Victoria. At least one article refers to the property as 'Whychitella' (DLMA 8 January 1915: 4). The current report retains the more common spelling, sans-H.

²⁴ Megan Brennan, current landholder at 'Wychitella'.

²⁵ Parish map: Parish of Benolong, County of Gordon, Dubbo Land District, 1st Edition, 1885.

property. Applications were to be directed to 'J.G. MATCHETT. "Wychitella."' (DLMA 28 April 1914:3). The Matchett family subsequently appears prominently in the local press in agricultural, military, political and sporting contexts – the family was quite successful in and committed to the local tennis competitions, with John Matchett serving as vice-president of the Dubbo District Tennis Association and presenting the Matchett Cup in memory of his fallen son Adam (DLMA 19 March 1918: 4; DLMA 7 Mar 1919: 3; DLMA 7 November 1919: 3; DLMA 23 October 1923: 2; DLMA 26 October 1923: 2) – and the family's hospitality was described as 'far-famed' and the property was 'splendidly managed' (DLMA 29 November 1921: 3). John Matchett's community spirit was demonstrated by his suggestion to the Dubbo Australia Day Committee to the effect that if the Government was to distribute the wheat seizure profits amongst farmers, he would give his share to the Australia Day funds (DLMA 30 July 1915: 4).

John Matchett was a regular advocate for regional development, attending meetings arguing for the speedy construction of the Dubbo-Molong Rail Line (DLMA 29 July 1919: 2). As drought and the ongoing impact of the First World War took their toll on the state's farmers and graziers, the Macquarie Water Conservation League sent a deputation to the Premier in relation to water conservation for irrigation, the promotion of settlement and the protection of farmers' interests. Mr Matchett attended this meeting, along with farmers from as far east as Bathurst and as far west as Trangie (DLMA 23 January 1920: 3). Described in 1921 as an 'experienced wheat grower', Mr Matchett hosted visitors from 'the "Liberal"' during their tour of district farms prior to the year's grain harvest. He and his sons were sceptical about whether the crops would yield six bags per acre, but he was certainly confident of a good quality harvest. Mr Matchett was also critical of the predicted price of 5s per bushel, stating that, as costs had increased since the First World War (the example is given of farm implements tripling in price) the pre-war price of 3s 6d was better than a 4s or 5s price in 1921 (DLMA 29 November 1921: 3).

The departure of the Matchett sons to the First World War occasioned several comments in the local newspaper. First of the brothers to depart was George Adam Matchett, a promising member of the Dubbo Lawn Tennis Club (DLMA 18 May 1915: 2; DLMA 1 December 1916: 2). A fair haired, fair complexioned Church of England man of 21 years, Adam enlisted on 15 February 1915 with the 4th Australian Light Horse (4th A.L.H.; NAA 8006021). Following a brief period of service in Egypt, he transferred to the Australian Army Service Corps (20th A.S.C.) and was sent to France (DLMA 1 December 1916: 2). There, he voluntarily joined the 18th Battalion AIF at a time when the Battalion stood at a strength of 300 men, some 700 less than the unit's nominal strength of 1,000 (DLMA 23 January 1917: 2). Whilst serving at Bapaume in France with the 18th Battalion Australian Imperial Force (A.I.F.), Private Matchett (Regimental Number: 8922) was killed in action on 8 November 1916. He was posthumously issued the 1914/15 Star, British War Medal and Victory Medal (NAA 8006021). His family published letters from his fellow soldiers – Private E.B. Serisier and Private McCrae (with whom Matchett transferred from the 20th ASC) – in the DLMA that indicate that Matchett had been a respected soldier and 'great pal' (DLMA 23 January 1917: 2). He was buried, according to McCrae, in a 'soldier's grave'.

The Matchetts' other son, James Thomas, enlisted on 3 February 1916. A shorter man than his brother, Jim stood at a height of 5 feet, 10½ inches and displayed a fresh complexion, grey eyes and brown hair. Private²⁶ James Matchett (Regimental Number: 292) sailed to the front on 1 May 1916 (DLMA 19 May 1916: 2) and was destined to survive the war. Serving in France as a Private in the 1st and 21st Machine Gun Companies (M.G.Coy), James Matchett achieved the rank of Lance Corporal in August 1917 and by the end of the year had been

²⁶ Whilst DLMA (19 May 1916: 2) refers to James Matchett as Gunner Matchett, his service records state his initial rank as Private (NAA 8006025). Confusion is likely to have arisen 'at home' at the time of his enlistment due to his membership of a Machine Gun Company, an Infantry sub-unit, rather than an Artillery sub-unit. The lowest rank of Infantry soldier was a Private, whilst the equivalent Artillery rank was Gunner, however Matchett's posting to the Machine Gun Company may have resulted in him being referred to informally as a Gunner.

made up to full Corporal, having been wounded in action during September. After a month long detail in the ASC, Corporal Matchett returned to the 1st M.G. Coy and ended the war as a Sergeant and was issued the 1914/15 Star, the British War Medal and the Victory Medal (NAA 8006025). His collection of war trophies was remarked upon by the DLMA in 1921, and consisted of periscopes, revolvers, electric bulbs, accoutrements, wallets, postcards, letters, sabres and other battlefield artefacts (DLMA 29 November 1921: 2).

'Wychitella' changed hands several times during the latter half of the twentieth century: passing from the Matchetts to Mr Kiss of Wellington and later to Ray Job, thence to Mark and Ros Gavel (Dormer 1988: 382), the parents of current owner, Megan Brennan. At the time of writing, the property is held by Michael and Megan Brennan.

3.3.7.6 'Toongi Valley'

'Toongi Valley' is currently held by the Rothery family and was historically fully located within the boundaries of James Hay Ower's 'Wychitella' lease. The Rotherys purchased a portion of 'Wychitella' from Mark Gavel. 350m northeast of Holyoake house, along the railway line, is the 'Wychitella' cottage, which has been renovated by the Rotherys.

3.3.7.7 'Grandale'

The property currently known as 'Grandale' is an amalgam of land portions that were previously components of several separate holdings. Located within the north-eastern corner of the original Cumbooglecumbong holding, after the subdivision of Cumbooglecumbong these properties were variously held by the Owers, Thomas Morris and Thomas Baird (Benolong, 1st Edn, 1885), Owers, Tinks and the Commercial Banking Company of N.S.W. (Benolong, 3rd Edn, 1910), and subsequently the Tinks and the Commercial Banking Company of N.S.W. (Benolong, 4th Edn, 1922; 5th Edn, 1932; 6th Edn, 1952). It is possible that D.J. Pattinson held the property more recently, together with 'Ugothery'. 'Grandale' is currently held by the Grey family.

3.3.7.8 'Ugothery'

The property currently known as 'Ugothery' was first subdivided from Cumbooglecumbong during the late nineteenth century. By around 1886, Mr Thomas Morris held two adjoining blocks totalling 2,490 acres (LPI Map #573322, Sheet 2). This Thomas Morris appears to be the same man referred to by the SMH as Mr Thomas Morris of Dubbo who had married Miss Adelaide Bertha Thornton of Warren (SMH 4 March 1937: 24). Mr Morris appears to have made his home in a wide variety of places throughout New South Wales, including Peak Hill, Warrie Flat, Dubbo, Derriwong Siding (near Condobolin) and Lakemba (in Sydney). He is known to have run a coach line connecting Peak Hill to Dubbo, via McPhail and Tomingley, for a period (DLMA 4 March 1899: 5), probably ending around 1902 (DLMA 1 October 1902: 3). The couple's children appear to have led as geographically diverse lives as their parents, their homes being listed as Grafton, Goulburn, Bondi, Woollahra, Hurstville, Cawdor and Lakemba at the time of a family reunion in 1937 (SMH 4 March 1937: 24).

By 1910, the property is listed as being held by Margaret Tink, S.J. Tink and W.E. Tink as executors of the late John Tink (Benolong, 3rd Edn, 1910). Mr J. A. Tink appears to have been farming in the district as early as 1894, having purchased seven lots of Lincoln rams at stud sales in Sydney (DLMA 11 August 1894: 2), however, the precise date upon which Mr Tink took possession of the 'Ugothery' property is unclear. It appears that John Tink was born in

Lewannick, Cornwall²⁷, probably around 1841 (Perry via Mundia²⁸) and immigrated to New South Wales around 1866 (Hickson and Kass 2002d). Mr Tink married a certain Margaret Morris and their nine children included a Samuel John Tink (S.J. Tink) and a William Edmund Tink (W.E. Tink). Various members of the Tink family are listed as holding blocks to the north and northwest of 'Ugothery' until at least 1952, however on the 1952 parish map the names of Margaret Tink *et al.* have been crossed out and replaced with the Commercial Banking Company of Sydney Limited (Benolong, 6th Edn, 1952).

In 1997, the Tuckers purchased the 'Ugothery' property from D.J. Pattinson who had subdivided the block from 'Grandale'.

3.3.8 'Cranbrook' - Blacksmith's Shop and Outbuildings

This property is included as SHI #1520047 in Hickson and Kass (2002c), however, recent searches of the NSW Heritage Branch SHR / SHI databases do not include the site. At the time of Hickson and Kass' study, the site was regarded as holding local heritage significance.

Originally held as a component of 'Cumboogle', the 'Cranbrook' property was regarded by Hickson and Kass as representing early pioneering self-sufficiency. It had been held by the same family for over 90 years enabling a good understanding of the material heritage on the property.

By 1912, 400 acres of 'Cranbrook's' 3,000 acres had been cleared by the property's Cornish settlers, the brothers Pascoe and their families. An old cottage was extant in 2002 that incorporated an older cottage that had been built over a shepherds' hut that dated to the time of the original 'Cumboogle' run. The extant stone wall had previously been a component of a major building that had been part of a complex of buildings including a coach house, meat house, pigeon house and other out buildings. In 2002, the complex consisted of a series of timber framed buildings: an original homestead (c. 1880s, altered 1912), shearer's quarters, sawmill, blacksmith's shed (c. 1912 to 1925), and a timber-framed and iron-clad shearing shed (c. 1932) together with stables, a bagged wheat store and sheep plunge dip.

Of the activities that occurred on 'Cranbrook', the earliest was a steam-driven sawmill established by the Pascoe Brothers that supplied timber for the Toongi Hall and Emmagool Church. This sawmill remained extant and operable in 2002. Subsequent to the establishment of the sawmill was the erection of a blacksmith's shop, again extant with intact moveable heritage in 2002. By 1932, a shearing shed was erected on the property. The buildings display timber finials with the initials PB (Pascoe Brothers) drilled into them.

The moveable heritage on the property included a rabbit's rack that would be placed over a bicycle in order to transport rabbit, a pit rabbit trap that was laid over a pit dug along a mesh fence, a sulky (used by the former Wambangalang school teacher who lived on the property), a tipping dray and a timber log jinker.

3.3.9 Dubbo

Four items of historic heritage are situated particularly close to (but not within) the proposed rail upgrade. Two of these, the Dubbo Railway Precinct and the Dubbo RAAF Stores Depot

²⁷ Tink is a relatively common surname in Cornwall and at least three John Tinks are known to have been born in Lewannick during the early decades of the nineteenth century. Of these, John Tink of 'Ugothery' immigrated to New South Wales whilst another (born c.1815, died c.1908) had a brother who immigrated to South Australia and had issue there.

²⁸ John Perry, Mundia member, <<http://www.mundia.com/au/Person/10621432/6054469547>>. The website *Mundia* is a subsidiary of ancestry.com and provides hosted family tree building services. All data is user submitted and is not refereed. It is noteworthy, however, that the data uploaded by Mr Perry appears to correlate with the information provided by primary sources such as the Benolong parish maps and secondary sources such as Hickson and Kass (2002d).

(former), are SHR listed places. The other two are of local significance only (Grandstand at the Dubbo Showground and 'Holmwood').

The Dubbo Railway Precinct is located in the vicinity of Talbragar St, Dubbo. The SHR Statement of Significance for the Precinct is as follows (OEH, undated f):

The Dubbo Railway Precinct is a state significant railway station and yard. The station building, Station Master's residence and platform faces form a rare example of a major late Victorian period station complex in NSW, constructed substantially in stone. The 1881 station building and Station Master's residence are fine examples of Victorian railway design and are important elements within the townscape of Dubbo. The railway refreshment rooms and accommodation, signal box, locomotive straight shed, water supply pump house and locomotive depot are significant elements within a mostly intact major railway complex and are closely linked to the development and history of Dubbo. The former locomotive depot is also significant as an extant example of a depot at a major station which retains several significant industrial buildings.

The Dubbo RAAF Stores Depot (former) is located at Cobra Street, Dubbo and comprises Lot 11 / DP 1050240. It was previously referred to as No. 5 (in 1942) and No. 6 (1942 to 1952) Stores Depot, No. 2 Stores Depot Detachment D (1952 to 1992) and Defence National Storage and Distribution Centre Detachment (1992 to 1995). The site is bounded to the east by the Dubbo-Molong Rail Line (which is subject to a proposed upgrade under the current project design), enabling short spur railways to be extended to the site and adjacent stores buildings. Short spur railways were preferable to a larger spur line as they were less visible from the air. The SHR Statement of Significance for the Depot states (OEH, undated g):

The former RAAF Stores Depot at Dubbo, a complex of 1940s military storage buildings, is significant as a large and intact example of NSW's participation in the network of military bases that were erected in strategic locations around Australia during World War II. Encompassing an area of approximately 38 hectares near the centre of Dubbo city, the former RAAF Stores Depot features thirty buildings including five huge Igloo stores buildings, three Bellman hangars, a Rabaul hangar, a Sidney Williams Hut and a large semi-underground PBX bunker, as well as a road system, railway spur lines and remnant state forest. This complex of substantial military structures in their original configuration and landscaping is the only extant, relatively intact example of its kind in Australia. It is unusual and probably unique in Australia to find five different types of 1940s prefabricated buildings remaining on the one site. The Igloo stores, still in pristine condition, were adapted from an American design but using Australian hardwood and corrugated iron, and are five of the only six examples of this building type left standing in Australia. The prefabricated steel-framed Rabaul hangar is the only structure of its kind still extant in Australia. The site is a coherent 1940s cultural landscape that combines forestry remnants with the careful placement of the buildings to result in a site that was innovatively camouflaged to reduce the risk of aerial attack. As the only World War II stores depot to remain in military service until the 1990s, the former RAAF Stores Depot is important for its historic association with the development of Australia's defence over 50 years. The site also has heritage significance for its association with Aboriginal relics, previous forestry uses of the landscape, its use as a makeshift camp during the Great Depression, and more recent community and recreational uses.

The Dubbo Showground is located at Fitzroy Street, Dubbo and is located in the vicinity of the proposed rail upgrade. It comprises Lot 310 / DP 754308, Dubbo LGA. It holds local heritage significance and does not fall within the proposed impact footprint. The SHI entry for the Grandstand states (OEH, undated i):

Considerable historic, architectural and aesthetic interest but badly in need of restoration and repairs... First Show society formed in 1872. First show held the following year on the site of the present racecourse. Moved to this site in 1876. The grandstand was built in 1893. In 1916-17 it was used by the Army, and in 1919 served as a hospital during a "flu epidemic". Front dais apparently built for 1954 Royal Visit.

The residence 'Holmwood' is located at Hennessy Lane on Lot 302 / DP 1123136, Dubbo LGA. It is an older style rural dwelling close to Dubbo's southern outskirts. It holds local heritage significance and does not fall within the proposed impact footprint. The SHI entry for 'Holmwood' states (OEH, undated j.):

Attractive older style rural dwelling with local historical interest. Landscaping and hilltop site, near southern outskirts of town. Create special landscape interest. One of three Town Houses which survive from the 1870's. Large but restrained in terms of detailing. It is one of the town's few early buildings retaining its attractive brickwork exposed. The design is modest but beautifully proportioned. This indicates a strong Georgian influence.

3.4 SURVEY METHODOLOGY

Surveys were conducted by vehicle and on foot. Generally, the survey for historic heritage was combined with surveys for Aboriginal heritage. This involved a level of coverage suitable for detecting Aboriginal artefacts and was therefore appropriate for locating any remains of historic heritage. More specifically, the following methodology was employed in the following cases:

- All structures within the impact footprint were inspected and their historically significant features, condition and the intactness of their fabric were recorded.
- Observations regarding the overall historic significance of the wider agricultural landscape were recorded, where relevant.

Areas not examined consist of paddocks which were cropped at the time of survey as the survey crew was asked to stay out of them. Cropped paddocks have a negligible likelihood of revealing open sites, as the sites would be obscured by the crop. The following Survey Units were not entered due to these restrictions:

- W-10 Survey Unit was not surveyed because it was recently ploughed.
- PH-5 Survey Unit was not surveyed because it was cropped.
- MM-5 Survey Unit was not surveyed because it was cropped.
- K-3 Survey Unit was not surveyed because it had zero ground visibility due to high grasses.
- The realignment portion of the proposed Macquarie River Water Pipeline was not surveyed (Section 2.6). Several factors such as low landform sensitivity, an absence of nearby sites and high prior land use disturbance contributed to the decision not to survey.

4 RESULTS OF HISTORIC HERITAGE ASSESSMENT

4.1 HISTORIC SITES RECORDED

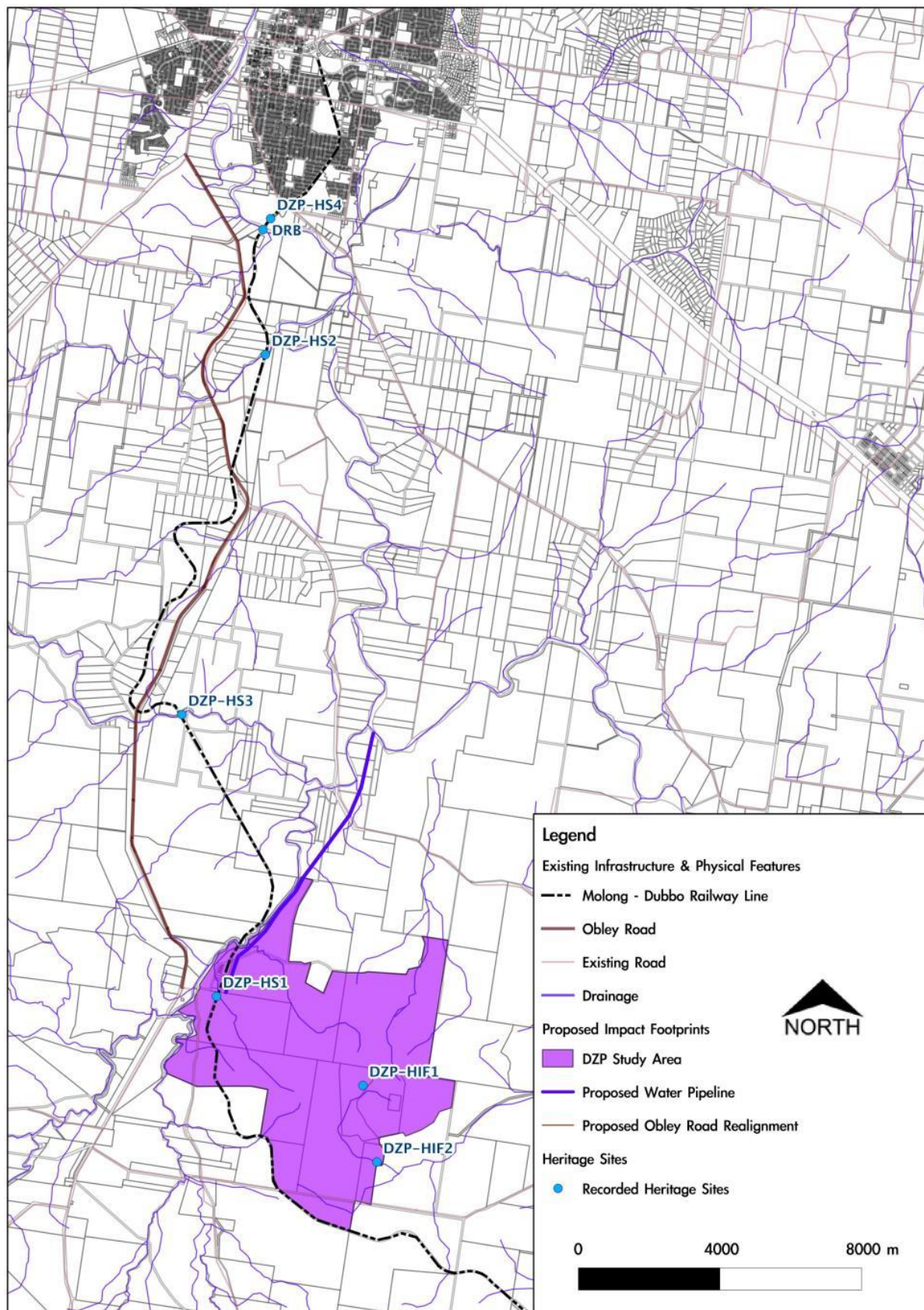
4.1.1 Summary

In addition to the sites discussed in Section 3, a total of six (6) historic heritage items were identified during the current assessment. Of these, four (4) were described as historic sites (HS) and two (2) were described as historic isolated finds (HIF). The historic sites discussed in the current document are listed in **Table 8** and their location is shown in **Figure 9**.

Table 8: Historic Sites Recorded During the Current Assessment

Site Number	Site Name	Site Type	Property / Survey Unit	Easting (GDA Zone 55)	Northing (GDA Zone 55)
DZP-HS1	Brick and concrete footings	Historic site	'Wychitella' Mine Site Survey Unit W-3	649668	6408776
DZP-HS2	Cumboogle Rail Bridge	Historic site	Toongi-Dubbo Rail Line Study Area.	651061	6424017
DZP-HS3	Hyandra Rail Bridge	Historic site	Toongi-Dubbo Rail Line Study Area.	648940	6415487
DZP-HS4	Dundullimal/Miriam Timber Rail Bridge	Historic site	Enclosed by 'Miriam'. Toongi-Dubbo Rail Line Study Area.	651235	6427249
DZP-HIF1	Brown glass bottle	Historic isolated find	'Glenidol' Mine Site Survey Unit GI	653128	6406607
DZP-HIF2	Rail piece	Historic isolated find	'Karingle' Mine Site Survey Unit K5	653436	6404783

Figure 9: Historic Heritage Items Recorded During the Current Study (Data source: LPI, Client, OzArk)



4.1.2 DZP-HS1: Footings

Site type: Brick and concrete footings.

GPS Coordinates: GR 649668E / 6408776N (GDA94 Zone 55)

Location of site: Located in the railway easement at the Wychitella property (Survey Unit W-3) (Figure 10).

Description of site: The site consists of two sets of brick and concrete footings approximately 10m from the existing rail line (**Plates 11 to 14**). Nearby are three milled wood posts (two standing and one fallen) with six planted shrubs growing next to them. The posts are likely to be fence or gate posts. The footings are constructed of brick, concrete, and sheet metal. Many types of bricks are present, including frogged bricks and bricks stamped with "IFB" and "CRITIX."

Condition of the footings is fair-poor, due to weathering. Bricks are missing and both bricks and concrete are weathering. Overall condition of the site is poor.

Figure 10: Location of DZP-HS1 (Base Map Source: LPI).



4.1.3 DZP-HS2: Cumboogle Rail Bridge

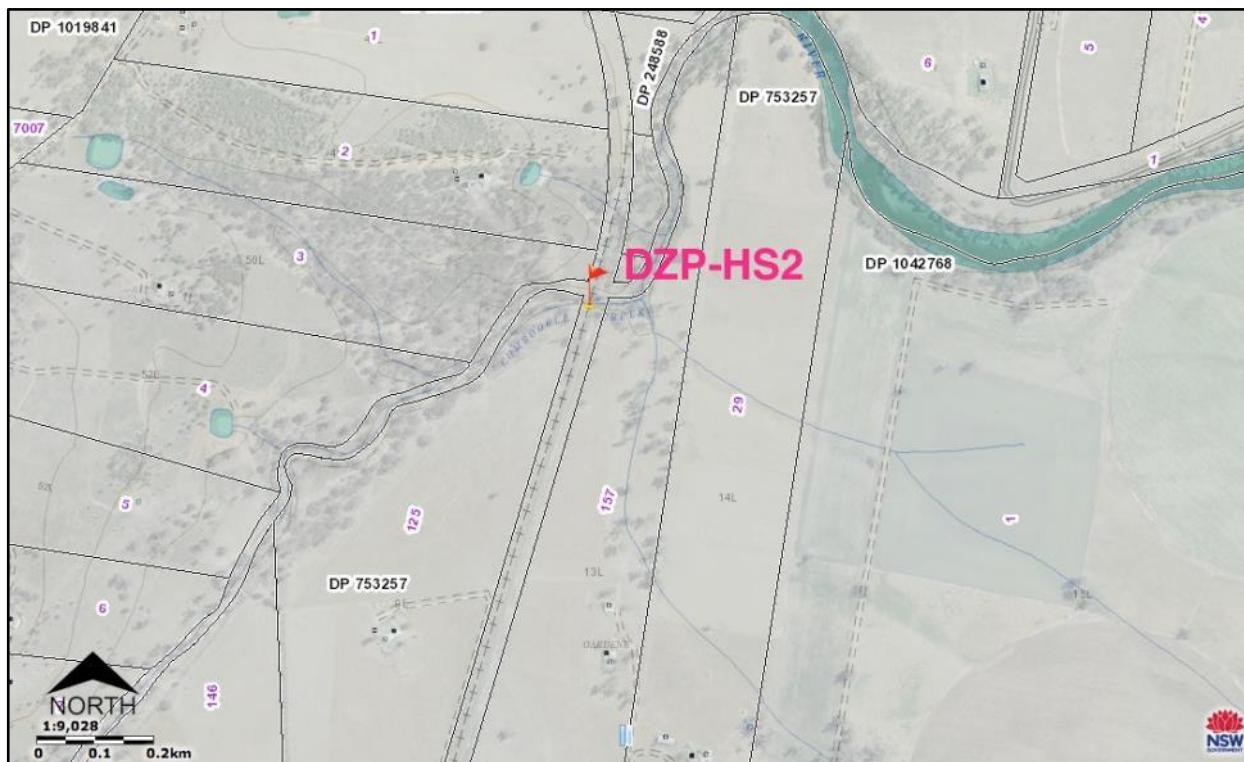
Site Type: Rail bridge.

GPS Coordinates: GR 651061E / 6424017N (GDA94 Zone 55)

Location of site: Located within the Toongi-Dubbo Rail Line Study Area just north of Cumboogle Rd, east of Obley Rd (**Figure 11**). The bridge crosses Hyandra Creek. Adjacent to Lots 2 & 3 / DP 248588, Lots 125 & 157 / DP 753257.

Description of site: This rail bridge has a metal bridge and concrete supports, with wooden railroad ties (**Plates 15 to 17**). The rails themselves appear to have been replaced sometime soon after 1970, as they are embossed with that date. The condition of the bridge is good. It appears stable.

Figure 11: Location of DZP-HS2 (Base Map Source: LPI)



4.1.4 DZP-HS3: Hyandra Rail Bridge

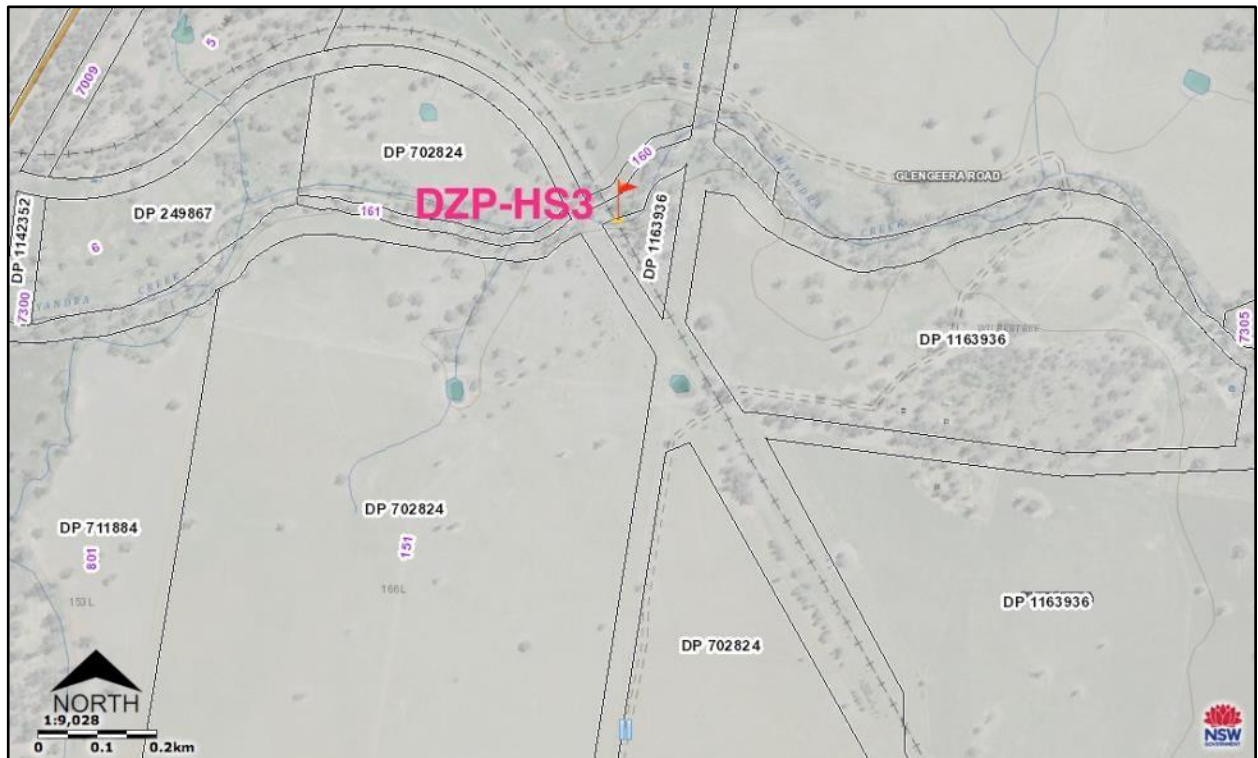
Site type: Rail bridge (**Plates 18 to 20**).

GPS Coordinates: GR 648940E / 6415487N (GDA94 Zone 55)

Location of site: Located within the Toongi-Dubbo Rail Line Study Area near the Wilbertree property off Obley Rd (**Figure 12**). The bridge crosses Hyandra Creek. Adjacent to Lots 153 & 160 / DP 1163936 and Lots 151 & 161 / DP 702824.

Description of site: Timber girder rail bridge, constructed entirely of timber with metal fasteners and rails. The bridge is intact, but is in only fair condition as a result of natural processes and neglect. The bridge acts as a strainer, creating a log jam on its upstream side.

Figure 12: Location of DZP-HS3 (Base Map Source: LPI)



4.1.5 DZP-HS4: Dundullimal/Miriam Timber Rail Bridge

Site type: Rail bridge (**Plates 21 to 23**).

GPS Coordinates: GR 651235 / 6427249 (GDA Zone 55).

Location of site: Situated on the property 'Miriam' (**Figure 13**). Forms the north-eastern approach to the Dundullimal Rail Bridge, off Macquarie St in Dubbo. This bridge does not span a creek.

Description of site: Timber girder rail bridge, constructed entirely of timber with metal fasteners and rails. The bridge is standing, but is in only fair condition as a result of natural processes, fire, and neglect.

4.1.6 DZP-HIF1

Site type: Bottle.

GPS Coordinates: GR 653128 / 6406607 (GDA94 Zone 55).

Location of site: Located on the Glen Idol property in open woodland on the bank of a small drainage (Survey Unit GI) (**Figure 14**).

Description of site: Amber glass bottle with crown finish and side seams. Base is embossed with '1926' and sides are embossed with "THE PROPERTY..../....BOTTLE COMPANY." (**Plates 24 to 25**). The bottle is intact and in good condition.

Figure 13: Location of DZP-HS4 and Dundullimal Rail Bridge (Base Map Source: LPI).

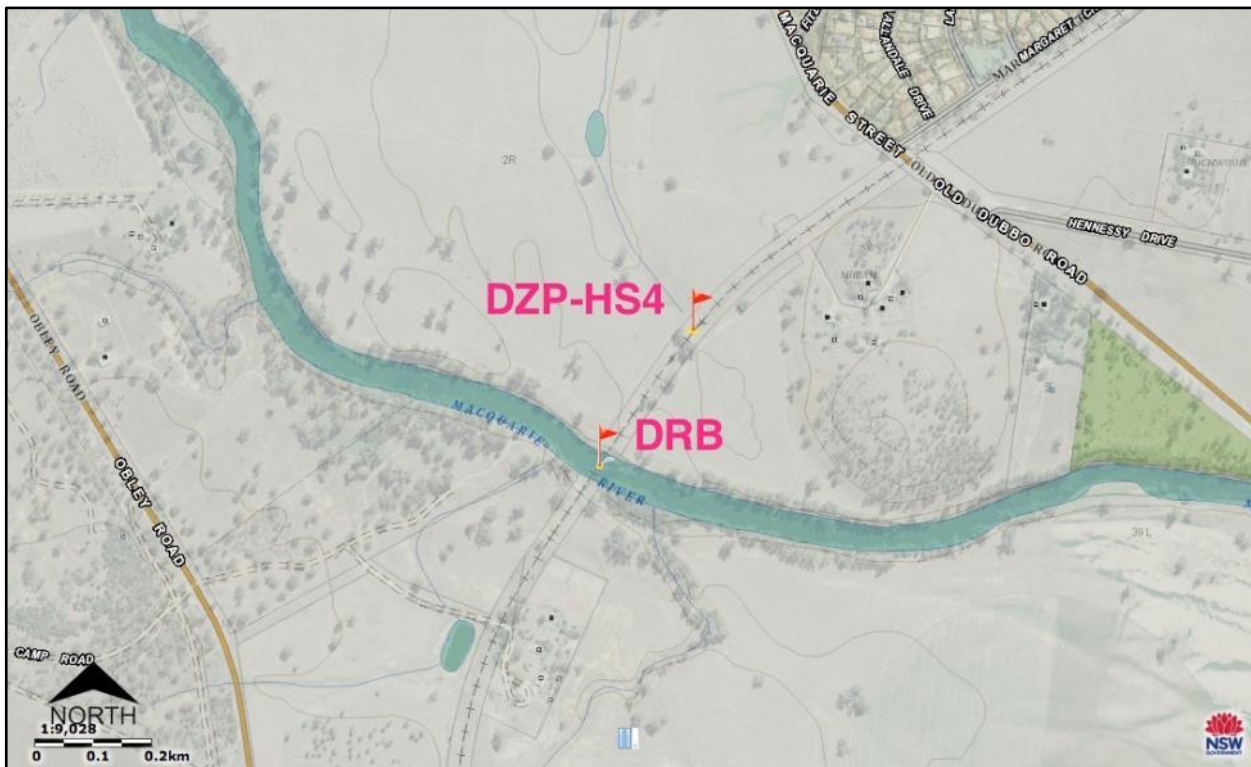
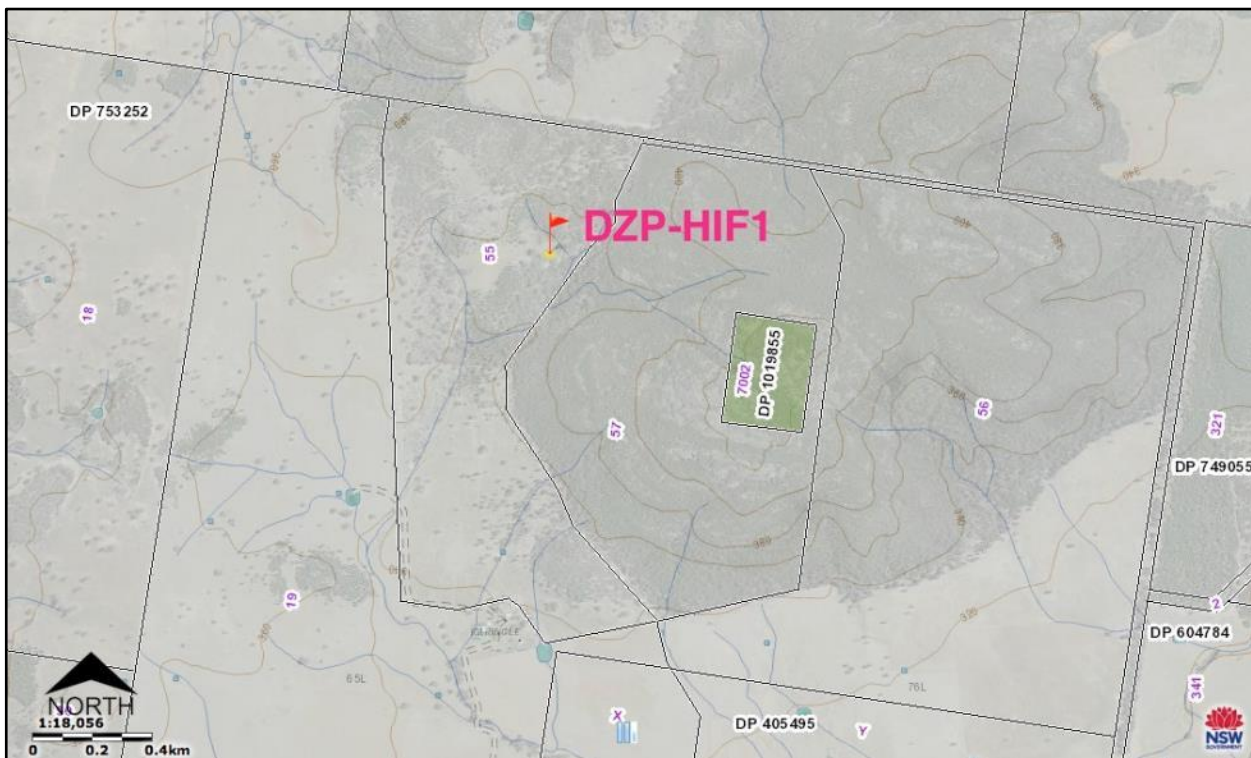


Figure 14: Location of DZP-HIF1 (Base Map Source: LPI).



4.1.7 DZP-HIF2

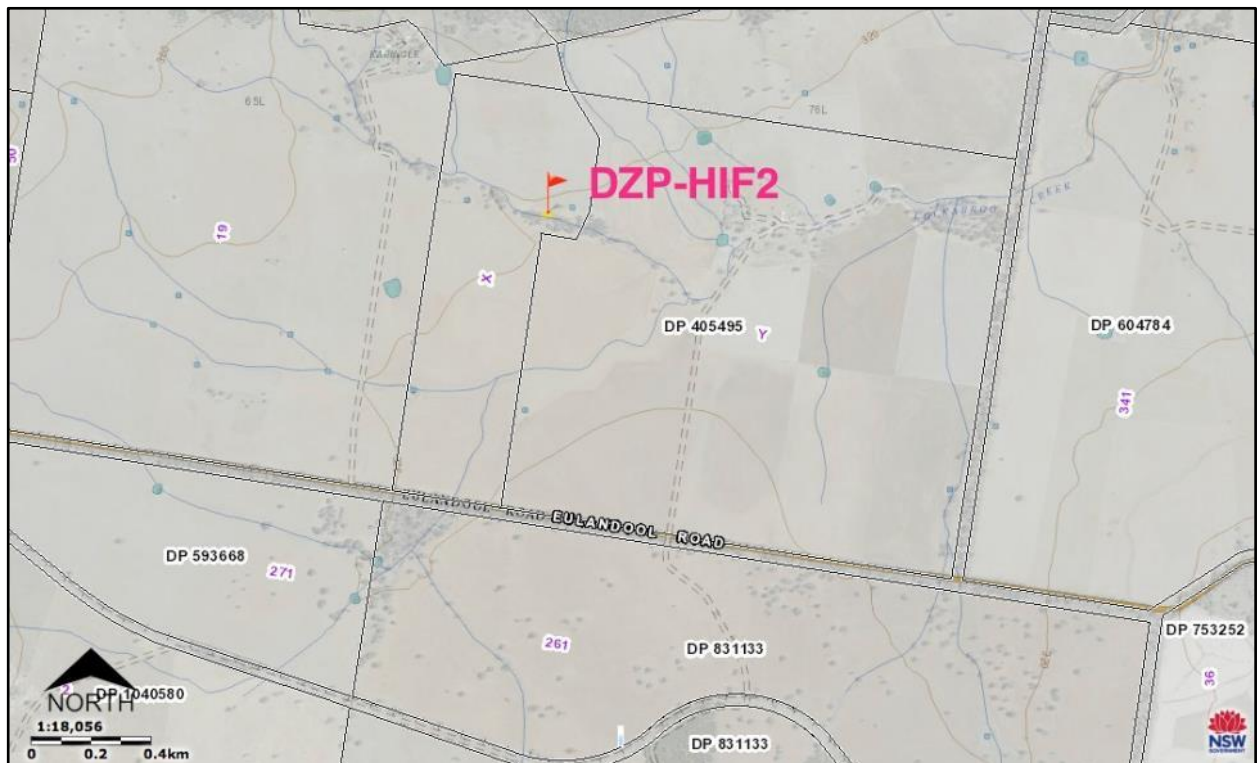
Site type: Rail piece.

GPS Coordinates: GR 653436E / 6404783N (GDA94 Zone 55)

Location of site: Located at the Karingle property (Survey Unit K-5) (**Figure 15**).

Description of site: Site consists of a single rail piece, a rectangular metal item with two holes in it (**Plate 26**).

Figure 15: Location of DZP-HIF2 (Base Map Source: LPI).



4.2 PREVIOUSLY RECORDED HISTORIC SITES WITHIN THE STUDY AREA

One previously recorded historic site (discussed in Section 3.3) summarised in **Table 9** falls within the Project Impact Footprint.

Table 9: Previously Recorded Historic Sites within the Study Area

Site Name	Property / Study Area	Easting (GDA Zone 55)	Northing (GDA Zone 55)	Remarks
Dundullimal Rail Bridge (Figure 11 ; Plates 27 to 29).	Adjacent to Dundullimal. Adjacent to Lot 2 / DP 174547, Lot 21 / DP 1175563, Lot 22 / DP 1175563. Toongi-Dubbo Rail Line Study Area.	651050	6426990	Detailed and assessed in OzArk (2010). Not to be confused with DZP-HS4 (Dundullimal/ Miriam Timber Rail Bridge).

4.3 DISCUSSION

The overall low level of new recordings of historic heritage can be attributed to several factors:

- **Prior community heritage studies.** These broad scale projects captured the majority of prominent, historically significant places in the district. The likelihood that previously unidentified and unrecorded yet highly significant places would be documented during the current study was thus low.
- **The nature of settlement in the district.** As an agricultural/pastoral district, the Study Area exhibits very low housing densities, with each property exhibiting clustered buildings (both domestic and utilitarian) together with dispersed and isolated utilitarian buildings (e.g. hay sheds). The likelihood that previously unknown structures would be documented away from the known and existing buildings was thus low. In the event that other historic heritage places did exist within the Study Area, it is likely that only relatively unobtrusive foundation remnants would have been extant.
- **The nature of agricultural and pastoral work.** Aside from modifications to the environment (most visibly vegetation clearing), enclosure of land, and the establishment of farm infrastructure, farming leaves few traces in the form of deposited artefacts dispersed throughout the work zone. Artefacts, when located, are more likely to consist of dropped/discarded personal refuse (such as isolated bottles) and broken items (such as horse shoes and bent nails) rather than extensive surface scatters of artefacts. Such items are relatively unobtrusive and their identification is subject to factors such as ground surface visibility.

The sites and items recorded during the current assessment point towards the vanishing elements of farm and railway heritage in the district. In contrast to the more prominent items identified during community heritage studies – the homesteads, outbuildings and community buildings whose ongoing value to the local community are more readily apparent – the items identified during this study are remnants of places whose former functions have ceased. Historical evidence of this type is thinly distributed in the current Study Area. Sites such as DZP-HS1 and DZP-HIF2 have a minimalist and utilitarian character, whilst DZP-HIF1 is the refuse of a single individual's draught, an artefact type – and event type – that is represented in road verges, travelling stock routes, paddocks and playing fields throughout Australia.

The rail bridges represented within the Study Area are physical expressions of the expansion – and decline – of rail transport in the region. The Dubbo-Molong Rail Line, implemented during the early decades of the twentieth century and closed by the 1990s, has been inactive for two decades. Through lack of use, a key element of the significance of the built components of the line – usage – has been impaired. In a very real sense, then, the historical value of the line as a whole would be rejuvenated through a return to use under the proposed Project.

Although these are rail, rather than road, bridges, it is worth noting the comments made by the (then) New South Wales Roads & Traffic Authority (RTA, now RMS) with regards to timber road truss bridges. These bridges generally have a low level of heritage significance, but their management as a group is important as numbers are declining and will continue to do so. In a community update dated July 2011, RTA identified a series of issues relating to timber truss bridges and provided a series of proposals for the management of such bridges throughout the state. Of the issues identified by RTA, the following are relevant to our assessment of the rail bridges within the Study Area:

- Inability to carry increased loads.
- Undersupply of suitable hardwood timber and skilled tradespeople for bridge repairs.

- Frequency and expense of maintenance schedules constitute disproportionate proportion of bridge maintenance budgets and require closures, disrupting traffic.

Although the bridges assessed here are not timber truss bridges, these issues represent considerable operational concerns that must be weighed against the historic value of the bridges and are therefore likely to be factors in the future management of the rail bridges that are present in the Study Area (Section 5.1).

Two of the bridges assessed in this study are timber girder bridges. The issues surrounding management of these are similar to those of the truss bridges in that their sustainability must be weighed up against their heritage value, and that this value is largely tied up in this type of construction as a group. There are few records indicating the collective survival and significance of timber girder bridges. It appears that they were common for shorter spans in rail crossings in the early twentieth century (O'Connor 1985: p.60), with truss or other types of bridges favoured for longer spans. Most of the historic recording and assessment of bridges from this era appears to have been devoted to other types of bridges, perhaps because the girder bridges are typically smaller and therefore less prominent in terms of scale. It can be presumed that most survive along disused rail lines or low-traffic roads, but their rarity is somewhat unknown.

4.4 ASSESSMENT OF HISTORIC HERITAGE SIGNIFICANCE

4.4.1 Assessment of significance – general principles

Significance assessment of Historic sites is conducted in accordance with *NSW Heritage Act 1977* requirements and is guided by the Heritage Council of NSW manual *Assessing Heritage Significance* (Heritage Council of NSW 2001).

The significance assessment process is a three-stage process:

- Step 1: Investigate significance;
- Step 2: Assess significance; and
- Step 3: Manage significance.

Significance assessments are carried out on the basis that decisions about the future of heritage items must be informed by an understanding of these items' heritage values. Four categories of heritage value are recognised in the Australia ICOMOS *Burra Charter* (Australia ICOMOS 1999):

- Historic significance;
- Aesthetic significance;
- Scientific significance; and
- Social significance.

Under the Heritage Council of NSW guidelines (2001), these values have been adjusted to conform to seven criteria for assessment:

- **Criterion (a):** An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);

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

Items are categorised as having local or state level significance. The level of significance is assessed in accordance with the geographical extent of the item's value. An item of state significance is one that is important to the people of NSW whilst an item of local significance is one that is principally important to the people of a specific LGA.

4.4.2 Assessment of Significance of Newly Recorded Historic Items

The following significance assessment of the items recorded in Section 4.1 and Section 4.2 is based on the significance criteria of the Heritage Council of NSW, as outlined in Section 4.1.1.

None of the newly recorded items are listed on any government heritage databases.

Neither of the isolated finds (DZP-HIF1, a bottle; and DZP-HIF2, a rail piece) meet any significance criteria. They are ordinary items unable to yield any further information, and thus have been assessed as meeting none of the significance criteria.

Table 10 summarises the overall heritage significance of the newly recorded historic items within the Study Area and environs. **Tables 11 to 14** provide assessments of sites DZP-HS1 to DZP-HS3 against the heritage criteria summarised in Section 4.4.1.

Table 10: Summary of Heritage Significance of Newly Recorded historic Heritage Resource

Site	Preliminary heritage significance	Remarks
DZP-HS1	Nil	Does not yield new information relating to railways or settlement within the region within the region.
DZP-HS2	Nil	Common and well understood bridge building techniques. Does not yield new information relating to railways within the region.
DZP-HS3	Local	Does not yield new information relating to railways within the region.
DZP-HS4	Local	Associated with the previously assessed Dundullimal Rail Bridge and therefore the Dubbo-Molong Rail Line. Derives significance from this association.
DZP-HIF1	Nil	Ordinary item unable to yield new information about settlement within the region.
DZP-HIF2	Nil	Ordinary item unable to yield new information about railways within the region.

Table 11: Assessment of Significance: DZP-HS1

Criterion	Remarks	Preliminary Significance
Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	The site is related to the Dubbo-Molong Rail Line, which in itself is important to the history of NSW, but the site has little integrity and can yield no significant data about the railway.	Nil
Criterion (b): An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).	The site cannot be tied to an individual or group of persons.	Nil
Criterion (c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).	The site is not intact and therefore does not demonstrate significant creativity or craftsmanship. Neither is it a complete representation of local design styles.	Nil
Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.	The site has no strong associations with a group for social, cultural, or spiritual reasons.	Nil
Criterion (e): An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).	As integrity of the site is low it is not likely to yield further data.	Nil
Criterion (f): An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	Railways and associated infrastructure are common throughout NSW. The site is not rare.	Nil
Criterion (g): An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments.	As integrity of the site is poor, it is not a complete or important representation of a cultural or natural place.	Nil

Table 12: Assessment of Significance: DZP-HS2

Criterion	Remarks	Preliminary Significance
Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	The site is related to the Dubbo-Molong Rail Line, which in itself is important to the history of NSW. It is representative of the original rail bridge in this location, and demonstrates the continued use of the rail line through various stages of upgrades. However, this value is only through its association with the rail bridges and the rail line as a whole. Individually, the site has little intact material relating to the original establishment of the rail line and on its own can yield no additional significant data about the railway.	Nil
Criterion (b): An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).	The site cannot be tied to an individual or group of persons.	Nil
Criterion (c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).	The site is an unremarkable example of its type and demonstrates little new information about the aesthetic or technical characteristics of rail bridge construction.	Nil
Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.	The site has no strong associations with a group for social, cultural, or spiritual reasons.	Nil
Criterion (e): An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).	The site is an unremarkable example of its type and demonstrates little new information about the cultural history of New South Wales or the local area.	Nil
Criterion (f): An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	Railways are common throughout NSW. The site is not rare.	Nil
Criterion (g): An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments.	The site is an unremarkable example of its type and demonstrates little new information about the principle characteristics of New South Wales' railways.	Nil

Table 13: Assessment of Significance: DZP-HS3

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Criterion	Remarks	Preliminary Significance
Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	The site is related to the Dubbo-Molong Rail Line, which in itself is important to the history of NSW. The site is representative of this significance but on an individual level is not significant in this aspect.	Nil
Criterion (b): An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).	The site cannot be tied to an individual or group of persons.	Nil

Table 13: Assessment of Significance: DZP-HS3 (cont'd)

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Criterion	Remarks	Preliminary Significance
Criterion (c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).	The site is an unremarkable example of its type and demonstrates little new information about the aesthetic or technical characteristics of rail bridge construction.	Local
Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.	The site has no strong associations with a group for social, cultural, or spiritual reasons.	Nil
Criterion (e): An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).	The site is an unremarkable example of its type and demonstrates little new information about the cultural history of New South Wales or the local area.	Nil
Criterion (f): An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	Timber girder bridges of this type were commonly built but little is known of how many remain. They are likely to be uncommon, but not rare. In terms of the significance of the rail line as a whole, railways are common throughout NSW. The site is not rare.	Nil
Criterion (g): An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments.	The site is an unremarkable example of its type and demonstrates little new information about the principle characteristics of New South Wales' railways.	Nil

Table 14: Assessment of Significance: DZP-HS4

Page 1 of 2

Criterion	Remarks	Preliminary Significance
Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	Connected to and associated with the Dundullimal Rail Bridge, derives significance from proximity, physical connection and functional/historic association with previously assessed bridge and consequently derives significance from its context as part of the Dubbo-Molong Rail Line.	Local
Criterion (b): An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).	The site cannot be tied to an individual or group of persons.	Nil
Criterion (c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).	The site is a representative example of timber truss rail bridges. There are no features that demonstrate a high degree of creative or technical achievement.	Nil
Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.	The site has no strong associations with a group for social, cultural, or spiritual reasons.	Nil

Table 14: Assessment of Significance: DZP-HS4 (cont'd)

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Criterion	Remarks	Preliminary Significance
Criterion (e): An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).	The bridge is relatively intact but is not likely to yield further data.	Nil
Criterion (f): An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	Timber girder bridges of this type were commonly built but little is known of how many remain. They are likely uncommon but not rare. It appears that timber girder bridges were mostly used for shorter spans though, making this example rare in the context of that construction type. In terms of the significance of the rail line as a whole, railways are common throughout NSW. The site is not rare.	Nil
Criterion (g): An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments.	The site is an unremarkable example of its type and demonstrates little new information about the principle characteristics of New South Wales' railways.	Nil

4.4.3 Heritage Significance of Previously Recorded Historic Items

Assessments of the heritage significance of the previously recorded historic sites that fall within the Study Area have been as follows:

Dundullimal Rail Bridge. Local heritage significance (OzArk 2010).

None of the current study's findings serve to alter these previous assessments of heritage significance.

4.5 LIKELY IMPACTS TO HISTORIC HERITAGE FROM THE PROPOSAL

Based on the supplied impact footprint of the Proposal, there is likely to be disturbance at five recorded historic heritage sites (DZP-HS1, DZP-HS2, DZP-HS3, DZP-HS4, and the Dundullimal Rail Bridge; **Table 15**). The two isolated finds (DZP-HIF1 and DZP-HIF2) are outside the current impact footprint.

Table 15: Potential Impacts to Historic Heritage Sites

Site Number	Likely Impacts	Potential for Avoidance
DZP-HS1	Direct	The site is located at the edge of the current impact footprint for the processing plant and DZP Site Administration Area. There is potential for avoidance.
DZP-HS2	Direct	The site is located within the impact footprint for the upgrade to the railway. The site is at risk of total or partial destruction, through modification.
DZP-HS3	Direct	The site is located within the impact footprint for the upgrade to the railway. The site is at risk of total destruction.
DZP-HS4	Direct	The site is located within the impact footprint for the upgrade to the railway. The site is at risk of total destruction.
DZP-HIF1	None	The site is located approx. 30m outside the impact footprint for the open cut.
DZP-HIF2	None	This site is located 1.4kms outside the nearest impact zone for the Proposal.
Dundullimal Rail Bridge	Direct	The site is located within the impact footprint for the upgrade to the railway. The site will be modified.

5 MANAGEMENT AND MITIGATION

5.1 RELEVANT LEGISLATION

5.1.1 Introduction

Cultural heritage is managed by a number of state and National Acts. Sections 5.2.2 and 5.2.3 summarise the legislative requirements in relation to heritage assets and development proposals.

5.1.2 State Legislation

NSW Heritage Act 1977

This Act established the Heritage Council of NSW. The Heritage Council's role is to advise the government on the protection of heritage assets, make listing recommendations to the Minister in relation to the State Heritage Register, and assess/approve/decline proposals involving modification to heritage items or places listed on the Register. Most proposals involving modification are assessed under Section 60 of the *Heritage Act 1977*.

Automatic protection is afforded to 'relics', defined as 'any deposit or material evidence relating to the settlement of the area that comprised New South Wales, not being Aboriginal settlement, and which holds state or local significance' (note: formerly the Act protected any 'relic' that was more than 50 years old. Now the age determination has been dropped from the Act and relics are protected according to their heritage significance assessment rather than purely on their age). Excavation of land on which it is known or where there is reasonable cause to suspect that 'relics' will be exposed, moved, destroyed, discovered or damaged is prohibited unless ordered under an excavation permit.

Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act established requirements relating to land use and planning. Part 3A of the EP&A Act was repealed on 1 October 2011 and was replaced by new provisions. In its current form, the EP&A Act creates a framework for the environmental assessment of two new categories of development, viz. State Significant Development (SSD) and State Significant Infrastructure (SSI).

SSD includes developments such as intensive livestock agriculture, hospitals, mining, educational facilities, warehouses, distribution centres and electricity generation. SSD is assessed in accordance with Division 4.1 of Part 4 of the EP&A Act.

SSI consists of large-scale linear infrastructure projects carried out by public authorities. Such projects include roads, electricity transmission lines, pipelines and railway lines. SSI is assessed in accordance with Part 5.1 of the EP&A Act.

The areas that regulate development activity are:

- Part 4: Development requiring consent, including SSD.
 - Division 4.1: Sets out the procedures for SSD.
- Part 5: Ensures that environmental issues are fully considered by public authorities prior to activities that do not require development consent. In the event that such activities are judged to affect the environment significantly, environmental impact statements are required.
 - Part 5.1: Development determined by an EPI or development under Part 5 requiring an EIS (significant environmental impact). Part 5.1 sets out the procedures for SSI.

The Project and current New South Wales legislation

The current proposal is to be assessed under Division 4.1 of Part 4 of the EP&A Act, thus negating the requirement for approval under the auspices of the *NSW Heritage Act*.

5.1.3 Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Amendments in 2003 established the National Heritage List and the Commonwealth Heritage List, both administered by the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA), now the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC). Ministerial approval is required for proposals involving significant impacts to National/Commonwealth heritage places. Additionally, the Australian Heritage Council maintains the Register of the National Estate (RNE).

Australian Heritage Council Act 2003 (AHC Act)

The AHC Act established the Australian Heritage Council as an independent advisory body regarding National/Commonwealth heritage places. The Council conducts assessments of listing nominations, advises the Minister for Environment and Heritage, maintains the RNE, and promotes the assessment and conservation of heritage items.

The Project and current Commonwealth legislation

The historic heritage component of the Proposal is not affected by Commonwealth legislation.

5.2 GENERAL PRINCIPLES (AVOID, MINIMISE, MITIGATE)

Recognising the relatively large impact footprint of the Proposal, the Applicant has followed the principles of 'avoid, minimise, mitigate' to reduce the impact of the Proposal on local heritage values. The following provides a summary of the approach taken.

Avoid Impact

The site of the proposed processing operations and related infrastructure has been located over land which has been regularly cultivated over many years. The areas targeted for the positioning of disturbance associated with the management of waste materials and residues generated by the mining and processing operations considered local environmental considerations and heritage values with efforts made to exclude the following areas.

- The remnant vegetation of Dowds Hill.
- Larger and intact remnants of native woodland vegetation.
- Major drainage lines.
- Higher quality agricultural land.

In developing the initial impact footprint, the Applicant noted the locations of previously-identified Aboriginal sites and attempted to avoid these where practical. Nine sites including 36-1-0358, 36-1-0362, 36-1-0374, 36-1-0372, 36-1-0360, 36-1-0357, 36-1-0357, 36-1-0361 and 36-1-0314 were specifically identified and the relevant impact area modified as required to avoid.

The survey of the initially-designed impact footprint yielded a number of new sites, including those of historic heritage. Following considerations of these sites and environmental factors, sixteen of the newly-recorded sites were excluded in the re-design of the impact footprint including UG-AS2, UG-AS3, UG-AS4, UG-ST2, UG-IF2, UG-IF3, UG-IF4, UG-IF5, UG-IF6, UG-IF7, K-OP1, K-IF1, PAD 12, MM-AS1, MM-AS2, and OR-AS1. Furthermore, the re-design also avoided previously-recorded sites 36-1-0120 and 36-1-0433.

The following efforts to minimise and mitigate the impacts are largely pertinent to environmental considerations. However, the commitments made to offsetting environmental impacts guarantee the long-term conservation of those heritage sites that fall within the biodiversity offset area. Furthermore, in designing environmental impact minimisation and mitigation, the locations of Aboriginal heritage sites were taken into account.

It should also be recognised that Aboriginal heritage values are strongly linked to the natural environment. Not only does a largely-unmodified landscape provide a setting that enhances the value of a site, but it has value in itself to Aboriginal heritage.

Minimise Impact

Noting the largest area of impact would be associated with the Liquid Residue Storage Facility (LRSF), the Applicant has, at significant cost, continued to modify the processing operations to improve water efficiency. Through this process optimisation, the water required has been reduced by approximately 20%, in turn reducing the area required for the LRSF.

When determining which of the LRSF Areas to exclude from the disturbance footprint, the occurrence of heritage sites was considered. The density of Aboriginal sites on the “Ugothery” property where LRSF Area 7 was originally located is far higher than on those sections of the “Grandale”, “Ugothery” and “Toongi Valley” properties on which LRSF Areas 4 and 5 are located. As such, greater heritage benefit was derived from excluding LRSF Area 7.

Mitigate Impacts

Noting that some impact on heritage sites is unavoidable, the Applicant aims to mitigate this impact by:

- undertaking appropriate archival recording prior to disturbance;
- providing details for inclusion, as relevant, on the Dubbo LEP and State Heritage Inventory.

5.3 RELATIONSHIP OF SIGNIFICANCE TO MANAGEMENT

Appropriate management of heritage items is primarily determined on the basis of their assessed significance as well as the likely impacts of the proposed development.

In this regard it is relevant to note that the initial recording and identification of historic heritage sites provides insufficient information for full significance assessments for these items and all such assessments of significance should be regarded as preliminary.

It is noteworthy that DZP-HS2 in the Study Area does not, individually, display a level of significance that warrants registration on the Dubbo LEP, NSW SHI or NSW SHR. It is not, therefore, afforded legislative protection and does not present formal constraints to the proposed works. Nevertheless, OzArk would argue that the cumulative effect of the destruction of this site, together with the locally significant DZP-HS3 and DZP-HS4, would detract from the

overall historic heritage values of the local historic landscape. To this end, it is recommended that archival recording ought to take place at DZP-HS2 prior to destruction or significant modification despite its lack of legislative protection.

Avoidance is the preference for DZP-HS3, DZP-HS4, and the Dundullimal Rail Bridge, but the level of heritage significance does not warrant substantial alteration of the design of the Proposal. Given that there is a requirement for the destruction or significant modification of the three sites currently regarded as holding local heritage significance (DZP-HS3, DZP-HS4 and Dundullimal Rail Bridge), it is recommended that archival recording form a component of the management at these sites as well.

Table 16 provides a summary of the recommended management actions at each historic heritage site within the Study Area.

Table 16: Management and Mitigation of historic Heritage Resource

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Site	Proposed Impacts	Preferred Management Sequence
DZP-HS1	Direct: processing plant and DZP Site Administrative Area	<p>Avoid (if feasible)</p> <p>No Further Management (if avoidance is not feasible)</p> <p>As the site falls at the edge of the impact footprint (correct as at 8 March 2013) it is recommended, but not required, that the site be avoided.</p> <p>The site does not figure as an important component of the area's historic landscape and does not warrant registration on the Dubbo LEP, NSW SHI or NSW SHR. Archival recording is <i>not</i> recommended.</p>
DZP-HS2	Direct: railway upgrade	<p>Archival Recording</p> <p>Archival Recording (if avoidance is not feasible)</p> <p>The site is a component of the overall rail history in the region. The fabric of the bridge has been altered and is therefore representative of a phase of railway bridge construction that post-dates the initial construction of the Molong railway line. Whilst it is not regarded as holding heritage significance worthy of registration on the Dubbo LEP, NSW SHI or NSW SHR, the bridge is a component of the area's historic landscape. There are no legislative requirements to protect the bridge from either modification or destruction, however, it is recommended that recording to archival standard should take place prior to destruction or significant modification. These archives should be lodged with the Dubbo City Council and the NSW State Archives.</p>
DZP-HS3	Direct: railway upgrade	<p>Avoid (if feasible)</p> <p>Archival Recording (if avoidance is not feasible)</p> <p>As the site is regarded as holding local heritage significance, it is recommended that it be included in the Dubbo LEP and the SHI.</p> <p>Such a level of significance in most circumstances affords protection to this item under the <i>NSW Heritage Act</i> (1977). If the current proposal were assessed under the <i>NSW Heritage Act</i> (1977), a SoHI would be required in order to modify or destroy the bridge. As the current Project is being assessed under Division 4.1 of Part 4 of the EP&A Act, however, a SoHI is not required. As a SoHI is useful in determining the adequacy of development applications in relation to historic heritage, the current document provides statements discussing the heritage impacts of the proposal in Appendix 1 using the same headings that would be included in a SoHI.</p> <p>The site is a component of the overall rail history in the region. Whilst it is not regarded as holding heritage significance worthy inclusion in the SHR (items of state significance), the bridge is a component of the area's historic landscape. It is recommended that recording to archival standard should take place prior to destruction or significant modification. These archives should be lodged with the Dubbo City Council and the NSW State Archives.</p>

Table 16: Management and Mitigation of historic Heritage Resource (cont'd)

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Site	Proposed Impacts	Preferred Management Sequence
DZP-HS4	Direct: railway upgrade	<p>Avoid (if feasible)</p> <p>Archival Recording (if avoidance is not feasible)</p> <p>As the site is regarded as holding local heritage significance, it is recommended that it be included in the Dubbo LEP and the NSW SHI.</p> <p>Such a level of significance in most circumstances affords protection to this item under the <i>NSW Heritage Act (1977)</i>. If the current proposal were assessed under the <i>NSW Heritage Act (1977)</i>, a SoHI would be required in order to modify or destroy the bridge. As the current Project is being assessed under Division 4.1 of Part 4 of the EP&A Act, however, a SoHI is not required. As a SoHI is useful in determining the adequacy of development applications in relation to historic heritage, the current document provides statements discussing the heritage impacts of the proposal in Appendix 1 using the same headings that would be included in a SoHI.</p> <p>Should avoidance not be feasible, it is recommended that recording to archival standard should take place prior to destruction or significant modification. These archives should be lodged with the Dubbo City Council and the NSW State Archives.</p>
Dundullimal Rail Bridge	Direct: railway upgrade	<p>Avoid (if feasible)</p> <p>Archival Recording (if avoidance is not feasible)</p> <p>As the site is regarded as holding local heritage significance, it is recommended that it be included in the Dubbo LEP and the NSW SHI.</p> <p>Such a level of significance in most circumstances affords protection to this item under the <i>NSW Heritage Act (1977)</i>. If the current proposal were assessed under the <i>NSW Heritage Act (1977)</i>, a SoHI would be required in order to modify or destroy the bridge. As the current Project is being assessed under Division 4.1 of Part 4 of the EP&A Act, however, a SoHI is not required. As a SoHI is useful in determining the adequacy of development applications in relation to historic heritage, the current document provides statements discussing the heritage impacts of the proposal in Appendix 1 using the same headings that would be included in a SoHI.</p> <p>Should avoidance not be feasible, it is recommended that recording to archival standard should take place prior to destruction or significant modification. These archives should be lodged with the Dubbo City Council and the NSW State Archives.</p>
DZP-HIF1	None	<p>Avoid</p> <p>Site is avoided under the current project design (as at 8 March 2013).</p>
DZP-HIF2	None	<p>Avoid</p> <p>Site is avoided under the current project design (as at 8 March 2013).</p>

6 RECOMMENDATIONS

Recommendations for the management of the historic heritage resource within the Study Area are as follows:

- As the proposed works will not affect the nearby properties 'The Meadows', 'The Springs', 'Cockleshell Corner' or 'Eulandool', each of which holds **local heritage significance**, no specific management recommendations for these properties are necessary.
- The sites DZP-HS3, DZP-HS4 and Dundullimal Rail Bridge hold **local heritage significance** and would be subject to replacement by more modern bridge or culvert structures to support the proposed rail loading across these. Given avoidance is not a feasible option for this level of heritage significance, the preferred management would take the form of:
 - **Archival Recording and SOHIs.** Archival recording including photography should be made of the structures prior to demolition. Statements of Heritage Impacts (SoHIs) that assess the heritage impacts of works at DZP-HS3, DZP-HS4 and Dundullimal Rail Bridge have been prepared and are presented in **Appendix 1**. The SoHI is not a legislative requirement as the Proposal is to be assessed under Division 4.1 of Part 4 of the EP&A Act and *not* the NSW Heritage Act.
 - **Inductions.** All crews involved with the proposed works should receive a heritage induction prior to commencement.
 - **Actions on discovery of previously unidentified historic 'relics'.** In the event that objects or features are uncovered during works that appear to be historic 'relics', work in that area should cease and the NSW Heritage Branch should be contacted in order to determine the appropriate management of the objects in question.
- Although sites DZP-HS1 to DZP-HS2 are regarded as holding no heritage significance and therefore receive no statutory protection, it is nonetheless advised that DZP-HS2 forms part of a wider historic landscape and should therefore be recorded to archival standard should it come under threat of impact. This is in order to mitigate the Project's cumulative impacts to the historic landscape and to preserve a record of these sites for the purposes of inter-generational equity. Measures such as archival recording are deemed unnecessary for DZP-HS1.
- Sites DZP-HIF1 and DZP-HIF2 are avoided under the current Proposal design and no further management considerations are recommended.

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PLATES

Note* – Plates can be viewed in colour on the Project CD



Plate 1: Environs of the Glen Idol property within the impact footprint.



Plate 2: Environs of the Grandale property within the impact footprint.



Plate 3: Environs of the Karingle property within the impact footprint.



Plate 4: Environs of Obley Rd, in the vicinity of a section of proposed road alignment.



Plate 5: Environs of Pacific Hill within the impact footprint.



Plate 6: Environs of Toongi Valley within the impact footprint.



Plate 7: Environs of Ugothery within the impact footprint.



Plate 8: Environs of Wychitella within the impact footprint.



Plate 9: Environs of Mia Mia within the impact footprint.



Plate 10: Modified historic stables on the Glenidol property, outside the impact footprint.



Plate 11: DZP-HS1: brick and concrete footings with second smaller set visible behind them. Rail tracks visible in right background.



Plate 12: DZP-HS1: Brick and concrete footings.



Plate 13: DZP-HS1: smaller set of brick and concrete footings.



Plate 14: DZP-HS1: wooden posts, likely for a gate or fence, with planted shrubs.



Plate 15: DZP-HS2: Cumboogle Rail Bridge



Plate 16: DZP-HS2: Cumboogle Rail Bridge



Plate 17: DZP-HS2: Cumboogle Rail Bridge



Plate 18: DZP-HS3: Hyandra Rail Bridge



Plate 19: DZP-HS3: Hyandra Rail Bridge with log jam



Plate 20: Stamped cement marker at DZP-HS3 Hyandra Rail Bridge



Plate 21: DZP-HS4: Dundullimal/Miriam Timber Rail Bridge



Plate 22: DZP-HS4: Dundullimal/Miriam Timber Rail Bridge



Plate 23: DZP-HS4: Dundullimal/Miriam Timber Rail Bridge



Plate 24: DZP-HIF1: Amber bottle



Plate 25: DZP-HIF1: base of amber bottle



Plate 26: DZP-HIF2: rail piece



Plate 27: Dundullimal Rail Bridge



Plate 28: Dundullimal Rail Bridge



Plate 29: Dundullimal Rail Bridge

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