

Broken Hill Operations Pty Ltd

Rasp Mine  
*Heritage Impact Assessment*

November 2007

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*Environmental Resources Management Australia Pty Ltd Quality System*

This report was prepared in accordance with the scope of services set out in the contract between Environmental Resources Management Australia Pty Ltd ABN 12 002 773 248 (ERM) and the Client. To the best of our knowledge, the proposal presented herein accurately reflects the Client's intentions when the report was printed. However, the application of conditions of approval or impacts of unanticipated future events could modify the outcomes described in this document. In preparing the report, ERM used data, surveys, analyses, designs, plans and other information provided by the individuals and organisations referenced herein. While checks were undertaken to ensure that such materials were the correct and current versions of the materials provided, except as otherwise stated, ERM did not independently verify the accuracy or completeness of these information sources

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**1.1****BACKGROUND**

Broken Hill Operations Pty Ltd (BHOP) seeks project approval for mining and associated activities at Rasp Mine (the 'Project'), in Broken Hill, New South Wales (NSW), under Part 3A of the *Environmental Planning and Assessment Act, 1979*. Environmental Resources Management Australia Pty Ltd (ERM) has been engaged by BHOP to prepare this heritage impact assessment, to form part of the application to gain project approval.

There are several Heritage items located on the Rasp Mine site and within the vicinity of the proposed area of operations. This assessment considers the potential impact of the Project upon these heritage items and recommends measures to be implemented to address potential impacts.

**1.2****SITE LOCATION**

Rasp Mine is located on Consolidated Mining Lease 7 (CML 7) at Broken Hill in the Far West region of NSW, approximately 1150 kilometres (km) west of Sydney and 300 km north of Mildura. It is wholly within the local government area of Broken Hill. The mine is accessed from Eyre St and is located centrally within the city of Broken Hill. It is surrounded by transport infrastructure and areas of urban and industrial development. The location of Rasp Mine in its regional and local settings is shown respectively in *Figures 1.1 and 1.2*.

The Project Area is shown in *Figure 1.2*. It comprises CML 7 and some additional parcels of land adjacent to Eyre Street, which incorporate the site offices and the site access road.

**1.3****METHODOLOGY**

Preparation of this assessment has included the following:

- a review of site specific background information;
- a review of the legislative and regulatory framework relevant to the Project;

- a review of the Broken Hill Local Environment Plan (LEP) 1996 and database searches of the State Heritage Inventory, National Heritage List, Commonwealth Heritage List, National Trust Register and Industrial Archaeology List to identify heritage listed items within the Project Area;
- a site inspection, conducted 5 July 2007, to gain an understanding of how the site will function, physical state of heritage buildings/ items and the potential impacts that may arise, and photograph key site elements;
- a review of the heritage significance assessment contained in the Austral Archaeology (2000) Cultural Management Plan for the site and inclusion of relevant information in this report;
- analysis of the project design to identify potential heritage impacts that may arise, based on the assessed heritage values of the site;
- preparation of a heritage impact assessment; and
- development of mitigation measures to ensure that the potential heritage impacts are appropriately managed.

#### 1.4

#### **REPORT STRUCTURE**

This report is structured as follows:

*Chapter 2* outlines the heritage context and statutory framework relevant to this assessment;

*Chapter 3* provides an overview of the history of the study area;

*Chapter 4* provides a physical description of the previously identified heritage items located in the vicinity of the proposed area of operations;

*Chapter 5* provides the assessment of heritage significance;

*Chapter 6* briefly outlines relevant aspects of the Project;

*Chapter 7* provides impact analysis and impact minimisation measures; and

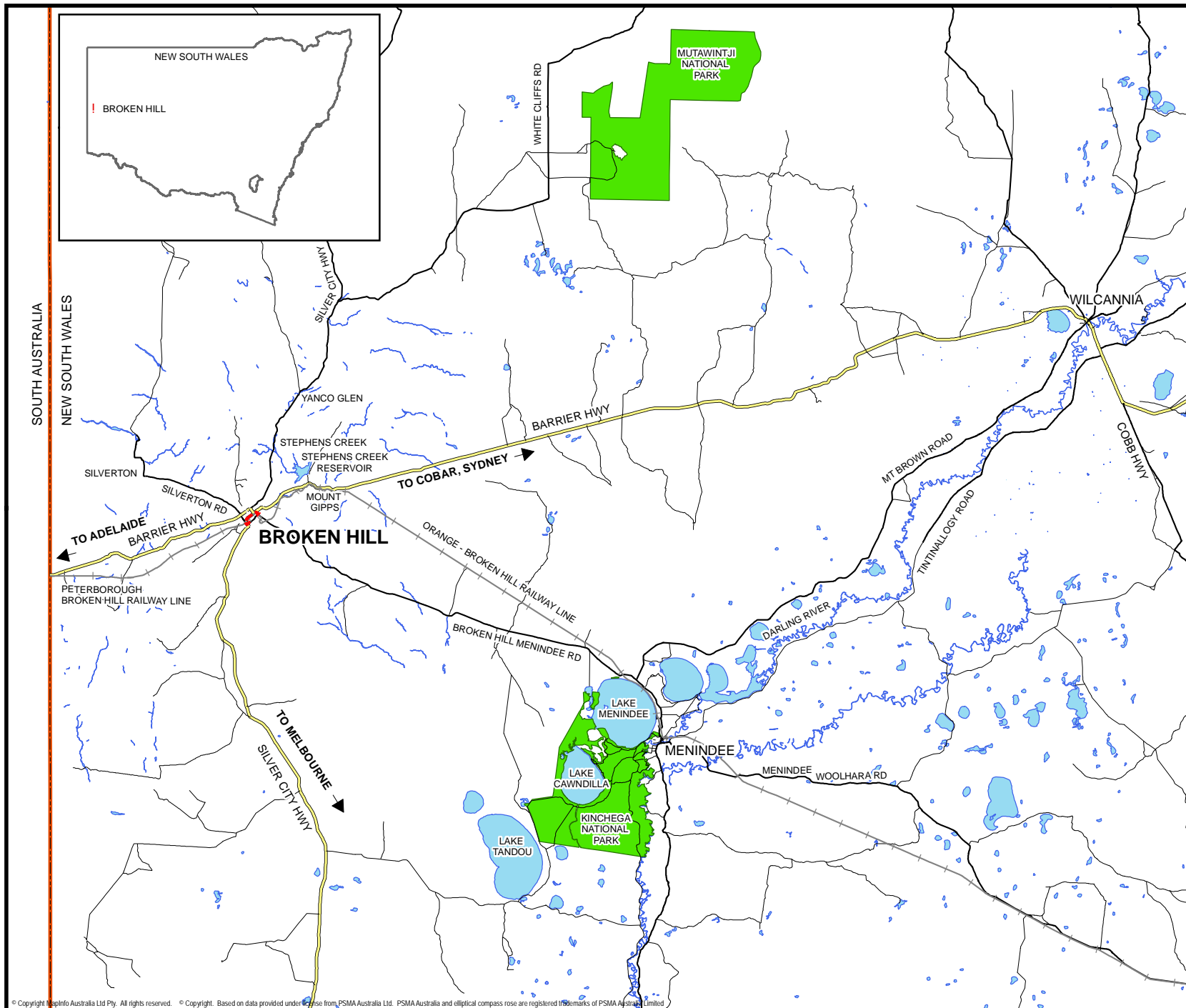
*Chapter 8* presents concluding statements and summarises the recommendations of this report.

## 1.5

### *AUTHORSHIP*

Louise Doherty conducted the site inspection and authored this report. Shelley James (ERM Senior Heritage Consultant) completed the technical review of the report.

All photographs included within *Chapter 4* were taken by the author, Louise Doherty, on 5 July 2007.

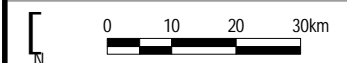


Legend

— Rasp Mine/CML 7 Boundary

**Figure 1.1**  
**Regional Location of Site**

Client:	Broken Hill Operations Pty Ltd		
Project:	Rasp Mine Environmental Assessment		
Drawing No:	0063850s_EA_GIS01_R2	Suffix No:	-
Date:	05/11/2007	Drawing size:	A4
Drawn by:	DH	Reviewed by:	JK
Source:	MapInfo Australia Pty Ltd		
Scale:	Refer to Scale Bar		







Legend  
 - - Rasp Mine/CML 7 Boundary  
 — Project Area

**Figure 1.2**  
**Aerial Photograph of Site and Surrounding Area**

Client:	Broken Hill Operations Pty Ltd		
Project:	Rasp Mine Environmental Assessment		
Drawing No:	0063850s_EA_GIS02_R2	Suffix No:	-
Date:	27/08/2007	Drawing size:	A4
Drawn by:	DH	Reviewed by:	JK
Source:	Aerial: Dept of Lands NSW		
Scale:	Refer to Scale Bar		







## 2.1 GENERAL OVERVIEW

This Chapter outlines the various statutory requirements and considerations which relate to cultural heritage, including those from Broken Hill City Council, and advisory heritage bodies. It includes the results of searches of heritage lists and registers for heritage items in the vicinity of the proposed area of operations. A number of these lists and registers include items and places associated with the mining history of Broken Hill, several of which are within the Project Area. The statutory framework and identified heritage items have influenced the formulation of the impact assessment and development of mitigation measures.

## 2.2 NSW HERITAGE ACT 1977

Non-Indigenous cultural heritage in NSW is protected by the *Heritage Act 1977* (Heritage Act). The Heritage Act aims to conserve the *environmental heritage* of the state, which is defined as the '*buildings, works, relics or places of historic, scientific, cultural, social, archaeological, natural, or aesthetic significance for the State*'.

Under Part 3, 24 (1) of the 1977 NSW Heritage Act, the Minister can make an interim heritage order for items of state or local heritage significance for a place, building, work, relic, moveable object that the Minister considers may, on further inquiry or investigation, be found to be of State or local heritage significance.

Under the definition the term relic applies to deposits, objects or material evidence, which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and *which is 50 or more years old*.

Heritage items requiring protection under the Heritage Act are listed on the NSW State Heritage Register. A search of the State Heritage Register conducted as part this assessment did not identify any items or places recorded within the Project Area.

## 2.3 THE STATE HERITAGE INVENTORY

The State Heritage Inventory is a database which is maintained by the NSW Department of Planning – Heritage Office (Heritage Office). It includes all heritage items and places identified by local government bodies in NSW, as well as those listed on the State Heritage Register as requiring the permission of the Heritage Council, or the Minister before any form of development with potential to impact upon them can proceed.

A search of the State Heritage Inventory conducted as part of this assessment did not identify any items or places recorded within the Project Area.

## 2.4 BROKEN HILL CITY COUNCIL LOCAL ENVIRONMENTAL PLAN 1996

There are over 60 items within the Project Area that are listed as heritage items under Schedule 1 of the LEP 1996. However only 27 of these items are within the vicinity of the proposed area of operations. These items are identified in *Table 2.1* and their locations are shown on *Figure 2.1*. Seven other items (Items 203, 297 and 299 – 303) are indicated in *Figure 2.1* which are not listed in *Table 2.1* and are not discussed further in this report. These seven items are considered to be of sufficient distance from the proposed area of operations that they are unlikely to be exposed to potential impacts.

The following provisions from Part 4 of the LEP 1996, relating to heritage, are applicable to this Project:

### 19 Protection of Heritage Items and Relics

- (1) *The following development may be carried out only with development consent:*
  - (a) *demolishing, defacing, damaging or moving a heritage item, or*
  - (b) *altering a heritage item by making structural changes to its exterior, or*
  - (c) *altering a heritage item by making non-structural changes to the detail, fabric, finish or appearance of its exterior, except changes resulting from any maintenance necessary for its ongoing protective care which does not adversely affect its heritage significance, or*
  - (d) *moving a relic, or excavating land for the purpose of discovering, exposing or moving a relic, or*
  - (e) *erecting a building on, or subdividing, land on which a heritage item is located.*



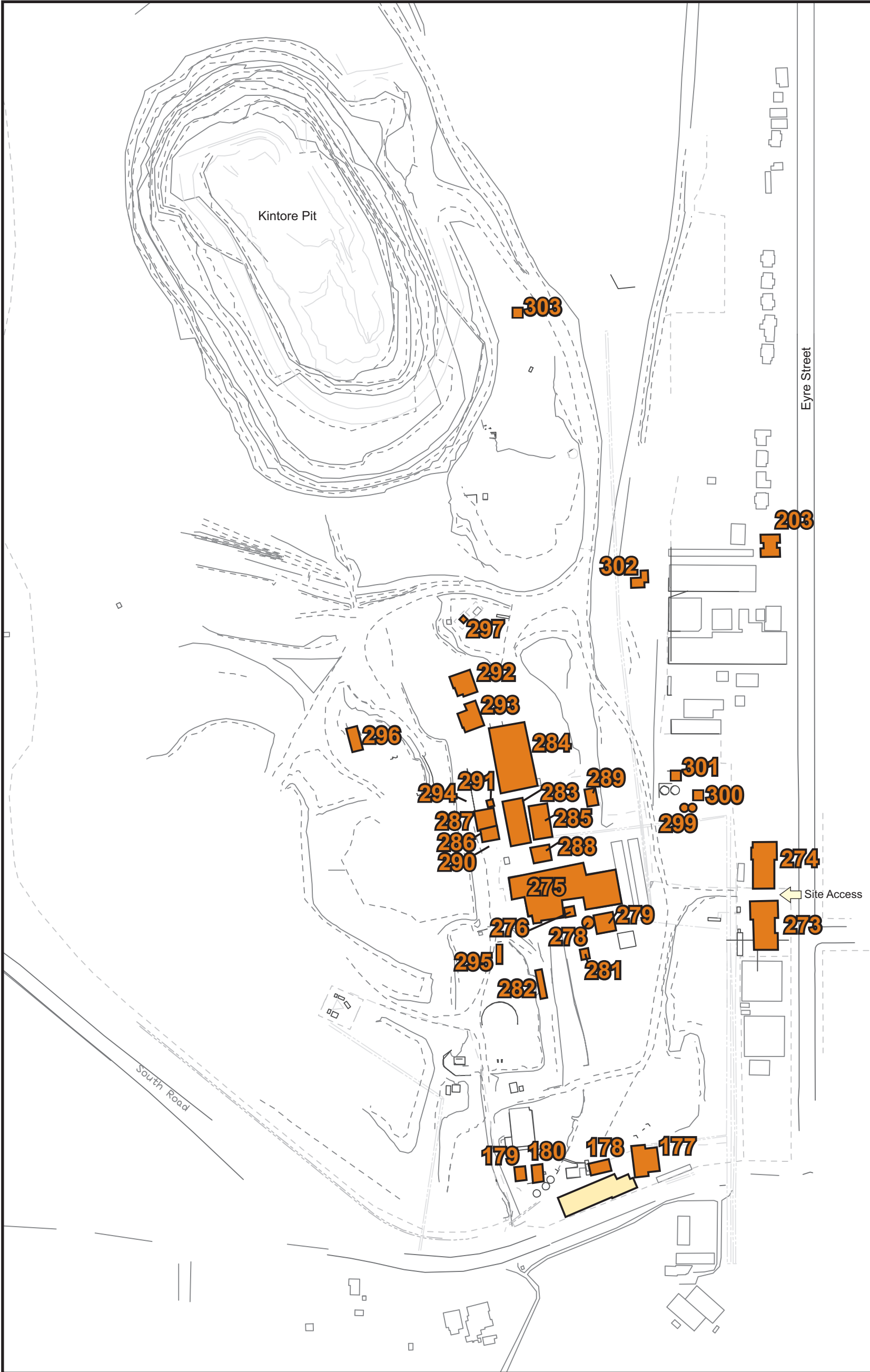
- (2) *Development consent is not required by this clause if the Council is of the opinion that the proposed development would not adversely affect the heritage significance of the heritage item.*
- (3) *When determining a development application required by this clause, the Council must take into consideration the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item.*

**20 *Development in the vicinity of heritage items, heritage conservation areas, archaeological sites or potential archaeological sites***

*The Council must take into consideration the likely effect of the proposed development on the heritage significance of a heritage item, heritage conservation area, archaeological site or potential archaeological site, and on its setting, when determining an application for consent to carry out development on land in its vicinity.*

**Table 2.1** *Heritage Items within the Project Area that are listed on Schedule 1 of Broken Hill LEP 1996 and located in the vicinity of the proposed area of operations*

Item Name	Inventory Number	Mine/lease area <sup>1</sup>
No. 7 Winding House	177	MMM Lease
No. 7 Headframe	178	MMM Lease
Winding House & Motor, No. 4 Shaft	179	MMM Lease
Headframe No. 4 Shaft	180	MMM Lease, South Road
General Offices	273	(MMM) & Freehold
Radford House	274	(Eyre Street) Freehold
Broken Hill South Mill	275	South Mine, Mine Lease 8
General Store Office	276	South Mine, Mine Lease 8
Water Tower	278	South Mine, Mine Lease 7, 8
Reagent Shed	279	South Mine, Mine Lease 7
Pump house	281	South Mine, Mine Lease 7
Mullock Bin	282	South Mine, Mine Lease 7
Electrical Workshop	283	South Mine, Mine Lease
Mechanical Workshop (Old General Workshop)	284	South Mine, Mine Lease 8
Change house	285	South Mine, Mine Lease 8
Riggers Shop	286	South Mine, Mine Lease 8
Compressor Room (Old Power House)	287	South Mine, Mine Lease 8
Carpenter's Paint Shop (Old Winders house)	288	South Mine, Mine Lease 8
Pump house & Cooling Water Reservoir	289	South Mine, Mine Lease 8
Two Water Tanks	290	South Mine, Mine Lease 8
Yardman's Office	291	South Mine, Mine Lease 8
Pattern Store (Carpenter's Shop)	292	South Mine Lease, Mine Lease 8
Saw Mill & Extension	293	South Mine Lease
Coal Bins	294	South Mine, Mine Lease 8
Weighbridge Foundations	295	South Mine, Mine Lease 8
Sand Plant	296	South Mine, Mine Lease 8
1. MMM Lease, South Mine Lease and South Mine Mine Leases 7 and 8 form part of the present day CML 7.		



- Heritage Listed Items**
- 177 - No 7 Winding House
  - 178 - No 8 Headframe
  - 179 - Winding House & Motor, No 4 Shaft
  - 180 - Headframe, No 4 Shaft
  - 203 - Central Mine Assay Office
  - 273 - General Offices
  - 274 - Radford House
  - 275 - Broken Hill South Mill
  - 276 - General Store Office
  - 278 - Water Tower
  - 279 - Reagent Shed
  - 281 - Pumphouse
  - 282 - Mullock Bin
  - 283 - Electrical Workshop
  - 284 - Mechanical Workshop (Old General Workshop)
  - 285 - Changehouse
  - 286 - Riggers Shop
  - 287 - Compressor Room (Old Power House)
  - 288 - Carpenter's Paint Shop (Old Windershouse)
  - 289 - Pumphouse & Cooling Water Reservoir
  - 290 - Two Water Tanks
  - 291 - Yardman's Office
  - 292 - Pattern Store (Carpenter's Shop)
  - 293 - Saw Mill & Extension
  - 294 - Coal Bins
  - 295 - Weighbridge Foundations
  - 296 - Sand Plant
  - 297 - Number 6 Shaft Vent Fan
  - 299 - Two Water Tanks and a Stone Foundation
  - 300 - Square Concrete Foundation
  - 301 - Tankstand
  - 302 - Fire & Ambulance Station
  - 303 - Brick Pier Foundations

**Legend**

- Heritage Listed Item
- Underground Office Building (Potential Heritage Value)

Client:	Broken Hill Operations Pty Ltd		
Project:	Rasp Mine Environmental Assessment		
Drawing No:	0063850s_EAR_H_01		
Date:	02/08/2007	Drawing size:	A3
Drawn by:	GC	Reviewed by:	-
Source:	-		
Scale:	Not to Scale		



**Figure 2.1**  
**Location of Heritage Listed Items**

Environmental Resources Management Australia Pty Ltd  
Building C, 33 Saunders St, Pyrmont, NSW 2009  
Telephone +61 2 8584 8888





## 2.5

### **THE REGISTER OF THE NATIONAL ESTATE AND NATIONAL AND COMMONWEALTH HERITAGE LISTS**

From 1 January 2004 the Register of the National Estate (RNE) became a non-statutory list, by way of amendment to the *Environmental Protection and Biodiversity Conservation Act 1999*. This amendment included the creation of the National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

The NHL includes places that are considered to have outstanding heritage values to the nation and are in any form of public or private ownership. The CHL includes any Commonwealth owned, managed or leased properties that are considered to have significant heritage values. No part or aspects of the site are listed on the NHL or the CHL.

Whilst listing on the RNE no longer has any formal role in the management of commonwealth owned heritage places and carries no statutory authority for non-commonwealth owned heritage places, it is considered to be a guide to the significance of particular items. The Line of Lode (identified to include land within CML 7) and the Kintore Shaft, located within CML 7, are each listed on the RNE as a Registered Historic place and item.

## 2.6

### **THE NSW NATIONAL TRUST REGISTER AND INDUSTRIAL ARCHAEOLOGY SITES LIST**

The Kintore Shaft Group comprising of the No. 4 Winding Shaft and Poppet Head (Headframe), and the No. 7 Shaft Winding House and Poppet Head are *classified* items on the NSW National Trust Register.

The inclusion of a site on the register indicates that it has heritage significance and as such should be protected *to encourage and promote public appreciation, knowledge and enjoyment and of future generations as a valuable resource*. The National Trust Register has no legal status, but is recognised as an authoritative statement on the significance of particular items, and is held in high esteem by the public. The National Trust also has an advocacy role, regularly lobbying all levels of government regarding sensitive heritage issues for communities across the state.

Broken Hill South Mine, Kintore Shaft Group (South Broken Hill No. 4 Shaft and Poppet Head and No. 7 Shaft Winding House and Poppet Head), Original BHP Mine (Delprats Mine) and North Broken Hill Pty Ltd mine remains are identified on the NSW National Trust Industrial Archaeology Sites List (Country), which is a sub group of the NSW National Trust Register. This list was compiled in the 1980s to identify areas/ items which had not been subject to heritage investigation, however were considered to have potential heritage significance related to the industrial history of NSW. Whilst it has no legal

implications, listing of several items/ areas that are located within the Project Area provides an indication of the overall industrial heritage significance of the site.

## 2.7

### SUMMARY

A review of the heritage status of the Project Area has revealed the following key points:

- there are no items or places associated with the Project Area recorded on the State Heritage Register, the National Heritage List or the Commonwealth Heritage List;
- Schedule 1 of the Broken Hill Local Environment Plan 1996 identifies 26 individual heritage items within the Project Area in the vicinity of the proposed area of operations;
- the Line of Lode and the Kintore Shaft are listed on the Register of National Estate;
- No. 4 and No. 7 Shaft Winding Houses and Poppet Heads are *classified* items on the NSW National Trust Register;
- the NSW National Trust Industrial Archaeology Sites List identifies the following items within CML 7 as of significance for the industrial history of NSW:
  - Broken Hill South Mine;
  - Kintore Shaft Group (South Broken Hill No. 4 Shaft and Poppet Head and No. 7 Shaft Winding House and Poppet Head);
  - Original BHP Mine (Delprats Mine); and
  - North Broken Hill Pty Ltd mine remains.

The mining heritage of the City of Broken Hill is reflected in a range of statutory and non-statutory listings of individual heritage items, a number of which are located within the Project Area. This highlights the heritage importance of the site.

## 3.1

## INTRODUCTION

Broken Hill has been one of the most significant world production centres of silver, lead, and zinc since the late 19<sup>th</sup> century. Silver, lead and zinc deposits were discovered at Broken Hill by Charles Rasp in 1883 and have been mined almost continuously since that time, leading to Broken Hill's reputation as a significant historic mining city. This has included mining and carrying out of mining-related activities within the bounds of the present day CML 7 since the 1880s, at several former mines, namely Junction Mine, British Mine, Block 14 Mine, BHP Mine, Block 10 Mine, Central Mine and South Mine. A substantial proportion of the early mining infrastructure is retained *in situ*, also identifying the city as a significant industrial heritage site and tourist centre.

The significant and dominant mining feature of Broken Hill is the Line of Lode which extends along a roughly north-south alignment for approximately 7.5 km and divides the City into two distinct areas, Broken Hill and Broken Hill South. The Hill itself has been mined so extensively that it no longer exists. However according to local accounts, the vast external mullock slopes that border Rasp Mine, shaped from overburden over many years of mining operations, are approximately the same height as the original "Broken Hill". CML 7 incorporates the major part of the Line of Lode within the City of Broken Hill, approximately 3.8 km in length.

There are a number of historical accounts and reports that cover the mining history of Broken Hill. The subsequent sections of this Chapter include historical information from the Statement of Environmental Effects (SEE) prepared by ERM (2001). Its purpose is to provide a brief history of the site and Broken Hill in general.

## 3.2

## HISTORICAL OVERVIEW

The Barrier Ranges, adjacent to the western border of NSW, initially attracted the interest of prospectors looking for copper in the early nineteenth Century. It was believed that the ranges' proximity to the copper sources at Cobar and Burra was indicative of the mining potential of the area. However, mining activities in the region did not commence until the droughts of 1875-6, during which extensive sinking of wells in the area led to some prospecting. Silver was also discovered at Thackaringa Station on the western edge of the Barrier Ranges at this time. Mining at Broken Hill did not commence until 1883.

The Broken Hill, after which the city has been named, was within the property boundaries of Mount Gipps, and Kinchega Stations. In 1883 Charles Rasp, a boundary rider at Mount Gipps station, found some silver-lead ore at the Broken Hill, inspiring him to apply for a mining lease. This application was initially to be with two other members, Poole and James, but Rasp was persuaded to increase the syndicate to seven members, including the Mount Gipps manager, George McCulloch. Each member contributed 70 pounds for a total of seven leases, extending in excess of 4,000 feet in length and 500 feet in width, covering 297 acres along the Line of Lode. The Line of Lode was topped with 'gossan' or oxidised zone, which is defined as "oxidised rock overlying a sulphide body" (Ritchie and Hooker, 1997:13) in the form of boulders of manganese and iron oxide.

The 'Syndicate of Seven' was the foundation of the Broken Hill Mining Company, which was registered in 1885 as the Broken Hill Proprietary Co. Ltd (BHP). BHP took possession of the original mining leases at this time, which incorporated leaseholds over the present day CML 7. As such, the site has historic significance through its role in bringing industrialisation to Australia via the mining activities of BHP and its subsequent start up of the Australian steel industry.

Mining activity in the region increased from 1883, centred around Silverton, Leadville, Purnamoota, The Pinnacles and Broken Hill. Smelting of ores began at the Day Dream mine near Silverton at this time.

In light of the acceleration of mining activity at Broken Hill, rich yields from the Melbourne smelters and the ease with which the ore could be smelted, smelters were established at Broken Hill, first opened in May 1886. This was one month after closure of the Day Dream smelter and so effectively signified the transfer of the centre of mining in the region from Silverton to Broken Hill. Transportation of the metals by bullock ceased in 1888 with the extension of the Silverton Tramway Co. railway to Broken Hill, thus enabling greater efficiency and speed.

Opencut mining commenced in 1891, however historically mine operations at the present day CML 7 site have predominately been underground.

Despite the downturn in the price of silver on the world markets during the Depression of the 1890s, work continued at Broken Hill with an emphasis on developing the most efficient extraction methods. Adaptation and innovation typify the early history of mining at Broken Hill. For example, adaptation of the square-set timber stope system of mining using Oregon from American forests, and introduction of flotation methods for separating minerals from ores. This flotation method was initiated and perfected by both miners and chemists involved in the mines at Broken Hill.



In 1895 the timbers in a disused section of the mine caught fire, and although the area was sealed, the fire continued to smoulder for some years. Then in 1905 a major subsidence of 300,000 square feet led to the abandonment of mine buildings and most of the mill, and the destruction of most of the workings between 400 and 600 feet. The ground continued to move intermittently for some years, while the collapsed material continued to be mined out of the tunnels. These are examples of the transient nature of mining structures, at Broken Hill.

During the war years production contracted due to the cancellation of overseas contracts, and industrial disputes. However expansion of the processing plants continued with the construction of new nitric acid plant buildings in 1917, and additional flotation boxes, water tanks and a new elevator system to deliver slimes to the vanners constructed in 1918. The expansion continued in the post war years, during which time lead and zinc production was combined, leading to the dismantling of the lead mill. Continued improvements of the mine infrastructure even occurred during the slump in world metal prices during the 1930s Depression.

There were a series of takeovers and lease transfers during the early to mid 1900s. Broken Hill South Ltd (previously named Broken Hill South Silver Mining Company Ltd) who operated the South Mine at the time purchased the Central, Block 10 and BHP mine leases in the 1940s and the Block 14, British and Junction mine leases from North Block Ltd in 1962. This effectively consolidated mine operations at the site now known as the Rasp Mine site.

Broken Hill South Ltd ceased operations in 1972, with losses sustained over preceding years, low metal prices and depleted ore reserves cited as the reasons, and sold its leases and infrastructure to Minerals, Mining and Metallurgy (MMM). The mine was reopened on 16 October 1972, with a drastically reduced labour force. MMM discontinued underground mining in 1976 and confined its activities to the extraction of residual oxidised ore from an open cut in the Block 14 area, and the retreatment of old surface dumps. On 8 October 1987 the mine leases for these operations were consolidated to form CML 7. MMM continued mining almost continuously until 1991, at which time site operations ceased, predominately due to economic constraints. The mine lease was sold to Normandy Mining Investments Pty Ltd (formerly Poseidon Mining Investments Pty Ltd) in July 1992. CBH Resources Ltd, through BHOP, purchased the CML 7 lease from Normandy Mining Investments on 29 March 2001.

### 3.3

#### *KINTORE PIT*

The Kintore Pit began as the Kintore Shaft, until the Sulphide Corporation which had acquired it in 1895 opened a cut. During major subsidence in 1905, underground movement destroyed the original shafts, while the cut remained stable. A new shaft, the New Kintore Shaft was cut for haulage, and all the buildings were relocated to the vicinity of the more stable Kintore cut during 1908-9. When Broken Hill South took over from the Sulphide Corporation in 1940, the headframes were demolished and the mine remained dormant until 1945. After the war, the No.5 headframe and winder house were re-erected over the Kintore shaft.

The Kintore Pit was developed in the 1980s by MMM for open cut mining, though its size and shape has changed since this time. Pit development led to the dismantling of buildings, including the Kintore headframe which was re-erected at the Kintore Reserve. The Kintore Pit (which will be the focal point for the Project) is approximately 450 m x 350 m at the top, diminishing in size in a sequence of terraces to the base.

## 4 *PHYSICAL DESCRIPTION OF HISTORICAL HERITAGE ITEMS IN STUDY AREA*

### 4.1 *DESCRIPTION OF HERITAGE LISTED ITEMS*

This section includes brief descriptions of the heritage listed items and other items of heritage significance located within the Project Area and in the vicinity of the proposed area of operations. This includes a description of building exteriors, and for those buildings which are proposed to be adaptively re-used, a description of the interior. The locations of these buildings are indicated on *Figure 2.1*.

#### 4.1.1 *Underground Office Building*

The Underground Office building is not identified as a Heritage item on the Broken Hill LEP. However, it was identified by ERM (2001) as having potential heritage value, and it is to be used for the Project as office space. Therefore the impacts of the Project to the potential heritage values of the building are considered as part of this assessment. This requires an understanding of the building's key characteristics.

The Underground Office building is pictured in *Photograph 4.1*. It is a single storey timber framed building. The external walls have been clad in corrugated metal and are topped by a galvanised metal roof, which has been interspersed by several gabled dormer vents and various sizes of ventilation stacks. A large roof mounted air conditioning unit is set within the eastern elevation (see *Photograph 4.1*).

The eastern most end of the building has a deep shady verandah set under the main roof. The verandah would have originally wrapped around the entire building, but alterations and additions to the northern elevation have resulted in it only wrapping fully around the southern elevation. The base of the verandah is constructed of concrete laid over an earlier red brick base. The timber support columns have been decoratively turned.

The windows of the building are predominantly four pane sliding sash windows, with the exception of those windows along some aspects of the northern elevation, coincident with where the verandah has been enclosed.

The western portion of the building appears to be a later extension.



***Photograph 4.1 Eastern Elevation of the Underground Office Building***

The Underground Office building is currently not in use. The interior contains a series of rooms which display evidence of having previously been used for a mixture of change room and office uses. This building also contains some of its original joinery and decorative detailing such as pressed metal ceilings.

This building contains a number of fixed and moveable heritage objects, including:

- a room length glass cabinet which would have once contained the safety equipment;
- an original Photostat machine (see *Photograph 4.36*);
- plan draws containing engineering plans of the mine;
- furniture; and
- wall mounted objects (see *Photographs 4.2 and 4.3*).



***Photographs 4.2 & 4.3 Examples of wall mounted objects located within the Underground Offices***

#### 4.1.2 *Item No. 177, No. 7 Winding House*

The winding house is a two storey brick building with a galvanised metal roof (see *Photograph 4.4*). It contains the engine that powers the winding gear connected to the hoisting pulley system mounted on top of the No. 7 Headframe (described in *Section 4.1.3*).

The interior of this building will not be affected by the Project and so was not inspected for this assessment.



*Photograph 4.4 No 7 Winding House*

#### 4.1.3 *Item No. 178, No. 7 Headframe*

A headframe is the frame at the top of a shaft, to which the hoisting pulley is mounted. The No. 7 Headframe (see *Photograph 4.5*) is constructed of steel with a timber shaft. This headframe was in operation until 1975, when underground operations ceased. Whilst it is not currently operating as a headframe, it does have a pump for dewatering the shaft.

The building located to the immediate east of the headframe is the crusher building (see *Photograph 4.5*) which was last used for crushing ore approximately six years ago. The crusher building has not been identified as a heritage item and was not inspected as part of this assessment.



**Photograph 4.5 No 7 Headframe**

#### **4.1.4 Item No. 179, Winding House And Motor No. 4 Shaft**

The No. 4 Winder House is pictured in *Photograph 4.6*. A sign erected by the Line of Lode Association (LOLA) on the side of the No. 4 Winding House states:

*"The No 4 winder was erected and the winder installed in 1913 with the engine becoming operational in 1916. The original engine was steam driven which was later converted to an electric winder..."*

*The No 4 winder engine is said to be the 1<sup>st</sup> electric winder on the Broken Hill Field. The No 4 winder was powered by a 150 horsepower, 3 phase, 550 volts, 40 cycle, 300 rpm, contractor controlled induction motor. The winder located in this section is the original one used when it was operational. They have been kept as found and lightly conserved. The No 4 winder house today looks like when it was built."*

This building is not currently used. The interior of this building will not be affected by the Project and so was not inspected during the course of the site investigation.



**Photograph 4.6 No 4 Winder House**

#### 4.1.5 *Item No. 180, Headframe No. 4 Shaft*

Item No. 180 (see *Photograph 4.7*) is similar in general appearance to Item No. 178. The major differences between the two structures are that Item No. 180 is the earlier example of the two and is constructed of timber.

This item has been subject to structural repair.



*Photograph 4.7 No 4 Head Shaft*

#### 4.1.6 *Item No. 273 General Offices*

The General Offices (see *Photograph 4.8*) are located along Eyre Street adjacent to the main site access. These are still used as the main mine offices, and this use will continue for the Project. This building is a single storey brick building in set under a galvanised metal roof that has been painted green. It has two pane sliding sash windows.

The following roof mounted objects are evident:

- air conditioning units (located to rear);
- timber gabled dormers with timber infill ventilation panels (all elevations); and
- ventilation stacks (located to rear).

The verandah is set under the main broken back roof and is supported by timber columns which have the same decorative details as those seen on the Underground Office building.

The interior of the building is divided into a series of small offices with a central corridor. The interior of the building contains evidence of various phases of use, including a c.1960s wages office and two solid metal vaults.





*Photograph 4.8 Eyre Street General Offices*

#### **4.1.7 Item No.274, Radford House**

Radford House (see *Photograph 4.9*) is located on Eyre Street to the immediate north of Item No. 273 General Offices. This building has until recently been used by the Sureway recruitment company as a training and employment centre, and it is proposed to be used for administrative purposes for the Project.

This building is a single storey brick building in set under a galvanised metal roof that has recently been painted red. It has two pane sliding sash windows. The building has undergone alteration and extension to the rear as well as the temporary enclosure of the rear verandah (see *Photograph 4.10*).

The interior of the building is similar to that of the General Offices and is divided into a series of small offices with a central corridor.



*Photograph 4.9 Radford House as viewed from Eyre Street*



*Photograph 4.10 Enclosure of the rear verandah*



#### 4.1.8

##### *Item No. 275, Broken Hill South Mill*

The old Broken Hill South Mill building (see *Photograph 4.11*) is a multi level steel framed building which is clad on all elevations, including roof, in galvanised iron. The galvanised iron metal has rusted and has been replaced in sections.

The building has saw-toothed sections and long banks of multi paned windows. There is evidence of tracks for hand pushed carts to the gantry located on the northern section of the building.

The interior of the building contains a near intact collection of mill processing equipment and associated infrastructure.

This building is currently disused.



*Photograph 4.11 Broken Hill South Mill*

#### 4.1.9 *Item No. 276, General Store Office*

The General Store Office is a small red brick building located on the southern side of the Broken Hill South Mill building (see *Photograph 4.12*).

This building is currently disused. The interior of this building will not be affected by the Project and so was not inspected for this assessment.



*Photograph 4.12 General Store Office*

#### 4.1.10 *Item No. 278, Water Tower*

The Water Tower, pictured in *Photograph 4.13*, is a large water storage structure that would have been used to supply water to the mill for the extraction process.

This item is currently disused. The interior of this building will not be re-used as part of the Project and so was not inspected during the site inspection.



*Photograph 4.13 Water Tower*

#### 4.1.11 *Item No. 279, Reagent Shed*

The Reagent Shed, pictured in *Photograph 4.14*, is a red brick building, originally used for storage of reagents (the chemicals used for starting a reaction when introduced to another substance). In this instance the reagent would have been added to the unrefined ore to encourage chemical leaching.

This building is not currently used. The interior of this building will not be re-used as part of the Project and so was not inspected for this assessment.



*Photograph 4.14 Reagent Shed*

#### 4.1.12 *Item No. 281, Pump House*

The Pump House (see *Photograph 4.15*) is a small single storey red brick building that would have originally housed pumps to pump water from the water tower to the Reagent Shed and mill. The interior of this building will not be re-used as part of the Project and so was not inspected for this assessment. However, it is possible that the original pumps are still located within the interior of this building.



*Photograph 4.15 Pump House*

#### **4.1.13**      *Item No. 282, Mullock Bin*

The term mullock refers to rubbish or waste rock. The Mullock Bin building (see *Photograph 4.16*) is set into the slope of the land. Its western side is one storey in height and its eastern side is three storeys in height.

The Mullock Bin is currently disused. The interior of this building will not be re-used as part of the Project and so was not inspected for this assessment.



*Photograph 4.16*   *Mullock Bin*

#### **4.1.14**      *Item No. 283, Electrical Workshop*

The Electrical Workshop is proposed to be used as maintenance offices, fixed plant workshop and potentially an electrical centre for the Project. It is a large red brick building with a gabled roof featuring a decorative circular blind vent detail located high within the gable wall (see *Photograph 4.17*). The roof is constructed of galvanised metal, though part of the barge board is missing.

An In/Out change room system is located within the south eastern portion of the building. It is externally accessed and could have been used as part of a former decontamination process: enter through the In door, shower, change into clean clothes, exit through the Out door. An overhead track system runs between the Electrical Workshop and the Broken Hill South Mill building.

The most recent use for this building was as an interpretation centre by LOLA.

The physical character of northern and southern sections of the building's interior are distinctly different. The southern section contains the entire electrical infrastructure. This includes rows of electrical infrastructure (some of which may still be in use) and a large basement area which may have previously housed the generator. The northern section (see *Photograph 4.18*) contains LOLA material. It contains two demountable office areas and other material associated with the LOLA use of the site. The eastern demountable has been decorated with the cartoon of one of the former miners. A large board was added to this demountable by LOLA, on which visitors have signed their names. Other displays are located around this building.



*Photograph 4.17 Electrical Workshop*



*Photograph 4.18 Interior of building showing LOLA installations.*

#### 4.1.15 *Item No. 284, Mechanical Workshop (Old General Workshop)*

The Mechanical Workshop building is a large galvanised iron saw toothed roof building (see *Photograph 4.19*), which is planned to be used as a mobile plant and maintenance store for the Project. It has recently been adaptively re-used as a mechanical workshop, specifically for the repair of the large underground machinery. Some large mechanical infrastructure pertaining to the former use of this building as a workshop for past mining activities is concreted into the floor within this building. Where this infrastructure was prohibitive to the reuse it has been removed and relocated to the forecourt of the Broken Earth Café where it can be viewed by the general public. However if its location within the building has not conflicted with the re-use it has been left in situ to illustrate the building's former role.

To accommodate the adaptive re-use there has been some minor repairs of the galvanised iron work and also some more substantial maintenance work such as the replacement of the box gutters and the roof plumbing system.

The interior of this building is a large open space divided into three bays by its timber frame and is open to the underside of the sawtooth roof (see *Photograph 4.20*). A roof mounted crane system housed in this building is currently being repaired and considered for re-use.



*Photograph 4.19 Mechanical Workshop*



*Photograph 4.20 Interior of Mechanical Workshop*

#### **4.1.16 Item No. 285, Change House**

The Change House building is proposed to be used as a crib room, training room, first aid centre and underground offices for the Project. It is a steel framed building with a boxed gutter running along its centre (see *Photograph 4.21*). Its interior is pictured in *Photograph 4.22*.

Of all the buildings within the Project Area, the Change house is considered to have undergone the most change. The alterations have included the addition of a concrete floor, false ceiling and banks of showers to the eastern section of the interior of the building and several extensions and ad-hoc repairs to the exterior.





*Photograph 4.21 Change House*



*Photograph 4.22 Interior of Change House*

#### **4.1.17      *Building No. 286 & 287, Riggers Shop And Compressor Room (Old Power House)***

The Riggers Shop is proposed to be used as an emergency services store for the Project while the Compressor Room will not be re-used. The Riggers Shop and the Compressor Room share a common wall (see *Photograph 4.23*). The Compressor Room was formerly used as the Old Power House. This would have been used for generating electricity from coal, when electricity was first introduced to the site in the 1920s.

The southern most exterior wall of the Riggers Shop is constructed of stone with brick quioning surrounding the windows. This elevation has evidence that it was rendered in the past and the brick work has been over pointed at some stage. It also has evidence of a former window which has been bricked up. The walls of the eastern elevation are comprised of stone and rubble nibs in-filled with galvanised iron sheeting.

The façade of the Compressor Room is constructed of a mixture of stone and brick with a trio of arched windows set to a second storey height. The lower level of the building has had modern openings with roller style shutters added at a later date. The northern wall of the Compressor Room is constructed of stone. A blocked up opening and door indicates that the building once had a basement level.

The facades of both buildings have pipes and other infrastructure mounted on their faces. The galvanised iron roofs of both buildings have centrally located rectangular lanterns which provide additional light to the interior.

The interior of the Riggers Shop has white washed walls and high small windows, as evident in *Photograph 4.25*. Old equipment hung by LOLA is located on the walls.

The interior of the Compressor Room also contains LOLA installations. These have been displayed on the floor and walls of this room with barriers installed, designed to separate visitors from the equipment. The rear wall of the Compressor Room has been heavily buttressed with a timber support system, as pictured in *Photograph 4.24*. Above the buttress system this wall has three arched windows similar to those on the front façade.

Both interiors are two storeys in height but opened to the roof space.



*Photograph 4.23 Rigger Shop and Compressor House*



*Photograph 4.24 Structural supports to interior of Compressor House*



*Photograph 4.25 Interior of Riggers Shop*



#### 4.1.18

##### *Item No. 288, Carpenter's Paint Shop (Old Winders House)*

Originally used as a winders house this building would have housed an engine, used for winding from a shaft. It is planned to be used for storage for the Project.

The Carpenters Paint Shop comprises of two buildings, namely the carpenters shop and the paint shop.

The carpenters shop is a gabled building constructed of galvanised iron (see *Photograph 4.26*). Its interior (see *Photograph 4.27*) is approximately two storeys in height but open to the roof trusses.

The paint shop is a small lean-to addition to the northern side of the carpenters shop, also constructed of galvanised iron (see *Photograph 4.28*).

Neither building is currently in use.



*Photograph 4.26 Carpenter's Paint Shop*



*Photograph 4.27 Interior of the Carpenters Shop*



*Photograph 4.28 Paint Shop located to the northern elevation of the Carpenters Shop*

**4.1.19**      ***Item No. 289, Pump House And Cooling Water Reservoir***

The Pump House and Cooling Water Reservoir building is a red brick one storey building (see *Photograph 4.29*), located to the west of the Changehouse. It is in a degraded state. There is no aboveground evidence of the reservoir.

This building is not currently in use. Its interior will not be re-used as part of the Project and as such was not subject to inspection as part of this assessment.



***Photograph 4.29 Pump house and Cooling Water Reservoir***

**4.1.20**      ***Item No. 290, Two Water Tanks***

This item comprises of two galvanised metal water tanks, located on an elevated timber platform (see *Photograph 4.30*) to the immediate south of the Riggers Shop. These tanks are not currently in use.



***Photograph 4.30 Two Water Tanks***

#### 4.1.21 *Item No. 291, Yardman's Office*

The Yardman's Office (see *Photograph 4.31*) is a small one room building constructed entirely of galvanised metal sheeting and located immediately north of the Compressor House.

This building is not currently used. Its interior will not re-used as part of the Project and so was not inspected as part of the site investigation.



*Photograph 4.31 Yardman's Office*

#### 4.1.22 *Item No. 292 Pattern Store (Carpenters Shop)*

The Pattern Store is planned to be used for storage for the Project. This building is a timber framed galvanised iron saw toothed building (see *Photograph 4.32*). There is a lean to addition to the east, which is also constructed of galvanised iron set over a timber frame. The interior of both sections of the building contain remnant equipment.

This building is currently used for storage.



*Photograph 4.32 Pattern Store*

#### **4.1.23      *Item No. 293, Saw Mill And Extension***

The Saw Mill is an open sided barn with a solid timber frame and a galvanised metal roof (see *Photograph 4.33*). Some of the original saw mill infrastructure remains to the east of the building.

This building is currently used for storage and this use is planned to continue for the Project.



*Photograph 4.33 Saw Mill and Extension*

**4.1.24**      *Item No. 294, Coal Bins*

The Coal Bins (see *Photograph 4.34*) are located to the north of the Compressor House. These bins would have been added to the site in the 1920s

This item is not currently in use and may be structurally unstable.



*Photograph 4.34 Coal Bins*

**4.1.25**      *Item No. 295, Weighbridge Foundations*

The Weighbridge Foundations will not be affected by the Project and so this item was not inspected as part of the site inspection.

**4.1.26**      *Item No. 296, Sand Plant*

The Sand Plant is a galvanised iron building with a skillion style roof with windows set within the eastern elevation (see *Photograph 4.35*). This building contains much of its original equipment and infrastructure to the exterior and interior.



*Photograph 4.35 Sand Plant*



Moveable heritage is the term used to identify items or objects which are not fixed or attached to a particular site or place, though may have a strong association with that place or site. For example, moveable heritage can be large pieces of machinery or furniture or, it can be small items such as personal objects or archival photographs and documents.

Moveable heritage is considered to be an integral component of the heritage value of a place. The relationship between the objects and the place where it is located is often a key characteristic of the value of both the item and the place. Therefore removing the item can diminish or damage the significance of both the item and the place

Accepted best practice is for moveable heritage to be retained and conserved *in situ*. Where this is impossible or impractical, the item should be fully recorded prior to removal. Some moveable heritage items will then be conserved and placed into storage, or archived, for future or immediate display in a museum environment. It is preferred that an item is situated in an interactive environment that reflects its original placement and function to allow it to be readily understood.

*Photographs 4.36 and 4.37 show examples of moveable heritage at the site. A Moveable Heritage Policy exists for the site. In the recent past, LOLA has relocated moveable heritage from its original location within CML 7 to the Broken Earth Café forecourt, which is also within CML 7, where it can be viewed by the public. For this Project, items of moveable heritage under BHOP ownership and located such that they would not be disturbed or damaged for construction or operations, will be retained and conserved in-situ. Items that are required to be moved to avoid adverse impacts will be fully recorded and handed over to LOLA or a similar local historical organisation.*



**Photograph 4.36** *Antique Photostat Machine is part of the CML 7 Moveable*



**Photograph 4.37** *Sign relating to former rail interface at CML 7 heritage collection*

## 5.1

## SIGNIFICANCE ASSESSMENT CRITERIA

In NSW, Assessments of heritage significance are guided by the principles of the *Burra Charter* (1999) (*the Australian ICOMOS Charter for places of Cultural significance*) and the Heritage Office's (2001) publication *Assessing Heritage significance*.

The Heritage Office of NSW considers that *an item will be considered to have State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:*

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

**Criterion (b)** *an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural history (or the cultural or natural history of the local area)*

**Criterion (c)** *an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)*

**Criterion (d)** *an item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons*

**Criterion (e)** *an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)*

**Criterion (f)** *an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);*

**Criterion (g)** *an item is important in demonstrating the principal characteristics of a class of NSW's*

*cultural or natural places; or cultural or natural environments.*

*(or a class of the local area's cultural or natural places; or*

*cultural or natural environments.)*

Austral Archaeology (2000) prepared a Conservation Management Plan (CMP) for the Line of Lode Association which included statements of cultural heritage significance (2000:29-38) for:

- the Line of Lode;
- the Zinc Mine – Pasminco Ltd;
- the South and Central Mines –Normandy Mining Investments Ltd; and
- the North Mine – Pasminco Ltd.

The Line of Lode incorporates land within CML 7 and the South and Central Mines form part of the southwestern portion of CML 7, where operations for the Project are to be focussed. As such, determination of the cultural heritage significance of the Project Area has been based on the Austral Archaeology (2000) significance statements. The Zinc Mine is located to the southwest of the Project Area and North Mine to the northeast.

Austral Archaeology (2000) assigned the Line of Lode and the South and Central Mines a high level of cultural heritage significance, due to the pre-eminence of Broken Hill in general and the Line of Lode specifically in the history and development of mining in Australia. This is evidenced by the high level of inventiveness and technological development characteristic of Broken Hill's early mining operations, which contributed to the evolution and development of the mining industry in Australia. Evidence of this can still to be seen *in situ* at the Project Area. The site's significance can be summarised as per the Austral Archaeology (2000) General Statement of Significance, which concludes:

*The Line of Lode at Broken Hill is a nationally significant mining precinct which contains a number of relics and remains (including moveable plant and equipment, intact buildings, structural ruins and landscape features) from a number of individual mining companies and periods which have contributed to the development of many aspects of Australia's culture.*

*The site can be categorised into three main component sites which reflect the physical and historical development of the mines – the North Mine area, the South (and central) Mine area and the Zinc Corporation area. All these mine sites have substantial surviving historic fabric which represents development phases and sequences unique to that particular site. Collectively however, the three areas show the continuum of mining history at Broken Hill through all its periods and phases from the 1880s to the present day.*



*The remaining plant and equipment which is present in many areas of the Line of Lode demonstrates past work practices, techniques and processes which are no longer in use and/or those which were developed on the mines for specific local purposes. While the remaining plant and equipment is in itself rare and representative of technical achievement, it is also representative of the adaptive and progressive approach to mining development for which the Australian mining industry is famous.*

*Associated infrastructure at Broken Hill includes mine housing and environmental works. These elements constitute important contributions to the community by the mining industry and demonstrate the evolution of the attitudes of the industry towards their employees, community and surrounds.*

*In terms of comparative cultural significance, the Line of Lode should be considered in conjunction with such historic mining sites such as Moonta and Wallaroo Mines South Australia, Kalgoorlie Western Australia and Mount Lyell in Tasmania. Only the latter two have a comparable period of operation (i.e 100+years) but neither has anywhere near as much original fabric or integrity as Broken Hill. The Line of Lode is therefore considered to be a place of outstanding cultural significance. (2000:37-38)*

## 6.1

## NEW DEVELOPMENT

As part of the Project, infrastructure, plant and equipment associated with proposed mining activities will be constructed or upgraded at the Project Area. This will include construction of processing equipment and reinstatement of a rail spur at the site to facilitate transport of product concentrates in rail wagons to smelter and/or port.

Mine support infrastructure to be constructed as part of this Project, which is of relevance for assessment of potential impacts upon historical heritage (e.g. above-ground) predominately relates to the processing plant and includes:

- conveyors, screening and crushing facilities;
- ore storage bin;
- grinding facilities;
- flotation building;
- concentrate thickening facilities;
- crusher control room and concentrator control room (including air-conditioning, toilet facilities, phone and radio base station);
- reagent handling building;
- reagent handling area (including mixing tanks)
- filtration and concentrate loadout building;
- compressor shelter;
- workforce change house (including ablution & laundry facilities);
- high voltage overhead electrical transmission line from Gossan Street;
- two ventilation fans; and
- onsite piping infrastructure.

Several additional facilities will be housed within existing site buildings, as discussed in *Section 6.2*.

BHOP have adopted an adaptive reuse strategy, whereby existing buildings on the site are to be re-used where possible, and furthermore, to be reused for purposes similar to their original use where possible. As part of this strategy, the following facilities will be housed within existing heritage buildings at the site:

- security, office and administration building;
- crib room, training room, first aid centre and underground offices;
- geology building and core yard;
- maintenance offices, fixed plant workshop and electrical workshop;
- mobile plant workshop and maintenance store; and
- store buildings.

The proposed uses for the heritage buildings identified in *Section 4.1* are presented in *Table 6.1*. Those items that are proposed to be adaptively re-used as part of the Project are highlighted, and their locations are shown on *Figure 6.1*.

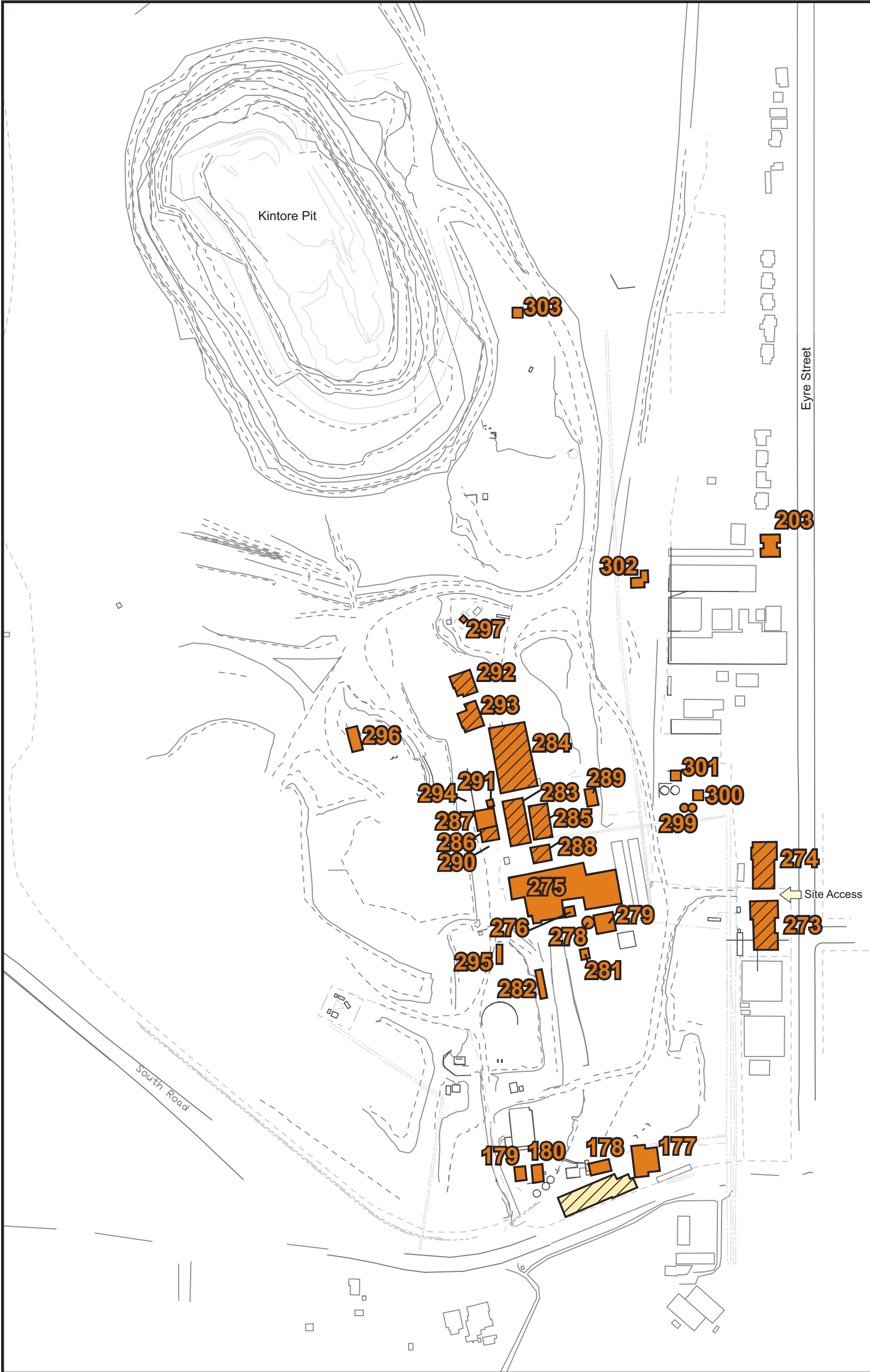
The end-use plan contemplates that following the cessation of mining at Rasp Mine, there will be opportunities to re-use the site for a heritage/ tourism use.

**Table 6.1**      **Proposed Use for Heritage Items**

Item Name and Number	Proposed use
Underground Offices	To be renovated and used as office space.
Item 177, No. 7 Winding House	There are no changes currently proposed to the No. 7 Winding House. It may be recommissioned in the long term for reuse as a Winding House.
Item 178, No. 7 Headframe	There are no changes currently proposed to the No. 7 Headframe. It may be recommissioned in the long term.
Item 179, Winding House and Motor No. 4 Shaft	There are no proposed changes to the Winding House and associated motor as part of this Project. It is intended that this item will be retained in stasis.
Item 180, Headframe No. 4 Shaft	There are no proposed changes to the No. 4 Headframe as part of this Project. It is intended that this item will be retained in stasis.
Item 273, General Offices	To be renovated and continue existing use as offices.
Item 274, Radford House	To be renovated and used for administrative purposes.
Item 275, Broken Hill South Mill	There are no proposed changes to the Broken Hill South Mill Building as part of this Project. It is intended that this item will be retained in stasis.
Item No. 276, General Store Office	There are no proposed changes to the General Store Office as part of this Project. It is intended that this item will be retained in stasis.
Item No. 278, Water Tower	There are no proposed changes to the Water Tower as part of this Project. It is intended that this item will be retained in stasis.
Item No. 279, Reagent Shed	There are no proposed changes to the Reagent Shed as part of this Project. It is intended that this item will be retained in stasis.
Item No. 281, Pump House	There are no proposed changes to the Pump house as part of this Project. It is intended that this item will be retained in stasis.
Item No. 282, Mullock Bin	There are no proposed changes to the Mullock Bin as part of this Project. It is intended that this item will be retained in stasis.
Item 283, Electrical Workshop	Maintenance offices and fixed plant workshop.
Item 284, Mechanical workshop	Mobile plant and maintenance store i.e. re-use for intended purpose. Some plant to be removed due to conflicting space requirements. Other plant to be repaired and remain in building.
Item 285, Change House	Crib room, training room, first aid centre and underground offices. Buildings will need complete fit out to absorb change. As noted in <i>Section 4.1.16</i> , this building has been substantially altered by previous owners. Current plans include addition of false walls, ceilings and possibly floors that can be removed after current useful life has ended, enabling building to be returned to current state if desired.
Item 286, Riggers House	Emergency services storage.
Item 287, Compressor Room	Former LOLA interpretation centre to be closed off.
Item 288, Carpenter's paint shop	Undertake minor structural repairs and use for storage.
Item 289, Pump House and cooling water reservoir	There are no proposed changes to this item as part of this Project. It is intended that this item will be retained in stasis.

Item Name and Number	Proposed use
Item 290, Two Water Tanks	There are no proposed changes to this item as part of this Project. It is intended that this item will be retained in stasis.
Item 291, Yardman's Office	There are no proposed changes to the Yardman's Office as part of this Project. It is intended that this item will be retained in stasis.
Item 292, Pattern Store	Clean up and use for storage.
Item 293, Sawmill Extension	Undertake some structural work and use for storage.
Item 294, Coal Bins	There are no proposed changes to the Coal Bins as part of this Project. It is intended that this item will be retained in stasis.
Item 295 Weighbridge Foundations	There are no proposed changes to the weighbridge foundations as part of this Project.
Item 296, Sand Plant	Building to be retained in stasis.





Heritage Listed Items

- 177 - No 7 Winding House
- 178 - No 8 Headframe
- 179 - Winding House & Motor, No 4 Shaft
- 180 - Headframe, No 4 Shaft
- 203 - Central Mine Assay Office
- 273 - General Offices
- 274 - Radford House
- 275 - Broken Hill South Mill
- 276 - General Store Office
- 278 - Water Tower
- 279 - Reagent Shed
- 281 - Pumphouse
- 282 - Mullock Bin
- 283 - Electrical Workshop
- 284 - Mechanical Workshop (Old General Workshop)
- 285 - Changehouse
- 286 - Riggers Shop
- 287 - Compressor Room (Old Power House)
- 288 - Carpenter's Paint Shop (Old Windershouse)
- 289 - Pumphouse & Cooling Water Reservoir
- 290 - Two Water Tanks
- 291 - Yardman's Office
- 292 - Pattern Store (Carpenter's Shop)
- 293 - Saw Mill & Extension
- 294 - Coal Bins
- 295 - Weighbridge Foundations
- 296 - Sand Plant
- 297 - Number 6 Shaft Vent Fan
- 299 - Two Water Tanks and a Stone Foundation
- 300 - Square Concrete Foundation
- 301 - Tankstand
- 302 - Fire & Ambulance Station
- 303 - Brick Pier Foundations

**Legend**

- Listed Heritage Item
- Item to be adaptively reused for the Project
- Underground Office Building (Potential Heritage Value)

Client:	Broken Hill Operations Pty Ltd		
Project:	Rasp Mine Environmental Assessment		
Drawing No:	0063850s_EAR_H_02		
Date:	02/08/2007	Drawing size:	A3
Drawn by:	GC	Reviewed by:	-
Source:	-		
Scale:	Not to Scale		



**Figure 6.1**

**Heritage Items to be reused for the Project**

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## 7.1

## ISSUES CONSIDERED FOR ASSESSMENT OF HERITAGE IMPACT

The following assessment of heritage impact (refer *Section 7.2*) has been developed with consideration to the specific questions posed in the Heritage Office guideline *Statements of Heritage Impact*. Consideration of these questions has guided the identification of potential positive and negative impacts and the mitigation measures required to address these impacts.

This guideline includes the following issues to consider for a new development adjacent to a heritage item:

*How is the impact of the new development on the heritage significance of the item or area to be minimised?*

*Why is the new development required to be adjacent to a heritage item?*

*How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?*

*How does the new development affect views to and from the heritage item? What has been done to minimise negative effects?*

*Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected?*

*Is the new development sympathetic to the heritage item? In what way (e.g. form, siting, proportion, design)?*

*Will the additions visually dominate the heritage item? How has this been minimised?*

*Will the public, and users of the item, still be able to view and appreciate its significance?*

The guideline includes the following issues to consider for change of use:

*Has the advice of a heritage consultant or structural engineer been sought? Has the consultant's advice been implemented? If not, why not?*

*Does the existing use contribute to the significance of the heritage item?*

*Why does the use need to be changed?*

*What changes to the fabric are required as a result of the change of use?*

*What changes to the site are required as a result of the change of use?*

Based on the project description given in *Chapter 6*, potential impacts to heritage items are considered most likely to arise from the construction and development of the new processing infrastructure and the proposed change of use of the existing heritage items.

## 7.2

### *IMPACT ASSESSMENT*

This section aims to identify the potential positive and negative impacts of the Project upon items with identified heritage values, so that the positive impacts can be enhanced and the negative impacts mitigated. Impacts from both the new development proposed and the adaptive re-use have been assessed.

### 7.2.1

#### *Positive Impacts and Opportunities*

Aspects of the Project which respect or enhance recognised heritage values are discussed below.

##### *New Development*

- The new processing equipment and infrastructure is to be located within the large vacant area to the south of the Broken Hill South Mill building. This general area has historically been used as the mill area. It is considered that the new mining equipment and infrastructure will add a modern layer of processing technology to the site and that new and old will co-exist and be able to demonstrate temporal changes in mine-related technology.
- The Project has been planned with the understanding that the ore will eventually be extinguished and that the entire site will then be adaptively re-used, potentially for a mining-related cultural tourism venture. As such, the design of the new infrastructure layout has been cognisant of the importance of the existing items for the future use and interpretation of the site. This will ensure that remnant material and buildings are able to remain on site and sustain potential future re-uses.
- No heritage items are to be demolished to facilitate this Project.

##### *Adaptive Re-Use*

- There are no plans to structurally alter or extend the external appearance of any of the heritage buildings to be adaptively re-used.
- Original signage such as 'Carpenter's Shop', and 'Look out for trains' (excluding outdated safety signs) will remain in-situ or handed over to LOLA or a similar local historical organisation.

- Buildings containing substantial remnant machinery and which cannot be feasibly re-used for a purpose similar to their original use due to advances in technology i.e. Broken Hill South Mill building, Sand Plant and No. 4 Winding House will be retained in stasis. This will ensure that the machinery and remnant fabric within these buildings is not removed and will be available for potential re-use after the cessation of mining at the site.
- Where possible the heritage listed buildings which are suitable for adaptive re-use are to be re-used for purposes similar to their original use. This will occur for Old South Underground Offices, Eyre Street General Offices, Electrical Workshop and Mechanical Workshop.
- Where extensive internal change is required, this has been planned for buildings already substantially altered e.g. Changehouse and Underground Offices.
- Where changes to internal fabric are required these will be undertaken so that they can be removed at a later date e.g. use of demountable offices located within buildings or addition of false floors, walls and ceilings.
- Where possible, items of moveable heritage under BHOP ownership and located such that they would not be disturbed or damaged for construction or operations, will be retained and conserved in-situ. Items that are required to be moved to avoid adverse impacts will be fully recorded and handed over to LOLA or a similar local historical organisation.

### 7.2.2

#### *Potential Negative Impacts and Measures Taken To Minimise Impacts*

Aspects of the Project which could potentially have adverse impacts on heritage significance are described below. For each of these identified impacts, the measures included in the project design to minimise impacts are identified.

##### *Potential Impact*

- If the heritage values of a site are not adequately considered, the potential to pursue a cultural heritage tourism at the site in the future could be jeopardised.

*Minimisation Measure*

- As mentioned in the *Section 7.2.1*, BHOP intend to leave the site with as much as possible of its history intact. BHOP believe that retaining the sites' history will facilitate potential future site use as a cultural tourism site.
- In addition, the project design has been planned to add a layer of mining evolution to the site whilst retaining the redundant buildings on site. This would add value by demonstrating technological advances in the mining industry.

*Potential Impact*

- Loss of heritage value caused by unconsidered adaptive re-use of Heritage buildings i.e. introduction of intrusive elements to the heritage building and removal of original fabric.

*Minimisation Measure*

- Planning for adaptive re-use of existing buildings has given detailed consideration to how this can be achieved without unduly impacting the heritage values of the items and place e.g. re-use for original intended purpose, addition of fake walls which can be removed at a later date.
- No major changes are planned to the footprint of any of the heritage listed buildings or items.
- The Old Mill and Sand Plant, which both contain substantial amounts of redundant original plant and equipment, are not to be adaptively re-used for the Project. This will enable retention of the plant and equipment in-situ, ensuring it is available for an appropriate future adaptive re-use.

*Potential Impact*

- Whilst most buildings and infrastructure on site have been identified as being locally significant, the Underground Office Building which has been previously considered as having heritage value has not been afforded heritage protection under the Broken Hill LEP 2000. Therefore this building could be at risk of demolition or unconsidered alteration.

*Minimisation Measure*

- No existing buildings, infrastructure or plant, regardless of heritage value, is to be demolished as part of this Project.
- BHOP has recognised the Underground Office Building as being an integral element in the heritage significance of the place and plans to maintain and conserve the building.

*Potential Impact*

- Loss or Damage of items of Moveable Heritage

*Minimisation Measure*

- BHOP propose to retain items of moveable heritage, including historical photos, plans, maps, records and similar documentation, in their possession, at their current location on-site, until such time that it can be appropriately catalogued and made accessible to the local historical society or donated to a suitable repository.

*Potential Impact*

- Non-use of heritage items could result in these items falling into a state of severe degradation

*Minimisation Measure*

- a conservation management plan is to be prepared for the Project Area.
- a programme to continue to preserve buildings not intended for re use will be included in the conservation management plan. .

### 7.2.3 *Alternatives*

The following sympathetic solutions have been considered and discounted for the following reasons:

Adaptively re-using the Old Mill and Sand Plant as part of this Project.

Adaptive reuse of these buildings was discounted as both buildings contain redundant original plant and equipment that would have to be removed and relocated. It was considered that future re-use of the site may benefit from this plant and equipment and the prudent and feasible alternative to removal was that the plant and equipment remained in-situ ensuring that it was available for an appropriate future adaptive re-use.

### 8.1 CONCLUSION

The Project has been planned with the understanding that the mineable ore reserves will eventually be extinguished. BHOP recognise the responsibility to ensure that after their phase of occupation, sufficient information and material should remain on site to interpret the history of the site and facilitate future re-use.

This Project is considered to be well planned with minimal impacts to the heritage values of the site.

### 8.2 RECOMMENDATIONS

The following recommendations are made to mitigate potential impacts arising from the Project. They should be included in the statement of commitments for the project and in a Conservation Management Plan to be prepared for the Project Area. These measures have been developed with consideration to Broken Hill Shire Council's requirement that for any development in the city, the cultural heritage significance of the industrial heritage of Broken Hill be maintained.

#### 8.2.1 Maintenance

- A Photographic Recording of the buildings identified in *Table 2.1* should be undertaken prior to commencement of construction works for the Project, to provide a lasting record of the site prior to the new development. This Recording will also provide a base level reference for planning of required works to the buildings after the proposed use is terminated e.g. return to original state. Copies of the Recording should be lodged with the appropriate Local and State repositories.
- A programme to continue to preserve buildings not intended for reuse should be included in the conservation management plan.
- Prior to commencement of construction works for the Project, all heritage items to be adaptively re-used for the Project, should be inspected to determine the structural stability of each building and identify the appropriate works that need to be undertaken with regard to retention, renovations, adaptive re-use and ongoing maintenance requirements.

- Two years from the commencement of construction works for the Project, all buildings identified in *Table 6.1* to be retained in stasis should also be inspected to determine structural stability and identify required maintenance.

### 8.2.2 *Moveable Heritage*

Items of moveable heritage that will not be disturbed for construction or operations should be retained or conserved in situ. Items that are required to be removed should be fully recorded and handed over to LOLA or a similar local historical organisation. :

- an inventory of all items (furniture, plans, equipment etc) within the Underground Offices and recommendations for their donation to a suitable repository when they are no longer required by BHOP; and
- retention of the wall mounted cabinets and objects within the Underground Offices and the large cartoon within the Electrical Workshop.



## **REFERENCES**

Austral Archaeology (2000) **Conservation Management Plan: Line of Lode, Broken Hill**. Prepared for Line of Lode Association.

ERM (2001) **Trial Mining at Consolidated Mine Lease 7, Statement of Environmental Effects**. Prepared for Consolidated Broken Hill Ltd, July 2001.

Heritage Office, Department of Planning **NSW Heritage Manual:**

*Statement of Heritage Impact* (1996)

*Moveable Heritage Principles* (2000)

*Assessing Heritage Significance* (2001)





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