

Historical Heritage Assessment



Appendix 14

Centennial Hunter Pty Limited

Historical Heritage Assessment - Anvil Hill Project

June 2006

Executive Summary

Centennial Hunter Pty Limited (Centennial) proposes to establish an open cut coal mining operation, referred to as the Anvil Hill Project, in the Wybong area, 20 kilometres west of Muswellbrook (refer to **Figure 1.1** in **Section 1**). As part of the Environmental Assessment for the proposed Anvil Hill Project (the Project), Umwelt (Australia) Pty Limited (Umwelt) was commissioned by Centennial to prepare a *Historical Heritage Assessment*. The purpose of the assessment was to gain an understanding of the history and historical heritage values in the area proposed for impact by open cut mining and associated activities (the Proposed Disturbance Area) and in adjacent areas which are potentially susceptible to indirect impacts from the proposal such as vibration from blasting (refer to **Figure 1.2** in **Section 1**).

Consultation Process

Community involvement is an essential component of the historical heritage assessment process. As part of the historical heritage assessment, interviews were conducted with local families identified by the Muswellbrook Local and Family History Society (MLFHS) as having long connections with the Wybong area. These families included members of the Ray, Hogan and McTaggart families. A meeting with a member of the MLFHS was held on 28 November 2005 to gain information and input into the history and heritage values of the study area. Follow up written correspondence and additional information and consultation with MLFHS was conducted in late January to early February 2006.

A meeting was also held with the Heritage Adviser to Muswellbrook Shire Council (MSC) to discuss the Project and the strategy for the historical heritage assessment on 16 January 2006. MSC also provided information to assist with the compilation of this assessment.

Site Inspection - Methodology and Results

Literature review confirmed that no sites of National or State heritage significance are located in the Study Area. Furthermore, there are no sites listed on the current MSC LEP. A number of sites are being considered for the current revision of the draft LEP, and where locations were available, these sites were considered in the current investigation. The site inspection undertaken for the historical heritage assessment was undertaken by a heritage architect and an archaeologist to assess the built heritage and archaeology of the study area. Site inspections were focussed on historical heritage items identified by consultation and previous historical and archaeological research and on those historical heritage items identified within the study area during the Aboriginal cultural heritage survey (refer to **Figure 3.2** in **Section 3**).

Historical heritage items identified and inspected within the Proposed Disturbance Area related to the early settlement of the locality during the late nineteenth to early twentieth century and its previous land uses of dairying and grazing. Historical heritage sites identified within the Proposed Disturbance Area included the ruins of a collapsed cottage with associated dam, pig pen, well, sheds and a hut, a rock spillway, a test shaft for exploratory coal mining, the ruins of a slab house and nearby dairy, the ruins of a weatherboard two room cottage and ruined dairy, shed and stockyards, two intact Victorian cottages, two former quarries and one windmill and associated dam.

Historical heritage items inspected within the study area that may have potential indirect impacts from vibration from proposed blasting included five structurally sound houses including Amaroo, Springvale and an associated saw pit, Angle Vale and Old Angle Vale. Castle Hill which is the original Ray's homestead is in fragile condition and was also inspected. Natural heritage items including Anvil Rock and the Book formation have also

been examined. Detailed descriptions of these heritage sites are provided in **Section 3** and a summary of their condition and integrity is provided in **Table 4.2** in **Section 4**.

Significance

The significance of all heritage items inspected is provided in **Table 4.3** in **Section 4**. Two historical heritage sites within the Proposed Disturbance Area were assessed as having high local heritage significance. These included the Ham House 1 and associated Creamery and the Ham House 2 and associated dairy and structures including the meat shed. The remaining heritage items within the Proposed Disturbance Area were rated of moderate and low local heritage significance. Natural heritage items, Anvil Rock and the Book formation, were also noted to have social value to the community of Wybong.

One property within the study area that may have potential indirect impacts from vibration from proposed blasting was assessed as having high local heritage significance. This property is known as Castle Hill owned by the Ray family, located off Anvil Hill ROW. The remaining heritage items inspected were assessed as having moderate to low local heritage significance (refer to **Table 4.3** in **Section 4**).

Access was not available to inspect all properties of potential local heritage significance in the Study Area. Further inspections are recommended to confirm the extent of archival recording or monitoring and remediation outcomes for these structures prior to commencement of development.

Proposed Management Strategy

The proposed Management Strategy refers to all heritage items inspected and assessed in **Section 6** and includes:

- archival recording for all heritage items identified within the Proposed Disturbance Area to the standards of local heritage significance as specified by the guidelines of the NSW Heritage Office and further detailed historical research as part of this recording and associated report of all impacted items as necessary;
- the compilation of a community based oral history study to document the local history of Wybong and to mitigate against the impact of the proposal on the historical knowledge within the local community;
- the surface collection and salvage of Ham House 1 and Ham House 2 and associated dairies, creamery and structures. Both of these heritage sites require a surface collection of artefacts that are scattered throughout the two sites. No subsurface investigation is considered warranted due to the lack of topsoil (A unit) within these sites;
- the conservation of natural heritage items the Book and Anvil Rock formations within the Proposed Offset Areas for cultural heritage. These natural heritage items will be conserved as part of Proposed Offset Areas for cultural heritage. Some remediation work will be required to ensure that blasting will not damage these formations by causing them to topple.

The following recommendations are made for heritage items within the potential area of indirect impact for proposed blasting:

- monitoring of the susceptible structures by a qualified heritage architect and structural engineer to further quantify the impacts of blasting on these historical structures and any necessary remediation works as mining progresses;

- detailed archival recording to the standard of local heritage significance for all heritage items identified to date in **Section 6**;
- Castle Hill will require detailed archival recording to the standard of local heritage significance and a site specific historical investigation. The recording and investigation would form one report; and
- a Conservation Management Plan (CMP) may be warranted for Castle Hill dependent on the results of the recording and investigation.

TABLE OF CONTENTS

1.0	INTRODUCTION	1.1
1.1	OVERVIEW	1.1
1.2	STATUTORY AND POLICY FRAMEWORK	1.1
1.3	LOCATION AND FEATURES OF THE STUDY AREA	1.1
1.4	STUDY TEAM	1.2
1.5	ACKNOWLEDGMENTS	1.2
1.6	REPORT STRUCTURE	1.2
2.0	METHODOLOGY	2.1
2.1	CONSULTATION AND RESEARCH	2.1
3.0	CONTEXT	3.1
3.1	HISTORICAL CONTEXT	3.1
3.1.1	Regional History	3.1
3.1.2	Local History of Wybong	3.1
3.1.3	Historical Themes	3.9
3.2	ARCHAEOLOGICAL CONTEXT	3.9
3.3	PHYSICAL CONTEXT	3.10
3.3.1	Description of Heritage Items (non-statutory) identified within the Proposed Disturbance Area	3.10
3.3.2	Description of Heritage Items within the Study Area which are outside the Proposed Disturbance Area	3.12
3.3.3	Discussion	3.13
4.0	SIGNIFICANCE ASSESSMENT	4.1
4.1	INTRODUCTION	4.1
4.1.1	Australia ICOMOS (The Burra Charter) under the Act	4.1
4.1.2	NSW Heritage Office Standard Criteria	4.3
4.1.3	Evaluation of the Significance of the Historical Heritage Sites within the study area	4.4
4.1.4	Statement of Significance	4.4
4.2	CONDITION AND INTEGRITY	4.5
4.2.1	Condition	4.5
4.2.2	Integrity	4.6
4.2.3	Summary of Condition and Integrity	4.6
4.3	SUMMARY OF SIGNIFICANCE	4.8

5.0	HERITAGE IMPACT STATEMENT	5.1
5.1	PROJECT DESCRIPTION.....	5.1
5.2	PROPOSED DEVELOPMENT	5.1
5.3	POTENTIAL IMPACTS ON HISTORICAL SITES.....	5.1
5.3.1	Summary of Potential Impacts	5.2
5.3.2	Heritage Impact Statement	5.2
5.3.3	Discussion of the Proposal and Management Options to Mitigate Proposed and Potential Impacts	5.5
6.0	MANAGEMENT STRATEGY.....	6.1
6.1	MANAGEMENT STRATEGY FOR AREAS AND ITEMS INSPECTED WITHIN THE PROPOSED DISTURBANCE AREA	6.1
6.2	MANAGEMENT STRATEGY FOR AREAS AND ITEMS ACCESSED WITHIN THE STUDY AREA OUTSIDE THE PROPOSED DISTURBANCE AREA...	6.3
6.2.1	Management Strategy for areas and items not inspected within the study area	6.5
6.2.2	Summary.....	6.5
7.0	REFERENCES	7.1

FIGURES

1.1	Locality Plan.....	1.1
1.2	Proposed Disturbance Area and Historic Heritage Study Area	1.1
3.1	Historical Photograph of Sandy Hollow to Merriwa Railway.....	3.7
3.2	Location of inspected Historical Heritage Items	3.7
3.3	1930 circa Aerial Photograph of Anvil Hill Project Area.....	3.8
3.4	1967 Aerial Photograph of Anvil Hill Project Area	3.8
5.1	Concept Mine Layout.....	5.1

PLATES

1	Hogan Property House and Yards.....	3.11
2	Hogan Property: Rock Spillway.....	3.11

3	Ham House 1	3.11
4	Ham House 1 Creamery.....	3.11
5	Ham House 2 Ruins of House	3.11
6	Ham House 2 Mounts for Milking Machine in Dairy	3.11
7	Ham House 2 Meat Shed	3.11
8	Yarrowongah Weatherboard Cottage.....	3.11
9	Bundabulla	3.11
10	Comet Windmill near Dam	3.12
11	Amaroo, Bert and Janet Bay's former property owned by Centennial Hunter Pty Limited	3.12
12	Spring Vale, Pat Hogan's Property.....	3.12
13	Angle Vale, the original Hogan Family Home	3.12
14	Castle Hill	3.13
15	Anvil Rock	3.13

APPENDICES

A Research Design and Methodology

1.0 Introduction

1.1 Overview

Centennial Hunter Pty Limited (Centennial), a wholly owned subsidiary of Centennial Coal Company Limited, proposes to establish an open cut coal mining operation in the Wybong area, 20 kilometres west of Muswellbrook and approximately 10 kilometres north of the township of Denman (refer to **Figure 1.1**). The proposal, known as the Anvil Hill Project (the Project), is based on a large, undeveloped coal reserve of approximately 150 million tonnes (Mt) that has the potential to provide thermal coal to both domestic and export markets. Agreement has been reached to supply coal to Macquarie Generation's Bayswater Power Station, provided the mine development obtains government approval.

The Project is classified as a 'Major Project' which requires the approval of the NSW Minister for Planning. An Environmental Assessment (EA) will be prepared to seek project approval to mine up to 10.5 million tonnes per annum (Mtpa) using truck and shovel methods. Approval will be sought for a 21 year Project life, concurrent with the duration of a mining lease to be sought for the operation. If approved, Centennial is targeting commercial production by early 2008, and it is expected the Project could provide ongoing employment for up to 250 people.

Umwelt (Australia) Pty Limited (Umwelt) was commissioned by Centennial to prepare an historical heritage assessment as part of the EA for the proposed development. This report provides an assessment of the impact of the proposed development on historical heritage within and surrounding the Project Area. Land which may be directly impacted or disturbed in some way due to activities associated with open cut mining is referred to as the Proposed Disturbance Area (refer to **Figure 1.2**). The Proposed Disturbance Area and adjacent areas with potential for use as conservation offsets (Proposed Offset Areas) were surveyed as part of the Aboriginal archaeological survey which also included the identification of historical heritage sites (refer to **Figure 1.2**). This report also assesses potential indirect impacts on the historical heritage of surrounding area as a result of proposed blasting within the mining area. Consequently, the study area included the Proposed Disturbance Area and the surrounding land shown on **Figure 1.2**.

1.2 Statutory and Policy Framework

As this development is a 'Major Project' which will be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979*, 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 historical heritage sites within the Proposed Disturbance Area is proposed to be undertaken in accordance with the management strategies outlined in **Section 6** of this report.

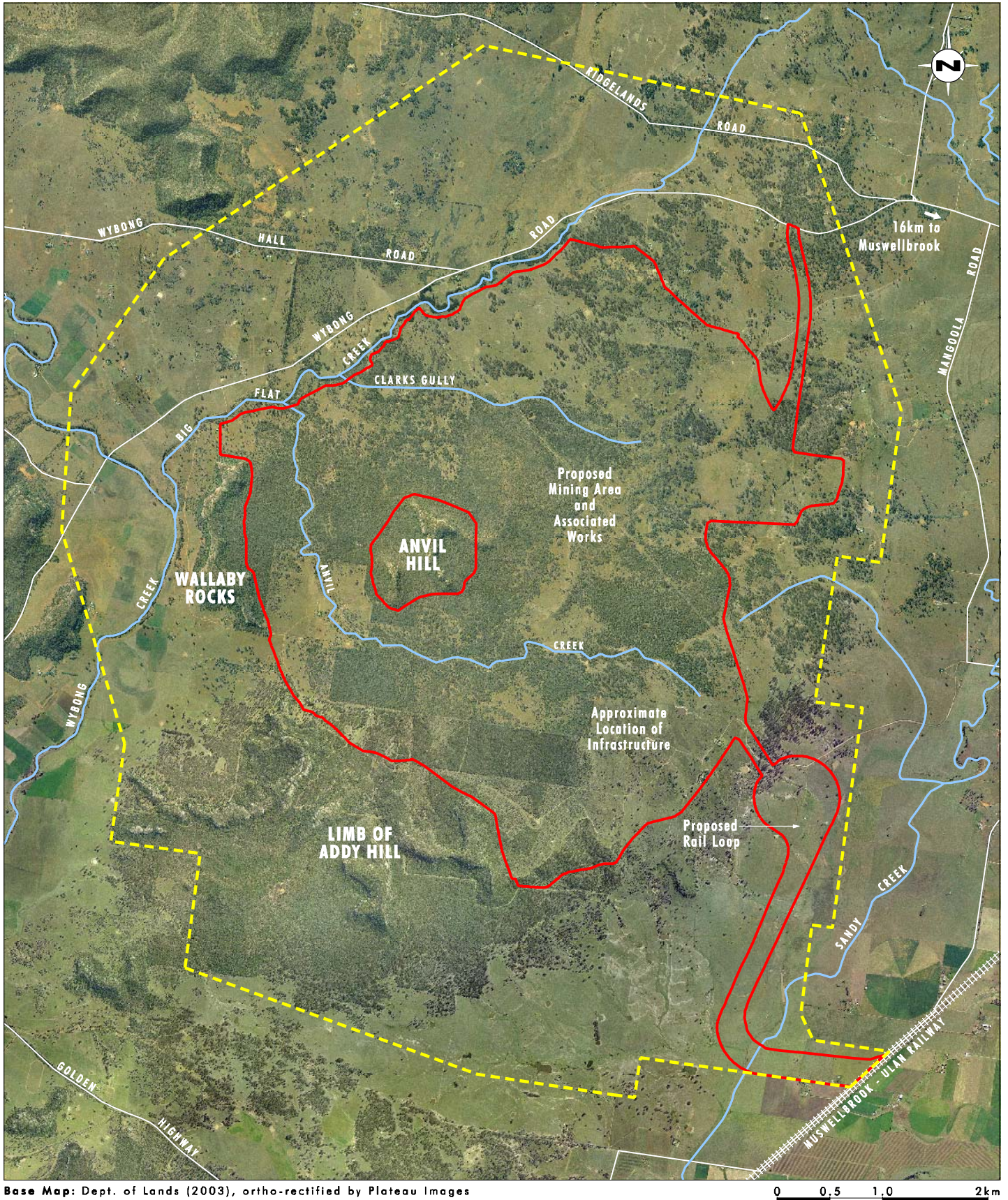
The information presented in this report follows the *NSW Heritage Manual* and associated guidelines for *Archaeological Assessments*.

1.3 Location and Features of the Study Area

The Anvil Hill study area (the study area) is located in the Upper Hunter Valley, approximately 20 kilometres west of Muswellbrook and 10 kilometres north of Denman, NSW (refer to **Figure 1.1**). The Study area is within the locality of Wybong, Parish of Wybong and the County of Brisbane. The Proposed Disturbance Area is 2238 hectares.



FIGURE 1.1
Locality Plan



Legend

- Proposed Disturbance Area
- - - Historic Heritage Study Area

FIGURE 1.2

**Proposed Disturbance Area and
Historic Heritage Study Area**

1.4 Study Team

This report was co-authored by James Phillips (Heritage Architect, Weir Phillips) and Mary-Jean Sutton (Senior Archaeologist, Umwelt). The site inspection and landholder interviews were carried out by Mary-Jean Sutton and James Phillips. Jillian Ford assisted with background research and register searches were carried out by Emma St Pierre (Archaeologists, Umwelt). The site description for Old Angle Vale and Angle Vale was completed by Paul Rheinberger (former Senior Archaeologist, Umwelt).

1.5 Acknowledgments

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

- Lillian Cullen, Heritage Advisor Muswellbrook Shire Council;
- Linda MacIntosh, Secretary, Muswellbrook Local and Family History Society; and
- the families within the Wybong locality who assisted with input into this assessment.

1.6 Report Structure

Section 2 provides a methodology for the historical heritage assessment.

Section 3 provides a significance assessment of the study area and the identified heritage items.

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

Section 5 provides a heritage impact statement and a discussion of proposed impacts within the study area.

Section 6 provides a heritage management strategy for the proposed development.

2.0 Methodology

The historical heritage assessment assessed historical heritage items and areas of potential heritage sensitivity within the study area. Historical heritage items were searched within the study area shown on **Figure 1.2**. The extent of the Study Area considered advice from Wilkinson Murray on the potential effects of blasting, based on initial worst case predictions. Whilst the blast design has been refined, and the potential area of blasting impact has been reduced since that time, the wider study area boundary has been retained for the purpose of this assessment. This boundary was also the focus for site inspections carried out by the heritage architect and archaeologist to assess the proposed impacts on known historical heritage items (see results in **Section 3**).

A survey of the Proposed Disturbance Area and surrounding areas for Proposed Offset Areas for Aboriginal cultural heritage was undertaken for the EA. This survey included the initial recording and identification of unknown historical heritage items. These heritage items and sites are recorded and discussed in this report (see descriptions in **Section 3**).

Interviews were also undertaken with local families who lived in the Wybong area and who were identified by the Muswellbrook Local and Family Historical Society as having a long history in the locality. These families included members of the Ray family (Carol, Bert and Janet Ray), the Hogan family (Pat, Aileen and Peter Hogan) and the McTaggarts (Roger and Shirley McTaggart).

2.1 Consultation and Research

The following organisations were consulted and sources reviewed in order to investigate the history of the study area and identify and understand the heritage values of the structures within it:

- 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;
- Muswellbrook Shire Council (MSC);
- Muswellbrook Local and Family History Society (MLFHS); and
- State Records NSW.

A meeting with Lillian Cullen, Heritage Adviser of Muswellbrook Shire Council was carried out on 14 January 2006 to discuss the proposed methodology for this assessment and to gain input regarding heritage items within the locality. A meeting and research work was carried out with Linda MacIntosh from Muswellbrook Local and Family History Society (MLFHS) on 29 November 2005. The Project and the proposed methodology for the historical heritage assessment was discussed. Copies of information including primary and secondary documents were obtained with assistance from the MLFHS. A follow up letter mapping the study area was sent to the MLFHS for their input and the information they provided was followed up.

At State Records the Surveyor General Maps and Plans were researched including the Surveyor Field Survey Books and Census records for 1891. The Surveyor General Maps and Plans were available for the general area and date to the late 1820s through to the late 1830s but did not provide any relevant information for this study. Similarly, for the Census records for 1891, it was difficult to locate the study area within surviving returns. No exact location is given for heads of households listed, which constrains the usefulness of this data.

The Mitchell and State Reference Libraries and NSW Land and Property Information, Parish Maps online were investigated for Parish Maps. The first available Parish Map located was dated 1901 and copies of 1901; 1910 and 1932 were also examined. The *Sands Directories* were examined at 5 year intervals back from last published directory of 1932-3. Prior to 1900, pastoral listings are listed by surname only. The *Sands Country Directory and Gazetteer of New South Wales* was examined. However, only a few years editions were available during the 1880s. The NSW Electoral Records were also examined to provide information about the settlement history of Wybong.

The historical and archaeological context provided in this report is based on information from these sources.

3.0 Context

This section of the report provides a historical and archaeological context for the broader locality to provide an understanding of the significance of the heritage items within the study area.

3.1 Historical Context

3.1.1 Regional History

As outlined in the Hunter Regional Environmental Plan (Department of Planning: 1989:38), the Hunter Region has had “a long history of European settlement, dating from 1801 with the establishment of a convict settlement to mine and ship coal. Much of the growth during the 19th century was based on coal mining timber-getting and agriculture”. **Table 3.1** provides a summary of key regional historical events relevant for understanding the history of the locality for the proposed Anvil Hill Project.

**Table 3.1 - Time line indicating Regional History of Upper Hunter
– Muswellbrook Region**

Date	Historical Event
1820	The Hunter Valley was opened for free settlement
1822-23	A route from Windsor was found by Benjamin Singleton, John Howe and others which made possible the overlanding of stock from the Cumberland Plain to the Hunter Valley
1825	By the time land was required to be purchased over 360,000 acres of the Hunter Valley had been granted under the land for capital scheme.
1833	Muswellbrook was surveyed and planned.
1834	Mitchell's map indicates that by 1834 most waterfront land had been alienated with the 'back country' either leased or illegally grazed by those in possession of water.
1840	Assigned convicts were withdrawn and replaced on working stations by free men, men of Aboriginal descent and Chinese shepherds.
1841	The population of Muswellbrook was 215 and a post office had been built.
1862	The first school was built in Muswellbrook.
1890's	Gold was found in Woolooma and Stewarts Brook (near Scone).
1935	A gold reef was discovered at Ogilvie's Hill near Denman by Mr Watts and Mr Smith.
1956	Glenbawn Dam was constructed enabling the irrigation of the river flats of the Upper Hunter Valley.
1957	A hospital was built in Muswellbrook

Source: Heritage Office & DUAP 1996:44-49

3.1.2 Local History of Wybong

3.1.2.1 Land Tenure and Early Settlement including the History of Selection

Wybong Valley was first reported by the European settler Henry Dangar in 1824. Dangar was dismissed from the Survey Department and replaced by George Boyle White in 1827. Boyle surveyed many individual holdings as well as towns including Muswellbrook (Turner 1995:15). Robert Dixon, Assistant Surveyor was also important at this time and surveyed “many purchases as well as completing surveys of most of the watercourses and many of the main roads in the Upper Hunter” (Turner 1995:15). Small holdings were rare in the Upper Hunter Valley up until the mid to late nineteenth century due to land grants only being granted to settlers by the Crown on “the basis of 640 acres for each 500 pound sterling they

possessed in cash or goods” or by leasehold “so that, by means of grant, purchase and lease, some settlers were able to build up very large estates” (Turner 1995:16). Large estates in the Wybong Valley at this time included Yarraman, Callatoota and Pickering. Archibald Bell Jnr took up two large estates: “Milgara’ and ‘Bundaraga’ (Doyle 1984a). Captain John Pike took up ‘Pickering’ at the same time (Doyle 1984a).

The advent of the Free Selections Act in 1861 did not have a high impact on the Muswellbrook area including the Wybong Valley. The Free Selections Act was intended to make land available to would-be farmers and allowed selectors to purchase an acre for a pound, from 40 to 640 acres “of any Crown land including land held on leasehold” (Turner 1995:16). The land suitable in the locality for farming was already in “private hands and existing landholders managed to forestall the selection of their leaseholds” (Turner 1995:16).

The development of a closer settlement policy in 1884 in NSW was carried out due to “new market opportunities for farmers arising from the invention of refrigeration and contemporary theories about land policy” (Turner 1995:16). These policies included increased land taxes on large estates to encourage large estate owners to reduce their holdings, assistance programmes to encourage settlers to chosen areas which continued after World War I and World War II for soldiers returning home from the war. These policies in the mid 1880s coincided with commercial dairying in the Muswellbrook area and lead to the early success of closer settlement. Soldier settlement did not succeed as many farmers were inexperienced and living on land which was harsh and difficult to manage. Increased settlement within the Wybong Valley has increased with the last thirty years with hobby farmers taking up small holdings. There are over ninety landholders on Wybong Creek now compared to five families 40 years ago (Peter and Aileen Hogan pers. comm.).

A short history of properties relevant to this study within the Wybong Valley is provided below. This history specifically addresses the properties listed by the MLFHS as being of local interest within the study area. No map was provided by MLFHS indicating where these sites were locations. None of these properties discussed are within the Proposed Disturbance Area.

‘Millville’ and the Boorer family

John Boorer, first owner of Millville. The *Official Post Office Country Directory and Gazetteer of New South Wales 1878-9* lists ‘John Boorer, Squatter’ under Wybong. John Boorer, ‘farmer’, ‘Wyong Creek’, is listed in the *Sands Country Directory and Gazetteer* of 1884-5 (first available). John Boorer is listed as ‘freeholder’ at Wybong Creek in Electoral Records (District of Muswellbrook) in 1885-6 and listed as a ‘grazier’ in the 1896-7 Directory. After 1900 listing in the *Sands Directory* (Pastoral Section) for the Boorer family are summarised below:

- 1905: Mrs. Boorer, Wybong; 6 horses, 153 head of cattle.
- 1907: Mrs. Boorer, Wybong; 10 horses; 250 head of cattle.
- 1910: M.A. Boorer and son, Wybong, Muswellbrook: 9 horses; 486 head of cattle.
- 1915: John Boorer, Wybong; 11 horses; 59 cattle; 460 acres.
- 1920: No listing.

‘Millville’ is believed to date to the early 1870s based on information provided by MLFHS (Linda MacIntosh pers. comm.). However, as shown in the review of directories and primary sources outlined above, Boorer is not listed in the area until late 1878. Boorer ran a saw mill which was later converted to a flour mill which is how the property got its name (Ray 1993). The property was sub-divided after John Boorer’s death. James Galvin purchased the

homestead (now known as 'Tara'), Charlie McTaggart purchased some of the property and John Boorer Jnr held onto the remainder. Galvin leased the property which was given to his daughter Mrs Matt Quinn at his death. The Quinns lived on the homestead from the early 1920s until it was sold to the Doyle's in 1928 with 1220 acres of land. The Doyles held 'Millville' for 40 years until Frank Doyle's widow Beth sold a portion of it to Ivor Smith, whom later sold it to A D Stevenson (Doyle 1984b). John Boorer Jnr bought a property out near Wallaby Rocks at the back of 'Bundabulla' (N A Doyle 1972).

'Calatoota' (Source: Liz Parkinson – undated letters from the Muswellbrook Local and District Historical Muswellbrook Local and Family History Society).

In 1835, 640 acres was granted to Charles Hunter McIntosh. In 1836 the land was sub-divided and three acreages were sold off to John Pike. In 1859, Pike sold some of the acreage to Henry Nowland. In 1877, Pike sold 2 acreages to John Boorer Jnr. In 1916, 631 acres were sold by Pauline Nowland to a Henry Simpson. The Simpsons had seven sons who started a dairy. The dairy once established was the largest at Wybong. In later years the farm was sub-divided and sold. The homestead block was bought by Mrs Cruickshank who now runs a successful vineyard on the property (Ray 1993 and Parkinson no date).

'Castle Hill'

Gordon Philip Ray owned Castle Hill which he inherited from his parents Charles Richard and Hariette Ray (Gordon Ray's obituary). Castle Hill is believed to date in the 1870s circa (Carol Ray pers. comm.).

The Hams

Land in the general area of where the ruined Ham dairies and homesteads (refer to **Section 3.3.1**) were identified was Crown Land that became available for Conditional Purchase from the Crown in early 1880s. During the early twentieth century, this land became Crown Grants as Conditional Purchasers fulfilled the conditions. As the land was owned by the Crown prior to the 1880s, use of the land would have been confined to pastoral leases. A description of the Muswellbrook and Merton Land District in the *Sands Country Directory* of 1889-90 supports this general land use pattern:

The surrounding country favours the cultivation of wheat, maize, tobacco and the vine. It has been, up to late years, purely a pastoral district; some of the properties being very extensive and valuable, but the Great Northern Railway passing through the district has brought population and enterprise, so that a large quantity of land has now been taken up for agriculture.

The two ruined Ham dairies and homesteads (refer to **Section 3.3.1**) are a test indicator of the age of historical items within the area. The status of the area before 1884 as Crown Land indicates very limited development. The area may have been part of a pastoral lease, a low intensity of usage with few if any manifestations of non-indigenous habitation.

It can be surmised that the earliest Ham slab buildings were built after 1880 and possibly as late as 1910. When the Hams arrived in the area is difficult to ascertain. The *Official Post Office Country Directory and Gazetteer of New South Wales 1878-9* lists Hams at Giants Creek and Bloomfield. *Sands Country Directory and Gazetteer* of 1884-5 lists a Henry G.J. Ham at Bloomfield (postal town), a John Ham at Rockville, a Joseph Ham at Bloomfield and a William Ham at Giant's Flat. These locations are outside of the study area. There are no Hams listed in the 'Musclebrook' Division (sic) of the Robertson Electorate in 1899-1900. Hams do not appear on the Parish Map in the general study area in 1901; they appear on the next available map of 1910.

There are no Hams listed in Pastoral Directory (Denman) of *Sands Directories* of 1905 or 1907. In 1910, George Ham is listed at Giants Creek, outside of the Study Area. The only listing in the 1915 Directory is for E.H. Ham at Glenburnie, Moama. The 1920 Directory lists:

- B.W. Ham, Denman; 6 horses; 66 cattle; 555 acres.
- George J. Ham, Denman; 7 horses; 54 cattle; 131 sheep; 920 acres.

The 1925 Directory lists:

- C.H. Ham, Gungal; 5 horses; 21 cattle; 370 acres.
- George J. Ham, Denman; 3 horse; 90 cattle; 400 acres.

The last Directory of 1932-3 lists:

- B.W. Ham, Bow Hill, Denman; 7 horse, 60 cattle; 556 acres.
- C.H. Ham, Rock View, Gungai; 5 horses; 20 cattle; 370 acres.
- George, J. Ham, Anvil Park, Sandy Hollow; 4 horses, 1?? cattle; 1??? acres.

The Hogan Family

The Hogans held a number of leaseholds in the study area by 1901. A Thomas Hogan is listed in the *Sands Country Directory and Gazetteer* of 1884-5 at 'Anvil Creek', 'farmer.' The directory of the following year lists a Timothy Hogan as a 'freeholder', 'Muswellbrook' and Thomas Hogan, as 'freeholder', 'Anvil Creek.' William and Thomas Hogan are listed by the Electoral Roll of 1899-1900 at Anvil Creek, farmers. Thomas Hogan is listed in the 1907 Pastoral Section of *Sands Directory* (under Denman) at Wybong. The listing indicates that he was running 11 horses and 60 head of cattle. Later listings in Sands are as follows:

1910 Directory	J.T. Hogan, Wybong	8 horses; 60 head of cattle
1915 Directory	J.T. Hogan, Wybong	13 horses; 58 head of cattle; 152 acres
1920 Directory	J.T. Hogan, Wybong M. Hogan, Wybong	14 horses; 71 head of cattle; 719 acres. 280 sheep; 603 acres.
1925 Directory	J.T. Hogan, Wybong Road, Muswellbrook M. Hogan, Ridge Dale, Wybong P. Hogan, Wybong Road, Muswellbrook	18 horses; 16 head of cattle; 191 sheep; 711 acres. 447 sheep; 603 acres. 6 horses; 40 cattle; 590 acres.
1932 Directory	J.T Hogan, Wybong Road, Muswellbrook M. Hogan, Ridge Dale, Wybong	10 horses; 38 cattle; 740 sheep; 1??? acres. 748 sheep; ? acres.

*Please note that ? refers to text that could not be interpreted.

'Pickering'

John Pike and Archibald Bell are listed in previous heritage research (Turner 1995) as important people associated with 'Pickering'. Pickering is outside the study area but is a large homestead well established which still exists in the locality.

‘Minnie Vale’

In 1903 Ben and Mrs Cowan lived at this homestead and Gordon Ray writes it is they who named the property Minnie Vale (Ray 1993).

‘Collareen’

This was the original homestead of the Galvins. This house had a small vineyard which was wiped out in the 1893 flood (Ray 1993).

‘Rosedale’ or ‘Rosevale’

This was the original homestead of Mr and Mrs Charles McTaggart. When Austin McTaggart, their only son sold this property to Mr and Mrs Simpson who later sold the farm to Penfolds (wine makers) who used it in conjunction with Wybong Park vineyard (Ray 1993: 21). The property was eventually sub-divided and sold off.

‘Rockhall’ and the McTaggart Family

The McTaggarts, according to *On the Street Where you Live* (by the Senior Citizens of Denman and District, No. 9 in series ‘Valley of Years’, published by Denman and District Retirement Centre Ladies Auxiliary, undated) first farmed in the Richmond, Wollombi and Howes Valley area before John McTaggart arrived in the Wybong area in 1876 to farm Rockhall. His sons, Charles, James and William subsequently farmed Rockhall, parts of the Millville Estate and Wybong Park. *Sands Country Directory and Gazetteer* of 1884-5 lists two McTaggarts: John McTaggart, farmer, Wybong, and Charles McTaggart, farmer, Wybong. The following year, four McTaggarts are listed at Wybong or Wybong Creek. The Pastoral Section of *Sands Directories* after 1900 lists the McTaggarts in the Denman area as follows:

1905 Directory	No listings.	
1907 Directory	Charles McTaggart, Rosevale, Wybong Mrs. John McTaggart, Wybong. Michael McTaggart, Rock Hall, Wybong	6 horses; 100 cattle. 5 horses; 60 cattle. 5 horses; 60 cattle.
1910 Directory	Charles McTaggart, Rosevale, Wybong Mrs. John McTaggart, Wybong.	7 horses; 110 cattle. 8 horses; 100 cattle.
1915 Directory	D.J. McTaggart, Muswellbrook. Charles McTaggart, Rosevale, Wybong Mrs. M. McTaggart, Wybong	23 horses; 500 cattle; 600 sheep; 2000 acres. 8 horses; 11 cattle; 894 acres. 12 horses; 151 cattle; 1250 acres.
1920 Directory	Charles McTaggart, Rosevale, Wybong C.T. McTaggart, Rockhall, Wybong M. McTaggart, Rockhall, Wybong.	12 horses; 173 cattle; 986 acres. 5 horses; 60 cattle; 503 acres. 11 horses; 194 cattle; 1270 acres.
1925 Directory	Austin McTaggart, Wybong. C.T. McTaggart, Millville, Wybong Charles McTaggart, Rosevale, Wybong Mrs. M. McTaggart, Rockhall, Wybong. M.F. McTaggart, Hollydeen.	2 horses; 61 cattle; 558 acres. 2 horses; 1000 cattle; 760 acres. 7 horses; 103 cattle; 986 acres. 9 horses; 137 cattle; 1270 acres. 5 horses; 21 cattle; 280 acres.

1932 Directory	A.A. McTaggart, Muswellbrook	5 horses; 160 cattle; 1336 acres.
	A.A. McTaggart, St. Heliers Estate, Muswellbrook	1 horse; 60 cattle; 238 acres.
	A.J. McTaggart, Crown Lease, Hollydeen	1 horse; 40 cattle; 583 acres.
	Austin McTaggart, Wybong	3 horses; 80 cattle; 558 acres.
	C.T. McTaggart, Millville, Wybong	2 horses; 60 cattle; 774 acres.
	Charles McTaggart, Rosevale, Wybong	6 horses; 120 cattle; 976 acres.
	Mrs. M. McTaggart, Rockhall, Wybong	7 horses; 150 cattle; 1270 acres.

Many of the names of properties (Anvil Vale, Rose Vale, Spring Vale) and in some cases roads (Limvardy) have Celtic origins, mostly Scottish and Irish. These names relate back to the ancestry of many of the families living in Wybong including the Hogans (Irish Catholic) and McTaggarts (Irish/Scottish).

3.1.2.2 World War II

As outlined above, World War II led to the increase of settlement within Wybong with soldiers being encouraged to settle in the area. World War II had an important part in the local history of Wybong, the example the Castle Rock School (which closed in 1950) was noted for its contribution during the 1939-45 War. Camouflage nets as well as knitted garments were produced by the school's pupils and funds were raised (Doyle 1984a). The Ray property Castle Hill was also used by the RAAF during WWII for observation as Gordon Ray writes:

The Airforce picked our place during the war time as an observation post to identify enemy planes and lost planes. We were issued with code names which changes each Monday... (Ray [Gordon Philip] 1984:37).

3.1.2.3 Dairying

Dairying was one of the initial impetuses for the division of large estates in the Upper Hunter. By the early twentieth century the Upper Hunter was mostly occupied by dairy farms of up to 500 acres in size (Heritage Office & DUAP, 1996:49). The 1828 census indicates that of the 191 large (+ 1000 acre) estates occupying the Upper Hunter Valley "only one third were sheep grazing enterprises with cattle raising being much more common" (Turner 1995: 18). By the 1890s dairying became an important industry in the Upper Hunter. This importance coincided with the "development of the mechanical separation of milk and refrigeration causing a re-shaping of the pattern of farming" in Muswellbrook Local Government Area, including the Wybong Valley, due to the increased demand for dairy products in Australia and overseas (Turner 1995:19). In 1893 there was a creamery at Kayuga, the creamery at "Overton" was set up in 1903 by Thomas Blunt, and the Denman Co-operative Dairy Company was founded in 1907. These are the earliest creameries within the locality. The Muswellbrook Dairy Co-operative Factory was built in Aberdeen Street in 1919 (Turner 1995: 19). Various amalgamations led to the creation of the Oak Co-operative.

The Castle Hill farm included an early large dairy owned by Gordon Philip Ray. He produced cream for the Denman butter factory and cream milk to the Muswellbrook milk factory when it opened in 1908 circa (Gordon's obituary and Carol Ray pers. comm). The house Castle Hill dates potentially to 1870s to early twentieth century circa based on information provided by MLFHS and Carol Ray. Confirmation of this date is being further investigated in historical records. George and Ben Hamm had two dairies in the early twentieth century (circa 1920s) on land now owned by the Hogan family. The Ham family are the cousins of the Hogan's descendants (Pat Hogan pers. comm). Only the ruined remains of these dairies still exist within the Proposed Disturbance Area (see **Section 3.3.1.3**). Particular technological

innovations lead to the decline of dairying in the region and locality. As Turner (1995:23) comments:

The replacement of the horse by the tractor, on large farms in the 1920s but for most farmers not until the 1950s, had a dramatic effect on productivity and the labour force. The introduction of the milking machine also had a significant effect by reducing the need for workers: common by the 1950s in dairies, this innovation contributed to the decline of the rural population.

3.1.2.4 Religion and Education

Religion was the most important aspect of social life in the nineteenth century. Four years after the gazettal of Muswellbrook the Church of England and Presbyterian Church both officiated church services in the town and it was these two churches which were first to build churches in the town in 1843 (Turner 1995:36-37). In 1844 Roman Catholic residents in the locality were active but the first Catholic Church, St James, was not constructed until 1862 (Turner 1995:37). At the same time, the Church of England built a second church on the opposite side of the road showing the wealth of the Anglican Church in the locality at this time. Gordon Phillip Ray remembers he went to school at 'the church' (St Thomas Aquinas) across 'the creek' (presumably Wybong Creek) before the school was moved to Denman – he notes that the church is still standing and used (Ray 1984: 37). The construction of the churches led to the opening of the first schools in the locality in the late 1830s to early 1850s in Muswellbrook.

The church of St Thomas was used as a school in Wybong from 1901 (this was a Catholic school associated with the St Joseph's nuns who were in Lochinvar at the time). St Thomas's was blessed and opened in 1888 in Wybong and was extensively renovated in 1919. Mr Hogan (of Angle Vale) built the convent/church which now sits on the property Collareen. A second school (a slab hut) was built 5 miles further up the hill at a later date. The upper Wybong school was closed and then the lower Wybong school and convent complex was moved to Denman in 1916 (Barnett undated). This school and convent known as St Joseph's is still standing in Denman and has continued its use as a church and convent. Oscar John Hogan rebuilt the Wybong Catholic church in the early twentieth century. The date of the standing church is being confirmed through further investigation of historical records. Oscar's son Pat Hogan owns much of the land within the Proposed Disturbance Area.

3.1.2.5 Railways

In the Wybong Valley and Muswellbrook locality, roads were the most important means of transport until 1869 when the Great Northern Railway reached Muswellbrook (Turner 1995:32). The Great Northern Railway greatly extended communications into the locality. In 1912 a branch railway from Muswellbrook to Merriwa was commenced and reached Denman in 1915 and Merriwa in 1917. In 1918 a route for a railway line between Maryvale and Sandy Hollow was surveyed and construction started in 1941, but stopped and started throughout World War II, only to completely stop in 1950. Work recommenced on the construction of the railway after a government inquiry in 1970 in relation to the exploitation of coal in Ulan. The first coal train to Ulan colliery left to travel to Newcastle in 1982. This railway runs to the south-east of the Proposed Disturbance Area. The Great Northern Railway increased the population of Muswellbrook in 1869 and in associated rural areas including Wybong, based on the census results of 1871. An early historical photograph of this railway is shown on **Figure 3.1**. The location of the railway is shown on **Figure 3.2**.

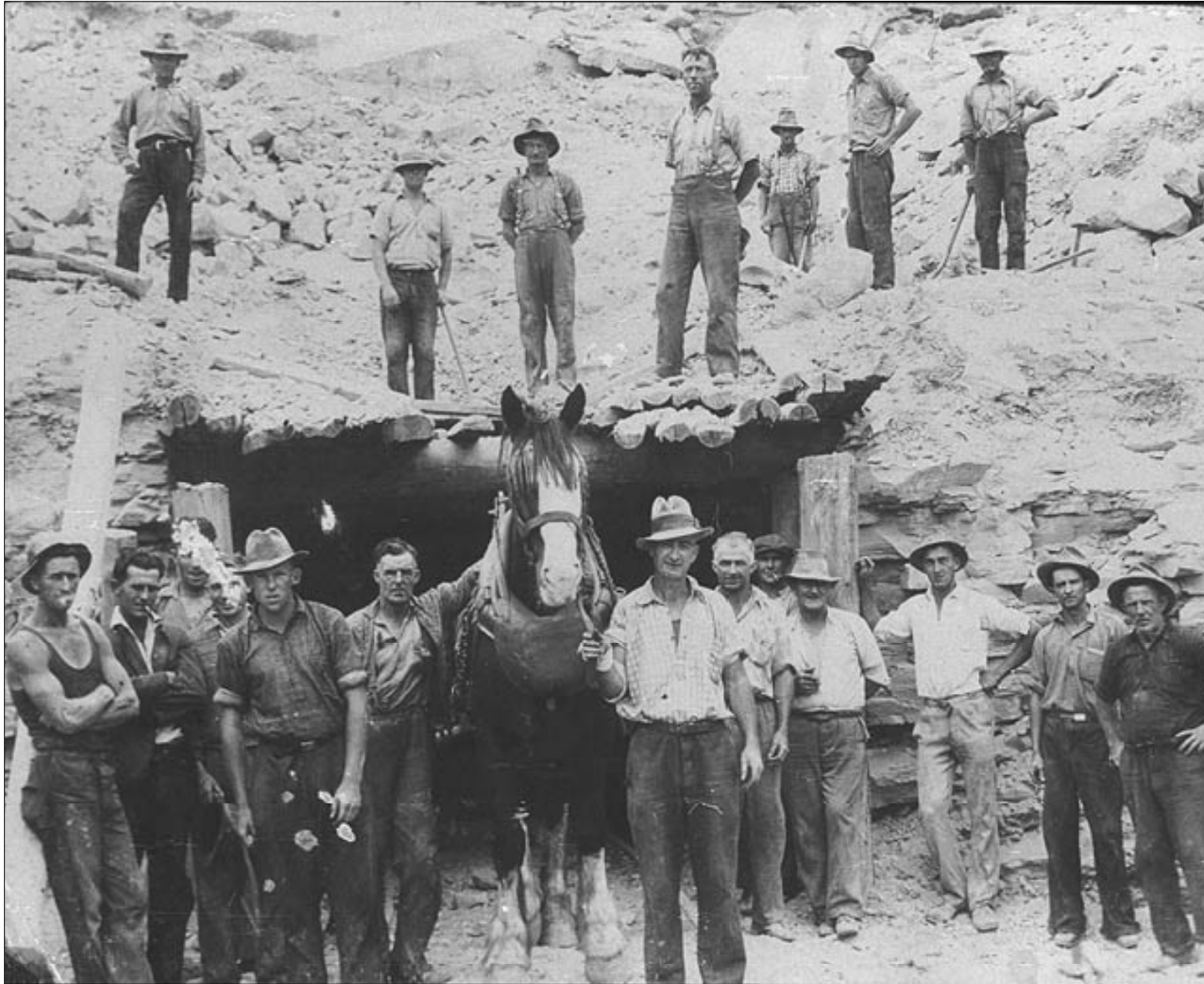
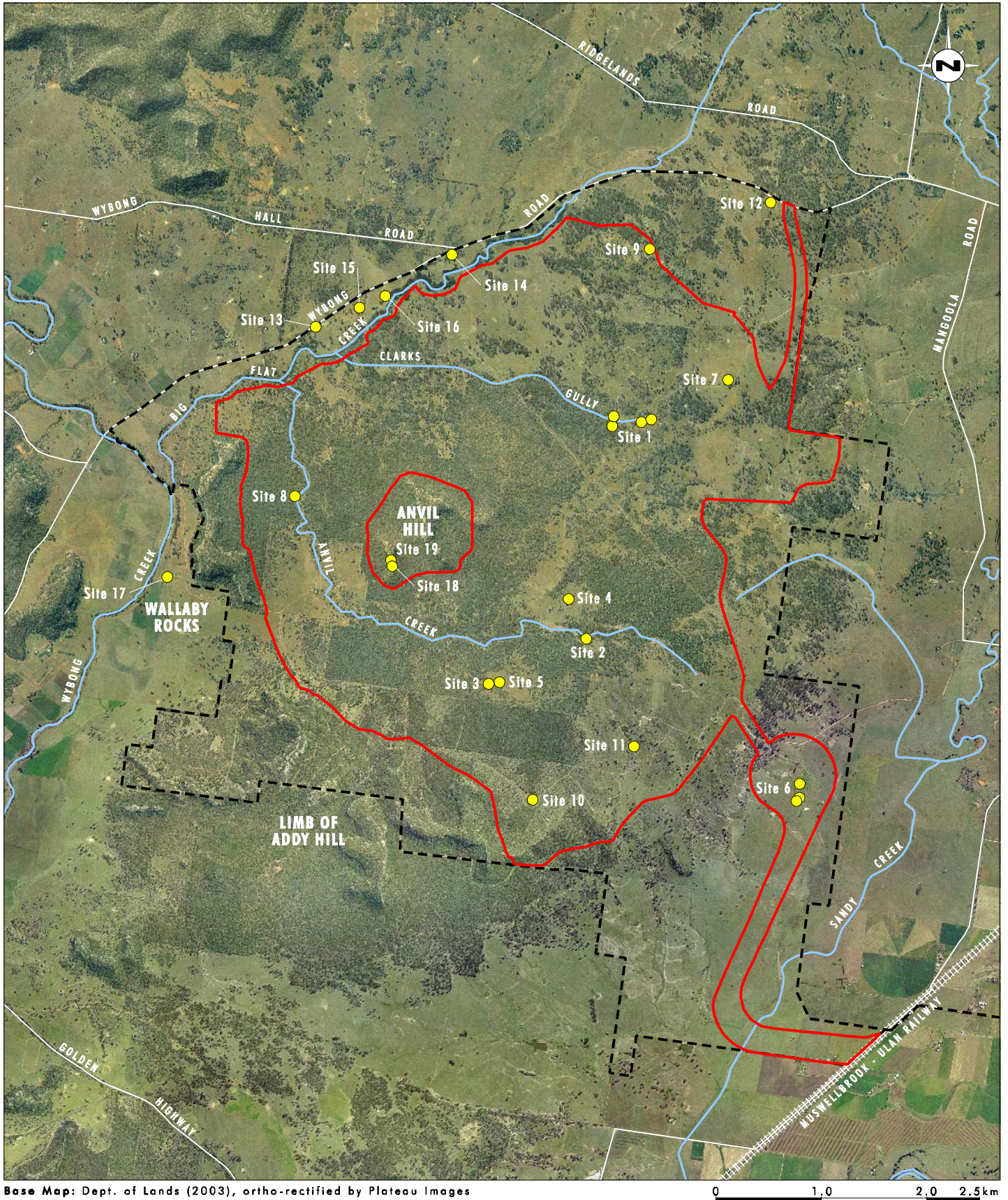


FIGURE 3.1

Historical Photograph of
Sandy Hollow to Merriwa Railway



Base Map: Dept. of Lands (2003), ortho-rectified by Plateau Images

0 1.0 2.0 2.5 km

Legend

- Proposed Disturbance Area
- Project Area
- Historic Heritage items inspected

FIGURE 3.2

**Location of Inspected Historical
Heritage Items**

3.1.2.6 Other industries within Wybong Valley – Charcoal retorts, vineyards, timber clearing and rabbiting

Other forms of industry were prevalent in the Wybong Valley during its history from mid nineteenth century to the present. Timber clearing and use of timber for mining props and commercial sale was important. This trend was common in the Upper Hunter Valley where dense timber has been felled in accessible areas and large regions of open forest thinned and/or ringbarked (Heritage Office & DUAP, 1996:46). The devastating impact of cleared forest on the Proposed Disturbance Area is obvious in the 1930s circa and 1967 aerial photographs (refer to **Figure 3.3** and **3.4**). These photographs show clearing and the use of the landscape for cultivation and settlement. Timber was also used for charcoal retorts during World War II on the northern bank of Big Flat Creek. Charcoal was used to fuel early cars during the War years and the operation of these retorts is remembered by locals, including Pat Hogan and Roger McTaggart. A small amount of burnt timber remains are the only tangible evidence of these retorts. A hood that was once part of the retorts is reused by Peter and Aileen Hogan on their property Old Angle Vale (see **Section 3.3.1.3** and refer to **Figure 3.2**).

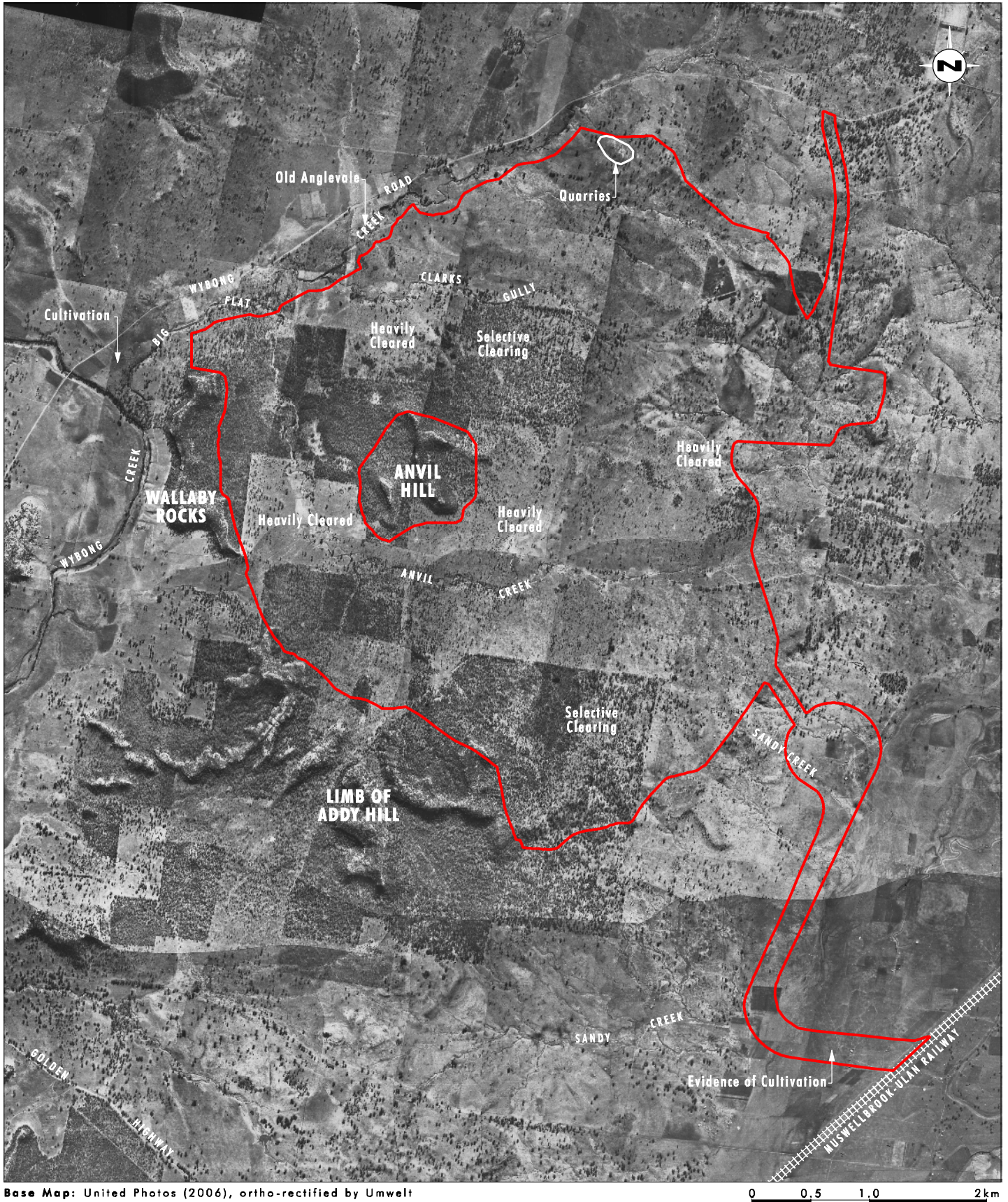
Rabbiting was also an important industry from the beginning of the 20th century during the Depression years and until the introduction of myxomatosis in the 1950s. Rabbits were destructive to the environment within the study area and increased erosion of the natural topsoil. Ripping for rabbits also lead to the destruction and disturbance of the natural environment. Rabbit canning and freezing works were established in Muswellbrook during the early 20th century.

Vineyards are an important industry which still remains visible in the Wybong area. Cruickshanks, Yarraman and Callatoota are local vineyards which are still operating in Wybong. Vineyards existed in the Upper Hunter Valley in 1829 with the vineyards at Pickering and Bengalla. Vineyards declined when the larger estates were broken up and changed hands in the 1850s. Free selectors were mainly graziers and did not continue the vineyards. The exception was the Brecht Brothers who developed a large vineyard at Rosemount near Myambit. This industry was destroyed by an outbreak of an insect called Phylloxera in 1910 which lead to vineyards being dug up to destroy the bug from spreading. It was not until the 1960s that winemaking was redeveloped and earlier traditions revived including the development of the Penfolds estate at Dalwood (Turner 1995:22). The Yarraman Vineyard is believed to have produced the first Chardonnay planted in the Upper Hunter, the first Gewurztraminer, the first Chambourcin and the “only vineyard in Australia with the Alsace clone” (Anvil Hill Project Watch Association, 2005:20).

3.1.2.7 Development of Coal Mining

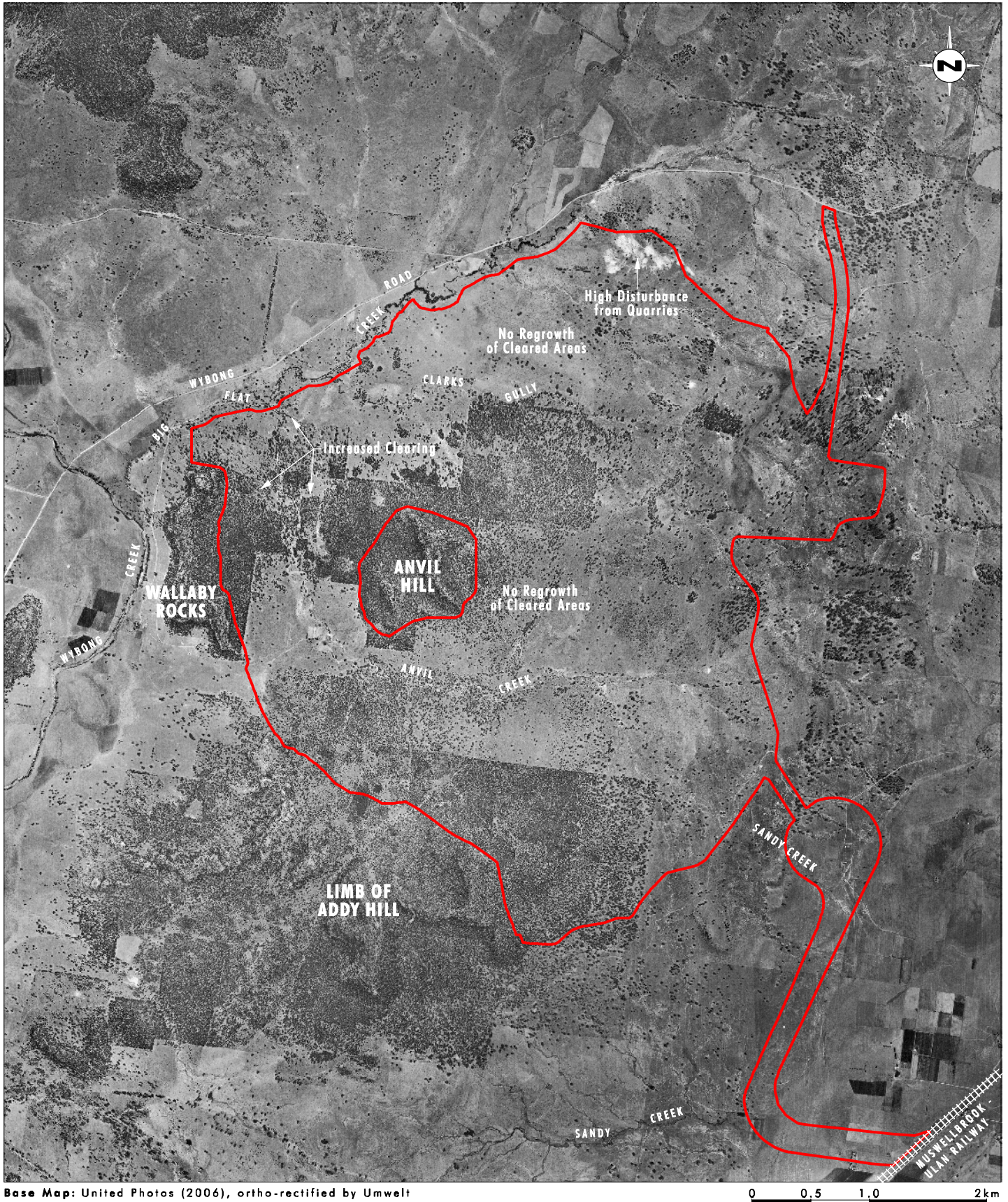
Coal was known to exist in Muswellbrook and its surrounding areas since early exploration but coal was not exploited until the 1890s. Mining was small until local businessman formed the Kayuga Coal Mining Company Limited to develop the Kayuga mine and two years later the No.1 Colliery of the Muswellbrook Coal Company was also established (Turner 1995:26). Coal mining and electricity generation have become major industries in the Muswellbrook area in a serious sense since the 1950s with the first wave of collieries built to meet export demand, particularly in Japan, at Liddell, Foybrook and Liddell State. In 1964 the State Electricity Commission commenced construction for the Liddell power station, a project which changed the lifestyle of Muswellbrook LGA’s residents by affecting employment, population, housing, commerce and character of the locality.

The Proposed Disturbance Area was first explored for coal by Thiess who sunk an exploratory shaft on the Hogan’s property in the 1940s (Pat Hogan pers. comm. April 2006). The shaft still exists and is currently fenced off. No records regarding the shaft have been identified to date.



Legend
 Proposed Disturbance Area

FIGURE 3.3
1930 circa Aerial Photograph of
Anvil Hill Project Area



Legend

Proposed Disturbance Area

FIGURE 3.4

**1967 Aerial Photograph of
Anvil Hill Project Area**

3.1.2.8 Cemetery

Daniel Galvin, the son of James Galvin is believed to be buried on the Hopkins property on Collareen (based on information provided by MLFHS and also from Stephen Starkey's web site Lost Graves of the Upper Hunter). The Wybong Cemetery is also located at Wybong off Yarraman Road. This cemetery was dedicated in March 1877 (Cemeteries online website <http://archiver.rootsweb.com/th/read/GENANZ/1998-04/0892630309>). The Wybong Cemetery is located in a paddock on the western side of Wybong Creek, approximately 1.5 kilometres from the Proposed Disturbance Area. It contains graves of the McTaggart, Thornton, Moloney, Boorer and Alcorn families who lived in the locality (Stephen Starkey's website, Lost Graves of the Upper Hunter, Wybong General Cemetery website, <http://huntergraves.dnsalias.net/Graves/Muswellbrook/Wybong/General/General.htm>).

3.1.3 Historical Themes

A historical theme is a research tool, which can be used at the national, state or local level to aid in the identification, assessment and interpretation and management of heritage places (AHC 2001:1). Nine national historical themes have been identified by the Australian Heritage Commission (now the Department of Environment and Heritage - DEH). The NSW Heritage Office has identified thirty-five historical themes for understanding the heritage of NSW. The development of the study area is broadly reflective of the history of the local region, and can be assessed in the context of the broader historic themes defined by the NSW Heritage Office and DEH. The themes tabulated below are relevant to the study area and locality.

Table 3.2 - Historical Themes

National	National Sub Themes	State Themes	Local Themes/ Application
1. Developing local, regional and national economies	Developing Primary Production	Dairying Mining	Dairying Development of coal mining
2. Building settlements, towns and cities	Making settlements to serve rural Australia Remembering significant phases in the development of settlements, towns and cities	Land Tenure Early Settlement	Land Tenure and Early Settlement including the history of selection
3. Working	Working on the land Organising workers and workplaces	Vineyards Mining Railways	Other industries within Wybong Valley – Charcoal retorts, vineyards, timber clearing and rabbiting Development of coal mining Railways
4. Educating	Establishing schools	Religion Education	Religion and Education
5. Governing	Defending Australia	World War II	World War II
6. Developing Australia's Cultural Life	Worshipping	Religion Education Death	Religion and Education Death

3.2 Archaeological Context

A search of the Australian Heritage Database which includes the Register of the National Estate and the Commonwealth and National Heritage lists maintained by the Australian

Heritage Commission, the State Heritage Register and State Heritage Inventory maintained by the NSW Heritage Council **disclosed no heritage resources within the Proposed Disturbance Area or the study area.**

Heritage studies by Turner (1995) were undertaken for the Muswellbrook Local Environment Plan (MLEP) and the Hunter Regional Environment Plan (HREP). Neither the LEP nor the REP recorded any site(s) in the broader Wybong locality.

The only recording of heritage values in the Wybong locality appears to be Manobalai Nature Reserve, fronting Dry Creek Road, Wybong, which is registered on the Australian Heritage Database, #1341, recorded as a place of natural heritage values. This site is located at least five kilometres north-west of the Proposed Disturbance Area.

A revised draft Muswellbrook Local Environment Plan is currently on exhibition and a draft copy was made available by Muswellbrook Shire Council Heritage Adviser Lillian Cullen. Places registered as having heritage values in the Wybong locality were provided in draft LEP documentation by Lillian Cullen (Heritage Adviser, Muswellbrook Shire Council) for further investigation within the Muswellbrook Local Government Area. The majority of these items did not have descriptions for location but were investigated as part of the historical research of this report. These items include Blunts Mine, Timber Homestead, Ridgeland Road, the Rays Homestead, Harry Bray's Woolshed, Yarrabee, Rosebrook Quarry and Berrywood Homestead, Wybong.

The Ray's Homestead is believed to be Castle Hill as it is the earliest Ray family home in Wybong based on historical information gathered to date. It is also assumed that Rosebrook Quarry is the Ray's quarry as it is the only known quarry off Wybong Road. The Ray's quarry is located within the Proposed Disturbance Area. The remaining items including Blunts Mine, Timber Homestead, Ridgeland Road; Harry Bray's Woolshed, Yarrabee and Berrywood Homestead, Wybong could not be identified in the study area from historical research carried out for this report or in the consultation undertaken to date. The Catholic Church, Wybong, Wybong Cemetery, Wybong Hall and the Grave of Daniel Galvin were also provided within draft documentation by Ms Cullen, these items are outside the Proposed Disturbance Area and the area of potential blast impact.

3.3 Physical Context

The physical context of the study area was investigated during a site inspection and interviews with key landholders. A thorough survey of the study area (refer to **Figure 1.2**) except for properties which denied access (discussed specifically in **Section 6**) was carried out as part of the Aboriginal heritage survey. During this survey any items/structures or potential historical heritage places identified were photographed and mapped using a GPS for further assessment by a heritage architect. **Figure 3.2** shows the location of all heritage items identified and inspected.

Each historical item inspected is described in the following sub-sections.

3.3.1 Description of Heritage Items (non-statutory) identified within the Proposed Disturbance Area

3.3.1.1 Hogan Property: Ruined House, Yards and Associated structures (Site 1)

Ruined two room cottage with skillion extension, associated yards and sheds. Roof of the collapsed building is still intact. This site includes a ruined house and yards, creamery (shed with timber post to mount hand separator), pig pens (undressed timber pickets elaborately wired together to form yards), a well (timber baulks surrounding head of well), a hut (some

remnant posts delineating a hut), dam (shallow dam with earthen wall), small shed (remnant of small timber shed) (refer to **Plate 1**). The Hogans were living in Wybong since mid-nineteenth century based on information provided by MLFHS and oral sources (Pat Hogan, Peter and Aileen Hogan pers. comm.) It is assumed that this cottage may date to this period, further historical investigation is being undertaken to clarify the date of construction and occupation.

3.3.1.2 Hogan Property: Rock Spillway (Site 2)

The rock spillway consists of found rock deliberately placed to form a spillway off an earth fill dam (refer to **Plate 2**).

3.3.1.3 Hogan Property: Test shaft (Site 3)

The test mining shaft is believed to be sunk in 1940s for exploratory coal mining. The shaft consists of a fenced test hole covered by a fallen tree. Coal is visible on the ground surface surrounding the excavated shaft.

3.3.1.4 Ruins of Ham House 1 (Site 4)

Ruin of slab house and nearby dairy. House has unusual layout; it appears linear with two rooms, a breezeway and two further rooms. Footing layout with some evidence of room layout and structure still discernable (refer to **Plates 3 and 4**).

3.3.1.5 Ruins of Ham House 2 (Site 5)

Ruin of weatherboard two-room cottage with skillion verandah. Partial concrete floors, layout discernable from remains. Nearby dairy also has discernable layout. Associated sheds have some ruins still standing. More sophisticated than Ham House 1 and probably later. This site also includes a dairy, meat shed and stockyards (refer to **Plates 5, 6 and 7**).

3.3.1.6 'Yarrowongah' (Site 6)

Mid to late Victorian weatherboard cottage with corrugated iron roof with central box gutter. Interior substantially intact with Wunderlich ceilings and lining boards to internal walls. Nearby dairy and shed, feed shed in ruins. Bleak, open setting. (Refer to **Plate 8**)

3.3.1.7 'Bundabulla' (Site 7)

Weatherboard Victorian villa with later extensions to side and rear. Corrugated iron roof. Partially enclosed verandah. Separate weatherboard laundry shed. Intact interior with Wunderlich ceilings and lining boards. Setting includes a stand of mature eucalypts, fences and a remnant garden (refer to **Plate 9**).

3.3.1.8 Remnants of post and rail fence including stockyards on Anvil Creek (Site 8)

Post and rail fences were found across the Proposed Disturbance Area in poor condition. These fences were concentrated along Anvil Creek in what appears to be stockyards. Post and rail fences were also identified on Anvil Hill and along the major watercourses within the Proposed Disturbance Area including Sandy Creek, Anvil Creek, Clarks Gully and Big Flat Creek.

3.3.1.9 Quarries: Rays Quarry (Site 9) and Walkers Quarry (Site 10)

Two quarries are located within the Proposed Disturbance Area. These quarries do not contain any structures and have been used since the 1930s for gravel quarrying based on the review of historical aerial photographs.



PLATE 1
Hogan Property House and Yards



PLATE 2
Hogan Property: Rock Spillway



PLATE 3
Ham House 1



PLATE 4
Ham House 1 Creamery



PLATE 5
Ham House 2 ruins of house



PLATE 6
Ham House 2 mounts for milking machine in dairy

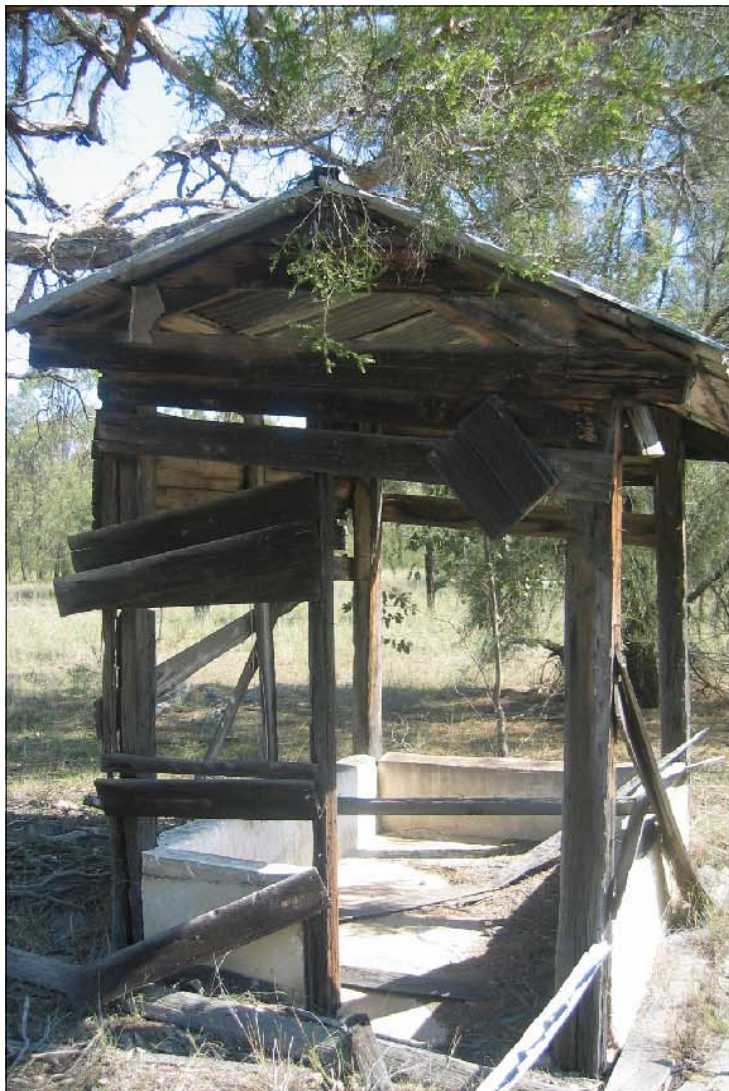


PLATE 7
Ham House 2 Meat Shed



PLATE 8
Yarrowongah weatherboard Cottage



PLATE 9
Bundabulla



PLATE 10
Comet windmill near dam

3.3.1.10 Windmill on McLane's Property near Dam (Site 11)

A Comet windmill made of corrugated iron and metal is in good condition and located near the dam on the McLane's property. The date of this windmill is unknown but it is likely to date to the mid twentieth century (refer to **Plate 10**).

3.3.2 Description of Heritage Items within the Study Area which are outside the Proposed Disturbance Area

3.3.2.1 Amaroo (Site 12)

Originally a four-room weatherboard cottage with extensive later additions. Original cottage form can be determined from part of the roof form which has been extended in three directions over time. Surrounding sheds constructed over time.

Buildings are structurally sound (refer to **Plate 11**).

3.3.2.2 Charcoal Retorts (Site 13)

There is evidence of the remains of charcoal retorts along Big Flat Creek which basically consist of small fragments of charcoal on the ground surface visible from Wybong Road. The metal hood of one of these retorts also exists within the yard of Old Angle Vale.

3.3.2.3 Springvale - Pat Hogan's House and Sawpit (Site 14)

Located on Wybong Road. Externally a fibre cement sheet clad weatherboard cottage with a low-pitched roof all of modern construction. Internal inspection reveals the remnants of Victorian weatherboard lining to what the owner indicates was originally a slab house (refer to **Plate 12**).

The building retains local historical significance for its association with the Hogan family and their association with the area and the various houses they have built along this stretch of Wybong Road.

Condition is fair, in terms of the renovations. Extant original fabric has been protected by the renovations. Integrity is indicative of *major modification*. Insufficient evidence to date.

Adjacent to this property is a sawpit (series of upright posts).

3.3.2.4 'Angle Vale' (Site 15)

Weatherboard house with corrugated iron roof built in 1950s. Stylistically appears older (refer to **Plate 13**). The 'Angle Vale' homestead, about 300 metres SSW of the home, was the third family home built on the property and had been occupied by Gordon Hogan and Peter's family until Peter was about two years old. When Gordon Hogan died, Peter's family moved to 'Old Angle Vale' and Peter had occupied the detached cottage at the rear of the house as his bedroom.

3.3.2.5 'Old Angle Vale' (Site 16)

The homestead group comprised a substantial dwelling, obviously undergoing reconstruction in a style sympathetic to the original building. Irregularly shaped, the main building occupied an area approximately 22 metres square, and comprised a timber-framed weatherboard structure with corrugated iron roof. The house proper was almost completely surrounded by a verandah roofed in bullnose corrugated iron, in which the former timber floor had not yet been replaced apart from that of the southern elevation, which had been floored and gauzed.



PLATE 11

Amaroo, Bert and Janet Ray's former property owned by Centennial Hunter Pty Limited



PLATE 12

Spring Vale, Pat Hogan's property



PLATE 13
Angle Vale, The original Hogan family home



PLATE 14
Castle Hill

Although there had been some modification of doors on the north-eastern elevation, the structure retained its historical atmosphere and appearance. The interior of the dwelling was substantially representative of its original period, despite the conversion of part into a more modern bathroom. In particular, internal wall cladding in the older section of the house was observed to be pressed metal of the iconic Wunderlich style as well as vertical timber panelling to walls and some ceilings. Floors were clearly original.

Off the south-eastern elevation of the house proper was located a small cottage comprising one sealed room and an adjoining open room, built in the same style and also very old. This building had been built as a detached residence and had been Peter Roger's sleeping accommodation from an early age after his family's move from the 'Angle Vale' homestead.

At rear was located a remote privy, not now in use, and a children's playhouse. Associated with the residence are a shearing shed, hay shed and machinery shed and bails.

3.3.2.6 Castle Hill (Site 17)

This site is believed to be Ray's Homestead as identified in draft Muswellbrook Draft Local Environmental Plan.

Undated two-roomed slab hut with front verandah and rear skillion extension. Part of front verandah infilled to access side extension. Interior substantially intact with lining boards and Wunderlich ceilings. Detached kitchen with brick hearth now a ruin. Later, undated extension of weatherboard construction with asbestos cement cladding and brick chimney. Roofs of corrugated iron may have replaced timber shingles. Associated buildings include yards, dairy, outside toilet and various sheds. Nearby shed with shingle roof is collapsed. Outside toilet extremely original (refer to **Plate 14**).

Structures are fragile and vulnerable to fire, vandalism and white ant attack. Structures may be vulnerable to blasting. The site is potentially the most significant outside the Proposed Disturbance Area and within the study area. This site is located 0.8 kilometres from the Proposed Disturbance Area.

3.3.2.7 Anvil Rock (Site 18) and the Book formation (Site 19)

Anvil Rock is a large rock formation. It is a large boulder sitting on top of an eroded sandstone conglomerate ledge shaped like an anvil (on Anvil Hill). The Book formation is another rock formation north of Anvil Rock shaped roughly like a book once the afternoon shadow strikes the rock face. Anvil Rock and the Book formation are natural heritage items which are reported to have social value to the local community who visited and used these areas for picnics throughout early history of European occupation and to the present (Anvil Hill Project Watch Association 2005 (refer to **Plate 15**)). It should be noted that these formations are located on private property and there is no formal access available for visitation of this location for community purposes.

3.3.3 Discussion

The study area contains buildings dating after the earliest period of European (1870s circa) settlement. All buildings inspected to date, post date 1880. Few buildings were built in the area between 1930 and 1970, an indication of poor economic conditions in the area arising from the forms of farming carried out in the area and possibly the lot sizes. Many of these properties including Castle Hill and the ruins of the Ham properties and the early Hogan residence were used for early dairying in the early twentieth century circa. Many of the buildings were constructed by local families including the Hogans and the Rays.

A revival of construction has taken place since the 1970s with the advent of hobby farms on small lots.

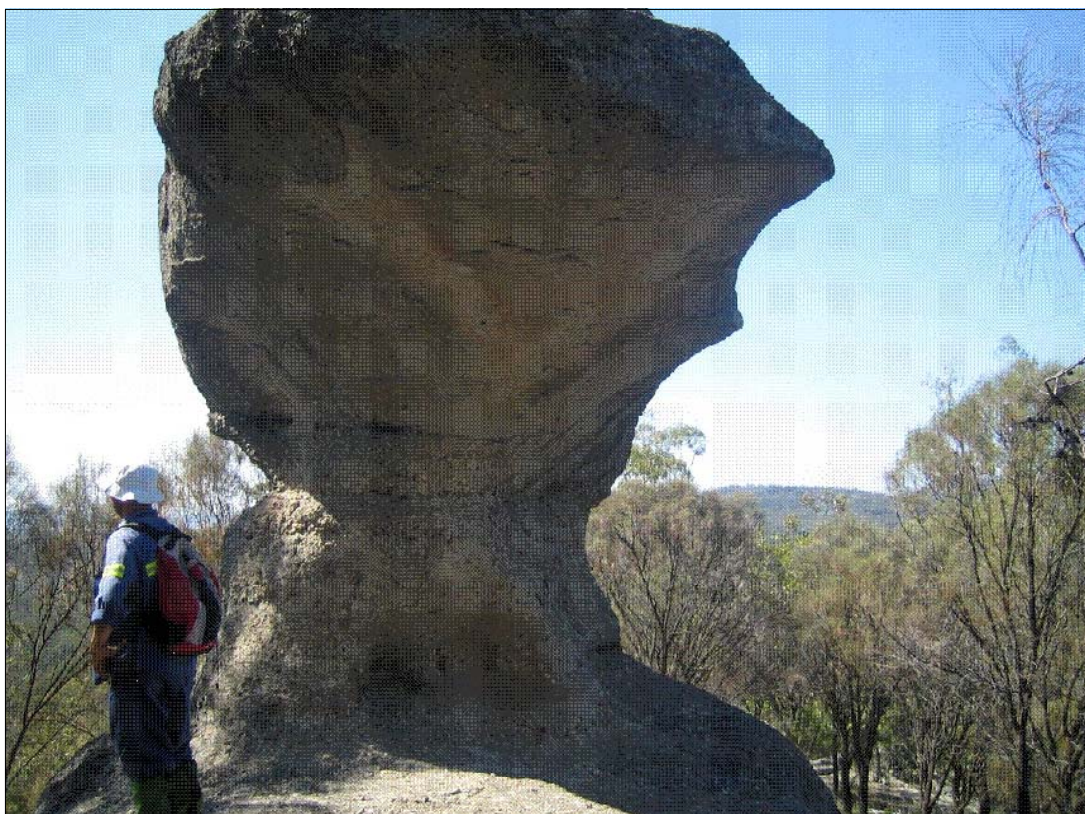


PLATE 15
Anvil Rock

A summary of heritage items described within the study area is provided in **Table 3.3**.

Table 3.3 - Summary of heritage items described within the study area and their locations which have been inspected to date

Site Number	Description of Item	Easting	Northing	Inside or Outside the Proposed Disturbance Area
1	<i>Hogan Property: Ruined House</i>	283701	6425907	Inside
1	<i>Hogan Property: Pig Pens</i>	283344	6425937	Inside
1	<i>Hogan Property: Well</i>	283344	6425936	Inside
1	<i>Hogan Property: Hut</i>	283328	6425859	Inside
1	<i>Hogan Property: Dam</i>	283331	625844	Inside
1	<i>Hogan Property: Small Shed</i>	283607	6425882	Inside
2	Rock Spillway	283084	6423829	Inside
3	Test Shaft	282158	6423402	Inside
4	Ruins of Ham House 1	282913	6424209	Inside
5	Ruins of Ham House 2	282262	6423417	Inside
6	Yarrowongah	285076	6422484	Inside
7	Bundabulla	284475	6426269	Inside
8	Remains of post and rail fence including stockyards along Anvil Creek	280321	6425180	Inside
9	Rays Quarry	283685	6427522	Inside
10	Walkers Quarry	282575	6422303	Inside
11	Windmill and Dam	283536	6422807	Inside
12	Amaroo	284832	6427962	Outside
13	Charcoal retorts	280518	6426785	Outside
14	Springvale	2811811	6427468	Outside
15	Angle Vale	280934	6426966	Outside
16	Old Angle Vale and associated structures	281178	6427076	Outside
17	Castle Hill	279112	642414	Outside
18	Anvil Rock	281139	6424327	Outside
19	Book formation	281231	6424573	Outside

1. Please note items in bold are natural heritage items, not historical heritage sites.

2. All sites were recorded in MGA grid co-ordinates.

4.0 Significance Assessment

4.1 Introduction

An assessment of significance is undertaken to explain why a particular place/object is important and to enable appropriate site management to be determined. “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 4.1.1**.

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 us now may change as similar items are located, more research is undertaken and community values change.

4.1.1 Australia ICOMOS (The Burra Charter) under the Act

The approach to the assessment of heritage significance affirmed by the NSW Heritage Office 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, as **historical, aesthetic, scientific** and **social classifications** of significance. The implications of these classifications are as follows:

- **Historical significance** considers the evolutionary or associative qualities of an item with aesthetics, science and society, identifying significance in the connection between an item and cultural development and change.
- **Aesthetic significance** addresses the scenic and architectural values of an item and/or the creative achievement that it evidences. Thus, an item 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 item with a recognisable community.
- **Scientific significance** involves the evaluation of an item in technical and/or research terms, considering the archaeological, industrial, educational and/or research potential. Within this classification items 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 & Walker 1992: 21-23).

4.1.1.1 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 & Sullivan, 1984 19-26; Sullivan & 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/site 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 an item 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 have 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, finish).
- **Aesthetic value** addresses the manner in which an item comprises or represents creative achievement, epitomising or challenging accepted concepts or standards.
- **Natural value** attaches to items that either support or manifest existing natural processes and/or systems or provide insights into natural processes and/or systems.

4.1.1.2 Degree Criteria

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

4.1.1.3 Level Criteria

The final denominator of significance is the **level of significance** of an item. *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, a relic may be recognised at the:

- **Local level** identifies the item 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 item 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, a relic may be recognised at the:

- **National level** identifies the item as being significant within an identifiable national cultural and/or community group and/or historical/geographical heritage context; and
- **International level** identifies the item 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 NSW Heritage Office adopted a set of standardised assessment criteria to be used in conjunction with the value criteria of The Burra Charter.

4.1.2 NSW Heritage Office Standard Criteria

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

- Criterion (a)** the importance of an item 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 an item and the life or works of a person or group of persons important in NSW or local cultural or natural history [i.e. *associative*].
- Criterion (c)** the importance of an item 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 an item 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 an item 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 an item 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 an item 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].

Within the framework of the same criteria, where this is relevant, the individual contribution of separate elements or components of a relic/site may be evaluated according to a five-stage grading system, where:

- Exceptional** indicates a rare or outstanding element, contributing directly to the assessment of an item's significance at the appropriate level;

- High** indicates that an element exhibits an advanced degree of original fabric and is a key element in the assessment of an item's significance at the appropriate level;
- Moderate** indicates that an element has been modified or has degraded, with little individual heritage value, but that makes an interpretive contribution in the assessment an item's significance at the appropriate level;
- Little** indicates that an element has been modified or has degraded to a degree that detracts from the assessment of an item's significance at the appropriate level;
- Intrusive** indicates that an element is damaging in the assessment of an item's significance at the appropriate level.

4.1.3 Evaluation of the Significance of the Historical Heritage Sites within the study area

In this section, the heritage significance of the sites within the study area are assessed upon the basis of the range of criteria discussed in **Section 4.2.1** and **4.2.2**. The following sub-sections deal with significance by providing an overview in terms of the criteria established in NSW Heritage Office (2001) (**Section 3.2.2**), while **Section 4.2.3** provides a summary of the assessment in table form (**Table 4.1**).

4.1.4 Statement of Significance

Table 4.1 - Statement of Significance of the Study Area

Criterion (a) [Historical]	The area has significance at a local level for demonstrating the pattern of land use for the area arising from the subdivision of larger grazing lots into smaller dairy farms. The earliest pattern being of closely-spaced dairies for the hand milking of small herds, the whole milk being separated into cream which was sent to the local butter factory while the skim milk was used to feed calves or pigs. This pattern of land use is demonstrated in extant and ruined buildings throughout the site. State Theme: Agriculture. Example: The two Ham dairy groups.
Criterion (b) [Associative]	The site has local significance for its association with a number of families of many years standing (since what mid to late nineteenth century) in the area including the Ray and Hogan families whose descendents still own property and live on the site. State Theme: Domestic life. Example: The "Castle Hill" group of buildings.
Criterion (c) [Aesthetic]	The buildings of the site are representative of a range of farm buildings dating from the late nineteenth and early twentieth centuries. They have local aesthetic significance arising from their simple unadorned construction from a limited palette of materials, principally timber. State Theme: Accommodation. Examples: "Coolibah" and "Bundabulla".
Criterion (d) [Social]	This site demonstrates the pattern of settlement of the area but has a lesser significance in social terms.
Criterion (e) [Scientific]	The area has limited significance under this criterion. The existence of retorts for the production of charcoal during the World War II is of local significance. State Theme: Utilities. Example: site of charcoal retorts.

Table 4.1 - Statement of Significance of the Study Area (cont)

Criterion (f) [Rarity]	The level of significance of the weatherboard buildings will be substantially affected by their age. Of particular significance are the slab buildings, once a relatively common building method throughout the Hunter Valley. By observation of age and the nature of their construction many have become ruins or been demolished contributing to their rarity. Further investigation is required. to establish the dates of the slab buildings as their rarity will be related to the time of their construction. (These buildings may have been built in the latter part of the nineteenth century and will therefore have lesser significance than those built in the early part of the nineteenth century).
Criterion (g) [Representativeness]	The buildings on the site are representative of dairying areas throughout Australia. Dairying usually occurs in areas with an abundant timber supply and consequently many buildings are of timber construction.

Please note that this table only refers to those historical heritage sites accessed and that this table will need to be revised once further access is negotiated by Centennial.

4.2 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 resource in its original form. *Potential Impact* assesses the nature and extent to which the resource will be modified as the result of the projected development.

4.2.1 Condition

The condition of heritage resources and/or individual elements 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 resource and some of its elevations and features but will be insufficient to allow an accurate archaeological reconstruction of the resource 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 resource but will be insufficient to allow an archaeological reconstruction of the resource/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; and
- [v.] *archaeological site*, implying a mostly sub-surface residue, where the material evidence suggests the former presence of an archaeological resource that cannot be defined without sub-surface investigation.

4.2.2 Integrity

The integrity of archaeological resources and/or individual elements that have been identified above is assessed on a five-stage scale, that is to say:

- [i.] *Intact*, where the resource 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 resource 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 resource 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 resource 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 one or more elements may be equivocal;
- [v.] *None*, where the integrity of the resource has been completely destroyed and the evidence for its form and/or design and/or function is totally external.

4.2.3 Summary of Condition and Integrity

The condition and integrity of the heritage resources of the study area is summarised in **Tables 4.2** and **4.3**. These tables will need to be revised and additions made once access is resolved for areas which were not inspected (refer to **Section 6**).

**Table 4.2 - Summary of Condition of Resources
within the Proposed Disturbance Area**

Site No.	Resource	Description	Condition	Integrity
1	Hogan Property House and yards	Two room weatherboard cottage with skillion extension	Ruin	Intact
1	Hogan Property Creamery	Shed with timber post to mount hand separator	Ruin	Intact
1	Hogan Property Pig Pens	Undressed timber pickets elaborately wired together to form yards	Standing Ruin	Intact
1	Hogan Property Well	Timber baulks surrounding head of well	Ruin	Material modification
1	Hogan Property Hut	Some remnant posts delineating a hut.	Ruin	Major modification
1	Hogan Property Dam	Shallow dam with low earthen wall	Intact	Intact
1	Hogan Property Small Shed	Remnant of small timber shed	Ruin	Major Modification
2	Hogan Property Rock Spillway	Found rock deliberately placed to form a spillway off an earth fill dam	Intact	Intact

**Table 4.2 - Summary of Condition of Resources
within the Proposed Disturbance Area (cont)**

Site No.	Resource	Description	Condition	Integrity
3	Hogan Property Test Shaft	Fenced test hole covered by fallen tree.	Standing Ruin	Material Modification
4	Hogan Property Ham House 1	Slab house possibly linear in plan	Ruin	Major Modification
4	Hogan Property Ham House 1 Creamery	Slab shed	Ruin	Major Modification
5	Hogan Property Ham House 2	Four room weatherboard cottage with verandah. Some concrete to floors.	Ruin	Major Modification
5	Hogan Property Ham House 2 Dairy	Weatherboard shed on concrete slab and footings. Dated 1931.	Ruin	Major Modification
5	Hogan Property Ham House 2 Meat Shed	Weatherboard and mesh sided shed	Standing Ruin	Material Modification
5	Hogan Property Stock Yard	Fences and gallows for skinning beast.	Ruin	Major Modification
6	Yarrawongah Dairy	Face brick and weatherboard shed	Substantially Intact	Minor modification
6	Yarrawongah	Four room weatherboard cottage with front verandah and rear skillion.	Substantially Intact	Minor modification
6	Yarrawongah Machinery Shed	Timber and corrugated iron shed	Intact	Intact
6	Yarrawongah Feed Shed	Similar in construction to the shed at Coolibah.	Standing Ruin	Material Modification
7	Bundabulla	Weatherboard Victorian villa with later extensions to side and rear.	Intact	Intact
8	Post and rail fence remains and horse and cattle yards associated with Anvil Creek and through out the Proposed Disturbance Area	These remains are in poor condition and are located throughout the Proposed Disturbance Area. These fences are related to pastoral use and are not in many cases property markers.	Ruin	Material modification
9 & 10	Quarries – Ray's property and Walker property	The quarries do not contain any structures and are basically holes in the ground where soil has been extracted.	Intact	Intact
11	Windmill near McLane's Dam	Windmill is in fair condition and does not appear to be modified.	Substantially Intact	Intact

Table 4.3 - Summary of Condition of Resources outside the Proposed Disturbance Area but assessed within the study area

Site No.	Resource	Description	Condition	Integrity
12	Amaroo (Bert and Janet Ray's former residence)	Four room weatherboard cottage with original rear skillion. Major later extensions.	Substantially intact	Minor modification
14	Springvale - Pat Hogan's House	Modified slab cottage with modern extensions.	Substantially intact	Minor modification
14	Hogan Property Sawpit	Series of upright posts	Standing ruin	Intact
15	Angle Vale	Weatherboard house with corrugated iron roof built in 1950s.	Substantially intact	Minor modification
16	Old Angle Vale	Remnant farmstead of homestead, shearing shed, hay shed and bails, with extensive artefacts of former occupation and use	Substantially intact	Minor modification
17	Castle Hill	Two room slab house with original rear skillion. Ruin of original kitchen. Later extension. Associated sheds and outbuildings	Substantially intact	Intact

Anvil Rock and the Book formation are not listed above as they are natural features. The Charcoal retorts are not listed as they are the remains of charcoal on a natural ground surface and are not structural remains.

4.3 Summary of Significance

- i) The subject area demonstrates the historical pattern of European habitation, the land use in the area and a range of other activities arising from the natural resources of the area, with particular reference to the period dating from the late 1870s, the beginning of the dairying industry. These patterns and activities include:
 - Dairy farming and grazing.
 - Limited cropping, including the growing of lucerne on the river flats.
 - Quarrying of local stone.
 - The production of charcoal using local fire wood as an alternate fuel for cars during World War II.
- ii) Individual buildings are of local historical and aesthetic significance in being representative of various forms of building construction over time. These include:
 - Slab construction of early buildings.
 - Various forms of Victorian and Federation period weatherboard cottages.

- The evolution of dairy construction.
 - The construction methods of vernacular farm sheds.
- iii) The area is capable of yielding information regarding the social and cultural history of the place.

A number of the ruins are of slab houses, one of the earliest forms of domestic colonial construction and a form that is increasingly rare. The form of construction appears relatively common in the area. The buildings are representative of simple, crudely build cottages and sheds built commonly in the Hunter Valley in the latter part of the 19th century as settlers with little capital took advantage of the newly-constructed Great Northern Railway to introduce dairying into the area. They are of local historical significance as evidence of the establishment of the dairying industry in the area. They do not date from nor do they form part of the early (1800-1850) European settlement pattern of the area. Therefore, those buildings and structural remains assessed and inspected to date are not early or consequently rare and of higher significance. They were built later when the form of construction was being superseded and are therefore indicative of the lack of resources and capital of the first dairy farmers. It can be predicted that it is likely based on historical information investigated and examined to date that other buildings not assessed due to landholder access being denied, represent the same settlement pattern and level of significance as outlined above.

Table 4.4 - Summary of Significance within the Proposed Disturbance Area

Site No.	Resource	Heritage Significance Rating	Justification for Heritage Status
1	Hogan Property Ruined house and yards	Local historical and associative significance*	Demonstrates local vernacular construction
1	Hogan Property Creamery	Local associative significance*	Demonstrates local vernacular construction
1	Hogan Property Pig Pens	Local historical significance*	Demonstrates local vernacular construction
1	Hogan Property Well	Local historical significance*	Demonstrates local vernacular construction
1	Hogan Property Ruined Hut	Local historical significance*	Demonstrates local vernacular construction
1	Hogan Property Dam	Local historical significance*	Demonstrates local vernacular construction
1	Hogan Property Small Shed	Local historical significance*	Demonstrates local vernacular construction
2	Hogan Property Rock Spillway	Local historical and scientific significance*	Unusual form of construction
3	Hogan Property Test Shaft	Local historical significance*	Demonstrates local activity aside from farming.
4	Hogan Property Ruins of Ham House 1	Local historical and associative significance. Scientific significance	Unusual slab house configuration
4	Hogan Property Ruins of Ham House 1 Creamery	Local historical and associative significance. Scientific significance	Remnant of early slab dairy
5	Hogan Property Ruins of Ham House 2	Local historical and associative significance. Scientific significance	Slab house of greater sophistication than Ham House 1.

Table 4.4 - Summary of Significance within the Proposed Disturbance Area (cont)

Site No.	Resource	Heritage Significance Rating	Justification for Heritage Status
5	Hogan Property Ruins of Ham House 2 Dairy	Local historical and associative significance. <i>Scientific significance</i>	Dairy of greater sophistication than Ham House 1.
5	Hogan Property Ham House 2 Meat Shed	Local historical significance*	Demonstrates local vernacular construction
5	Hogan Property Stock Yard	Local historical significance*	Demonstrates local vernacular construction
6	Yarrowongah Dairy	Local, historical associative and aesthetic significance*	Demonstrates local weatherboard construction.
6	Yarrowongah	Local historical significance*	Demonstrates local vernacular construction
6	Yarrowongah Machinery Shed	Local historical significance*	Demonstrates local vernacular construction
6	Yarrowongah Feed Shed	Local historical significance*	Demonstrates local vernacular construction
7	Bundabulla	Local historical and aesthetic significance*	Intact weatherboard house on some quality.
8	Post and rail fence remains and horse and cattle yards associated with Anvil Creek and through out the Proposed Disturbance Area	Local historical significance*	Part of pattern of agricultural use.
9 & 10	Quarries – Ray's property and Walker property	Local historical significance*	Part of pattern of land use
11	Windmill near McLane's Dam	Local historical and scientific significance	Capital intensive farming equipment is rare in the locality but in the region of Muswellbrook where it is common.

Table 4.5 - Summary of Significance outside the Proposed Disturbance Area and within the study area

Site No.	Resource	Heritage Significance Rating	Justification for Heritage Status
12	Amaroo (Bert and Janet Ray's former residence)	Local aesthetic significance*	Original four-room weatherboard cottage with substantial additions
13	Charcoal Retorts	Local historical significance*	Remains of charcoal on surface and hood at Old Angle Vale are only remains of this industry during WWII in locality.
14	Springvale - Pat Hogan's House	Local historical and associative significance*.	Location of early slab hut subsumed by later alterations.

Table 4.5 - Summary of Significance outside the Proposed Disturbance Area and within the study area (cont)

Site No.	Resource	Heritage Significance Rating	Justification for Heritage Status
14	Hogan Property Sawpit	Local historical significance*	Demonstrates late 19 th century timber milling practices.
15	Angle Vale	Local historical and associative significance*.	House built in vernacular style after WWII.
17	Castle Hill	Local historical, associative aesthetic and scientific significance Listed Item	Intact slab house with later extensions and surrounding buildings. Full archival recording, monitoring and remediation required if this item is confirmed to be potentially impacted by blasting in the later stages of the mine life.
18	Anvil Rock	Local social significance*	Submission by Anvil Hill Project Watch Association as being important place to the community.
19	The Book Formation	Local social significance*	Submission by Anvil Hill Project Watch Association as being important place to the community.

* Indicates that level of significance is not sufficient to warrant listing as Heritage Item as part of a Local Environmental Plan and hence on the State Heritage Inventory.

There are no known significant archaeological deposits relating to early nineteenth century occupation located within the Proposed Disturbance Area. The Ham Houses 1 and 2 and the Hogan's property which contain ruins, all contain some remnant eroded metal and timber objects as well as some bottle glass and ceramic which dates to the early to mid twentieth century. These sites have been recommended for surface collection (refer to **Section 6**).

No evidence of late nineteenth century potential archaeological deposits have been identified from previous archaeological research and oral history from family interviews. A geomorphological assessment undertaken by Dr Peter Mitchell for Aboriginal heritage remarks on the skeletal topsoil (A unit which contains occupation evidence) throughout the Proposed Disturbance Area (Groundtruth 2006, draft in preparation). The relevant outcome of this report is that any artefact bearing deposit in areas which may have potential archaeological deposit is unlikely. This was notable at sites including the ruins of the Ham Houses when examining potential for archaeological deposit.

The Anvil Hill Project Watch Association Inc mention in their submission for the proposed Anvil Hill EA, a 1930s bottle dump site. This site has not been identified and its location was not known to MLFHS or to the families interviewed for this report. If this site can be identified, any significant remains will be offered to be donated to the MLFHS. No other bottle dumps were identified during field survey of creek lines.

5.0 Heritage Impact Statement

5.1 Project Description

Detailed mine and Project planning has been undertaken to develop a Conceptual Mine Plan for year 2, 5, 10, 15 and 20. The features that influenced the design of the mine and the equipment selection for the mine are the dyke that runs from the south-west to the north-east across the eastern side of the study area and the 500 kV power line that runs at right angles to the dyke. These features break up the study area into four distinct mining areas (refer to **Figure 5.1**).

To facilitate coal quality control for the life of the mine, scheduling has allowed for concurrent operation of the four pits for most of the mine life. The proposed mining method has been adapted to this layout and is planned to provide an efficient mining operation in which environmental impacts can be minimised.

Rehabilitation of the overburden emplacement areas and backfilled pits will be conducted progressively over the life of the mine, as an integral component of mining operations. Rehabilitation will be scheduled to commence as soon as possible after mining disturbance, to minimise the disturbed area at any point in time.

The primary objective of mine rehabilitation will be to create a stable final landform with acceptable post mining land use capability. The proposed final land use will include self sustaining indigenous vegetation communities, consisting of native and naturalised tree, shrub and grass species.

5.2 Proposed Development

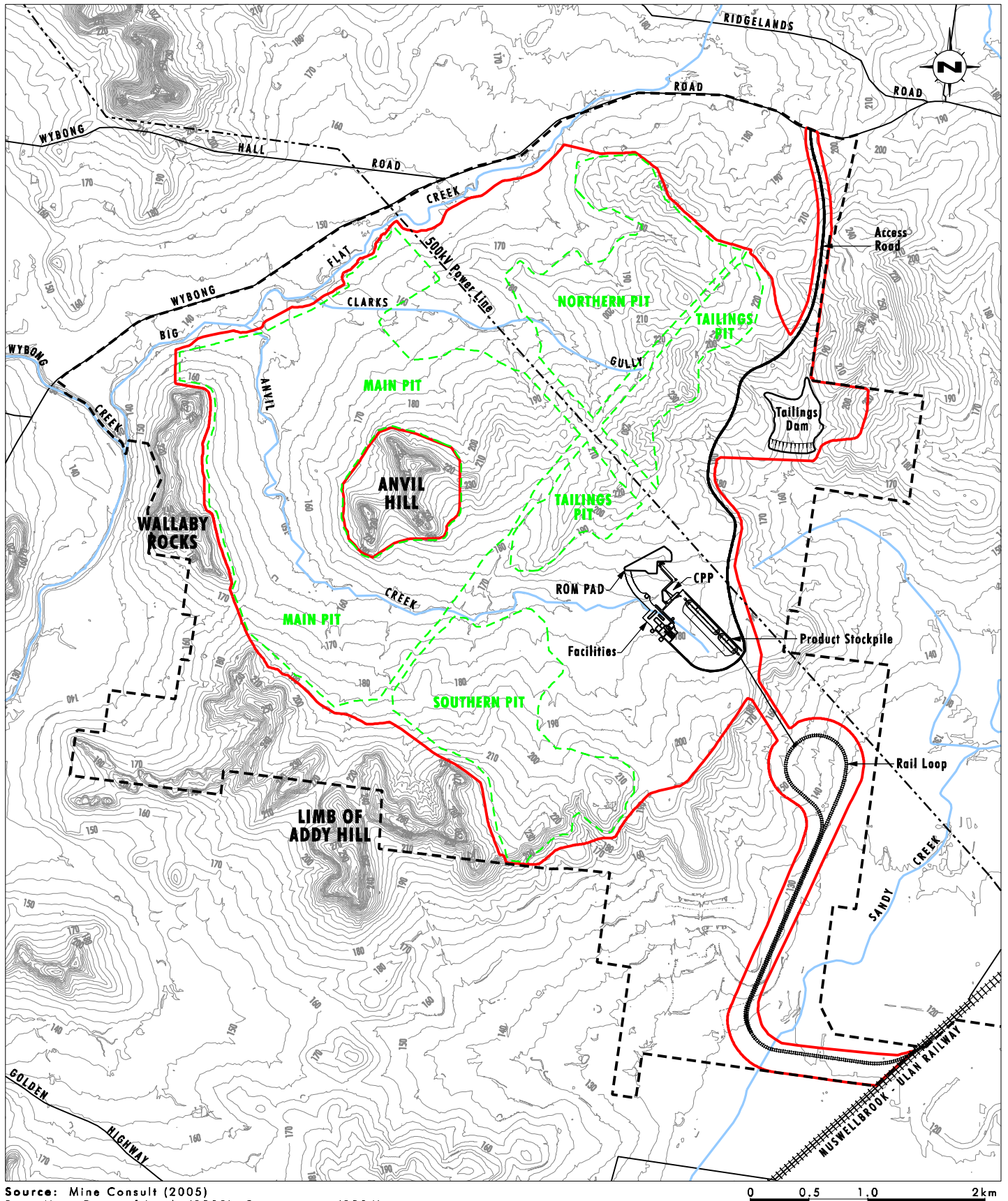
The present 20 year conceptual plan for the proposed open cut mine and all associated infrastructure is shown on **Figure 5.1**. The proposed open cut mine will involve the following activities:

- land clearing and topsoil removal completed in advance of mining;
- bulk waste fragmented using drill and blast methods;
- coal and thin partings to be ripped and pushed;
- overburden and interburden to be removed using hydraulic excavator and rear dump trucks; and
- coal mining with front end loader and rear dump trucks.

An access road will be located within the north-east of the Proposed Disturbance Area off Wybong Road. A railway will be linked to the existing Sandy Hollow-Merriwa Railway in the south-east.

5.3 Potential Impacts on Historical Sites

Figures 1.2 and **5.1** illustrate the area to be impacted by proposed open cut mining and infrastructure. All historical heritage objects and places identified within this area will be



Source: Mine Consult (2005)
Base Map: Dept. of Lands (2003), Geospectrum (2004)
Note: Contour Interval 5m

Legend

- Proposed Disturbance Area
- Project Area
- Proposed Mining Area

FIGURE 5.1

Conceptual Mine Layout

destroyed over the mine life. There is no potential for conservation of historical heritage objects or places within the Proposed Disturbance Area.

Figure 5.1 indicates that Anvil Hill will not be directly impacted by the current mining proposal (and is being considered as a proposed offset area for cultural heritage); however, indirect impacts such as vibration from blasting has the potential to damage/destroy/disturb historical heritage items such as structures and natural formations such as Anvil Rock and the Book formation.

5.3.1 Summary of Potential Impacts

For the purpose of this assessment it has been assumed that all historical heritage places/objects identified within the Proposed Disturbance Area will be destroyed by open cut mining and associated infrastructure (refer to **Figures 1.2** and **5.1**). Activities such as blasting may (indirectly) adversely effect adjoining lands through vibration effecting historical heritage structures and natural features in these areas and also dust. Dust is considered less of an issue compared to vibration. Dust may build up on some structures, however it will not structurally impact on heritage items. Vibration has the potential to structurally impact on heritage items through cracking and displacement of foundations and structural features. The direct and indirect impacts are tabulated in **Table 5.1** for each heritage item.

There is some concern for historical heritage items within the study area if they may be potentially impacted from vibration from proposed blasting. The Ray's homestead "Castle Hill" is fragile and susceptible to impacts from vibration. Further discussion of management of structures is provided in **Section 6**.

5.3.2 Heritage Impact Statement

Table 5.1 provides a succinct statement concerning the proposed impact on the heritage items within the study area which have been accessed and assessed to date.

Table 5.1 – Heritage Impact Statement

Site No.	Resource	Description	Impact
1	Hogan Property House and yards	Two room weatherboard cottage with skillion extension	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
1	Hogan Property Creamery	Shed with timber post to mount hand separator	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
1	Hogan Property Pig Pens	Undressed timber pickets elaborately wired together to form yards	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
1	Hogan Property Well	Timber baulks surrounding head of well	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
1	Hogan Property Hut	Some remnant posts delineating a hut.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
1	Hogan Property Dam	Shallow dam with low earthen wall	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.

Table 5.1 – Heritage Impact Statement (cont)

Site No.	Resource	Description	Impact
1	Hogan Property Small Shed	Remnant of small timber shed	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
2	Hogan Property Rock Spillway	Found rock deliberately placed to form a spillway off an earth fill dam	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
3	Hogan Property Test Shaft	Fenced test hole covered by fallen tree.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
4	Hogan Property Ham House 1	Slab house possibly linear in plan	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
4	Hogan Property Ham House 1 Creamery	Slab shed	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
5	Hogan Property Ham House 2	Four room weatherboard cottage with verandah. Some concrete to floors.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
5	Hogan Property Ham House 2 Dairy	Weatherboard shed on concrete slab and footings. Dated 1931.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
5	Hogan Property Ham House 2 Meat Shed	Weatherboard and mesh sided shed	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
5	Hogan Property Stock Yard	Fences and gallows for skinning beast.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
6	Yarrawongah Dairy	Face brick and weatherboard shed	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
6	Yarrawongah	Four room weatherboard cottage with front verandah and rear skillion.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
6	Yarrawongah Machinery Shed	Timber and corrugated iron shed	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
6	Yarrawongah Feed Shed	Similar in construction to the shed at Coolibah.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
7	Bundabulla	Weatherboard Victorian villa with later extensions to side and rear.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.

Table 5.1 – Heritage Impact Statement (cont)

Site No.	Resource	Description	Impact
8	Post and rail fence remains and horse and cattle yards associated with Anvil Creek and through out the Proposed Disturbance Area	These remains are in poor condition and are located throughout the Proposed Disturbance Area. These fences are related to pastoral use and are not in many cases property markers.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
9 & 10	Quarries – Ray’s property and Walker property	The quarries do not contain any structures and are basically holes in the ground where soil has been extracted.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
11	Windmill near McLane’s Dam	Windmill is in fair condition and does not appear to be modified.	This item is within the Proposed Disturbance Area and will be directly impacted as part of the proposal.
12	Amaroo (Bert and Janet Ray’s former residence)	Four room weatherboard cottage with original rear skillion. Major later extensions.	This item may be potentially indirectly impacted by proposed blasting through vibration and will require further management (refer to Section 6.2).
13	Charcoal Retorts	Remains of charcoal on ground surface.	Erosion is currently destroying this site. It is outside the Proposed Disturbance Area and within Proposed Offset Areas for cultural heritage and will not be directly disturbed by the development.
14	Springvale - Pat Hogan’s House	Modified slab cottage with modern extensions.	This item may be potentially indirectly impacted by proposed blasting through vibration and will require further management (refer to Section 6.2).
14	Hogan Property Sawpit	Series of upright posts	This item may be potentially indirectly impacted by proposed blasting through vibration and will require further management (refer to Section 6.2).
15	Angle Vale	Weatherboard house with corrugated iron roof built in 1950s. Stylistically appears older – than Old Angle Vale.	This item may be potentially indirectly impacted by proposed blasting through vibration and will require further management (refer to Section 6.2).
16	Old Angle Vale	Remnant farmstead of homestead, shearing shed, hay shed and bails, with extensive artefacts of former occupation and use	This item may be potentially indirectly impacted by proposed blasting through vibration and will require further management (refer to Section 6.2).

Table 5.1 – Heritage Impact Statement (cont)

Site No.	Resource	Description	Impact
17	Castle Hill	Two room slab house with original rear skillion. Ruin of original kitchen. Later extension. Associated sheds and outbuildings	This item may be potentially indirectly impacted by proposed blasting through vibration and will require further management (refer to Section 6.2).
18	Anvil Rock	Natural geological formation.	Preventative measures such as rock bolts to hold and stabilise Anvil Rock may be necessary (refer to Appendix 13 of the EA).
19	The Book Formation	Natural geological formation.	May require specific blast management, as noted in Appendix 13 of the EA.

5.3.3 Discussion of the Proposal and Management Options to Mitigate Proposed and Potential Impacts

The purpose of this sub-section is to discuss the key heritage issues raised by the proposed impacts of the development. This discussion also addresses key questions raised in the NSW Heritage Office's guideline for compiling Statements of Heritage Impact (now referred to as Heritage Impact Statements). These questions include:

- How the proposal will respect or enhance the heritage significance of the item or conservation area?
- How certain aspects of the proposal could detrimentally impact on the heritage significance?
- How other sympathetic solutions have been considered and discounted and for what reasons?

The subject area contains one item listed as being of sufficient heritage significance such as to warrant listing on the LEP. This does not mean that the area overall has no historical significance nor are there no other items of local significance.

While none on the items listed in **Tables 4.4 and 4.5** are or warrant listing as items in their own right they combine to give a clear understanding of the historical pattern of development in the area. Removal of this group of items may have a detrimental impact on the understanding of the local heritage significance of the area. To answer the key questions raised in the NSW Heritage Office's guideline for compiling Statements of Heritage Impact. The following guidelines could be pursued:

- **To enhance the heritage significance of the area**
 - i) **Heritage Offset.** The impact of the proposal means the total removal of items within the Proposed Disturbance Area. Works should be undertaken outside the proposed mine area but within the indirect impact area for potential vibration from blasting to conserve and enhance items of significance as an offset to the impact within the Proposed Disturbance Area. There are no items within the overall site that are not under some form of current threat of deterioration through lack of maintenance or

through unsympathetic change. Proper conservation of items of heritage significance would enhance the heritage significance of the area. The conservation of the homestead "Castle Hill" would fit this form of offset if the property is within the area of indirect impact. Anvil Rock and the Book formations on Anvil Hill will be conserved. This land is currently private property and consistent with the current status, future access will need to be organised with Centennial.

The following recommendations are made for mitigation of proposed disturbance:

- **Castle Hill:** preparation of a Conservation Management Plan. Works to stabilise the buildings, subject to consent of owners. Further works as may be indicated in the Conservation Management Plan, subject to consent of owners.
 - **Anvil Rock and Book formations:** Centennial to develop an access plan, giving the public occasional supervised access to these formations. Preventative measures to stabilise these formations.
- ii) **Relocation.** The level of interest in houses of weatherboard construction means that those buildings that are stable within the Proposed Disturbance Area could be considered for relocation. At present relocation would only refer to those inspected which includes Bundabulla and Yarrawongah. The act of relocation usually robs a building of a great part of its heritage significance as its context and its historic curtilage is lost. Relocation does however lead to some form of conservation of the building and its long-term enjoyment.

Recommendations:

- An engineer or suitably qualified person to assess weatherboard buildings (Yarrawongah and Bundabulla) for potential relocation.
- iii) **Accurate Recording.** The buildings and items within the Proposed Disturbance Area form a unique record of the pattern of settlement; demonstrating its social and economic development. The numerous ruins and partially ruined buildings are capable of yielding further information about these social and economic patterns. Accurate recording of these sites prior to removal is crucial to maintaining an understanding of these patterns. This should take the form of archival photographic recording and the physical description of appropriate sites to record evidence of the design of the structures; particularly where there is evidence that the building was of slab construction.

Recommendations:

- The buildings and items within the Proposed Disturbance Area should be assessed in terms of their identified significance and their potential significance in terms of a short history and a statement of significance pertaining to that history.
 - Archival recording of the identified sites to a standard set out in the NSW Heritage Office Guidelines for photographic records and archival recording be undertaken.
- **The proposal has a detrimental impact on the heritage significance.**

The detrimental impact of operations within the Proposed Disturbance Area is inevitable. Within the potential indirect impact area for vibration from proposed blasting, the key potential detrimental impacts are vibration from blasting and the effect of dust. Predicted

dust levels are not expected to have an impact on structures apart from some minimal aesthetic impact by build up of dust over time on the exterior of structures.

The active conservation of heritage items allows assessment for potential vibration damage and for preventative measures to be taken. It is noted that "Castle Hill", as a group of buildings, is particularly fragile.

Recommendation:

- A strategy be developed to minimise vibration in the vicinity of heritage items outside the Proposed Disturbance Area. It is understood from advice from Wilkinson Murray (2006) that historical heritage structures are susceptible to vibration from blasting at 5 mm/second and that structures with no historical heritage significance are susceptible from blasting at 10 mm/second.

At present Centennial has committed to the recording of all historic buildings within the Proposed Disturbance Area and refinement of their blast design to ensure potential and known historical heritage items outside the Proposed Disturbance Area will not be impacted. Centennial has also committed to a community study for oral history to mitigate against the impacts of the Anvil Hill Project on the historical heritage and the community's connections to their local history in Wybong.

- **Other sympathetic solutions have been considered and discounted, including:**

Retention of buildings within the Proposed Disturbance Area is not a viable option. The nature of the mining operation means that the retention of small pockets of unmined land would render the proposal unviable. It would not be a satisfactory conservation outcome for buildings and sites to be retained in these small pockets for the following reasons:

- i) The context of an overall historical pattern of development would be lost.
- ii) Pockets containing items would have major access difficulties.
- iii) The level of significance does not warrant a high level of intervention.

Relocation of buildings to an offset area nearby to be reconstructed in a group or scattered over a much closer area is also not viable for the following reasons:

- i) As above, the context of an overall historical pattern of development would be lost.
- ii) Relocation of a number of the ruins is not viable.
- iii) As above, the level of significance does not warrant a high level of intervention.

6.0 Management Strategy

This section outlines the proposed management strategy for the known and potential heritage items within the Proposed Disturbance Area and for items which may be within the area of potential indirect impact for proposed blasting.

6.1 Management Strategy for Areas and Items Inspected within the Proposed Disturbance Area

Table 6.1 provides a management strategy for heritage items inspected within the Proposed Disturbance Area, appropriate to the assessed level of significance.

**Table 6.1 – Management Strategy for Heritage Items
within the Proposed Disturbance Area**

Site No.	Heritage Item	Significance Assessment	Management Strategy
1	Hogan Property House and yards, Creamery, Pig Pens, Well, Hut, Dam, Small Shed	Moderate local heritage significance	Further historical investigation will be undertaken to record cottage and surroundings with regard to layout and form of the building. Surface collection of artefacts and full archival recording to standards of local heritage significance for structure and all related features.
1	Hogan Property Stock Yard	Low local heritage significance	Full archival recording to standards of local heritage significance for structure and all related features.
2	Hogan Property Rock Spillway	Moderate local heritage significance	Further historical investigation will be undertaken to establish the construction date of the spillway. Full archival recording to standards of local heritage significance for structure and all related features.
3	Hogan Property Test Shaft	Moderate local heritage significance	Further historical investigation will be undertaken to establish the construction date of the shaft. Full archival recording to standards of local heritage significance for structure and all related features.
4	Hogan Property Ham House 1 and associated Creamery	High local heritage significance	Further historical investigation will be undertaken to record cottage and surroundings with regard to layout and form of the building. Surface collection of artefacts and full archival recording to standards of local heritage significance for structure and all related features.
5	Hogan Property Ham House 2	High local heritage significance	Further historical investigation will be undertaken to record cottage, dairy and surroundings with regard to layout. Surface collection of artefacts and full archival recording to standards of local heritage significance for structure and all related features.

**Table 6.1 – Management Strategy for Heritage Items
within the Proposed Disturbance Area (cont)**

Site No.	Heritage Item	Significance Assessment	Management Strategy
5	Hogan Property Ham House 2 Dairy and Meat Shed	High local heritage significance	Record dairy, shed and surroundings with regard to layout and form of the building. Surface collection of artefacts and full archival recording to standards of local heritage significance for structure and all related features.
6	“Yarrowongah” and associated structures	Moderate local heritage significance	Record, dairy, sheds and surroundings. Assess for potential relocation if these structures cannot be retained. Full archival record to standard of local heritage significance. Removal and acquisition of movable heritage items including sulky and other items, if not wanted by the McTaggarts, made available to any interested parties for conservation.
7	Bundabulla	Moderate local heritage significance	Establish construction date and record. Assess for potential relocation. Full archival record to standard of local heritage significance.
8	Post and rail fence remains and horse and cattle yards associated with Anvil Creek and through out the Proposed Disturbance Area	Low local heritage significance	Full archival record to standard of local heritage significance. Photographs and plan with location.
9 & 10	Quarries on Ray’s property and Walkers’ property	Low local heritage significance	Full archival record to standard of local heritage significance. Photographs and plan with location.
11	Windmill near McLane’s Dam	Low local heritage significance	Further investigation to ascertain construction date. Full archival record to standard of local heritage significance. Photographs and plan with location.

The methodology for archival recordings should follow NSW Heritage Office (1998) and the methodology for surface collection is outlined in **Appendix A**.

6.2 Management Strategy for Areas and Items Accessed within the study area outside the proposed disturbance area

Table 6.2 – Management Strategy for Heritage Items outside the Proposed Disturbance Area and within the study area

Site No.	Resource	Significance Assessment	Management Strategy
12	Amaroo (Bert and Janet Ray's former residence)	Local aesthetic significance	Conservation of this item if it is to be potentially affected by vibration and the blast design cannot be modified to ensure it will not be impacted. No further investigation is required if the proposed blasting design can be modified to ensure that these properties will not be impacted. If blasting cannot be modified to ensure no impact is likely to these items, detailed historical investigation and archival recording to the appropriate standards of heritage significance as outlined in the NSW Heritage Office's guidelines for archival recording will be required. The archival recording and detailed historical investigation would form part of a detailed report.
13	Charcoal Retorts	Local historical significance	The charcoal retorts are in area for Proposed Offset Areas for cultural heritage. This site can be protected by further destruction from erosion by fencing. Photographic recording of this site can also be undertaken.
14	Springvale - Pat Hogan's House and Sawpit	Local historical and associative significance.	Conservation of this item if it is to be potentially affected by vibration and the blast design cannot be modified to ensure it will not be impacted. No further investigation is required if the proposed blasting design can be modified to ensure that these properties will not be impacted. If blasting cannot be modified to ensure no impact is likely to these items, detailed historical investigation and archival recording to the appropriate standards of heritage significance as outlined in the NSW Heritage Office's guidelines for archival recording will be required. The archival recording and detailed historical investigation would form part of a detailed report.
15	Angle Vale	Local historical and associative significance	Conservation of this item if it is to be potentially affected by vibration and the blast design cannot be modified to ensure it will not be impacted. No further investigation is required if the proposed blasting design can be modified to ensure that these properties will not be impacted. If blasting cannot be modified to ensure no impact is likely to these items, detailed historical investigation and archival recording to the appropriate standards of heritage significance as outlined in the NSW Heritage Office's guidelines for archival recording will be required. The archival recording and detailed historical investigation would form part of a detailed report.

Table 6.2 – Management Strategy for Heritage Items outside the Proposed Disturbance Area and within the study area

Site No.	Resource	Significance Assessment	Management Strategy
16	Old Angle Vale and associated structures	Local historical and associative significance	<p>Conservation of this item if it is to be potentially affected by vibration and the blast design cannot be modified to ensure it will not be impacted. No further investigation is required if the proposed blasting design can be modified to ensure that these properties will not be impacted.</p> <p>If blasting cannot be modified to ensure no impact is likely to these items, detailed historical investigation and archival recording to the appropriate standards of heritage significance as outlined in the NSW Heritage Office's guidelines for archival recording will be required. The archival recording and detailed historical investigation would form part of a detailed report.</p>
17	Castle Hill	High local significance	<p>Further monitoring and review of the structure needs to be undertaken as mining progresses to confirm the potential impacts of blasting.</p> <p>If this item is still potentially affected by vibration from blasting, a detailed recording of the buildings and associated features to the NSW Heritage Office's standard for archival recordings of local heritage significance needs to be completed by a qualified heritage consultant. Castle Hill may require a Conservation Management Plan (CMP) as a result of the initial assessment, subject to landowner agreement. This CMP would not be necessary if Castle Hill is outside the area of potential blasting impacts.</p>
18	Anvil Rock	Local social significance	<p>These natural features will be conserved but will need to be supported to ensure indirect impacts from blasting do not cause it to fall down based on the specialist advice from a geotechnical consultant.</p>
19	The Book Formation	Local social significance	<p>These natural features will be conserved but will need to be supported to ensure indirect impacts from blasting do not cause it to fall down based on the specialist advice from a geotechnical consultant.</p>

6.2.1 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. The historical research confirms that any further sites are likely to be of local heritage value. On this basis, the following management options apply to any further sites and should be confirmed prior to commencement of development.

Option 1: Items of potential local heritage significance

Conservation of any items of potential local heritage significance in the area of potential blasting impacts and modification of blast design to ensure any such items were not impacted. No further investigation is required if the proposed blasting design can be modified to ensure that these properties will not be impacted.

If blasting cannot be modified to ensure no impact is likely to any such items, detailed historical investigation and archival recording to the appropriate standards of heritage significance as outlined in the NSW Heritage Office's guidelines for archival recording will be required. The archival recording and detailed historical investigation would form part of a detailed report.

Option 2: Items with no local heritage significance values

No further investigations or assessment would be required for these structures after they were accessed and verified by a qualified heritage architect.

6.2.2 Summary

All archival recordings necessary for heritage items discussed above should follow the standards outlined by the NSW Heritage Office (1998). All archival recordings will be part of one detailed report. Centennial has also committed to a detailed community oral history with interviews from local families including the Rays, McTaggarts and Hogans who have lived/live in the Proposed Disturbance Area and the locality of Wybong for many generations (that is, from late nineteenth century to the present).

7.0 References

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APPENDIX A

Research Design and Methodology

Appendix A - Research Design and Methodology

1.0 INTRODUCTION

The purpose of this Appendix is to provide a research design and methodology for the proposed surface collection of relics from:

- Ham House 1 and associated structures;
- Ham House 2 and associated structures; and
- House on Hogan Property and associated structures.

The purpose of the surface collection is to retrieve surface relics from each site prior to impact by mine related activities.

1.1 DESCRIPTION OF THE SITES RECOMMENDED FOR SURFACE COLLECTION

The Ham Houses 1 and 2 and the ruined house on the Hogan's property contain remnants of structures and also eroded metal, timber objects, bottle glass and ceramic, all which date to the early to mid-twentieth century. Full descriptions of these sites are provided within the main text in **Sections 3.3.1.1, 3.3.1.4 and 3.3.1.5**; their location is shown on **Figure 3.2** and photographs are provided as **Plates 1, 3, 4, 5, 6 and 7**.

As outlined in **Section 4.3** of the main text, evidence of late nineteenth century potential archaeological deposits have not been identified from previous archaeological research, from family interviews or from field assessment. A geomorphological assessment undertaken by Dr Peter Mitchell, as part of the Aboriginal archaeological assessment, remarks on the skeletal topsoil (A horizon) throughout the Proposed Disturbance Area (Groundtruth 2006, draft in preparation). The A horizon is the soil unit that generally contains evidence of occupation. The lack of A horizon was notable at the ruins of the Ham Houses and the ruin on the Hogan's property. The ruins consist of dairies and creameries which were constructed on concrete slabs. It is assessed that there is extremely low potential for archaeological deposit relating to European occupation beneath the concrete slabs.

1.2 PROPOSED IMPACTS TO ARCHAEOLOGICAL SITES

The area to be impacted by the proposed development is identified on **Figures 1.2 and 2.1** in the main text. The potential impacts to the historic sites are discussed in **Section 5**. Affected sites and mitigation measures for management of these sites are outlined in **Table 6.1** and **Section 6.2**.

The current research design and methodology applies to the surface collection of three historic sites (Ham House 1 and associated structures, Ham House 2 and associated structures and a ruined House on the Hogan Property and associated structures), that will be impacted by open cut mining and other ancillary mining activities (refer to **Figure 3.2**) within the Anvil Hill Proposed Disturbance Area (refer to **Figure 1.2**).

1.2.1 Why is Impact Necessary

The proposed impact area is within the 20 year mining footprint and is required to be disturbed to allow extraction of coal.

2.0 HISTORICAL AND ARCHAEOLOGICAL CONTEXT

The historical and archaeological contexts for the Anvil Hill Project (which provide a background for this research design) are located in **Section 3** of the main text.

3.0 RESEARCH DESIGN

The following research questions have been formulated to direct the surface collection of the three historic sites within the Proposed Disturbance Area. The research questions are centred on addressing the gaps in historic knowledge about the early settlement of the Anvil Hill/Wybong locality and how these settlements fit into the occupation of the Upper Hunter region as a whole.

3.1 RESEARCH QUESTIONS

1. What do the physical remains (relics and ruined structures) of Ham House 1 site, Ham House 2 site and the ruined House on the Hogan property tell us about general occupation within the Anvil Hill/Wybong locality area?
2. How does information from the physical remains of these houses fit into the local history of Anvil Hill/Wybong's settlement chronologically; and does it provide any new information missing from the existing historical records?
3. What do the physical remains tell us about domestic and working life in general of the early twentieth century within the Anvil Hill/Wybong locality?
4. Do the physical remains provide any information about early dairying or early domestic life in the Upper Hunter which is missing from the historical records? For example, do the assemblages of artefacts from the sites show us differences in domestic life through analysis of ceramics, glass and metal objects? Are there structural differences in the ruined remains which show ingenuity or which have differences to other historic sites of a similar nature in the Upper Hunter region?
5. What is the spatial organisation of the physical remains of the historic structures and relics found across these sites? Is there a comparable organisation for domestic life for the three sites or are there differences? Can activity areas be ascertained from the distribution of relics?

In order to answer these research questions an understanding of the spatial organisation of the three historic sites and the distribution of relics across these sites will be obtained through: the surface collection and the careful mapping of physical remains and relic distribution; and the detailed recording and analysis of the relics.

4.0 METHODOLOGY

It is intended to collect as many as possible of the surface relics observed during the survey that are within the three sites. The collection methodology will include:

- flagging of relics so that their distribution can be photographed;
- preparation of a detailed site plan indicating distribution of the relics in relation to the remains of the structures; and
- spatial analysis of the three sites in relation to each other and other similar sites in the Upper Hunter.

Elevations, detailed drawings and floor plans will be produced for each structure. These plans and measured drawings will conform to the standard of recording for local heritage significance as outlined by the NSW Heritage Office's guidelines for archival recordings (attached as **Appendix 1** of the main text).

The remnant structures and associated features of each site will also be photographed and details recorded on photographic inventory sheets. Photographic recording will follow the NSW Heritage Office's guidelines for archival recording to the standard of local heritage significance and will include:

- base plans cross referenced to photographs;
- black and white photographs;
- colour slides; and
- colour photographs.

4.1 ARTEFACT ANALYSIS

All relics (artefacts) collected from the three sites will be cleaned, washed and analysed off site. The artefacts will be catalogued on an Excel spreadsheet using the classifications for artefacts as outlined in Davies and Buckley (1987). This cataloguing will include analysing the artefacts according to a uniform typology for raw material and function and attempt at dating particular artefacts in order to understand occupation of the various sites.

The artefact analysis will also contain intra and inter-assemblage analysis for those assemblages located during the surface collections. Inter-assemblage comparisons will also be undertaken with assemblages from other areas in the Hunter Valley where comparable data is available. Full details of the artefact data for all of the assemblages will be presented within a report, so that the data will be available for other analysts.

4.2 REPOSITORY OF ARTEFACTS COLLECTED

Once artefact analysis is complete, a copy of a report documenting the results of the surface collection and archival and photographic recording of the three heritage sites will be deposited with the Muswellbrook Local and Family History Society (MLFHS). It is understood that MLFHS would like to display some of these items within Weidemann Cottage in Muswellbrook. Weidemann Cottage is available for public access.

A copy of the final report will also be forwarded to NSW Heritage Office and to Muswellbrook Shire Council for their libraries.

5.0 REFERENCES

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