APPENDIX 7

Historical Heritage Assessment

Austar Coal Mine Pty Ltd

Historical Heritage Assessment: Austar Coal Mine Project, Stage 3

September 2008

Umwelt
Environmental Consultants

Historical Heritage Assessment: Austar Coal Mine Project, Stage 3

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

Austar Coal Mine Pty Ltd

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Report No.	2274/R14/FINAL	Date:	September 2008

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Executive Summary

Austar Coal Mine Pty Ltd (Austar) operates the underground operations of the Austar Coal Mine in the lower Hunter Valley of New South Wales. Austar proposes to extend existing operations with an additional twelve longwalls and a new surface infrastructure site, which would form Stage 3 of the project. Umwelt (Australia) Pty Limited (Umwelt) has been commissioned by Austar to prepare an Environmental Assessment (EA) for the Stage 3 proposal, with this historical heritage assessment undertaken as part of the EA.

The aim of this assessment is to develop an understanding of the historical heritage values of the Stage 3 assessment area, through background research, archaeological survey and consultation with local historical organisations. To identify appropriate management strategies for each identified item, an assessment of heritage significance is required, and impact resulting from the Stage 3 proposal is evaluated. On this basis, management recommendations for each identified heritage item have been formulated. All above works were conducted in compliance with the *NSW Heritage Manual* and associated Heritage Office, Department of Planning guidelines for *Archaeological Assessments* (Heritage Office 1996-2001).

Project Methodology and Survey Results

The assessment included review of background information and further historical research, register searches of statutory and non-statutory databases, surveys of the study area and consultation with the Coalfields Heritage Group, Cessnock District Historical & Family History Society Inc and the Newcastle and Hunter District Historical Society

Searches of the Australian Heritage Database (Commonwealth Department of Environment and Water Resources (DEWR)), the State Heritage Register and State Heritage Inventory (NSW Heritage Council), and the Register of the National Trust (NSW) did not identify any listed heritage sites located within the project area.

Access to only parts of the study area was obtained and as a result the entire study area was not physically surveyed however available literature and photos for the whole study area was reviewed. Survey identified 15 items with potential historical heritage values within and in the vicinity of the study area. Historical research and Land Title searches revealed an additional seven potential heritage items. All potential items are associated with the pastoral and agricultural history of the study area including residential dwellings, a bridge and remains of pastoral infrastructure.

Significance Assessment

All items identified were considered to be of local or no heritage significance with no or low archaeological research potential, and no sites were assessed as having State heritage significance.

Impact Assessment

Two potential historic heritage items (Items 11 (cut tree) and 12 (cut stump)) are to be disturbed and/or removed as a result of the construction of the new surface infrastructure site. These components of the site are considered to be of no or low local significance with no research potential.

The assessment of subsidence impacts is based on the mine subsidence impact assessment draft report prepared by Mine Subsidence Engineering Consultants (MSEC 2008).

Fourteen potential historic heritage sites are located within, or in the vicinity of, the predicted 20 mm subsidence contour area (Items 1-10, 14 and 16-18) that encompasses the proposed underground mining area. These components of the site have been assessed as having no or low local significance with no or low research potential. There is unlikely to be any direct or indirect impacts on the identified potential historic heritage items within the study area.

Management Strategy

No further management is recommended for items within the proposed surface infrastructure site (Items 11 and 12).

Structural Items 16 and 17 (potential early homestead sites) were not accessible during the site inspection. They have been assessed as likely being of low local significance. There are unlikely to be any direct or indirect impacts to these items during the proposed mining period due to the distance these sites are from the proposed underground mining area. MSEC recommends all houses located above the proposed longwalls are visually monitored during the extraction of the proposed longwalls (MSEC 2008: 93). It is recommended that Items 16 and 17 (potential early homestead sites) are included in this program of monitoring. If any changes to the structure of these items are identified as part of the recommended monitoring, during or after mining works, Items 16 and 17 should be inspected by a heritage architect to confirm their low level of significance. If assessed by a heritage architect as having no significance or research potential, no further management of these items is required during the proposed works. If confirmed to be of local significance, a detailed recording of Items 16 and 17 to Heritage Office, Department of Planning standards for archival recording should be completed by a qualified heritage consultant.

The Cony Creek Bridge has been assessed as being of low local significance. Subsidence predictions indicate that there is unlikely to be any direct or indirect impacts on the Cony Creek Bridge (Item 1) during the proposed mining period. MSEC recommends the bridge is visually monitored during the extraction of the proposed longwalls (MSEC 2008: 55). If any changes to the subsidence predictions or results over the life of the mine indicate that impacts may occur, a detailed recording of the bridge to the Heritage Office, Department of Planning standards for archival recording should be completed by a qualified heritage consultant.

No further management is recommended for the remainder of the items within the predicted 20 millimetre subsidence contour area (Items 2-10, 14 and 18).

In the unlikely event that unexpected or significant archaeological remains not identified as part of this study are discovered within the study area (for example during works associated with the construction of the new surface infrastructure facility), all works in the immediate area should cease, the remains and potential impacts should be assessed by a qualified archaeologist and, if necessary, the Heritage Branch, Department of Planning be notified.

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1.0 Introduction

Austar Coal Mine Pty Ltd (Austar) operates the Austar Coal Mine south of Abernethy and Kitchener in the lower Hunter Valley of NSW (refer to **Figure 1.1**). Development consent for the Austar Coal Mine (formerly Southland Colliery) was obtained in 1996, although associated mine operations have been operational since 1916. The proposed Stage 3 development represents an extension of current operations, with Austar proposing an additional twelve longwalls and a new surface infrastructure site under the conceptual mine plan.

Umwelt (Australia) Pty Limited (Umwelt) has been commissioned by Austar to prepare an Environmental Assessment (EA) for Stage 3 of the project, with this historical heritage assessment undertaken as part of the EA. The aim of this assessment is to investigate and identify the potential historical heritage values of the Stage 3 project area, through background research, archaeological survey and consultation with local historical organisations. To identify appropriate management strategies for the items identified with potential heritage values, an assessment of the historic significance of all identified heritage items is required, in addition to an evaluation of the impact resulting from the Stage 3 proposal.

1.1 Definition of the Study Area

The study area for this project is defined as the area within the predicted 20 millimetre subsidence contour (as defined by the Mine Subsidence Engineer Consultants (MSEC)) and the proposed pit top infrastructure area (refer to **Figure 1.2**). The predicted 20 millimetre subsidence contour is the area where subsidence is predicted to occur at a level that may indirectly impact on structures and structural features in the Stage 3 project area. MSEC (2008) notes that it is generally recognised that subsidence of less than 20 millimetres will have a negligible effect on surface infrastructure. The assessment area for this report is limited to these areas of predicted and proposed impact and hereafter is referred to in this report as 'the study area'.

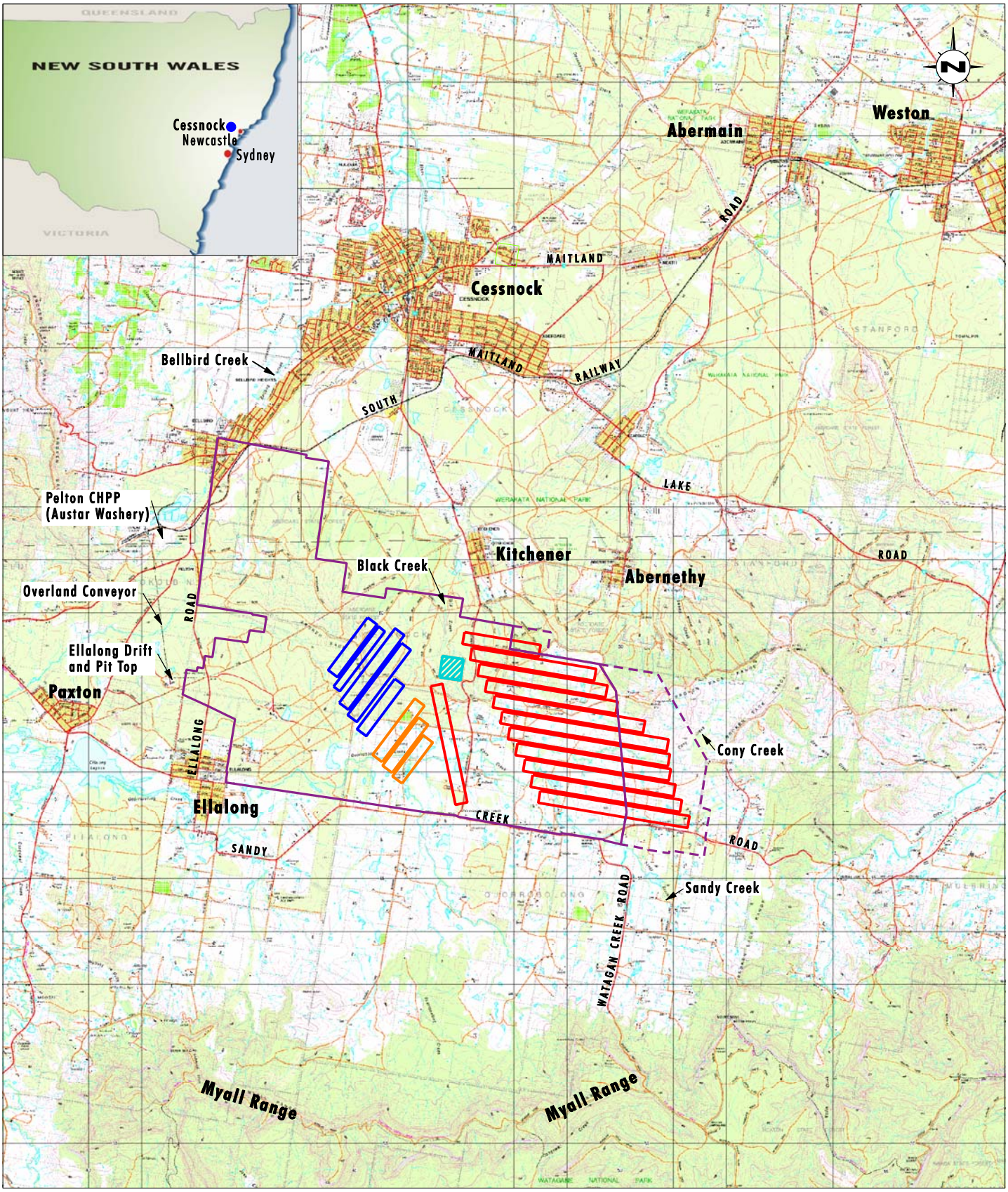
The study area includes private properties which were not inspected due to landowner access not being obtained. As these areas were not inspected, their assessment in this report is limited to desk top analysis only.

1.2 Statutory and Policy Framework

Consent under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) is required for this proposal, herein referred to as Stage 3 of the Austar Coal Mine project.

As Stage 3 of the Austar Coal Mine is defined as a Major Project under State Environmental Planning Policy (SEPP) (Major Projects), the Minister for Planning will determine the Project Application and the provisions of the *NSW Heritage Act 1977* do not apply. This means that Section 140 and 60 permits under the NSW Heritage Act 1977 will not be required for any investigation/salvage works undertaken as part of this Project, if approved. Should the Project be approved, the investigation and salvage of any historical heritage sites within the study area is proposed to be undertaken in accordance with the management strategies outlined in **Section 8** of this report.

All information presented in this report follows the *NSW Heritage Manual* and associated guidelines for *Archaeological Assessments*.



Source: Topo Maps: LPI NSW, Longwall Layout: Austar Coal Mine

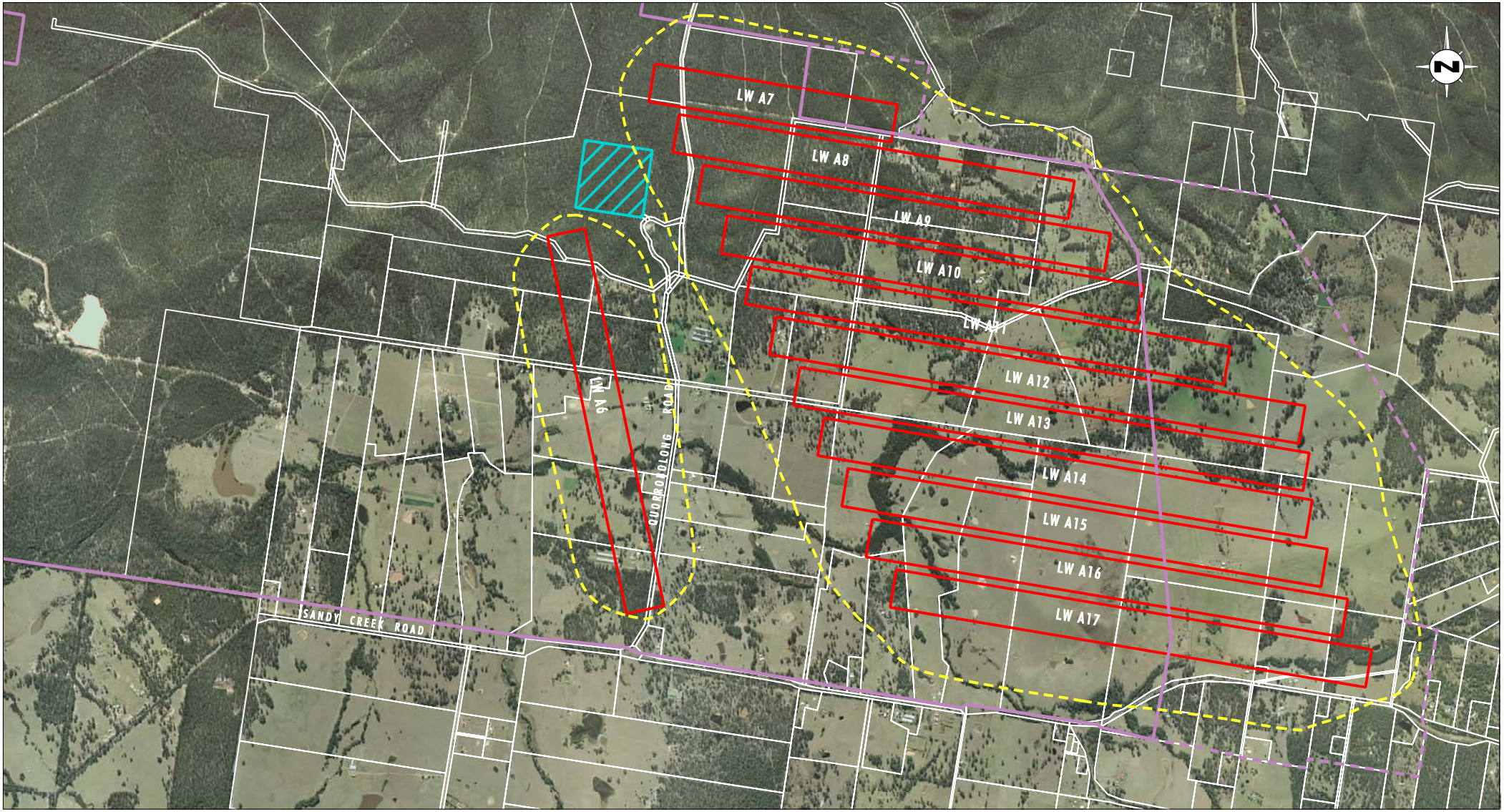
0 1.0 2.0 4km
1:100 000

Legend

- Layout for Stage 1 Longwall Panels
- Layout for Stage 2 Longwall Panels
- Conceptual Layout for Stage 3 Longwall Panels
- Surface Infrastructure Site
- Consolidated Mining Lease (CML) 2
- Proposed Stage 3 Extension Boundary

FIGURE 1.1

Locality Plan



Source: Longwall Layout: Austar Coal Mine, Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

0 0.5 1 1.5km
1:32 000

Legend

- Conceptual Layout for Stage 3 Longwall Panels
- 20mm Subsidence Contour
- Surface Infrastructure Site
- Consolidated Mining Lease (CML) 2
- Proposed Stage 3 Extension Boundary

FIGURE 1.2

Proposed Stage 3 Mining Area and Surface Infrastructure Site

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1.3 Study Team

Mary-Jean Sutton and Tim Adams (Senior Archaeologists) co-ordinated the historical archaeological assessment and were the primary authors of this report. Kym McNamara and Julian Travaglia (Archaeologists) conducted the archaeological survey, with Meaghan Russell and Julian Travaglia conducting further inspections of historic sites identified. Meaghan Russell (Senior Archaeologist) and Julian Travaglia assisted in the compilation of site descriptions and survey coverage. Meaghan Russell and Jan Wilson (Manager, Cultural Heritage) provided strategic direction for the project and conducted the quality control review of this report. Historical land title searches were undertaken by Ron Hill as a sub-consultant to Umwelt.

1.4 Location of the Study Area

The study area is located in the Lower Hunter Valley, approximately 10 kilometres south of Cessnock and five kilometres east of Ellalong, NSW (refer to **Figure 1.1**). The study area is within the locality of Quorrobolong, Parish of Quorrobolong and the County of Northumberland. The study area is 1354 hectares which includes the proposed pit top infrastructure area and the predicted 20 millimetre subsidence contour area.

1.5 Acknowledgements

The following individuals are acknowledged for their assistance in provision of information used in this report:

- Brian Andrews, Secretary, Coalfields Heritage Group; and
- Dr Stewart Sharpe, Heritage Officer, RailCorp.

1.6 Report Structure

This report consists of the following sections:

Section 2 describes the Austar Coal Mine project, spanning existing infrastructure and operations and the Stage 3 proposal.

Section 3 outlines the project methodology, including background research and community consultation.

Section 4 outlines the historical and archaeological context of the study area and outlines historical themes which relate to the heritage items.

Section 5 identifies the potential historical archaeological and heritage resource present within the study area.

Section 6 evaluates the significance of the heritage items identified within the Stage 3 project area, and comments on the likely significance of potential heritage items.

Section 7 reviews the Stage 3 proposal in relation to known and potential heritage items, and identifies any impacts.

Section 8 presents the management strategies developed for all heritage items and areas identified within the study area.

Section 9 lists reports and publications referred to in the text.

2.0 Austar Coal Mine Project

This section provides an outline of the history of the Austar Coal Mine and existing operations, and describes the surface infrastructure and underground mining proposed as Stage 3 of the project. As outlined in **Section 1**, the Stage 3 proposal consists of an additional twelve longwall panels and a new surface infrastructure site, contained within a 1354 hectare area to the south of Cessnock.

2.1 History of Austar Coal Mine

Underground coal mining commenced at the Pelton Colliery in 1916. The Pelton Coal Handling and Preparation Plant (CHPP) was constructed in 1960/1961 for the washing of Pelton Colliery coal. In 1975, development consent for the Ellalong Colliery was granted and the mine was officially opened in July 1979. The development approved in the 1975 development consent envisaged that coal from the Ellalong Colliery would be transported by conveyor from the Ellalong Drift and Pit Top to the Pelton CHPP.

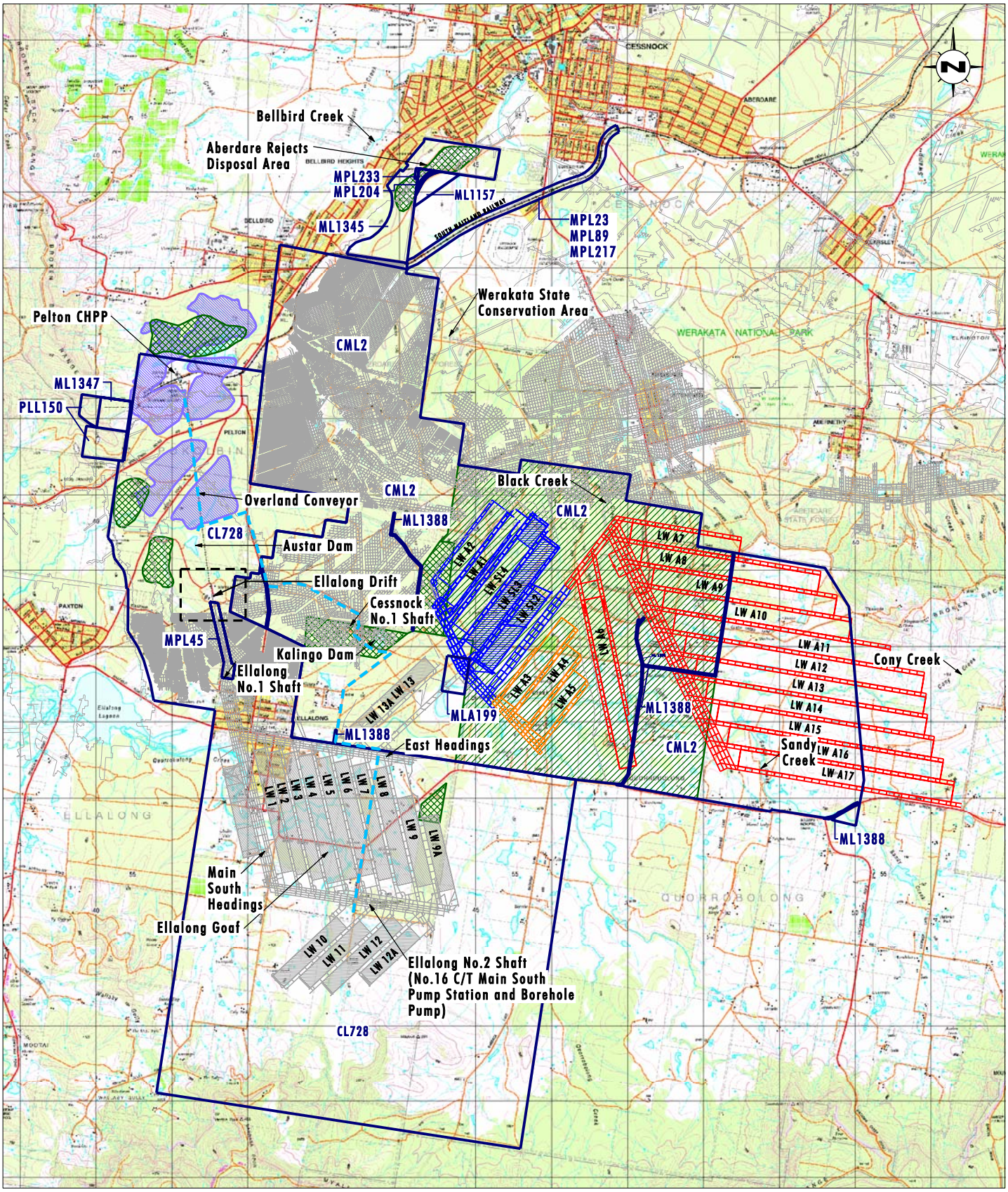
In early 1994, high gas levels were encountered in the southern part of the Ellalong Colliery. In 1996, the Minister for Urban Affairs and Planning granted development approval to extend the Ellalong Colliery into the Bellbird South area to allow development in an area not affected by high levels of coal seam gas. The 1996 consent (DA29/95) permits mining in Consolidated Mining Lease 2 (CML2) with a production rate of up to three million tonnes of coal per annum by conventional retreat longwall mining. The approved extraction height ranged from 3.5 to 4.5 metres. The consent also allows for the handling, processing and transport of coal to the Port of Newcastle via road and rail.

In 1998, Southland Coal Pty Limited acquired the Ellalong and Pelton Collieries and amalgamated them with Bellbird South. Ellalong, Pelton and Bellbird South Collieries became known as the Southland Colliery, which operated until 2003 when fire broke out in the underground workings. Subsequently, the mine was placed into receivership and operations were placed on care and maintenance.

In December 2004, YanCoal Australia purchased the Southland Coal assets and changed the name of the mine to the Austar Coal Mine. Mining was recommenced under the 1996 Minister's Consent in reconfigured Stages, 1, 2 and 3. The location of the Pelton, Ellalong, Southland and Austar Collieries is shown on **Figure 2.1**.

Stage 1 was a modification of the 1996 Minister's Consent to allow for the extraction of coal by longwall top coal caving (LTCC) method. A further Section 96 modification (Stage 2) has been lodged to allow LTCC extraction of longwall panels A3 to A5. This modification is awaiting determination by the Minister for Planning.

Presently, coal is being extracted from the area subject to the 1996 Minister's Consent. Coal is bought to the surface at the Ellalong Drift and Pit Top, conveyed to the Pelton CHPP, processed and handled at the Pelton CHPP and railed to the Port of Newcastle via Pelton Branch Line and South Maitland Railway. Up to 60,000 tonnes of coal per year is also transferred by road.



Source: Topo Maps: LPI NSW, Longwall Layout: Austar Coal Mine

0 1 2 3km
1:70 000

Legend

- Layout for Stage 1 Longwall Panels
- Layout for Stage 2 Longwall Panels
- Conceptual Layout for Stage 3 Longwall Panels
- Surface Infrastructure Site
- Old Workings
- Mining Leases
- Surface Application Area (DA 29/95)
- Subsurface Application Area (DA 29/95)
- Water Pipeline
- Reject Emplacement Area (DA 74/75/79)

FIGURE 2.1

Existing Austar Infrastructure

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2.2 Existing Operations

Key activities approved under the 1996 consent (DA29/95) include:

- production of up to three million tonnes of coal per annum;
- transfer of the coal by underground conveyor to the surface;
- washing and preparation of coal;
- stockpiling of raw and washed coal;
- reject emplacement; and
- transport of product coal by rail (98 per cent) and road (up to 60,000 tonnes) to the Port of Newcastle.

To allow for the introduction of LTCC technology, DA No. 29/95 was modified under Section 96 (2) of the EP&A Act by the Minister of Planning dated 27 September 2006.

2.3 Stage 3 Mining Proposal

Austar proposes to extend mining operations in the Greta Seam of the South Maitland Coalfield, to continue extraction of the 98 million tonnes of coal identified within the Bellbird South extension. The conceptual mine plan for Stage 3 reflects a 21 year life with extraction of up to three million tonnes of coal annually (3 Mtpa). The annual production rate will vary depending on the seam, mining conditions and the timing of longwall panel changeovers. It is envisaged that mining in Stage 3 will begin in 2011. The conceptual layout of Stage 3 operations includes twelve longwalls, as illustrated on **Figure 2.2**. Following the completion of Stage 2 (Longwalls A3 to A5), it is envisaged that mining at the site will begin in Longwall A6 and progress in accordance with the numerical order to Longwall A17.

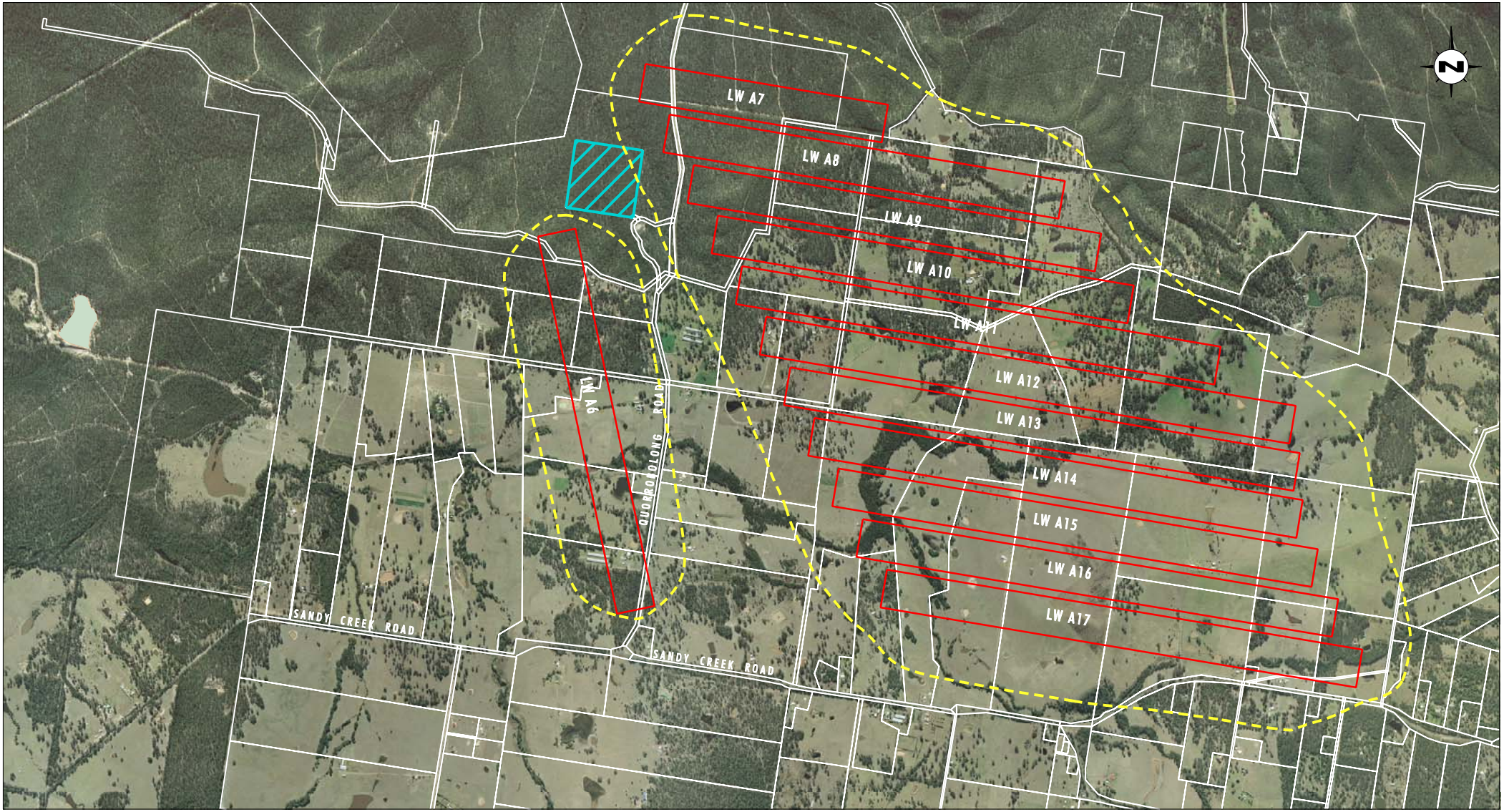
The following sections outline the Stage 3 proposal, describing the conceptual layout of mining operations, surface infrastructure and underground mining operations.

2.3.1 Surface Infrastructure

The project has been designed to maximise the use of approved existing Austar infrastructure, including rail facilities and the CHPP. The existing CHPP is approved to produce up to three Mtpa of coal and will not require any modifications or changes to support the continued operation of the mine in Stage 3.

The Stage 3 proposal will require the construction of new surface infrastructure facilities to the south west of Kitchener, including upcast and downcast ventilation shafts, bath house, workshop, electricity substation, store, service boreholes and offices. The proposed layout and location of the proposed surface infrastructure site is shown on **Figure 2.3**. The surface infrastructure facilities are proposed to be built on land that is owned by Austar and is bordered by the former Aberdare State Forest which now forms part of Werakata State Conservation Area.

To ensure that adequate ventilation is provided for mining operations in Stage 2 and Stage 3, construction of the new surface infrastructure facilities will need to commence in early 2009. This timing is governed by the time it takes to construct the proposed new upcast and downcast ventilation shafts.



Source: Longwall Layout: Austar Coal Mine, Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

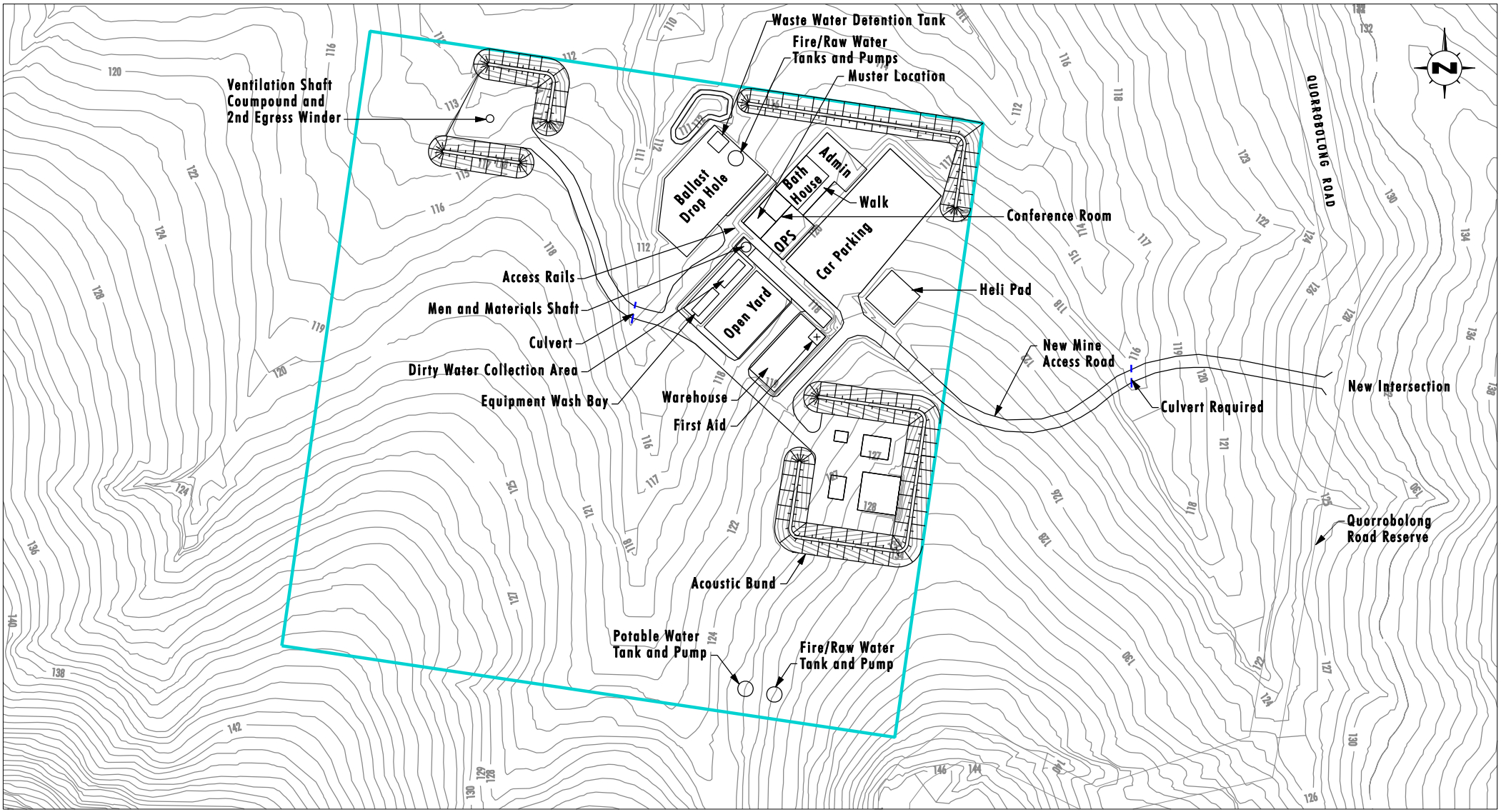
0 0.5 1 1.5km
1:32 000

Legend

- Conceptual Layout for Stage 3 Longwall Panels
- 20mm Subsidence Contour
- Surface Infrastructure Site

FIGURE 2.2

Layout of Stage 3 Operations



Legend

Surface Infrastructure Site

FIGURE 2.3

Conceptual Layout for Proposed Surface Infrastructure Site

Note: Contour Interval 1m

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The proposed upcast and downcast ventilation shafts will be approximately 4.5 metres and 6.5 metres in diameter respectively and will be bored to a depth of approximately 460 metres. The shafts will be constructed using raised bore techniques or drill and blast techniques or a combination thereof. A third construction bore will also be required to raise the cuttings from the large shafts during boring. The third shaft will be approximately 2.4 metres in diameter. This shaft will be retained and will be used to lower road base and other bulk materials into the underground workings.

The upcast ventilation shaft will allow air to be extracted from the mine and two exhaust fans will be placed over the shaft in order to draw air out of the workings. A second egress winder is proposed to be fitted to this shaft. The downcast shaft will allow access for people and materials and allow additional air to enter the mine.

Access to the new surface infrastructure facility will be off Quorrobolong Road. It is proposed to construct a new intersection on Quorrobolong Road to allow for the safe entry and exit of all mine related vehicles.

The following site services will be required within the surface infrastructure site:

- installation of a small 5 mVA substation and an electricity distribution line;
- installation of potable water and reticulated sewerage services to connect to the Hunter Water Corporation network; and
- installation of telecommunication services.

Other unspecified minor works may be required for the Stage 3 project, although the need for this is unknown at this stage.

2.3.2 Underground Mining – Longwall Top Coal Caving

Within the Stage 3 project area, the Greta Coal Seam is found at depths at 445 metres at LWA7 to 750 metres in the middle of LWA17. The thickness of the Greta Coal Seam varies between four metres at the eastern end of LWA11 to LWA17 to a maximum of seven metres near the northern end of LWA6.

The twelve longwalls of the conceptual Stage 3 mine plan vary between 1455 metres in length (LWA7) to 3175 metres in length (LWA12). Void widths for all are 227 metres, and the solid chain pillar between each is 45 metres wide. **Table 2.1** details the geometry of proposed longwalls (from MSEC 2008).

Table 2.1 – Geometry of Proposed Longwalls

Longwall Panel	Length	Void Width (m)	Solid Chain Pillar Width (m)
A6	2280	227	*NA*
A7	1455	227	*NA*
A8	2370	227	45
A9	2445	227	45
A10	2495	227	45
A11	2870	227	45
A12	3175	227	45

Table 2.1 – Geometry of Proposed Longwalls (cont)

Longwall Panel	Length	Void Width (m)	Solid Chain Pillar Width (m)
A13	3055	227	45
A14	2930	227	45
A15	2875	227	45
A16	2850	227	45
A17	2850	227	45

Austar proposes to utilise LTCC technology to extract the twelve longwalls of the Stage 3 conceptual mine plan. LTCC is a method of mining that has been in practice in one form or another for over 130 years and is designed to extract thicker coal seams by recovering coal that would otherwise be lost in traditional forms of longwall mining.

LTCC was introduced to China approximately 15 years ago and to Austar (Stage 1) in October 2006. LTCC combines a conventional retreat longwall face with a second armoured face conveyor (AFC) towed behind the shield to recover coal that falls into the goaf. The roof supports are of a modified design incorporating a system of hydraulically operated tail-canopies at the rear of the support, which can be moved up and down to allow the broken coal in the goaf area to spill onto a second AFC. This process continues until all of the suitable coal is recovered and waste rock appears. Once waste rock appears, the tail canopies are lowered and the AFC pulled forward to stop the recovery of rock from the goaf.

LTCC consists of the following operational steps:

- shearing coal in front of the AFC;
- pushing the front conveyor;
- setting the support forward;
- opening the tail-canopy of support to allow broken coal to spill onto the rear conveyor; and
- pulling the rear conveyor.

3.0 Methodology

This assessment aims to identify the historic heritage values of the Stage 3 assessment area, through research, community consultation, archaeological survey and significance assessment. On this basis, the assessment will identify the impact of the Stage 3 proposal on any identified historic heritage values, and formulate management strategies to mitigate this impact. The methodology of key project components to achieve the above aims is outlined below.

3.1 Research

The following sources were reviewed in order to investigate the history of the study area and identify its heritage values:

- Picture Australia, National Library of Australia Photographic Database;
- Newcastle Regional Library including Local Histories Section;
- National Archives of Australia;
- NSW Land and Property Information;
- Mitchell Library, PICMAN catalogue (Pictures and Manuscripts), State Library NSW;
- Cessnock Heritage Study;
- State Records, NSW;
- Australian Dictionary of Biography;
- NSW Heritage Office Thematic Histories; and
- Hunter Regional Environmental Plan and associated Heritage Study.

Historical aerial photographs and parish maps for the Quorrobolong locality held by NSW Land and Property Information were examined in order to identify the age of any potential structures within the study area. These resources were also reviewed to reconstruct previous land use history within the study area. Land title searches were also undertaken for all properties that contained structures on the 2007 aerial photograph in order to identify the age of structures and reconstruct the land use history of the study area.

All other resources were consulted to provide a historical context for the study area and are referred to throughout the document, predominantly in **Section 4.1**.

3.2 Consultation

The following organisations were consulted in order to investigate the history of the study area and identify its heritage values:

- Coalfields Heritage Group, their archives and the Edgeworth David Museum;
- Cessnock District Historical & Family History Society Inc; and
- Newcastle and Hunter District Historical Society.

The Coalfields Heritage Group, Cessnock District Historical & Family History Society Inc and the Newcastle and Hunter District Historical Society were contacted at the outset of the study, in August 2007, to identify the Stage 3 assessment project and discuss the history of the study area. Formal correspondence was sent to the three organisations on 7 September 2007 requesting their input into the historical heritage assessment and in researching the history of the study area and immediate locality. An invitation to each group was provided to supply input into this study and be financially compensated for research costs. A request was also made to visit the group/historical society's office at a time suitable to them to discuss the project and the historical heritage values of the study area.

A meeting with Brian Andrews, Secretary of the Coalfields Heritage Group was carried out on 10 January 2008 to gain input regarding heritage items within the locality and carry out general historical research to develop a historical context in order to assess the heritage values of the study area. Copies of information including primary and secondary documents were obtained with the assistance of Mr Andrews. Information obtained contributed to the understanding of the history of the assessment area, and provided valuable context for the later assessment of historic significance.

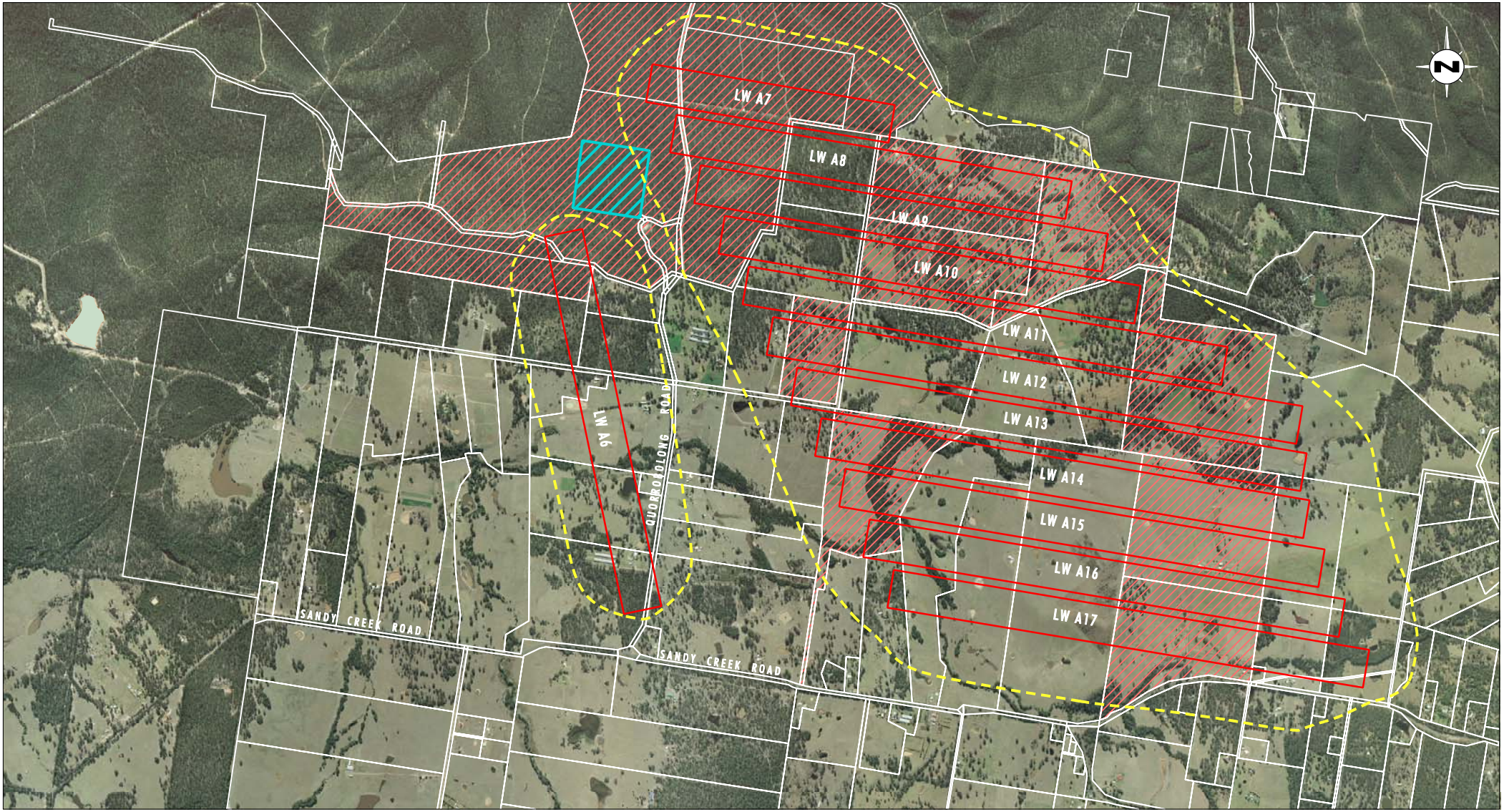
3.3 Archaeological Survey

The historical archaeological survey of the study area was undertaken in tandem with the Aboriginal heritage survey conducted by Umwelt and Aboriginal stakeholders. During the Aboriginal heritage survey the Stage 3 surface infrastructure site and all accessible areas/properties within the predicted 20 millimetre subsidence contour were inspected. Access to some areas of the site was not obtained from some private landowners, and as a result the entire study area was not inspected. **Figure 3.1** illustrates the areas of the site that were physically inspected.

The surveyed areas included:

- locations of all Stage 3 surface infrastructure, including the pit top area and associated access road and power easement;
- areas within Werakata State Conservation Area, primarily stream and crest areas;
- valley hill slope areas; and
- valley lowlands (mid and southern sections of the Stage 3 assessment area), including all crests, creek lines and associated terraces and floodplain areas.

Transects were surveyed across the above areas, generally on foot. Each transect was undertaken by two separate teams, each team consisting of one archaeologist and three Aboriginal stakeholder representatives. The two teams worked in close proximity, for



Source: Longwall Layout: Austar Coal Mine, Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

Legend

- Conceptual Layout for Stage 3 Longwall Panels
- 20mm Subsidence Contour
- Surface Infrastructure Site
- Accessible Properties/Survey Areas

FIGURE 3.1

Stage 3 Surveyed Areas

File Name (A4): R14_V1/2274_328.dgn

example, a creek line was surveyed with a team on each creek bank. The valley hill slope areas were inspected in vehicle transects to cover large areas of dense grass and identify any potential sites present. All areas inspected were recorded using a survey recording form to document its location and environmental characteristics. Photographic records were also generated.

All potential historical heritage items/archaeological sites identified during the Aboriginal heritage survey were recorded by Umwelt archaeologists Julian Travaglia and Kym McNamara at the time of the survey. Meaghan Russell (Senior Archaeologist) and Julian Travaglia undertook an additional site visit to further inspect potential items. Photographs and written notes were also taken. The results of the survey are detailed in **Section 5.3** of this report.

4.0 Historical Context

As part of NSW heritage assessment procedures it is essential to have a full understanding of a site or item based on its historical and physical context. This section summarises the available historical resource for the Stage 3 project area, while **Section 5** discusses the physical context of the study area.

4.1 Historical Context

A review of the available historical resource is crucial in the heritage assessment process. The relationship between an item or site and its historical context underlies the assessment process. Historical research provides an understanding of the study area's history and consequently the history of any known or potential heritage items.

4.1.1 Exploration and Settlement

The first recorded journey into the Wollombi Valley was made by John Howe in 1819, although it is likely timber cutters and escaped convicts pre-dated John Howe's journey (Needham 1981:67). The Hunter Valley was opened for free settlement in 1820.

In 1822, Henry Dangar began a detailed survey of the lower Hunter Valley. He continued surveying the remainder of the valley until November 1826. Settlement in the Valley closely followed Dangar's survey (Brayshaw 1984:1.2).

The Newcastle penal settlement was moved to the remote Port Macquarie in 1822, leaving the Hunter Valley to be settled, mainly by newly-arrived free migrants. Early settlement of the Hunter Valley was initially confined to the main valleys, which were all occupied by the 1830s, and only later extended into hill country between 1840 and 1870. The lower valley was characterised by smaller agricultural holdings; the drier upper regions by large pastoral estates. The township of Wollombi was surveyed in 1831 by Heneage Finch, with allotments then offered for sale in 1833 (Hoipo 2004:4).

By the early 1830s, most of the Wollombi township was settled. Australia's first soldiers settlement was established at Wollombi, with discharged members of the NSW regiments receiving (from 1830) grants of 100 acres along the Wollombi Brook. The main industry in early days of settlement was timber getting, from the cedar and rosewood forests of the region, with wheat, butter, barley, beef, oats and wine also produced. By the 1840s, Wollombi had become the administration and economic centre of Greater Cessnock, with its own courthouse and resident police magistrate. In the 1850s, the population had risen to 1500, while the residents of Cessnock only numbered between 7 and 11 (Crago 1979:38). Mills were established at Wollombi, Millford, Ellalong and Broke, however the output of the mills was small. Ellalong had a milling capacity of only eight bushels per hour (Hoipo 2004:6).

Two events shifted the focus from Wollombi to the Hunter River: the construction of the railway through Singleton and Muswellbrook in the 1850s and 1860s; and a period of major flooding in 1857 which caused severe hardship to the settlers of the Wollombi region due to crop losses and soil erosion (Dean-Jones and Mitchell 1993:2).

Land in the Cessnock area was taken up as early as other areas of the Hunter Valley, with Benjamin Blackburn receiving 400 acres near the sites of Kurri Kurri and Pelaw Main on 21 February 1821. A number of estates were established in the 1820s in the Cessnock area, including *Dagworth*, *Blomfield* and *Buttai* (all in the Wallis Creek Valley), *Lochinvar* (Anvil Creek Valley) and the sites of Greta and Branxton. In 1826, John Campbell acquired

2560 acres of land ('*Cessnock'*) in the valley of Black Creek. The Cessnock estate was named after John Campbell's ancestral home, Cessnock Castle in Ayrshire, Scotland.

A total of 72 landholders are recorded in the Greater Cessnock area in the 1821-1856 period, of which about 41 per cent were English and 16 per cent were Irish (Parkes et al 1979:23). A further 23 per cent were Scottish, about 18 per cent were born in the colony, and there was one German. Eight of the 72 were Sydney based men of capital and business (Parkes et al 1979:24).

In 1852, David Campbell (based in North Britain) decided to sell the Cessnock estate on Black Creek, and he and his agent decided upon subdivision of the estate. For years leading to this, travellers on the Great North Road often stopped at the Black Creek crossing on the Cessnock estate, with this camp site taking on the appearance of a small village (Parkes et al 1979:165). Preliminary notice of the sale first appeared in the Maitland Mercury on 15 January 1853, with auction scheduled for 15 February. The sale resulted in the disposal of the entire estate, with the exception of farm block 18 (reserved until 1855, and sold that year) (Parkes et al 1979:166).

Settlement of Cessnock intensified after the construction of the Great North Road. Cessnock became a halfway house for travellers with the establishment of the Cessnock Inn in 1856. The area became known just as Cessnock in 1874 (Crago 1979:40). In 1883, George Brown built a sawmill on Main Street, and in 1892, he struck coal on the southeast corner of the old Campbell estate. Towns sprung up throughout the area along the rich Greta coal seam. The South Maitland Railway extended lines to and beyond Cessnock to carry coal from 17 collieries in the area. By 1926, Cessnock had a population of 12,000 people within a one mile radius (Crago 1979:41).

The Shire of Cessnock was established in 1906. On November 1, 1926 Cessnock was declared a municipality with a population of 14,000. Further amalgamation occurred in 1956 when the Municipality of Cessnock was merged with the Shire of Kearsley, into the Municipality of Greater Cessnock (proclaimed the City of Greater Cessnock in 1958) (Parkes et al 1979:273).

4.1.2 Pastoralism and Agriculture

The small settlers who occupied the Cessnock region from the 1820s were involved in grazing sheep and cattle, growing wheat and maize and timber getting.

Records indicate that the lands within the study area were used for pastoralism and agriculture since the early nineteenth century. A record from the Maitland Mercury, Thursday, 9 October 1862 describes the condition of crops in the Quorrobolong area as:

> …a very poor harvest this year. The wheat is coming into ear, and on many farms it is not more than that six inches high. The only farm that I have seen that presents a good appearance is that of Mr R. Madden of Sandy Creek (cited from the Town Quorrobolong Folder in the Coalfields Heritage Group records).

Vineyards developed in the area after the 1840s and formed an important part of the farming economy (HLA 1995b:5). The Hunter River Vineyard Association was formed in 1847 (Parkes et al 1979:232). There were originally 18 members, with additional members admitted on a regular basis into the 1870s. These included E.C. Close of Quorrobolong, who joined the association in 1870 (Parkes et al 1979:234).

Table 4.1 illustrates the growth of the planted vineyard acres in the Hunter Valley area from the 1830s to 1970s.

Table 4.1 - Hunter Valley Vineyards, Planted Acres (from Parkes et al 1979:257)

Date	Acres (approx)	Notes
183-	20	Maitland, secondary punishment centre, convicts, land grants to free settlers
1843	260	
1850	500	Gold rush
186-	5840	Robertson Land Act grants Pokolbin
1893		Bank crash, increased South Australian wine production
1900		Abolition of State customs barriers
1919		Downy mildew, post war trough
1922	2700	
1933		World Depression
1936	1500	
1960	1000	Credit squeeze 1961
1964		'Hunter Wine', 'Hunter Winemakers'
1967	2600	
1974	10250	Inflation, world oil crisis
1975	12000	

4.1.3 The Sandy Creek Community

From the latter half of the eighteenth century a farming community was established to the south of Sandy Creek Road, sometimes referred to as the Sandy Creek Community. In 1864 Margaret Daunt constructed a school to the south of Sandy Creek Road to educate the local children. She taught at the school until 1882 when age and poor health forced her to retire (letter from Margaret Daunt to Dept. of Public Instruction from Coalfields Heritage Group records).

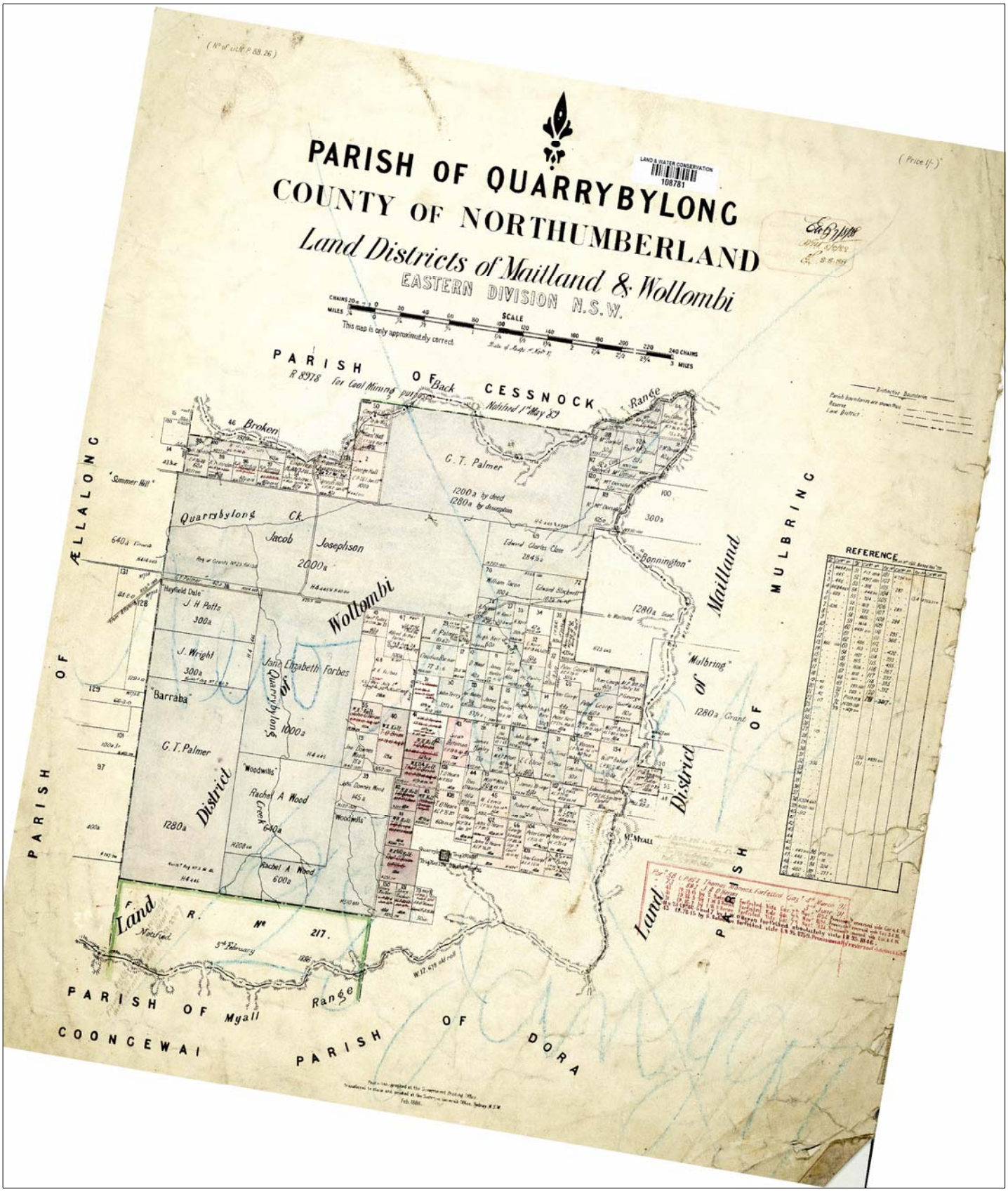
The site of the school is first evident on the 1897 Parish map of Quorrobolong and appears to have moved premises up to three times. The Parish Maps of Quorrobolong also indicate a number of residences were located in the area, likely belonging to the Sandy Creek Community (see **Figures 4.1** to **4.6**).

The sites of the early school and remainder of the late nineteenth century community is located to the south of the Stage 3 assessment boundary and outside the study area of this report.

4.1.4 Land Tenure

Parish maps dating from 1888 indicate the study area was controlled under several large land grants including Jacob Josephson (2000 acres), George Thomas Palmer (1200-1280 acres), Edward Charles Close (2841/2 acres), William Tacon (100 acres) and Edward Blackwell (103 acres). Smaller land grants of 30 to 40 acres were taken up by George Hall, Sara Hall, Joseph Hall, R Palmer, H Kerr, and R H Jordan (see **Figure 4.1** – Parish map 1888).

Jacob Josephson's estate is referred to in the historical records as the 'Barraba Estate' and also as 'Abbotsford'. George Thomas Palmer's estate is also later referred to as the Barraba Estate and the northern area of the estate as Coney Creek Paddock.



Source: Land and Property Information, August 1999

0 1 2 3km
1:85 000

Legend

– – – 20mm Subsidence Contour

FIGURE 4.1

1888 Parish Map of Quorrobolong

Source: Land and Property Information, August 1999

0 1 2 3km
1:85 000

Legend

– – – 20mm Subsidence Contour

FIGURE 4.2

1897 Parish Map of Quorrobolong

Source: Land and Property Information, August 1999

0 1 2 3km
1:85 000

Legend

– – – 20mm Subsidence Contour

FIGURE 4.3

1911 Parish Map of Quorrobolong

Source: Land and Property Information, August 1999

0 1 2 3km
1:85 000

Legend

– – – 20mm Subsidence Contour

FIGURE 4.4

1921 Parish Map of Quorrobolong

Source: Land and Property Information, August 1999

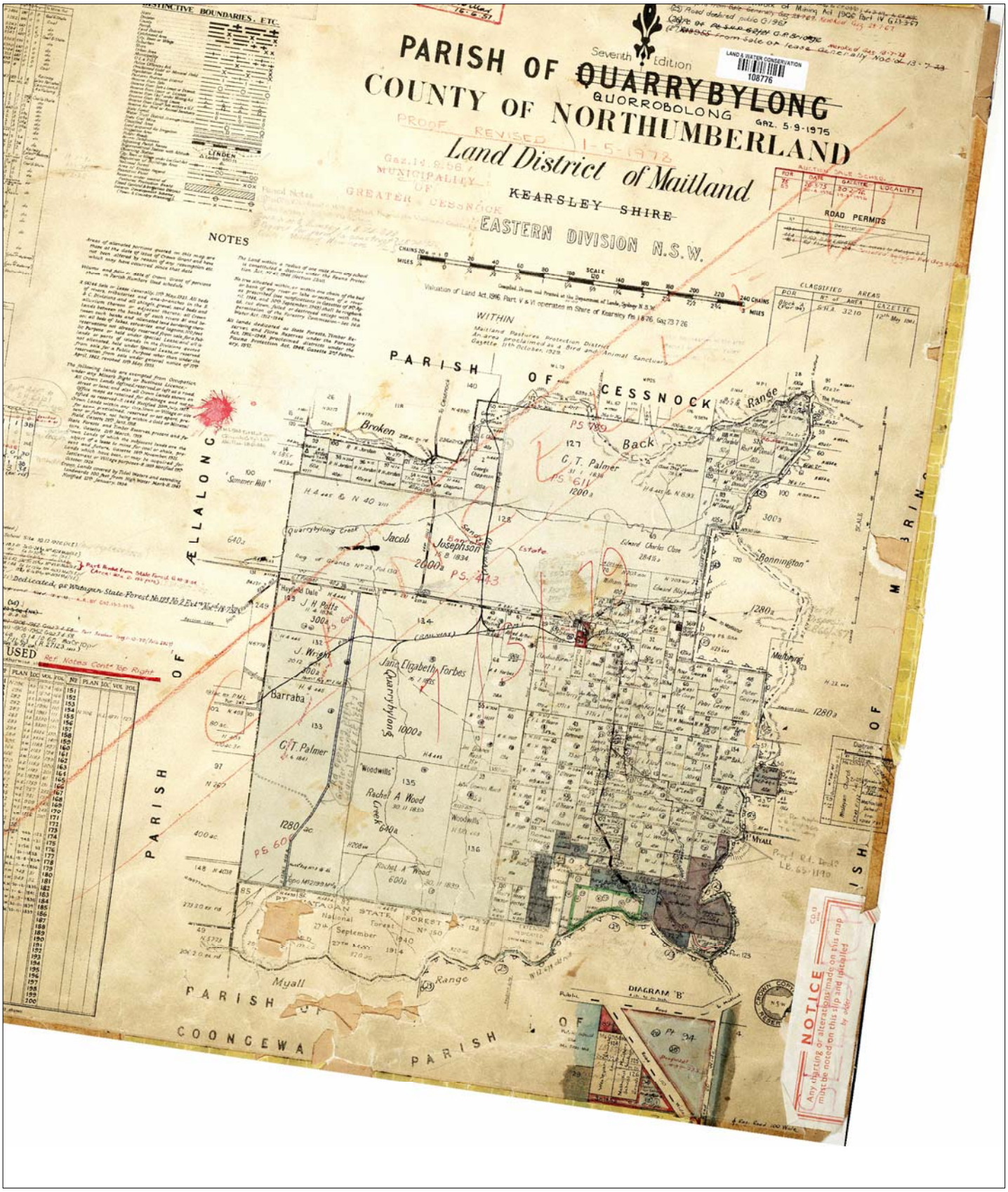
0 1 2 3km
1:85 000

Legend

– – – 20mm Subsidence Contour

FIGURE 4.5

1928 Parish Map of Quorrobolong



Source: Land and Property Information, August 1999

0 1 2 3km
1:85 000

Legend

20mm Subsidence Contour

FIGURE 4.6

1952 Parish Map of Quorrobolong

Between 1821 and 1831 a system of quit rent or 'free grants' was in place which included the granting of lands within the study area. The free grant system operated through an immigrant presenting a letter to the Secretary of State for the Colonies which stated that they required 'a grant of land in proportion to his means of cultivating it' (Parkes et al. 1979:25). These grants were conditional title and the land holder had to fulfil certain conditions over a period of seven years such as 'provide fencing and buildings and general improvements', at the end of the first seven years of their occupation of the land, the landholder had to pay a quit rent sum which was related to the productivity and assets built on the land (Parkes et al. 1979:25). This system was abandoned after 1831 as it lead to landholders being dispersed over too great an area and encouraged 'many members of the labouring classes to become landed proprietors and hence to deprive capitalist farmers of an adequate workforce' (Parkes et al. 1979:26). In 1831 Alexander McLeay, then Colonial Secretary passed legislation which ensured that 'no land will be sold below the rate of 5 shillings an acre….a deposit of 10 per cent upon the value of the purchase must be paid at the time of the sale, and the remainder must be paid within one calendar month' (cited from Parkes et al. 1979:26). This legislation backfired and only encouraged members of working class to become 'landed proprietors' and lead to the acquisition of small 40 and 60 acre portions of Crown land, which is a pattern that is reflected in the north-west and south-east of the study area by small grants held by the Jordan, Chapman, Palmer and Kerr families (see **Figure 4.1** – Quorrobolong 1888 parish map). The legislation also led to larger land holders, such as George Thomas Palmer, who were based in Sydney to extend their larger empires of land into the Cessnock region and the study area.

4.1.4.1 The Barraba Estate

Parkes et al (1979:75) wrote that in circa 1834 George Thomas Palmer (it is not clear if this is Junior or Senior) gained possession of the 1280 acre estate called *Barraba*, 'lying between Carter's Track (the wood from Ellalong to Mount Vincent) and the Myall Range'. It is believed that Palmer acquired the property with a 'ready made homestead and farm buildings' and 'little more than 100 acres had been cleared' (Parkes et al. 1979:75). George Thomas Palmer also acquired 'a narrow 40-acre block on the verge of the road on the north side of the *Barraba'* and approximately a mile north east of *Barraba '*a 1200 acre portion against the Broken Back, adjacent to a 284 ½ acre portion which E.C. Close acquired later' (Parkes et al. 1979:75). The review of parish maps dating from 1888 to 1952 show that these grants are within the eastern portion of the study area (see **Figures 4.1** to **4.6**).

The *Barraba* homestead is described in an article in the *Sydney Herald*, dated 16 January 1834 as:

> Verandah house of six rooms, four of them 21 feet in length with underground cellar, detached offices etc, Barn with mill house adjacent about 100 feet in length with flagged cellar intended for the salting of provisions. Stable with loose box sufficient for accommodating ten horses. A good dairy of two rooms, upwards of 100 acres cleared and burnt off. A tobacco house of two rooms (cited from Greater Cessnock Historical Society October 1976, Volume 5/7).

In 1906 the property *Barraba* was owned by the McDonald family. The Barraba Estate is described in this document as:

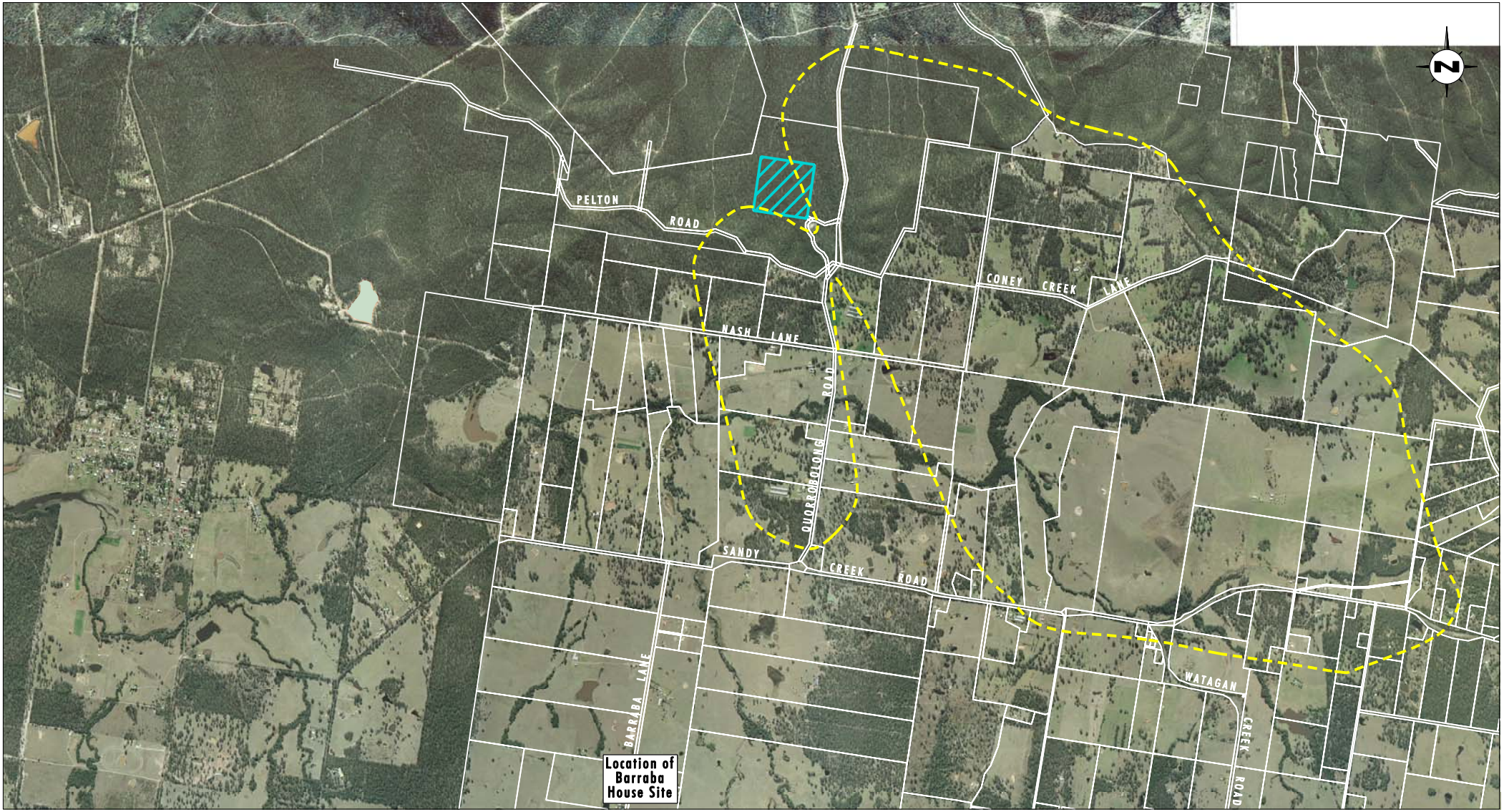
> Barraba has been very heavily stocked through the winter; in fact, most people hereabouts believe it far too heavily stocked.
>
> But, although this winter was not a favourable one from a pastoralist's point of view, Barraba has carried all of its stock without any loss worth mentioning, and there is now every prospect of a splendid spring.

> It is only about eight or nine months since the owner (Mr McDonald) decided on going in for dairying on a large scale, and during that time he has pushed ahead with improvements…He has got two large dairies built, and almost ready to start, with the spring just setting in.
>
> They are capable of carrying from a hundred to a hundred and fifty cows each, when running full power, and everything is up to date on both farms (Cessnock Express, 22 September 1906 cited in Sugarloaf, January – February 1995, No. 47:2030).

The homestead for the Barraba Estate is outside the study area, adjacent to Barraba Lane, approximately two kilometres south-west of the intersection of Quorrobolong and Sandy Creek roads (see **Figure 4.7**).

Table 4.2 summarises the land title search results undertaken for Lots within the predicted 20 mm subsidence contour which potentially contain extant structures (based on a review of the 2007 aerial photograph) which could be impacted upon by the Stage 3 proposal. **Figure 4.8** illustrates the location of the early Lots within the study area, taken from the 1928 Quorrobolong Parish Map.

Appendix A of this report provides a detailed summary of the land title search results.



Source: Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

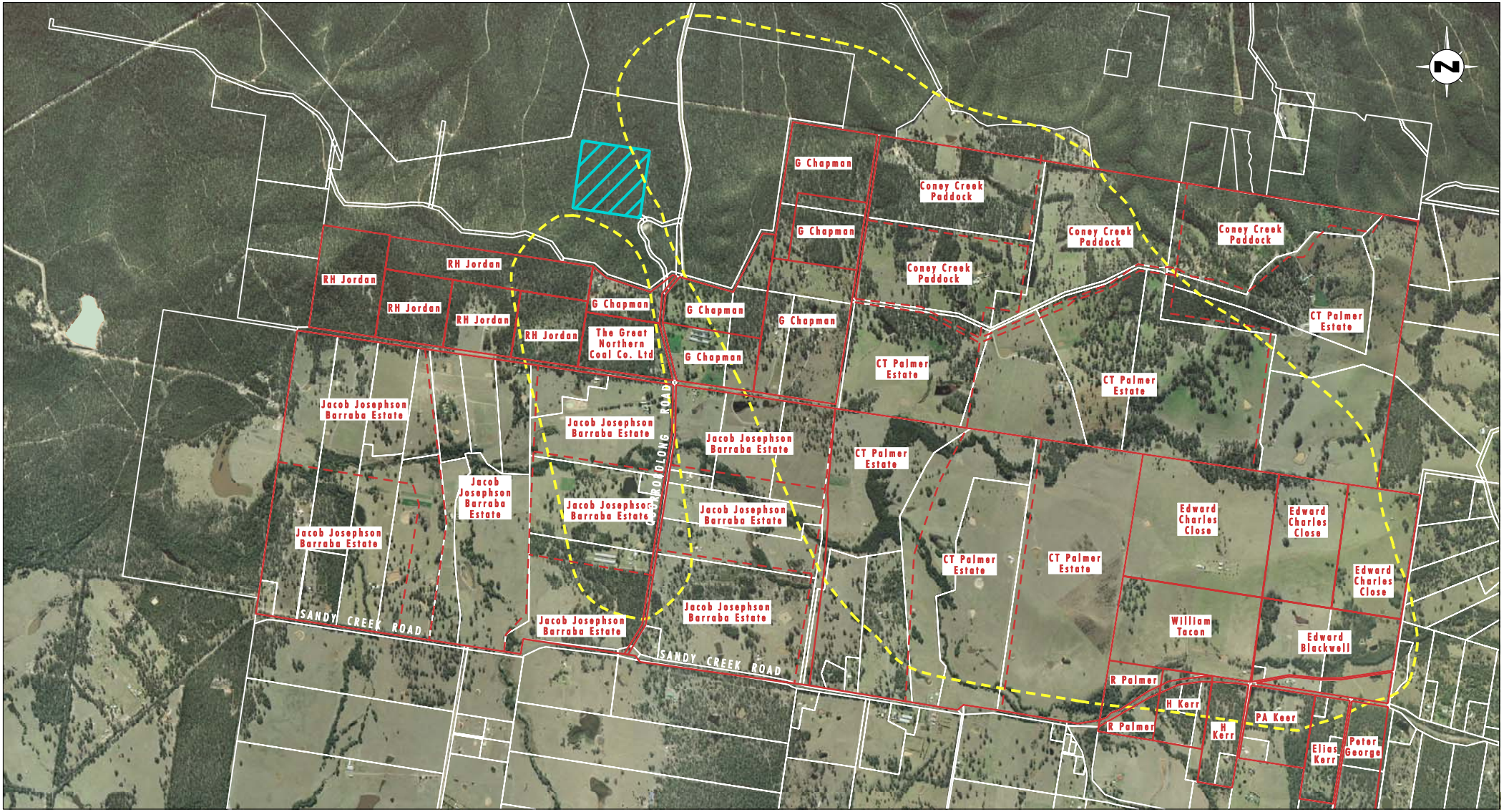
Legend

20mm Subsidence Contour

Surface Infrastructure Site

FIGURE 4.7

Plan showing Location of Barraba Homestead in Relation to the Study Area



Source: Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

0 0.5 1 1.5km
1:32 000

Legend

- 20mm Subsidence Contour
- Surface Infrastructure Site
- Main Land Grant Boundary (1928)

FIGURE 4.8

Plan showing Location of Lots within the Study Area in 1928

Table 4.2 - Summary of Land Ownership, Land Use History and Potential Historical Heritage Values

Lot and DP	Summary of Ownership	Description of Land Use History (if known)	Potential Historical Heritage Issues/Values
2/873717	These lots were originally part of the Barraba Estate Subdivision which was part of Jacob Josephson's two thousand acre grant granted to him on 15 August 1834 (refer to Certificate of Title Vol. 11681 Folio 246). After that time land was subdivided to graziers and farmers. Cessnock Collieries Limited controlled title in 1927 to 1966 and shared title with farmers including Frederick Peter White and George Ronald Lewis Pringle (1960-1966). Title then moved to former mine workers including the Robb family (1960 to 1980) and then to another farming family the McCredies (1980 onwards).	Grazing and farming from 1834 to the mid 1960s. May currently be used as a farm.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
973/840896	One title exchange shown between Geoffrey Thomas Nicholls and Leila Nicholls who transferred title to Barquin Pty Limited. No details are provided of either owner's occupation and therefore no indication is given of land use history in September 1991.		There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
91/1064579	Donald Ian Forbes (a tailor) was left the land in 1947 by Clara Elizabeth Forbes. In 1960 Alfred Edwin John Forbes, a farmer sold the land to Lily Annie Guthrie. A deed was left by Lily Annie Guthrie (in 1997) to Lindsay John Forbes and Francis James and Narelle Muxlow, farmers.	Farming from the 1960 to present.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.

Table 4.2 - Summary of Land Ownership, Land Use History and Potential Historical Heritage Values (cont)

Lot and DP	Summary of Ownership	Description of Land Use History (if known)	Potential Historical Heritage Issues/Values
10/240664 9/240664 8/240664 7/240664 4/240664 3/240664 4/571638 12/705614	These lots were originally part of the Barraba Estate Subdivision which was part of Jacob Josephson's two thousand acre grant granted to him on 15 August 1834 (refer to Deed of 1935 for Lot 6/240664). These lots have an exchange history between the Josephson families (1834 to 1835), the Palmer family (1835 to 1849), the Close family (1849 to 1885), the Dodds family (1885 to 1900), the Bell family (1900 to 1902) and the McDonald family (1902 to 1920). The lots have undergone numerous ownership exchanges from the 1920s to various land owners including bus drivers, builders, miners, photographers and engineers (refer to **Appendix A** for detailed title search summaries).	The land title has a mixed history. In the nineteenth century it is owned predominantly by large grazier families. It is likely to have been used for grazing and mixed farming up till the 1920s. From the 1920s onwards it appears these grants were owned by various families as residential lots only.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
51/599170 52/599170	Raymond Edward Imanual Robinson and Sonia Sullivan transferred the title to William Alfred Fletcher of Karloo Stud, Schofields and Julie Anne Wiesmantel of the same address. Peter John Wood of Buttaba, Manager, and Sharon Marie Gray of Tuggerah, Trainee Supervisor, transferred title in 1979 to William Dixon in 1981. From Dixon the title transferred in 1983 to Anthony William Hiles and Anne Lucia Hiles. In 1988 it transferred to Raymond Edward Imanual Robinson and Sonia Sullivan. A deed 52/599170 indicates it was formerly named Lot 5 of DP 240664. In 1971 this lot was owned by Paul Charles Kauter of Coal Point, Police Officer and Barbara Joyce Kauter in 1972.	The land title provides no clear indication of land use history for these lots. Land title shows a mixed ownership.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
1002/856790	A title search for Lot 1002 in DP 856790 shows the ownership of land by Ronald Lloyd Hearn but no date is provided. A deed for Lot 3 DP 571638 shows the ownership of the land by Ronald Lloyd Hearn, Trainee Engineer in 1975.		There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.

Table 4.2 - Summary of Land Ownership, Land Use History and Potential Historical Heritage Values (cont)

Lot and DP	Summary of Ownership	Description of Land Use History (if known)	Potential Historical Heritage Issues/Values
1/852328	The history of title shows that this grant was originally owned by John McDonald and that at this death in 1928 title transferred to Hector McDonald and Patrick Burke (No. 853 Book 1527). A summary of title shows ownership by the McDonald family until 1972.		There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
10/1093269	The history of title shows this grant as owned by the McDonald family from 1929 until 1973 where title transferred to Matford Nominees Pty Limited. From 1973 to 1975 there were a mixture of ownership details until the last title shows that ownership was with S.A. Carroll in 1975.	The land title indicates that this land was used for grazing from 1929 until 1973 based on ownership by the McDonald family who were graziers. There is no available information about use of the land by Matford Nominees Pty Limited. It is assumed that from the mid 1970s this lot was in private residential ownership.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
117/755215	The land title details the land as granted to Arthur Henry Southam in 1921. The later history of title includes transfers to the Hodges family (labourer) in 1963, Squires family (former bus driver) in 1968 and other local families in a history of numerous ownership exchanges to 1988.	A plan of portion 117 from the Land Board District dated 1914 includes notes indicating that this land was set aside for a 'Homestead Farm'. The land title search did not date back to 1914. In 1921 the land was granted to Arthur Henry Southam and no information was provided regarding the land use.	Potential Homestead Farm constructed after 1914 - based on notes on 1914 plan. See **Section 4.4.4.1** for discussion.
521/1003186	This lot was owned by the McDonald family from 1920 to 1967. From 1967 onwards the lot owned by the Campbell family up to the last transfer of title in 1995. It is believed to still be owned by the Campbell family.	The land title indicates that the land was used for grazing from at least 1920 to 1967.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.

Table 4.2 - Summary of Land Ownership, Land Use History and Potential Historical Heritage Values (cont)

Lot and DP	Summary of Ownership	Description of Land Use History (if known)	Potential Historical Heritage Issues/Values
1/950221	Based on an entry from Register Book Vol. CXXVII Folio 103 dated 1871 this land was purchased by Edward Charles Close of Sydney. The transfer of title after this date includes a transfer of title from Close to Alexander Dodds in 1885. A transfer of title from Alexander Dodds to Frederick Dodds is dated 1898. A transfer in 1898 between Alexander James Dodds and Frederick Dodds is registered to a name which is unintelligible on the title. In 1900 Alexander James Dodds and Frederick Dodds transferred the land to Samuel Bell and Henry Wyatt Bell. From 1900 the transfer to title is dominated by the McDonald family until 1986 where the title was transferred to the Boolaroo Land Company Pty Limited.	This lot has a long history of land use for grazing. Both John McDonald and Hector Cameron McDonald were Queensland Graziers. A transfer of title in 1914 from Hector Cameron McDonald to the Dover Street Estate Company Limited of Mines and of Coal Ironstone and other Mineral exploration rights indicates the interest of miners in this area. Grazing appears to a land use from at least 1902 to 1962. It may have continued to 1986 based on the ownership of the property by the McDonald family.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
1/107894	Based on a Certificate of Title in 1914 Hector Cameron McDonald took over the ownership of several land grants which included this title. The land stayed within the McDonald family holdings until 1947 when title was transferred to Ena May Westridge. Westridge exchanged title to Stanley Edward Avery, Mine Worker in 1949. Title changed for the last time in 1979 from Avery to the Boolaroo Land Company.		There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
1/738718	This land was originally part of Jacob Josephson's land grant of 2,000 acres. The lease exchanged hands several times over its history including to George Thomas Palmer (1835, 1849), Samuel North and Edward Charles Close (1859), Edward Blackwell (1857), William Tacon (1857 to 1872), Edward Charles Close (1872 to 1885), Alexander James Dodds (1885 to 1900), Bell family (1900 to 1902). A title shows that the land was owned by Katie Mary McDonald in 1986.	The land use history may include mining in 1947 as Donald McDonald is described on a title deed as 'Miner of the land within'. In 1924 a transfer of title shows resumption of a part of the property for a Public Road. It does not show where this road is located. The history of the land title from 1914 to 1930s may indicate grazing based on the association with the McDonald family.	There is potential for evidence of the former 1924 Public Road alignment. See **Section 4.4.4.3** for discussion.

Table 4.2 - Summary of Land Ownership, Land Use History and Potential Historical Heritage Values (cont)

Lot and DP	Summary of Ownership	Description of Land Use History (if known)	Potential Historical Heritage Issues/Values
21/1079917	The land was part of a Crown Grant to Edward Blackwell in 1857. It then transferred several times over its history to Thomas Cadell (1860 to 1866), Samuel Stead (1866-1870), Edward Charles Close (1870-1885), Alexander Dodds (1885 to 1900), Frederick Samuel and Henry Wyatt Bell (1900 to 1908) and the McDonald family (1921 to 1947). Title transferred from the McDonalds to Ena May Westridge in 1947 who transferred the title to Stanley Edward Avery in 1971.	The land use history indicates predominantly a history of grazing from its ownership by the McDonald family from 1921 to 1947.	There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.
60/814379 61/814379 6/248945	These lots were part of a Crown Grant to John Brown in 1839, title transferred several times in the nineteenth century including to Jesse Sharpely (1853 to 1863). These lots have a chequered history which includes transfer of title to the Wyndham family from (1930 to 1966), Lewis family (1966), Bridgebull Industries Pty Ltd (1971 to 1973), Cooper family (1976), Schultz family (1984) and Paler family (1987).	Within a deed for Lot 6/248945, under a deed associated with DP 539687, from Michael Cooper of Douglas Pulver Cooper Newcastle in 1976 a plan drawing shows a map of a homestead and the remains of old post and rail fences and newer barbed wire fences (Drawing Number is C.B. 57/99 F.B. 490/7 69/411). The same plan is attached to a land deed for Lot 1201 in DP 539687 which is part of an original portion 120 granted to John Brown in 1839. It is not clear from the land title the date of this homestead or its ownership history. Part of the land was made a public road within Lot 1 DP48157.	The homestead and the remains of old post and rail fences needs inspection and verification. It is not clear how old the homestead is but may date to the nineteenth century based on the presence of post and rail fencing. See **Section 4.4.4.2** for discussion. The Public Road also requires inspection and verification. See **Section 4.4.4.3** for discussion.
51/812963	A deed for Lot 5 DP 248945 shows land title for Maurice William Minter Training Officer and Sandra Minter, Clerk for ownership in 1981.		There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.

Table 4.2 - Summary of Land Ownership, Land Use History and Potential Historical Heritage Values (cont)

Lot and DP	Summary of Ownership	Description of Land Use History (if known)	Potential Historical Heritage Issues/Values
Pt 72/755254			There is no clear evidence in the land title searches to indicate the nature of any potential structures on this property or their date of construction.

4.1.5 Logging, Sawmills and State Forestry Service

Extensive land clearing activities were undertaken across the study area from the time of the early settlers in the first half of the nineteenth century.

The historical resource provides descriptions of logging within the northern sections of the study area. For example, Thomas Barnier owned a small mill on Mount Vincent and

> …made roads along every edge of the mountain so that logs could be brought to the sawmill. The north eastern part of the mountain above Brunkerville to the Trig or Boosting Station was known by the early inhabitants as Brokenback….The spur running towards Millfield was known as Quorrobolong or Sandy Creek mountain. Teamsters were able to take bullocks up there, and hauled logs to a place where they shot them over a cliff (Sugarloaf, Issue November 1988:259-260).

The Forestry Department of NSW in circa 1933 'resumed Barniers area and proclaimed the whole mountain as a Forest Reserve for the growth of timber. The Forestry Department also made a road up the mountain to sawmills at Cessnock and Millfield and the various coal mines around the district' (Sugarloaf, Issue November 1988:261).

The existing tracks within the study area are most likely associated with these early tracks used by Barnier and later by the Forestry Department for logging in the areas of State Forest within the study area.

4.1.6 Coal Mining Industry

The coal mining industry has played a dominant role in the development of Newcastle and the lower Hunter Valley region, encouraging its settlement in the late eighteenth century (Heritage Office & DUAP 1996:38). Coal deposits were first noticed in the region along the Hunter River by Lieutenant Shortland in 1797 (Heritage Office & DUAP 1996:38). The earliest mining began in nearby Newcastle where the first coal field in the region was discovered. Initially founded as a penal settlement in 1804, Newcastle relied on mining as an important economic factor in its development (Heritage Office & DUAP 1996:38). The establishment of a railway system also aided Newcastle's development into a major city, with a new railway station built in 1878 and upgraded in 1895 (Heritage Office & DUAP 1996:41).

The Australian Agricultural Company had a monopoly over coal production in Newcastle until the mid 1800s. After this, a period of expansion in coal production ensued and mining shifted from the coast up the Hunter Valley (Heritage Office & DUAP 1996:38). This shift saw the establishment of larger collieries than those found in Newcastle and the development of numerous settlements along the coal seams running up the Hunter Valley (Heritage Office & DUAP 1996:41). Numerous private railways were also created.

Before the development of the South Maitland Coalfields in the late 1880s, Cessnock was a farming area on the margins of the Hunter Valley. The main focus of settlement in the Hunter was along the Hunter River between Newcastle and Singleton, with the river providing transport between land and sea. Being removed from the transport route, Cessnock did not have these advantages. Settlers moved into the Cessnock area in the 1820s, and were involved in grazing sheep and cattle, growing wheat and maize and timber getting. Vineyards developed after the 1840s (HLA-Envirosciences 1995b:4). Due to the poor transport network, farmers focused on types of produce that were non-perishable in the short term and could survive a trip to market (HLA-Envirosciences 1995b:5).

With the development of mines at East Greta in 1891, exploitation of the South Maitland Coalfields began. The Greta coal measures were followed south and additional mines began to open. By 1906 mines were established in the Cessnock area and were linked to what

later became the South Maitland Railway. Collieries to the south of Cessnock (in the vicinity of the current study area) were established in the 1920s.

The effect of coal mining was to increase the regional population and improve the transport links to Maitland and Newcastle. Maze (1933) notes two opposing effects of coal mining on the agriculture of the area. Firstly, people gave up farming and became miners. Secondly, the growing demand for fresh food increased the production of vegetable, fruit and dairy products. Maze (1933) paints a picture of changing land use patterns from small farms growing grain or grazing sheep and cattle, to a mining landscape which consisted of mines, transport networks to take the coal out to Newcastle and a network of residential towns (such as Ellalong and Paxton) for miners. As the agricultural landscape changed to dairying and vegetable production on the richer soils, the marginal farms began to be abandoned (Maze 1933:37-38).

Many small villages were established adjacent to the mines to house workers, such as Bellbird, Kitchener, Paxton and Kearsley. The proving of the Greta Seam by T.W. Edgeworth David in 1886 brought new prosperity to the Cessnock area, which was transformed from an early grant exploiting timber and supporting a vineyard, to a small village with a police station and lockup and inn in 1850. As outlined by AHC 2007:

> …the major coal fields have numerous villages that owe their location and form to the nearby coal mine. Sometimes the village was initially owned and built by the mining company. These settlements might have heritage value in their own right, and should be referred to in recording and assessing the colliery itself.

A steam timber mill was installed in 1884, but the timber was not of the best quality. The first shaft was sunk in 1891, and a private railway built to West Maitland. In the early decades of the twentieth century the large Aberdare Extended mine was established and local mining expanded. Population skyrocketed, from 165 in 1901 to 7243 in 1921.

Cessnock No. 1 Colliery (the Kalingo Colliery) was first developed in the early 1920s under the direction of the Wickham & Bullock Island Coal Co. It first appeared in the Department of Mines Report in 1921 with a workforce of 40. Development work ceased in 1929, with work resuming in the late 1930s when the Company decided to use mechanical operations (to this time the mine was developed using traditional hand mining methods). The colliery closed in 1959, reopened and closed again in 1961 (Pike 1994). A map of the South Maitland Coalfields in 1921 (held by the Coalfields Heritage Group's Museum) shows that Cessnock No.1 Colliery's underground workings may have extended into the study area. These workings are approximately 500 metres underground and were sealed off many decades ago (Brian Andrews pers. comm. 10 January 2008).

The Great Northern Coal Company held approximately 40 acres within a land grant in the northwest corner of the study area as shown on the 1911, 1921 and 1952 parish maps (see **Figures 4.4** to **4.6**). There is no clear information of the exact land use history within this part of the study area, however, no evidence of early mining has been identified in this area of the site.

The Bellbird Colliery mining disaster occurred on Saturday 1 September 1923, and resulted in the deaths of 21 men – 20 miners, and one rescuer (Parkes et al 1979:206). A 1923 account of the disaster reported an underground explosion that had closed the door leading into 4 West (Parkes et al 1979:212), trapping 20 men and their horses in the mine; all of whom died before the rescue attempt. John Brown, manager of Aberdare Colliery, was a member of the rescue party, and died underground as a result of an additional explosion that saturated the mine with gas (Parkes et al 1979:213).

Longwall mining refers to the 'extraction of coal along a continuous face, with the roof supported behind the face by packwalls of rock', a technique used only infrequently in Australia (AHC 2007). In the Newcastle region, longwall extraction was being practiced at two Newcastle collieries by 1912 (Hargraves 1993:143; Jack 1979:111). This early use of longwall technique did not move to the fully mechanised extensive longwall type used for total extraction, which came into use in some Australian collieries in the 1950s and 60s (AHC 2007). Mechanical longwall methods accounted for 52 per cent of underground operations in NSW in 1991, including operations in the Newcastle and Hunter region (AHC 2007).

There is no known existing surface evidence of coal mining or associated infrastructure within the study area.

4.1.7 Transport Infrastructure

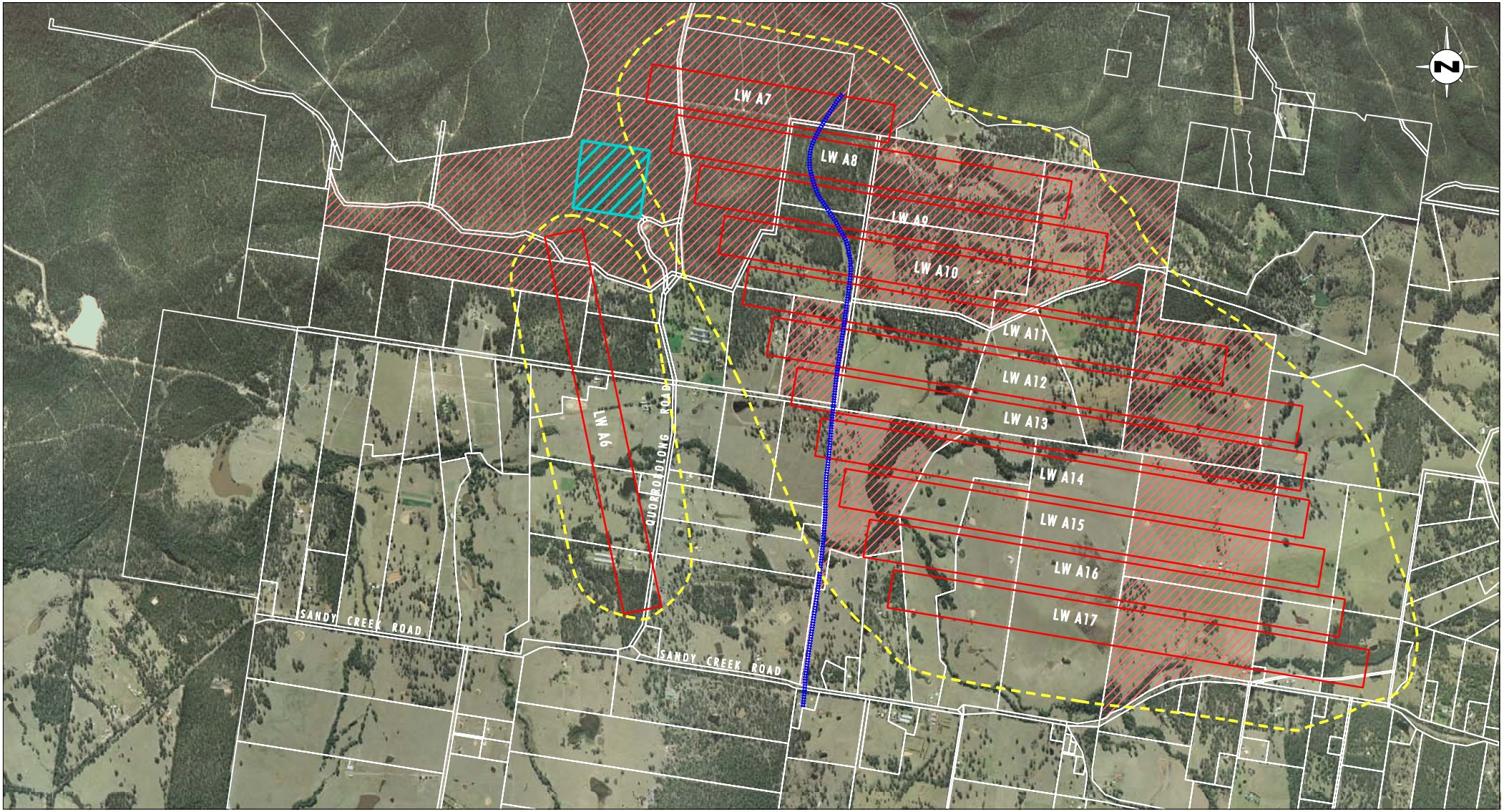
In 1819, John Howe and Benjamin Singleton established an overland track between the Hawkesbury and the Hunter River. This convict built track was known as Howe's Valley Road, and was the major artery used by free settlers to establish themselves on the upper creeks of the Wollombi.

In 1825, surveyor Heneage Finch was dispatched to find a better route north (than the Bulga Road, originally opened in 1823), and his tracing was the original line of the Great North Road (Karskens 1998:7). The Great North Road was built by convict labour between 1826 and 1836, and it was the first of a network of 'Great Roads' which radiated to the north, west and south of Sydney, then a rapidly growing port town. The road was built to provide a land link between Sydney and the burgeoning settlements of the Hunter Valley to the north. The original alignment ran between Baulkham Hills and Wollombi via Wisemans Ferry. From Wollombi it ran northeast to Maitland and Newcastle, with later branches being added to the upper and middle Hunter Valley via Broke (Karskens 1998:6).

It is very likely that the Great North Road runs over and incorporates pre-existing Aboriginal track networks. It is not known who guided John Howe in 1819, but the line of the Great North Road (which nears but skirts around some sacred Aboriginal sites) suggests local Aborigines assisted early Europeans (Karskens 1998:8). The volume of traffic along the Great North Road diminished after the introduction of a regular steam boat service between Sydney and Newcastle in 1832. A year before it was completed, some already referred to the Great North Road as a grand folly. Overland driving of stock continued, but even here drovers appear to have used other branches and routes as well as the Great North Road (Karskens 1998:22).

Construction of the branch line between Wollombi and Maitland appears to have been completed by 1831, based on its presence on two maps (Lands Department, Map R.4 610R and Mitchell's 1833 map of the line between Wollombi and Broke). Unlike most other sections, this line never fell out of use. The road is sealed today and no original construction features are located within the study area. The line follows the meanderings of the North Arm of the Wollombi Brook on the east side of Sweetmans Creek to Millfield, Bellbird and Cessnock. The original road shown on Mitchell's 1833 map passes to the northwest through Native Dog Hill, Sawyers Gully and Parsons Hill (Karskens 1985:568).

A review of the 1911, 1921 and 1952 parish maps for Quorrobolong show an alignment of a railway referred to on the map as 'PML Railway' (see **Figure 4.6**) within the study area. Detailed historical research, review of aerial photographs, consultation with RailCorp's Section 170 Heritage Officer and the Coalfield's Heritage Group has not provided any information regarding the alignment. It appears that this was a proposed railway alignment and was never constructed, as physical survey of properties which would have included part of the proposed railway alignment, provided no evidence of the railway ever being constructed (see **Figure 4.9**).



Source: Longwall Layout: Austar Coal Mine, Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

0 0.5 1 1.5km
1:32 000

Legend

- Conceptual Layout for Stage 3 Longwall Panels
- 20mm Subsidence Contour
- Surface Infrastructure Site
- Accessible Properties/Survey Areas
- Proposed PML Railway (Item 20)

FIGURE 4.9

Alignment of Formerly Proposed Railway in Relation to Stage 3 Surveyed Areas

There are no known railways or associated railway infrastructure within the study area.

4.1.8 Persons

Some of the main nineteenth century land owners for the study area included Jacob Josephson, George Thomas Palmer Jnr and George Thomas Snr.

Jacob Josephson

Josephson was born on 21 April 1776 in Breslau, Germany, and christened in St Mary's Whitechapel London in 1814, the same year as his marriage to Emma Wilson, a former widow, at age 38. After Josephson's christening, he was ordained a Minister of the Gospel to the Jews (PhpGedView Project 2008) and employed by the London Society for Promoting Christianity among the Jews. Josephson is reported as being caught stealing the communion plate from the church at Stanstead. He was found guilty of theft in 1817 and removed from office as a Minister. He was sentenced to 14 years at Oxford and was sent to Australia as a convict in 1817. Convict transport records list Josephson as a Hebrew teacher (PhpGedView Project 2008).

According to the Australian Dictionary of Biography, Jacob Josephson reached Sydney in May 1818 on the Neptune, sentenced to fourteen years for having forged 1 pound notes in his possession' (Holt 2008 and PhpGedView Project 2008). Josephson was provided with a two thousand acre grant on 15 August 1834 (refer to Deed of 1935 for Lot 6/240664), located within the study area. He gained employment as a jeweller, gold and silversmith, and has been described as Australia's first silversmith (The Learning Federation 2004).

Records of the Supreme Court of New South Wales dating to 1825 (Source Australian, 17 February 1825) indicate that Jacob Josephson, a Jewish jeweller was involved in a perjury case against Abraham Polack, a co-worker. Polack had accused Josephson of fraudulent behaviour at his jewellery store and falsifying records regarding a robbery (Division of Law, Macquarie University 2007).

Josephson had five children, one of whom (Joshua Frey Johnson) became a mayor of Sydney City Council in 1848 and was on the founding committee for St Paul's College, University of Sydney. Joshua Johnson had a notable, if not notorious, political and legal career in Sydney from 1844 to 1884 (Holt 2008).

Jacob Josephson died in Sydney NSW at age 69 (PhpGedView Project 2008).

John McDonald

John McDonald who is described by Parkes (in an undated manuscript: 185) as an alert and literate Scot, came out in 1812 in the ship *Guildford*. McDonald was employed by John Benn of Mulgrave Park Estate, Pitt Town as an overseer. On Benn's death, McDonald married his widow Lydia Benn and became the master of the estate. McDonald won contracts for government stores and acquiring land (no date: 185).

John McDonald soon became a major landowner in the Cessnock area acquiring 500 acres of land in the central valley of Black Creek in 1825. He named this grant Glenmore. Parkes writes that in 1825 McDonald had at Glenmore active crops of wheat, maize and potatoes, an orchard and a garden of two acres and 1695 acres in total, 300 of which was cleared and 320 cattle, 100 sheep and 100 hogs (no date:185). In 1828 McDonald acquired a 1000 acre portion of *Cessnock* . His family included four children John Thomas, William James, Jane and George Frederick. His descendants are some of the later land holders of the land grants within the study area.

George Thomas Palmer

George Thomas Palmer Senior was a large landholder in New South Wales in the early nineteenth century. Palmer owned the property Pemberton Grange at Woolloomooloo and was the son of the former Commissary-General John Palmer.

In 1806 Palmer came to Australia as part of the 62nd Regiment in the ship *Albion* with his wife Irene Catherine Pemberton, whom he had married in Malta (Parkes no date: 185). Palmer was the father of a large family and according to Parkes (no date : 185) had 13,200 acres, 46 horses, 1897 cattle and 6133 sheep.

Palmer placed his sons George Thomas Jnr at Barraba Estate to manage the land and John Pemberton at Congewai (Parkes et al. 1979:24). According to Parkes et al (1979:75), George Thomas Jnr and John Pemberton were well trained in agricultural pursuits and gained experience in agriculture in England. The Palmers were closely related to the Close family who also owned land adjacent to their holdings in the study area. George Thomas Palmer's sister was married to Edward Charles Close (Brian Andrews pers. comm. 10 January 2008). Edward Charles Close also owned and handled the property Morpeth.

4.2 Land Use History

The history of the Cessnock region is characterised by pastoral estates and a slow intensification of residential development prior to 1892, with mining then becoming increasingly significant to the region's economy and development particularly from the 1910s. The history of the Stage 3 assessment area reflects this, with land first taken up as part of pastoral estates in 1834, then being progressively subdivided for further pastoral use (Umwelt 2007c). Mining infrastructure in the Quorrobolong area – for the Pelton, Ellalong, Bellbird and Southland Collieries – dates to the 1910s, resulting in the rapid intensification of use of the local region. As a result of this history, the landscape of the assessment area has undergone modification through extensive pastoral grazing and residential development, with native vegetation cleared and foreign grasses introduced.

Table 4.3 presents a chronological overview of the development of the Central Lowlands of the Hunter Valley, with specific reference to the Cessnock LGA.

Table 4.3 - Timeline of Local and Regional History

Date	Historical Development	Reference
1819	First recorded journey into the Wollombi Valley, by John Howe.	Needham 1981:67.
1820	The Hunter Valley was opened for free settlement.	Heritage Office & DUAP, 1996
1821	First land grant in the Cessnock area, with Benjamin Blackburn receiving 400 acres near Kurri Kurri.	Parkes et al 1979:23
1822 to 1823	A route (roughly in alignment with the present Old Bulga Road) from Windsor was found by Benjamin Singleton, John Howe and others which made possible the overland movement of stock from the Cumberland Plain to the Hunter Valley.	Crago 1979:38
1822 to 1826	Henry Dangar conducted a detailed survey of the lower Hunter between 1822 and 1826	Brayshaw 1984:1.2
1826	'Cessnock' estate established on 2560 acres of land by John Campbell.	Parkes et al 1979:24

Table 4.3 - Timeline of Local and Regional History (cont)

Date	Historical Development	Reference
1826-1836	Great North Road built by convict labour. Line between Wollombi and Maitland built by 1831.	1826-1836
1830s	Australia's first soldiers settlement was established at Wollombi, with discharged members of the NSW regiments receiving (from 1830) grants of 100 acres along the Wollombi Brook.	Crago 1979:38
1834	Two thousand acre grant granted to B Jacob Josephson on 15 August, forming the Barraba Estate (which contained much of the current Stage 3 assessment area).	Umwelt 2008
1850	Population of Wollombi c.1500, while the residents of Cessnock only numbered between 7 and 11	Crago 1979:38
1853-1855	Cessnock estate subdivided and sold as individual lots, basis of future Cessnock township	Parkes et al 1979:166
1880s	South Maitland Coalfields developed. By this time, Cessnock was a farming area on the margins of the Hunter Valley.	HLA-Enviroscience 1995b:5
1892	Coal discovered at Cessnock, by George Brown while excavating in the southwest corner of the old Cessnock estate	Crago 1979:41
1906	Mines established in the Cessnock area by this year. Shire of Cessnock established.	HLA-Enviroscience 1995b:5
1916	Underground mining of Pelton/Ellalong commences	Umwelt 2007c
1926	Cessnock defined as a municipality, with population of 12,000 people	Crago 1979:41
1956	Cessnock municipality merged with the Shire of Kearsley, into the Municipality of Greater Cessnock	Parkes et al 1979:273
1958	Municipality of Greater Cessnock proclaimed the City of Greater Cessnock	Parkes et al 1979:273

4.3 Historical Themes

The Department of the Environment and Water Resources (DEWR) (formerly the Australian Heritage Commission) and the NSW Heritage Manual of the Heritage Office, Department of Planning provide a set of Historical Themes relevant to Australia and NSW that provide a historical context within which the heritage values of a place can be examined. A number of themes are relevant to the study area, these include settlement, pastoral development, agricultural production, mining infrastructure (including rail and roads) and the abandonment of farms. The themes are summarised in the **Table 4.4**.

Table 4.4 - Historical Themes

National Theme Groups (DEWR)	National Themes (DEWR)	National Sub Themes (DEWR)	State Themes (NSW Heritage Office)	Local Themes/Application
3. Developing local, regional and national economies.	3.3 Surveying the continent	3.3.4 Looking for land with agricultural potential 3.3.5 Laying out boundaries	Agriculture Transport Pastoralism Dairying Land Tenure	Great Northern Road Main Northern Railway Agriculture Pastoralism Dairying Land Tenure and Barraba Estate
	3.4 Utilising Natural Resources	3.4.3 Mining	Mining	Mining
	3.5 Developing Primary Production	3.5.1 Grazing stock 3.5.2 Breeding animals 3.5.3 Developing agricultural industries	Agriculture Pastoralism Dairying	Agriculture Pastoralism Dairying
	3.8 Moving goods and people	3.8.5 Moving goods and people on land 3.8.6 Building and maintaining railways 3.8.7 Building and maintaining roads	Transport	Great Northern Road Main Northern Railway
4. Building settlements, towns and cities	4.5 Making settlements to serve rural Australia; 4.6 Remembering significant phases in the development of settlements, towns and cities.	4.1.1 Selecting township sites	Land Tenure Towns Suburbs and Villages	Land Tenure and Barraba Estate
5. Working	5.8 Working on the land; Organising workers and workplaces.	No sub themes in this category	Labour	Agriculture Pastoralism Dairying Mining

5.0 Physical Context

This section lists any potential heritage items within the Stage 3 study area, identified through a search of relevant heritage registers, archaeological survey and historical research. This information, in conjunction with the historical context, forms the basis of the significance assessment and management strategy.

5.1 Heritage Register Listings

Heritage registers and inventories are lists of identified heritage items that are significant at local, state and national levels. These registers also provide information on comparative sites, which can be used to assist in the interpretation of archaeological evidence and also in the evaluation of the relative significance of the historical/archaeological heritage material.

The Austar Coal Mine is located within the Cessnock LGA, and to identify known heritage items within the Stage 3 assessment area, the following relevant heritage databases were searched:

- the Australian Heritage Database, a register of natural, historic and Indigenous heritage sites maintained by the Department of Environment and Water Resources was searched on 6 August 2007;
- the State Heritage Register and State Heritage Inventory (maintained by the Heritage Office, Department of Planning) was searched on 6 August 2007;
- the Hunter Regional Environmental Plan (1989) was searched on 6 August 2007;
- the Cessnock Local Environmental Plan (1989) was searched on 6 August 2007;
- Register of the National Trust (maintained by National Trust of Australia, NSW) was searched on 6 August 2007; and
- Section 170 Registers maintained by State Rail Authority (SRA) and the NSW Roads and Traffic Authority (RTA) was searched on 6 August 2007.

No heritage items or relics listed on the above registers are located within the Stage 3 assessment area.

The City of Cessnock Heritage Study was also searched in the course of the historical research. No items listed in the Cessnock Heritage Study (Pike 1994) are located within the Stage 3 project area. However, it is noted that the Stage 3 project area abuts the Coalfields Cultural Landscape (Ref #290) to the north. This entry covers the Cessnock-Kurri Kurri Coalfields, as they are historically significant as Australia's most productive coalfield of the early twentieth century. This entry is not registered on any statutory heritage register listed above.

5.2 Previous Archaeological Research

HLA-Envirosciences (1995b:5) reviewed the history of the Cessnock area, spanning early farming, viticulture and mining, and predicted that two types of historic sites would be found within the Austar Coal Mine area: those related to agriculture (such as small farms) and mining (head frames, winding gear, rail connections etc).

HLA-Envirosciences (1995b:5) did not locate any heritage items within the Stage 3 assessment area, but did identify three items within the surrounding area: a ring barked tree (EL-2); the South Maitland Railway and associated line formations; and the Cessnock No. 1 Colliery site.

5.3 Archaeological Survey Results

The Stage 3 assessment area was surveyed in September and October 2007 jointly with the Aboriginal archaeological survey, which covered 76 hectares by pedestrian and vehicular survey. All potential historic items identified during the Aboriginal archaeological survey were later inspected by Umwelt archaeologists Meaghan Russell and Julian Travaglia, who recorded the items through written notes and photography.

The heritage items identified during site survey are listed in **Table 5.1** and described in the following sections. **Figure 5.1** illustrates the location of the heritage items within the study area.

Table 5.1 - Heritage Items Identified during the Survey of Study Area

Item	Description	Location	
		MGA Easting	MGA Northing
1	Cony Creek Bridge, Quorrobolong Road	347182	6357392
2	Quarry 1	347059-347030	6358649-6358625
3	Quarry 2	347062-347053	6358590-6358572
4	Ford	348251	6356763
5	Culvert 1	347231.8	6359602
6	Culvert 2	347247.8	6359761
7	Culvert 3	347232	6359602
8	Artefact Scatter	347384	6359847
9	Fencing 1	348565	6357541
10	Fencing 2	347004	6358459
11	Cut Tree	346849	6359042
12	Cut Stump	346850	6359042
13	Railway Embankment	347267-347329	6360296-6360088
14	Possible House Site	348598	6357329
15	Homestead Complex	351485	6357054

5.3.1 Item 1: Cony Creek Bridge, Quorrobolong Road

The Cony Creek crossing of the Quorrobolong Road is located over one kilometre north of the intersection with Sandy Creek Road. The creek is crossed by a timber truss bridge (see **Plates 1** and **2**).

The bridge consists of a timber deck with a timber post and rail guard rail extending along both sides of deck for the full length of the bridge. The superstructure of the bridge is supported by timber support piers/piles driven into the creek bed and timber trusses. At either end of the bridge the timber trusses consist of horizontal beams spanning the bridge width. The central truss has an additional two diagonally crossing beams forming a lattice design across of the width of the bridge. The road approach ramp on either side of the bridge is supported by earthen embankments contained by timber beams. Rough sandstone

PLATE 1
View of Cony Creek Bridge showing timber deck and guard rail (Item 1)

PLATE 2
View of Cony Creek Bridge showing timber piers, trusses and embankment (Item 1)

blocks have been placed around the base of the embankment/abutment for additional support. Asphalt has been utilised to replace some of the timbers on the northern embankment/abutment.

There are many discarded metal bolts beneath the bridge reflecting ongoing maintenance over the lifetime of the bridge.

5.3.2 Item 2: Quarry 1

The site of Quarry 1 is located within the Quorrobolong Road corridor, to the south east of the proposed Austar surface infrastructure site (see **Plate 3**). The quarry wall is approximately 70 metres in length (on an approximate northeast-southwest alignment), and curves towards Quorrobolong Road. The southern end is approximately 15 metres from the existing road, while its central section is approximately 40 metres from Quorrobolong Road.

Vertical cuts, which occur at intervals no greater than 50 centimetres in the quarry face, provide evidence of the quarrying of the sandstone bedrock (see **Plate 4**). The exposed profile of the quarry measures up to four metres in height. Exposed sandstone profiles are generally no higher than two metres, and tend to occur in the upper section of the exposed profile. Sediment from higher landforms has washed down into the quarry and is found below the exposed sandstone faces. The quarrying of the sandstone has left a depression, up to 30 metres wide, between the exposed quarry face and Quorrobolong Road. This depression is easily waterlogged, and is covered by dense grass and limited regrowth. Small sandstone blocks removed by quarrying have been deposited in this area.

5.3.3 Item 3: Quarry 2

The site of Quarry 2 is also located within the Quorrobolong Road corridor to the south east of the proposed Austar surface infrastructure site, approximately 20 metres to the south of Quarry 1. The two quarries are divided by a short section of natural hillslope, no wider than 15 metres. The quarry is on an approximate northeast-southwest alignment, and the southern end curves towards Quorrobolong Road. The exposed quarry face is no greater than 50 metres in length, and its central section is approximately 20 metres from Quorrobolong Road (see **Plate 5**)

In a similar fashion to Quarry 1, evidence of the quarrying of the sandstone bedrock in this location is provided by vertical cuts occurring at intervals no greater than 50 centimetres in the quarry face. The exposed profile of the quarry measures up to four metres high. Exposed sandstone profiles are generally no higher than two metres, and tend to occur in the upper section of the exposed profile. Sediment from higher landforms has washed down into the quarry and is found below the exposed sandstone faces. Sandstone extraction has created a depression, up to 15 metres wide, between the exposed quarry face and Quorrobolong Road. At the time of survey, the depression was waterlogged and covered by dense grass.

5.3.4 Item 4: Ford

Remnants of a ford crossing Cony Creek were identified approximately 200 metres west of the junction of Cony and Sandy Creeks, approximately 10 metres west of a recently constructed timber bridge (see **Plate 6**).

At the time of the site inspection, water was flowing through this section of the creek, obscuring the majority of materials utilised in the construction of the ford. Bricks, stone, lumps of pebble cement and timber planks were used in the construction of the ford. Bricks (assorted machine made and occasionally with evidence of a frog) made up the majority of the construction material. The creek banks on either side of the ford crossing were low and

PLATE 3
View along edge of Quarry 1 (Item 2)

PLATE 4
View showing exposed wall of Quarry I (scale = 2m) (Item 2)

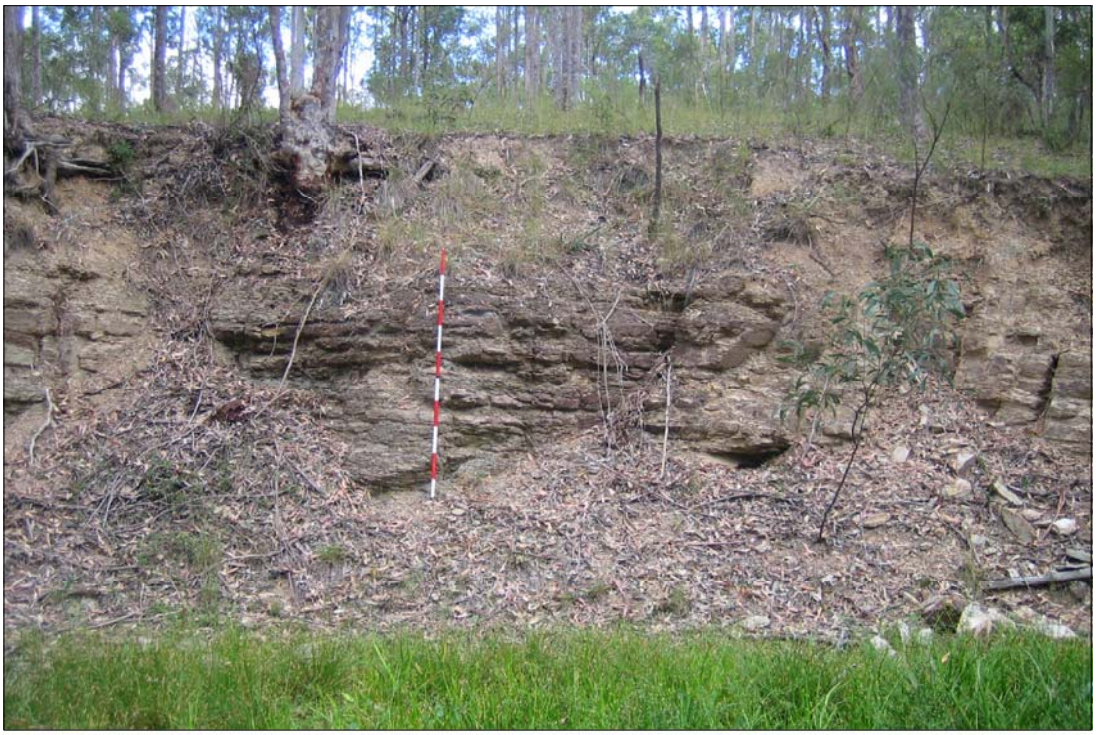


PLATE 5
View showing exposed wall of Quarry 2 (scale = 2m) (Item 3)

PLATE 6
View of ford crossing Cony Creek (Item 4)

gently sloping, in contrast to the steeper banks surrounding the ford site. It is likely that the morphology of the creek banks in this location has been modified through stock use of the ford.

The partial remains of a timber gate and post, with metal fixtures, was identified approximately 20 metres east of the ford.

5.3.5 Item 5: Culvert 1

Culvert 1 is located where Quorrobolong Road crosses Black Creek. It consists of three large concrete pipes running beneath the road (see **Plate 7**). On the east side of the road the culvert runs beneath a rough sandstone retaining wall. The stone retaining wall on the west side of the road has been replaced with a concrete retaining wall and features a horizontal concrete platform at the base of the concrete pipes to direct the water into the creek.

5.3.6 Item 6: Culvert 2

Culvert 2 is located 30 metres north of Black Creek and culvert 1. It consists of a single large concrete pipe running beneath Quorrobolong Road. On the east side of the road the culvert runs beneath a rough sandstone retaining wall with a cement rendered face. The stone retaining wall on the west side of the road has been replaced with a concrete retaining wall.

5.3.7 Item 7: Culvert 3

Culvert 3 is located on Quorrobolong Road, to the north of culverts 1 and 2. It consists of a single large concrete pipe running beneath the road (see **Plate 8**).

5.3.8 Item 8: Artefact Scatter

An area of machine-made brick (with occasional shallow rectangular frog), glass, concrete, salt glazed ceramic service pipe and metal fragments was identified during the survey. The scatter of artefacts was located within the former Aberdare State Forest (now Werakata State Conservation Area), to the east of Quorrobolong Road and adjacent to a fire trail and small dam. Historical research (parish maps, available aerial photographs and land title searches) and surface survey did not provide any evidence for a structure to have been formerly located in this area of the site. As such, this area of brick, glass, concrete, ceramic service pipe and metal fragments is likely to be the result of several episodes of dumping in an area easily accessible from Quorrobolong Road and a fire trail.

5.3.9 Item 9: Fencing 1

Item 9 consists of a single timber post located adjacent to Cony Creek to the north of the junction of Coney and Sandy Creeks. Its proximity to the creek locates it within the flood prone area. No other timber posts were identified in the area. The post has a vertical cut down one side and a small drilled hole. It is likely to be all that remains of a timber post and wire fence, probably indicating the location of a lot boundary.

5.3.10 Item 10: Fencing 2

Item 10 consists of a single timber post located to the south of surface infrastructure site and west of Quorrobolong Road and north of fire trail. No other timber posts were identified in the area. The post has a series of circular holes cut through it, possibly to form a tenon and mortice joint (see **Plate 9**).

PLATE 7
View of culvert along Quorrobolong Road (Black Creek crossing) showing concrete pipe and sandstone retaining wall (scale = 2m) (Item 5)

PLATE 8
View of culvert along Quorrobolong Road showing concrete pipe (scale = 1.1m) (Item 7)

PLATE 9
View of single timber fence post (Item 10)

PLATE 10
View showing stump of saw cut tree (Item 12)

5.3.11 Item 11: Cut Tree

A tree trunk was identified to the north of the proposed Austar surface infrastructure site which showed evidence of having been felled. Two small axe cut marks were evident on the exposed timber face. This item provides physical evidence of the documented land clearing and timber getting activities that have been undertaken in the area since early settlement in the 1820s.

5.3.12 Item 12: Cut Stump

A burnt tree stump was identified within the surface infrastructure site on the bank of Black Creek. The stump measured approximately 1.5 metres high and 80 centimetres in diameter (see **Plate 10**). The height of the tree stump appears to indicate the tree was felled using a saw rather than an axe (generally a tree felled using an axe leaves a lower stump). This item provides physical evidence of the documented land clearing activities in the area.

5.3.13 Item 13: Potential Former Railway Embankment

A potential former railway embankment was identified to the north of the Stage 3 project area, to the west of Quorrobolong Road. The southern end of the embankment ends at an unnamed fire trail. The 200 metre section inspected during survey is likely to represent the final section of a dismantled railway line that extended into Kitchener to the north. The railway is likely to have been associated with the Aberdare Central Colliery.

The embankment measures between six and 15 metres wide and no more than 2 metres high and has been constructed using earth and ballast (see **Plate 11**). In several sections the construction material has been removed, most likely for reuse as building material. Regrowth vegetation surrounds the embankment, and is also found at lower densities along the embankment. Occasional metal bolts, brick fragments and lengths of cable were identified along the embankment. In addition, a timber fence post was identified adjacent to the potential former embankment. This timber fence post was created by drilling barbed wire through a live tree later cut down to fence height. As illustrated in **Plate 12**, the tree was live at the time of fencing as timber has grown out to cover the four barbed wire strands inserted through the tree.

Item 13, potential former railway embankment, is located outside the Stage 3 assessment boundary and as such is not considered further in this report.

5.3.14 Item 14: Potential House Site

A potential former house site was identified to the northeast of the junction of Cony and Sandy Creeks, situated on a high terrace approximately 100 metres from Cony Creek and above the 100 year flood area (see **Plate 13**). A roughly rectangular area of fragmentary brick rubble was identified within an area 120 centimetres by 100 centimetres (see **Plate 14**). The bricks were not laid and are likely to represent demolition rubble. A number of small depressions were also identified, each measuring approximately 30 centimetres in diameter. These may indicate the locations of post holes. These potential postholes were located within an area measuring approximately 15 metres by 8 metres in size. No foundation associated with the brick rubble and potential postholes were identified, however the area was covered with dense grass and low shrubs making identification difficult.

Historical research did not provide any evidence for a structure to have been formerly located in this area of the site (parish maps, available aerial photographs and land title searches). The brick rubble and potential postholes may indicate the site of a former timber built shed with low brick supporting foundations/walls.

PLATE 11
View along potential former railway embankment (Item 13)

PLATE 12
Timber post identified alongside potential former railway embankment (Item 13)

PLATE 13
View across potential former house site (scale = 2m) (Item 14)

PLATE 14
View of potential former house site showing brick rubble (scale = 1.7m) (Item 14)

5.3.15 Item 15: Former House Site

Item 15 is located just outside the Stage 3 assessment boundary, approximately 450 metres east of the proposed location of LW A14. Item 15 consists of a former house site and associated work sheds and garages (located approximately 80 metres from the Stage 3 boundary), and a stockyard/shed building (located approximately 20 metres from the Stage 3 boundary). The house site is evidenced by a standing brick chimney, foundations and assorted building materials, including metal and timber (see **Plate 15**). Approximately 30 metres north of the chimney, there are a number of open disused garages and work sheds, still standing but in various states of collapse (see **Plate 16**). These sheds contain a range of abandoned farm and domestic goods, including cars. Approximately 90 metres south of the chimney, two sheds, a cattle loading ramp and a water tank are extant. In addition, a caravan has been left adjacent the chimney site.

Item 15, former house site, is located outside the Stage 3 assessment boundary and as such is not considered further in this report (see **Figure 4.9**).

5.4 Potential Heritage Items

In addition to the heritage items described above, a number of potential heritage items were identified during historical research, as described in the following sections. Of the 33 houses and 78 rural building structures (farm sheds, garages and other non-residential structures) identified in the Mine Subsidence Engineering Consultants (MSEC) 2008 report as within the study area, historical research and survey has identified only two structures that potentially have cultural heritage values; Items 16 and 17 discussed below (see **Sections 5.4.1** and **5.4.2**). As previously noted, not all properties were inspected during the site survey and therefore, although unlikely, there is potential for additional extant structures with cultural heritage values to be present on site.

5.4.1 Item 16: Homestead Site

A search of the Land Titles identified that a potential homestead was located in the north of the study area in current Lot 117, DP 755215 (see **Figures 5.1** and **5.2**). A plan of Portion 117 from the Land Board District dated 1914 includes notes indicating that this land was set aside for a 'Homestead Farm'. It is likely the homestead visible on the 1951 and 2007 aerial photograph was constructed soon after 1914.

Access to this area of the site was not obtained from the landowner at the time the field survey was conducted. As a result an inspection of the potential homestead was not undertaken as part of this study.

5.4.2 Item 17: Homestead Site

A Land Titles search identified that a potential homestead may be located in the north of the study area in current Lots 60 and 61 DP 814379 (see **Figures 5.1** and **5.2**). A deed for Lot 6/248945 under a deed associated with DP 539687 includes a plan dated 1969 showing the location of a homestead, the remains of old post and rail fences and newer barbed wire fences (see **Figure 5.3**). It is not clear how old the homestead is but it could potentially date to the nineteenth century based on the presence of post and rail fencing. However, the homestead is not evident on a 1951 aerial photograph of the area and may have been constructed after 1951. The post and rail fencing marked on the 1969 plan (see **Figure 5.3**) may indicate earlier fence lines indicating lot boundaries rather than being associated with the homestead.

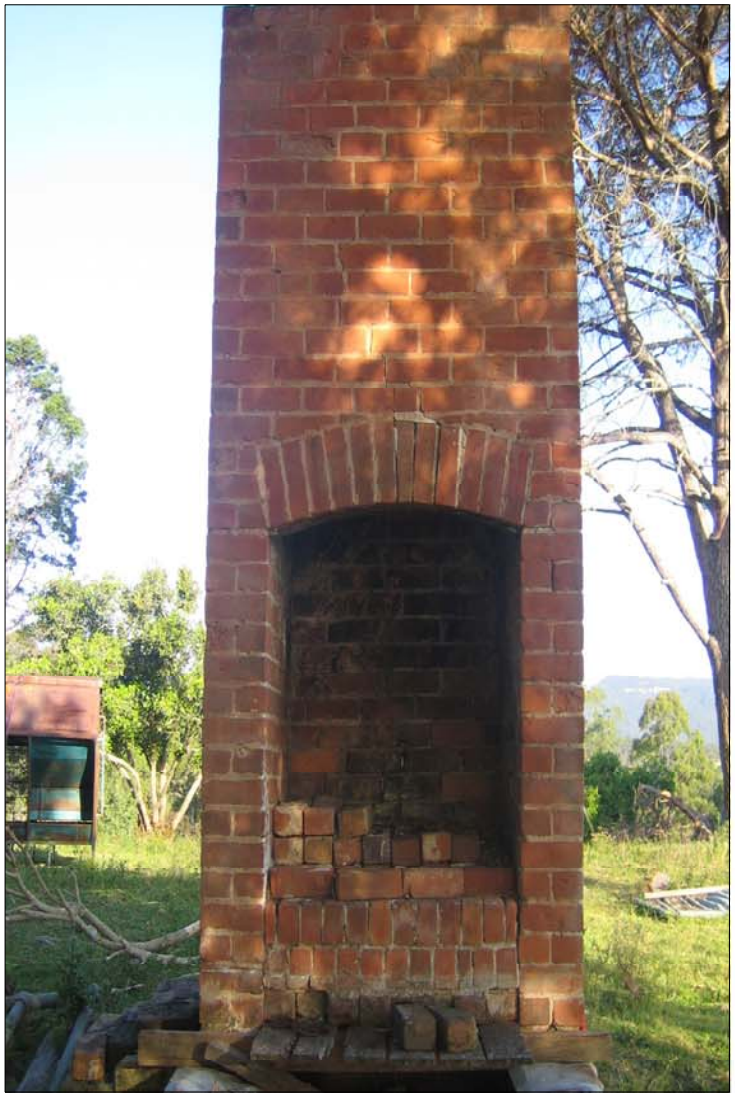
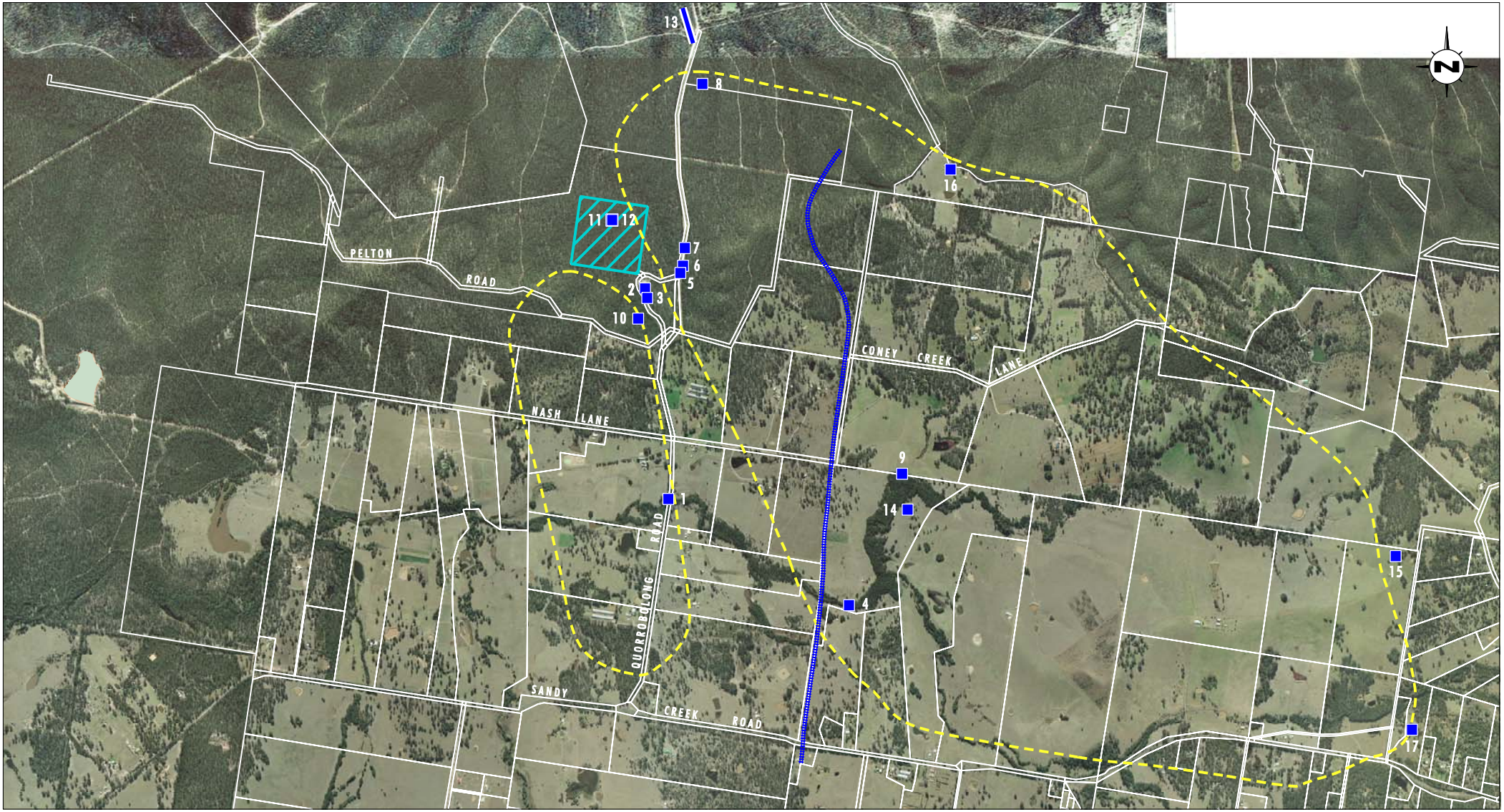


PLATE 15
View of extant brick chimney at former house site (Item 15)

PLATE 16
View showing garage/shed at former house site (Item 15)



Source: Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

Legend

- 20mm Subsidence Contour
- Surface Infrastructure Site
- Historical Site
- Proposed PML Railway (Item 20)

FIGURE 5.1

Plan showing Location of Potential Heritage Items in Relation to the Study Area

Source: Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

Legend

20mm Subsidence Contour

Surface Infrastructure Site

FIGURE 5.2

Plan showing Current Property Boundaries

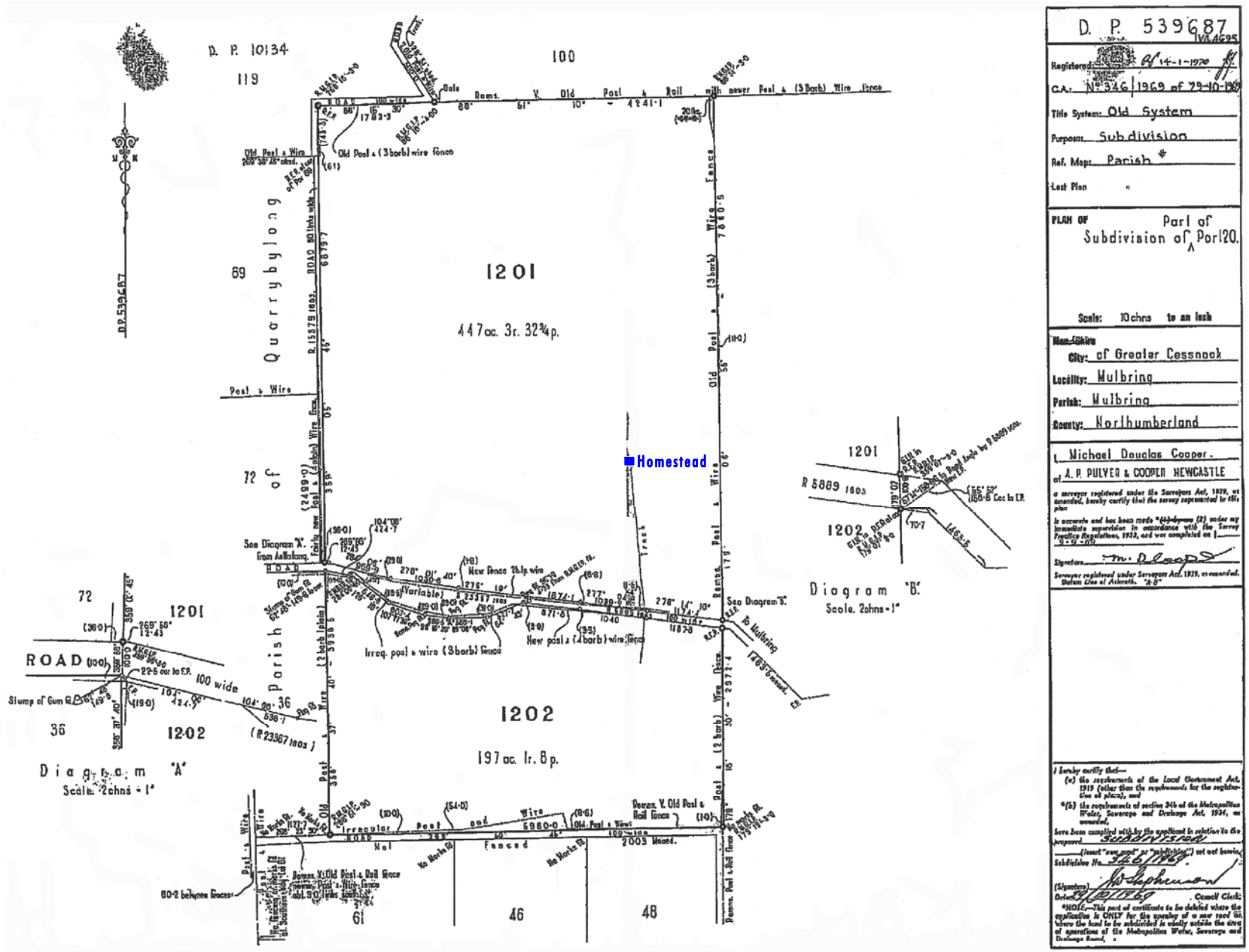


FIGURE 5.3

1969 Subdivision Plan showing Location of Potential Homestead Site within Lot 61 DP 814379

Source: Land and Property Infromation, October 2007

File Name (A4): R14_V1/2274_320.dgn

Access to this area of the site was not obtained from the landowner at the time the field survey was undertaken. As a result an inspection of the potential homestead was not undertaken as part of this study.

5.4.3 Item 18: Early Roads

The Land Title search also indicated two potentially early public roads within Lot 1 DP 738718 and Lots 60 and 61 DP 814379 (see **Figure 5.2**).

Access to these areas of the site was not obtained from the landowner during the field survey. As a result an inspection of the potential early public roads was not undertaken as part of this study. However, these roads are likely to date to the early part of the twentieth century and if present are likely to consist of dirt tracks that have never been sealed.

5.4.4 Item 19: Early Mine Infrastructure/Workings

As discussed in **Section 4.1.7**, Cessnock No. 1 Colliery (the Kalingo Colliery) was first developed in the early 1920s. A map of the South Maitland Coalfields in 1921 (held by the Coalfields Heritage Group's Museum) shows that Cessnock No.1 Colliery's workings extended into the west of the study area. These workings are approximately 500 metres underground and were sealed off many decades ago (Brian Andrews pers. comm. 10 January 2008).

The Cessnock No.1 Colliery surface infrastructure is not located within the study area and no evidence of workings were identified during historical research or surface survey of the area. There is unlikely to be evidence of any early mine infrastructure or workings on the site other than the now sealed off underground workings discussed above.

5.4.5 Item 20: Planned Rail Line

The Parish maps for Quorrobolong from 1921 indicate a north to south alignment of a railway referred to on the map as 'PML Railway' (see **Figures 4.6** and **5.1**). It appears that this was a proposed railway alignment and was never constructed. Physical survey of properties which would have included part of the proposed railway alignment, provided no evidence of the railway construction.

There are no known railways or associated railway infrastructure within the study area.

5.4.6 Item 21: Barraba House Site

As discussed in **Section 4.1.5**, part of the Barraba Estate is located within the eastern portion of the study area. However, the historical resource and topographic maps indicates that the homestead and associated structures of the Barraba Estate are outside the study area, adjacent to Barraba Lane, approximately two kilometres southwest of the intersection of Quorrobolong and Sandy Creek Roads (see **Figure 4.7**).

5.4.7 Item 22: Former Quorrobolong Public School Sites

As discussed in **Section 4.1.4**, there is the potential for remains of the site of a former public school (dating to approximately 1864) and other residences associated with the Sandy Creek Community of Quorrobolong to be located to the south of Sandy Creek Road. However, the site of the early school and remainder of the late nineteenth century community is located to the south of the Stage 3 assessment boundary and outside the study area of this report (see **Figure 4.4**, 1921 Parish Map of Quorrobolong).

5.5 Summary of Historical, Archaeological and Physical Contexts

The Stage 3 project area mainly comprises State Forest and cleared agricultural land. The cleared floodplains of the Cony and Sandy Creek systems are used for cattle grazing and viticulture and contain a number of dams.

The north-western portion of the Stage 3 study area is characterised by gentle to moderate slopes of a spur, which extends from the Broken Back Range. This area has also been cleared for grazing and viticulture.

The potential archaeological and historical heritage resource of the site generally reflects the history of the area as cleared agricultural and pastoral land and is typical of the area. The Land Title searches indicate that the land has predominantly been utilised by graziers and timber contractors with residences being constructed on some lots. Two potentially early homestead buildings may be present on site (Items 16 and 17), however visual inspection was not possible during the site survey.

Extant fence posts may indicate the locations of former fencelines across the area delineating lot boundaries. Cut trees and tree stumps illustrate the documented land clearing activities that would have been undertaken across the area. Infrastructure such as bridges, roads, culverts and fords are typical of development of the area from native bushland and forest into usable pastoral land. The quarry sites are likely to have been used as a source of local building materials for road and building construction.

Any additional, as yet unidentified, archaeological remains and historical heritage items that may be present on the site are likely to be similar to those items described above.

The significance of the identified and potential heritage items discussed above is assessed in **Section 6** of this report. The impact of the Stage 3 proposal on these heritage items is discussed in **Section 7** of this report. Recommended management strategies to address these heritage impacts are presented in **Section 8** of this report.

Several potential sites identified during research are located outside the study area. These include a potential railway embankment and homestead complex (Items 13 and 15 identified during site survey), the Barraba House site (Item 21) and the sites of the former Quorrobolong schools (Item 22). In addition, there is no identified evidence for any early mine infrastructure or workings (Item 19) or for the planned railway line (Item 20) within the study area. As a result, these items/sites are not considered further within this report.

6.0 Heritage Significance

The Heritage Act protects 'relics' regardless of their significance. However, it is important to undertake an assessment of significance to explain why a particular place/object is important and to enable the determination of appropriate site management. 'Cultural significance' is defined in the Australian ICOMOS Burra Charter 1999 (the Burra Charter) as meaning 'aesthetic, historic, scientific or social value for past, present or future generations' (Article 1.1). An explanation of these values is provided in **Section 6.1.1**.

Cultural significance may be derived from the fabric of a place, association with a place, or the research potential of a place. The significance of a place is not fixed for all time, and what is of significance to contemporary society now may change as similar sites are located, more research is undertaken and community values change.

6.1 Australia ICOMOS (The Burra Charter) under the Act

The approach to the assessment of heritage significance affirmed by the Heritage Office, Department of Planning adopts as a foundation the four values of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter). These values are broadly accepted Australia-wide and the implications of these classifications are as follows:

- ***Historical significance*** considers the evolutionary or associative qualities of a site with aesthetics, science and society, identifying significance in the connection between a site and cultural development and change.

- ***Aesthetic significance*** addresses the scenic and architectural values of a site and/or the creative achievement that it evidences. Thus, a site achieves aesthetic significance if it has visual or sensory appeal and/or landmark qualities and/or creative or technical excellence.

- ***Social significance*** is perhaps the most overtly evolutionary of all classifications in that it rests upon the contemporary community appreciation of the cultural record. Evaluation within this classification depends upon the social spiritual or cultural relationship of the site with a recognisable community.

- ***Scientific significance*** involves the evaluation of a site in technical and/or research terms, considering the archaeological, industrial, and educational and/or research potential. Within this classification, sites have significance value in terms of their ability to contribute to the better understanding of cultural history or environment and their ability to communicate, particularly to a broad audience within a community (Marquis-Kyle and Walker 1992: 21-23).

6.1.1 Value Criteria

As a component of the holistic concept of significance, archaeological significance has been described as a measure by which a site may contribute knowledge, not available from other sources, to current research themes in historical archaeology and related disciplines (Bickford and Sullivan, 1984 19-26; Sullivan and Bowdler 1984). Archaeology is concerned with material evidence and the archaeological record may provide information not available from historical sources. An archaeological study focuses on the identification and interpretation of material evidence to explain how and where people lived, what they did and the events that influenced their lives.

Considerations material to the study of the archaeology of a relic include:

- whether a site, or the fabric contained within a site, contributes knowledge or has the potential to do so. If it does, the availability of comparative sites and the extent of the historical record should be considered in assessing the strategies that are appropriate for the management of the site; and

- the degree and level at which material evidence contributes knowledge in terms of 'current research themes in historical archaeology and related disciplines'.

In relation to 'current research themes in historical archaeology and related disciplines' (refer to **Section 4.1**), the assessment of cultural significance is conditioned by considerations of historical, scientific, cultural, social, architectural, aesthetic and natural values:

- ***Historical value*** lies at the root of many of the other values by providing a temporal context and continuity, thereby providing an integrating medium for the assessment of social, cultural and archaeological significance.

- ***Scientific value*** depends upon the ability of a site to provide knowledge contributing to research in a particular subject or a range of different subjects.

- ***Cultural value*** attaches to material evidence that embodies or reflects the beliefs, customs and values of a society or a component of a society and/or that has the potential to contribute to an understanding of the nature and process of change and its motivation.

- ***Social value*** derives from the way people work(ed) and live(d) and from an ability to understand the nature, process of change and its motivation. Social significance is closely related to cultural significance, in its concern with the practicalities of socio-cultural identification.

- ***Architectural value*** depends on considerations of technical design (architectural style, age, layout, interior design and detail), the personal consideration (i.e. the work of a particular architect, engineer, designer or builder) and technical achievement (construction material, construction technique or finish).

- ***Aesthetic value*** addresses the manner in which a site comprises or represents creative achievement, epitomising or challenging accepted concepts or standards.

- ***Natural value*** attaches to sites that either support or manifest existing natural processes and/or systems or provide insights into natural processes and/or systems.

6.1.1.1 Degree Criteria

In order to provide a ready reference to the *degree of significance or the distinctiveness* of a site in general terms, the site may be described as being either 'Rare' or 'Representative' within its community/cultural/geographical level.

6.1.1.2 Level Criteria

The final denominator of significance is the *level of significance* of a site. *Level* is nominally assessable in two classifications, depending upon the breadth of its identifiable cultural, community, historical or geographical context. Thus, within a New South Wales context, the significance of a relic may be recognised at the:

- ***Local level -*** identifies the site as being significant within an identifiable local and/or regional cultural and/or community group and/or historical/geographical heritage context; and

- ***State level -*** identifies the site as being significant within an identifiable State-wide cultural and/or community group and/or historical/geographical heritage context.

On a broader front, by derivation, the significance of a relic may be recognised at the:

- ***National level -*** identifies the site as being significant within an identifiable national cultural and/or community group and/or historical/geographical heritage context; and

- ***International level -*** identifies the site as having implications of significance for an identifiable cultural and/or community group both nationally and abroad and/or a world-wide historical/ geographical heritage context.

The Heritage Office, Department of Planning adopted a set of standardised assessment criteria to be used in conjunction with the value criteria of The Burra Charter.

6.2 Heritage Office Standard Criteria

The Heritage Office, Department of Planning (2001:9) defined a series of criteria that is used by the Heritage Council of NSW as an assessment format within NSW. The seven criteria address:

Criterion (a) the importance of a site in the course or pattern of the cultural or natural history of NSW or a local area [i.e.: *historical*].

Criterion (b) the existence of a strong or special association between a site and the life or works of a person or group of persons important in NSW or local cultural or natural history [i.e.: *historical*].

Criterion (c) the importance of a site in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW or a local area [i.e.: *aesthetic*].

Criterion (d) the existence of a strong or special association between a site and the social, cultural or spiritual essence of a particular community or cultural group within NSW or a local area [i.e.: *social*].

Criterion (e) the potential of a site to provide information that will contribute to an understanding of the cultural or natural history of NSW or a local area [i.e.: *scientific*].

Criterion (f) the quality of a site to possess uncommon, rare or endangered aspects of the cultural or natural history of NSW or a local area [i.e.: *rare* degree of significance].

Criterion (g) the demonstration by a site of the principal characteristics of a class of cultural or natural place or cultural or natural environment within NSW or a local area. [i.e.: *representative* degree of significance].

6.2.1 Evaluation of the Significance of the Historical Heritage Sites within the Stage 3 Project Area

In this section, the heritage significance of the items within the study area is assessed upon the range of criteria discussed in **Sections 6.1** and **6.2**. This section deals with significance by providing an overview in terms of the criteria established in NSW Heritage Office (2001) and relates the significance assessment to the NSW Historical Themes where appropriate (refer to **Section 4.3** and **Table 6.1**).

Table 6.1 - Statement of Significance

NSW Heritage Office Standard Criteria	Statement of Significance
Criterion (a) Historical	While the study area has the potential to demonstrate the pattern of land use and development from its early exploration and settlement in the form of large land grants through to its later subdivision, tree clearing activities and grazing, the site is unlikely to contain historical archaeological remains associated with this development history. Any evidence associated with the use and development of the site (such as for grazing, agriculture and timber felling/land clearing) is likely to be patchy at best, and it would be impossible to specify what such remains may entail and where they would be located. Evidence of extant fencing, quarries, bridges, roads, tree stumps and potential homestead sites demonstrate the pattern of land use and historical development of the area, however they are unlikely to provide information not already known from the historical record. State Themes: Agriculture, Pastoralism, Land Tenure and Transport.
Criterion (b) Associative	The study area has associations with several prominent families (Jacob Josephson, George Thomas Palmer and John McDonald) through their ownership of large land grants. Land Title searches revealed evidence of associations with the McDonald family at least into the 1980s as John McDonalds descendants are some of the later landowners and graziers of land grants within the study area. However, it is unlikely that any potential archaeological or extant remains (fenceposts, quarries, bridge, potential homestead buildings) surviving within the study area would provide evidence of these associations. The study area is not known to have any other associations of particular significance. State Themes: Land Tenure and Pastoralism.
Criterion (c) Aesthetic	At this time, when any potential archaeological evidence at the site is obscured, it is impossible to determine with any certainty whether and, if so, how, the archaeological features at this site would meet this criterion. The timber bridge portrays a common construction technique in the Hunter Region from a limited range of materials, principally timber. Its structural detail is clearly visible and it may have some aesthetic significance in the context of its landscape, however there are other similar examples of timber truss bridges in the Hunter area. Any buildings extant on the study area are likely to be representative of a range of farm and residential buildings potentially dating from the nineteenth and twentieth centuries. They may have some local aesthetic significance, however at the time of writing the extant buildings had not been inspected due to difficulties with access. The study area may demonstrate some aesthetic significance as a rural landscape through the creation of a pastoral landscape via the clearing of the native vegetation. The land was cleared to create a grassed landscape for grazing that is still evident today. State Themes: Land Tenure, Transport and Accommodation.

Table 6.1 - Statement of Significance (cont)

NSW Heritage Office Standard Criteria	Statement of Significance
Criterion (d) Social	While the site demonstrates the pattern of settlement and development in the area from the mid nineteenth to late twentieth century, and is typical of a large rural landscape within the wider regional area. It would be considered unlikely that this site, particularly any archaeological remains that survive here, would have a strong association with any previous or contemporary particular community or group. Accordingly, the archaeological resources of the study area do not meet this criterion.
Criterion (e) Scientific	A high degree of intactness in the archaeological resource is necessary before a substantive contribution can be made to the research potential and hence, the ability of the archaeological resource to answer research questions for the site. The study area has limited potential to contain archaeological remains associated with the nineteenth and twentieth century development and occupation of the area. Archaeological evidence of the probable use of the land for grazing, agriculture and timber getting is likely to be patchy at best, and it would be impossible to specify what such remains may entail and where they would be located. The extant saw cut tree trunk supports the known history of timber getting, however it is unlikely to provide any additional information to that already provided in the documented resource of the area. The study area is unlikely to contain substantial intact archaeological remains that are associated with any extant structure on the site. Generally any remains that may be present would be unlikely to have any research potential and would at best provide only a minor contribution to the significance of the area. The known and potential historical heritage items extant on site are typical of the area as a large rural landscape and are unlikely to provide further unknown information regarding the areas history and development. The timber bridge crossing Cony Creek is typical of bridges constructed in the area from local materials, principally timber, between the mid nineteenth to early twentieth centuries and as such may have a low level of local significance. State Themes: Transport, Pastoralism and Agriculture.
Criterion (f) Rarity	The potential archaeological resources associated with the study area are not associated with an unusual or remarkable aspect of the region's history. Although the study area is part of an ever decreasing resource, the archaeological remains within the study area do not meet this criteria. The extant potential heritage items identified above (**Section 4.4.3**), including any standing structures and the bridge, are typical of structures and other items typically found within rural landscapes such as that of the study area and are unlikely to meet this criteria. State Themes: Pastoralism, Agriculture, Land Tenure, Accommodation and Transport.

Table 6.1 - Statement of Significance (cont)

NSW Heritage Office Standard Criteria	Statement of Significance
Criterion (g) Representativeness	The potential archaeological resource of the study area would be part of a resource available across the wider rural area and would be considered as representative of the period and nature of land use and development. The extant items and structures on site are representative of the rural landscape and grazing through out the area. State Themes: Pastoralism, Agriculture, Land Tenure, Accommodation and Transport.

6.2.2 Archaeological Significance

Following Bickford and Sullivan's work on archaeological significance (1984 19-26) (see **Section 6.1.1**), the following questions can be used as a guide to assessing the significance of an archaeological site:

- Can the site contribute knowledge that no other resource can?
- Can the site contribute knowledge that no other site can?
- Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

These questions are addressed below:

6.2.2.1 Can the Site Contribute Knowledge that no other Site can?

The potential archaeological remains within the study area may provide physical evidence that could be used to supplement and test what is known about the place and its history from other sources. However, it is unlikely that the site would contribute additional knowledge not available form other similar sites.

6.2.2.2 Can the Site Contribute Knowledge that no other Resource can?

The research undertaken as part of this project has included an evaluation of available documentary evidence. The study area is unlikely to contribute knowledge regarding the use of the rural landscape that no other resource can.

6.2.2.3 Is this Knowledge Relevant to General Questions about Human History or other Substantive Questions relating to Australian History, or does it contribute to other Major Research Questions?

Although this site is part of the historical development of the Hunter Valley, it is unlikely to provide additional information relevant to Australian history or that would contribute to other major research questions.

6.3 Condition and Integrity

This section addresses matters that combine with the assessment of significance to allow a formal Heritage Impact Statement to be appropriately validated. *Condition* considers the physical state of the fabric of the resource and its potential for survival. *Integrity* observes the degree to which the residual material evidence is an appropriate representation of the site/relic/object in its original form.

In this section, the heritage significance of the items within the study area is assessed on the basis of their condition and integrity.

6.3.1 Condition

The condition of heritage site/relic/objects that have been identified above is assessed on a five-stage scale, that is to say:

(i) *Intact*, where the material evidence allows a complete recording of the resource without archaeological hypothesis.

(ii) *Substantially intact*, where the material evidence is incomplete but the recording of material evidence will be sufficient to allow an accurate archaeological reconstruction, with hypotheses based on the archaeological record only.

(iii) *Standing ruin*, where the material evidence is incomplete and the recording of material evidence will be sufficient to define the footprint of the site/object/relic and some of its elevations and features but will be insufficient to allow an accurate archaeological reconstruction of the site/object/place without hypotheses based on the archaeological record and on a range of outside sources.

(iv) *Ruin*, where the material evidence is incomplete and the recording of material evidence may be sufficient to define part, or the whole, of the footprint of the site/object/relic but will be insufficient to allow an archaeological reconstruction of its features, perhaps spatially and certainly vertically, without hypotheses based on the archaeological record and on a range of outside sources, and in circumstances where the validation of the reconstruction cannot be assured.

(v) *Archaeological site*, implying a mostly subsurface residue, where the material evidence suggests the former presence of an archaeological site that cannot be defined without sub-surface investigation.

6.3.2 Integrity

The integrity of archaeological site/object/relic that has been identified above is assessed on a five-stage scale, that is to say:

(i) *Intact*, where the site/object/relic has remained virtually unchanged its form and/or design and/or function can be totally discerned from the material evidence.

(ii) *Minor Modification*, where the site/object/relic has been modified or deteriorated cosmetically and/or in a manner that does not inhibit the discernment of its form and/or design and/or function by archaeological interpretation of the material evidence.

(iii) *Material Modification*, where the site/object/relic has been modified so that its form and/or design and/or function cannot be discerned only by archaeological interpretation and without reference to external sources.

(iv) *Major Modification*, where the site/object/relic has been so modified that attempted discernment of its form and/or design and/or function cannot be achieved by archaeological interpretation of the material evidence and requires a heavy reliance on external sources and in circumstances where discernment of one or more elements may be equivocal.

(v) *None*, where the integrity of the site/object/relic has been completely destroyed and the evidence for its form and/or design and/or function is totally external.

6.3.3 Condition and Integrity of Items within the Project Area

The condition and integrity of the identified and potential heritage items within the study area is summarised in **Table 6.2**.

Table 6.2 - Summary of Condition of Items within the Study Area

Item No.	Resource	Description	Condition	Integrity
1	Cony Creek Bridge, Quorrobolong Road	Extant timber bridge	Intact	Intact
2	Quarry 1	Shallow sandstone quarry	Intact	Intact
3	Quarry 2	Shallow sandstone quarry	Intact	Intact
4	Ford	Remnant ford crossing Cony Creek	Substantially intact	Minor modification
5	Culvert 1	Concrete pipe culvert	Intact	Intact
6	Culvert 2	Concrete pipe culvert	Intact	Intact
7	Culvert 3	Concrete pipe culvert	Intact	Intact
8	Artefact Scatter	Brick and concrete rubble, glass, service pipe and metal fragments	Ruin	Major modification
9	Fencing 1	Potential remains of fenceline	Ruin	Major modification
10	Fencing 2	Potential remains of fenceline	Ruin	Major modification
11	Cut Tree	Fallen/felled tree trunk	Substantially intact	Minor modification
12	Cut Stump	Saw cut tree stump	Substantially intact	Minor modification
13	Railway Embankment	Not within study area. Not assessed	-	-
14	Possible House Site	Potential site of former shed-like structure.	Ruin	Major modification
15	Homestead Complex	Not within study area. Not assessed	-	-
16	Potential Homestead Site	Potential extant homestead structure. Not assessed as access not available.	Likely to be intact	Likely to be intact

Table 6.2 - Summary of Condition of Items within the Study Area (cont)

Item No.	Resource	Description	Condition	Integrity
17	Potential Homestead Site	Potential extant homestead structure. Not assessed as access not available.	Likely to be intact	Likely to be intact
18	Early Roads	Likely to be unsealed dirt track. Not assessed as access not available.	Likely to be intact	Likely to be intact
19	Early Mine Infrastructure/Workings	Not present within study area. Not assessed	-	-
20	Planned Rail Line	Never constructed. Not assessed	-	-
21	Barraba House Site	Not within study area. Not assessed	-	-
22	Former Quorrobolong Public School Sites	Not within study area. Not assessed	-	-

6.4 Summary Statement of Significance

The study area is typical of a rural landscape within the Hunter Valley region. The history of the area as cleared pastoral and agricultural land with occasional associated residential dwellings and sheds is reflected in the low potential of the archaeological resource and in the extant evidence of infrastructure (such as bridges and culverts) and structural items (such as fenceposts and dwellings). In general terms the identified and potential heritage components of the site are of no to low local significance with no to low research potential.

As previously stated, certain sections of the study area were not inspected/surveyed due to access constraints. However, it is unlikely that the level of significance of any as yet unidentified items would rise above the local level.

Table 6.3 identifies the significance of each individual item/component of the study area.

Table 6.3 - Significance Ratings of Items/Components within the Study Area

Item/Component	Local Significance Rating	Research Potential
1. Cony Creek Bridge, Quorrobolong Road	Low	No-low
2. Quarry 1	Nil-low	No
3. Quarry 2	Nil-low	No
4. Ford	Nil-low	No
5. Culvert 1	No significance	No
6. Culvert 2	No significance	No
7. Culvert 3	No significance	No
8. Artefact Scatter	Nil-low	No
9. Fencing 1	Nil-low	No
10. Fencing 2	Nil-low	No

Table 6.3 - Significance Ratings of Items/Components within the Study Area (cont)

Item/Component	Local Significance Rating	Research Potential
11. Cut Tree	No significance	No
12. Cut Stump	Nil-low	No
14. Possible House Site	Nil-low	No
16. Potential Homestead Site	Low	No-low
17. Potential Homestead Site	Low	No-low
18. Early Roads	Nil-low	No

7.0 Heritage Impact Statement

This section provides a heritage impact statement identifying the potential impact of the Stage 3 proposal on all known and potential historical heritage items identified within the study area. The following discussion outlines the potential impact of surface infrastructure and subsidence. A detailed project description is provided in **Section 2.3**.

7.1 Surface Infrastructure

As detailed in **Section 2.3** and illustrated on **Figure 2.3**, the Stage 3 proposal includes the following surface infrastructure:

- a new surface infrastructure facility to the south west of Kitchener. This facility will include upcast and downcast ventilation shafts, bath house, workshop, electricity sub station, store, service boreholes and offices. An access road will be built to connect the facility to Quorrobolong Road, and an electricity distribution line will also be constructed to connect the facility to existing infrastructure on Quorrobolong Road; and

- other unspecified minor works within the project mining leases, to be identified throughout the life of the Stage 3 project.

The impact of both on the identified historical cultural heritage values of the Stage 3 assessment area is discussed below.

7.1.1 Impacts of Surface Infrastructure Site Construction

Items 11 and 12, a felled tree trunk and a saw cut tree stump, are the only items identified during survey and historical research within the proposed surface infrastructure facility site and associated road and electricity alignments. These items are to be removed during the proposed construction of the Surface Infrastructure Site.

7.2 Longwall Underground Mining

7.2.1 Subsidence

As detailed in **Section 2.3** and illustrated on **Figure 2.2**, the Stage 3 proposal involves underground mining of an additional twelve longwall panels with coal to be extracted using LTCC technology. Subsidence, tilt, horizontal displacement, curvature and strain are the parameters normally used to define the extent of surface movements that will occur as a result of underground mining, and generally form the basis for the assessment of subsidence impacts (Mine Subsidence Engineering Consultants (MSEC) 2008). Key parameters of relevance to this assessment are subsidence, tilt, curvature and strain, which are defined as:

1. **subsidence** refers to both the vertical and horizontal displacement of a point, which is usually expressed in millimetres;

2. **tilt** is the change of the slope of the ground as a result of differential subsidence, and is calculated by assessing the change of subsidence between two points. It is therefore measured as millimetres per metre; and

3. **strain** is the relative change in horizontal distance between two points in the ground, and is measured in millimetres per metre. Tensile strain occurs where distance between two

points increases; and compressive strain occurs when the distance between two points decreases.

Non-systematic subsidence includes far-field horizontal movements, irregular subsidence and valley related movements. Valley related movements are a natural phenomenon, resulting from the formation and ongoing development of the valley through uplift and erosion. Valley related movement is described using the following parameters, which may affect the creeks and tributaries of the Stage 3 study area (MSEC 2008):

1. **upsidence** is the reduced subsidence, or the net uplift in the base of a valley, which results from the buckling of near surface strata in the base of a valley resulting from redistribution and increase in horizontal stresses and the collapsed zones above extracted longwalls;

2. **closure** is the reduction in horizontal distance between valley sides, also resulting from redistribution and increase in horizontal stresses and the collapsed zones above extracted longwalls; and

3. **compressive and tensile strains**, as defined above.

Specialist advice regarding likely subsidence resulting from the Stage 3 proposal, and the potential impacts to the assessment area, has been provided by MSEC (2008) and SCT (2007), and the following sections are sourced from these documents.

7.2.2 Stage 3 Subsidence Predictions

Detailed assessments of subsidence impacts have been undertaken for Stage 1 and Stage 2 operations and Subsidence Management Plans (SMP) developed to manage potential impacts. The topography and stratigraphy in the Stage 3 area is similar to Stage 1 and Stage 2. Therefore, it is expected that any subsidence impacts associated with Stage 3 can be readily managed through similar practices to those employed or identified for use in Stages 1 and 2.

MSEC (2008) has undertaken a preliminary assessment of the subsidence levels for the conceptual mine plan proposed for Stage 3. The analysis explores the likely systematic subsidence and valley related movements (based on the maximum expected subsidence level of 2.0 metres) and the upperbound systematic subsidence and valley related movements (based on the worst case scenario of 3.0 metres). The preliminary findings are summarised below:

- the maximum predicted systematic tensile and compressive strains across the area (during or after the extraction of longwalls) are of the order of 0.7 mm/m and 1.5 mm/m respectively. Maximum predicted tilts are assessed to be of the order of 6 mm/m. The maximum upperbound tensile and compressive strains are of the order of 1.0 mm/m and 2.5 mm/m respectively, with upperbound tilt assessed at 9 mm/m;

- it is expected that all residential dwellings will remain within the Safe, Serviceable and Repairable (SSR) limits, even if the upperbound subsidence levels were realised. Each house has had a preliminary assessment specifically conducted. Impacts to services and public infrastructure are likely to be low;

- it is expected that impacts to flora and fauna are also likely to be negligible; and

- in relation to surface hydrology, it is likely that;

    - there will be no significant change to catchment boundaries;

- there will be no significant change to channel alignment or bank stability;
- there will be no significant change to in channel or out of channel ponding; and
- groundwater availability to riparian vegetation is not likely to substantially change as a result of mining.

7.2.2.1 Impacts of Longwall Underground Mining

Table 7.1 lists the heritage items potentially impacted upon by the proposed longwall underground mining, i.e. those within the predicted 20 millimetre subsidence contour area. The predicted 20 millimetre subsidence contour area is the area where subsidence is predicted to occur at a level that may indirectly impact on structures and structural features in the Stage 3 project area. These potential impacts are discussed below.

Table 7.1 - Historical Heritage Resource Potentially Impacted by Proposed Mining

Item	Description
1	Cony Creek Bridge, Quorrobolong Road
2	Quarry 1
3	Quarry 2
4	Ford
5	Culvert 1
6	Culvert 2
7	Culvert 3
8	Artefact Scatter
9	Fencing 1
10	Fencing 2
14	Possible House Site
16	Potential Homestead Site
17	Potential Homestead Site
18	Early Roads

Item 1: Cony Creek Bridge, Quorrobolong Road

Cony Creek Bridge is on the edge of the predicted 20 millimetre subsidence contour area. The bridge is 250 metres to the east of the proposed location of Longwall A6 (see **Figures 2.2** and **5.1**).

There is unlikely to be any significant impact on the Cony Creek Bridge during the proposed mining period (MSEC 2008: 84).

Item 2: Quarry 1

Quarry 1 is located outside the study area, between the two areas of the predicted 20 millimetre subsidence contour area, to the southeast of the proposed infrastructure site (see **Figures 2.2** and **5.1**). Although in the vicinity of the study area, Quarry 1 is not expected to experience any significant impacts as a result of the extraction of the proposed longwalls (MSEC 2008: 83)

Item 3: Quarry 2

Quarry 2 is located outside the study area, between the two areas of the predicted 20 millimetre subsidence contour area, to the southeast of the proposed infrastructure site (see **Figures 2.2** and **5.1**). Although in the vicinity of the study area, Quarry 2 is not expected to experience any significant impacts as a result of the extraction of the proposed longwalls (MSEC 2008: 83)

Item 4: Ford

The ford is within the predicted 20 millimetre subsidence contour area, 440 metres to the west of the closest proposed Longwall (LW A16) (see **Figures 2.2** and **5.1**). At this distance it is unlikely that any significant cracking in the surface soils would occur. Therefore, the ford is not expected to experience any significant impacts as a result of the extraction of the proposed longwalls (MSEC 2008: 84).

Item 5: Culvert 1

Culvert 1 is within the predicted 20 millimetre subsidence contour area, approximately 115 metres southwest of the closest proposed Longwall (LW A9) (see **Figures 2.2** and **5.1**). Culvert 1 is not expected to experience any significant impacts, on its serviceability or otherwise, as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 6: Culvert 2

Culvert 2 is within the predicted 20 millimetre subsidence contour area, approximately 115 metres southwest of the closest proposed Longwall (LW A9) (see **Figures 2.2** and **5.1**). Culvert 2 is not expected to experience any significant impacts, on its serviceability or otherwise, as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 7: Culvert 3

Culvert 3 is within the predicted 20 millimetre subsidence contour area, approximately 65 metres west of the closest proposed Longwall (LW A9) (see **Figures 2.2** and **5.1**). Culvert 3 is not expected to experience any significant impacts, on its serviceability or otherwise, as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 8: Artefact Scatter

The artefact scatter is within the predicted 20 millimetre subsidence contour area, 510 metres to the north of the closest proposed Longwall (LW A7) (see **Figures 2.2** and **5.1**). At this distance it is unlikely that any significant cracking in the surface soils would occur. Therefore, the artefact scatter is not expected to experience any significant impacts as a result of the extraction of the proposed longwalls (MSEC 2008: 84).

Item 9: Fencing 1

Fencing 1 is within the predicted 20 millimetre subsidence contour area, on the southern edge of the proposed location of Longwall A13 (see **Figures 2.2** and **5.1**). Fencing 1 is not expected to experience any significant impacts as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 10: Fencing 2

Fencing 2 is on the edge of the predicted 20 millimetre subsidence contour area, over 250 metres to the east of the proposed location of Longwall A6 (see **Figures 2.2** and **5.1**). Fencing 2 is not expected to experience any significant impacts as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 14: Potential House Site

The potential house site is within the predicted 20 millimetre subsidence contour area, above the proposed location of Longwall A14 (see **Figures 2.2** and **5.1**). Although above the location of a proposed Longwall, surface cracking as a result of subsidence movements is not common at depths of greater than 500 metres, such as at Austar. Any cracking is likely to be isolated and of a minor nature. It is unlikely that the potential house site would be impacted by surface cracking and therefore the site is not expected to experience any significant impacts as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 16: Potential Homestead Site

Potential homestead site (Item 16) is located on the northern edge of the predicted 20 millimetre subsidence contour area. The site is 500 metres to the north of the proposed location of Longwall A8 (see **Figures 2.2** and **5.1**). The maximum upperbound tilt, strain and curvature at the potential homestead site are very small. Therefore, there is not expected to be any significant impacts to potential homestead site (Item 16) as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 17: Potential Homestead Site

Potential homestead site (Item 17) is located on the eastern edge of the predicted 20 millimetre subsidence contour area. The site is 500 metres to the east of the proposed location of Longwall A17 (see **Figures 2.2** and **5.1**). The maximum upperbound tilt, strain and curvature at the potential homestead site are very small. Therefore, there is not expected to be any significant impacts to potential homestead site (Item 17) as a result of the extraction of the proposed longwalls (MSEC 2008: 85).

Item 18: Early Roads

The Land Title search indicated two potentially early public roads within the study area, one within Lot 1 DP 738718 and one within Lots 60 and 61 DP 814379 (see **Figure 5.2**). Both of these potential early roads are located within the southern area of the predicted 20 millimetre subsidence contour area (see **Figure 2.2**). The MSEC 2008 report identified that there are unlikely to be any significant impacts to any roads in the study area. The report specifies that there are unlikely to be any impacts on the serviceability or the drainage of water at the roads and that any potential surface cracking would be minor in nature.

There is unlikely to be any direct or indirect impacts to this item during the proposed mining period.

Table 7.2 provides a succinct statement concerning the proposed impact on the potential heritage items/components of the study area.

Table 7.2 - Heritage Impact Statement

Item/Component	Local Significance Rating	Heritage Impact Statement
1. Cony Creek Bridge, Quorrobolong Road	Low	The Cony Creek Bridge is located on the edge of the predicted 20 millimetre subsidence contour area. There are unlikely to be any direct or indirect impacts on the Cony Creek Bridge during the proposed mining period.
2. Quarry 1	Nil-low	Quarry 1 is located outside the predicted 20 millimetre subsidence contour area, to the southeast of the proposed infrastructure site. There are unlikely to be any direct or indirect impacts to Quarry 1 during the proposed mining period.
3. Quarry 2	Nil-low	Quarry 2 is located outside the predicted 20 millimetre subsidence contour area, to the southeast of the proposed infrastructure site. There are unlikely to be any direct or indirect impacts to Quarry 1 during the proposed mining period.
4.Ford	Nil-low	The ford is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to the ford during the proposed mining period.
5. Culvert 1	No significance	Culvert 1 is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to the culvert during the proposed mining period.
6. Culvert 2	No significance	Culvert 2 is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to the culvert during the proposed mining period.
7.Culvert 3	No significance	Culvert 3 is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to the culvert during the proposed mining period.
8. Artefact Scatter	Nil-low	The artefact scatter is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to the culvert during the proposed mining period.
9. Fencing 1	Nil-low	Fencing 1 is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to this item during the proposed mining period.
10.Fencing 2	Nil-low	Fencing 2 is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to this item during the proposed mining period.

Table 7.2 - Heritage Impact Statement (cont)

Item/Component	Local Significance Rating	Heritage Impact Statement
11. Cut Tree	No significance	Item 11 is located within the proposed surface infrastructure facility site. It is to be removed during the proposed construction of the surface infrastructure site.
12. Cut Stump	Nil-low	Item 12 is located within the proposed surface infrastructure facility site. It is to be removed during the proposed construction of the surface infrastructure site.
14. Possible House Site	Low	The potential House site is within the predicted 20 millimetre subsidence contour area. However, there are unlikely to be any direct or indirect impacts to this site during the proposed mining period.
16. Potential Homestead Site	Low	Potential House site (item 16) is located on the eastern edge of the predicted 20 millimetre subsidence contour area. There are unlikely to be any direct or indirect impacts to this site during the proposed mining period.
17. Potential Homestead Site	Low	Potential House site (item 17) is located on the eastern edge of the predicted 20 millimetre subsidence contour area. There are unlikely to be any direct or indirect impacts to this site during the proposed mining period.
18. Early Roads	Nil-low	The potential early roads are located within the southern area of the predicted 20 millimetre subsidence contour area. There are unlikely to be any direct or indirect impacts to this item during the proposed mining period.

8.0 Management Strategy

This section outlines the proposed management strategy for the known and potential heritage items within the study area.

8.1 Statutory and Policy Framework

Stage 3 of the Austar Coal Mine is defined as a Major Project under State Environmental Planning Policy (SEPP) (Major Projects), in accordance with Clause 5 (1)(a) because it is 'development for the purpose of mining'. Consequently, Part 3A of the EP&A Act applies. The Minister for Planning will determine the Project Application and the provisions of the *NSW Heritage Act 1977* do not apply.

However, prior to granting approval for a project the Department of Planning will consider cultural heritage issues and consult with the Heritage Branch, Department of Planning regarding the project to ensure that those issues are appropriately considered when a decision is made about whether or not to approve a project. They will also consider what management requirements need to be implemented.

If Stage 3 is approved, Austar will be required to manage cultural heritage issues in accordance with the management recommendations made in this Historical Heritage Assessment report and with any approval conditions imposed by the Department of Planning.

All information presented in this report follows the *NSW Heritage Manual* and associated guidelines for *Archaeological Assessments*.

8.2 Management Strategy for Heritage Items Inspected within the Study Area

Table 8.1 provides a management strategy for heritage items within the study area that were inspected.

Table 8.1 - Management Strategy for Heritage Items within the Study Area

Item/Component	Description	Management Strategy
1	Cony Creek Bridge, Quorrobolong Road	The Cony Creek Bridge has been assessed as being of low local significance and as having no or low research potential. There is unlikely to be any direct or indirect impacts on the Cony Creek Bridge during the proposed mining period. MSEC recommends the Cony Creek Bridge is visually monitored during the extraction of the proposed longwalls (MSEC 2008: 55). If any changes to subsidence predictions or if monitoring results indicate that the bridge may be impacted, a detailed recording of the bridge to Heritage Office, Department of Planning standards for archival recording should be completed by a qualified heritage consultant.
2	Quarry 1	Quarry 1 has been assessed as being of nil-low local significance and as having no research potential. In addition, there is unlikely to be any direct or indirect impacts to Quarry 1 during the proposed mining period. On this basis, no further management of this item is required during the proposed works.

Table 8.1 - Management Strategy for Heritage Items within the Study Area (cont)

Item/Component	Description	Management Strategy
3	Quarry 2	Quarry 2 has been assessed as being of nil-low local significance and as having no research potential. In addition, there is unlikely to be any direct or indirect impacts to Quarry 2 during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
4	Ford	The Ford has been assessed as being of nil-low local significance and as having no research potential. In addition, there is unlikely to be any direct or indirect impacts to the ford during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
5	Culvert 1	Culvert 1 has been assessed as having no significance or research potential. In addition, there is unlikely to be any direct or indirect impacts to the culvert during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
6	Culvert 2	Culvert 2 has been assessed as having no significance or research potential. In addition, there is unlikely to be any direct or indirect impacts to the culvert during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
7	Culvert 3	Culvert 3 has been assessed as having no significance or research potential. In addition, there is unlikely to be any direct or indirect impacts to the culvert during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
8	Artefact Scatter	The artefact scatter has been assessed as being of nil-low local significance and as having no research potential. In addition, there is unlikely to be any direct or indirect impacts to the artefact scatter during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
9	Fencing 1	Fencing 1 has been assessed as being of nil-low local significance and as having no research potential. In addition, there is unlikely to be any direct or indirect impacts to this item during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
10	Fencing 2	Fencing 2 has been assessed as being of nil-low local significance and as having no research potential. In addition, there is unlikely to be any direct or indirect impacts to this item during the proposed mining period. On this basis, no further management of this item is required during the proposed works.
11	Cut Tree	The cut tree trunk has been assessed as having no significance or research potential. Item 11 is likely to be removed during the proposed construction of the surface infrastructure site. Although the tree trunk is likely to be impacted, it has been assessed as having no significance and no research potential. On this basis, no further management of this item is required during the proposed works.

Table 8.1 - Management Strategy for Heritage Items within the Study Area (cont)

Item/Component	Description	Management Strategy
12	Cut Stump	The tree stump has been assessed as being of nil-low local significance and as having no research potential. Item 12 is likely to be removed during the proposed construction of the surface infrastructure site. Although the tree stump is likely to be impacted, it has been assessed as having nil-low significance and no research potential. On this basis, no further management of this item is required during the proposed works
14	Possible House Site	The potential house site has been assessed as being of nil-low local significance and as having no research potential. In addition, there is unlikely to be any direct or indirect impacts on the potential house site during the proposed mining period. On this basis, no further management of this item is required during the proposed works.

8.3 Management Strategy for Areas and Items not Inspected within the Study Area

As noted in previous sections, access was not available to all private property in the study area. However, historical research indicates there is a low likelihood of any further potential heritage items to be present within the study area, with the exception of Items 16 and 17 (possible house sites) and 18 (potential early roads). In the unlikely event any further items are identified they are unlikely to have any significance or research potential and any potential impact to the potential items would be negligible. **Table 8.2** outlines management strategies for Items 16 to 18.

Table 8.2 - Management Strategy for Heritage Items (not inspected) within the Study Area

Item	Description	Management Strategy
16 and 17	Potential Homestead Sites	Potential homestead sites (Items 16 and 17) were not inspected as part of the survey of the study area as access was unavailable. They have been assessed as likely being of low local significance with no or low research potential. There is unlikely to be any direct or indirect impacts to these items during the proposed mining period. MSEC recommends all houses located above the proposed longwalls are visually monitored during the extraction of the proposed longwalls (MSEC 2008: 93). If any changes to subsidence predictions or if monitoring results indicate that the sites may be impacted, Items 16 and 17 should be inspected by a heritage architect to confirm their low level of significance. If assessed by a heritage architect as having no significance or research potential, no further management of these items is required during the proposed works. If confirmed to be of local significance, a detailed recording of Items 16 and 17 to Heritage Office, Department of Planning standards for archival recording should be completed by a qualified heritage consultant.

Table 8.2 - Management Strategy for Heritage Items (not inspected) within the Study Area (cont)

Item	Description	Management Strategy
18	Early Roads	The early roads (Item 18) potentially located within the study area were not inspected as part of the survey of the study area as access was unavailable. They are potentially of no or low local significance with no research potential. There is unlikely to be any direct or indirect impacts to this item during the proposed mining period. On this basis, no further management of this item is required during the proposed works.

8.4 Management Strategy for Unexpected Finds

In the unlikely event that unexpected archaeological remains not identified as part of this study are discovered at the site (for example during works associated with the construction of the new surface infrastructure facility), all works in the immediate area should cease, the remains and potential impacts should be assessed by a qualified archaeologist and, if necessary, the Heritage Branch, Department of Planning notified.

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APPENDIX A

Summary of Land Title Search Results

Appendix A – Summary of Land Title Search Results

Appendix A provides a detailed summary of the results of the land title searches undertaken for lots within the 20 mm subsidence contour which potentially contain extant structures (based on a review of the 2007 aerial photograph) which could be impacted upon by the Stage 3 proposal.

2/873717

These lots were originally part of the Barraba Estate Subdivision which was part of Jacob Josephson's two thousand acre grant granted to him on 15 August 1834 (refer to Certificate of Title Vol. 11681 Folio 246). Many of the subdivided lots within the study area were eventually sold to graziers and farmers including Lot 2 DP 873717 to Cessnock Collieries Limited and Frederick Peter White, farmer (1927 - 1960?), Cessnock Collieries Limited and George Ronald Lewis Pringle, farmer (1960-1966), George Ronald Lewis Pringle, farmer and Hughie James Robb, farmer and former mine worker, and Margaret Dorothy Robb (1966-1972). Later the subdivided lots were sold to the Robbs (1972-1980) and Peter Brian and Marjorie Jane McCredie, farmer (1980).

973/804896

Lot 973 in Deposited Plan 804896 was transferred from Geoffrey Thomas Nicholls and Leila Nicholls to Barquin Pty Limited. No details are provided of either owners occupation and therefore no indication is given of land use history in September 1991.

91/1064579

A deed for Lot 91 in DP 1064579 was left by Lily Annie Guthrie (owner from 1960-1997) to Lindsay John Forbes in 1997 and Francis James and Narelle Muxlow, farmers. In 1960 Alfred Edwin John Forbes, farmer, sold the land to Lily Annie Guthrie. Sloper Donald Ian Forbes was left the same land in 1947 by Clara Elizabeth Forbes.

Lots 3, 4, 7, 8, 9 and 10/240664

A title search of Lot 10 in Deposited Plan 240664 shows Reginald Craig Crampton, Automotive Engineer had a half share of this property with Jamie Richard Crampton, Benjamin Wylie Crampton and Lucas Thomas Crampton in 1972. A deed in 1970 indicates Leonard Thomas Thorpe had a mortgage of the property with Unity Mortgage Corporation Ltd. Another deed shows that the property was formerly owned by Thomas Batterham, a former coal miner who left his property to Leonard James Thorpe and Reginald Hugh Batterham, Bus Proprietor and Robert John Batterham of Cowra. A deed dated 1935 shows the sale of the property between Joseph William Whiting, Teamster and Thomas Batterham of Kitchener. In 1929 the property is referred to as Lot 6 and is transferred between Hector Cameron McDonald of Edderton, Muswellbrook, Grazier and Joseph William Whiting, Teamster. A document provides a summary of the properties exchange of title, which is summarised in **Table 1**.

Table 1 - Summary of Land Title for Lot 6/240664

Date of Document	Nature of Document	Parties to Document	Registration Number Book	
15 August 1834	Crown Grant of 2000 acres	To Jacob Josephson under the hand of Richard Burke Governor & C	Entered on Record Register of grants 23	130
10 December 1835	Indenture of lease	Jacob Josephson one part and George Thomas Palmer other part		
11 December 1835	Indenture of lease	Jacob Josephson and Emma Josephson 1st part, Richard Alexander Wiseman; and 2nd part, and George Thomas Palmer	558	B.K.
31 May 1849	Indenture of Mortgage	George Thomas Palmer one part and Samuel North and Francis Beddek other part	733	16
14 June 1853	Indenture of Conveyance	George Thomas Palmer one part and Edward Charles Close other part	208	309
7 May 1859	Indenture of Re-conveyance	Samuel North one part and Edward Charles Close other part	470	61
16 May 1885	Indenture of Conveyance	Edward Charles Close one part and Alexander Dodds other part	209	309
10 May 1898	Indenture of Mortgage	Alexander James Dodds and Frederick Dodds to Alexander James Dodds, David Peter Dixon and Richard Jones	132	620
19 March 1900	Re-conveyance or Discharge	Of last mentioned Mortgage	385	665
19 May 1900	Indenture of Conveyance	Alexander James Dodds and Frederick Dodds one part and Frederick Samuel Bell and Henry Wyatt Bell other part	386	665
1 June 1900	Indenture of Mortgage	Frederick Samuel Bell and Henry Wyatt Bell one part and The Australian Mutual Provident Society other part	386	665
10 February 1902	Discharge	Of last mentioned Mortgage endorsed thereon	416	706
10 February 1902	Indenture of Conveyance	Frederick Samuel Bell and Henry Wyatt Bell one part and John McDonald and Hector Cameron McDonald the other part	417	706

A deed of 1920 shows the transfer of title between Hector Cameron McDonald of Edderton Muswellbrook, Grazier and Roderick James McDonald. A deed for Lot 9, DP 240664 shows the ownership of land by John Evan Brown and Olive Joan Brown in 1990.

A deed for Lot 7, DP 240664 indicates the ownership of land in 1972 by Leonard Thomas Thorpe, Builder, and later in the same year to John Donald McEwan, Supervisor. In 1974 the land exchanges to Geoffrey Thomas Nicholls, Lecturer and Leila Nicholls. In 1984 the land exchanges to Peter Alfonsus Cagney and in 1986 to Gregory Michael Thane and Sharon Kerry Thane as joint tenants.

A title search for Lot 4, DP 240664 shows Robert James Gough and Anne Marie Gough as joint tenants. No information is provided regarding previous land use history. From 1987 to 2006 the search shows several transfers of mortgage on the property. A transfer of title is shown from Pamela Jan Lakin, Mark Sydney Howes and Sydney William Howes and Elaine Janet Howes and Frederick Hugh Lakin from Bolton Point in 1987. A deed for 2001 shows joint tenancy between Bruce Ernest Starkey and Kerry Ann Starkey. A deed in 1983 shows land title held by Pamela Jan Lakin, Mark Sydney Howes, Sydney William Howes, Elaine Janet Howes and Frederick Hugh Lakin. No information is provided regarding their occupation.

A deed dated 1901 shows the transfer of Folio No. 1901/475 and similarly for No. 1901/572 and No. 1356/210 for Volume 1353 Folio 114 to George Chapman of Wollombi (no position is provided). This deed transferred title from George Chapman to his wife Mary Ann Chapman in 1910. Mary Ann Chapman transferred title to James Reynolds, Teamster in 1925. The title transferred from James Reynolds to the Bank of NSW in 1925. Title transferred from James Reynolds to Thomas Batterham, Mine Pensioner in 1954. In 1969 Reginald Hugh Batterham, Bus Proprietor and Robert John Batterham, Store Proprietor were joint tenants. Leonard James Thorpe, Builder gained title in 1970. Title transferred from James Reynolds to Thomas Batterham, Mine Pensioner in 1954. The title transferred again to Leonard James Thorpe in 1970 and then to Unity Mortgage Corporation Ltd in 1970. The deed was cancelled and New Certificates of Title were issued in 1971 as Lots 1 to 5, of DP 240664.

A title search for Lot 3, DP 240664 includes the transfer of title in 1988 from Barry John Bloomfield to Brian Anthony Watts, Company Director and his wife Lynette Ann Watts. Bloomfield was transferred title in 1984 from James Thomas Stewart, Marine Engineer and his wife Audrey Kathleen Stewart.

A title search for Lot 8 in 240664 includes the transfer of title from Leonard Thomas Thorpe, Builder to William Frederick Clarke, Hunter and Marina Office Clerk and his wife as joint tenants in 1972. In 1980 title transferred to Adrianus Jocubus Theodorus Conjin of Lisarow, Retired Medical Photographer and his wife Joan Margaret Conjin.

51/599170

A title search for Lot 51 DP 599170 indicated the title transferred from Raymond Edward Imanual Robinson and Sonia Sullivan to William Alfred Fletcher of Karloo Stud, Schofields and Julie Anne Wiesmantel of the same address. Peter John Wood of Buttaba, Manager and Sharon Marie Gray of Tuggerah, Trainee Supervisor gained title in 1979 and William Dixon in 1981. From Dixon the title transferred in 1983 to Anthony William Hiles and Anne Lucia Hiles. In 1988 it transferred to Raymond Edward Imanual Robinson and Sonia Sullivan.

A deed for Lot 5 of DP 240664 transferred to Paul Charles Kauter of Coal Point, Police Officer in 1971 and to Barbara Joyce Kauter in 1972.

52/599170

A title search for Lot 52 DP 599170 shows ownership by Paul Charles Kauter and a mortgage by the Commonwealth Bank of Australia on the property in 1979.

1002/856790

A title search for Lot 1002 in DP 856790 shows the ownership of land by Ronald Lloyd Hearn but no date is provided.

A deed for Lot 3 DP 571638 shows the ownership of the land by Ronald Lloyd Hearn, Trainee Engineer in 1975.

4/571638 and similar to 12/705614

A deed for Lot 4 DP 571638 shows ownership of land in 1975 by Phillip Wayne Hearn, AMP Agent. The deed then transferred to Paul Francis Morton in 1984. A deed in 1946 transferred title between Patrick Burke, Farmer and former Timber Contractor and Ethel Victoria O'Hearn, wife of Clyde Frederick O'Hearn, Saw Miller. This deed refers to Book 1984, No. 295.

A deed for No. 853 Book 1527 made in 1928 between Hector Cameron McDonald of Edderton, Muswellbrook, Grazier and Patrick Burke, Timber Contractor shows the sale of the property. The history of title encapsulated on this deed is tabulated in **Table 2**.

Table 2 - Summary of Land Title for 4/571638

Date	Description
31 January 1838	Crown Grant to George Thomas Palmer recorded in Register of Grants of Land No. 37, page 321 entered as number 137 folio 54 in register of Surveyor General's office
15 August 1834	Crown Grant to Jacob Josephson entered as number 274 folio 766 in register of County of Northumberland Surveyor General's Office 3rd February 1835
10 December 1835	Indenture of Lease Jacob Josephson's of the one part and George Thomas Palmer of the other part
11 December 1835	Indenture of Release Jacob Josephson and Emma Josephson first part, Richard Alexander Wiseman second part and George Thomas Palmer third part, registered number Lease and Release 558 Book
31 May 1849	Indenture of Mortgage George Thomas Palmer of the one part and Samuel North and Francis Beddeck of the other part Registered Number 733 Book 16
14 June 1853	Indenture of Conveyance George Thomas Palmer of the one part and Edward Charles Close the Younger of the other part Registered number 208 Book 309
7 May 1859	Indenture made between Samuel North of the one part and Edward Charles Close the Younger the other part Registered number 470 Book 61
6 May 1885	Indenture of Conveyance Edward Charles Close of the one part and Alexander Dodds of the other part, registered number 209 Book 309
10 May 1898	Indenture of Mortgage made between Alexander James Dodds and Frederick Dodds to Alexander James Dodds, David Peter Dixon and Richard Jones, registered number 132, Book 620
19 March 1900	Discharge of lastly mentioned mortgage registered number 385 Book 665
19 May 1900	Indenture of Conveyance Alexander James Dodds and Frederick Dodds of the one part and Frederick Samuel Bell and Henry Wyatt Bell of the other part Registered Number 386 Book 665
10 February 1902	Statutory Discharge endorsed on lastly mentioned mortgage No. 426 Book 706
10 February 1902	Indenture of Conveyance Frederick Samuel Bell and Henry Wyatt Bell of the one part and John McDonald and Hector Cameron McDonald of the other part, registered number 417 Book 706

A deed for 1946 between Patrick Burke, Farmer and former Timber Contractor and Ether Victoria O'Hearn for No. 295, Book 1984 shows the transfer of title. The land was transferred from Hector McDonald to Patrick Burke in 1928. A deed for Book 1291 No. 143 shows the transfer from Hector Cameron McDonald of Muswellbrook, Grazier to Clyde Frederick Lloyd O'Hearn, Saw Miller in 1922. This deed contains the same history of title as that tabulated above.

1/852328

A land title search for Folio 1/852328 shows that Lot 1 DP 852328 is owned by Alan Gregory Smith and Jocelyn Smith. In 1988 James Jerome Seymour-Allan and Marie Janice Seymour-Allan and Ronald William Dyer, Company Director transferred title. In 1982 James Geoffrey Holt, Grazier and Thelma Mary Holt, his wife and James Jerome Seymour-Allan and his wife Marie-Janice Seymour-Allan transferred ownership.

In 1972, Book 3070 No. 229, Lot 3 shows that Leslie Donald McDonald, Grazier and James Geoffrey Holt and his wife Thelma Mary Holt transferred ownership. In 1956 deed for No. 847, Book 2388 shows that Alfred Edwin John Forbes, NSW Colliery Employee and Leslie Donald McDonald, Timber Carrier exchanged title. A deed for Book 2035 No. 88 shows the exchange of title between Sloper Donald Ian Forbes, Farmer and Clara Elizabeth Forbes, who deceased and left the property to Sloper Forbes in 1947. A deed in 1930 shows the transfer of title between Patrick Burke, Timber Contractor and Clara Elizabeth Forbes spinster where Burke sold the land to Forbes (Book 1637, No. 86). The deed also includes a summary of title which includes 1927, the title with Hector Cameron McDonald of Edderton Muswellbrook to Lot 3 Coney Creek Subdivision in the Parish of Quarrybylong, County of Northumberland. The same title dated 22 August 1928 shows a statutory declaration of Albert Edward Westcott with Certificate of Death of John McDonald annexed. The same date has a deed of conveyance for Hector Cameron McDonald of the one part and Patrick Burke of the other part registered number 853 book 1527. A deed shows the transfer of title in 1928 (No. 853 Book 1527) for Hector Cameron McDonald and Patrick Burke.

10/1093269

A deed for Lot 1 DP 575428 shows that John William Rayner owned the property in 1981. A deed for Lots 1, 2 and 3, No. 51536 has a summary of title for the property tabulated in **Table 3**.

Table 3 - Summary of Land Title for Lot 10/1093269

Date	Nature of Document	Parties
17 June 1929	Conveyance	Hector C. McDonald and Anor. to Donald McDonald
12 August 1927	Copy Will	Late George King, Probate Granted 30 August 1928. No. 153667
7 May 1964	Copy Will	Late Donald McDonald, Probate granted 10 April 1967, No. 628402
18 October 1967	Statutory Declaration	James M McDonald and Ors
18 October 1967	Conveyance	James M McDonald and Ors to James M McDonald
24 January 1966	Copy Will	Late James M McDonald, Probate Granted 19 January 1972. No. 732475
9 November 1970	Statutory Declaration	Dudley A McDonald and Anor

Table 3 - Summary of Land Title for Lot 10/1093269 (cont)

Date	Nature of Document	Parties
9 October 1973	Statutory Declaration	Donald Leslie McDonald
11 October 1973	Conveyance	Donald L. McDonald to Matford Nominees Pty Limited
1973	Abstract of Title	Matford Nominees Pty Limited
20 January 1971	Power of Attorney	Matford Nominees Pty Limited to Stanislaus Anthony Carroll
29 May 1975	Statutory Declaration	L Griffiths
3 July 1975	Statutory Declaration	S.A. Carroll

A deed Registered No. 280 Book 3 119, in 1973 shows an exchange of title between Donald Leslie McDonald and Audley Arnold McDonald who were left land by James Milton McDonald.

A deed Registered No. 300 Book 2859 in 1967 shows a transfer of title between James Milton McDonald, NSW Railway Worker and Reginald Cleave McDonald, Grazier and Elaine Joy Wells, Grazier. Another deed in 1929 No. 8 Book 1862 show a transfer of title between Hector Cameron McDonald of Edderton, Muswellbrook, Grazier and John Phillips, Cessnock, State Labourer, William Phillips of Cessnock, Railway Porter and Albert Edward Westcott, Solicitor Executors.

Lot 117 DP 755215

Peter Richard Hughes of Diamond Beach and Julie Lynette Hughes of Kitchener transferred title to Susan Helen Pettiford in 1990 according to Transfer document. A grant of land dated 1921 is a grant of land to Arthur Henry Southam. The land grant document also details the later history of the title including John Hodge, Labourer and Hazel Hodge his wife in 1963. Brian Squires, Bus Driver and Marjorie Jane Squires, his wife gained title as joint tenants in 1968. Allison Friis, Married Woman gained title in 1969. Douglas Cook, Labourer and Diane Lesley Cook gained title in 1974. Australia and New Zealand Banking Group Limited gained title in 1974. Robert Dyson and Pamela Wood transferred title in 1981. Noel John Forbes and Sandra Margaret Forbes gained title in 1982. Peter Richard Hughes and Julie Lynette Hughes gained title in 1985. A mortgage to the State Bank of New South Wales was registered on the title in 1988. A plan of portion 117 from the Land Board District dated 1914 has information that this land was set aside for a “Homestead Farm”.

Lot 521 DP 1003186

A transfer document from Lyndall Karen Campbell to Paul Douglas Campbell shows a transfer of title in 1995. In 1996 there is a title transfer from Leonard Joseph Campbell and Margaret Anne Campbell to Paul Douglas Campbell. A deed for this property in 1967 shows the transfer of title between James Milton McDonald, Railway Worker and Reginald Cleave McDonald, Grazier. A deed in 1920 shows a transfer of title between Hector Cameron McDonald, from Edderton near Muswellbrook, Grazier to Donald McDonald, Teamster. A deed in 1989 between Reginald Cleave McDonald, retired Grazier, and Leonard Joseph Campbell, State Newsagent and Lyndall Karen Campbell and Darryl John Outteridge, Kilaben Bay and his wife Louise Ann Bettridge. A deed in 1967 which shows the transfer of title between James Milton McDonald, Railway Worker and Reginald Cleave McDonald, Grazier and Elaine Joy Wells married woman. A transfer of title between Leonard Campbell and Margaret Campbell and Paul Campbell to Kenneth Charles Borda in 1999. In 1996 there is a transfer of title between Leonard Campbell, Margaret Campbell, Darryl Outteridge

and Paul Campbell. In 1988 there is a transfer of title between Leslie Donald McDonald and Darryl John Outteridge, Accountant, Paul Douglas Campbell, Newsagent and Leonard Joseph Campbell and Margaret Campbell, Company Secretary.

1/950221

Donald Watson McDonald, Grazier became land owner in 1916 after a transfer of title from Hector Cameron McDonald (Certificate of Title is numbered 1/950221). The Certificate of Title has a history of land ownership after this time and includes a transfer to Annie May Catherine McDonald, widow and Donald Alexander McDonald, Grazier in 1930. A transfer to Donald Alexander McDonald in August 1962. A transfer from Mervin Watson McDonald, Grazier in 1962. A transfer to Katie Mary McDonald in 1986 and the last registered transfer to the Boolaroo Land Company Pty Limited in 1986.

A Certificate of Title to Hector Cameron McDonald in 1914 has him as the land owner. After this time a history of title is provided on the certificate including a transfer from Hector Cameron McDonald to Donald Watson McDonald in 1915 of part of portion 69. A transfer in 1921 from Hector Cameron McDonald to Peter Phillips in 1921 of part of portion 69. A transfer from Hector Cameron McDonald to Donald Watson McDonald of Lots 4 and 5 DP 10677 in 1921. A transfer from Hector Cameron McDonald to Donald McDonald of Lot 6 DP 10677. A transfer from Hector Cameron McDonald to Roderick James McDonald of part of portion 69 in 1922. A transfer from Hector Cameron McDonald to Edward Avery of part of portion 69 in 1022. A transfer of part of portion 69 from Hector Cameron McDonald to Ellalong Sports Club Limited in 1926. A transfer from Hector Cameron McDonald to Alexander Levi Skinner of Lots 2 and 3 of DP 10677 in 1928. A transfer from Hector Cameron McDonald to Henry Roland Hall of part of Lot 1 DP 10677 in 1930.

A Certificate of Title shows John McDonald and Hector Cameron McDonald (vol. 1396 Folio 157), both Queensland Graziers, gained ownership of title from Samuel Bell and Henry Wyatt in 1902. The Certificate of Title also shows the history of title after this date which included a transfer of title from Hector Cameron McDonald to the Dover Street Estate Company Limited of Mines and Seams and of Coal ironstone and other minerals together with certain rights in and under as part of the land No. A 108258 dated 1914. A transfer in 1908 of the full title on the death of John McDonald to the surviving joint tenant Hector Cameron McDonald occurred in 1908.

A Certificate of Title (Vol. 1322 Folio 130) shows the ownership of land by Frederick Samuel Bell of Pickering near Denman, Grazier who was transferred title from Alexander James Dodds and Frederick Dodds and Henry Wyatt Bell in 1900. The land title after that time shows a transfer of title from Bell to John McDonald and Hector Cameron McDonald in 1902.

An entry from a Register Book Vol. CXXVII Folio 103 dated 1871 states that the land was purchased by Edward Charles Close of Sydney. The transfer of title after this date includes a transfer of title from Close to Alexander Dodds in 1885. A transfer of title from Alexander Dodds to Frederick Dodds is dated 1898. A transfer in 1898 between Alexander James Dodds and Frederick Dodds is registered to a name which is unintelligible on the title. In 1900 the land transferred from Alexander James Dodds and Frederick Dodds to Samuel Bell and Henry Wyatt Bell.

1/170894

A Certificate of Title (Vol.3314, Fol. 157) has Edward Avery, Farmer transferred ownership from Hector Cameron McDonald dated 1922. Edward Avery transfers title to George Frederick Lindeman, Engineer in 1922. In 1924 there is a transfer of title which shows resumption of some part of the land for a Public Road. In 1925 Edward Avery transfers title to the Commercial Banking Company of Sydney Limited by a mortgage. In 1941 there is a

discharge of the mortgage. In 1942 Edward Avery transfers the title to Donald McDonald, Timber Constructor. In 1947 Donald McDonald described as “Miner of the land within” transferred title to Ena May Westridge. In 1949 Ena May Westridge transferred the title to Stanley Edward Avery, Mine Worker. In 1979 the land was resumed by the Boolaroo Land Company.

Hector Cameron McDonald (Vol. 2513 Fol. 24) of Barraba, Grazier took over ownership of several land grants according to a Certificate of Title dated 1914. According to the Schedule referred to in this letter it includes land grants owned by Edward Charles Close (400 acres, Portion 97, granted in 1878), by Frederick Samuel Bell and Henry Wyatt Bell (183 acres, Portion 101 & 102, granted 1900) and by Edward Charles Close (50 acres, Portion 5, granted in 1867, 61 acres, Portion 32 granted in 1879; 64 acres, Portion 33 granted in 1879 and 284 acres Portion 31 granted in 1871). A transfer of title between Hector Cameron McDonald to Donald Watson McDonald on part Portion 69 occurred in 1915. A transfer of title between Hector Cameron McDonald and Peter Phillips of part of portion 97 and Lots 4, 5 and 6 DP 10677 in occurred 1921. A transfer of part portion 69 between Hector Cameron McDonald and Roderick James McDonald in 1921. A transfer in 1921 between Hector Cameron McDonald and Edward Avery in 1922. A transfer between Hector Cameron McDonald and Ellalong Sports Club Limited in 1926 for part of lots DP 10677. A transfer of title between Hector Cameron McDonald and Alexander Levi Skinner for Lots 2 and 3 DP 10677. A transfer of title between Hector Cameron McDonald and Henry Roland Hall of part Lot 1 DP10677 in 1930.

1/738718

A deed dated 1986 between Katie Mary McDonald gains title from the deceased estate of Mervin Watson McDonald, Grazier and the Boolaroo Land Company Pty Limited. A deed in 1961 from Donald Alexander McDonald, NSW Forestry Employee and former Grazier and Mervin Watson McDonald, Grazier transfers ownership. Conveyance Book 1052 and No. 35A is an Indenture between Hector Cameron McDonald, Edderton Station, Muswellbrook and Donald Watson McDonald State Butcher who purchased the land dated 1902. The title then refers to a history which is tabulated in **Table 4**.

Table 4 - Summary of Land Title for 1/738718

Dates	Description in Schedule
15 August 1834	Grant to Jacob Josephson of 2,000 acres
10 December 1835	Indenture of lease, Jacob Josephson of the one part and George Thomas Palmer of the other part
11 December 1835	Indenture of Release Jacob Josephson and Emma Josephson first part; Richard Alexander Wiseman second part; and George Thomas Palmer, third part, Registered Lease and Release Number 558 Bk
31 May 1849	Mortgage George Thomas Palmer to Samuel North and Francis Beddeck Registered Number 733 Book No.
7 May 1859	Indenture Samuel North of the one part and Edward Charles Close the younger of the other part Registered Number 490 Book 61
14 June 1853	Indenture George Thomas Palmer to Edward Charles Close the younger Number 208 Book 309
7 December 1857	Crown Grant to Edward Blackwell of 103 acres Register of Land Purchases A Page 2551
18 December 1857	Grant to William Tacon of 100 Acres Number A Page 2657
26 February 1864	Mortgage William Tacon to Thomas Cadell Number 501 Book 87

Table 4 - Summary of Land Title for 1/738718 (cont)

Dates	Description in Schedule
20 March 1866	Statutory Discharge endorsed Number 641 Book 97
25 August 1866	Conveyance William Tacon to Edward Blackwell Number 850 Book 99
11 April 1870	Conveyance Edward Blackwell to William Tacon Number 863 Book 118
29 April 1872	Conveyance William Tacon first part, Harriett Moore Blackwell second part and Edward Charles Close third part, No. 954 Book 129
15 October 1856	Grant to Rodber Palmer of 30 Acres No A Page 2332
14 May 1857	Conveyance to Rodber Palmer to Edward Blackwell Number 503, Book 50
13 November 1860	Indenture Edward Blackwell to Thomas Cadell Number 159 Book 70
17 August 1866	Indenture Thomas Cadell to Samuel Stead Number 770 Book 120
13 August 1870	Discharge endorsed to 771 Book 120
8 August 1876	Indenture Edward Blackwell first part, Harriett Moore Blackwell second part and Edward Charles Close third part Number 337 Book 121
6 May 1885	Conveyance Edward Charles Close to Alexander Dodds No. 209 Book 309
19 May 1900	Conveyance Alexander James Dodds and Frederick Dodds Executors of Alexander Doss to Frederick Samuel Bell and Henry Wyatt Bell Number 386 Book 665
1 June 1900	Indenture Frederick Samuel Bell and Henry Wyatt Bell to the Australian Mutual Provident Society No. 350 Book 667
10 February 1902	Statutory Discharge endorsed No. 416 Book 706
10 February 1902	Conveyance FS Bell and HW Bell to John McDonald and Hector Cameron McDonald Number 416 Book 706

21/1079917

A deed from 1971 shows the title transferred from Ena May Westnidge, wife of Ernest Westnidge Miner, to Stanley Edward Avery, State Labourer. A deed in 1947 Donald McDonald, Timber Contractor sold title to Ena May Westnidge. A deed in 1942 between transferred title to Edward Avery, Farmer and Donald McDonald, Timber Contractor. A deed in 1921 between Hector Cameron McDonald, Edderton Muswellbrook, Grazier transferred ownership to Edward Avery, Farmer. The history of title on this particular deed is tabulated in **Table 5**.

Table 5 - Detailed Summary of Land Title for 21/1079917

Date	Summary of Land Title
7 December 1857	Crown Grant to Edward Blackwell of 103 acres Register of Land Purchases A Page 2551
13 November 1860	Indenture of Mortgage E. Blackwell one part and Thomas Cadell other part reg. No. 770 Book 120
17 August 1866	Indenture Thomas Cadell to Samuel Stead Number 770 Book 120

Table 5 - Detailed Summary of Land Title for 21/1079917 (cont)

Date	Summary of Land Title
17 August 1866	Transfer of Mortgage endorsed
13 August 1870	Discharge endorsed to 771 Book 120
17 August 1866	Transfer of Mortgage endorsed
13 August 1870	Discharge of mortgage endorsed
8 August 1870	Conveyance between E. Blackwell and Anor one part and E.C. Close second part Reg. No. 337 Book 121
6 May 1885	Conveyance between E. C. Close one part and Alexander Dodds of other part Reg. No. 209 Book 309
10 May 1889	Mortgage between A J Dodds and F Dodds one part and D P Dixon and Richard Jones Reg. No. 132 Book 620
19 March 1900	Reconveyance or discharge endorsed Reg. No. 385 Book 665
19 March 1900	Conveyance A J Dodds and F Dodds to F S Bell and H W Bell Reg. No. 386 Book 665
19 May 1900	Conveyance Alexander James Dodds and Frederick Dodds Executors of Alexander Doss to Frederick Samuel Bell and Henry Wyatt Bell Number 386 Book 665
1 June 1900	Indenture said Frederick Samuel Bell and Henry Wyatt Bell to the Australian Mutual Provident Society No. 350 Book 667
10 February 1902	Statutory Discharge endorsed No. 416 Book 706
10 February 1902	Conveyance said FS Bell and HW Bell to John McDonald and Hector Cameron McDonald Number 416 Book 706
2 September 1908	Letters of administration No. 43753

60/814379
6/248945
61/814379

A deed for Lot 6/248945 was owned by Lyndon John Schultz, Electrical Engineer and his wife Kay Schultz until 1984 when title was transferred to Warren William Paler and Frances Cordelia Paler as joint tenants in 1987. Part of the land was made a public road within Lot 1 DP48157. On a plan drawing associated with the deed for DP 539687, from Michael Cooper of Douglas Pulver & Cooper Newcastle in 1976, there is a map of a homestead and the remains of old post and rail fences and newer barbed wire fences (Drawing Number is C.B 57/99 F.B 490/7 69/411). The same plan is attached to a land deed for Lot 1201 in DP 539687 which is part of an original portion 120 granted to John Brown in 1839. The deed that has the plan attached has the registered owner as Bridgebull Industries Ltd in 1971, title was transferred to Colstan Developments Pty Ltd, Sydney Brick Company Pty Ltd, Marie Josephine Munro of Beverley Hills and Lindsay George Petheridge of Drummoyne, Printer as tenants in common in equal shares in 1973. A deed in 1966 has the owner as Frederick Wyndham, Retired Grazier who transferred title to Thomas Edward Kenneth Lewis, Farmer and his wife Amy Augusta Lewis. In 1930 a deed between Alexander Glennie Wyndham, Grazier indicates the change of title within the Wyndham family at the death of Alexander

Wyndham, document is confused and it is unclear who is the owner or how title is transferred between William Henrie Glennie and Spencer Holmes, both Gentleman who were executors of Annie Glennie's estate. The estate was left first part to Mary Anne Holmes and Lucy Emily Wyndham. The history of title is tabulated in **Table 6**:

Table 6 - Detailed Summary of Land Title for 60/814379, 6/248945 and 61/814379

Date	Summary of Land Title
29 June 1839	Grant from the Crown to John Brown of 1280 acres
13 June 1853	Release John Brown to Jesse Sharpley Registered No. 923 Book 24 Proofs of Heirship of Jesse Sharpley
25 February 1863	Declaration by William Walter Smith of this date
7 March 1863	Declaration of Benjamin Carrington
2 May 1861	Certificate of the death of Susannah Sharpely on this date
1 September 1863	Declaration of James (name unknown) evidencing death of James Sharpely
20 September 1863	Declaration of William James Stack to like effect
21 November 1863	Declaration of James Dodds evidencing that James Sharpely died without issue
25 November 1863	Declaration of Jesse Sharpley that James Sharpely died interstate
15 April 1861	Indenture of Conveyance of this date made between Jesse Sharpely of the one part and James Dickson, Alexander Dickson and Robert Strachan of the other part Registered no. 404 Book 72
23 August 1861	Indenture of Conveyance made between the said Alexander Dickson of the one part and the said James Dickson and Robert Strachan of the other part Registered No. 130 Book 174
3 October 1862	Indenture of Conveyance made between the said James Dickson and Robert Strachan of the one part and John Garland of the other part Registered No. 126 Book 30
3 October 1863	Bond under seal between the same parties unregistered
8 April 1865	Indenture of mortgage made between the said John Garland of the one part and Edward Wyld of the other part Registered No. 608 Book 92
16 February 1871	Certificate under the hand of the Chief Commander of insolvent estates of this date that the estate of the said John Garland had been placed under sequestration.
15 February 1871	Indenture of conveyance of equity of redemption made between John Piper Mackenzie Official Assignee of the Insolvent Estate of John Garland and Edward Wyld Registered No. 359 Book 123
14 October 1871	Indenture of Conveyance between Edward Wyld and Anne Glennie
22 May 1867	Abstract Power of Attorney of this date Edward Wyld to Edward Chrisholme
18 October 1879	Declaration of Edward Chrisholm
19 March 1892	Probate of the will of the said Anne Glennie

51/812963

A deed for Lot 5 DP 248945 shows land title for Maurice William Minter Training Officer and Sandra Minter, Clerk for ownership in 1981.