

# Historical Heritage Assessment

## APPENDIX 11



Xstrata Mt Owen Pty Limited

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# Historical Heritage Assessment for Modification of Glendell Mine Operations

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August 2007



# Historical Heritage Assessment for Modification of Glendell Mine Operations

**Prepared by**  
**Umwelt (Australia) Pty Limited**  
**on behalf of**  
**Xstrata Mt Owen Pty Limited**

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## Executive Summary

Xstrata Mt Owen Pty Limited (XMO) is seeking a modification of the Glendell Mine development consent (DA80/952) for the implementation of a revised conceptual mining plan and integration with the approved Mt Owen Complex operations in the Glendell area, approximately 25 kilometres north west of Singleton (refer to **Figure 1.1** in **Section 1**). As part of the Environmental Assessment for the proposed modifications of the Glendell Mine, Umwelt (Australia) Pty Limited (Umwelt) was commissioned by XMO to prepare a *Historical Heritage Assessment*. The purpose of this assessment was to gain an understanding of the history and historical heritage values in the areas proposed for impact by open cut mining and associated activities (the proposed disturbance area) and in adjacent areas within the mine site which are potentially susceptible to indirect impacts from the proposal such as vibration from blasting (refer to **Figure 1.2** in **Section 1**). The study area is defined in this assessment as the boundary of the mine site which includes the proposed disturbance area.

### Consultation Process

Community involvement is an essential part of the historical heritage assessment process. As part of the historical heritage assessment, consultation was undertaken with the Singleton Historical Society and Museum Inc, Local Histories Section of the Newcastle Regional Library, Singleton Council and National Trust, NSW to gain information and input into the history and heritage values of the study area (refer to **Section 3.2**). These organisations provided information which assisted in 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 Singleton LEP within the study area. The site inspection undertaken for the historical heritage assessment was undertaken by two qualified archaeologists to assess the historical heritage values of the study area. No standing structures were of a nature that required the input of a heritage architect. 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 3.5** in **Section 3**).

Historical heritage items identified and inspected within the project impact area related to the settlement pattern history of the subdivision and purchase of the Ravensworth Estate during the early to late twentieth century and its use for dairies, mixed farming and grazing. The history of settlement pattern within the study area is closely related to Ravensworth Homestead. Ravensworth is outside the study area but historically was part of the Ravensworth Estate which included the study area. Ravensworth Homestead is not part of this assessment but is included in the context of this report. Historical heritage sites within the study area included a wooden bridge across Swamp Creek, a tree stump bearing a surveyors mark, several yards, remains of a dairy, remains of a corduroy road, remains of a ruined homestead, ruins of the former Marali homestead and the site of the former Hillview homestead and a dirt track, historically referred to as the Great Northern Road. The remains of a ruined homestead, the tree stump bearing a surveyors mark and remains of the Great Northern Road are within the proposed disturbance area. The remaining historical heritage items within the study area may have potential indirect impacts from vibration from proposed blasting. Detailed descriptions of these heritage items/sites are provided in **Section 3** and a summary of their condition and integrity is provided in **Section 4**.

## Significance

The significance of all heritage sites/items is provided in **Table 4.1** in **Section 4**. All sites outlined in **Section 3** were assessed as having local heritage significance only. The significance of the study area as a whole is in **Section 4.4**.

## Proposed Management Strategy

The proposed management strategy refers to all heritage items inspected and assessed in **Section 6** and includes archival recording of 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. This recording will also include all heritage items within the mine site that may be indirectly impacted by proposed blasting as these sites are in fragile condition. Exceptions will include the unidentified dairy site (Items 4a to 4d), the remains of the corduroy road (Item 5) and the occupation deposit associated with the ruins of the former Marali homestead (Item 7a only) that are outside the proposed disturbance area but will not be indirectly impacted by proposed blasting. These items will be fenced off, protected and conserved in situ (refer to **Table 6.1**).

The unidentified ruined homestead site (Item 6a to 6g and 6i to 6k) has occupation deposit that may date to over fifty years old and will be impacted by the proposal. This deposit and associated *in situ* remains are protected by the relics provisions, Section 139 of the *NSW Heritage Act, 1977*. As this site has no archaeological research potential and its land use history is well documented in the historical record, an application for an exception to the *NSW Heritage Act, 1977* will be submitted to the NSW Heritage Office for their approval with a copy of this assessment. The exception application will be prepared by a qualified heritage consultant. Items 6h and 6l within the site are structural features and are not protected by Section 139 of the *NSW Heritage Act, 1977*.

A detailed recording of this site (Item 6a to 6g and 6i to 6k) and associated structural features (Items 6h to 6l) to the NSW Heritage Office's standard for archival recordings of local heritage significance will be completed by a qualified heritage consultant, after the endorsement of an exception application for Items 6a to 6g and 6i to 6k by the NSW Heritage Office, prior to the commencement of mining impacts.

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## 1.0 Introduction

Xstrata Mt Owen Pty Limited (XMO) is seeking a modification of the Glendell Mine development consent (DA80/952) for the implementation of a revised conceptual mining plan and integration with the approved Mt Owen Complex operations. Glendell Mine is located in the Hunter Coalfields at Hebden in the upper Hunter Valley of New South Wales (NSW), approximately 25 kilometres north-west of Singleton, 26 kilometres south-east of Muswellbrook and 1.2 kilometres north of Camberwell (refer to **Figure 1.1**). 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 for the modifications of the Glendell Mine development consent.

Umwelt (Australia) Pty Limited (Umwelt) has been commissioned by XMO to prepare an EA for the project, with this historical heritage assessment undertaken as part of the EA for the proposed modifications. This report provides an assessment of the impact of the proposed development on historical heritage within and surrounding the proposed disturbance area. Land which may be only directly impacted by activities associated with open cut mining is referred to as the proposed disturbance area (refer to **Figure 1.2**). Land within the Glendell mine site that may be indirectly impacted by potential vibration from blasting impacts (outside the proposed disturbance area) was surveyed as part of the Aboriginal archaeological survey (Umwelt 2005) which also included the identification of historical heritage sites (refer to **Figure 1.2**).

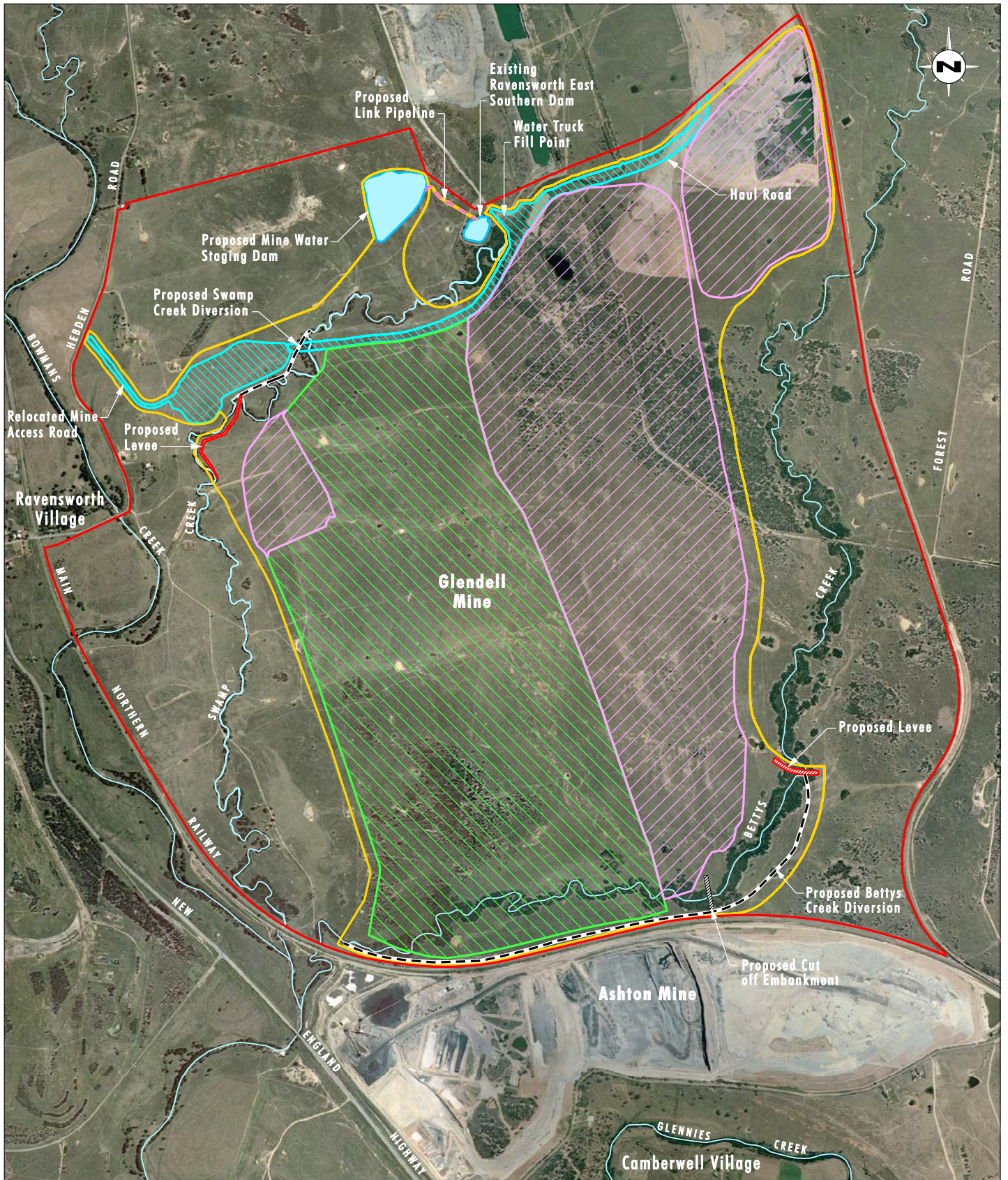
### 1.1 Project Description

The proposed mining area and proposed modifications to Glendell Mine operations are shown on **Figure 1.2**, and include the following:

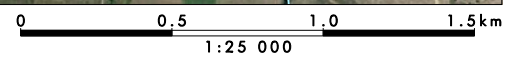
- Undertake mining operations in accordance with a revised mine plan that includes:
  - undertaking mining in a north to south direction rather than the approved south to north sequence;
  - increasing the rate of ROM coal extraction from the approved 3.6 Mtpa to 4.5 Mtpa for up to a 16 year period;
  - altering mining method to use of excavator and truck only instead of a combination of dragline and truck and excavation operations; and
  - alteration to the location of the approved out of pit overburden emplacement areas.
- Integration of the Glendell Mine into the approved Mt Owen Complex operations including:
  - transporting ROM coal via the approved Glendell Haul Road for processing at the existing Mt Owen Complex CHPP or to the existing Ravensworth crushing plant;
  - movement of overburden and materials between the Ravensworth East and Glendell mining areas;
  - integrating rejects and tailings management into the approved life of mine rejects and tailings management systems of the Mt Owen Complex;
  - integrating water management into the existing water management system of the Mt Owen Complex;
  - transporting product coal via the use of the existing Mt Owen Rail Loop and Main Northern Railway;
  - transporting up to approximately 1 Mtpa of product coal to domestic power stations via approved Ravensworth East infrastructure; and



FIGURE 1.1  
Locality Plan



Source: Xstrata Mt Owen 2006



**Legend**

- ▬ Glendell Mine Site / Historical Heritage Study Area
- ▬ Proposed Disturbance Area
- ▬ Proposed Overburden Emplacement Area
- ▬ Proposed Mining Area
- ▬ Proposed Infrastructure Area
- - Link Pipeline
- - Creek Diversion
- ▬ Creek

**FIGURE 1.2**

**The Historical Heritage Study Area and Project Disturbance Area**

- incorporating Glendell Mine into the existing Mt Owen Complex management systems.
- Relocation of the mine access road on Hebden Road, and haul road within the mine site.
- Alteration to the approved diversions of Swamp and Bettys Creeks.
- Construction of a 200 ML mine water staging dam and associated pipeline.
- Relocation and rationalisation of site infrastructure including offices, workshop and associated ancillary facilities.

## 1.2 Study Area

The study area for this assessment is defined by the Glendell mine site and includes the disturbance boundary, proposed overburden emplacement area, proposed mining area, infrastructure area, creek diversion areas and any areas which may have potential to be impacted by vibration from blasting (refer to **Figure 1.2**). An area of 1.5 kilometres from the centre of the mine site was also investigated to determine previous land use history and settlement patterns within the study area (refer to **Section 3**).

## 1.3 Statutory and Policy Framework

The development is a 'Major Project' which will be assessed under Section 75 W of Part 3A of the *Environmental Planning and Assessment Act 1979*. However, the provisions of the *NSW Heritage Act 1977* will apply. Should the project be approved, the proposed investigation and salvage of historical heritage sites will be undertaken in accordance with the management strategies outlined in **Section 6** of this report. Any relevant consents or approvals will be submitted to the NSW Heritage Office as required.

The information presented in this report follows the *NSW Heritage Manual* and associated guidelines for *Archaeological Assessments* in order to meet the Director General's requirements, Department of Planning (DoP).

## 1.4 Study Team

This report was authored by Mary-Jean Sutton (Senior Archaeologist, Umwelt). The site inspection of specific sites identified by Aboriginal archaeological survey and ground truthing of other resources was carried out by Jan Wilson (Manager, Cultural Heritage, Umwelt) and Mary-Jean Sutton. **Section 3.1.2.1** is cited in full from the Glendell Aboriginal Archaeological Assessment (Umwelt 2004) authored by Jan Wilson. Parts of **Section 3.1** were also based on earlier research undertaken by Umwelt (2002a, 2002b). Technical review of this assessment was provided by Jan Wilson.

## 1.5 Acknowledgments

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

- Mara Barnes, National Trust of Australia, NSW;
- Mark Grolly, Peter S. Hopley Pty Limited, Legal Searches;

- Lillian Cullen, Heritage Officer, Singleton Council; and
- Ian Webb and Dianne Heuston, Singleton Historical Society and Museum Inc.

## 1.6 Report Structure

- Section 2** provides the methodology for the preparation of this assessment and includes details of consultation and research undertaken for the study area.
- Section 3** describes the heritage sites identified and provides the overall context of the study area including the historical, archaeological and physical contexts and outlines historical themes which relate to the heritage sites.
- Section 4** provides the significance assessment of all identified historical heritage items within the study area.
- 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 project.

## 2.0 Methodology

The historical heritage assessment considered historical heritage sites/items and areas of potential heritage sensitivity within the study area (refer to **Figure 1.2**). This boundary was also the focus for register searches and desktop assessment by the archaeologist to assess the proposed impacts on known historical heritage items (refer to **Section 3**). Heritage sites/items are defined as objects/places assessed during fieldwork as having known/potential heritage significance.

A survey of the study area for Aboriginal cultural heritage was undertaken for an assessment for the previous Glendell development impact area due to the passage of time since the earlier survey by Brayshaw (1983). This survey included the initial recording and identification of historical heritage sites/items. These heritage sites/items are recorded and discussed in this report (refer to **Section 3**). The location of all recorded historical heritage sites within the study area is shown on **Figure 1.2**.

### 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:

- Singleton Council (SC);
- Singleton Historical Society and Museum Inc (SHSM);
- Historical Land Title searches within the study area;
- Newcastle Regional Library and Local Histories Section;
- National Trust of Australia, NSW; and
- Previous archaeological reports in the locality.

The results of research and consultation are integrated into **Section 3.0** of this assessment.

## 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 sites within the study area.

### 3.1 Historical Context

A regional and local historical context is provided as part of this assessment in line with NSW Heritage Office requirements for *Archaeological Assessments*.

#### 3.1.1 Regional History

As outlined in the Hunter Regional Environmental Plan (Department of Planning: 1989:38), European settlement within the Hunter Region has had a long history 'dating from 1801 with the establishment of a convict settlement to mine and ship coal'. Settlement growth during the nineteenth century 'was based on coal mining, timber-getting and agriculture' (Heritage Office and DUAP, 1989:38). **Table 3.1** provides a summary of key regional historical events in the development of the Upper Hunter which are relevant for understanding the history of the region of Singleton and the Ravensworth Estate (which is partially included in the study area).

**Table 3.1 - Time line of the Regional History of Upper Hunter  
Singleton Region and Ravensworth Estate**

(Source: Heritage Office & DUAP 1996:44-49 and Umwelt 2002a)

Date	Historical Event
1820	The Hunter Valley was opened for free settlement.
1822 to 1823	A route (roughly in alignment with the present Old Bulga Road) from Windsor was found by Benjamin Singleton, John Howe and others which made possible the overlanding of stock from the Cumberland Plain to the Hunter Valley.
1824	Dr James Bowman applied for a grant of 11,000 acres which became the foundation of the Ravensworth Estate.
1825	Approximately 360,000 acres of the better land of the valley had been granted to private settlers and land use was predominantly sheep grazing with some cattle in the Ravensworth Estate and immediate locality.
1847	The Bowman family sells the Ravensworth Estate to Captain William Russell and his wife, Eliza, as joint tenants.
Late 1850s to 1860s	Russell commences acquisition of adjoining lands to the Ravensworth Estate. Acquisition continues after 1860s and the introduction of the (Robertson) Crown Lands Alienation legislation.
1863	The railway was established at Singleton.
1866	The railway was established at Camberwell.
1869	The railway was established at Muswellbrook.
1882	Mackay purchased Ravensworth Estate from Russell and continued to expand the estate.
1880s	Mackay commenced acquisition of additional land in Parish Goorangoola.
1897	After his death, DF Mackay's brother takes over the Ravensworth Estate.
1908	Mackay surrendered individual grants for the extended Ravensworth Estate and all lands are consolidated.
1911	F. L. Measures purchased and subdivided the extended Ravensworth Estate.

**Table 3.1 - Time line of the Regional History of Upper Hunter  
Singleton Region and Ravensworth Estate (cont)**

(Source: Heritage Office & DUAP 1996:44-49 and Umwelt 2002a)

Date	Historical Event
1911 to 1979	The study area is subdivided into lots purchased by graziers, mixed farmers and small dairies.
1979 to present	The study area is purchased by mining companies and land developers interested in the development of coal mining.

### 3.1.2 Local History of the Study Area

This section provides a summary of the local history of the study area including its land tenure and specific histories relating to known structures within it. The study area consists of numerous land grants many of which originally comprised the Ravensworth Estate land grant of James Bowman (refer to **Figure 3.1**). The detailed overview of land ownership as it relates to the study area provided in this section of the report is based on earlier work by Umwelt (2002a), supplemented with historical land title searches provided by Peter S Hopley Limited (refer to **Section 3.1.2.2**). The history of the study area is closely connected to the development and use of the Ravensworth Homestead, which although outside the study area was also once part of the original Ravensworth Estate.

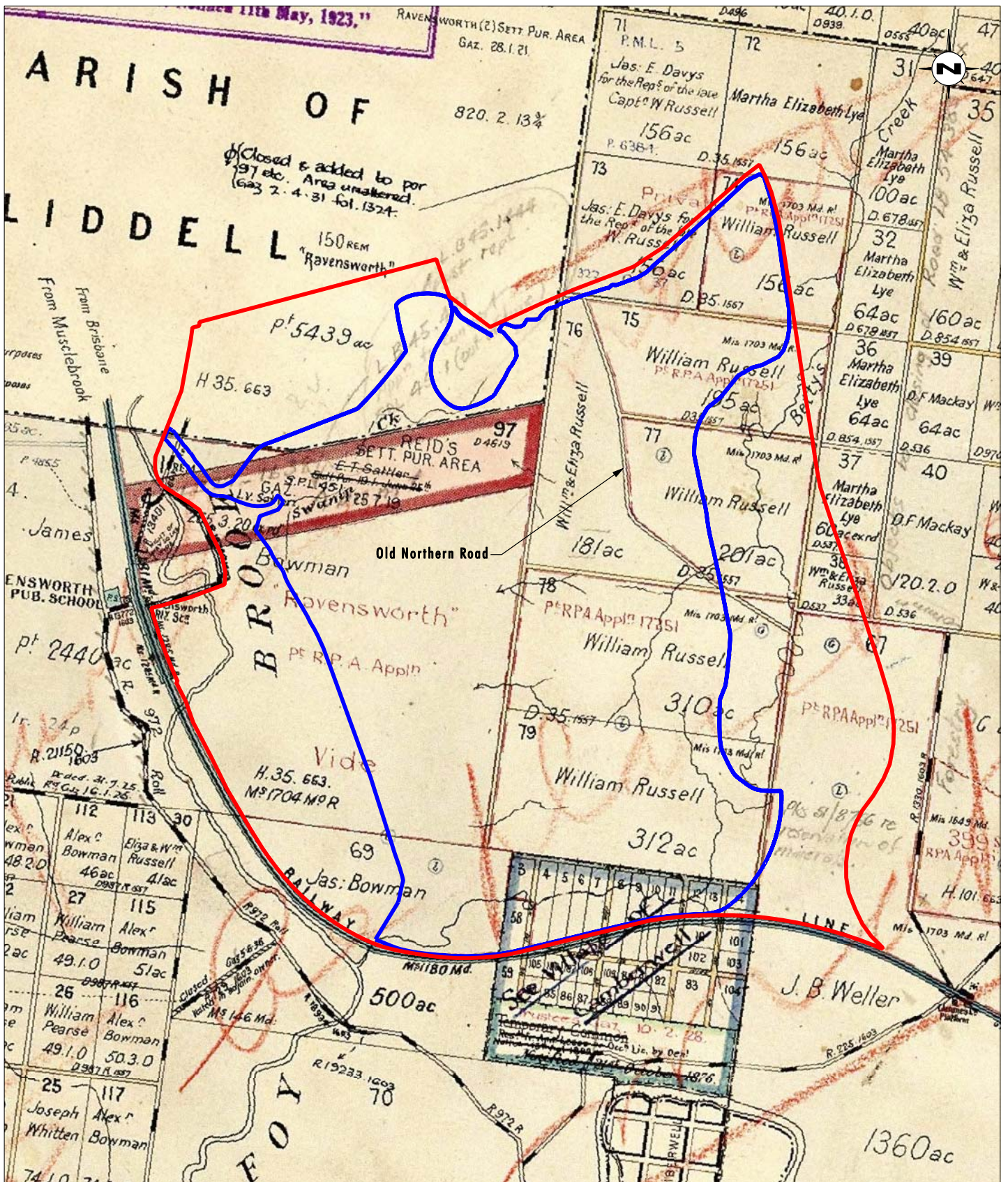
The study area consists of land grants within Lots/DP 2/6842, 2A/6842, Pt5/1077004, Pt6/1077004, 71/625171, 58/752499, 1/865784, Pt6/859544, Pt8/6830 and 1/940619 Parish Vane, County Durham, and Lots/DP 11/592404 and Pt7/1077004 Parish Liddell, County Durham. Heritage items were identified in Lots 1/940619, 2 and 4/561235 and 2/6842 (refer to **Section 3.4** for further discussion). It should be noted that the locality of Singleton is often described in the historical record as Patricks Plains. Prior to European settlement, the study area also has a well documented history of Aboriginal occupation in the archaeological record (Umwelt 2004). The nature of interaction in the period of initial European settlement was conflict with Aboriginal people in the study area and locality. These interactions are reflected in the design of Ravensworth homestead (located outside the study area) that was originally part of the Ravensworth Estate (which includes the study area) (refer to **Section 3.1.2.2**).

#### 3.1.2.1 Interactions with Aboriginal People 1820-1831

During the period between initial white settlement and 1831 the Aboriginal community frequenting the Ravensworth area undertook raids on local farms, attacked convict workers and robbed travellers and their drays (Milliss 1992: 54). According to the historian W. A. Wood 'it was not hunger that caused an early boiling over of resentment against the [white] intruders' (note 27); the Aborigines resented the seizure of their land'.

White settlers in the area restricted Aboriginal access to their farms by using scare tactics, such as shooting at trespassers, only to have the Aboriginal population respond with retaliatory attacks. Conflict escalated throughout 1826 and it was reported that in general 'for several months the valley was in turmoil' (Milliss 1992: 55). In the Ravensworth area, a stock keeper was speared to death and in a separate incident two convicts constructing fences were badly wounded (Milliss 1992: 55).

Troops of mounted police, along with reinforcements, were sent to patrol the 'Valley' in an attempt to control the Aboriginal uprising, with a policy that "no pain will be spared' in bringing individual Aborigines responsible for 'excesses' to justice' (Milliss 1992: 55). The 'peacekeeping' effort was to no avail as both the authorities and the local farmers often took



Source: LPI, NSW (1999)  
Note: Approximate alignment of Glendell DA Boundary and Parish Map

- Legend**
- ▭ Glendell Mine Site
  - ▭ Proposed Disturbance Area

**FIGURE 3.1**  
Parish of Vane  
6 March 1923

violent measures as a means of deterrence and retribution. An Aborigine reported to have been involved in the death of the stock keeper at Ravensworth was brutally killed and hung on a tree as a warning to other Aborigines (Milliss 1992: 57). Another was taken by authorities into custody, executed without trial, buried and then later exhumed and his body thrown into the river, removing evidence of the incident (Milliss 1992: 57). The gruesome tactics employed by the white settlers and authorities resulted in further uprising by the Aboriginal people. An attack at Bridgman Farm in 1826 (in the Glennies Creek/Fal Brook area) and the subsequent 'massacre' of Aborigines was the culmination of the retaliatory warfare.

Captain Robert Lethbridge, owner of Oakhampton Park near Maitland, also had another holding called Bridgman, established and run for Lethbridge by Richard Alcorn. Alcorn's hut, was situated on Fal Brook, described as a bush creek near Patricks Plains (*HRA, XII*: 613), located half a mile upstream from Dulwich, the homestead of James Glennie and about a quarter of a mile from Chillcott's hut, which had, recent to the events described below, been robbed by a number of Aborigines.

On 28 August 1826, at Alcott's hut on Bridgman Farm, two white workers were killed and Alcott himself wounded by a group of 14 or 15 Aborigines, some of whom were identified as having taken part in the Chillcott robbery. A description of the event is given in a deposition by John Woodbury, who had been tending cattle at Bridgman and was present at the scene (*HRA, XII*: 613). Following the attack the alarm was raised by a shepherd from Glennies Farm, where mounted police were apparently stationed, and troops went in pursuit only to return unsuccessful in their attempts to find the culprits (*HRA, XII*: 613).

A later account by Scott and MacLeod to Colonial Secretary McLeay (3 October 1826), stated that the pursuing party consisted of a magistrate (Robert Scott himself, and firm friend of James Glennie), five military men, five white volunteers and four 'friendly blacks'. Scott goes on to say that they came across the 'murderers' on the morning of the third day and a skirmish ensued in which a supposed two Aboriginal people were killed and more wounded (apparently reported from a black woman that was taken prisoner). He also noted that one of the pursuing whites was speared through the face (*HRA XII*: 612).

An earlier letter from Captain Foley (who had been sent from Newcastle to deal with the Aborigines involved in the Lethbridge attack) to Lieutenant De La Condamine (22 September 1826), told how Scott had already gone in pursuit (before he arrived) and with aid of 'one of his own blacks' came upon them 'at a distance of 20 miles or more from the scene of the murder' he goes on to report that 'two of the most active in the attack on Mr Lethbridge's people were shot' and several wounded. He also notes that one of the pursuing party was speared through the face (*HRA XII*: 617).

The reports given in the newspapers of the day, however, give much different accounts of the events. A report of the Lethbridge incident in the Sydney Gazette on 9 September 1826, noted that:

... the black monsters made way towards the mountains, and a speedy alarm was given, the most active and determined measures are sed [sic] to be set on foot, but it is much to be feared that this mountain tribe will be very difficult to capture or subdue. Some friendly natives have joined in the pursuit we are told one or more magistrates are of the party of pursuers (*Gazette*: 9.9.1826).

On 23 September 1826 the Australian reported that Scott, three mounted police, some prisoners and some friendly natives set out as soon as it was made known about the Lethbridge incident. They continued in pursuit for some time, discovered their track, lost it, and then found it again the following day to discover the party of Aborigines by their fires towards evening (as opposed to the morning encounter that Scott described). The

Newspaper goes on to relate a story in which the pursuing party, 'probably amounting to 16 brandished muskets and fired, a hot conflict followed, with natives making good use of their spears and one of the natives from the pursuing party (as opposed to a white as reported by Scott) getting a spear through the face'. The Aborigines were then forced to flee leaving behind 18 dead. The story continues on to recount that authorities were dispatched to investigate the affair but that it wasn't really necessary because 'the blacks had the glory of dying in battle and that is enough for men whose wanton attacks have gone on far too long unpunished' (*Australian*: 23.9.1826).

The Aboriginal people however, declared that the attack on Bridgman Farm was in retaliation for the detention of 'Billy' and the shooting of their comrade at Ravensworth (Milliss 1992: 58).

Other attacks soon followed in the Hunter including an attack on five fencers on Ravensworth who shot their way out of trouble but only managed to wound one of their attackers. On another occasion a white man claimed to have passed two hundred warriors 'in full battle order... who made no attempt to harm him but threatened fresh violence against Bowman's establishment at Ravensworth' (Milliss 1992: 58). Eventually reinforcements were sent to deal with what was described as 'war... in the interior' (Milliss 1992: 56 quoting Threlkeld).

By the end of 1826 the main Aboriginal revolt against the white occupation of the Hunter Valley was broken, with only a few sporadic incidents occurring afterwards, such as the shooting of 12 Aboriginal people at the Paterson River in 1827 (Milliss 1992: 69). By 1831 the displacement of the traditional landowners was almost complete, however, in the late 1830s James White, who managed the Ravensworth property, still felt it necessary to construct a 'stockade-like' arrangement on Ravensworth, however, this may have been as much for protection against bushrangers as it was for protection against attack but Aborigines (Hunter 1997: 17).

On the basis of the information provided in the historical documentation, it can be concluded that Aboriginal occupation of the area now defined as the study area and adjoining lands (Glendell Mining Lease) was not ongoing for very long after initial white settlement of the area. The rapid onset of frontier conflict in this area would seem to preclude Aboriginal groups having the opportunity to camp anywhere within what was once the larger Ravensworth holding.

### 3.1.2.2 Land Tenure and the Ravensworth Estate

The Ravensworth Estate (including the study area) was principally a sheep station for wool production but was also utilised for cattle raising, cultivation of vines, orchards and wheat. James Bowman was allotted grant number 135 on 4 June 1824, although he had already established the holding by this time and named it 'Ravensworth'. Bowman received 12,160 acres of land extending from Foy Brook (Bowman's Creek) to Fal Brook (Glennies Creek) (refer to **Figure 3.1**). James Bowman married Mary Macarthur, daughter of John Macarthur. Upon their marriage, John Macarthur gave them 200 head of cattle and 2000 head of sheep (Noble, 1997). James Bowman was an influential individual in the development of the Singleton district, taking active roles in community affairs. In 1846, Bowman died suddenly and his brother Edward Bowman attempted to manage the estate but was also of poor health (Noble, 1997:9). Mary Macarthur's brother sold Ravensworth due to outstanding debts. In circa 1847, the house was sold to Captain William Russell and his heirs, who possessed the estate until 1882.

Russell is believed to have lived in his quarters at Cheshunt Park rather than Ravensworth Homestead. During the years of Russell's possession of the Estate, the Church of St Clement's, Camberwell was completed and the Great Northern Railway constructed in part (Noble 1997:9). In 1882, Ravensworth Estate was subdivided and advertised for sale, the

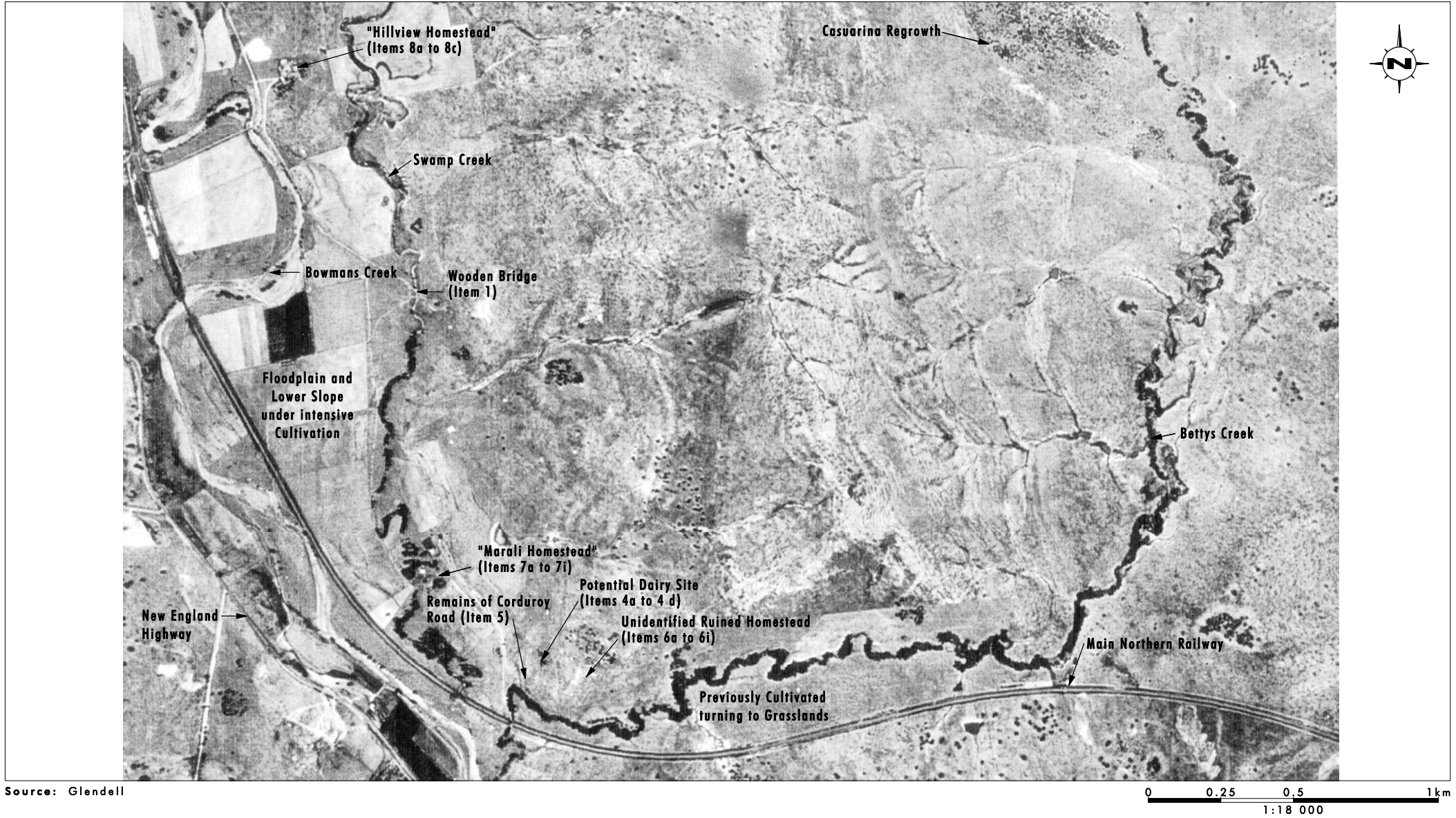
Ravensthorpe farm including the homestead was purchased by Duncan Forbes Mackay (Noble 1997:5).

Duncan Forbes Mackay was of the Mackay family who in the late 19<sup>th</sup> century 'became one of the principal grazing and cattle breeding families in NSW', controlling vast pastoral leases in NSW and Queensland, with 'lavish residential establishments in the Hunter Valley, especially those built in the late Victorian era' (Noble 1997:12). Mackay stocked Ravensthorpe with over 20,000 Merino sheep and employed at least 40 men in 1843 on the Estate. Noble writes that Mackay constructed an 'extensive and complete wool shed, together with about forty miles of new paddock fencing and smaller enclosures near the home station' (Noble 1997:12). These were among the improvements that Mackay made to Ravensthorpe to make it a well known first-class sheep raising property. Mackay is also believed to be responsible for further ring barking of native forest and brush country to increase grazing land and built a large stable block (Noble, 1997:12). The effects of land clearing are still evident in the 1967 aerial photograph of the study area (refer to **Figure 3.2**).

The Land Company of Australasia was a company established to develop innovative schemes for irrigation and to promote the government's policies of closed settlement in order to stop 'vast areas of NSW...tied up in the hands of pastoralists who were making little use of it' (Noble 1997:13). The Company bought the Ravensthorpe Estate (including the study area) from Mackay at 2 pounds an acre and introduced Lincoln sheep to the area. These sheep suffered from a parasitic infection which was such a problem that it influenced graziers in the Upper Hunter to 'turn from sheep to cattle raising and dairying' in the 1880s-1890s (Noble 1997:14). The Land Company failed in 1892, which eventuated in the Ravensthorpe title reverting to the 'estate of the late Duncan Forbes Mackay'. Mackay's estate was run by his nephew William Mackay who during 1894 to 1895 attempted to sell the property. Ravensthorpe was believed to continue running predominantly sheep and less cattle during this time. It was not until 1910, that an American entrepreneur, F L Measures finally bought Ravensthorpe (including the study area) and subdivided it for sale. An advertisement for sale during this time is shown in the *Singleton Argus*. An advertisement in *The Singleton Argus*, Saturday 21 March 1911 details a clearing out sale of all furniture, fixtures and animals (horse, cattle and pigs) from the Ravensthorpe Homestead under instruction from R. A. Hill Esquire.

A later advertisement in *The Singleton Argus*, Saturday 25 March 1911 offers the lands within the study area including adjoining lands that were part of the Ravensthorpe Estate to prospective 'lucerne growers, general farmers, dairy men and fruit growers' to 'investigate the great advantages the farms offer' (refer to **Figure 3.3**). The advertisement is for the private sale of 56 farms ranging from 30 acres to 2000 acres. The advertisement also indicates that much of the land is already cleared. A similar advertisement was re-advertised in *The Singleton Argus*, 1 April 1911. Measures is believed to have constructed new houses, dairy bales and farm buildings on a number of the blocks in order to encourage buyers to the new farms (Noble 1997:15).

Many of the subdivided lots within the study area were eventually sold to graziers and farmers as shown by historical land title searches including Alexander Reid, grazier, (1916, Pt 5/1077004, Lot 71, DP 625171, 11, Lot 11 DP. 592404), Lawler Family, graziers (1916-1964, Pt 5/1077004, 1944-1964, Lot 11, DP. 592404, 1965-1969 Lot 71, DP 625171; Lots 2 and 2A, 6842 1922 to 1965), Cooke Family (1964, Pt 5/1077004, Lot 11, DP. 592404), Larney Family, farmers (1922, Lot 8, DP 6830), O'Brien family farmers, (Lot 11, DP. 592404), Sattler Family, farmers (1921 to 1944, Lot 71, DP 625171, 1945 to 1969, Lot 6, DP 1077004), Wynter Family, farmers (1916 to 1920, Lots 2 and 2A DP 6842), Martin and Purvis families, farmers (1916 to 1941, Lot Lots 2 and 2A DP 6842), Noble family, graziers (1941 to 1979, Lots 2 and 2A DP 6842, 1945 and 1965-1973, Lot 1 DP 940619, 1943 to 1974, Lot 6, DP 859544; Lots ), Gelling family, freeholders (1912, Lot 1 DP 940619), McCalman, grazier (1919, Lot 1 DP 940619), Andrews family, graziers (1919 to 1942 Lot 6, DP 859544),



Source: Glendell

FIGURE 3.2

Aerial Photograph of the Glendell Lease Area from 1967  
Indicating the Presence of Hillview and Marali  
Homesteads and other associated Items

# Lucerne Growers. — General Farmers. — Dairymen. — Fruit Growers.

*Why not Farm where Conditions are All in Your Favor?*

Investigate the great advantages that the Ravensworth Farms offer:—

(1) Four Railway Stations on the estate, all Dairy Farms being within 2 miles of a railway station. (2) Heavy rainfall never makes the rivers impassable or the access to railway stations any more difficult. (3) Farmers on Ravensworth can never be tied up with stock or cream for weeks at a time on account of swollen creeks. (4) Special Terms can be arranged if the ordinary ones do not suit you. These are the ordinary ones: 5% in £ deposit, 2/- in £ on March 15th, 1912, 2/- in £ on March 15th, 1913, and balance in 14 Half-yearly payments with interest at 6d. in £ every half-year; right to pay off at any time without notice or penalty. (5) Possession given 1st April, 1911, but buyers can start plowing and fencing and building right away.

If you are interested, come and inspect the 56 Farms now for Private Sale, from 50 acres to 2000 acres. We meet you at Ravensworth Railway Station and show you just the spot you are seeking. Flat land or rolling-down, grass land, or orchard country. Look at the location. Four Railway Stations, and 4 Post Offices, and 5 Public Schools on the estate, and the Market Towns and Butter Factories of Singleton and Muswellbrook only 8 or 9 miles away by good roads. This estate is all basalt and limestone country, and abundantly watered. Rainfall 29 inches. All sweet, cleared for many years and proved. Just waiting for you to get to work on it. Some of the blocks are partly fenced, and some are under cultivation.

Now isn't it better to buy here, than go away back, and wait for the roads, and wait for the train, and have to fence, and clear, and "put up with things." You're getting older every day. Time is money. On Ravensworth you can make a start now! Look at the Prices—Dairy Farms from £4 10s. to £7 per acre; Grass country from £3 15s. to £4 10s. Knowing the prices are particularly low, and that good value is being offered, the vendor does not hesitate to publicly announce his prices which are as follows:—

SECTION A			SECTION B			SECTION C		
Lot.	Acres.	Price per Acre.	Lot.	Acres.	Price per Acre.	Lot.	Acres.	Price per Acre.
1 to 5	SOLD		11	285 0 0	5 0 0	16	220 0 0	4 15 0
6	181 0 0	5 0 0	12	90 0 0	5 10 0	17	105 0 0	4 0 0
7	201 0 0	5 0 0	13	302 0 0	5 0 0	18	221 2 0	3 0 0
8	225 0 0	5 0 0	14	345 0 0	5 5 0			
9 to 15	SOLD		15	342 0 0	5 0 0			
16	281 2 0	4 15 0	16	326 0 0	5 0 0			
17	312 2 0	4 15 0	17	313 0 0	5 0 0			
18	312 0 0	4 17 6	18	305 0 0	5 0 0			
19	312 0 0	4 17 6	19	305 0 0	5 0 0			
20	312 0 0	4 17 6	20	305 0 0	5 0 0			
21	312 0 0	4 17 6	21	305 0 0	5 0 0			
22	312 0 0	4 17 6	22	305 0 0	5 0 0			
23	312 0 0	4 17 6	23	305 0 0	5 0 0			
24	312 0 0	4 17 6	24	305 0 0	5 0 0			
25	312 0 0	4 17 6	25	305 0 0	5 0 0			
26	312 0 0	4 17 6	26	305 0 0	5 0 0			
27	312 0 0	4 17 6	27	305 0 0	5 0 0			
28	312 0 0	4 17 6	28	305 0 0	5 0 0			
29	312 0 0	4 17 6	29	305 0 0	5 0 0			
30	312 0 0	4 17 6	30	305 0 0	5 0 0			

Title will be Torrens.

No Survey Fees.

No Residential Restrictions.

No Governmental Oversight.

This is the Place for You!

Send for a Plan and Price-list to the owner, F. J. L. Measures, at Niagara Park, N. S. W., or clip out this Coupon and post it to his Estates-General Manager, H. R. Scott, Ravensworth.

Mr. H. R. SCOTT,  
Ravensworth, N. S. W.

Please send me Plan and Price List.

Name .....

Address .....

FIGURE 3.3

Advertisement in The Singleton Argus  
Saturday March 25, 1911

McGregor, Grazier (1974, Lot 6, DP 859544; 1973 to 1983 Lots 2 and 2A, 6842), Maynard, farmer (1914, Lots 2 and 2A, DP 6842) as an example. These searches also show that with the advent of the soldier settlement scheme under the War Service Homes Act of 1918, returned serviceman from World War I such as Mr Augustine Campbell Marshall whom secured Ravensworth homestead and two other portions of the Estate surrendered to Crown under the Act. These areas within the study area were identified on Parish Maps as Settlement Purchase Areas (refer to **Figure 3.1**).

Mr A.C. Marshall, the son of a Presbyterian Minister who lived at nearby Bayswater farm, following World War 1, his wife and child Enid, and Campbell Marshall lived at Ravensworth until their death in 1983 and 1993. After the Second World War, grazing shifted to small mixed and dairy farms as shown in the historical land title searches. In the 1940s, Marshall converted the Settlement Purchase into a Settlement Lease which continued until the late 1970s.

In the 1970s, Ravensworth was subdivided into two portions. Mr Marshall purchased the portion retaining the Ravensworth homestead outright and received title to Ravensworth from the Crown (Noble 1997:16). The remaining 230 hectares was sold to the Electricity Commission of NSW. The Crown transferred their title for the remaining 230 hectares to the Electricity Commission of NSW.

Photographs of the Ravensworth Homestead, which is outside the study area are shown on **Figure 3.4**. Ravensworth Homestead was in existence in 1842 and as noted by EJE Architecture

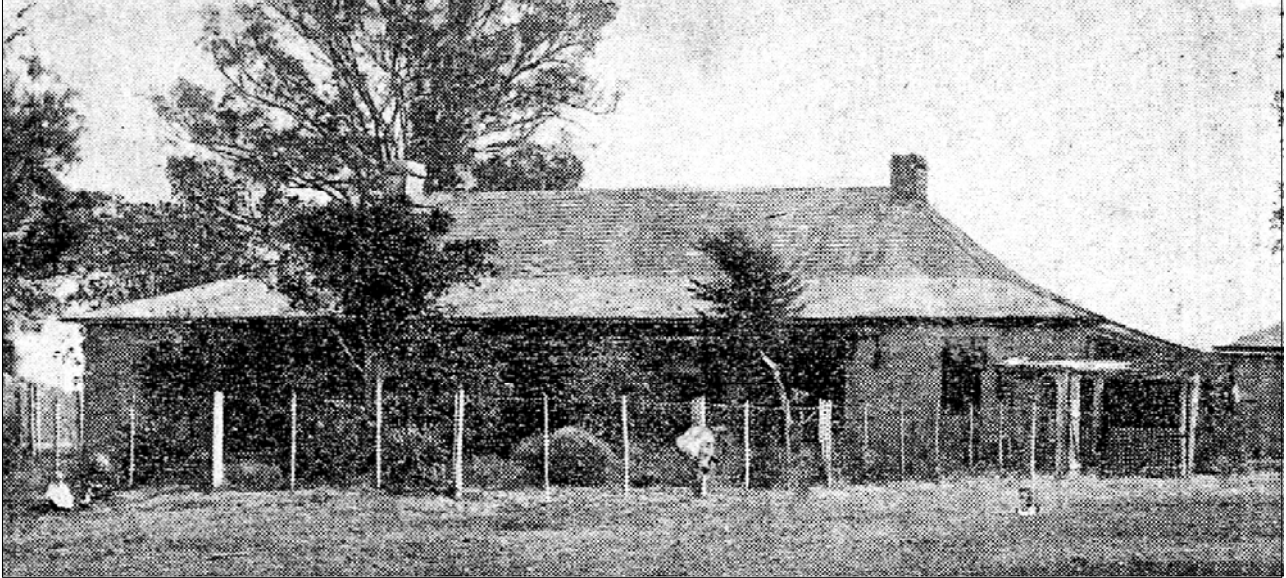
substantial historical evidence suggests that it is possible that John Verge, Macarthur's architectural consultant from 1833, may have designed Bowman's simple veranda stone-built residence and the other buildings that form the large, stockade-like complex. Verge may have executed drawings for Ravensworth; however, no documented evidence of these exists. Similarities also said to exist between an unbuilt Verge plan for stables at Camden Park and those at Ravensworth (1997:13).

Although some alterations were made, namely, timber veranda posts replaced by those of cast iron and roof ventilators and the addition of several rooms, Ravensworth remains relatively intact and has escaped any significant alterations to Mary and James Bowman's mid nineteenth century design' (EJE Architecture 1997:3).

### 3.1.2.3 Pastoralism

The pastoral industry was the earliest to be established in the study area. Benjamin Singleton placed a notice in the Sydney Gazette in December 1821 advertising agistment at St Patrick's Plains at 10 shillings a head per annum for not less than three years. In 1823, John Howe was granted permission to graze his stock at Patrick's Plains, agisting 1000 sheep and 1200 cattle. Horse breeding also became a thriving industry. The Scotts of Glendon were importing stud horses as early as 1822. In the 1820s, Dr James Bowman ran 2000 merino sheep and 200 head of cattle on his Ravensworth Estate. Bowman's sheep were said to rank among the first crossbreeds in the colony.

During the nineteenth century, Ravensworth Estate was an area that was central to local and regional wool production. As already discussed, historical land title searches and primary historical documents indicate the shift from wool production in the nineteenth century to the importance of mixed farming, dairying and to a lesser degree grazing in the twentieth century in the study area and locality (refer to **Section 3.1.2.2**).



Source Unknown: Newcastle Regional Library - Local Histories Section

Ravensworth Homestead  
said to be the oldest house on the Hunter



Source: Echoes and Images Singleton Shire Council

Ravensworth Homestead  
Convict built in 1840

**FIGURE 3.4**  
**Photographs of Ravensworth Homestead**

### 3.1.2.4 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 the Singleton and Muswellbrook Local Government Area, due to the increased demand for dairy products in Australia and overseas (Turner 1995:19). The importance of dairying in the history of the study area is illustrated by the remains of the dairy farms related to a twentieth century settlement pattern (refer to **Section 3.1.2.2, 3.2 and 3.3**). Dairying increased after World War 1 as soldiers were given small holdings and government assistance to establish small agricultural businesses, such as dairy farms (Heritage Office & DUAP 1996:49). The effect of 'soldier settlement' increased after World War II in Singleton when the 'country was cut up into wheat-sheep farms' farms (Heritage Office & DUAP 1996:49). The importance of dairying as a land use is reflected in the history of the study area, dairy farming became an important land use after sheep/wool production began to wane in the late nineteenth century due to parasitic infections in sheep.

### 3.1.2.5 Agriculture

The Singleton locality contained several thousand acres clear of timber and covered with rich alluvial soil which produced heavy crops of wheat, maize, barley, oats, rye, potatoes and natural grasses.

A correspondent of the Australian in 1827 reported the Castle Forbes properties yielded thirty-six bushels<sup>1</sup> to the acre of wheat. He goes on to say there were two stack yards within a mile of each other containing together 10 000 bushels of wheat. Tobacco was another crop grown in the area and a few also experimented with cotton which ultimately failed.

The extent of cultivation in 1831 is shown in historical records which state that the Patrick's Plains district cultivated 1054 acres of wheat, 625 acres of maize, 54 of barley, 10 of oats, 15 of rye, 15 of potatoes, and 17 acres of tobacco. In 1836, the number of acres in the counties of Brisbane, Northumberland, Hunter and Durham under wheat was 27,424 and maize 7899 with 45 tons of tobacco harvested (JRAHS, 1953). **Table 3.2** shows the area under cultivation for wheat decline while the area under maize increased.

**Table 3.2 - Area under cultivation - Counties of Brisbane, Northumberland, Hunter and Durham (JRAHS, 1953)**

Crop	1836	1839	1844
Wheat	27,424 acres	15,114 acres	21,534 acres
Maize	7899 acres	10,112 acres	14,226 acres
Tobacco	45 tons	1505 hundred wt	4890 hundred wt

Returns for 1860 show that there were 206 landholders at Patricks Plains which included the counties of Durham, Hunter and Northumberland and they held 161,310 acres. Of this area 155,508 acres were not cultivated. The crop yields were: wheat 22,000 bushels, maize

<sup>1</sup> Bushell = 8 gallons/36.37 litres

25,926 bushels, barley 400 bushels, rye 45 bushels, millet 15 tons, potatoes, 49 tons, sorghum 243 hundredweights and hay 235 tons (JRAHS, 1953).

Wheat crops grown in the Hunter Valley were prone to the disease 'rust', which struck severely in 1857 (Turner, 1995). Disease together with the relatively dry conditions in the Upper Hunter made wheat a precarious crop and as a result its production declined. The decline in wheat cultivation saw an increase in barley production mainly for stock feed but as the dairy industry began to grow lucerne crops became a more viable option.

### 3.1.2.6 Main Northern Railway Line/Great Northern Railway

The Great Northern Railway or as it is now referred to, the Main Northern Railway, was built in part following the Great North Road in the 1860s to the 1870s. The Main Northern Railway's first section was built from Newcastle to Victoria Street, Maitland in 1857. It then extended to Singleton in 1863, Muswellbrook and Murrurundi in 1872, Werris Creek and west Tamworth in 1878, Armidale in 1883 and Wallangarra, Queensland in 1888 (Answers.com, Wikipedia). A railway station was opened at Ravensworth village on 1 June 1869 and closed on 11 January 1975 (NSWRail.net). The railway line in part diverges through the Ravensworth Estate and is in the southern boundary of the study area (refer to **Figure 1.2** and **3.1**).

### 3.1.2.7 Great Northern Road

An original 1830s road surveyed by Mitchell traverses the study area (refer to **Figure 3.1**) as shown in early Parish maps and historical data. A road still partially exists in this area that aligns with the road as shown on the Parish maps. This road is referred to as the Great Northern Road (Ian Webb, pers. comm. 18 June 2006). It should not be confused with the Great North Road. The road was surveyed but not formally constructed.

### 3.1.2.8 Mining

Coal was known to exist in Singleton and its surrounding areas since early exploration. Coal was first mined in the Upper Hunter in the Rixs Creek area near Singleton in the 1860s (Rappoport 2006:24). On 23 September 1886, the 'Singleton News' in the Maitland Mercury reported that

Since Messrs Nowland opened up their mine, sinking for coal has been actively prosecuted on the Ravensworth estate and we learn that the perseverance of the promoters has been successful to such a degree that they intent to float the undertaking shortly into a company with equal capital of £50,000. A prospectus will be shortly issued.

Noble writes that no further information was found on this venture but it indicates that coal extraction was commencing during this time. According to the Heritage Office & DUAP (1996:4) 'coal was not commercially exploited until the 1890s' in the Upper Hunter. Coal mining and electricity generation have become major industries in the Singleton area since the 1950s with the first wave of collieries built to meet export demand, particularly in Japan, at Liddell, Foybrook and Liddell State. Since the mid-twentieth century, coal mining operations 'expanded from Cessnock/Maitland area to the triangle bounded by Singleton, Muswellbrook and Denman, using highly mechanised, open cut surface mining techniques in which all overburden is stripped from the surface' (Rappoport 2006:24). Current mines which surround the study area include Ashton, Ravensworth East, Mt Owen, Liddell and Camberwell.

In 1964 the State Electricity Commission commenced construction for the Liddell power station which was commissioned in 1973, the Bayswater Power station was also commissioned in 1980, projects which changed the lifestyle of Singleton and surrounding

LGAs' residents by affecting employment, population, housing, commerce and the character of the locality.

### 3.1.3 Summary

Historical research and historical land title searches show that from 1840s to 1911, the study area has been predominantly used for grazing sheep and cattle. After 1911, the land was subdivided and sold, mixed farming and dairies then became the predominant land use until the late 1970s. After this time, land title and historical records indicate the acquisition of land by mining companies and other investment companies for coal mining.

### 3.1.4 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 Water Resources (DEWR)). The NSW Heritage Office has identified 35 state 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 DEWR. Historical themes tabulated in **Table 3.3** are relevant to the study area and locality. Further analysis of these themes is carried out as part of the significance assessment of the study area in **Section 4.0**.

**Table 3.3 - Historical Themes**

<b>National Theme Groups (DEWR)</b>	<b>National Themes (DEWR)</b>	<b>National Sub Themes (DEWR)</b>	<b>State Themes (NSW Heritage Office)</b>	<b>Local Themes/Application</b>
2. <i>Peopling Australia</i>	2.6 Fighting for Land	2.6.1 Resisting the advent of Europeans and their animals 2.6.2 Displacing Indigenous People	Aboriginal cultural and interactions with other cultures	Interactions with Aboriginal People 1820-1831
3. <i>Developing local, regional and national economies.</i>	3.3 Surveying the continent	3.3.4 Looking for land with agricultural potential  3.3.5 Laying out boundaries	Agriculture Transport Pastoralism Dairying  Land Tenure	Great Northern Road Main Northern Railway Agriculture Pastoralism Dairying Land Tenure and Ravensworth Estate
	3.4 Utilising Natural Resources	3.4.3 Mining	Mining	Mining
	3.5 Developing Primary Production	3.5.1 Grazing stock 3.5.2 Breeding animals 3.5.3 Developing agricultural industries	Agriculture Pastoralism Dairying	Agriculture Pastoralism Dairying
	3.8 Moving goods and people	3.8.5 Moving goods and people on land 3.8.6 Building and maintaining railways 3.8.7 Building and maintaining roads	Transport	Great Northern Road Main Northern Railway
4. <i>Building settlements, towns and cities</i>	4.5 Making settlements to serve rural Australia; 4.6 Remembering significant phases in the development of settlements, towns and cities.	4.1.1 Selecting township sites	Land Tenure Towns Suburbs and Villages	Land Tenure and Ravensworth Estate
5. <i>Working</i>	5.8 Working on the land; Organising workers and workplaces.	No sub themes in this category	Labour	Agriculture Pastoralism Dairying Mining

## 3.2 Archaeological Context

There are no known historical heritage sites within the study area that are registered on any statutory or non statutory database. However, there are several sites outside the study area which are within an extended 1.5 kilometre search boundary (refer to **Section 3.2.1** and **3.2.2**).

The purpose of this archaeological context section is to provide a review of previous archaeological and heritage studies, and heritage registers, in relation to the study area and immediate locality. The archaeological context, along with the historical context, form the basis of the significance assessment and management strategy.

### 3.2.1 Statutory Heritage Registers and Planning Instruments

A review of the Australian Heritage Database maintained by the Commonwealth Department of Environment and Water Resources, the State Heritage Register and State Heritage Inventory maintained by the NSW Heritage Council and planning instruments such as the Hunter Regional Environmental Plan (1989) and Singleton Local Environmental Plan (1996) was undertaken to identify any potential heritage sites within the study area and the adjacent locality (1.5 kilometre area from the centre of the study area).

#### 3.2.1.1 Australian Heritage Database

There are no listed sites on the Australian Heritage Database within the study area. However, Ravensworth Homestead, Ravensworth; which is approximately 1.5 kilometres from the study area boundary, is listed on the Australian Heritage Database. Ravensworth Homestead is listed as an Indicative Place on the former Register of the National Estate (refer to **Figure 3.5**). This site is outside the study area.

Foybrook Cross Beds, Ravensworth is a natural heritage place that is listed on the Register of the National Estate but has been removed from the indicative listing and registration status as 'doubts have been raised about the significance of this site to the extent that it does not warrant registration' (Australian Heritage Database Inventory Sheet, Place ID 16237). The exact location of this site could not be determined despite attempts to contact Department of Environment and Water Resources (DEWR) for this information. As this item is listed due to its natural heritage values it is not included in this assessment.

#### 3.2.1.2 State Heritage Register and Inventory

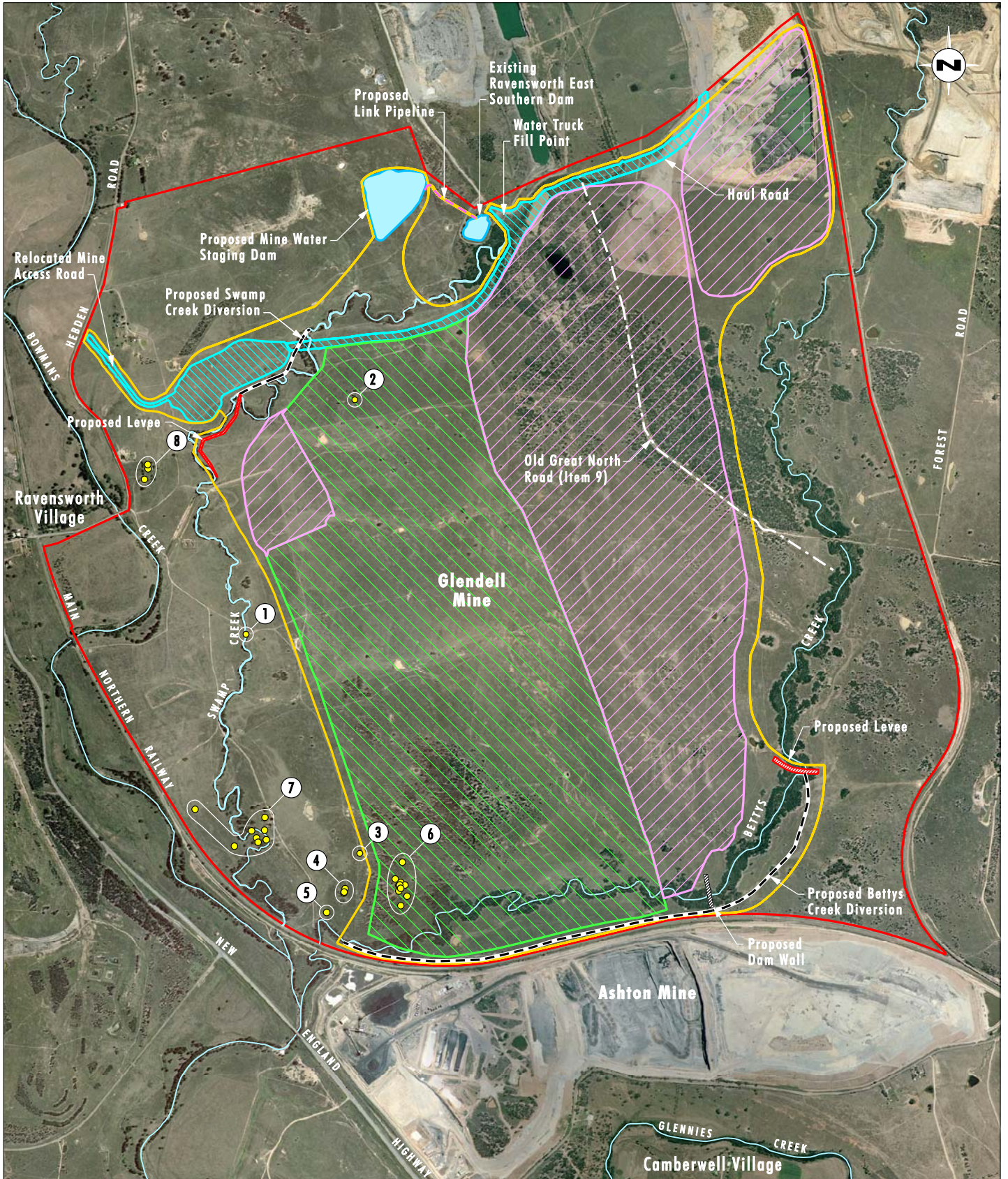
There are no listed sites on the State Heritage Register or State Heritage Inventory within the study area. However, several sites are listed on the State Heritage Inventory within 1.5 kilometres of the study area boundary. These include:

- Public School, New England Highway, Ravensworth; and
- Ravensworth Homestead, Ravensworth.

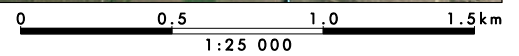
Sections of the Main Northern Railway are listed on the State Heritage Register and State Heritage Inventory. However, no sections of the Main Northern Railway Line adjacent to the area are included in these listings.

#### 3.2.1.3 State Rail Authority (SRA) Section 170 Register

All NSW state government agencies are required to maintain a register of heritage items that are identified on land owned by that agency, under Section 170 (s.170) of the *NSW Heritage*



Source: Xstrata Mt Owen 2006



**Legend**

- ▬ Glendell Mine Site / Historical Heritage Study Area
- ▬ Proposed Disturbance Area
- ▬ Proposed Overburden Emplacement Area
- ▬ Proposed Mining Area
- ▬ Infrastructure Area
- - Creek Diversion
- Creek
- Historic Site

**FIGURE 3.5**

**Identified Historic Heritage Sites within Study Area**

*Act 1977.* The State Rail Authority's Heritage Officer, Dr Stuart Sharpe was contacted on 18 June 2007 to ascertain if the Main Northern Railway was listed as a heritage item on the SRA s.170 Register. Dr Sharpe stated that the Main Northern Railway is not listed.

#### **3.2.1.4 Hunter Regional Environmental Plan (HREP) (1989)**

No items for the Singleton Local Government Area were listed on the Hunter Regional Environmental Plan (1989)

#### **3.2.1.5 Singleton Local Environmental Plan (SLEP) (1996)**

There are no sites within the study area listed on the Singleton Local Environmental Plan (SLEP). However, SLEP scheduled the following sites and heritage resources within 1.5 kilometres of the study area boundary:

- Former Church, New England Highway, Ravensworth;
- Public School, New England Highway, Ravensworth; and
- Ravensworth Homestead, Ravensworth.

All sites were assessed as having local significance by the SLEP (1996) apart from Ravensworth Homestead which was assessed as having regional significance. These sites are further discussed in **Section 3.2.4**.

### **3.2.2 Non Statutory Heritage Registers**

The National Trust of Australia is a non-statutory agency that maintains a database of historical heritage sites (mostly structures) and conservation areas within Australia.

#### **3.2.2.1 National Trust of Australia**

There are no listed sites on the databases of the National Trust of Australia within the study area. However, sites listed on the National Trust of Australia's database within 1.5 kilometres of the study area boundary include:

- Ravensworth Homestead;
- Former Church, Ravensworth; and
- Public School (including bell), Ravensworth.

#### **3.2.3 Singleton Historical Society and Museum Inc**

The Singleton Historical Society and Museum Inc (SHSM) were consulted to identify known or potential historical heritage items/historical archaeological sites within the study area and surrounding locality. The SHSM identified an early road, the Great Northern Road and provided early historical documents which are integrated into the historical context of this report (refer to **Section 3.1.2.7**).

#### **3.2.4 Previous Archaeological Studies within the study area and locality**

No previous historical archaeological studies have been undertaken within the study area. Previous historical archaeological and heritage studies have been undertaken in adjoining lands for the Ravensworth East Mine by ERM Mitchell McCotter (1999) and Umwelt (2006,

2002a), whilst the study by EJE Architecture (1997) focussed on the Ravensworth Homestead. As discussed in **Section 3.1.2**, the Ravensworth Homestead is outside the study area but was part of the original Ravensworth land grant, which included the lands within the study area. Therefore, the study area has a closely related settlement pattern to the Ravensworth Homestead.

### 3.2.4.1 Sites RE31, RE32 and RE33

ERM Mitchell McCotter (1999) identified three historical heritage sites as part of an archaeological assessment for Environmental Impact Assessment for the Ravensworth East Mine. These sites included a shearing shed (RE31), sheep dip and yards (RE32) and farmstead complex (RE33). ERM Mitchell McCotter recommended that these sites be recorded and subject to more detailed survey in consultation with the NSW Heritage Office prior to their destruction by mining (1999:135). These sites were salvage excavated and investigated further by Umwelt (2002a, 2006) under a Section 140 permit. Site RE31 was interpreted as the 'residue of a farming complex, probably dating from the 1920s and possibly used until the 1940s' (Umwelt 2006:1). The sheep yards and dip assemblage at Site RE32 was representative of

an element in the evolution of rural industry in the Hunter with an expansion into sheep farming... has probably not been used or maintained for at least 40 years and this stands as a testament to the failure of sheep grazing in the Hunter (Umwelt 2006:1).

Site RE33 was representative of a 'small farm holding involved in dairy production and mixed enterprises...its construction in the early 1900s and its abandonment in the 1950s' (Umwelt 2006:1). Umwelt's (2006) investigations provided a general reconstruction of 'a small mixed enterprise, dating from the first period of closer settlement subdivision of the former Ravensworth Estate' (2006:1). These sites were representative of early dairy farming in the Upper Hunter in the twentieth century, after Measures subdivided the Ravensworth Estate and sold the subdivided lots to prospective mixed farming and dairy enterprises. The settlement history of these sites is related to those identified within the study area (refer to **Section 3.3**).

### 3.2.4.2 Ravensworth Homestead

Ravensworth Homestead is the subject of several historical heritage studies including a report by EJE Architecture and Lillian Noble (1997). Ravensworth homestead was built in 1832 on original land grants to Dr James Bowman which were granted to him after his marriage to Mary Macarthur in 1824 and 1839 'with a total area of 14,000 acres' (Fink 1977:159). The house is constructed of stone and is one storey with 'an iron roof, with flagged stone verandah with small pane sash windows and six panel doors' (Fink 1977:159). A stable is associated with the homestead which is similarly constructed of stone. The complex also contains several outbuildings which are believed to be related to the occupation of the homestead.

EJE Architecture prepared a statement of significance for the Ravensworth Homestead and Farm Complex site for a structural and material conditions report in 1997 (EJE Architecture 1997:4):

...the Ravensworth Homestead site and Farm complex as a whole, is assessed as having **State Significance** in the context of the history of Colonial NSW particularly: the homestead's associations with John Macarthur, James Bowman and the Australian Agricultural Company; the early land development, pastoral expansion and transport network of the Upper Hunter; the early 20<sup>th</sup> century subdivision of land; and, the soldier settlement schemes following World War I. As such, the site and group has highest level Historical, Aesthetic, Social and Scientific significance to the Hunter Region and to the State.

The significance of Ravensworth Homestead and Farm Complex is also due to its probable design by John Macarthur's architectural consultant John Verge. This assumption by EJE Architecture (1997:3) was based on similarities in design between Ravensworth Homestead and Farm Complex and Elizabeth Farm, Parramatta. The history of the Ravensworth Estate was discussed in **Section 3.1**. Studies since this time have also included a dilapidation study prepared in 2000 under the Ravensworth East Mine Development Consent and a further condition study in 2007. The outcome of the 2007 condition study was implementation of a plan of restoration and ongoing management for the homestead. The outcomes of the 2000 study included structural stabilisation works and blasting limits imposed as part of the Mt Owen Complex Blast Management Plan (Nigel Charnock, XMO, pers. comm. 25 June 2007). The homestead is being managed under these consents by XMO and is not within the study area for this assessment. It is only discussed in this report for context.

### 3.3 Physical Context

Numerous items of historic heritage were identified within the study area during the survey undertaken as part of the Aboriginal cultural heritage assessment in 2001 and a further site inspection undertaken on 20 March 2007. The items are listed in **Table 3.5** and their locations are indicated on **Figure 3.2** and **3.5** (the items are indicated on the map according to the ID number in the table). The items are grouped where applicable by Complex if they are assessed as related by occupation/land use history (refer to **Figure 3.2** and **3.5**).

#### 3.3.1 Wooden bridge, Swamp Creek (Item 1)

A wooden bridge was identified across Swamp Creek outside and to the west of the proposed disturbance area (refer to **Plate 3.1**). The bridge is constructed from wooden slabs. This bridge does not have railings. The bridge is not wide enough for a vehicle, but is far wider than necessary for pedestrian traffic. It is thought to be a bridge to move stock (most likely sheep) across the creek which is deeply incised in this area. This bridge is north of the ruins of the former Marali homestead (refer to **Section 3.3.7**).

#### 3.3.2 Tree stump bearing a surveyors mark (Item 2)

The tree bears the marks (BM over 2 over F) and is located in the proposed disturbance area (refer to **Plate 3.2**). The tree had been ring-barked and cut with a chain saw just above the surveyors scar. The tree stump is in relatively poor condition; however, the scar and the surveyor's marks were in relatively good condition in 2001 and in 2007. The Lands Department was approached for information regarding the surveyors mark in March 2007. The Lands Department could not find the surveyors mark in their records.

#### 3.3.3 Yards (Item 3)

There are several yards located within the proposed disturbance area (refer to **Plate 3.3**). These appear to have been used for sheep and cattle. The yards were mostly constructed of timber posts and split and felled logs. Some of the posts were hand sawn and others were split with an axe. The wire used in some of the yards appears to be of an older gauge (early twentieth century).

#### 3.3.4 Unidentified Potential Dairy Site (Items 4a to 4d)

The site consists of several sandstone and conglomerate concrete footings (Items 4a to 4b), a smooth mortar lined drain/gutter (Item 4c) and some machine made and earlier sandstock



**PLATE 3.1**  
**Wooden Bridge, Swamp Creek**  
**(Item 1) MGA 318354, 6408595**



**PLATE 3.2**  
**Tree stump bearing a surveyor's mark**  
**(Item 2) MGA 318868, 6409704**

wire cut bricks (Item 4d) (refer to **Plate 3.4**). The site is approximately 200 metres east of the cattle yards and approximately 700 metres east of the ruins of the former Marali homestead (refer to **Section 3.3.7**). The site is located outside the western boundary of the proposed disturbance area. The site may be the remains of an old dairy based on its proximity to the cattle yards and the ruins of the Marali homestead and by the presence of the drain. The drain/gutter indicates that the structure needed to be washed out/drained regularly. The disturbed nature of the footings indicates that they have been moved, most probably bulldozed, from their original location.

### **3.3.5 Remains of Corduroy Road (Item 5)**

The remains of a corduroy road with hand cut timber slabs approximately 2.35 metres in length and 7.42 metres in width was identified at a crossing of a tributary of Bettys Creek (refer to **Plate 3.5**). This site is located outside the proposed disturbance area.

### **3.3.6 Unidentified Ruined homestead (Items 6a to 6l)**

This site contains the remains of a ruined homestead/farm site, located within the proposed disturbance area (refer to **Plate 3.6**). The remains of the site included peppercorn trees and the main concentration of footings (Item 6a), structural footings of a house (Item 6b), bricks (Item 6c), footings of associated structures such as a meat house (Item 6d), sandstone footings (Item 6e), salt glazed drainage pipes (Item 6f), shaft/well (Item 6g), remains of a water tank and a combine box and the remains of a fence line (Item 6h), in-situ wall (Item 6i), borehole (Item 6j), scatter of ceramic and glass (date twentieth century circa) (Item 6k) and remains of a fenceline (Item 6l).

### **3.3.7 Ruins of the Former Marali homestead (Items 7a to 7i)**

Former Marali homestead ruins include the bulldozed ruins of a house (Item 7a) (refer to **Plate 3.7**), a telegraph pole (Item 7b), remains of a footbridge (Item 7d), a shed across the creek from the ruins of Marali Homestead (on the opposite side of Swamp Creek) (Item 7e), yards associated with this shed (Item 7f), yards in paddock further afar from ruins and shed (Item 7g), water tank (Item 7h), well and trough and yards nearby the well (Item 7h and 7i). These are located adjacent to Swamp Creek to the west of the proposed disturbance area. The structures appear to be mixed in age incorporating some old (including post and rail fencing, slabs [probably scavenged from an earlier construction] and hand made nails) and some relatively recent materials (including logs cut with chain saws and steel bolts).

The site also includes a wooden bridge across Swamp Creek (Item 7c). A wooden bridge was identified across Swamp Creek directly to the west of the former Marali homestead site (the Marali homestead is not visible on aerial photography from 1958 but is present in 1967 and 1974. The homestead was demolished by 2002 based on aerial photographs). The bridge is constructed from wooden slabs resting on three logs. The structure also incorporates railway sleepers. The bridge has railings manufactured from metal pipes. The bridge is not wide enough for a vehicle, but is far wider than necessary for pedestrian traffic. It is thought to be a bridge to move stock (most likely sheep) across the creek which is deeply incised in this area. A road leading to a crossing to the south of this bridge is indicated on aerial photography in 1967 and on the Camberwell Topographic Sheet dating to 1977. This road is not visible on aerial photography from 1958. It is not clear if this bridge is associated with the former Marali Homestead.

This wooden bridge is a similar structure to the one located further upstream (Item 1) and to the north of the former Marali homestead's bridge.



**PLATE 3.3**  
**Yards**  
**(Item 3) MGA 318891,6407556**



**PLATE 3.4**  
**Facing South West, Potential Dairy Site**  
**(Item 4a to 4d) MGA 318817,6407372**



**PLATE 3.5**  
**Facing South West, Remains of Corduroy Road**  
**(Item 5) MGA 318734,6407276**



**PLATE 3.6**  
**Facing West, Unidentified Ruined Homestead**  
**(Items 6a to 6i) MGA 319094,6407515**

### 3.3.8 The site of the Former Hillview homestead (Items 8a to 8c)

Two former Hillview homestead sites were once on this site located to the north-western portion of the study area outside the proposed disturbance area. The more recent home (Item 8a) was burnt to the ground prior to 2001 and the older home appears to have been removed [building materials appear to have been scavenged] since 2001. Both houses were present in aerial photography dating to 1958) (refer to **Plate 3.8**). Apart from the remains of the original gardens and fences there is no remaining structural or archaeological occupation evidence for the two former Hillview homesteads.

Sheds (Items 8b and 8c) (shearing, milking and maintenance), yards and fences near the former Hillview homesteads (refer to **Plate 3.9**). This complex of sheds, yards and fences is a mix of older structures and relatively more recent structures (some incorporating scavenged material from older structures). The condition of the structures is variable. Much of the floor of the shearing shed had been scavenged at the time of inspection in 2001 and in 2007 including the remains of an old wool press.

### 3.3.9 Great Northern Road

This road is shown as a dirt track on the existing aerial photographs (refer to **Figure 3.5**). Observations from archaeologists during the 2001 Aboriginal archaeology survey indicate that much of this track (that runs on a north to south east axis within the proposed disturbance area) is already destroyed from previous land use history including clearing of regrowth Casuarina and fence construction. No evidence of road construction has been identified. It is identified as a dirt track only.

## 3.4 Discussion and Interpretation of Historical, Archaeological and Physical Contexts

The study area contains the remains of farms that date to during and after the subdivision of the Ravensworth Estate by FL Measures in the early twentieth century (circa 1911). The land was subdivided as a means of attracting new settlers under the Soldier Settlement Scheme with the aim of establishing dairies and mixed farming enterprises. As already documented in **Section 3.1**, FL Measures constructed farm houses and fencing to attract potential purchasers. Historical land title searches of all lots within the study area also show that both the remains of the dairy site (item 4a to 4d) and the ruined homestead (Item 6a to 6l) are within the same Lot and DP (Pt1/940619). The history of this Lot after its purchase by Measures includes Benjamin Richard Gelling, a free holder (1912 – land title for Lot 1/DP940619), August Duncan McCalman, a grazier (1919) and Arnold Audley Noble, farmer and grazier (1945); prior to its purchase by investment companies for mining in the late 1970s. The purchase by Noble indicates that these sites have a similar history to sites RE31 to RE33 (refer to **Section 3.2.4.1**), that is, they are related predominantly to dairying and mixed farming in the twentieth century, that was most probably associated with the Noble family.

The historical artefacts exposed at the unidentified dairy site (Items 4a to 4d), the ruins of the unidentified homestead (Items 6a to 6l), ruins of the former Marali homestead (Items 7a to 7i) and the site of the former Hillview homestead (Items 8a to 8c) reflect this settlement pattern and no early or mid to late nineteenth century artefacts were identified that may indicate potential for an earlier settlement pattern.



**PLATE 3.7**  
**Ruins of the Marali Homestead**  
**(Items 7a to 7i) MGA 318442,6407725**



**PLATE 3.8**  
**Ruins of the Hillview Homestead**  
**(Items 8a to 8c) MGA 317889,6409377**



**PLATE 3.9**  
**Old shearing shed**  
**MGA 317886,6409383**

### 3.5 Summary of heritage items/sites and their locations

A summary of heritage items identified within the study area is provided in **Table 3.4**.

**Table 3.4 - Summary of Heritage Items/Sites within the Study Area and their locations**

Item	Complex	Resource	AMG Easting	AMG Northing	Inside or Outside the proposed disturbance area
1		Wooden bridge across Swamp Creek	(refer to <b>Figure 3.5</b> )		Outside
2		Tree stump bearing a surveyors mark	(refer to <b>Figure 3.5</b> )		Inside
3		Yards which were mostly constructed of timber posts and split and felled logs.	318787	6407367	Inside
4a	Unidentified Potential Dairy Site	Several sandstone and conglomerate concrete footings	318716	6407195	Outside
4b	Unidentified Potential Dairy Site	Several sandstone and conglomerate concrete footings	318713	6407179	Outside
4c	Unidentified Potential Dairy Site	A smooth mortar lined drain/gutter	318713	6407177	Outside
4d	Unidentified Potential Dairy Site	Some machine made and earlier sandstock wire cut bricks.	318718	6407185	Outside
5		Remains of a corduroy road	318629	6407087	Outside
6a	Unidentified Ruined homestead	The remains of the site included peppercorn trees and the main concentration of footings.	318955	6407244	Inside
6b	Unidentified Ruined homestead	Structural footings of a house.	318981	6407230	Inside
6c	Unidentified Ruined homestead	Bricks	318989	6407326	Inside
6d	Unidentified Ruined homestead	Structural footings of associated structures such as a meat house	318977	6407204	Inside
6e	Unidentified Ruined homestead	Sandstone footings	318967	6407212	Inside
6f	Unidentified Ruined homestead	Salt glazed drainage pipes	318978	6407217	Inside

**Table 3.4 - Summary of Heritage Items/Sites within the Study Area and their locations (cont)**

Item	Complex	Resource	AMG Easting	AMG Northing	Inside or Outside the proposed disturbance area
6g	Unidentified Ruined homestead	Shaft/well	318980	6407119	Inside
6h	Unidentified Ruined homestead	Remains of a water tank and a combine box and the remains of a fence line.	319001	6407217	Inside
6i	Unidentified Ruined homestead	In-situ wall	318978	6407214	Inside
6j	Unidentified Ruined homestead	Borehole	318971	6407187	Inside
6k	Unidentified Ruined homestead	Scatter of ceramic and glass (date twentieth century circa)	318982	6407200	Inside
6l	Unidentified Ruined homestead	Remains of a fence line	319010	6407164	Inside
7a	Ruins of the Former Marali homestead	Marali homestead ruins include the ruins of a house.	318337	6407536	Outside
7b	Ruins of the Former Marali homestead	A telegraph pole	318336	6407476	Outside
7c	Ruins of the Former Marali homestead	The wooden bridge across Swamp Creek.	318336	6407476	Outside
7d	Ruins of the Former Marali homestead	Remains of a footbridge	318275	6407474	Outside
7e	Ruins of the Former Marali homestead	A shed across the creek from the ruins of Marali Homestead (on the opposite side of Swamp Creek).	318297	6407437	Outside
7f	Ruins of the Former Marali homestead	Yards associated with this shed (item 7f)	318305	6407420	Outside

**Table 3.4 - Summary of Heritage Items/Sites within the Study Area and their locations (cont)**

Item	Complex	Resource	AMG Easting	AMG Northing	Inside or Outside the proposed disturbance area
7g	Ruins of the Former Marali homestead	Yards in paddock further afar from ruins and shed.	318344	6407431	Outside
7h	Ruins of the Former Marali homestead	Water tank, well and trough	318193	6407401	Outside
7i	Ruins of the Former Marali homestead	Yards nearby the well	318007	6407576	Outside
8a	The site of the former Hillview homestead	Two former Hillview homestead sites were once on this site. The more recent home was burnt to the ground prior to 2001 and the older home appears to have been removed [building materials appear to have been scavenged] since 2001. Both houses were present in aerial photography dating to 1958).	317767	6409140	Outside
8b	The site of the former Hillview homestead	Sheds (shearing, milking and maintenance) near the former Hillview homesteads.	317781	6409194	Outside
8c	The site of the former Hillview homestead	Yards and fences near the former Hillview homesteads.	317782	6409208	Outside

**Table 3.4 - Summary of Heritage Items/Sites within the Study Area and their locations (cont)**

Item	Complex	Resource	AMG Easting	AMG Northing	Inside or Outside the proposed disturbance area
9	Great Northern Road	Historical records and aerial photographs indicate that the remains (shown as a cleared dirt track) of the Great Northern Road are within the study area. Observations from archaeologists during the 2001 Aboriginal archaeology survey indicate that much of this track is already destroyed from previous land use history (specifically to the north of the proposed disturbance area).	(refer to <b>Figures 3.1, 3.2 and 3.5</b> )		Inside

## 4.0 Heritage Significance

An assessment of significance is undertaken to explain why a particular place/object is important and to enable the determination of appropriate site management. 'Cultural significance' is defined in the Australian ICOMOS Burra Charter 1999 (the Burra Charter) as meaning 'aesthetic, historic, scientific or social value for past, present or future generations' (Article 1.1). An explanation of these values is provided in **Section 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 contemporary society now may change as similar sites are located, more research is undertaken and community values change.

### 4.1 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 and the implications of these classifications are as follows:

- **Historical significance** considers the evolutionary or associative qualities of a site with aesthetics, science and society, identifying significance in the connection between a site and cultural development and change.
- **Aesthetic significance** addresses the scenic and architectural values of a site and/or the creative achievement that it evidences. Thus, a site achieves aesthetic significance if it has visual or sensory appeal and/or landmark qualities and/or creative or technical excellence.
- **Social significance** is perhaps the most overtly evolutionary of all classifications in that it rests upon the contemporary community appreciation of the cultural record. Evaluation within this classification depends upon the social spiritual or cultural relationship of the site with a recognisable community.
- **Scientific significance** involves the evaluation of a site in technical and/or research terms, considering the archaeological, industrial, and educational and/or research potential. Within this classification sites have significance value in terms of their ability to contribute to the better understanding of cultural history or environment and their ability to communicate, particularly to a broad audience within a community (Marquis-Kyle & Walker 1992: 21-23).

#### 4.1.1 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 include:

- whether a site, or the fabric contained within a site, contributes knowledge or has the potential to do so. If it does, the availability of comparative sites and the extent of the historical record should be considered in assessing the strategies that are appropriate for the management of the site; and
- the degree and level at which material evidence contributes knowledge in terms of 'current research themes in historical archaeology and related disciplines'.

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

- **Historical value** lies at the root of many of the other values by providing a temporal context and continuity, thereby providing an integrating medium for the assessment of social, cultural and archaeological significance.
- **Scientific value** depends upon the ability of a site to provide knowledge contributing to research in a particular subject or a range of different subjects.
- **Cultural value** attaches to material evidence that embodies or reflects the beliefs, customs and values of a society or a component of a society and/or that has the potential to contribute to an understanding of the nature and process of change and its motivation.
- **Social value** derives from the way people work(ed) and live(d) and from an ability to understand the nature, process of change and its motivation. Social significance is closely related to cultural significance, in its concern with the practicalities of socio-cultural identification.
- **Architectural value** depends on considerations of technical design (architectural style, age, layout, interior design and detail), the personal consideration (i.e. the work of a particular architect, engineer, designer or builder) and technical achievement (construction material, construction technique or finish).
- **Aesthetic value** addresses the manner in which a site comprises or represents creative achievement, epitomising or challenging accepted concepts or standards.
- **Natural value** attaches to sites that either support or manifest existing natural processes and/or systems or provide insights into natural processes and/or systems.

#### 4.1.1.1 Degree Criteria

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

#### 4.1.1.2 Level Criteria

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

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

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

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

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

## 4.2 NSW Heritage Office Standard Criteria

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

- Criterion (a)** the importance of a site in the course or pattern of the cultural or natural history of NSW or a local area [i.e.: *historical*].
- Criterion (b)** the existence of a strong or special association between a site and the life or works of a person or group of persons important in NSW or local cultural or natural history [i.e.: *historical*].
- Criterion (c)** the importance of a site in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW or a local area [i.e.: *aesthetic*].
- Criterion (d)** the existence of a strong or special association between a site and the social, cultural or spiritual essence of a particular community or cultural group within NSW or a local area [i.e.: *social*].
- Criterion (e)** the potential of a site to provide information that will contribute to an understanding of the cultural or natural history of NSW or a local area [i.e.: *scientific*].
- Criterion (f)** the quality of a site to possess uncommon, rare or endangered aspects of the cultural or natural history of NSW or a local area [i.e.: *rare degree of significance*].
- Criterion (g)** the demonstration by a site of the principal characteristics of a class of cultural or natural place or cultural or natural environment within NSW or a local area. [i.e.: *representative degree of significance*].

#### 4.2.1 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 is assessed upon the basis of the range of criteria discussed in **Section 4.1** and **4.2**. This section deal with significance by providing an overview in terms of the criteria established in NSW Heritage Office (2001) and relates the significance assessment to the NSW Historical Themes (refer to **Section 3.1.4** and **Table 3.2**).

**Table 4.1 - Statement of Significance**

NSW Heritage Office Standard Criteria	Statement of Significance
<p>Criterion (a) Historical</p>	<p>The study area has significance at a local level for demonstrating the pattern of land use for the Ravensworth Estate which arose from its subdivision into larger grazing lots and smaller dairy farms in the early to mid twentieth century by AJ Noble. The pattern of land use is demonstrated in extant and ruined structures throughout the site.</p> <p>State Theme: Agriculture, Dairying, Pastoralism. Examples: Two wooden bridges across Swamp Creek, Tree stump bearing a surveyors mark, Yards, Unidentified Dairy Site, Remains of a corduroy road, Unidentified Ruined Homestead, Ruins of the Former Marali Homestead and the site of the former Hillview homestead.</p> <p>The study area also has significance at the local level as it contains the remains of an early road (track – not constructed) surveyed by Mitchell in circa 1835 known locally as the Great Northern Road (Ian Webb, pers. comm. 18-6-7). This track is the remains of an early route to travel from Muswellbrook to Singleton.</p> <p>State Theme: Transport Example: Remains of the Great Northern Road</p> <p>The study area is also important at the local level because it is part of the original Ravensworth Estate, where there is an early history of well documented conflict and resistance by Aboriginal peoples to European settlers (refer to <b>Section 3.1.2.1</b>).</p> <p>State Theme: Aboriginal cultural and interactions with other cultures</p> <p>Examples: There were known Aboriginal artefact scatters within the study area which have been assessed and salvaged under DECC permits by Umwelt (2004, and in preparation). Ravensworth Homestead which is outside the study area should be considered an important site of shared history for both Aboriginal and non Aboriginal Australians and a contact site (refer to <b>Section 3.1.2.1</b>).</p>
<p>Criterion (b) Associative</p>	<p>The study area is part of the original Ravensworth Estate which was occupied by James Bowman and Mary MacArthur and later by Richard Mackay who are important historical figures in local history. Mary MacArthur is the daughter of John and Elizabeth MacArthur who are important figures in the history and development of NSW. Although the study area has some associative significance due to its land tenure history, it does not have any identified or potential physical remains that can be related back to these individuals such as occupation deposits, structures etc.</p> <p>State Theme: Land Tenure and the Ravensworth Estate</p>

**Table 4.1 - Statement of Significance (cont)**

NSW Heritage Office Standard Criteria	Statement of Significance
<p>Criterion (c) Aesthetic</p>	<p>The study area has limited significance under this criterion. The majority of items within the study area are ruins and have low physical integrity on which to assess aesthetics. The remains of timber bridges, yards and some standing sheds indicate simple unadorned construction from a limited range of materials, principally timber. These structures indicate a representative range of farm yards and sheds dating from potentially the very late nineteenth century to the mid twentieth century.</p> <p>State Theme: Agriculture, Dairying, Pastoralism Examples: Two wooden bridges across Swamp Creek, yards, remains of a corduroy road, remains of fenceline (Item 6l), a shed opposite Swamp Creek (Item 7e), remains of a footbridge (Item 7d), yards associated with Shed (Item 7f), yards in paddock further afar from Marali ruins and shed (Item 7g), yards nearby the well (Item 7i), sheds (shearing, milking and maintenance) near the former Hillview homesteads (Item 8b) and yards and fences near former and Hillview homesteads (Item 8c).</p>
<p>Criterion (d) Social</p>	<p>The site demonstrates the pattern of settlement in the area from the early to mid twentieth century. It has lesser significance in social terms as there are no physical indicators of the early settlement pattern history of the early to mid nineteenth century apart from the remains of a track/road, known originally as the Great Northern Road.</p> <p>State Theme: Transport Example: Great Northern Road</p>
<p>Criterion (e) Scientific</p>	<p>The study area has limited significance under this criterion. The ruin sites have potential to provide further information regarding the early twentieth to mid twentieth century's occupation of the study area. This land use history of agriculture, mixed farming and dairying has been investigated on adjacent lands outside the study area but within the original Ravensworth Estate (refer to Umwelt 2006 and <b>Section 3.1</b>). There also seems to be no pressing archaeological research question that would be answered as part of the further physical excavation of these ruined sites (Item 4, Item 6 and Item 7) that is not already historically well documented.</p> <p>The dirt track that is believed to be the Great Northern Road is currently visible on air photos. An archival record and survey of the remaining dirt track could provide further information regarding the lay out of this road compared to its original historical plan.</p> <p>State Theme: Transport Example: Great Northern Road</p>
<p>Criterion (f) Rarity</p>	<p>The ruin sites are indicative of early twentieth to mid twentieth century land use history of agriculture, mixed farming and dairying associated with FL Measures' subdivision of the Ravensworth Estate (refer to Umwelt 2006 and <b>Section 1.1</b>).</p> <p>These sites and associated structural features are becoming more rare in the locality due to their destruction by the development of other mining projects which surround the study area including Ravensworth East, Ashton, Mt Owen, Liddell and Camberwell. There are other intact examples of mixed farming, agriculture and dairy farms within the Upper Hunter region, but the increase of mining development is significantly increasing the rarity of these examples of land use history (Umwelt 2006a).</p> <p>State Theme: Agriculture, Dairying, Pastoralism. Examples: Two wooden bridges across Swamp Creek, Tree stump bearing a surveyors mark, Yards, Unidentified Dairy Site, Remains of a corduroy road, Unidentified Ruined Homestead, Ruins of the Former Marali Homestead and the site of the former Hillview homestead.</p>
<p>Criterion (g) Representativeness</p>	<p>The extant sheds and yards on site are representative of dairying and mixed farming through out Australia.</p>

## 4.3 Condition and Integrity

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

In this section, the heritage significance of the sites within the study area is assessed on the basis of their condition and integrity and the range of criteria discussed in **Section 4.2**. **Section 4.1** provides a statement of significance. A summary of significance for the study area is also provided (refer to **Section 4.4**).

### 4.3.1 Condition

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

- (i) *intact*, where the material evidence allows a complete recording of the resource without archaeological hypothesis;
- (ii) *substantially intact*, where the material evidence is incomplete but the recording of material evidence will be sufficient to allow an accurate archaeological reconstruction, with hypotheses based on the archaeological record only;
- (iii) *standing ruin*, where the material evidence is incomplete and the recording of material evidence will be sufficient to define the footprint of the site/object/relic and some of its elevations and features but will be insufficient to allow an accurate archaeological reconstruction of the site/object/place without hypotheses based on the archaeological record and on a range of outside sources;
- (iv) *ruin*, where the material evidence is incomplete and the recording of material evidence may be sufficient to define part, or the whole, of the footprint of the site/object/relic but will be insufficient to allow an archaeological reconstruction of its features, perhaps spatially and certainly vertically, without hypotheses based on the archaeological record and on a range of outside sources, and in circumstances where the validation of the reconstruction cannot be assured; and
- (v) *archaeological site*, implying a mostly sub-surface residue, where the material evidence suggests the former presence of an archaeological site that cannot be defined without sub-surface investigation.

### 4.3.2 Integrity

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

- (i) *Intact*, where the site/object/relic has remained virtually unchanged its form and/or design and/or function can be totally discerned from the material evidence;
- (ii) *Minor Modification*, where the site/object/relic has been modified or deteriorated cosmetically and/or in a manner that does not inhibit the discernment of its form and/or design and/or function by archaeological interpretation of the material evidence;

- (iii) *Material Modification*, where the site/object/relic has been modified so that its form and/or design and/or function cannot be discerned only by archaeological interpretation and without reference to external sources;
- (iv) *Major Modification*, where the site/object/relic has been so modified that attempted discernment of its form and/or design and/or function cannot be achieved by archaeological interpretation of the material evidence and requires a heavy reliance on external sources and in circumstances where discernment of one or more elements may be equivocal; and
- (v) *None*, where the integrity of the site/object/relic has been completely destroyed and the evidence for its form and/or design and/or function is totally external.

### 4.3.3 Condition and Integrity of Sites within the Study Area

The condition and integrity of the heritage sites within the study area is summarised in **Table 4.2**.

**Table 4.2 - Summary of Condition of Sites within the Study Area**

Item	Complex	Resource	Condition	Integrity
1		Wooden bridge across Swamp Creek	Intact	Intact
2		Tree stump bearing a surveyors mark	Intact	Intact
3		Yards which were mostly constructed of timber posts and split and felled logs.	Intact	Minor Modification
4a	Unidentified Potential Dairy Site	Several sandstone and conglomerate concrete footings	Ruin	Major Modification
4b	Unidentified Potential Dairy Site	Several sandstone and conglomerate concrete footings	Ruin	Major Modification
4c	Unidentified Potential Dairy Site	A smooth mortar lined drain/gutter	Ruin	Major Modification
4d	Unidentified Potential Dairy Site	Some machine made and earlier sandstock wire cut bricks.	Ruin	Major Modification
5		Remains of a corduroy road	Substantially Intact	Intact
6a	Unidentified Ruined homestead	The remains of the site included peppercorn trees and the main concentration of footings.	Ruin	Major Modification
6b	Unidentified Ruined homestead	Structural footings of a house.	Ruin	Major Modification
6c	Unidentified Ruined homestead	Bricks	Ruin	Major Modification
6d	Unidentified Ruined homestead	Structural footings of associated structures such as a meat house	Ruin	Major Modification

**Table 4.2 - Summary of Condition of Sites within the Study Area (cont)**

Item	Complex	Resource	Condition	Integrity
6e	Unidentified Ruined homestead	Sandstone footings	Ruin	Major Modification
6f	Unidentified Ruined homestead	Salt glazed drainage pipes	Ruin	Major Modification
6g	Unidentified Ruined homestead	Shaft/well	Ruin	Major Modification
6h	Unidentified Ruined homestead	Remains of a water tank and a combine box and the remains of a fence line.	Ruin	Major Modification
6i	Unidentified Ruined homestead	In-situ wall	Ruin	Major Modification
6j	Unidentified Ruined homestead	Borehole	Ruin	Major Modification
6k	Unidentified Ruined homestead	Scatter of ceramic and glass (date twentieth century circa)	Ruin	Major Modification
6l	Unidentified Ruined homestead	Remains of a fence line	Ruin	Major Modification
7a	Ruins of the former Marali homestead	Marali homestead ruins include the ruins of a bulldozed house.	Ruin	None
7b	Ruins of the former Marali homestead	A telegraph pole	Substantially Intact	Minor Modification
7c	Ruins of the former Marali homestead	Wooden bridge across Swamp Creek.	Substantially Intact	Intact
7d	Ruins of the former Marali homestead	Remains of a footbridge	Ruin	Minor Modification
7e	Ruins of the former Marali homestead	A shed across the creek from the ruins of Marali Homestead (on the opposite side of Swamp Creek).	Substantially Intact	Minor Modification
7f	Ruins of the former Marali homestead	Yards associated with this shed (item 7f)	Substantially Intact	Minor Modification
7g	Ruins of the former Marali homestead	Yards in paddock further afar from ruins and shed.	Substantially Intact	Minor Modification
7h	Ruins of the former Marali homestead	Water tank, well and trough	Substantially Intact	Minor Modification
7i	Ruins of the former Marali homestead	Yards nearby the well	Substantially Intact	Minor Modification

**Table 4.2 - Summary of Condition of Sites within the Study Area (cont)**

Item	Complex	Resource	Condition	Integrity
8a	The site of the former Hillview homestead	Two former Hillview homestead sites were once on this site. The more recent home was burnt to the ground prior to 2001 and the older home appears to have been removed [building materials appear to have been scavenged] since 2001. Both houses were extant in aerial photography dating to 1958). Apart from some of the original gardens there is no remaining footprint of either structure.	None	None
8b	The site of the former Hillview homestead	Sheds (shearing, milking and maintenance) near the former Hillview homesteads.	Substantially Intact	Minor Modification
8c	The site of the former Hillview homestead	Yards and fences near the former Hillview homesteads.	Substantially Intact	Minor Modification
9	Great Northern Road	Historical records and aerial photographs indicate that the remains of a dirt track that is identified as the Great Northern Road is within the study area.	Ruin	Major Modification

#### 4.4 Summary of Significance

The study 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 early 1900s, the beginning of the dairying industry in Ravensworth Estate. These patterns and activities include:

- dairy farming and grazing; and
- mixed farming or limited cropping, including the growing of lucerne on the river flats or small orchards associated with farm sites.

Individual structures are of local historical and aesthetic significance in being representative of various forms of building construction over time. These include:

- evolution of dairy construction;
- use of local materials/timber to make yards, bridges and fences; and
- the construction methods of vernacular farm sheds.

The area is capable of yielding information regarding the social and cultural history of the place.

One of the sheds near the ruins of the former Marali Homestead (Item.7e) has been constructed from scavenged slabs that appear to be hand made as well as some chain saw cut slabs. The form of construction appears relatively common in the area. The buildings are representative of simple, crudely build sheds built commonly in the Hunter Valley in the latter part of the 19th century to early twentieth century as settlers with little capital took advantage of the newly-constructed Great Northern Railway and later with the subdivision of the Ravensworth Estate's grazing lands in the early twentieth century to assist with Soldier Settlement Schemes and to introduce dairying/mixed farming into the area changing from the earlier sheep grazing history in the study area. The remaining physical features of the study area are of local historical significance as evidence of the establishment of these industries in the area. They do not date from, nor do they form part of, the early (1800-1890) European settlement pattern of the area. Therefore, those 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 and mixed farmers in the area and perhaps of prebuilt farms by FL Measures to attract the sale of the subdivided Ravensworth Estate to prospective buyers.

The Great Northern Road (which is a dirt track) can not provide any further information, than by its presence as the road was never formally constructed. The recording of the remains of the road when plotted in relation to Mitchell's surveyed plan could provide some information about the differences between historical plans and the reality of road alignment.

**Table 4.3** provides a summary of the significance ratings of all historical heritage resources within the study area and the justifications for the rating. All sites identified were of local significance and no sites were assessed as having State significance. **Table 4.3** also provides a list of NSW Heritage Office standard criteria for heritage significance which are met by these sites.

**Table 4.3 - Significance Ratings of Resources within the study area**

<b>Heritage Significance Rating</b>	<b>Item (Resources are grouped into complexes if appropriate)</b>	<b>NSW Heritage Office Standard Criteria Met</b>	<b>Justification for Heritage Status</b>
Local historical significance*	Wooden bridge across Swamp Creek (Item 1)	(a), (f)	Demonstrates local vernacular construction.
Local historical significance*	Tree stump bearing a surveyors mark (Item 2)	(a), (f)	Tree is an early surveyor's marker but it is not a recent boundary marker making it predate Lands Department Records for the locality.
Local historical significance*	Timber Yards (Item 3)	(a), (f)	Demonstrates local vernacular construction.
Local historical and social significance*	Unidentified Potential Dairy Site (Item 4a to 4d)	(a), (d), (f), (g)	Demonstrates local vernacular construction and the
Local historical significance*	Remains of a corduroy road (Item 5)	(a), (f)	Demonstrates local vernacular construction.
Local historical and social significance*	Unidentified Ruined homestead (Item 6a to 6l)	(a), (d), (f), (g)	Ruins which are evidence of local vernacular construction.
Local historical and social significance*	Ruins of the former Marali homestead (Items 7a to 7i)	(a), (d), (f), (g)	Ruins and associated bridges, sheds and yards which demonstrate local vernacular construction.
Local historical and social significance*	The site of the former Hillview homestead (Items 8a to 8c)	(a), (d), (f), (g)	Ruins and associated sheds and yards which demonstrate local vernacular construction.
Local historical, social and rare significance	Great Northern Road (Item 9)	(a), (d), (f), (g)	The road was surveyed in 1835 by Mitchell, although never properly constructed; the track is the remains of a very early road in the locality and region.

\*These items only meet Criterion (f) for being 'endangered'. These items are threatened in the immediate locality by mining developments but are not rare in the region.

#### **4.4.1 Archaeological Potential within the study area**

The unidentified dairy site, the ruins of the former Marali homestead, the site of the former Hillview homesteads and the ruins of the unidentified homestead are all examples of early twentieth century domestic farmsteads. They are not indicative of the earliest European settlement in the locality, which dates 1820 to 1890. Due to the passage of time, disturbance by removal of material by landowners, these sites have substantially degraded. Sub-surface investigation may provide further information regarding domestic life on a farm in the locality from 1911 to 1970s. However, it is assessed that subsurface investigation will not answer any research questions regarding the history of the locality not already well documented in the historical record and in the archaeological investigations already undertaken on similar sites on adjoining lands that were also once part of the Ravensworth Estate (Umwelt 2006, ERM Mitchell McCotter 1999) and have a similar history of occupation. Therefore, their significance for archaeological research value is assessed as limited.

These sites are not listed on the Singleton Local Environmental Plan, as historical heritage sites worthy of local listing, they have been in most cases been destroyed in the late twentieth century and do not have continued social connections with the families that once occupied them. Their archaeological potential to provide a social history, or offset to the Singleton community through further excavation and reporting is therefore lessened as they are assessed as having limited social value to the community and subsurface investigation is therefore not considered warranted. No other sites/locations were identified that contained archaeological potential for historical heritage within the study area.

## 5.0 Heritage Impact Statement

The purpose of this section is to provide a heritage impact statement, which specifies all impacts to heritage sites identified within the study area. A detailed project description was provided in **Section 1.2**.

### 5.1 Potential Impacts on Historical Heritage

The revised conceptual plan for the proposed open cut mine and all associated infrastructure is shown on **Figure 5.1**. The proposed modifications include:

- open cut mining area;
- proposed overburden emplacement area;
- infrastructure area; and
- minewater staging dam.

The proposed open cut mine will involve the following activities:

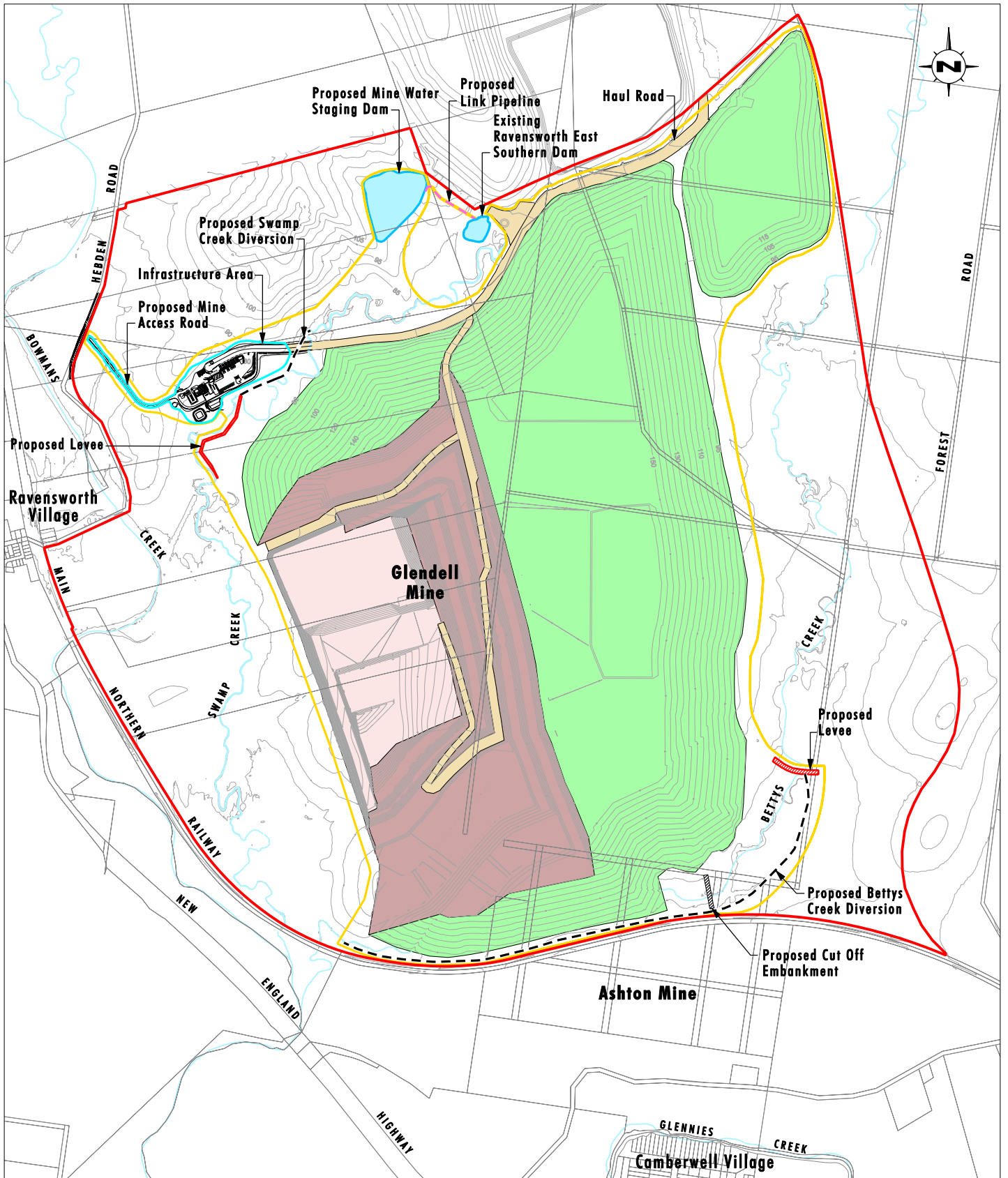
- land clearing and topsoil removal completed in advance of mining;
- bulk overburden fragmented using drill and blast methods;
- relocating the mine access road;
- relocating and rationalisation of site infrastructure;
- constructing a mine water transfer dam; and
- undertake mining through the use of excavator and truck operations.

Impacts also include proposed diversions to Swamp Creek and Bettys Creek for the proposed mining modifications.

### 5.2 Summary of Potential Impacts

All historical heritage sites within the approved disturbance area will be destroyed by open cut mining and/or associated infrastructure. Vibration from blasting will not (indirectly) adversely affect adjoining lands as the blast design ensures that no items/structures/residences/landscape features will be impacted outside the study area. Vibration may only impact certain structures and items within the mine site (i.e. within the study area). This may impact to varying degrees depending on the physical integrity of the existing structure and its proximity to proposed blasting.

Potential blasting impact is being modelled by an appropriately qualified vibration consultant (Heggies, 2007). Sites that will be potentially impacted are outlined in **Table 5.1**. The assessment provided in **Table 5.1** is considered a worst case scenario and therefore provides a conservative assessment of historical heritage impacts. As blast modelling is refined, it is likely that any potential blast impacts within the current study boundary will be reduced in area.



Source: Xstrata Mt Owen 2007  
Note: Contour Interval 5m

0 0.5 1.0 1.5km  
1:25 000

**Legend**

- Glendell Mine Site
- Proposed Disturbance Area
- Glendell Infrastructure Area
- Active Mining Area
- Haul Road
- Unshaped Overburden Area
- Rehabilitation Area
- - - Creek Diversion
- Creek
- - - Link Pipeline

**FIGURE 5.1**

**Conceptual Mine Layout  
Year 12**

Blasting may also have some indirect impact through dust on adjoining lands. 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. Vibration is only likely to impact standing structures and will not have any further detrimental impact on features that are already ruined (refer to **Table 5.1**).

### 5.3 Heritage Impact Statement

**Table 5.1** provides a succinct statement concerning the proposed impact on the heritage sites within the study area.

**Table 5.1 - Heritage Impact Statement**

Heritage Significance Rating	Item/Site	Heritage Impact Statement
Local historical significance	Wooden bridge across Swamp Creek (Item 1)	This item is within the mine site but outside the proposed disturbance area. It may be indirectly impacted by the effects of blasting.
Local historical significance	Tree stump bearing a surveyors mark (Item 2)	This item is within the proposed disturbance area and will be directly impacted by the proposal.
Local historical significance	Timber Yards (Item 3)	This item is within the proposed disturbance area and will be directly impacted by the proposal.
Local historical and social significance	Unidentified Potential Dairy Site (Item 4a to 4d)	This item is within the mine site but outside the proposed disturbance area. It is in very poor condition and has little integrity and it is unlikely that it will indirectly impacted by the effects of blasting.
Local historical significance	Remains of a corduroy road (Item 5)	This item is within the mine site but outside the proposed disturbance area. As this feature is in situ, it is unlikely that it will be indirectly impacted by the effects of blasting.
Local historical and social significance	Unidentified Ruined homestead (Item 6a to 6l)	This item is within the proposed disturbance area and will be directly impacted by the proposal.
Local historical and social significance	Ruins of the Former Marali homestead (Item 7a to 7i)	This item is within the mine site but outside the proposed disturbance area. Only the remains of the footbridge, the sheds, yards, bridge and other associated structural features (Items 7b to 7i) may be indirectly impacted by the effects of blasting.
Local historical and social significance	The site of the former Hillview homestead (Item 8a to 8c)	This item is within the mine site but outside the proposed disturbance area. The sheds and yards (Items 8b and 8c) only may be indirectly impacted by the effects of blasting.
Local historical, social and rare significance	Great Northern Road (Item 9)	This item is within the proposed disturbance area and will be directly impacted by the proposal.

#### 5.3.1 Discussion of Impacts 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 predicted impacts of the project. 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 site 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 purpose of this section is to assess the study area against these questions and provide management recommendations to mitigate against the proposed and potential impacts.

- **To enhance the heritage significance of the area**

The following recommendations are made for mitigation of proposed disturbance:

- i) **Accurate Recording.** A number of heritage items/sites (listed in **Table 5.1**) record the pattern of settlement; demonstrating the social and economic development of the area from the early twentieth to the mid to late twentieth century. The numerous ruins and partially ruined structures are capable of yielding further information about these developments and the pattern of settlement during this time. Accurate recording of these sites prior to the commencement of mining 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 standing structures such as the sheds, particularly where there is evidence that the structure was of slab construction, even though this construction is likely to be circa twentieth century.

Recommendations:

- Archival recording for all sites listed in **Table 5.1** of local significance that will be impacted by the project. The recording will be to the standard set out in the NSW Heritage Office Guidelines for photographic records and archival recording.
- **The proposal has a detrimental impact on the heritage significance.**

The detrimental impact of operations within the study area is inevitable. Within the study area, the key potential detrimental impacts are vibration from blasting and the effect of dust.

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 within the mine site and for preventative measures to be taken.

Recommendation:

It is understood that XMO has committed to a blasting strategy that will have no vibration impacts to structures/features outside the mine site including listed items such as Ravensworth Homestead, Ravensworth Public School and the Former

Church, Ravensworth (refer to **Section 3.2**). All items that are within the mine site that are susceptible to blasting impacts should be archivally recorded by a qualified heritage consultant prior to the commencement of proposed blasting (refer to **Table 4.2**).

- **Other sympathetic solutions have been considered and discounted.**

The solutions considered above are assessed as constituting the best heritage outcomes for the significant buildings listed in **Table 5.1**. More detailed management recommendations for individual sites are provided in **Section 6**.

Retention of heritage items/sites 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:

- iv) As above, the context of an overall historical pattern of development would be lost.
- v) Relocation of a number of the ruins is not viable in view of their lack of physical integrity.
- vi) 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 sites within the study area.

### 6.1 Management Strategy for Heritage Areas and Sites within the Study Area

**Table 6.1** provides a management strategy for heritage sites located within the study area, appropriate to their level of significance as determined as part of this assessment. All archival recordings necessary for heritage sites discussed in **Table 6.1** should follow the standards outlined by the NSW Heritage Office. All archival recordings will be part of one detailed report which will provide a record of settlement history of the Ravensworth Estate from the early twentieth century to present day as shown in the remains of these heritage sites/items. The management strategy is tailored for items within sites dependent on their definition as relics, structures or works.

**Table 6.1 - Management Strategy for Heritage Sites within the Study Area**

<b>Significance Rating</b>	<b>Heritage Site</b>	<b>Management Strategy</b>
Local	Wooden bridge across Swamp Creek (Item 1)	This site is outside the proposed disturbance area but within the mine site. The site should be fenced off, protected and conserved. At the present time, this site may be impacted by proposed blasting. As this item is potentially affected by vibration from blasting, a detailed recording of the structure and associated features to the NSW Heritage Office's standard for archival recordings of local heritage significance will be completed by a qualified heritage consultant. As this item is a work and not a relic, it is not protected by Section 139 of the <i>NSW Heritage Act, 1977</i> and a Section 140 permit is not a requirement.
Local	Tree stump bearing a surveyors mark (Item 2)	The tree stump bearing a surveyors mark is within the proposed disturbance area. Archival recording of the tree stump will be undertaken prior to commencement of mining, to the NSW Heritage Office's standards of local significance. As this surveyor's mark is a work and not a relic, it is not protected by Section 139 of the <i>NSW Heritage Act, 1977</i> and a Section 140 permit is not a requirement.
Local	Timber Yards (Item 3)	This site is within the proposed disturbance area. Archival recording of these yards will be undertaken prior to commencement of mining to the NSW Heritage Office's standards of local significance. As this item is a structure and not a relic, it is not protected by Section 139 of the <i>NSW Heritage Act, 1977</i> and a Section 140 permit is not a requirement.
Local	Unidentified Potential Dairy Site (Item 4a to 4d)	This site is outside the proposed disturbance area but within the mine site. The site should be fenced off, protected and conserved. As the site is a ruin, it will not be impacted by proposed blasting. The site has evidence of European occupation that is over fifty years old. Therefore, it is protected by the relics provisions of Section 139 of the <i>NSW Heritage Act, 1977</i> .  As this site has no archaeological research potential and its land use history is well documented in the historical record, any future change in impacts would need endorsement by the NSW Heritage Office under an exception application. This site has no structural features which are susceptible to vibration from proposed blasting impacts.
Local	Remains of a corduroy road (Item 5)	This site is outside the proposed disturbance area but within the mine site. The site should be fenced off, protected and conserved. This site will not be impacted by proposed blasting as it is not a structural feature. As this item is a work and not a relic, it is not protected by Section 139 of the <i>NSW Heritage Act, 1977</i> and a Section 140 permit is not a requirement.

**Table 6.1 - Management Strategy for Heritage Sites within the Study Area (cont)**

Significance Rating	Heritage Site	Management Strategy
Local	Unidentified Ruined homestead (Item 6a to 6l)	<p>This site is within the proposed disturbance area. The site has evidence of European occupation that is over fifty years old, which include Items 6a to 6g and 6i to 6k that are protected by the relics provisions of Section 139 of the <i>NSW Heritage Act, 1977</i>. As this site has no archaeological research potential and its land use history is well documented in the historical record, an application for an exception to the <i>NSW Heritage Act, 1977</i> will be submitted to the NSW Heritage Office for their approval with a copy of this assessment. The exception application will be prepared by a qualified heritage consultant.</p> <p>Prior to the commencement of mining impacts, a detailed recording of this site and associated structural features 6h and 6l to the NSW Heritage Office's standard for archival recordings of local heritage significance will be completed by a qualified heritage consultant, after the endorsement of an exception application for Items 6a to 6g and 6i to 6k by the NSW Heritage Office. As Item 6h and 6l are structural features and not a relic, they are not protected by Section 139 of the <i>NSW Heritage Act, 1977</i> and a Section 140 permit is not a requirement.</p>
Local	Ruins of the Former Marali homestead (Items 7a to 7i)	<p>This site is outside the proposed disturbance area but within the mine site. Items 7b to 7i will be fenced off, protected and conserved. At the present time, Items 7b to 7i are structural features that may be impacted by proposed blasting. As Items 7b to 7i are potentially affected by vibration from blasting, a detailed recording of these features to the NSW Heritage Office's standard for archival recordings of local heritage significance needs to be completed by a qualified heritage consultant. As Item 7b and 7i are structural features and in some case works and are not relics, they are not protected by Section 139 of the <i>NSW Heritage Act, 1977</i> and a Section 140 permit is not a requirement.</p> <p>Item 7a should be fenced off, protected and conserved. As Item 7a is the ruined structural remains and archaeological evidence of the former Marali homestead, it will not be impacted by proposed blasting. Item 7a is evidence of European occupation that is over fifty years old. Therefore, it is protected by the relics provisions of Section 139 of the <i>NSW Heritage Act, 1977</i>. As Item 7a has no archaeological research potential and its land use history is well documented in the historical record, any future change in impacts would need endorsement by the NSW Heritage Office under an exception application.</p>
Local	The site of the former Hillview homestead (Items 8a to 8c)	<p>This site is outside the proposed disturbance area but within the mine site. The site should continue to have access controlled and Items b and c should continue to be protected and conserved.</p> <p>Items 8b and 8c are structural features that may be impacted by proposed blasting. As Items 8b to 8c are potentially affected by vibration from blasting, a detailed recording of these features to the NSW Heritage Office's standard for archival recordings of local heritage significance will be completed by a qualified heritage consultant.</p> <p>As Items 8b and 8c are standing structures and not relics, they are not protected by the relics provisions of <i>Section 139 of the NSW Heritage Act, 1977</i>. Item 8a is the site of the ruined Hillview homesteads, which has been salvaged and contains no evidence of the former homesteads or their occupation apart from some of the original gardens. Therefore, neither a Section 140 permit nor an exception application is a requirement for any proposed impact.</p>

**Table 6.1 - Management Strategy for Heritage Sites within the Study Area (cont)**

Significance Rating	Heritage Site	Management Strategy
Local	Great Northern Road (Item 9)	The remains of the dirt track are within the proposed disturbance area. Archival recording of the remains of the road will be undertaken prior to commencement of mining to the NSW Heritage Office's standards of local significance. As this item is a work and not a relic, it is not protected by Section 139 of the <i>NSW Heritage Act, 1977</i> and a Section 140 permit is not a requirement.

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