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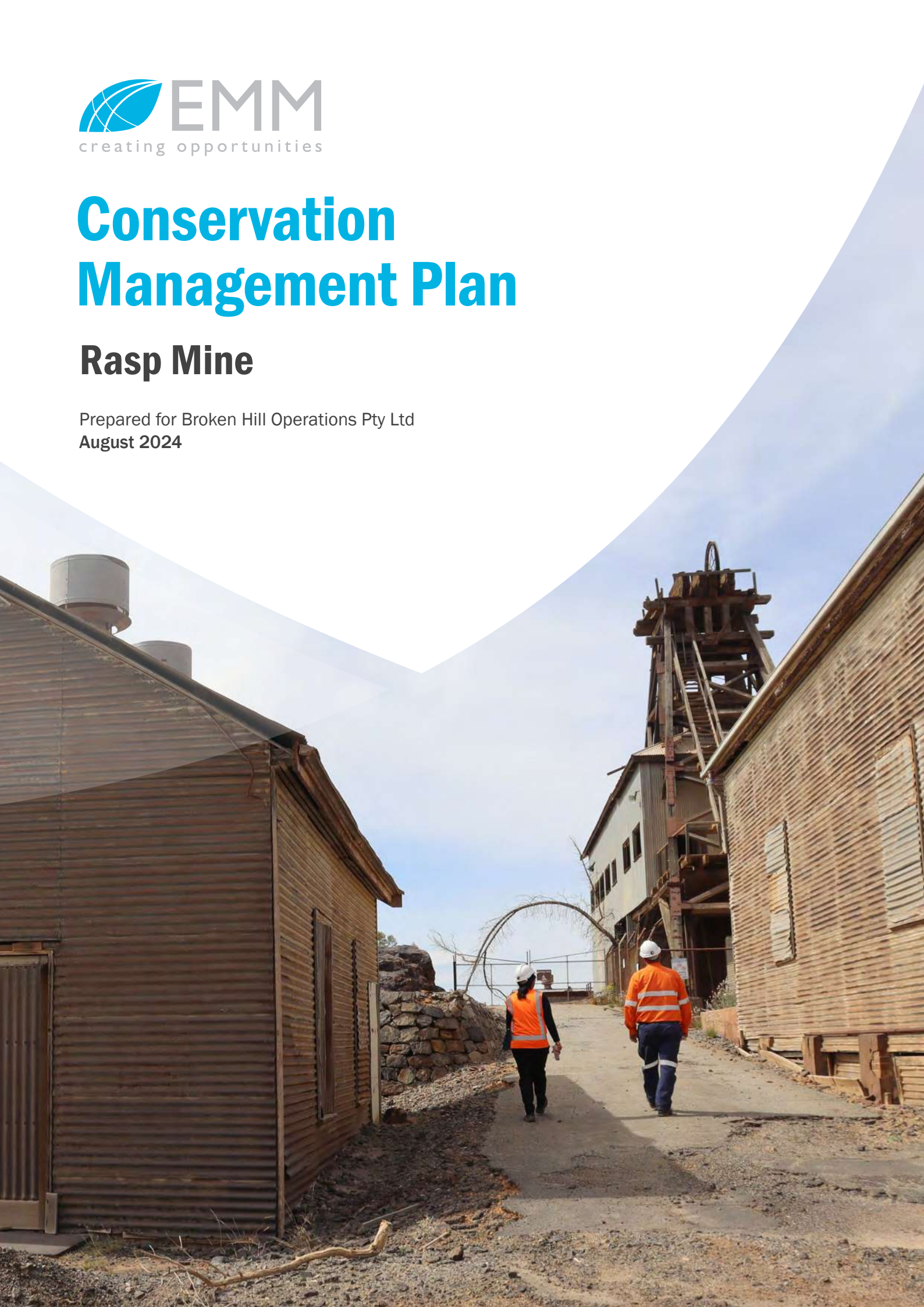
Conservation Management Plan

Rasp Mine

Prepared for Broken Hill Operations Pty Ltd
August 2024



Conservation Management Plan

Rasp Mine

Broken Hill Operations Pty Ltd

E220495 RP#1

August 2024

Version	Date	Prepared by	Reviewed by	Comments
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Executive Summary

The revised Conservation Management Plan (CMP) and new Maintenance Plan (MP) for the Rasp Mine, has been developed for Broken Hill Operations Pty Ltd (BHOP). This undertaking follows Schedule 3, Condition 30 of Project Approval (PA) PA 07_0018 (Appendix A). The purpose of this CMP is to provide a strategic framework for the future use, conservation, and management of the site, as outlined by the *Rehabilitation Management Plan* and *Rehabilitation Strategy* produced by EMM Consulting Pty Limited (EMM) in August 2022 and July 2023, respectively. These plans replace the Mining Operations Plan (MOP) and were produced as a requirement of the *Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2020* ('the Mining Amendment Regulation'), which came into effect on 2 July 2021.

The entirety of the City of Broken Hill is formally inscribed on the National Heritage List (NHL) on the 20 January 2015, Place ID, 10581. Within the Rasp Mine site, there are 76 individual heritage elements that are identified as heritage items on the *Broken Hill Local Environmental Plan 2013* (LEP), which have been categorised into eight heritage precincts. In addition, the Rasp Mine is located in proximity to three heritage conservation areas as well as several State Heritage registered (SHR) items. In addition, The Line of Lode Place ID, RNE 101036, and Kintore Shaft Place ID, RNE 581, attained listing on the Register of the National Estate (RNE) on November 21, 2000, under the *Australian Heritage Commission Act 1975*.

Additionally, this CMP considers Schedule 3, Condition 30 of Project Approval (PA) PA 07_0018, which guides the protection and management of heritage items following the cessation of mining operations (scheduled to occur in the next ten years), under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This condition mandates the preparation and execution of a CMP for the site, subject to the Secretary's approval. The CMP is required to establish a strategic framework that encompasses all heritage items situated within the Lease area under BHOP's management. The CMP is rooted in the principles of the *Burra Charter* (ICOMOS (Australia), 2013). The development of the CMP involves consultation with Heritage NSW and Broken Hill City Council. These entities review and provide comments on the management of the Rasp Mine, as well as the implementation of recommendations outlined in the CMP.

This updated CMP is a response to a multitude of challenges that have intensified the management of heritage items within an active mining precinct. It aims to strike a balance between operational continuity, safety, rehabilitation, and post-mining land use (PMLU) requirements, in the context of the Rasp Mine's location within The City of Broken Hill listing on the NHL, Place ID, 10581. These challenges include concerns about the potential effects of mine rehabilitation, the anticipated rise in tourist visits, increased demands on the site, and the risks posed to its historical integrity and surroundings due to ongoing mining operations and nearby developments in the mining area.

In light of these considerations, this CMP provides a practical framework to guide change, conservation, and care at the Rasp Mine, acknowledging the complexities involved in managing heritage items during the planned mine rehabilitation, as well as the coexistence of an active mining precinct. A number of issues and opportunities that currently or potentially may impact on the National Heritage values have been identified including the statutory context, land ownership, management, cultural landscape, environmental issues, safety, physical conservation, tourism, interpretation, planning issues and further research.

As such the issues addressed in this CMP include:

- a cautious and respectful conservation strategy, minimising changes to the site's fabric, considering reversible alterations, and recognising the role of maintenance in preserving its cultural significance, as outlined in Articles 3, 15, and 16 of the *Burra Charter* (ICOMOS (Australia), 2013)
- minimising risks associated with uses, activities, or alterations that may pose a threat to or diminish the unique setting and character of the site

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- minimising risks associated with uses, activities, or changes at the heritage site compromise its heritage values
- the preservation and protection of the Local, State, and National Heritage values intrinsic to the place and its surrounding context.

In essence, this CMP serves as a guide to address the complex challenges associated with managing heritage items during the planned mine rehabilitation. This complexity is further compounded by the presence of an active mining precinct, all while striving to preserve the site's distinct character, heritage, and cultural significance to the local context.

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Acronyms and Abbreviations

AHD	Australian Heritage Database
AMA	Amalgamated Miners Association
ARTC	Australian Rail Track Corporation
BHGPC	Broken Hill Gourmet Products Cooperative Limited
BHJSMC	Broken Hill Junction Silver Mining Company Limited
BHMIAC	Broken Hill Mining inter-Agency Committee
BHOP	Broken Hill Operations Pty Ltd
BHP Block 10	Broken Hill Proprietary Block 10 Company Limited
BHP	Broken Hill Proprietary Company Limited
BHS	Broken Hill South Ltd
BHSSMC	Broken Hill South Silver Mining Company
British BHP	British Broken Hill Proprietary Company Limited
CBH	CBH Resources Ltd
CBHC	Central Broken Hill Company
CBHCNL	Central Broken Hill Company No Liability
CCA	Crown Castle Australia
CML 7	Consolidated Mining Lease 7
CMP	Conservation Management Plan
CTH	Commonwealth
DA	Development Application
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DMR	Department of Mineral Resources
DPHI	Department of Planning, Housing and Infrastructure
DPIRD	Department of Primary Industries and Regional Development
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPBC Act	Environment Protection & Biodiversity Conservation Act 1999
EPL	Environment Protection Licence
Ha	Hectares
IHO	Interim Heritage Order
JHRT	Jamieson House Reserve Trust
Km	Kilometres
LEP	Local Environmental Plan

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LGA	Local government area
LOLA	Line of Lode Association
LOLRT	Line of Lode Reserve Trust
ML	Mining Lease
MMM	Minerals Mining and Metallurgy Limited
MNES	Matter of national environmental significance
MOP	Mining operations plan
MP	Maintenance Plan
MPL	Mining Purpose Lease
NBH	North Broken Hill Ltd
NBHC	New Broken Hill Consolidated Mine
NBHCP	New Broken Hill Consolidated Pty Ltd
NHL	National Heritage List
NMI	Normandy Mining Investments
NSW	New South Wales
OEH	Office of Environment and Heritage
PA	Planning Approval
PBHOP	Perilya Broken Hill Operations Pty Ltd
PMLU	Post-mining land use
RMP	Rehabilitation management plan
RNE	Register of the National Estate
RS	Rehabilitation Strategy
SEIA	Social and economic impact assessment
SEPP	State Environmental Planning Policies
SHR	State Heritage Register
SOHI	Statement of Heritage Impact Assessment

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Glossary

Term	Definition
Adaptation	Means changing a place to suit the existing use or a proposed use
Assay	An assay refers to the analysis or testing of a mineral or ore sample to determine its composition and the presence of valuable elements or minerals.
Associations	Mean the connections that exist between people and a place.
Attributes	Features of a place that embodies or contains the heritage values.
Authenticity	Is a measure of the honesty of a place as an authentic product of its history and of historical processes. Cultural heritage places may meet the conditions of authenticity if their cultural values are truthfully and credibly expressed. Through a variety of attributes such as form and design, materials and substance, traditions, techniques and management systems, location and setting, language and other forms of intangible heritage, spirit and feeling. Sources of information about these cultural values should also be credible and truthful.
Brace housing	Brace housing refers to a structure or housing associated with the support systems used in mining, particularly in the context of reinforcing underground excavations for stability and safety
Block	A block in the context of an Exploration Licence refers to a delineated and standardised unit of land area used for mineral exploration purposes.
Change house	Is a facility commonly found at mining sites and is used by miners for changing into and out of work clothes and personal protective equipment. The change house provides a designated area for miners to store and change into their work attire, including uniforms, safety gear, and equipment, before entering the mine site.
Coal bin	In mining, a coal bin is a dedicated storage structure designed to house coal. These bins serve as repositories for efficient coal management, ensuring a readily available supply for industrial processes.
Compatible use	Means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.
Component	Means a part of an element, or individual spaces within an element group
Compressor room	In mining, a compressor room is a designated facility housing compressor, which are equipment for generating compressed air. This compressed air is utilised in various mining operations for tasks such as powering pneumatic tools, operating machinery, and supporting ventilation systems within the mine.
Condition	The current state of the place relative to the values of which the place has been nominated. It reflects the cumulative effects of management and major environmental events.
Conservation	Means all the processes of looking after a place so as to retain its cultural significance
Crusher station	A crusher station is a facility where crushing operations are carried out to break down large pieces of rock or ore into smaller, more manageable fragments.
Element	Means a major part or space of the whole building or site
Fabric	Means all the physical material of the place including elements, fixtures, contents and objects.
Flotation Plant	A facility equipped for the flotation process, which is a widely used method for separating valuable minerals from the surrounding rock. In flotation, chemicals and air are introduced to create bubbles that selectively attach to and float the desired minerals to the surface for further processing.
Flying foxes	Flying foxes refers to a transportation system used for moving materials or personnel across a mine site, especially in areas with challenging terrain. A flying fox typically consists of a cable or rope stretched between two points, and a carriage or trolley that can move along the cable.

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Term	Definition
Headframe	A headframe is a vertical structure positioned at the entrance of an underground mine shaft, serving as a support and housing for the hoisting equipment. It enables the lifting and lowering of conveyances, such as cages or skips, facilitating the transportation of miners, equipment, and ore between the surface and the underground workings of the mine.
Hopper	A hopper is a container or funnel-shaped chamber that facilitates the loading and unloading of materials, often used in conjunction with conveyors or other material handling equipment. Hoppers are commonly employed to store and regulate the flow of bulk materials, such as ore, coal, or other mined substances, before further processing or transportation.
Intangible	Means an abstract quality, value or aspect of the place that cannot be perceived by touch. It includes cultural practices and performance, and may be perceived at an emotional, intellectual or cultural level, but cannot be precisely measured.
Integrity	Is a measure of the wholeness and intactness of the place and its attributes. Places that have been subject to minimal changes have higher integrity than those that have been modified.
Interpretation	Means all the ways of presenting the cultural significance of a place.
Intrusive item	Relates to an item or component that obscures, impedes, diminishes or Otherwise damages the significance of an element or its component parts.
Levels of significance	The degree to which a place is assessed for heritage value. IT could apply to local, regional State, or National level of significance.
Magazine	A magazine in mining is a designated storage facility specifically designed to safely store explosives and other hazardous materials used in mining operations.
Maintenance	Means the continuous protective care of a place and its setting. Maintenance is to be distinguished from repair, which involves restoration or reconstruction.
Meanings	Denote what a place signifies, indicates, evokes or expresses to people.
Mill	A mill is a device, often a structure, machine or kitchen appliance, that breaks solid materials into smaller pieces by grinding, crushing, or cutting.
Mullock dump	Mullock dump refers to a designated area where waste rock or overburden, extracted during the mining process, is deposited and stored. The term is commonly used in the context of open-pit or surface mining operations.
Natural significance	The importance of ecosystems, biological diversity and geodiversity for their existence or intrinsic value, or for present or future generation in terms of their scientific, social aesthetic and life support vale.
Ore outcrop	A mill refers to a facility where ore is mechanically processed to extract minerals. The process typically involves crushing, grinding, and further treatment to separate and concentrate the desired minerals from the ore.
Place	Means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.
Preservation	Means maintaining a place in its existing state and retarding deterioration
Rarity	Represents a rare, endangered or unusual aspect of our history or our cultural or natural environment.
Reconstruction	Means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material.
Rectifier room	A rectifier room is a designated facility that houses rectifiers, which are devices used to convert alternating current (AC) to direct current (DC). Rectifiers provide the appropriate electrical power required for various mining operations, machinery, and equipment.
Related object	Means an object that contributes to the cultural significance of a place but is not at the place.
Related place	Means a place that contributes to the cultural significance of another place.
Repair	Is to put something that is damaged, faulty or worn back in good condition or working order. This is achieved by retaining sound fabric and replacing damaged or worn with matching new fabric.

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Term	Definition
Representative	Example of an important class of significant items or places.
Restoration	Means returning a place to a known earlier state by removing accretions or by reassembling existing elements without the introduction of new material.
Roaster Plant	A facility in a mining operation designed to process ore or concentrate through a high-temperature treatment, known as roasting. Roasting is often used to remove impurities, such as sulphur, from the ore or concentrate.
Sand stopping	Refers to a safety measure employed in underground mines to control the flow of loose or shifting material, often sand, that may pose a risk to the stability of the mine workings. Sand stopping involves constructing barriers or bulkheads using sandbags or other materials to prevent the movement of loose material, particularly in areas prone to sand runs or shifting sands.
Setting	Means the immediate and extended environment of a place that is part of or contributes to its cultural significance and distinctive character
Significance / cultural significance	Means aesthetic, historic / events or processes, rarity, research, representativeness, creative or technical achievement / aesthetic, social, significance / associative significance for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups.
Significance	Heritage value.
Slag Dump	A slag dump is an area designated for the disposal or storage of slag, which is a byproduct generated during the smelting or refining of metals. Slag is often composed of non-metallic impurities and waste materials separated from the desired metal during the metallurgical process.
Smelter	A smelter is an industrial facility where ores are processed and metals are extracted through the process of smelting. Smelting involves heating the ore to high temperatures to extract the metal, usually in the form of a molten metal, leaving behind impurities as slag.
Stope support	Stope support refers to the systems and structures implemented to reinforce and stabilise underground openings or stopes created during the extraction of ore. These support systems maintain the integrity of the surrounding rock and ensuring the safety of miners. Stope support can include various methods such as rock bolts, mesh, steel arches, or other engineered solutions designed to prevent the collapse of the rock and provide a secure working environment within the mined area.
Surface plant infrastructure	Refer to the facilities, structures, and equipment located on the surface of a mining operation. This infrastructure is distinct from underground facilities and is essential for various stages of mining processes, such as ore processing, material handling, and storage. Surface plant infrastructure can include buildings, processing plants, conveyors, storage facilities, and other installations necessary for the extraction, processing, and transportation of minerals from the mine site.
Tailing	Tailings are the finely ground particles of ore and other materials left over after the minerals have been extracted through processes such as milling or concentration in mining operations. These leftover materials, often in the form of a slurry, are typically disposed of in tailings storage facilities. Tailings can contain residual metals, chemicals, and other elements from the ore.
Tangible	Means something that can be perceived by touch, and can be measured, and includes the form and fabric of the place.
Threshold	The degree or level of value, above which a place meets the criteria and is eligible for entry in a heritage register, depending on the criteria a place is assessed against.
Tolerance for change	Is a judgement about the role each of the attributes (form, fabric, function and location) of each component plays in supporting the significance of their respective element and, how tolerant they are to change without forming an adverse impact on the cultural significance.
Use	Means the functions of a place, including the activities and traditional and customary practices that may occur at the place, or are dependent on the place

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Term	Definition
Winding House	A winding house is a structure that houses the equipment responsible for the vertical movement of conveyances within a mine shaft, such as cages or skips carrying miners, equipment, or ore. The winding house typically contains a hoist mechanism, which is a system of pulleys, drums, and cables, used to lift or lower these conveyances between the surface and underground levels of a mine.

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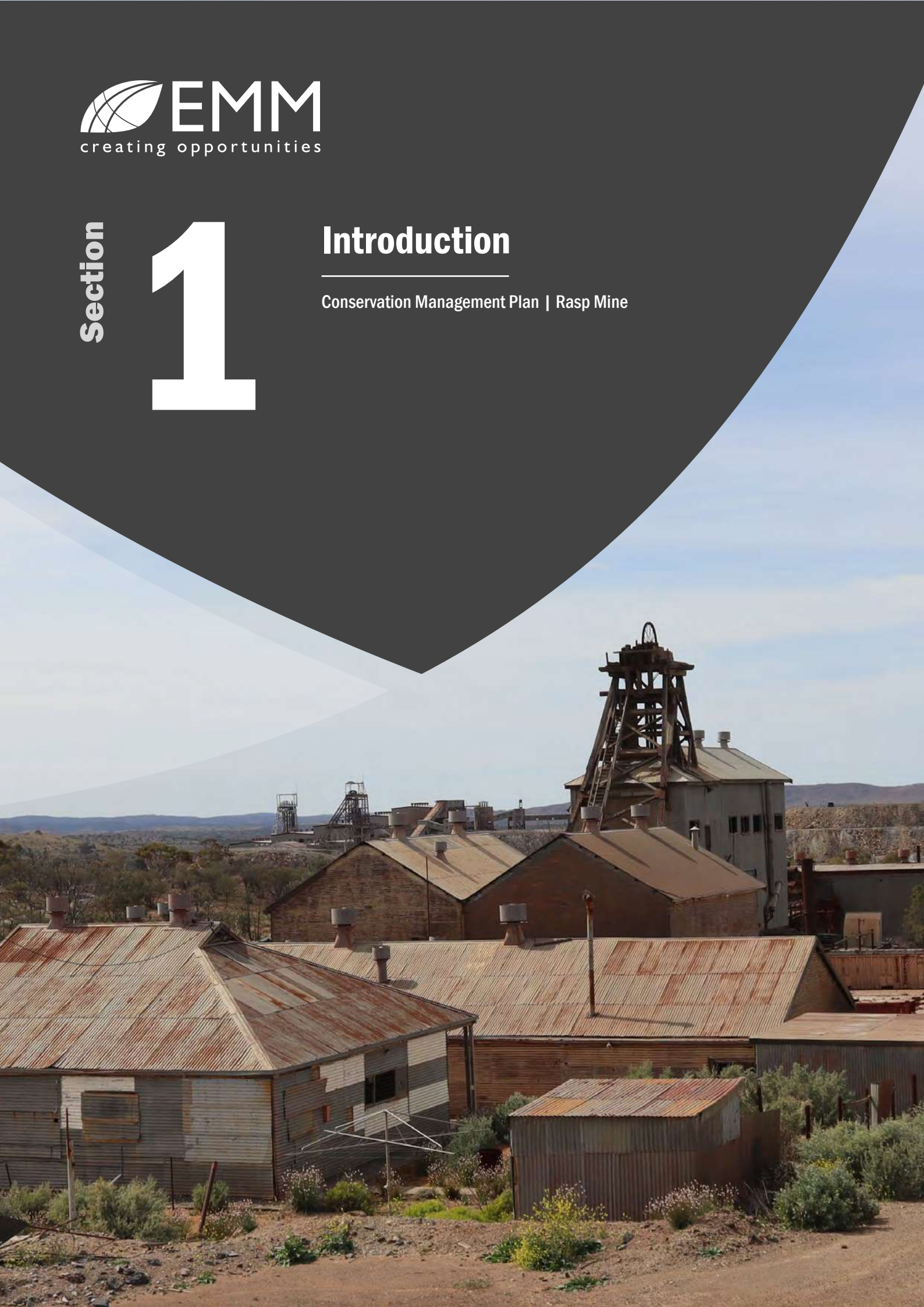
Section 1

Introduction

Conservation Management Plan | Rasp Mine



1 Introduction

1.1 Background

EMM Consulting Pty Limited (EMM) was engaged by Broken Hill Operations Pty Ltd (BHOP) to produce a Conservation Management Plan (CMP) and Maintenance Plan (MP). These plans in Appendix F, are focused on preserving the heritage items and significant surface plant infrastructure in the Rasp Mine. The mine is located in the City of Broken Hill, which was included on the National Heritage List (NHL) in 2015. The Rasp Mine encompasses of 76 heritage items identified on the *Broken Hill Local Environmental Plan 2013* (LEP) under BHOP's management (Appendix B), and one item on the State Heritage Register (SHR) under Broken Hill City Council's management. In addition, Rasp Mine is located in proximity to three LEP listed heritage conservation areas as well as several State Heritage Register curtilages. In addition, The Line of Lode Place ID, RNE 101036, and Kintore Shaft Place ID, RNE 581, attained listing on the Register of the National Estate (RNE) on November 21, 2000, under the *Australian Heritage Commission Act 1975*, which is now considered a non-statutory heritage register. While the mine includes heritage items of local and state significance, its location within the National Heritage curtilage and its contribution to National Heritage values have yet to undergo assessment and will be addressed in this updated CMP.

BHOP, as a wholly owned subsidiary of CBH Resources Ltd (CBH), holds full operational responsibility for the mine, encompassing the closure and rehabilitation process. Within BHOP's operational purview, a foundational 'base case' strategy is being undertaken to implement an environmentally friendly final landform, with due consideration of retaining heritage items for the incorporation of mining heritage-related tourism. The Rehabilitation Management Plan (RMP) (EMM Consulting Pty Ltd, 2022) serves as a guideline, outlining risk assessment, rehabilitation objectives, and criteria, tailored for large-scale mining operations. Additionally, the Rehabilitation Strategy (RS) (EMM Consulting Pty Ltd, 2023) addresses broader considerations, including socio-economic effects, by developing a life-of-mine rehabilitation schedule to systematically manage and mitigate any adverse impacts throughout the mining life cycle.

The CMP aims to manage the risks related to rehabilitation, closure activities, and post-mining land use (PMLU), by providing frameworks that preserve the heritage site's unique setting and character. This CMP draws upon principles from three key sources to assist in the safeguarding of the site's heritage values:

- the Conservation Management Plan (1994 CMP)
- *Draft Conservation Management Plan* (2013 Draft CMP) both authored by Austral Archaeology Pty Ltd
- *Conservation Management Strategy* (CMS) produced by GML Heritage Pty Ltd (2015 CMS).

It is important to note that this CMP does not aim to provide an exhaustive historical account of the Rasp Mine, nor does it attempt to catalogue every aspect of its physical fabric. Instead, it briefly reviews the significant values of the site, discusses relevant issues, and outlines policies for their retention and conservation. Furthermore, this CMP aims to integrate directives from the 2013 Draft CMP and the 2015 CMS into both the site's rehabilitation process and the broader management framework governing the operational activities of the Rasp Mine.

This CMP is intended to serve as the primary resource and management tool for individuals involved in developing proposals or making decisions regarding the maintenance and management of the Rasp Mine. In alignment with BHOP's obligations, the CMP seeks to safeguard the effective stewardship of the numerous individual heritage elements, thus safeguarding the historical and cultural significance of the site throughout its rehabilitation, eventual mine closure, lease relinquishment, and determination of its PMLU. This holistic approach takes into account ongoing mining operations and PMLU considerations.

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1.2 Study area

The study area for the Rasp Mine is defined by the extents of Consolidated Mining Lease 7 (CML 7) within the City of Broken Hill, New South Wales (NSW). CML 7 is a significant expanse covering the central segment of the Broken Hill Line of Lode orebody (Figure 1.2). The Rasp Mine is positioned approximately 935 km northwest of Sydney. This area spans almost 3.8 kilometres (km) in length and 1.2 km in width and falls under the jurisdiction of the *Broken Hill local government area* (LGA). CML 7, originating in the 1880s, comprises a combination of mining leases initially established in September 1886 and consolidated in 1987 (Figure 1.2).

Most of the land within CML 7 and Mining Purpose Lease (MPL) is designated as *'Willyama Common Reserve 2421,'* while some sections are on Western Land Leases (Figure 1.3). Additionally, a small portion of CML 7 falls under freehold ownership, as indicated in Certificate of Title 4635/757298. Further insight into land ownership and use is available in Section 1.3.

Beyond the borders of the Rasp Mine, the immediate surroundings feature a network of infrastructure, including transportation systems, commercial and industrial developments, and residential areas. The mine's boundaries are defined by Eyre Street and Holten Drive to the south and east, with Perilya Broken Hill Operations Pty Ltd's (PBHOP) North Mine to the northeast and PBHOP's South Mine to the southwest. To the north, the mine adjoins Broken Hill's commercial centre, creating a distinct juxtaposition with the local landscape. Two significant State roads, South Road (Silver City Highway SH22) to the southwest and Menindee Road (MR66) to the northeast, are integral parts of the established trucking route through Broken Hill. The Broken Hill railway station lies directly to the north of the mine and is positioned along the main Sydney-Perth railway line. To the east of the Rasp Mine is located E B Mawson and Sons Pty Ltd's quarry.

The Rasp Mine's extensive history of mining, spanning over a century, has left the landscape significantly altered, including the retention of various heritage structures. Much of the Rasp Mine is covered with historic waste rock and tailings, with limited topsoil and vegetation. The Rasp Mine's topography, with slopes radiating from Broken Hill's highest points, significantly influences local wind patterns and drainage flows in the area. Table 1.2 and Table 1.3 in Section 1.3 highlights several other occupants engaging in activities in CML 7.

The Section 1.1 'Heritage Area' domain for PMLU, is determined by the curtilage groupings specified in the LEP, as annotated in Figure 1.5:

- Heritage Precinct 1: Encompassing historical mining lease Blocks 7, 8, and 9, with Blocks 7 and 8 affiliated with the Broken Hill South mining leases, while Block 9 is linked to the former Central Mine, later taken over by the Sulphide Corporation. This is the most extensive precinct, comprising the primary group of structures surrounding the former South Mill extending northwest to include features from the old Central Mine. The heritage precinct includes LEP Items I116, I244, I236–I262, I280 under BHOP's management.

- Heritage Precinct 2: Encompassing the western section of Block 7 of the South Mine, housing No. 4 and No. 7 Shafts and Headframes, along with their associated plant infrastructure. The heritage precinct includes LEP Items I263–I279, I282 under BHOP's management.

- Heritage Precinct 3: Situated within the boundaries of mining lease Block 39, known as the Broken Hill Junction Mine. The heritage precinct includes LEP Items I281, I282.

- Heritage Precinct 4: This precinct is located within the boundaries of mining lease Block 10. The Block 10 Lookout, along with its BHP Concentration Mill Site (LEP Item I283) and Block 10 Reservoirs (LEP Item I284), is situated outside of CML 7. However, the heritage curtilage of these listed items extends into Heritage Precinct 4. There are no LEP items under BHOP's management in this heritage precinct.

- Heritage Precinct 5: Found in the northern portion of mining lease Block 12, this precinct focuses on the Delprat Shaft and the surrounding BHP plant structures. The heritage precinct includes LEP Items I281, I282.

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- Heritage Precinct 6: Situated within the boundaries of mining lease Blocks 15 and 16, in conjunction with Block 95, which collectively constituted the British Broken Hill Company Mine. This precinct is specifically focused on Thompson Shaft and its associated surface features. The heritage precinct includes LEP Items I296–I304.

- Heritage Precinct 7: Designated as the area for the BHP open-cut operation, situated within mining lease Blocks 11 and 12 of the Broken Hill Proprietary Company. The heritage precinct includes LEP Items I305–I309 under BHOP's management.

- Heritage Precinct 11 (Former Precinct 8): Encompassing British Flats in Proprietary Square (LEP Item I21), the State heritage register (SHR) listed BHP Chimney Ruins of First Offices (SHR Item I14), and the BHP North Slag Dump (LEP Item I15). The heritage precinct includes LEP Items I15 under BHOP's management.

These precincts include not only the major heritage items listed on the LEP but also minor, unlisted features such as natural and historical archaeological resources, stone walls, embedded railway tracks, drainage systems, pathways, staircases, excavations, signage, moveable heritage items, fencing, roadways, and surface treatments.

While discussed in the CMP, it is important to note that several areas and items have been identified to fall outside the defined study area for the CMP:

- The British Flats in Proprietary Square (LEP Item I21) located northeast of Heritage Precinct 11 (former Precinct 8).

  These residences, although encompassed within the surface rights areas of BHOP, are owned by the Line of Lode Reserve Trust (LOLRT). As such, these donated properties lie outside the study area boundaries.

  The Line of Lode Association (LOLA) was established in 1995 as a community-based group to oversee tourism and commercial development within CML7. In 2000, several residential and other buildings were donated to LOLA. When LOLA was dissolved in September 2011, their assets located on CML7 were transferred to the then Land and Property Management Authority (now Crown Lands), which established LOLRT to act as trustee of these assets.

  Assets under their ownership within CML7 include:

  - Two unlisted residences on South Road and Bonanza Street (Jamieson House - residence 27A&B, occupied by the Jamieson House Reserve Trust (JHRT)).

  - The contemporary Café and Miners Memorial located at the city side of CML7.

- BHP Chimney Ruins of First Offices (LEP Item I14) in Heritage Precinct 11 (former Precinct 8). These chimney ruins, situated in the centre of Heritage Precinct 11, are owned and managed by Broken Hill City Council and fall outside the study area.

- North of Heritage Precinct 3: The northern part of Heritage Precinct 3 falls beyond the boundaries of the study area. This area is the property of PBHOP and is licensed for occupancy by Broken Hill City Council under tourist lease for *Browns Shaft, License to Occupy*, UG2-3A.

- Portion of Heritage Precinct 4: The northern part of Heritage Precinct 4 hosts an olive grove and is occupied by Broken Hill Gourmet Products Cooperative Limited. This olive plantation, established in October 2004, consists of 1,000 olive trees and is located on 2.59 hectares to the northwest of CML 7, within the surface area of CML 7. The Block 10 site, encompassing the BHP Concentration Mill Site (LEP Item I283) and Block 10 Reservoirs (LEP Item I284) is located outside of CML 7 managed by Broken Hill City Council and fall outside the study area.

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- The Broken Hill Railway Station and Yard Group (LEP Item I49) and Sydney Railway Station (former) (LEP Item I210) is located on CML 7. However, it is owned by the Transport Asset Holding Entity and operated by NSW TrainLink, making it fall outside the designated study area.

- The unlisted Stores Warehouse, located on the CML 7 Western Lands Leases also fall outside the designated study area.

1.1 Post-mining land use

The RMP developed by EMM in August 2022, outlines various PMLU strategies. The relationship to the CMP is the document's alignment with broader management frameworks, guiding the formulation of policies and plans for various projects and elements of the Rasp Mine.

These strategies are designed to manage the site effectively after mining activities have ceased. Specifically, the plan highlights that PMLUs for the Rasp Mine will encompass a combination of different domains, which include:

- Mining landscape: This domain is focused on creating safe, stable, and non-polluting waste landforms. It involves reshaping and reclaiming areas affected by mining activities to ensure they are environmentally secure and pose no risks.

- Mining and industrial heritage: As outlined in the previous section, the site contains significant historical mining and industrial heritage identified on statutory listings.

- Mining heritage related tourism: The historical significance of Rasp Mine, as well as the broader mining heritage in the region, provides opportunities for heritage-related tourism. This domain involves promoting and facilitating tourism activities that are connected to the mining heritage.

1.1.1 Post-mining land use and mining domains

The Rasp Mine has four final land-use domains and seven mining domains as summarised in Table 1.1 and shown in Figure 1.5.

Domain codes are in accordance with the NSW *Resources Regulator Mine Rehabilitation Portal Guideline* (RR 2021a) NSW *Resources Regulator Guideline Rehabilitation Objectives and Rehabilitation Completion Criteria* (RR 2021b). Detailed descriptions of these domains can be found in the *Rehabilitation Management Plan Rasp Mine Plan* (EMM Consulting Pty Ltd, 2022).

Table 1.1 Rasp Mine – Post-mining land use domains

Code	Domain name	Area (ha)
Post-mining land use domains		
F	Water management areas	5.39
H	Heritage area	39.67
J	Final void	11.45
K	Other mining heritage related tourism	207.72
Mining domains		
1	Infrastructure areas	0.10
2	Tailings storage facilities	57.97

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3	Water management areas	10.49
4	Waste emplacement areas	135.06
5	Active mining area (Open cut void)	11.45
7	Beneficiation facility	5.80
8	Other – mining heritage related	43.37

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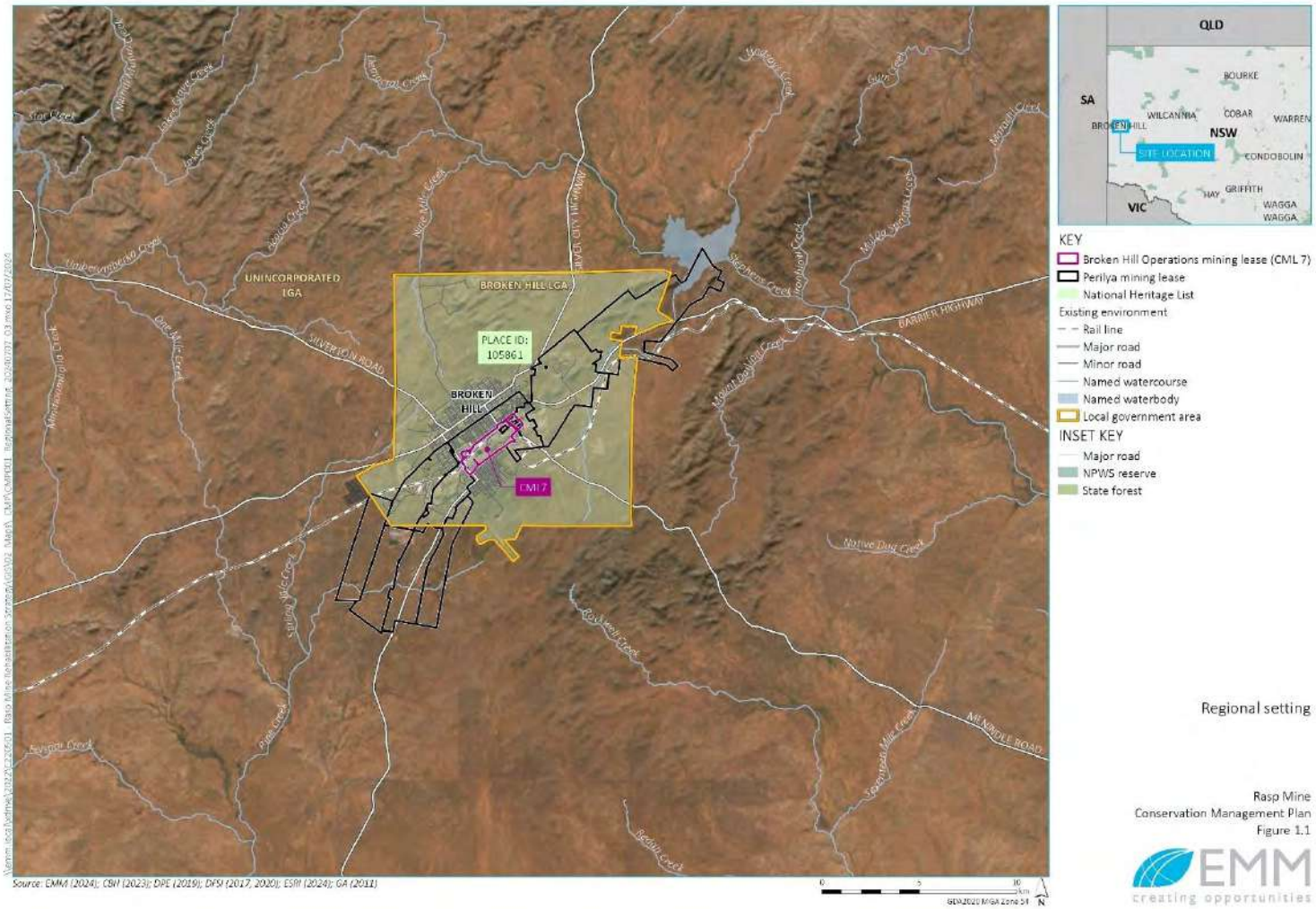


Figure 1.1 Regional setting

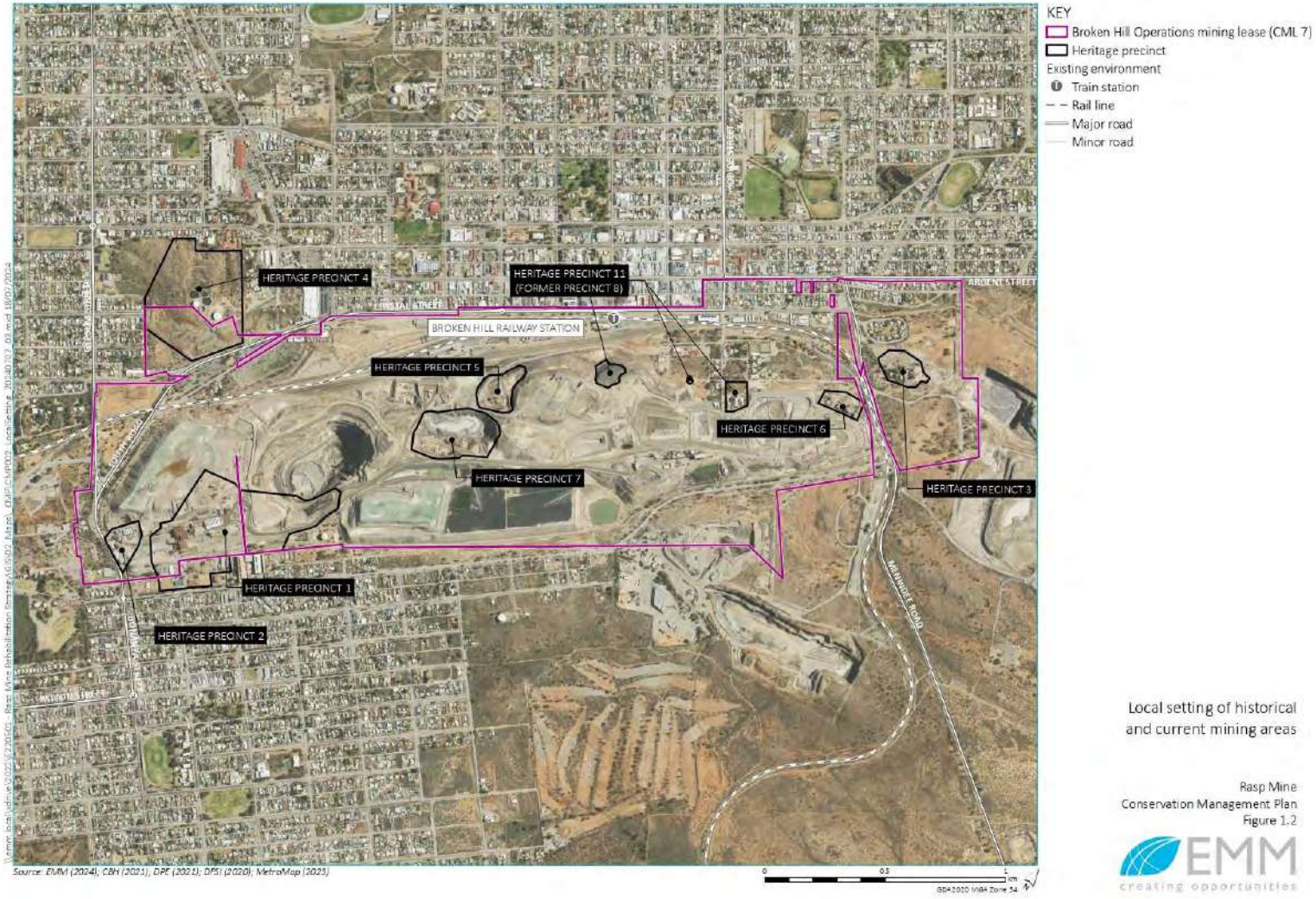


Figure 1.2 Local setting of historical and current mining areas

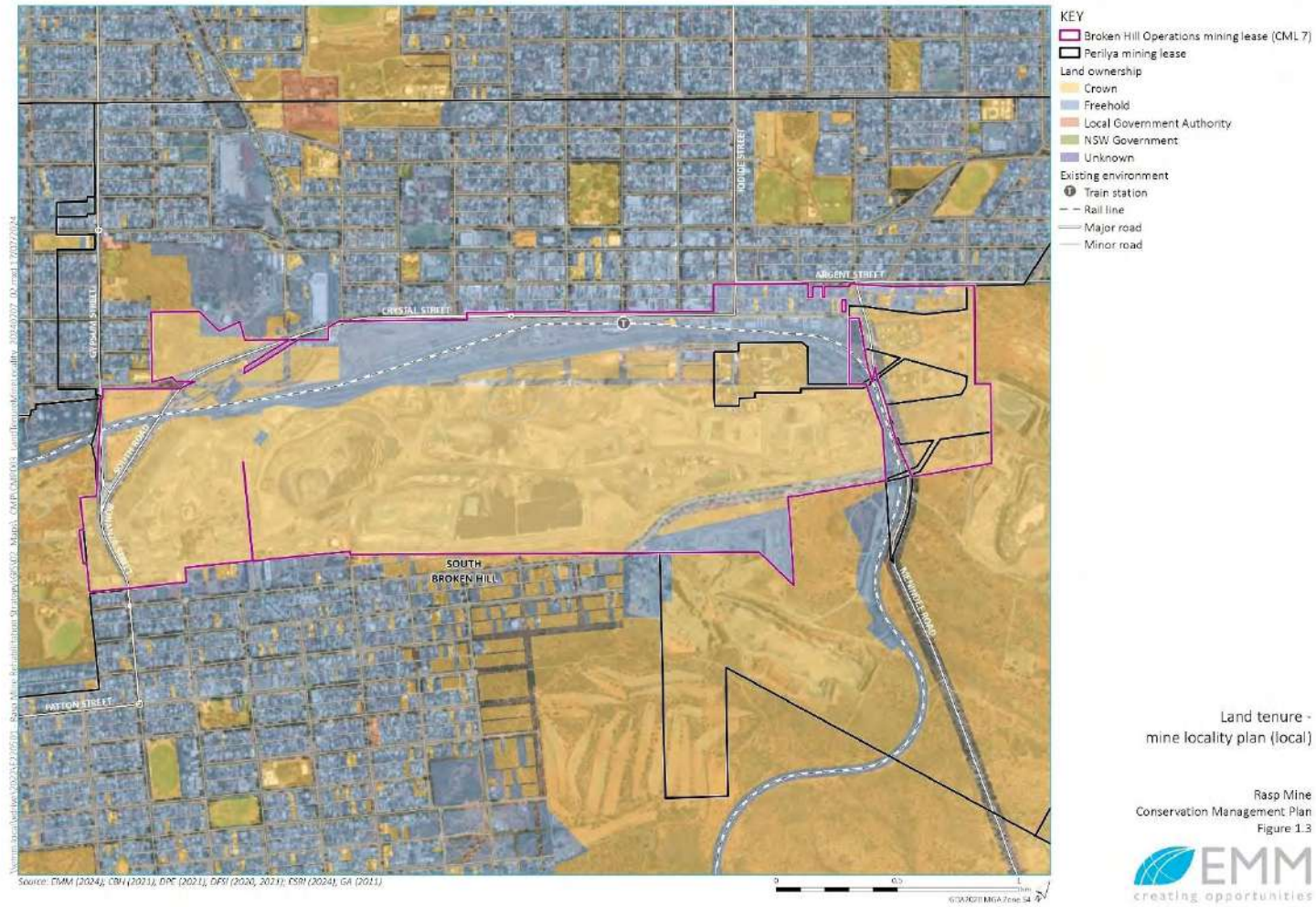


Figure 1.3 Land tenure and mine locality plan (local)

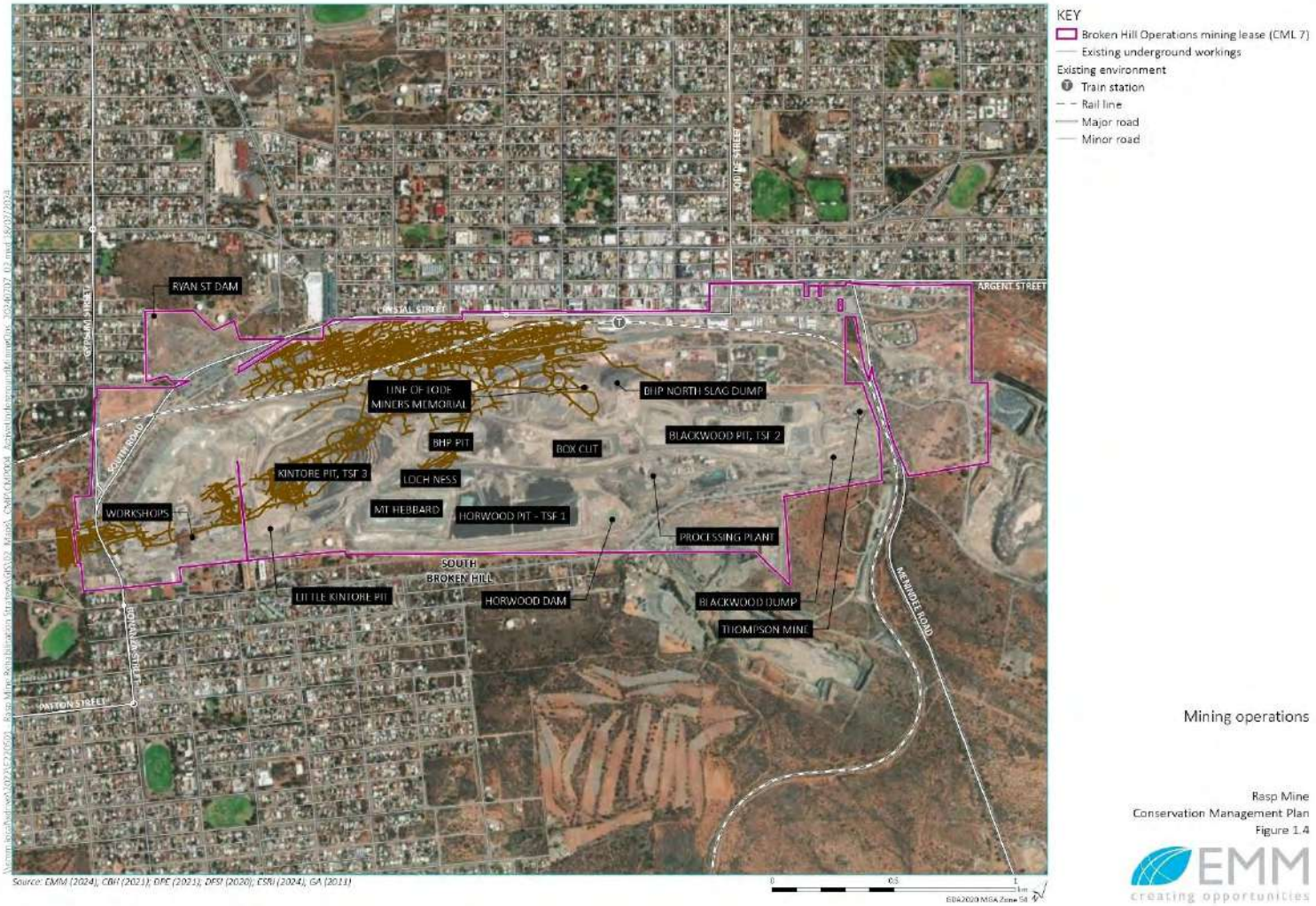


Figure 1.4 Undergroung mining operations

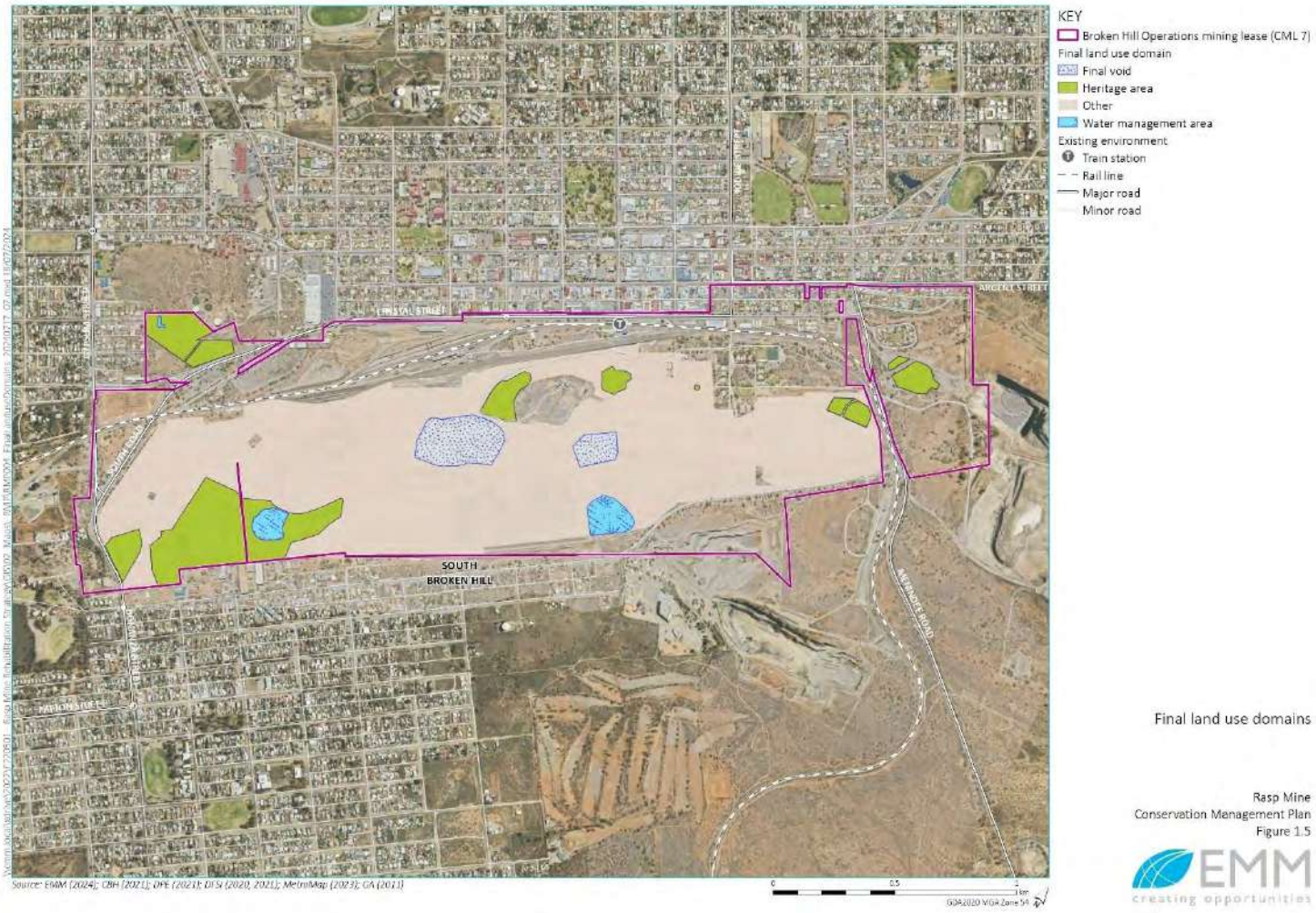


Figure 1.5 Final land use domains

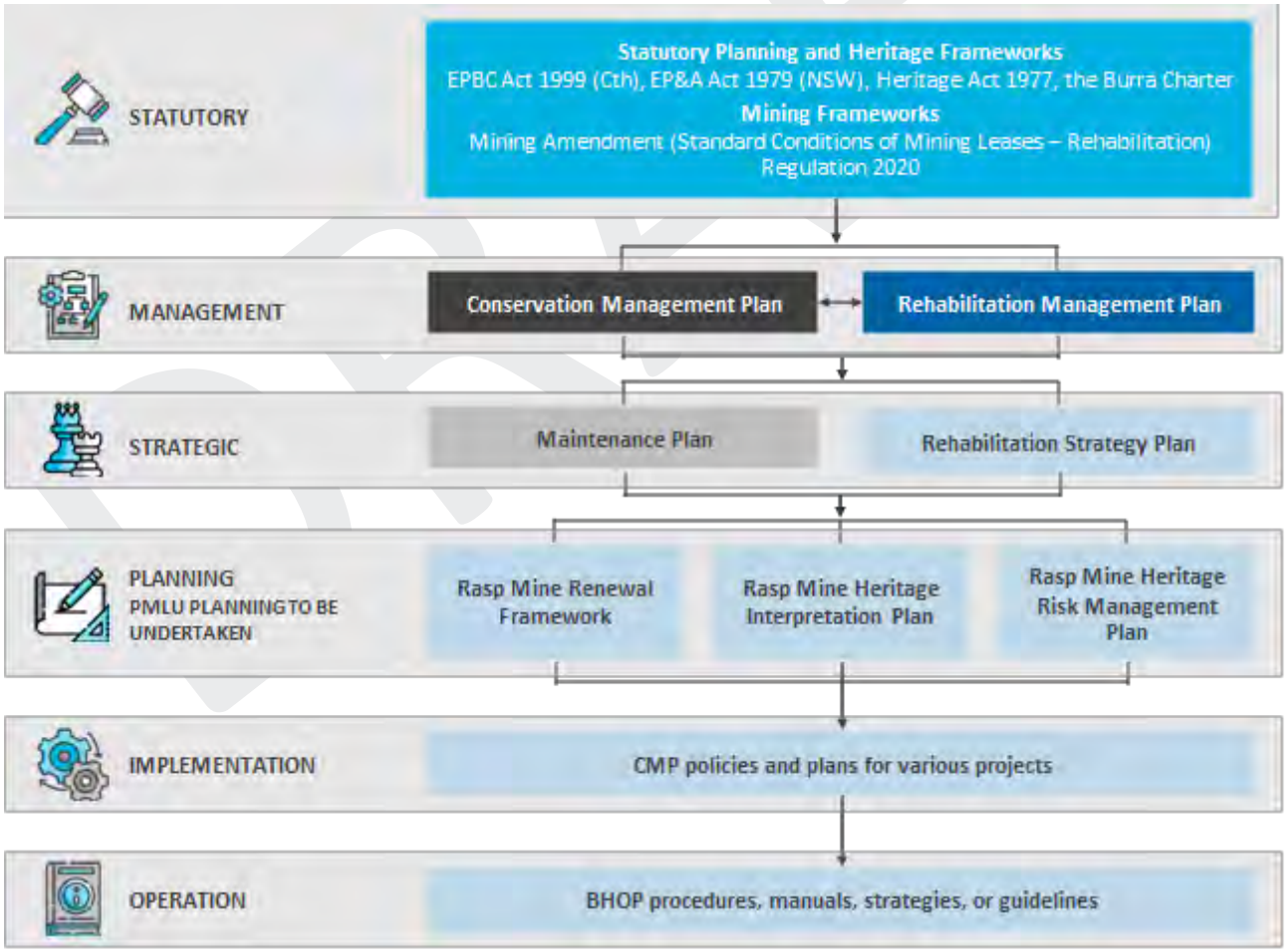
1.2 Relationship of conservation management plan to other documents

The heritage and statutory planning framework for the Rasp Mine is underpinned by key legislative acts such as the EPBC Act 1999 (Cth), EP&A Act 1979 (NSW), Heritage Act 1977 (NSW), and the *Burra Charter* (ICOMOS (Australia), 2013). In the mining domain, regulatory compliance is established by Mining Amendment Regulation 2020, governing the RMP and RS.

Site management involves a suite of plans, including the CMP and RMP, strategically implemented through the MP and RS. Post-mining activities and the determination of the PMLU necessitate the creation of future plans like the Rasp Mine Heritage Interpretation Plan, Rasp Mine Renewal Framework, and Rasp Mine Heritage Risk Management Plan.

These plans collectively align with broader management frameworks, guiding the formulation of policies and plans for various projects and elements. Implementation and operational aspects are governed by BHOP procedures, manuals, strategies, or guidelines, overseeing the effective translation of heritage and statutory frameworks into on-the-ground practices.

These documents are instrumental in safeguarding the site's historical, cultural, and heritage significance, which may have Local, State, or National significance. The relationships and functions of these documents within the broader management strategy of the Rasp Mine are visually represented in the accompanying diagram, illustrating their interconnected roles in preserving the site's heritage values.



1.2.1 Rasp Mine Rehabilitation Management Plan and Rasp Mine Rehabilitation Management Strategy

The overarching purpose of this CMP is to establish a strategic framework for the future use, conservation, and management of the Rasp Mine, owing to the implantation of the RMP (EMM Consulting Pty Ltd, 2022) and RS (EMM Consulting Pty Ltd, 2023), which was developed by EMM in August 2022 and July 2023. These plans, supersede the Mining Operations Plan (MOP) and are a direct response to the mandates set forth by 'the Mining Amendment Regulation, which took effect on 2 July 2021. In contrast to typical approaches that involve restoring the Rasp Mine to its natural or agricultural state, these documents recognise that the heritage significance of this site makes such a rehabilitation process unsuitable. Instead, they propose a 'base case' that focuses on creating a safe, stable, and environmentally friendly final landform for the entire site while accommodating mining heritage-related tourism. This approach allows for additional suitable PMLU options for the non-heritage aspects of the mine and is detailed in Section 1.1.

The RMP adheres to the new rehabilitation conditions, serving as a practical guideline for mining leaseholders. It encompasses essential elements such as risk assessment, the definition of rehabilitation objectives and criteria, progressive rehabilitation practices, and the formulation of a detailed RMP, particularly tailored for large-scale mining operations. Furthermore, the submission of annual rehabilitation reports supports ongoing monitoring and accountability of rehabilitation activities undertaken in the Rasp Mine's three-year 'forward program'.

Concurrently, the RS has been designed to extend its focus to encompass broader considerations. It takes into account diverse factors, including broader heritage values listed on the LEP and the SHR, dust management, water and leachate management, subsidence, visual amenity, and public safety. The RS encompasses a concept for the final rehabilitation landform design and plan, facilitating for a sustainable and effective transformation of the Rasp Mine post-mining. The RS develops a life-of-mine rehabilitation schedule, which maps progressive milestones, commencing from the inception of mining operations and culminating in decommissioning and mine closure. Moreover, it defines measures aimed at effectively managing and mitigating any adverse socio-economic effects that may emerge during the mining life cycle and heritage related tourism, thereby contributing to responsible site management.

1.2.2 Maintenance Plan

The MP in Appendix F is a component of the heritage preservation and management strategy for the Rasp Mine and works in conjunction with the CMP. Together, these documents play a pivotal role in safeguarding the historical, cultural, and heritage significance of the Rasp Mine, which extends to Local, State, and National levels.

The MP, as defined by the *Burra Charter* (ICOMOS (Australia), 2013), involves the continuous protective care of the fabric, contents, and setting of the site. It addresses various categories of maintenance, including corrective maintenance to bring structures to an acceptable standard, planned maintenance to prevent predictable failures, and emergency corrective maintenance for immediate health, safety, or security reasons.

Building maintenance is further categorised based on who carries out the work, distinguishing between housekeeping maintenance conducted by property managers and second-line maintenance performed by specialist building tradespeople. Additionally, equipment and plant maintenance on the site involve routine servicing and the replenishment of consumables, often guided by service contracts with suppliers.

The MP warrants that a heritage site remains in a state of good repair and is essential for its preservation. It aligns with the CMP's vision and strategies, confirming that day-to-day management practices correspond with the long-term conservation objectives set out in the CMP.

The CMP and MP are closely related, with the CMP laying the foundation and providing the overarching vision. It helps identify and prioritise heritage features, materials, and elements that require special attention in the MP. The CMP serves as a reference for the MP's objectives, contributing to the alignment of all maintenance activities with heritage conservation goals. In this way, the two documents work in tandem, with the CMP guiding the

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overarching vision, and the MP operationalising this vision through practical, on-the-ground maintenance and preservation efforts. This alignment contributes to holistic heritage conservation in a manner suited to a professional audience, with careful attention to detail and preservation of heritage values.

To provide a visual representation of the relationships and functions of these documents, an accompanying diagram in Section 1.2 illustrates their integration within the broader management strategy for the Rasp Mine. The response system detailed in the MP helps highlight urgent repairs promptly, thereby improving overall preservation efforts.

1.3 Site ownership and management

CML 7 consists of several mining leases that were originally gazetted in September 1886 and consolidated into CML 7 in 1987. Most of the land on which the CML 7 and MPL are located in land designated as '*Willyama Common Reserve 2421'* and managed by a trust, currently Broken Hill City Council. Other areas are located on Western Land Leases and a small portion of the CML 7 is freehold as identified in the Certificate of Title 4635/757298. The underlying tenure is shown on Figure 1.3.

There are a several other occupants conducting activities in CML 7 and these are listed Table 1.2, and Table 1.3.

The nearest residences to the active mine areas are located along Eyre Street, Bonanza Street and within the rail corridor. Mine residences owned by PBHOP are located in Proprietary Square.

Table 1.2 Land holding and occupiers within CML 7

Holding	Underlying land owner	Type	Usage	Area (ha)	Occupier
1	Crown	Willyama Common	Olive grove	2.59	Broken Hill Gourmet Products Cooperative Limited
2	Crown	Willyama Common	Vodaphone communications tower	0.1	Crown Castle Australia
3	Crown	Willyama Common	2 residences (South Road), 1 unoccupied and 1 tenanted	0.26	LOLRT
4	Crown	Willyama Common	Broken Earth Restaurant and Miners Memorial	5.61	LOLRT (the Miners Memorial is located on MPL 183 and 184) Licence to Occupy UG12R
5	Crown	Willyama Common	The British Flats in Proprietary Square, Item I21, unoccupied building	1.7	LOLRT
5A	Crown	Willyama Common	Residences 27A&B, to be repaired and used for public tourism (D4874)	0.6	JHRT
6	Crown	Willyama Common	As per MPL183	1.3	BHOP (Partial overlap with Holding 4 the Miners Memorial is located on this lease)
7	Crown	Willyama Common	As per MPL184	4.38	BHOP (Partial overlap with Holding 4 the Miners Memorial is located on this lease)

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Table 1.2 Land holding and occupiers within CML 7

Holding	Underlying land owner	Type	Usage	Area (ha)	Occupier
8	Crown	Willyama Common	As per MPL185	1.43	BHOP (Partial overlap with Holding 4 the Miners Memorial is located on this lease)
9	Crown	Willyama Common	As per MPL186	0.5	BHOP
10	BHOP	Freehold 4635/757298	Mining purposes	0.21	BHOP
11	Crown	Willyama Common	Tourism area, Browns Shaft	0.25	Broken Hill City Council, Licence to Occupy UG2-3A
12	Crown	Willyama Common	Tourism area, Block 10	1.29	Broken Hill City Council, Licence to Occupy C39-1L

Some of BHOP activities are not located within CML 7 and are located on adjacent freehold and Western Land Leases, these include:

Table 1.3 Land holding not located within CML 7

Holding	Underlying land owner	Type	Usage	Area (ha)	Occupier
1	BHOP	Freehold	Administration offices located in Eyre Street	2.59	Main Administrative building is owned as freehold by BHOP, administration block known as Radford House is leased by BHOP from Lifeline on a 5-year lease, expired 31 August 2021. BHOP purchased Radford House on the 28 July 2022.
2	BHOP	Freehold	Rail and Rail Loadout	0.1	Leased by BHOP from Australian Rail Track Corporation (ARTC) on a 10-year lease, expired 31 August 2021, with a 10-year option. An extension was acquired to 31 August 2031.
3	BHOP	Freehold	Stores Warehouse	0.26	Stores Warehouse – is located on Western Lands Leases

1.4 Rasp Mine Project Approval

The Rasp Mine PA 07_0018, issued by the Department of Planning, Housing and Infrastructure specifies conditions of consent. Several of these conditions relate to heritage, as summarised below:

- Condition 30 requires the preparation and implementation of a CMP for the Rasp Mine. This plan must adhere to the principles of the *Burra Charter* (ICOMOS (Australia), 2013), providing a strategic framework for all heritage items on the Lease. It should be developed in consultation with relevant authorities, such as the Office of Environment and Heritage (OEH) and Council.

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- Condition 34 mandates progressive rehabilitation, which includes measures to prevent measurable subsidence impacts, address dust emissions, preserve heritage value, and make the Rasp Mine suitable for commercial and educational purposes.

- Condition 35 necessitates the creation and implementation of a RMP for the project. This plan should align with relevant guidelines, reflect the aims of rehabilitation and closure, and be submitted for approval.

The complete Project Approval document is included as Appendix A.

1.5 Heritage status

1.5.1 Existing heritage listing

The entirety of the City of Broken Hill was formally inscribed on the NHL on the 20th of January 2015, Place ID, 10581. The boundaries of this NHL designation are visually depicted in Figure 1.6. The City of Broken Hill holds an exceptional place in the nation's heritage due to its pivotal role in shaping Australia into a modern and prosperous nation. The NHL listing is a recognition to its enduring legacy, spanning over 130 years of continual mining operations, its pioneering contributions to advancements in mining technology, its revolutionary efforts in establishing occupational health and safety standards, and its early initiatives in environmental regeneration in and around mining operations.

Within the Rasp Mine site, there are 76 individual heritage elements that are identified as heritage items on the LEP and one on the SHR, which have been categorised into eight heritage precincts. In addition, the Rasp Mine is located in proximity to three heritage conservation areas as well as several SHR items. In addition, The Line of Lode Place ID, RNE 101036, and Kintore Shaft Place ID, RNE 581, attained listing on the RNE on 21 November 2000, under the *Australian Heritage Commission Act 1975*, which is now considered a non-statutory heritage register.

The existing heritage listings in and around the Rasp Mine are annotated in Figure 1.7. The LEP item's individual heritage inventory forms are detailed in Appendix C.

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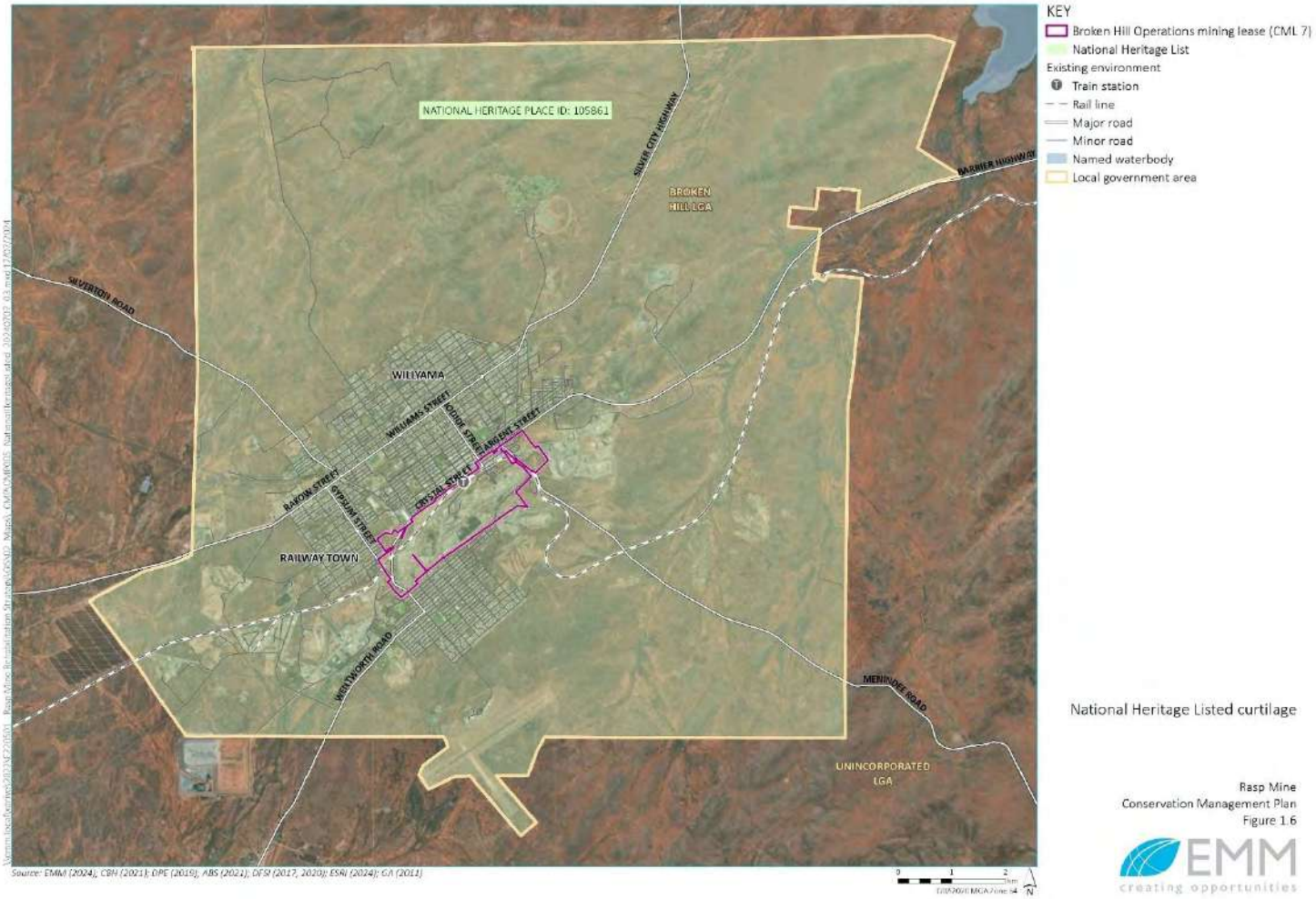

Figure 1.6 National Heritage Listed cutilage

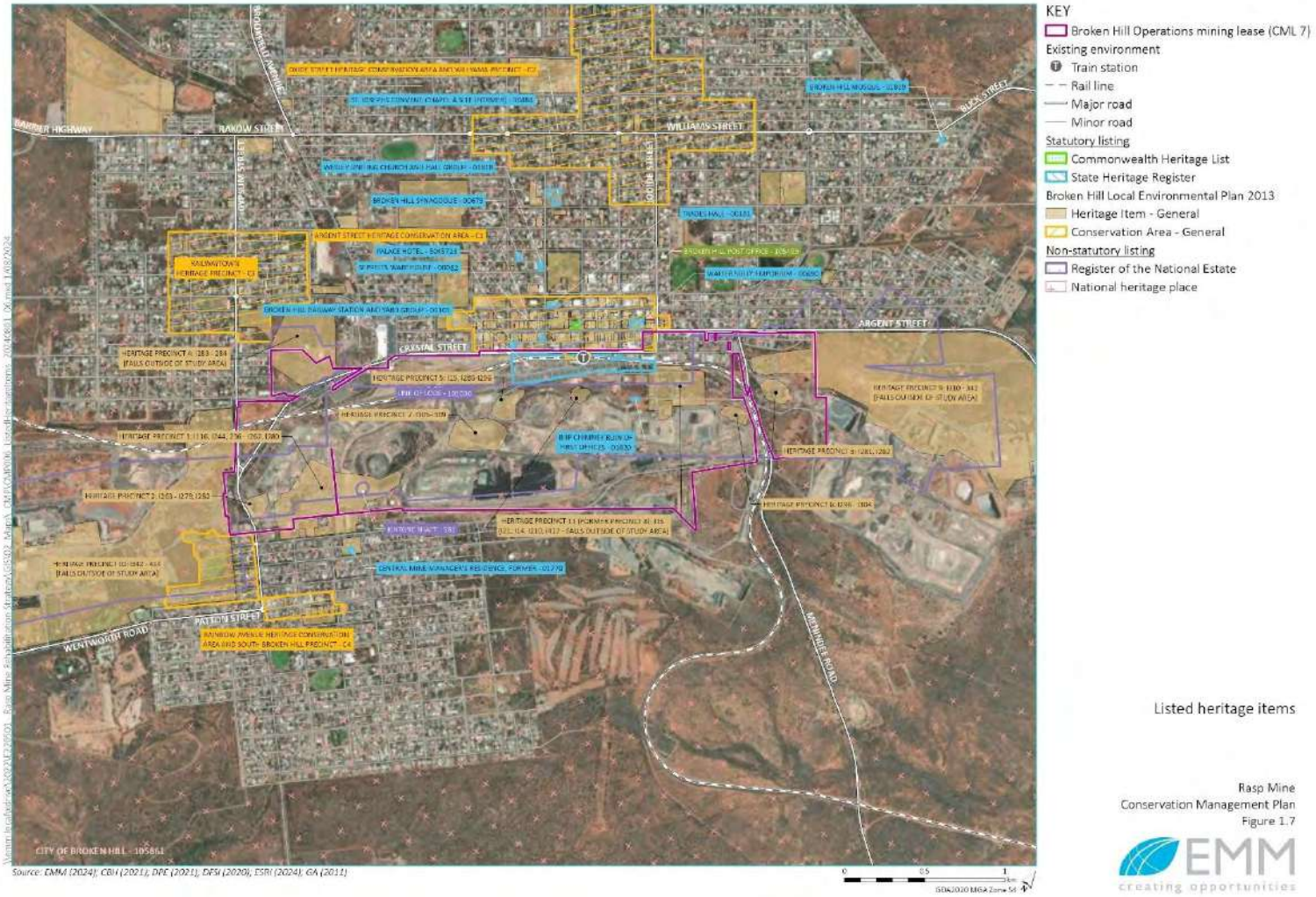

Figure 1.7 Listed heritage items

1.6 Guidelines referenced

The updated CMP has been prepared in accordance with the methodology outlined in the *NSW Heritage Manual guidelines for the preparation of Conservation Management Plans*, originally issued by the NSW Department of Urban Affairs and Planning and the Heritage Council of NSW in November 1996, with subsequent amendments in July 2002. Furthermore, it aligns with the principles and recommendations laid out in the *NSW Statement of Best Practice for Heritage Conservation Management Plans*, a document published in 2021 (NSW Government and Heritage Council of NSW, 2021).

In addition to these foundational references, the CMP adheres to the approach elucidated in James Semple Kerr's 7th edition of the *Conservation Plan, titled A Guide to the Preparation of Conservation Plans for Places of European Cultural Significance*, which was published in 2013 (Kerr, 2013). This approach is further guided by the principles outlined in *the Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance*, an internationally recognised framework that was revised and adopted in 2013 (ICOMOS (Australia), 2013).

The terminology used throughout this report is aligned with the definitions and standards set forth in the *NSW Heritage Manual*, which has been developed and endorsed by the NSW Heritage Office (NSW Heritage Office, 1977). For clarity and reference, definitions of the specific terms employed in this report are provided in the table above, ensuring that all technical language used is easily understood and correctly interpreted.

1.7 Limitations

The application of conservation policies in this plan is constrained by the specified study area, which corresponds to the Rasp Mine's heritage items under BHOP's ownership. This Rasp Mine encompasses the land and elevated structures owned by BHOP. It is essential to note that this CMP does not aim to provide an exhaustive historical account of the Rasp Mine, nor does it comprehensively document every aspect or component of its physical fabric.

Instead, this CMP offers a review of the Rasp Mine's significant values, identified opportunities and constraints, and outlines policies designed to safeguard and preserve these values. Its primary purpose is to serve as a key resource and management tool for individuals involved in the development of proposals or the decision-making process concerning the use, maintenance, management, and future of the Rasp Mine.

While these limitations have been identified within the CMP, it is important to note that they have been addressed and mitigated through the policy's strategic framework and approach.

To align with responsible conservation practices and an adaptive approach to meet the changing demands and available resources for the Rasp Mine, the following additional limitations are noted. These reflect the practical challenges and constraints encountered during the development of this document:

1. **Access to current and historical surface plant maps**: Documentation of the Rasp Mine's surface infrastructure, essential for effective conservation, was not readily available. This lack of documentation has impacted on the CMP's ability to provide comprehensive details.

2. **Archaeological potential**: This CMP makes some initial predictions about the location of archaeological deposits and features. However, it should be noted that archaeology may be located in other areas where there is no historical documentation or surface expression to indicate the presence of sub-surface deposits.

3. **Views from within the Rasp Mine**: Provisions for preserving specific views or aspects observed from within the mine are out of the scope of the CMP, impacting the conservation of unique viewpoints.

4. **Condition re-assessment**: Financial and time constraints prevented the reassessment of the 2013 condition assessments at the time of writing this report. However, funding was later secured to develop a strategic decision matrix and heritage evaluation, which will include a reassessment of the condition of the built

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heritage components. This reassessment aims to cover 26 items of high significance and 49 items of exceptional or outstanding significance, all contributing to the National Heritage values of the project area. This undertaking is intended to satisfy the objectives outlined in Section 5.11.3.

5. **Moveable and sub-surface heritage**: The CMP primarily concentrates on preserving surface heritage items in line with the scope's conservation objectives. Elements located beneath the surface and in-depth analysis of moveable heritage items with historical value are not within the current scope but remain open to future consideration.

6. **Maintenance Plan**: The implementation of a comprehensive, long-term strategy governing asset management, stabilisation, conservation efforts and maintenance with defined timeframes, cost projections, and specific objectives is out of scope of this project. A basic maintenance plan has been provided in Appendix F.

7. **Indigenous cultural heritage:** The assessment of Indigenous cultural heritage is beyond the purview of this CMP. While we recognise the significance of Indigenous cultural heritage, this CMP is specifically designed to address other aspects of management and does not include provisions for evaluating or managing Indigenous cultural heritage.

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EMM
creating opportunities

Section 2

Historical development of the Rasp Mine

Conservation Management Plan | Rasp Mine

2 Historical development of the Rasp Mine

2.1 Introduction

The history of mining in Broken Hill, situated in outback NSW, stands as a testament of innovation in the face of geological and spatial challenges. The region's abundant mineral deposits, particularly silver, lead, and zinc, have played a pivotal role in Australia's mining industry, consistently luring prospectors and mining corporations. Over the decades, the mining landscape of Broken Hill has undergone profound transformations, marked by distinct historical phases, technological advancements, and the evolving dynamics of economic and industrial factors.

2.2 Geological evolution

Broken Hill comprises of a significant mineral deposit running north to south. The area, known as Broken Hill, resembled a rocky ridge shaped like a coat hanger. It spanned nearly 8 km, with a notable width of up to 2 km some places, contrasted by some lode deposits which are only a few millimetres thick (Austral Archaeology Pty Ltd, 2013:8).

The geological history of the lode is complex. The minerals were formed horizontally on the seafloor during Precambrian times. Over time, they underwent processes like burial, crushing, tilting, folding, shearing, and metamorphosis (Austral Archaeology Pty Ltd, 2013:8).

The lode's present form consists mainly of lead and zinc sulphides, along with some silver, often in chloride form. Weathering processes over millions of years exposed the orebody to rainwater and underground water, leading to the oxidation of sulphides and the formation of soluble metal oxides and carbonates. This enriched the surface layer with concentrated metals (Austral Archaeology Pty Ltd, 2013:8).

Although initial samples suggested a rich silver mine, what lay beneath the surface was different. A few meters down, the proportion of silver dropped, and lead appeared in the form of challenging sulphides. Descending further, the zinc content increased rapidly, presenting metallurgical challenges (Austral Archaeology Pty Ltd, 2013:8).

Despite these difficulties, mining revealed that the mineralised zone was more extensive and deeper than expected. Over almost 130 years, Broken Hill transformed from a silver mine to Australia's largest lead mine and eventually became predominantly a zinc mine. This evolution spurred the development of mining and metallurgical technologies with global implications (Austral Archaeology Pty Ltd, 2013:8).

Source: Broken Hill Outback Archive

Plate 2.1 Views of the 'Broken Hill' in 1884 taken from the south west end and looking northeast

2.3 Historical context summary

The historical evolution of Broken Hill's mining landscape, exemplified by the Rasp Mine, can be thought of in three distinct phases. These phases are linked to socio-political and economic factors and changes in the ore body composition as mining shifted from silver to lead to zinc. Technological advancements also played a role in attracting capital to the mining field ((Kearns, 1982); (Latona Masterman and Associates, 1987)).

While Kearns (Kearns, 1982) and Latona Masterman and Associates (Latona Masterman and Associates, 1987) may disagree on the specific dates of these phases, they roughly agree on three phases:

- Phase 1 (early silver mining era): 1883 to 1893
- Phase 2 (lead and zinc mining era): 1894 to 1914 (Kearns, 1982) or 1894 to 1918 (Latona Masterman and Associates, 1987)
- Phase 3: A continuous period of mining thereafter.

The initial development phase, spanning from approximately 1883 to 1893, marked the genesis of mining in Broken Hill. During this period, the focus was on exploration, with mining claims staked, and the Syndicate of Seven (otherwise known as the syndicate) emerged as a pioneering entity. However, the comprehension of the ore body's composition was rudimentary at best, with the primary objective being the extraction of silver.

The second development phase, encompassing the years from 1894 to 1914 (or 1918), ushered in an era of organised, industrialised mining. It was during this time that major mining corporations, notably the BHP, came to the forefront. They embraced technological advancements and transitioned their focus from silver to the abundant reserves of lead and zinc. This marked a significant shift towards more structured and extensive mining operations. Notably, this phase is marked by the culmination of infrastructural developments in the region, strategically aligned with the ore body's contours.

Following these formative phases, Broken Hill entered into an era continuous of mining, which extends into the present day. This development phase has been characterised by the ongoing and dynamic nature of mining operations. Mining companies in the region, particularly BHP, have adapted their strategies to align with market demands and incorporate cutting-edge mining technologies.

The Rasp Mine, as demonstrated in Table 2.1, provides a chronology of these three development phases. In its early days, the syndicate vigorously explored and staked claims, setting the stage for the subsequent mining boom. The construction of smelting furnaces and the establishment of key transportation infrastructure, such as the Silverton Tramway, underscored the industrialisation phase of the Rasp Mine’s development. This laid the foundation for the enduring presence of the Rasp Mine in Broken Hill's mining landscape, with multiple shafts and ongoing mining operations.

The history, as shown in Table 2.1 and Figure 2.2 not only underscores the economic significance of mining in the region but also highlights the integral role played by the Rasp Mine in shaping the history along the Line of Lode.

The following sections in Section 2 provide an overview of the historical development of the mining precincts in the Rasp Mine’s CML 7 boundary, as outlined in Table 2.1. Detailed development timelines for the Rasp Mine’s Heritage Precincts can be found in Appendix B.

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Table 2.1 Summary of the history of Rasp Mine

Date	Developments
Phase 1 (Approx. 1883-1893) This early phase marked the initial development of mining in Broken Hill, focusing on extracting silver. It set the foundation for what development would come next.	
Pre-1844 (and ongoing)	Country of the Wilyakali people of the Darling River Paakantyi language group.
1844	Sturt climbs the Broken Hill ridge with hopes of viewing an inland sea.
1850s	*Kinchega* run taken up by John McKinlay.
1858	Search for gold in the Barrier Ranges, no deposits found.
Early 1860s	*Mount Gipps* run taken up by Cunningham and Macredie.
1866	*Mount Gipps* transferred to J. McCulloch, R. Sellars and Company. George McCulloch is the run manager.
1867	Gold reported on *Poolamacca* station but is never registered.
1875	Mineral discoveries in Barrier Ranges as gold and silver-lead ore found on *Thackaringa* station.
1880	Thackaringa township established.
	Gold discovered at Mount Poole and Mount Brown.
1882	Silver ore found at Umberumberka.
	Silverton township established.
1883	Charles Rasp discovered silver-lead ore discovered at Broken Hill.
	Syndicate of Seven formed, first mining leases registered (Blocks 10 to 16).
1884	Syndicate of Seven sink Rasp Mine on Block 13. Hut built on Block 14 for Syndicate Mine manager.
	Blocks 5 to 7 pegged out by William, George and Charles Maiden. Block 8 claimed by George White. Blocks 5 to 8 sold to Keats and company.
	Block 9 pegged out but Michael Farrell and Thomas Harwood Nutt. Old Kintore Shaft sunk.
	Block 39 pegged out by Penglase and Carson.
1885	BHP formed, holding blocks 10 to 16.
	North shaft sunk on Block 39.
	BHP constructed a smelting furnace.
	North Broken Hill Mining Company formed, holding Blocks 17 and 43.
	Town of Broken Hill established.
1886	Broken Hill South Silver Mining Company formed, holding Blocks 7 and 8. Mining commences on Blocks 7 to 8.
	Central Broken Hill Silver Mining Company formed, holding Block 9.
	Broken Hill Junction Silver Mining Company Limited registered. Browne's Shaft sunk on Junction Mine (Block 39).

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Table 2.1 Summary of the history of Rasp Mine

Date	Developments
1887	BHP smelter built north end of Block 12.
	BHP subsidiary Broken Hill Proprietary Block 14 Company Limited took over Block 14.
1887	Port Pirie railway extended to Cockburn.
	BHP acquired Blocks 15 and 16 (British Mine).
	Oregon square-set timbering adopted.
1888	Silverton Tramway opened.
	No 4 Shaft sunk on Block 7. Ore processing begins on Blocks 7 and 8.
	BHP created subsidiary Broken Hill Proprietary Block 10 Company Limited to mine Block 10. Mining begins on Block 10.
	Blackwood's Shaft (No 1 Shaft), No. 3 Shaft, Eyre Shaft (No 4 Shaft), Thompsons Shaft (No 5 Shaft), Patton Shaft (No 7 Shaft), Howell Shaft (No 2 Shaft), and Marsh Shaft (No 6 Shaft) sunk on British Mine.
	North Slag Dump begun on BHP Mine.
	Investment boom.
1889	BHP concentrating mill built.
	The Amalgamated Miners Association (AMA) Strike.
1891	Opencut mining began on BHP Mine (Block 13).
1892	BHP moved smelting operations to Port Pirie.
	Work on Thompson's Shaft (Block 15) suspended.
	Central Broken Hill Company No Liability collapsed.
	AMA strike.
1893	BHP opencut expanded.
	Silver price fell.
Phase 2 (Approx. 1894-1914 or 1894-1918*): During this period, mining in Broken Hill transitioned from silver to lead and then zinc. It was influenced by socio-political and economic factors. Technological advancements played a key role, attracting more capital to the mining field. *This CMP uses 1894-1918 as the dates for Phase 2.	
1895	Sulphide Corporation Ltd took over Central Mine (Blocks 9 and 38). Old Kintore Shaft cut open and used as mullock dump.
	Dumping of slag on Block 12.
1897	Construction of BHP's first sulphide concentration mill (Block 12).
	Underground fire on BHP Mine.
1898	Smelting ceased in Broken Hill.
1899	Thompsons Shaft reconditioned.

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Table 2.1 Summary of the history of Rasp Mine

Date	Developments
1900	Delprat shaft sunk on Block 12.
	No 5 Shaft Sunk on South Mine and new BHS mill.
1903	First flotation plant at Broken Hill opened on Block 14.
	Subsidence on Block 10 lead to relocation of concentration mill.
1904	Sulphuric acid plant and “salt-cake” production plant built as per Potter-Delprat process.
1905	Central Mine mill destroyed by creep. Central Mine assay office moved to Eyre Street, South Broken Hill.
	New Kintore shaft sunk on Block 9.
1906	Extensive underground fire on Junction Mine.
	Underground fire on BHP Mine.
1907	BHP opencut closed.
1909	Strike and lockout.
1910	Zinc flotation plant opened on South Mine.
1911	Labour shortages.
1913	Silverton Tramway Co. strike.
1914	Outbreak of war caused disruption of markets.
1916	BHS No. 4 shaft, winder & changehouse.
	Strike action for 5 weeks.
1918	Broken Hill South Silver Mining Company Ltd became BHS
	Union and industrial action across the Line of Lode.
	Importation of Oregon timber ceased.
Phase 3 (1918 – Present of continuous mining): Following the second phase, mining activities continued without distinct breaks. This phase is characterised by ongoing developments, reflecting the changing understanding of the ore body and the incorporation of advanced technologies.	
1919 1920	Famously known as 'The Big Strike,' epitomised a historic chapter in labour activism. The mineworkers engaged in what is hailed as the world's longest strike from 1919 to 1920. Their efforts during those eighteen months secured conditions that elevated the standards for workers across Australia.
1921	Underground mining stopped on BHP Mine.
	Junction Mine closed.
1923	Broken Hill Proprietary Block 10 Company Limited closed.
	Sulphide Corporation purchased Junction Mine.
	Underground fire on Central Mine.
1924	BHP repurchased Block 10.

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Table 2.1 Summary of the history of Rasp Mine

Date	Developments
1925	No 7 Shaft sunk on Block 7.
1929	North Broken Hill Limited purchased Block 39, along with the neighbouring British Mine (Blocks 15 and 16).
1931	Central Power Station built by North Broken Hill Limited, BHS, and the Zinc Corporation.
1932	Great Depression.
1933	BHS took over Blocks 15, 16 & 39 (British & Junction leases).
	Willyama Mining Proprietary Limited purchased Block 14.
1935	Zinc Corporation commenced mining south end of lode.
1936	Zinc Corporation formed New Broken Hill Consolidated.
	Office building on Block 15 converted to British Flats staff housing.
1939	BHP ceased mining at Broken Hill.
1940	Mining ceased on Central Mine, headframes demolished.
1942	North Mine took over Block 14.
1943	BHS acquired Central Mine Block 9 and Blocks 10, 11, 12, and 13 of the BHP Mine.
1945	BHS re-opened Kintore Shaft. No 5 Shaft headframe transferred to Kintore Shaft.
1946	Brownes Shaft, Junction Mine, reopened.
1948	Additional generators added to Central Power Station.
1949	Consolidated Zinc took over the Zinc Corporation properties.
1950	Underground haulage shaft constructed from Delprat Shaft to No 7 Shaft. South Mine No 7 Shaft closed.
1952	BHS formed Barrier Central to mine Blocks 10-13.
	Delprat Shaft reconditioned.
1959	Kintore shaft closed.
1962	BHS took over British & Junction mines (Blocks 15, 16 and 39) and Block 14.
	Long Drive Shaft from Junction Mine to No. 7 Shaft.
	Conzinc Rio Tinto of Australia formed.
1972	BHS ceased operations. Mining Minerals & Metallurgy took over South and Central Mine leases
1974	MMM Blackwood opencut started on Block 15.
1976	MMM stopped underground mining on all blocks except Block 14.
1977	Delprat Shaft opened as tourist site.
1981	Interim Conservation Order placed on Kintore mine area.
	Blackwood opencut expanded to meet Phase 2 on Block 14.

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Table 2.1 Summary of the history of Rasp Mine

Date	Developments
1983	MMM Kintore opencut (phase 1) started on Block 10.
1984	Kintore headframe moved to museum precinct.
1988	Zinc Corporation merger to form Pasminco. Pasminco took over North Broken Hill Limited items.
1991	Normandy took over MMM holdings (Blocks 7-16 and 39).
1993	North Mine closed
2001	Redfire Resources, later Consolidated Broken Hill (CBH Resources), took over Normandy Blocks 7-16.
2002	PBHOP purchased Pasminco holdings.
2004	CBH Resources formed subsidiary Broken Hill Operations Pty Ltd.
2007	Broken Hill Operations Pty Ltd commenced exploration of Rasp Mine.
	Delprat Shaft tourist site closed.
2010	Broken Hill Operations Pty Ltd obtained lease of CML 7.
	PBHOP gifted the Central Power Station to Broken Hill Council to convert into a film studio.

2.4 The environment of pre and early contact

Information regarding the socio-cultural structure of Aboriginal society prior to European contact primarily derive from ethno-historical accounts made by colonial settlers. It is important to note that these accounts and observations were made in the aftermath of significant disruptions caused by disease, physical and cultural displacement. Consequently, this information is often contentious, particularly in relation to language group boundaries.

Broken Hill is in the traditional country of the Wilyakali people (also known by 16 different variations including Wiljakali, and Wiljali) of the Darling River Paakantyi (also Barkindji) language group (Moblie Language Team, no date; Tindale, 1974:200). According to Tindale's (1974:200) records from 1974, Wilyakali Country extended across a vast expanse of 21,800 square km from the Barrier Ranges to Olary in South Australia, to the west, with the southern boundary marked by Mutooroo, South Australia, and the northern boundary marked by the Sturt Meadows in NSW (Plate 2.2). The Wilyakali and neighbouring Danggali form the "Southern Dialects" of the Paakantyi language group (Moblie Language Team, n.d.).

The Wiljakali travelled around their country seasonally, making use of the aquatic resources of the Darling River system and Menindee Lakes during spring and summer. Family groups would then disperse across the plains following seasonal rains (Aboriginal Housing Office, no date; New South Wales Archaeology Pty Limited, 2007:31–32). In addition to utilising the flora and fauna resources of the Mallee scrub, the Broken Hill area was rich in quartz reefs, which the Wiljakali used for stone tool production (New South Wales Archaeology Pty Limited, 2007:32, 41). Archaeological investigations conducted around Broken Hill have found large campsite complexes with evidence of ovens, seed grinding, and stone tool manufacturing (New South Wales Archaeology Pty Limited, 2007:41).

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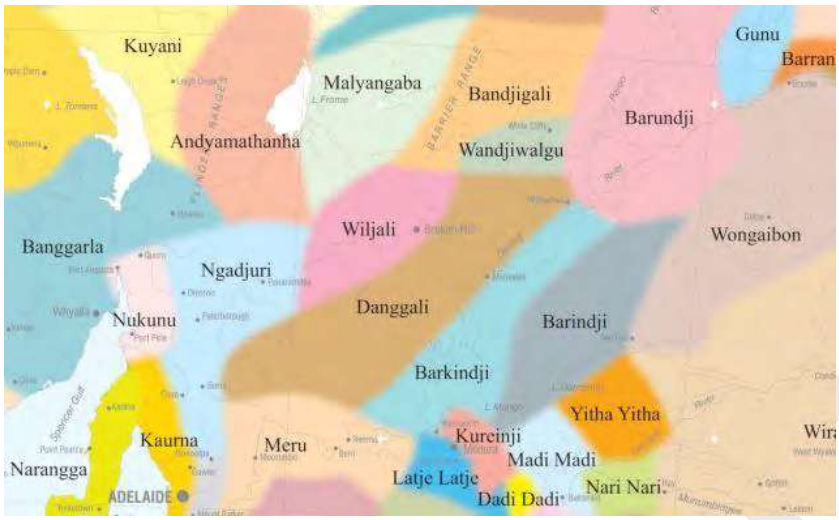
The significance of water in European pastoral enterprises led to the displacement of the local Wiljakali people from their traditional lands (Godden Mackay Heritage Consultants and Mary Dallas Consulting Archaeologists, 1998:25). Conflict, disease, and dispossession of their homeland resulted in a decline in the number of Aboriginal people living in Broken Hill over the nineteenth and twentieth centuries. Nevertheless, some members of the Paakantyi continue to reside in the local region, maintaining their connection to and care for Country (GMHC and MDCA, 1998:25).



Source: AIATSIS Map of Indigenous Australia (1996)

Plate 2.2 Detail showing Wilyakali Country

2.5 Colonial exploration and settlement

In 1817, John Oxley ventured westward along the Lachlan River and hypothesised that the waterway might lead to an inland sea (New South Wales Archaeology Pty Limited, 2007:53). The first European expedition into the Broken Hill area was led by Charles Sturt in 1844 (GMHC and MDCA, 1998:38). In October 1844, Sturt and his second in command, John Poole, climbed the Broken Hill ridge with the hope of sighting the fabled inland sea (Broken Hill Proprietary Company Ltd., 1935:5). However, instead of a sea, the party encountered a mirage across the "dry and useless" plains (Broken Hill Proprietary Company Ltd., 1935:5; GMHC and MDCA, 1998:38). Although the party collected mineral specimens from Broken Hill, these samples were lost before they could be studied (Broken Hill Proprietary Company Ltd., 1935:5).

Sturt's reports of the "useless" landscape did not deter squatters from settling in the region, and settlement west of the Darling River began from 1847 (GMHC and MDCA, 1998:38). Broken Hill falls within the boundaries of the Mount Gipps pastoral run, established by Victoria-based stock firm and wool merchants Cunningham and Macredie in the early 1860s, and Kinchega run, established in the 1850s by explorer John McKinlay (Plate 2.3) (New South Wales Government Gazette, 8 February 1866:402; Morning Bulletin, 28 September 1908:4; Austral Archaeology Pty Ltd, 1990:3,7). These pastoral stations west of the Darling River served primarily as supplementary holdings to support the owner's run closer to transport routes and markets (GMHC and MDCA, 1998:38). By 1863, Mount Gipps covered an area of 128,000 acres (51,800 hectares (Ha)) with an estimated grazing capacity of 4,000 sheep (Bailliere, 1866:373). In 1866, the grazing licence for Mount Gipps was transferred to Melbourne stock firm J. McCulloch, R. Sellars and Company (New South Wales Government Gazette, 8 February 1866:402). Sheep grazing continued, with George McCulloch, the nephew of Sir James McCulloch, the Premier of Victoria, managing the run (Broken Hill Proprietary Company Ltd., 1935:6). The Mount Gipps headstation was situated on Mount Gipps Creek, a tributary of Stephen's Creek, north of the present-day Broken Hill city (Broken Hill Proprietary Company Ltd., 1935:6).

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As the gold rush of the 1850s subsided, settlers began searching for geological indications of gold in their local areas (Broken Hill Proprietary Company Ltd., 1935:5–6). In 1858, a prospecting party departed from Adelaide in an unsuccessful search for gold in the Barrier Ranges. Many prospectors expressed interested in the region, but the harsh environment impeded further exploration (Broken Hill Proprietary Company Ltd., 1935:5; NSW National Parks and Wildlife Service, 2003:44; NSW Archaeology Pty Limited, 2007:56). Nevertheless, pastoralists soon began reporting potential gold-bearing quartz outcrops on their land to the Government Assay Office in Adelaide (NSW Archaeology Pty Limited, 2007:56). In 1867, gold was reported at Poolamacca station, but the employee who supposedly made the discovery never reached the office to register the claim (NSW Archaeology Pty Limited, 2007:56). From the 1870s, interest shifted from gold to precious metals and mineral, leading to the discovery of silver-lead ore at the Thackaringa station in 1875 (NSW Archaeology Pty Limited, 2007:56). This discovery subsequently led to findings of gold at Mount Poole and Mount Brown in 1880 and silver ore at Umberumberka in 1882 (3-D Projects, 2002:12; NSW Archaeology Pty Limited, 2007:56). The town of Silverton was established in 1882, northwest of Broken Hill, which further promoted transportation connections and additional settlement west of the Darling River (3-D Projects, 2002:12; NSW National Parks and Wildlife Service, 2003:44).

Source: HLRV, approximate location of CML 7 shown in blue polygon

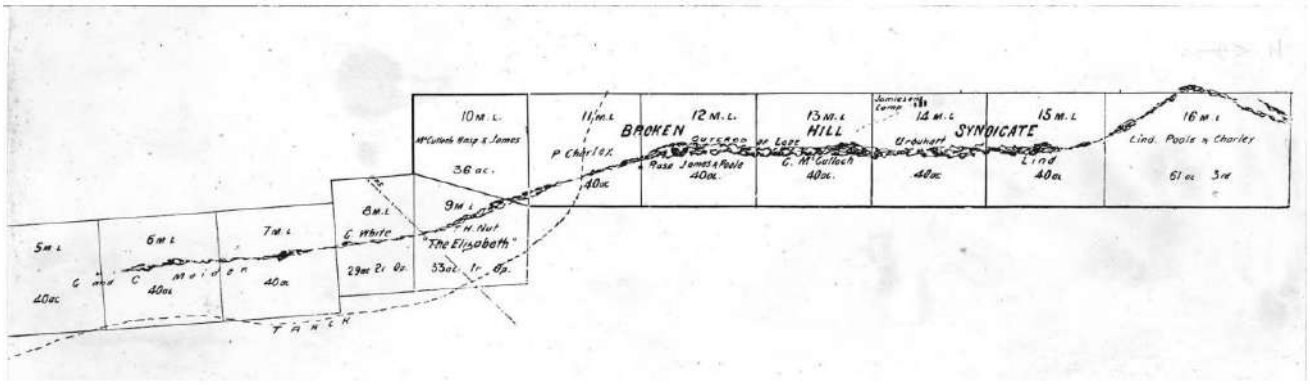
Plate 2.3 Undated plan of Mount Gipps run showing the location of the current Broken Hill city reserve

2.6 Mining at Broken Hill

In September 1883, Charles Rasp (born Hieronymous von Pereira), a Portuguese-Prussian station hand at Mount Gipps station who had been prospecting in his spare time, ascended the ironstone ridge known as the "The Broken Hill" and collected mineral specimens for assay (3-D Projects, 2002:13). Rasp initially thought the hill's black colourisation was due to tin oxide, but the sampled mineral revealed the presence of lead and silver deposits (Broken Hill Proprietary Company Ltd., 1935:6; 3-D Projects, 2002:13).

Following this discovery, Rasp encouraged labourers, David James and James Poole to peg out a 40 acre (12.1 Ha) claim on the Broken Hill ridge (Broken Hill Proprietary Company Ltd., 1935:6; Austral Archaeology Pty Ltd, 2013:8). The trio then submitted an application for a mineral lease for this block, later known as Block 12, and commenced preparations for mining the claim (Broken Hill Proprietary Company Ltd., 1935:6). The trio's efforts drew the attention of station manager George McCulloch, who became the financial supporter of the prospecting enterprise and formed a syndicate with other station personnel (Broken Hill Proprietary Company Ltd., 1935:6). The enterprise included sheep overseer George Urquhart, storekeeper George A. M. Lind, and station hand Phillip

Charley, ultimately becoming the Syndicate of Seven (Broken Hill Proprietary Company Ltd., 1935:6; Austral Archaeology Pty Ltd, 2013:8). Rasp and McCulloch soon pegged out additional blocks along Broken Hill, forming historical Mining Leases 10 to 16 (Plate 2.8). The Syndicate began sinking Rasp Shaft on Mining Lease 13 in October 1884 (Photograph 2.1) (Austral Archaeology Pty Ltd, 1994:27).



Source: Davies Architects and Heritage Consultants 2021:76

Plate 2.4 Early plan of origional mining leases on the Line of Lode

Source: Nixon 2017:24

Photograph 2.1 The sinking of Rasp Shaft, 1884

2.6.1 The early silver mining period (1883-1893)

Conditions on the early field were very primitive (Plate 2.5). There was no settlement or infrastructure in existence, water was scarce, all supplies of food, tools, explosives, and building materials had to come from Adelaide, and all ore mined had to be sent there. South Australia had built a railway from Port Pirie east through the wheatlands in the 1870s, but it stopped at Petersburg, nearly 300 km from Broken Hill, and from there everything had to travel by dray on rough tracks (Austral Archaeology Pty Ltd, 2013:9).

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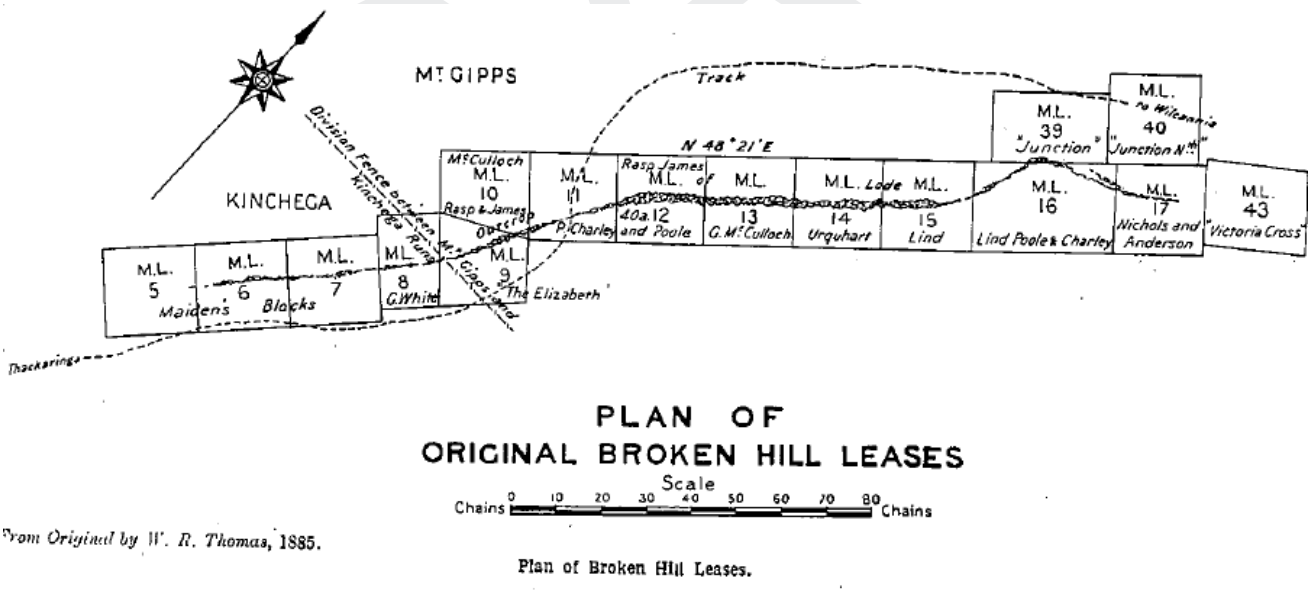
Source: Kearns, 1996

Plate 2.5 Sketch of the Broken Hill Settlemetn (now Delamore St) in 1885 by Surveyor, W R Thomas

As the extent of the ore lode became apparent, miners from Silverton and other areas migrated to Broken Hill to stake claims and mine the orebody (3-D Projects, 2002:13; Austral Archaeology Pty Ltd, 2013:8). The original syndicate had so far spent about £3,000 in exploration, a lot of money for station hands, and some of its members had dropped out. Fluctuating yields prompted the transfer and sale of syndicate shares, leading to the reorganisation of the Syndicate of Seven in 1885, ultimately forming the BHP to raise £18,000 on the market. After a series of deals, the Company acquired Lease blocks 10-16, which were situation in the centre of the lode ridge (Broken Hill Proprietary Company Ltd., 1935:7–8; Austral Archaeology Pty Ltd, 2013:10). Over the subsequent decades, additional blocks were taken up by other companies.

Within months the Broken Hill South Silver Mining Company (BHSSMC) was formed, holding Blocks 7-8, and the North Broken Hill Mining Company (NBH), holding Blocks 17 and 43. Between them, the three companies held 3 km of the most mineralised ground, setting the pattern in which they and their successor companies would dominate the field for the next 80 years (Austral Archaeology Pty Ltd, 2013:9). In 1885, the town of Broken Hill was surveyed as two grid plans east and west of the line of lode, and businesses began to appear in its streets. The overall form of the mines and the adjacent mining city of Broken Hill was established (Plate 2.6).



Source: Austral Archaeology 1990:3

Plate 2.6 1885 Plan of Original Broken Hill Leases

No matter how prosperous the mines were, hauling ore in drays to smelters in Adelaide was not sustainable, and the urgent need was to reduce production costs. The companies did not have a united approach to this, and over the next few decades there would be varied experiments in how to mine, whether to concentrate the ore and where to smelt. But one thing that unified all miners on the field was their need for a railway to the coast (Austral Archaeology Pty Ltd, 2013:9).

As the only practical route to the coast crossed the colonial boundary, there had to be a cooperative effort to provide the necessary rail link. In 1887 the South Australian government extended their Port Pirie railway to Cockburn on the border (Austral Archaeology Pty Ltd, 2013:9). The following year the private Silverton Tramway opened, connecting it to Broken Hill via Silverton. Broken Hill now had direct railway access to Port Pirie, dramatically reducing the cost of mining. The government of NSW played no part in the process, and it would be fifty years before Broken Hill had a direct rail link to Sydney (Austral Archaeology Pty Ltd, 2013:9).

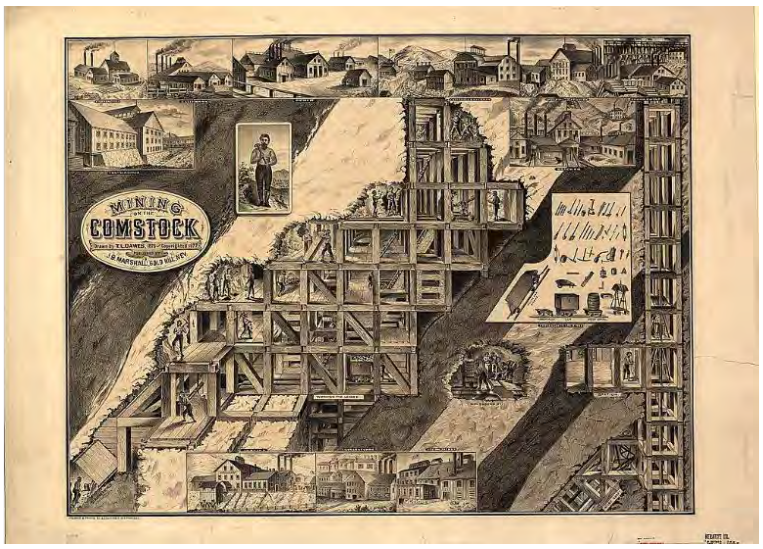
This was the second decisive event in shaping Broken Hill and its mining industry. Its long-term effect was to take Broken Hill from NSW and make it part of the South Australian economy. The railway also brought an immediate investment boom, ushering in Broken Hill's first great era of prosperity (Austral Archaeology Pty Ltd, 2013:9). With daily trains bringing building materials and smelter fuel, Broken Hill underwent the biggest physical changes it had yet seen.

In 1886, before the railway opened, BHP had a smelter underway, the first on the field. BHP and the North Mine had both built large concentrating mills by 1889 (Austral Archaeology Pty Ltd, 2013:9). A number of new companies appeared, although they had many of the same shareholders. In 1887 BHP diversified its interests and its leases into a series of subsidiary companies to work specific sections of the lode: the Block 10 Company, Block 14 Company and British Company (Austral Archaeology Pty Ltd, 2013:9). All of these companies built concentrating mills and smelters, as did BHS (Photograph 2.2). The British company also built a smelter at Port Pirie in 1889, and set about sinking shaft No. 5 (Thompson's shaft) on Block 16. BHP built a refinery at the port (Austral Archaeology Pty Ltd, 2013:9).

Source: Fisher 1970

Photograph 2.2 Mrs W R Wilson and family on the outcrop looking northeast over Block 14, 1885

Broken Hill was no longer run by station hands but was attracting mining and smelting experts from around the world. The width of the Broken Hill lode caused difficulties for Australian miners, accustomed to smaller vein deposits where the walls remained stable after the ore was removed (Austral Archaeology Pty Ltd, 2013:9). Old stoping methods were inadequate to support the large underground voids that Broken Hill mining created. The answer was square-set timbering, interlocking sets of imported Douglas Fir timber adopted from the Comstock Lode of Nevada, filled with crushed mullock brought down from the surface (Plate 2.7). Much of the mine timber was shipped to Port Pirie from Portland, Oregon, and Australians still call it Oregon today (Austral Archaeology Pty Ltd, 2013:9).



Source: Drawn by T.L. Dawes; engraved and printed by Le Count Bro's., San Francisco. original

Plate 2.7 Mining on the Comstock, square set timber system of stope support, 1888

2.6.2 The lead mining era (1894-1918)

By 1890, the production and profitability of Broken Hill were enormous. BHP alone paid its shareholders a million pounds in dividends in both 1891 and 1892, making some of them the wealthiest people in Australia. But many changes were happening:

- The process of safely mining the huge lode by underground methods constantly presented difficulties.
- The decision to rail thousands of tons of imported coke weekly to the inland Broken Hill smelters was not making sense.
- Sulphide ores were being encountered almost everywhere in the mines.
- The proportion of zinc in the orebodies was rising.
- The workforce wanted to share more of the fabulous wealth they were creating.
- The price of silver was about to crash.

Almost everything at Broken Hill was about to change in the next two decades. Some of these issues, such as the industrial unrest that was endemic between 1892 and 1920, or the subsidence that were a legacy of some early bad decisions about mining methods, are not reflected in the physical heritage of mining today, but they contributed to the financial pressures on the companies which drove technological change and inspired new techniques and surface plant infrastructure (Austral Archaeology Pty Ltd, 2013:10). The labor struggles in Broken Hill began with the 1892 Broken Hill miners' strike, a pivotal moment that unfolded over sixteen weeks between July and November. This strike, one of four major labor disputes in the region between 1889 and 1920, emerged as a response to the economic depression of 1892 and the mining companies' attempts to boost profits through the use of contract workers. The living and working conditions in Broken Hill were characterised by poor standards and negligent managerial policies, creating an environment for union activism. Anxiety prevailed due to the risks of lead poisoning, cave-ins, and the economic downturn, fostering a strong union presence from the early days. The decision by mine owners to overturn a important clause in the 1890 trade agreement, eliminating restrictions on work hours and allowing for extra labor, became a flashpoint for the strike. Union president Josiah Thomas, who had been successful in advocating for workers' rights, faced challenges as mine owners sought to reduce council rates and attacked union leaders. The strike unfolded with a 6000-strong meeting in July 1892,

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leading to a standoff between the mining companies and unionised workers. The introduction of non-union contract miners, met with resistance and violence, culminated in the arrest and imprisonment of seven strike leaders, including Richard Sleath and Ferguson, on charges of conspiracy and inciting riots. The defeat of the strike resulted in a 10 percent decrease in wages, a restoration of a 48-hour work week, and a broader erosion of faith in direct action methods. The consequences echoed beyond Broken Hill, contributing to a broader loss of confidence in union action alone to defend the interests of the working class, leading to increased electoral support for the Australian Labour Party with its strong union affiliations. Richard Sleath, despite imprisonment, emerged as a martyr, securing election to the Legislative Assembly for Wilcannia in 1894, highlighting the enduring impact of the strike on the political landscape.

In 1892, two decisions by BHP reflected some of the coming changes. They moved all their smelting operations to Port Pirie, taking over the British company's smelter there, and also commenced opencut mining on their Broken Hill leases, although underground mining continued at deeper levels. The other companies were coming to the same conclusions. By 1898 smelting had ceased altogether in Broken Hill (Austral Archaeology Pty Ltd, 2013:11).

The great blow which struck Broken Hill in 1893 was the silver price fall. When the mines opened in the 1880s, silver was at an artificially high price because of American legislation treating it as a bullion metal like gold, with the United State Treasury guaranteeing its value. The price slumped gradually over the years, but when the United States of America abandoned the silver standard in 1893, silver simply became another base metal like lead, and its price plunged to half of what it had been in 1883 (Austral Archaeology Pty Ltd, 2013:10). Much of Broken Hill's early prosperity had been based on silver but now the companies had to learn to make their profits from lead (Austral Archaeology Pty Ltd, 2013:10).

A new player on the field in 1897 was the London-backed Sulphide Corporation, which took over the Central Mine on Block 9. It took the new strategy of smelting on the coast to a new level, railing its ore to Port Pirie and then shipping it to a new plant on the Newcastle coalfield of NSW. At Cockle Creek, the company built the world's first electrolytic zinc plant, based on the Ashcroft process. It was a failure, and Cockle Creek reverted to conventional blast furnaces. In 1905 the Central Mine's old mill at Broken Hill was destroyed by subsidence into the underground workings (Austral Archaeology Pty Ltd, 2013:10). Even with such a disastrous beginning, the Sulphide Corporation would remain a major company on the field for the next forty years.

A corollary to smelting off the field was that crushing and concentrating processes had to become more efficient, to minimise the freight cost of railing waste rock to the smelters. In 1900 all the major companies were sinking the new shafts that would dominate operations on the field during the early twentieth century and expanding or re-building their mills. BHP built the Delprat shaft and mill, NBH what became the No 1 shaft and mill, and South Broken Hill the Block 5 shaft and new mill (Austral Archaeology Pty Ltd, 2013:10).

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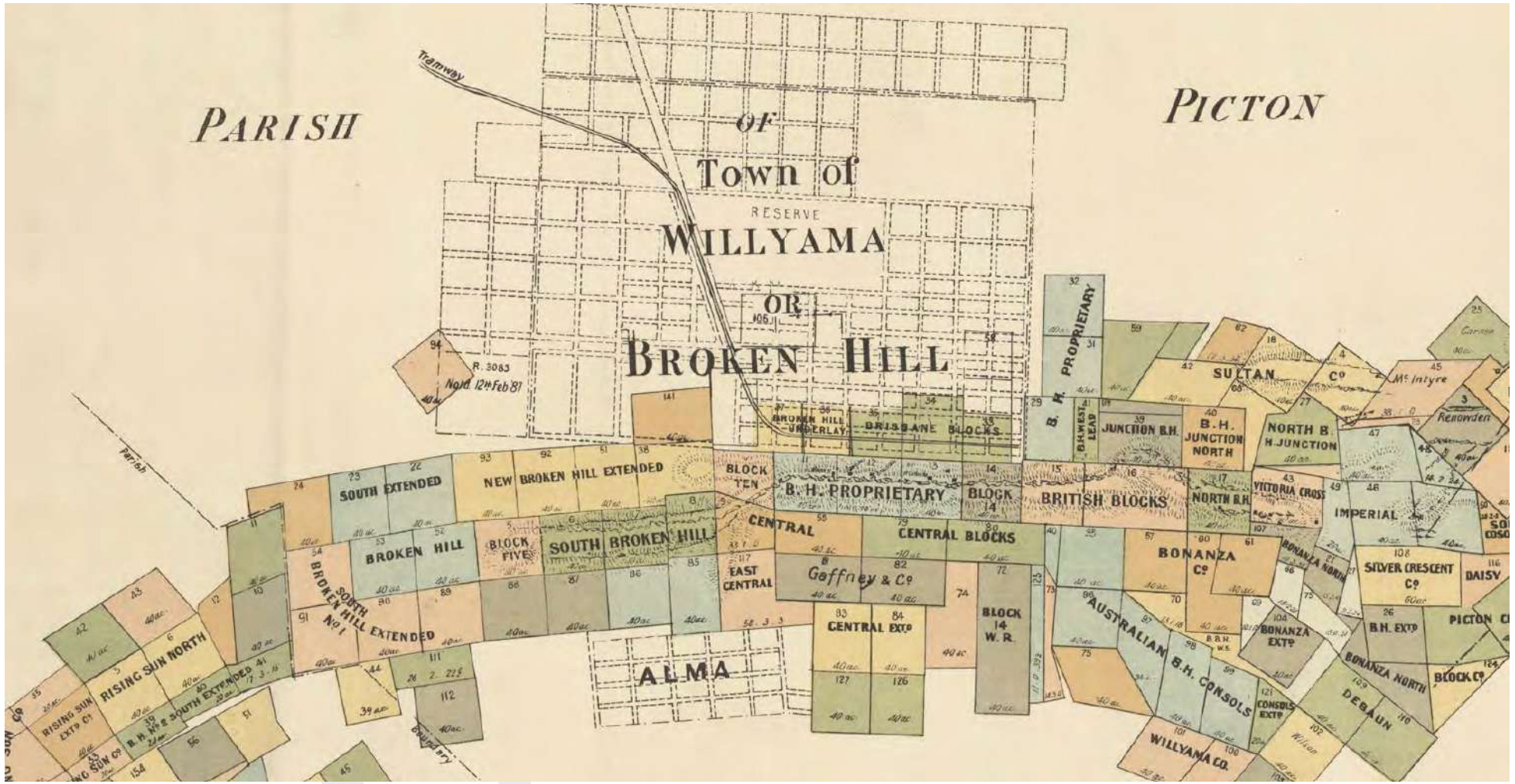

Source: SLNSW call: FL16393747

Plate 2.8 Holdings along the Broken Hill Line of Lode, 1891

2.6.3 The age of zinc (1918 – Present of continuous mining)

In the generation since mining began at Broken Hill, there had been little fundamental change in ore treatment. Ore was crushed to progressively finer particle sizes, then passed through a series of shaking operations in buddles, jigs, vanners, and shaking tables, which all exploited the particles' different densities to separate metal ore from waste rock (Austral Archaeology Pty Ltd, 2013:11). This worked well in mines that extracted a single metal, but at Broken Hill, there was another problem. At depth, much of the lode was yielding a mixture of lead sulphides and zinc sulphides, which were difficult to separate by conventional methods (Austral Archaeology Pty Ltd, 2013:11). Separating them was necessary, for the lead could be smelted, but the zinc sulphide could not. The mines were accumulating large waste piles of zinc concentrate and mixed lead-zinc concentrate, which contained valuable metals but were not commercially treatable (Austral Archaeology Pty Ltd, 2013:11).

The breakthrough came with the flotation process, developed by dozens of people all around the world over many years, but associated most closely with Broken Hill because of its success in dealing with the field's specific metallurgical problems. It works by agitating finely ground ore in a mixture of water and oil to form a rising froth of silvery bubbles. In a reversal of the usual role of density in mineral (Austral Archaeology Pty Ltd, 2013:11).

The current boundary of CML 7 of the Rasp Mine resulted from BHS's acquisition of the former BHP blocks in 1943 (Austral Archaeology Pty Ltd, 1994:36). BHS mining operation on these blocks, revitalising Delprat Shaft as their primary underground mine. They also worked the British and Junction mines and established the subsidiary company Barrier Central to manage Blocks 10 to 13 in 1952 (Austral Archaeology Pty Ltd, 2013:12).

A significant shift in mining approached occurred during the 1970s, when South Australian company Minerals Mining and Metallurgy Limited (MMM) took over the old South and Central Mine Blocks 7 to 16, along with Block 39 (Austral Archaeology Pty Ltd, 1994:36). MMM introduced mining from the surface ore shoots and underground pillars, which enabled a significant increase in mining scale compared to previous operations on the Line of Lode (Austral Archaeology Pty Ltd, 2013:12). MMM operated the site until 1991 and played a role in the Blackwood opencut (Block 14 and 15), which commenced in 1974, and the Phase one Kintore opencut (Block 10), initiated in 1983 (Austral Archaeology Pty Ltd, 1994:36). These activities resulted in the most significant physical alterations to the surface of the Broken Hill leases since the 1930s (Austral Archaeology Pty Ltd, 2013:12).

In 1991, the Normandy group took over MMM's lease, resulting in the closure of the South Mine Mill (Austral Archaeology Pty Ltd, 2013:13). Redfire Resources, later known as Consolidated Broken Hill (CBH), acquired Blocks 7 to 16 in 2001 (Austral Archaeology Pty Ltd, 2013:13). In 2004, CBH Resources established the subsidiary company of BHOP and, in 2007, initiated exploration of the Rasp Mine, ultimately obtaining the lease to CML 7 in 2010 (Austral Archaeology Pty Ltd, 2013:13; CBH Resources Limited, 2023). Broken Hill Operations Pty Ltd continue to engage in mining operations for zinc, silver, and lead across CML 7 (CBH Resources Limited, 2023). The entirety of the City of Broken Hill was formally inscribed on the National Heritage List on the 20th of January 2015, Place ID, 10581 and included 20 new listings since 2013.

2.7 Physical evidence

Understanding the historical and developmental context of mining in Broken Hill is important, particularly in the context of the Line of Lode, and the Rasp Mine's CML 7 boundary. This region can be divided into three key areas: the south area, often referred to as the Zinc Mine; the central area, historically known as the South Mine; and the north area, referred to as the North Mine (Figure 2.1) (Austral Archaeology Pty Ltd, 2013:18).

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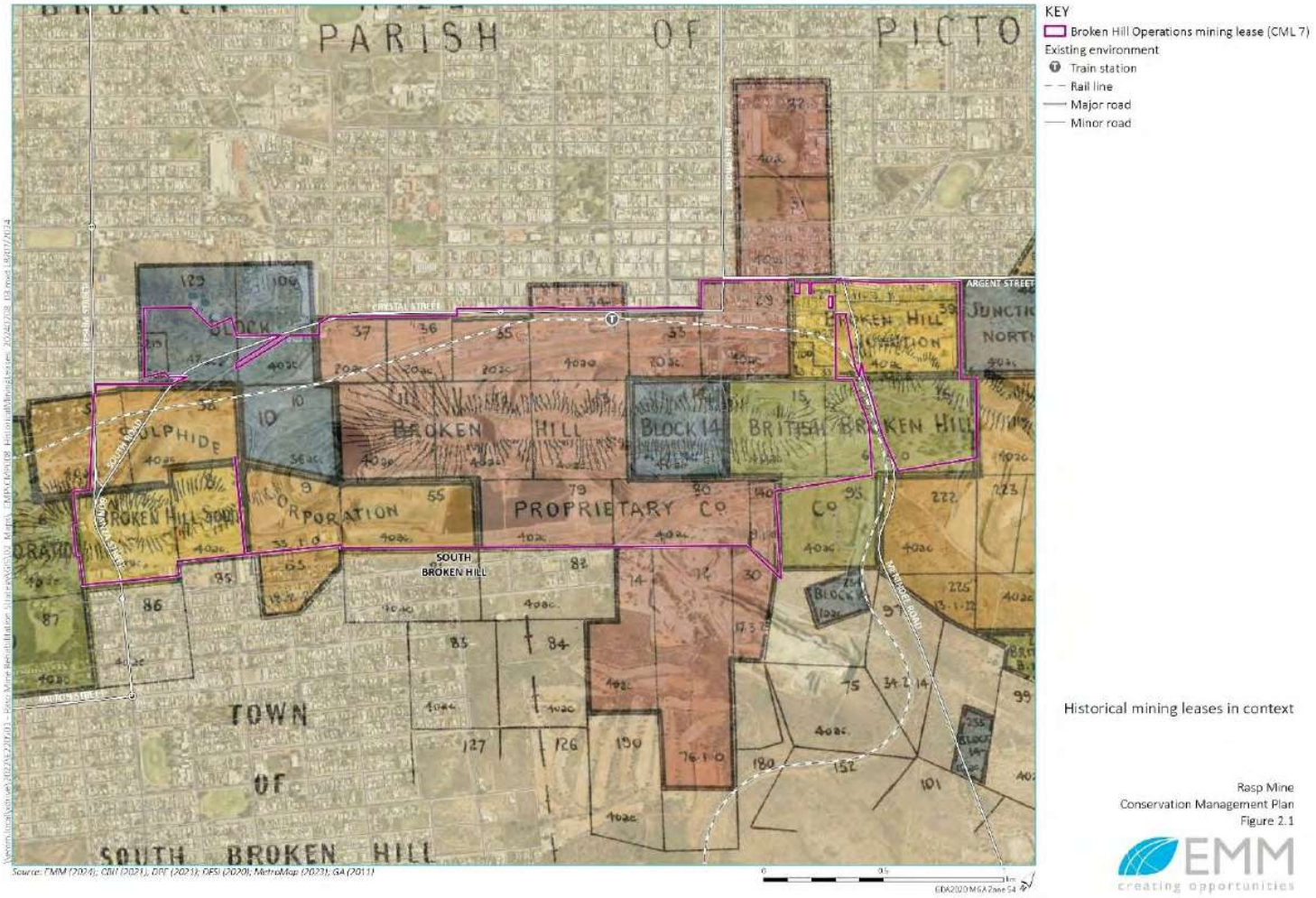

Figure 2.1 Historical mining leases in context

The south area includes former mining lease areas of Blocks 5, 6, 87, and 88, historically held by The Zinc Corporation, as well as adjacent mining lease areas of Blocks 52, 53, 89, and 90, which were held by NBHCP. These have now been consolidated into Mining Leases 8, 9, 10 and 11, owned by PBHOP (Austral Archaeology Pty Ltd, 2013:18).

The central area, originally pegged by the BHSSMC in 1885, comprises former mining lease areas of Blocks 7 to 16, along with 39, 79, 306, 335, and 414, which are now primarily part of CML 7 (Austral Archaeology Pty Ltd, 2013:18).

The north area, known as the North Mine covers mining lease areas of Blocks 17, 40, 43, 46, 49, 68, and 77, historically held by NBH. These are part of CML4 and CML5, also owned by PBHOP.

When examining the physical remains of mining activities, distinct patterns and phases become evident. One significant observation is the correlation between the shape of the ore body and the historical development direction. CML 7, covering the central part of the ore body where the Line of Lode is closest to the surface, contains the oldest mining remnants (Austral Archaeology Pty Ltd, 2013:18). Moving towards the extremities of the ore body, where it dips away from the surface to the north and south, more recent mining activities are observable. The outer areas clearly exhibit distinct mining phases, while portions of the central area, particularly the former South Mine in Heritage Precinct 1 and Heritage Precinct 2 (Figure 2.2), presents challenges in distinguishing these phases. The key reason for this difference is owed to spatial limitations (Austral Archaeology Pty Ltd, 2013:18).

In areas where spatial constraints were less significant, such as the historical North Mine, north of Heritage Precinct 3 and the Zinc Mines, the spatial patterning and developmental phases are equivalent (Figure 2.3). However, the old South Mine shows unique developmental characteristics. Limited space for expansion in Heritage Precinct 1 and Heritage Precinct 2 necessitated building new surface plant infrastructure within and on top of existing buildings, resulting in a nearly continuous developmental sequence from the 1890s to the 1930s, with additional surface plant infrastructure components added each year (Figure 2.2). The remaining buildings in this area provide a vivid representation of this sequence of development (Austral Archaeology Pty Ltd, 2013:18).

In the Old BHP area of Heritage Precinct 5 and Heritage Precinct 7, both the pit and the Delprat area exhibit a clear pattern of accumulation (Figure 2.4). This involves the addition of newer surface plant infrastructure on top of earlier ones, incorporated into the existing landscape features. Some areas of Heritage Precinct 5 were upgraded in the 1950s, while the BHP pit in Heritage Precinct 7 holds early remains with no subsequent developments (Austral Archaeology Pty Ltd, 2013:18).

Around the Thompsons shaft area in Heritage Precinct 6, three distinct phases of development are visible (Figure 2.3). There are remains from an early period in the 1890s, another from 1909 to 1913, and a later renovation of the buildings and equipment in the late 1930s, coinciding with the shift to electric power (Figure 1.2) (Austral Archaeology Pty Ltd, 2013:18).

The Junction Mine and Lookout (LEP Item I 282) in Heritage Precinct 3, which began in 1886, saw significant development and prosperity until 1901 when low lead prices and ore treatment difficulties forced its closure (Figure 2.3). After some development work, it reopened in 1906, using Browne's as the main shaf, Browne’s Shaft (LEP Item I281). It struggled with periods of closure until 1923 when it was taken over by the Sulphide Corporation. In 1929, it was sold to NBH and remained closed for a number of years. In 1937/38, Browne Shaft was overhauled to the No. 9 Level, and in 1946, mining recommenced, with ore being transported to the concentration mill on the North Mine. It was sold to BHS in 1961, and mining continued until 1972 (Austral Archaeology Pty Ltd, 2013:18).

In the north east area of the former South Mine in Heritage Precinct 1, surface plant infrastructure are not clustered according to groups of developmental phases (Figure 2.2). Earlier buildings, including the Riggers Shop (LEP Item I253) and Compressor Room (Old Power House) (LEP Item I241), Coal Bins (LEP Item I240), Carpenters Paint Shop (LEP Item I238) (formerly the No. 2 Main shaft winder house), range from pre-1891 to 1905 (Figure 2.2).

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Continuous upgrading of the surface plant infrastructure is evident through the succession of buildings constructed after this, including the Mechanical Workshop (Old General Workshop) (LEP Item I246), the South Mill (LEP Item I237), Pumphouse and Cooling Water Reservoir (LEP Item I252), weighbridge (RM-A05), and the north end of the coal bins. The maximum expansion available to the South Mine was to use the area around the No. 4 and No. 7 shafts in Heritage Precinct 2 (LEP Item I263-I280), which was developed just before World War I and also in the 1930s. The buildings and surface plant machinery in this area remain intact and in exceptional condition. A small expansion also extended to the No. 5 area, although no features remain in this area except for the capped shaft. Further surface plant infrastructure in Heritage Precinct 2, like the Electrical Workshop (LEP Item I242), Pumphouse (LEP Item I251), Pattern Store (Carpenter's Shop) (LEP Item I250), Changehouse (LEP Item I239), Mullock Bin (LEP Item I247), etc., were constructed through to the 1930s, most of which still remain and are, largely, in good condition (Figure 2.2). In particular, the original Sand Plant (LEP Item I255), located in Heritage Precinct 1, remains intact, complete with machinery, and it is worth noting that this technology was the first of its kind. This form of sand stopping was developed on the South Mine with the construction of this plant (Austral Archaeology Pty Ltd, 2013:18).

Regarding the Sulphide Corporation area on old Mining Lease 9 in Heritage Precinct 1 (Figure 2.2), only a few remains are still present. In particular, the Fire and Ambulance Station (LEP Item I243) is still intact and in good condition. A few unidentified footings, probably from a tank stand, are also still visible on top of the mullock dump Brick Pier Foundations (LEP Item I236) (Austral Archaeology Pty Ltd, 2013:18).

In the Old BHP area of Heritage Precinct 7, evidence suggests one phase of mining directly superseding the previous phases (Figure 2.4). The old open cut, which ceased to be used in 1907, contains the ruins of a Headframe (LEP Item I307) and Building Foundations (LEP Item I305), which may have been the Amalgamating Mill. These ruins have not had further developments built over them, providing a clear view of one of the few remaining sections of the earliest phases of BHP mining activities unobscured by later buildings. Around the Delprat area of Heritage Precinct 5, there is also evidence of the earliest phase of mining activities, including the Slag Dump, Foundations and Timber Piles (LEP Item I293), the BHP South Smelter Walls and Stack (LEP Item I236), the BHP Concentration Mill Foundations (LEP Item I238), the Delprat Winder Foundations (LEP Item I293), and other assorted footings (Figure 2.4). The retaining wall and chimney stack of the BHP South Smelter Walls and Stack (LEP Item I236) are of particular interest and represent the earliest known relics on the Line of Lode. North of this group, the remains of the early BHP North Slag Dump (LEP Item I15) form an imposing feature of the visual landscape (Figure 2.5). These early period remains were initially obscured by the early 1900 development of the Delprat Head Frame and Shaft (LEP Item I289) and Delprat Changehouse (LEP Item I287). However, they all would have functioned as the same plant and were later superseded by the reopening of Delprat shaft in the 1950s when the arrangement of the plant was completely altered. The newer plant consisted of a winder house, offices, and a new headframe, all of which are still operational (Austral Archaeology Pty Ltd, 2013:18).

At the Thompsons shaft complex in Heritage Precinct 6, there is a complete suite of surface infrastructure (Figure 2.3). The buildings are nearly all in reasonable condition and show three phases of mining activity. The shaft was sunk in 1889 and is still extant, with the Thompsons Headframe, Brace Housing and Conveyor (LEP Item I303) being rebuilt in 1909, remaining relatively well-preserved. The Thompsons Winderhouse (LEP Item I304) was built at the same time as the shaft sinking in 1889, appearing original with some additions and motors that show their conversion to electricity. The Thompsons Ambulance Station (LEP Item I298) is also one of the early buildings. During the second phase of work, the Thompsons Changehouse (LEP Item I299) and Thompsons General Offices (LEP Item I302) were built in 1912/13. The final phase saw the addition of the Thompsons Crusher House (LEP Item I301), Thompsons Conveyor, Storage Bin and Loading Hopper (LEP Item I300), and the renovation of the second-phase buildings. This well-integrated group illustrates the addition of later-phase technology to earlier infrastructure without altering the overall character of the plant (Austral Archaeology Pty Ltd, 2013:18).

The Junction Mine and Lookout (LEP Item I282) group of Heritage Precinct 3 is somewhat similar to Thompsons but not as complete (Figure 2.3). The remaining elements date to various periods. These include the oldest surviving headframe in Broken Hill from the 1890s (although it has been modified several times), the

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concentration mill foundations from 1897, the manager's house from 1916, the electric winder from 1946, and the ore bin from 1946 (Austral Archaeology Pty Ltd, 2013:18).

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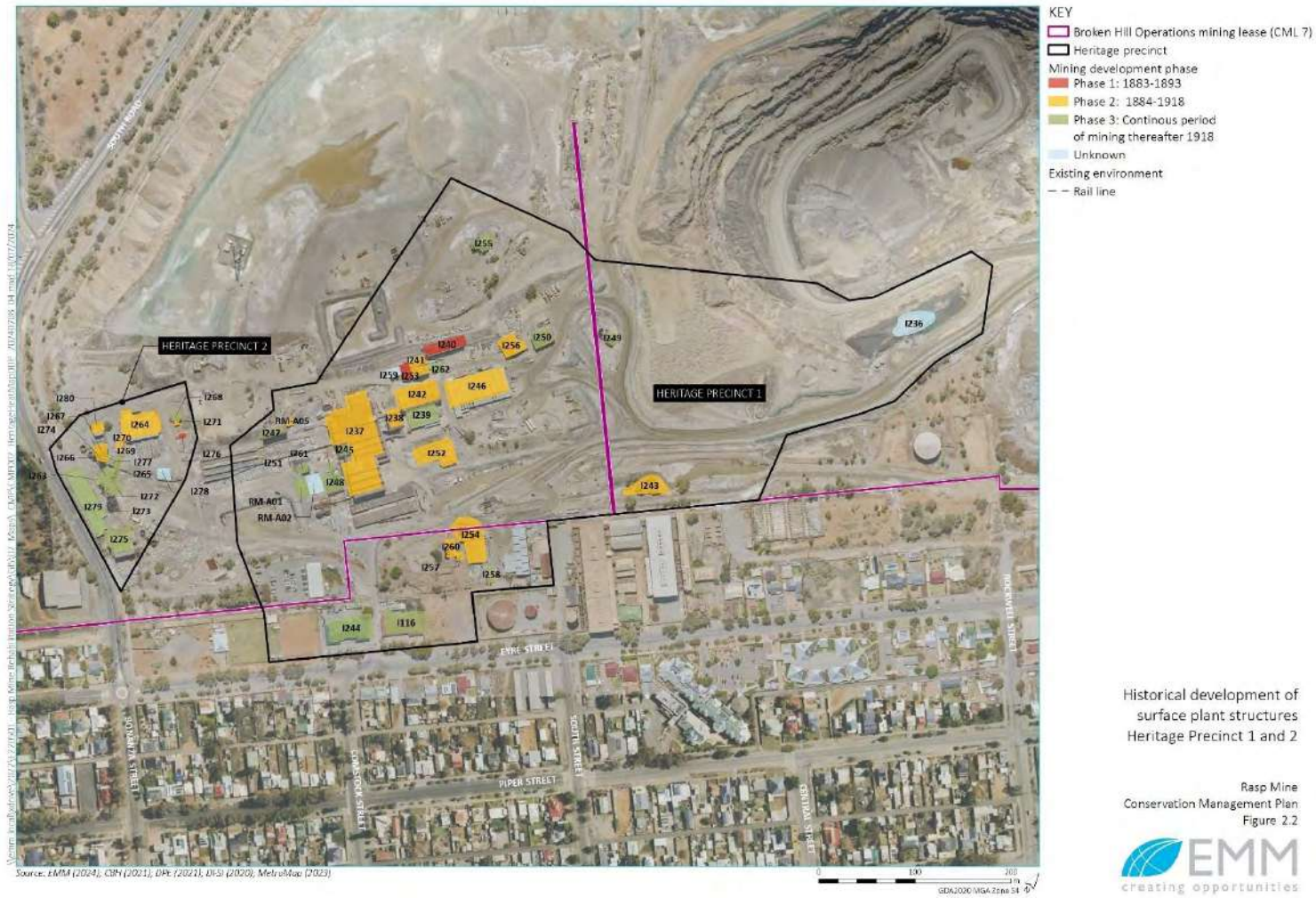


Figure 2.2 Historical development of surface plant structures Heritage Precinct 1 and 2

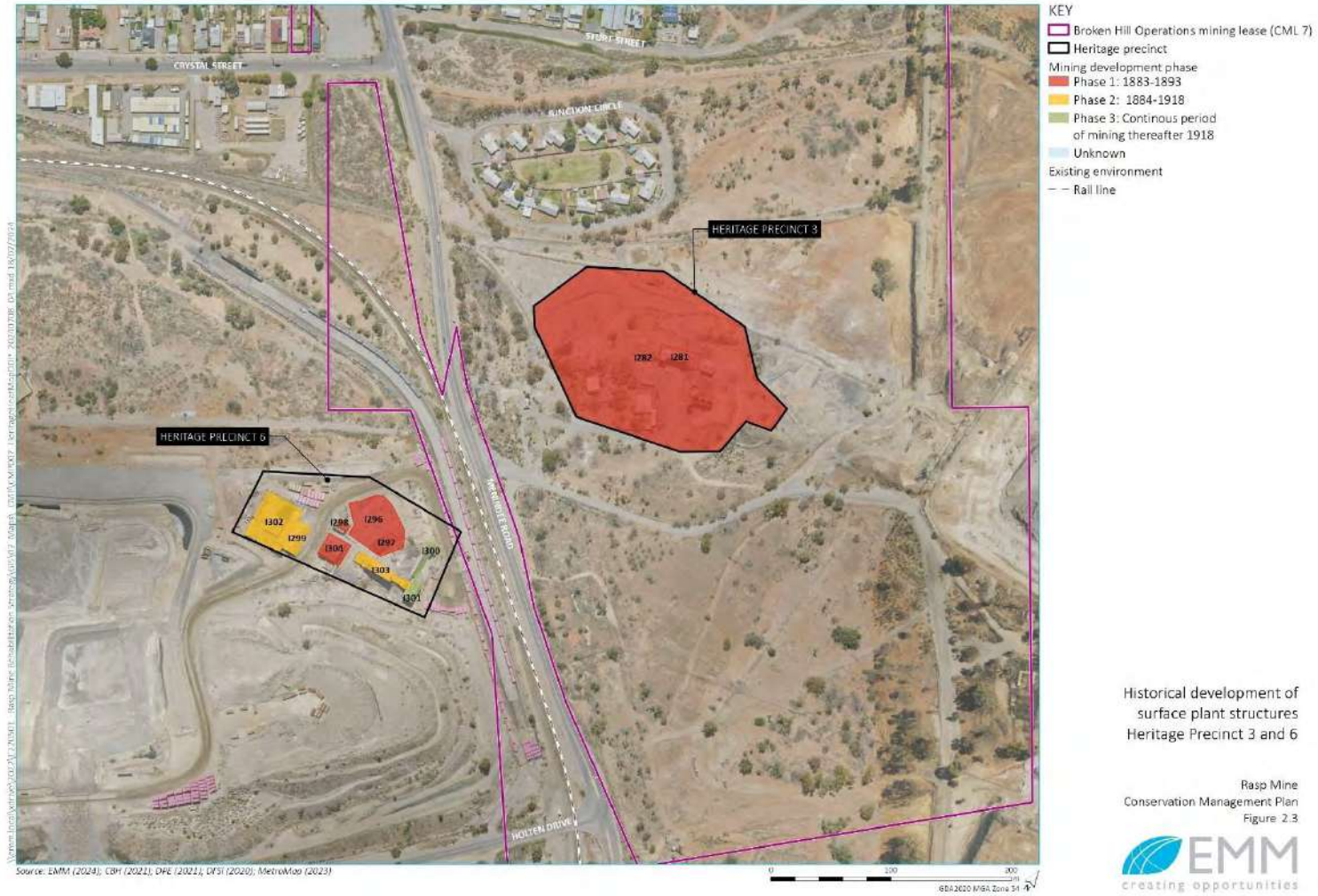


Figure 2.3 Historical development of surface plant structures Heritage Precinct 3 and 6

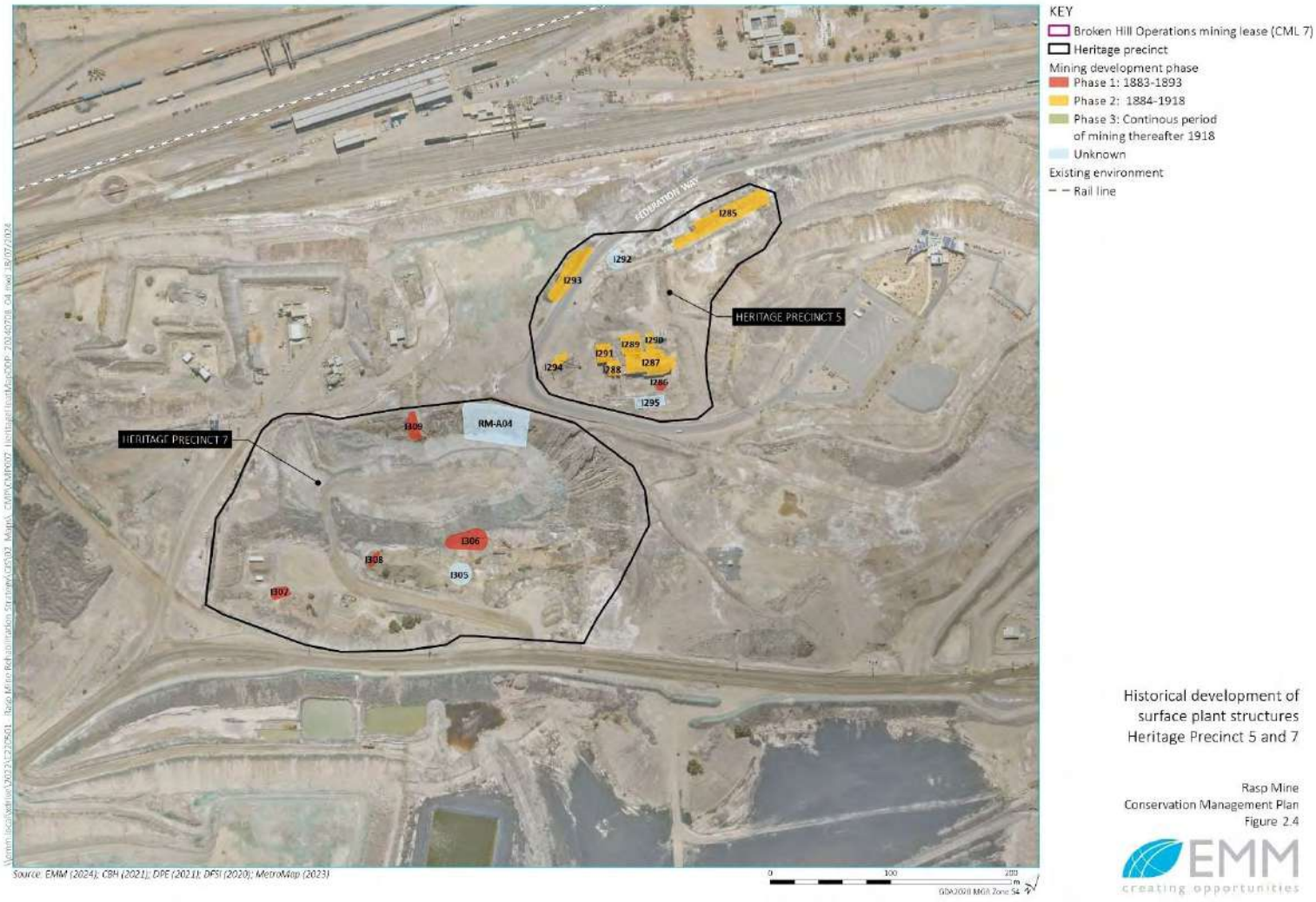
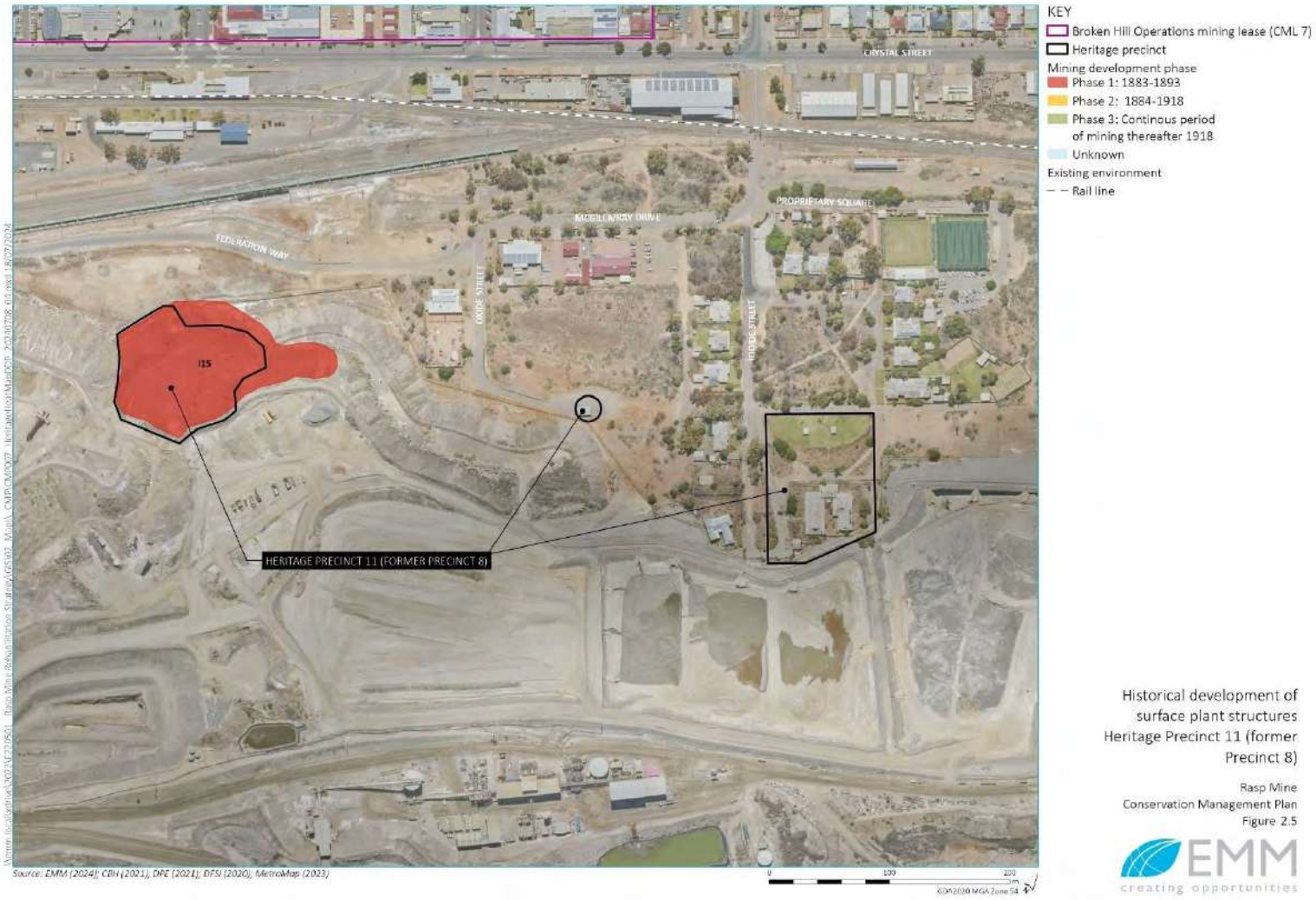


Figure 2.4 Historical development of surface plant structures Heritage Precinct 5 and 7



Historical development of surface plant structures Heritage Precinct 11 (former Precinct 8)

Rasp Mine
Conservation Management Plan
Figure 2.5

EMM
creating opportunities

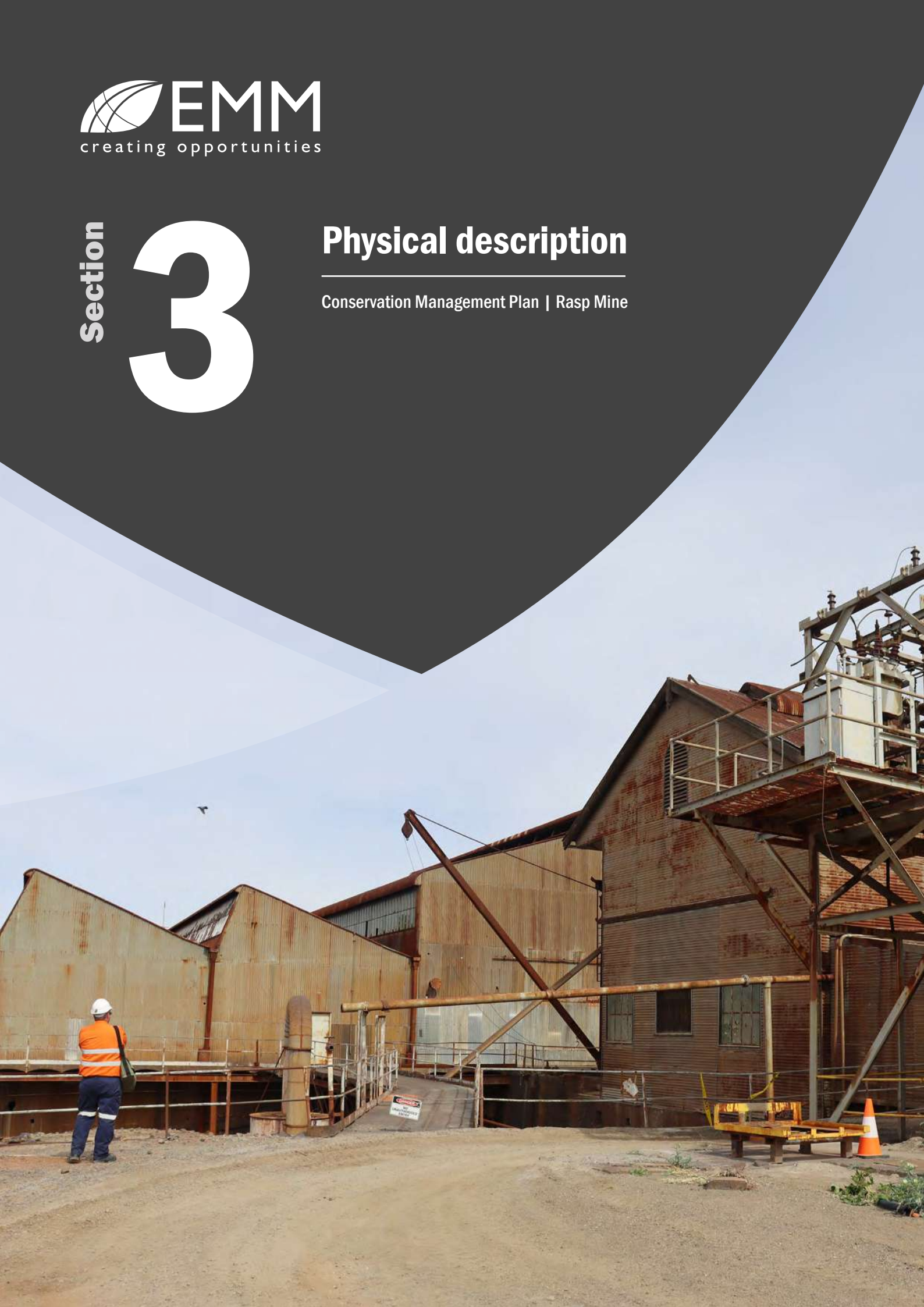
Figure 2.5 Historical development of surface plant structures Heritage Precinct 11 (Former Precinct 8)

EMM
creating opportunities

Section 3

Physical description

Conservation Management Plan | Rasp Mine



3 Physical description

3.1 Introduction

The physical description of Rasp Mine encompasses an evaluation of its setting and the views both to and from the city of Broken Hill. This analysis extends to the fabric of Rasp Mine itself, taking into account its structural components, architectural features, and the elements associated with the site's mining operations. Furthermore, it considers the surrounding ruins and takes note of any movable heritage items related to Rasp Mine's development and continued operation.

3.1.1 Setting

The Line of Lode, framing the Rasp Mine, stands as a defining geological feature in Broken Hill, offering a dramatic and iconic setting. Its vast stretch across the landscape holds profound historical, social, and aesthetic importance. This ridge has not only shaped the city's past but continues to influence its identity and skyline.

The Line of Lode's prominence extends throughout Broken Hill, defining its topography. Elevated ridges and undulating slopes create a visually striking landscape, serving as a constant reminder of the extensive mining activities that have shaped the city's character. It has become a central element in Broken Hill's cityscape, influencing the city's layout and daily life. As a dominant feature, it serves as a focal point, offering residents and visitors a tangible connection to the city's rich history.

The Rasp Mine, occupying a central position on the Line of Lode ore body within the expansive boundaries of CML 7, is strategically located in the centre of the Line of Lode. Its immediate surroundings are marked by distinct infrastructure networks, with Eyre Street and Holten Drive delineating its southern and eastern boundaries. Neighbouring mining operations, like PBHOP's North Mine to the northeast and PBHOP's South Mine to the southwest, contribute to the mining landscape. Moreover, the mine connects with Broken Hill's commercial centre to the north.

Strategically positioned with respect to transportation, Rasp Mine intersects major roads. South Road (Silver City Highway SH22) to the southwest and Menindee Road (MR66) to the northeast form vital components of Broken Hill's established trucking route. The proximity of the Broken Hill railway station to the north reinforces the site's historical ties to transportation, as it is situated along the main Sydney-Perth railway line.

With a mining history spanning over 130 years, the Rasp Mine's landscape reflects extensive mining activities. The site, covered mostly with historic waste rock and tailings, displays limited topsoil and vegetation. Amid this rugged terrain, various heritage buildings and structures stand as remnants of the mine's enduring presence, providing a tangible link to the challenges posed by the harsh environment.

3.2 Analysis of built fabric and materials

The built fabric and materials at the Rasp Mine can be categorised into distinct types, each bearing unique potential and suitability for ongoing use or management. The materials and detailing used in these structures offer an insight to the history of mining and its evolution within the context of Broken Hill. For detailed condition, photographs and item-specific information, refer to Appendix C.

i Mine production buildings or structures

These structures play a direct role in mining and production, encompassing processing buildings, workshops, and storage facilities where various mining activities occurred. At the Rasp Mine, these buildings primarily feature robust construction with concrete foundations and steel framing for structural support. Walls may consist of corrugated galvanised iron, brick, stone, or concrete rendering. In some cases, timber floors and interior fittings are evident. Their design incorporates large industrial openings and efficient floor plans, optimising them for

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mining activities and machinery movement. The category encompasses mining landscape features, including mullock and slag dumps, which are byproducts of mining production buildings.

The representative photographs from this category include:

Source: EMM Consulting, 2023

Photograph 3.1 **View of South Mill, Item number I237, facing north**

Source: EMM Consulting, 2023

Photograph 3.2 **View of the Coal Bins, Item number I240, facing west**

Source: EMM Consulting, 2023

Photograph 3.3 **General view of No 2 Control Substation, Item number I248, and surrounding structures, facing southeast**

Source: EMM Consulting, 2023

Photograph 3.4 **View of the Mullock Dump with Tram Lines, Item number I296, facing southwest**

Table 3.1 Mine production buildings

Number of items	LEP item number	Item name	Historic name / function	Heritage Precinct	Item type / feature type
1.	Item number I237	South Mill	Full gravity feed mill	Heritage Precinct 1	Extant building
2.	Item number I238	Carpenter's paint shop (Old Winderhouse)	Winding House and then Carpenters Shop and Paint Shop	Heritage Precinct 1	Extant building
3.	Item number I240	Coal bins	Coal bins	Heritage Precinct 1	Extant structure
4.	Item number I241	Compressor Room (Old Power House)	Old Power House	Heritage Precinct 1	Extant building
5.	Item number I242	Electrical Workshop	Powerhouse	Heritage Precinct 1	Extant building
6.	Item number I246	Mechanical Workshop (Old General Workshop)	Mechanical Workshop	Heritage Precinct 1	Extant building
7.	Item number I247	Mullock Bin	To store waste rock or ore	Heritage Precinct 1	Extant structure
8.	Item number I248	No 2 Control Substation	Substation	Heritage Precinct 1	Extant building
9.	Item number I250	Pattern Store (Carpenter's Shop)	Carpenter's Shop	Heritage Precinct 1	Extant building
10.	Item number I251	Pumphouse	Pumphouse	Heritage Precinct 1	Extant building
11.	Item number I252	Pumphouse and Cooling Water Reservoir	Cooling boiler water for the steam engines which operated the winders	Heritage Precinct 1	Extant building
12.	Item number I252	Rigger's Shop	Compressor plant / Riggers Shop	Heritage Precinct 1	Extant building
13.	Item number I254	Roaster Plant	Roaster Plant to de-sulphurise slimes by roasting them.	Heritage Precinct 1	Structural ruin
14.	Item number I255	Sand Plant	Sand Plant	Heritage Precinct 1	Extant building
15.	Item number I256	Saw Mill and Extension	Saw Mill	Precinct 1	Extant building
16.	Item number I259	Two Water Tanks	Water tanks possibly for boiler water feed	Heritage Precinct 1	Extant structures
17.	Item number I260	Two water tanks and a stone foundation	Water tanks	Heritage Precinct 1	Extant structures and ruins
18.	Item number I261	Water tower	Water tower	Heritage Precinct 1	Extant structure
19.	Item number I266	Crusher Station	Crusher Station	Heritage Precinct 2	Extant building

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Table 3.1 Mine production buildings

Number of items	LEP item number	Item name	Historic name / function	Heritage Precinct	Item type / feature type
20.	Item number I271	Magazine	Storage of explosives	Heritage Precinct 2	Extant building
21.	Item number I277	Saw Mill	Sawmill	Heritage Precinct 2	Extant building
22.	Item number I281	Browne's Shaft	Ore bins, tanks, Concentration and Treatment Plant, compressor house, Powder Magazine, Boiler House, sand pass	Heritage Precinct 3	Extant structures and buildings
23.	Item number I282	Junction Mine and Lookout	Ore bins, tanks, Concentration and Treatment Plant, compressor house, Powder Magazine, Boiler House, sand pass	Heritage Precinct 3	Extant structures and buildings
24.	Item number I285	BHP Concentration Mill Foundations	Concentration Mill	Heritage Precinct 5	Structural ruin
25.	Item number I286	BHP South Smelter Walls and Stack	Old BHP South smelter	Heritage Precinct 5	Structural ruin
26.	Item number I294	Stone Wall and Concrete Footings	Possibly remnants of the pump house or boiler house	Heritage Precinct 5	Structural ruin
27.	Item number I295	Three Water Tanks	Possibly remnants of the pump house or boiler house	Heritage Precinct 5	Extant structure
28.	Item number I293	Slag Dump, Foundations and Timber Piles	Slag dump	Heritage Precinct 5	Mining landscape feature and structural ruins
29.	Item number I296	Mullock Dump with Tram Lines	The dump was probably established in 1889 and was subsequently used as a storage and work area.	Heritage Precinct 6	Mining landscape feature and structural ruins
30.	Item number I300	Thompsons Conveyor, Storage Bin and Loading Hopper	Storage bin and loading hopper	Heritage Precinct 6	Extant structure
31.	Item number I301	Thompson Crusher House	Crusher house	Heritage Precinct 6	Extant building
32.	Item number I15	BHP North Slag Dump	Slag dump	Heritage Precinct 11 (Former Precinct 8)	Mining landscape feature

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ii Headframes and winding houses and associated elements

These elements pertain to the operation of mine shafts, housing hoisting equipment and controlling the mine cage or skip. Headframes and winding houses at the Rasp Mine are characterised by their sturdy steel structures, often situated on reinforced concrete footings. They typically feature steel framing and sheaves. Notably, earlier historical timber headframes were also employed, with concrete footings. Over time, modifications, including height adjustments, have been implemented. Winding houses, which maintain the iconic green and white livery of the mine's history, are typically constructed with corrugated galvanised iron and timber-frame bracing.

The representative photographs from this category include:

Source: EMM Consulting, 2023

Photograph 3.5 **View of No 6 Shaft Vent Fan, Item number I249, facing north**

Source: EMM Consulting, 2023

Photograph 3.6 **View of No. 7 Headframe, Item number I272, facing southwest**

Source: EMM Consulting, 2023

Photograph 3.7 **View of the Delprat Head Frame and Shaft, Item number I289, facing south**

Source: EMM Consulting, 2023

Photograph 3.8 **View of Thompsons Header Frame, Brace Housing and Conveyor, Item number I303, facing south**

Table 3.2 Headframes and winding houses and associated elements

Number of items	LEP item number	Item name	Historic name/function	Heritage Precinct	Item type/feature type
1.	Item number I249	No 6 Shaft Vent Fan	No 6 shaft vent fan	Heritage Precinct 1	Extant structure
2.	Item number I267	Headframe, No 4 shaft	Headframe	Heritage Precinct 2	Extant structure
3.	Item number I272	No 7 Headframe	Headframe	Heritage Precinct 2	Extant structure
4.	Item number I275	No 7 Winding House	Winding House	Heritage Precinct 2	Extant building
5.	Item number I280	Winding House and Motor, No 4 Shaft	Winding House	Heritage Precinct 2	Extant building
6.	Item number I281	Browne's Shaft	Headframe, winding house, shaft	Heritage Precinct 3	Extant structures
7.	Item number I282	Junction Mine and Lookout	Headframe, winding house, shaft	Heritage Precinct 3	Extant structures
8.	Item number I289	Delprat Head Frame and Shaft	Headframe and Shaft	Heritage Precinct 5	Extant structure
9.	Item number I290	Delprat Head Frame and Shaft	Winder	Heritage Precinct 5	Structural ruin
10.	Item number I291	Delprat Winderhouse	Winderhouse	Heritage Precinct 5	Extant building
11.	Item number I303	Thompsons Headframe, Brace Housing and Conveyor	Headframe, brace housing and conveyor	Heritage Precinct 6	Extant structures
12.	Item number I304	Thompson Winderhouse	Thompson Winderhouse	Heritage Precinct 6	Extant building
13.	Item number I305	Building Foundation	From inspection of early company plans it appears to correlate with the position of the 1891 Amalgamating Mill which was demolished in 1896.	Heritage Precinct 7	Structural ruin
14.	Item number I307	Headframe	Headframe	Heritage Precinct 7	Structural ruin

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iii Infrastructure

Infrastructure components encompass various elements that support mining operations, including storage tanks, pipelines, railway tracks, roads, loading platforms and other connections across the mining site. These elements are constructed using materials suited to their specific functions. This includes concrete for tanks and footings, steel for pipelines, and robust materials such as concrete and steel for railway tracks and roads.

Source: EMM Consulting, 2023

Photograph 3.9 **View of the Covered Overpass, Item number I265, facing west**

Source: EMM Consulting, 2023

Photograph 3.10 **View of the Loading Platform, Item number I292, facing southeast**

Source: EMM Consulting, 2023

Photograph 3.11 **View of Timber Chute Race, Item number I309, facing northeast**

Source: EMM Consulting, 2023

Photograph 3.12 **View of the Tankstand, Item number I258, facing southwest**

Table 3.3 Infrastructure

Number of items	LEP item number	Item name	Historic name/function	Heritage Precinct	Item type/feature type
1.	Item number I236	Brick Pier Foundations	Unknown	Heritage Precinct 1	Structural ruin
2.	Item number I258	Tankstand	Tankstand	Heritage Precinct 1	Structural ruin
3.	Item number I265	Covered Overpass	Pedestrian overpass	Heritage Precinct 2	Extant structure
4.	Item number I281	Browne's Shaft	Tramway, orecarts	Heritage Precinct 3	Extant structures
5.	Item number I283	Junction Mine and Lookout	Tramway, orecarts	Heritage Precinct 3	Extant structures
6.	Item number I292	Loading Platform	Tramway, orecarts	Heritage Precinct 5	Extant structures
7.	Item number I296	Tram line sleepers and stone retaining walls	Flat topped mullock dump	Heritage Precinct 6	Mining landscape feature and structural ruins
8.	Item number I306	Four Concrete Piers	Dates from the BHP open cutting period	Heritage Precinct 7	Structural ruin
9.	Item number I308	Stone Wall	Remnant of the early BHP era	Heritage Precinct 7	Structural ruin
10.	Item number I309	Timber Chute Race	Timber Chute	Heritage Precinct 7	Extant structures

iv Staff facilities buildings

These buildings are tailored to serve the needs of the mine's staff, including changing facilities, or other structures dedicated to employee requirements. These buildings combine materials such as corrugated galvanised iron, stone, brick, timber, and concrete foundations. The detailing in these structures may vary and might feature period-specific fittings.

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Source: EMM Consulting, 2023

Photograph 3.13 **View of the Changehouse, Item number I239, facing northeast**

Source: EMM Consulting, 2023

Photograph 3.14 **View of the Fire and Ambulance Station, Item number I243, facing northeast**

Source: EMM Consulting, 2023

Photograph 3.15 **View of the General Ice-Making Plant building, Item number I268, facing southeast**

Source: EMM Consulting, 2023

Photograph 3.16 **View of Thompsons Ambulance Station, Item number I298, facing northwest**

Table 3.4 Staff facilities buildings

Number of items	LEP item number	Item name	Historic name/function	Heritage Precinct	Item type/feature type
1.	Item number I239	Changehouse	Changehouse	Heritage Precinct 1	Extant building
2.	Item number I243	Fire and Ambulance Station	Fire and Ambulance Station	Heritage Precinct 1	Extant building

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Table 3.4 Staff facilities buildings

Number of items	LEP item number	Item name	Historic name/function	Heritage Precinct	Item type/feature type
3.	Item number I263	Ambulance Garage	Ambulance Garage	Heritage Precinct 2	Extant building
4.	Item number I264	Changehouse	Changehouse	Heritage Precinct 2	Extant building
5.	Item number I268	Ice Making Plant Building	Ice-Making Plant provided free ice to its staff employees	Heritage Precinct 2	Extant building
6.	Item number I269	Lamp Repair Room	Lamp Repair Room	Heritage Precinct 2	Extant building
7.	Item number I268	Lamp Room	Lamp Room	Heritage Precinct 2	Extant building
8.	Item number I268	No 7 Rescue Equipment Building	Rescue Equipment Building	Heritage Precinct 2	Extant building
9.	Item number I274	No 4 Rescue Equipment and Waiting Sheds	Rescue Equipment Building	Heritage Precinct 2	Extant building
10.	Item number I277	Rectifier Room	Rectifier Room	Heritage Precinct 2	Extant building
11.	Item number I282	Browne's Shaft	Changehouse	Heritage Precinct 3	Structural ruin
12.	Item number I282	Junction Mine and Lookout	Changehouse	Heritage Precinct 3	Structural ruin
13.	Item number I287	Delprat Changehouse	Changehouse	Heritage Precinct 5	Extant building
14.	Item number I298	Thompsons Ambulance Station	Ambulance Station	Heritage Precinct 6	Extant building
15.	Item number I299	Thompsons Changehouse	Changehouse	Heritage Precinct 6	Extant building

v Administration buildings

Administration buildings were important for the Rasp Mine's management and operational purposes, providing offices and facilities to oversee various aspects of the mining operation. These buildings generally exhibit more substantial design and construction materials, incorporating brick, stone, and timber elements for durability and aesthetic appeal. Some of these structures underwent conversion into flats in 1948, leaving behind signs of this transformation, like small square openings in floorboards to accommodate rolled steel joists.

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Source: EMM Consulting, 2023

Photograph 3.17 **View of the side and the rear entrance of Radford House, Item number I116, facing east**

Source: EMM Consulting, 2023

Photograph 3.18 **View of the side and rear entrance of the General Offices building, Item number I244, facing west**

Source: EMM Consulting, 2023

Photograph 3.19 **View of Underground Offices Building, Item number I279, facing southeast**

Source: EMM Consulting, 2023

Photograph 3.20 **View of Thompsons General Offices, Item 302, facing north**

Table 3.5 Administration buildings

Number of items	LEP item number	Item name	Historic name/function	Heritage Precinct	Item type/feature type
1.	Item number I116	Radford House	Assay Office	Outside of CML 7 / Classified into Heritage Precinct 1	Extant building
2.	Item number I244	General Offices	Administrative offices of BHS followed by administration for MMM Pty Ltd.	Outside of CML 7 / Classified into Heritage Precinct 1	Extant building

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Table 3.5 Administration buildings

Number of items	LEP item number	Item name	Historic name/function	Heritage Precinct	Item type/feature type
3.	Item number I245	General Store Office	General Store Office	Heritage Precinct 1	Extant building
4.	Item number I262	Yardman's Office	Yardman's Office	Heritage Precinct 1	Extant building
5.	Item number I279	Underground Offices Building	Office	Heritage Precinct 2	Extant building
6.	Item number I288	Delprat General Offices	Delprat General Offices	Heritage Precinct 5	Extant building
7.	Item number I302	Thompsons General Offices	Offices	Heritage Precinct 6	Extant building

vi Staff residences

Staff residences were designed to accommodate mine workers, both within the mining site and in the nearby areas. They are constructed using materials like stone, red brick, and timber. Some of these structures exhibit evidence of modifications over time, including the addition of exterior features like verandahs and balconies, with interiors retaining period-specific details and materials.

Table 3.6 Staff residences

Number of items	LEP item number	Item name	Historic name/function	Heritage Precinct	Item type/feature type
1.	Item number I282	Browne's Shaft	Managers house	Heritage Precinct 3	Extant building
2.	Item number I283	Junction Mine and Lookout	Managers house	Heritage Precinct 3	Extant building

3.3 Historical archaeology

3.3.1 Nature of historical archaeological resources

Historical archaeological resources associated with mining sites provide insights into mining activities and technologies of past eras. The archaeology of mining sites encompasses a wide range of features, artefacts, and structures that collectively contribute to an understanding of historical mining practices and their broader socio-economic impacts. In addition to these features, archaeological resources the form of mining tools, equipment, and machinery serve as material evidence of the evolving mining techniques and innovations that have shaped the industry.

However, it has been recognised that conducting archaeological investigations in historic mine sites presents a distinctive set of challenges:

- Continued mining operations erode and destroy evidence linked to earlier mining phases.
- Safety concerns limit archaeological investigations to surface features, restricting underground exploration.
- Sale and scavenging of mining equipment upon closure deplete the archaeological resource.

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- Environmental factors such as erosion due to operational processes, deforestation, and human/animal activities damage mine sites and can impact the archaeological resource.
- Government-sponsored rehabilitation or 'clean-up' initiatives often remove existing archaeological evidence to ensure public safety (Connah and Hobbs, 1988:107-109).

As such, prior historical archaeological investigations of mining sites in Australia have focused on examining structural modifications to buildings and adaptive reuse to evaluate the heritage significance of these sites in terms of their historical, cultural, and technological contributions to the region (Stedinger Assosciates, 2001, 2003; Edward Higginbotham & Associates Pty Ltd, 2005; OzArk Environmental & Heritage Pty Ltd, 2011). Additionally, the recovery and analysis of archaeological assemblages have been instrumental in further understanding mining activities and provide additional insights into the daily lives and working conditions of miners.

Therefore, it is extrapolated that the historical archaeological resource at Rasp Mine is an important aspect of understanding the site's past. It provides insights into the operations, development, and cultural landscape of the mine. In Rasp Mine, historical archaeological resources encompass a wide range of evidence, including:

- Development of the historical landscape
- 'the archaeology of the buildings' including evidence of modifications and repairs in response to technological advancements
- preserved artefact deposits concealed within yard surfaces, walls, and beneath floors
- remnants of demolished structures.

3.3.2 Historical archaeological potential and significance

In formulating a methodology to identify archaeological potential within the Rasp Mine, the interplay of two key factors were assessed: the locations of previous structures and infrastructure, and the likelihood of their preservation in light of subsequent ground disturbance. This dual-faceted approach provided an understanding of the archaeological landscape at the mine.

Based on the above method, a list of items of archaeological potential was compiled. Each item underwent assessment, considering factors such as the potential for artefact deposits and the probability of encountering additional structural archaeology. This critical analysis was grounded in the historical context of each site, weighing their potential against their purpose and historical relevance. Table 3.7 details the levels of potential and their characteristics.

Table 3.7 Levels of archaeological potential applied to potential resources

Level of archaeological potential	Explanation
High	Known, intensive activity has occurred (during the historical phase) that is likely to result in an archaeological resource. The activity is geographically constrained and is not likely to have been subject to subsequent disturbance.
Moderate	Known activity likely to result in an archaeological resource has occurred (during the historical phase). The activity is geographically constrained but may have been subject to subsequent disturbance.

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Table 3.7 Levels of archaeological potential applied to potential resources

Level of archaeological potential	Explanation
Low	Known activity that may have resulted in an archaeological resource has occurred (during the historical phase). The activity is not geographically constrained and/or is likely to have been subject to substantial subsequent disturbance.
Nil	No known historical activity has been identified within a geographically constrained area that is likely to result in an archaeological resource and/or an area where subsequent subsurface impacts have been extensive.

To contextualise the significance of archaeological findings, Table 3.8 delineates definitions of archaeological significance levels. These definitions were utilised as a guiding framework for the evaluation of the archaeological significance of identified sites at Rasp Mine. The levels of significance, ranging from high to none, establish a hierarchy based on the potential of archaeological resources to answer research questions of varying importance at the National, State, and local levels.

The methodology integrates historical context, structural assessments, and consultation to produce detailed archaeological site inventory sheets, outlined in Appendix D. These sheets include information such as the historical context and function of the site, an evaluation of potential artefact deposits and structural archaeology, and the derived archaeological significance from a best-case scenario approach. Together, they form a framework for conservation management, guiding subsequent archaeological investigations and contributing to a more nuanced understanding of the Rasp Mine's historical legacy.

Table 3.8 Archaeological significance definitions

Level of significance	Code	Definition
High	H	The archaeological resources would meet the threshold for National and/or State significance, having the ability to answer research questions of importance to the Nation and/or State.
Medium	M	The archaeological resources would meet the threshold for State significance, having the ability to answer research questions of importance to the State.
Low	L	The archaeological resources would meet the threshold for local significance, having the ability to answer research questions of importance to Broken Hill.
None	N	The archaeological resources are unlikely to meet the threshold for local significance and do not have the ability to answer research questions that are substantive or cannot be elucidated from other sources.

The historical development of the identified archaeological sites in the Rasp Mine is categorised into three distinct phases, each marked by specific developments and uses, as demonstrated in Section 2, Figure 2.2 to Figure 2.5.

Table 3.9 provides an overview of archaeological sites corresponding to these delineated phases. Each site is described, elucidating its archaeological resources, and an evaluation of its archaeological potential, as visually represented in Figure 3.1 to Figure 3.4 along with its significance, as illustrated in Figure 3.5 to Figure 3.8.

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Table 3.9 Historical phases, archaeological potential and archaeological significance of archaeological sites in Rasp Mine

Heritage Precinct	Site	Location	Phase 1	Phase 2	Phase 3	Unknown	Archaeological potential	Archaeological significance
1	*Reagent Shed* – Not Listed, identified as RM-A02 (Formerly I279, Broken Hill LEP 1996)	South Mine, South of the No. 2 Control substation, old Mine Lease 7, Rasp Mine, CML 7, Broken Hill, NSW				✓	High	Low
1	*Filter House* – Not Listed, identified as RM-A01 (Formerly I280, Broken Hill LEP 1996)	South Mine, south-west of the Reagent shed, south of the pump house, old Mine Lease 7, Rasp Mine, CML 7, Broken Hill, NSW			✓		High	Low
1	*Electrical Workshop* (LEP Item I242)	North of the Mill, old South Mine, Rasp Mine, CML 7, Broken Hill, NSW	✓	✓			High	Electrical Workshop: low. Underground administration offices, underground changehouse and air compressors: low to medium
1	*Pumphouse and Cooling Water Reservoir* (LEP Item I252)	North of the east end of the Mill, South Mine, Mine Lease 8, Rasp Mine, CML 7, Broken Hill, NSW		✓			High	Low to medium
1	*Yardman's Office* (LEP Item I262)	North of the Compressor Room, east of the Coal Bins, South Mine, Rasp Mine, CML 7, Broken Hill, NSW			✓		High	Low
1	*Weighbridge Foundations* – Not Listed, identified as RM-A03 (Formerly I295, Broken Hill LEP 1996)	West of the north end of the Coal Bins, South Mine, Rasp Mine, CML 7, Broken Hill, NSW		✓			Moderate	Low
1	*Two Water Tanks and a Stone Foundation* (LEP Item I260)	Immediately south of the Roaster Plant, South Mine, Rasp Mine, CML 7, Broken Hill, NSW	✓	✓			High	Medium

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Table 3.9 Historical phases, archaeological potential and archaeological significance of archaeological sites in Rasp Mine

Heritage Precinct	Site	Location	Phase 1	Phase 2	Phase 3	Unknown	Archaeological potential	Archaeological significance
1	*Square Concrete Foundation* (LEP Item I257)	Immediately south of the Roaster Plant, South Mine, Rasp Mine, CML 7, Broken Hill, NSW		✓			High	Medium
1	*Brick Pier Foundations* (LEP Item I236)	On top of the slag heap on the east edge of Kintore cut, MMM area, Rasp Mine, CML 7, Broken Hill, NSW				✓	High	Low to medium
3	*Browne's Shaft, Junction Mine and Lookout* (LEP Item I281), Junction Mine and Lookout (LEP Item I282)	Menindee Road, Rasp Mine, CML 7, Broken Hill, NSW	✓	✓	✓		High	High
5	*Delprat Winder Foundations* (LEP Item I290)	Immediately north-east of Delprat shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW		✓			High	Low
5	*Slag Dump, Foundations, and Timber Piles* (LEP Item I293)	North-west of entrance road to Delprat area, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW		✓	✓		High	Medium
5	*Stone Wall and Concrete Footings* (LEP Item I294)	South of Delprat Winderhouse, Old BHP Area, ML 12, Rasp Mine, CML 7, Broken Hill, NSW		✓			High	Low to medium
5	*BHP Smelter Walls and Stack* (LEP Item I286)	East of the Delprat shaft and changehouse, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW	✓				High	High
5	*BHP Concentration Mill Foundations* (LEP Item I285)	North-west of Delprat shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW		✓			High	High
6	*Mullock Dump with Tram lines* (LEP Item I296)	North Thompsons Winderhouse and Headframe, British BHP area, Rasp Mine, CML 7, Broken Hill, NSW		✓	✓		High	Low

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Table 3.9 Historical phases, archaeological potential and archaeological significance of archaeological sites in Rasp Mine

Heritage Precinct	Site	Location	Phase 1	Phase 2	Phase 3	Unknown	Archaeological potential	Archaeological significance
7	*Stone Wall* (LEP Item I308)	Centre of the old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW	✓	✓			High	Medium
7	*Building Foundation* (LEP Item I305)	Centre of the old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW	✓				High	Medium
7	*Four Concrete Piers* (LEP Item I306)	Centre of the east side of the Old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW	✓	✓			High	Medium
7	*BHP Headframe Ruins* (LEP Item I307)	Inside the Old BHP pit on the east side, Rasp Mine, CML 7, Broken Hill, NSW	✓				High	Medium
7	*Timber Chute* (LEP Item I309)	West side of the Old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW	✓	✓			High	Low
7	*Rubbish dump* – Not Listed, identified as RM-A04	East side of the Old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW				✓	High	Low

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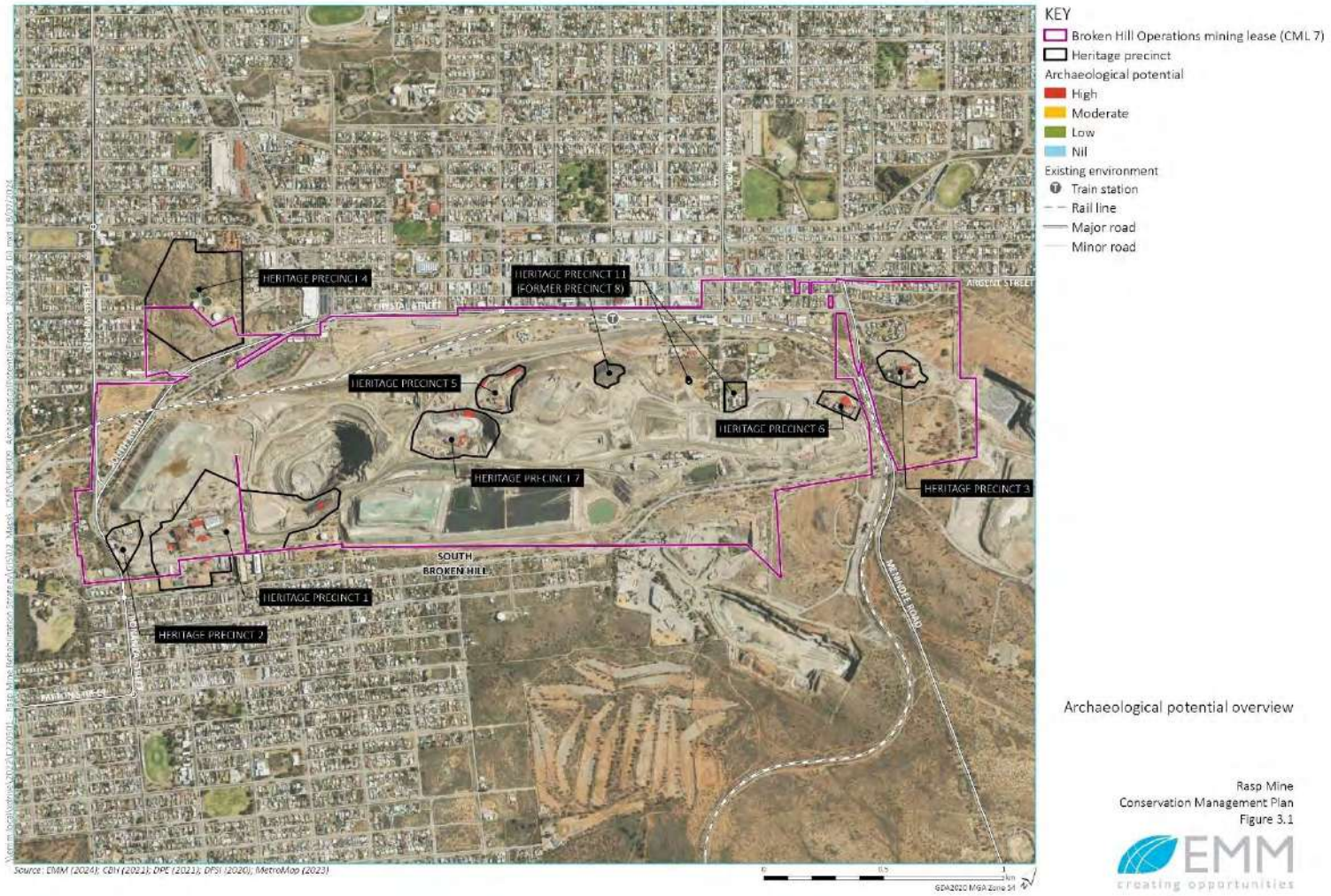

Figure 3.1 Archaeological potential overview

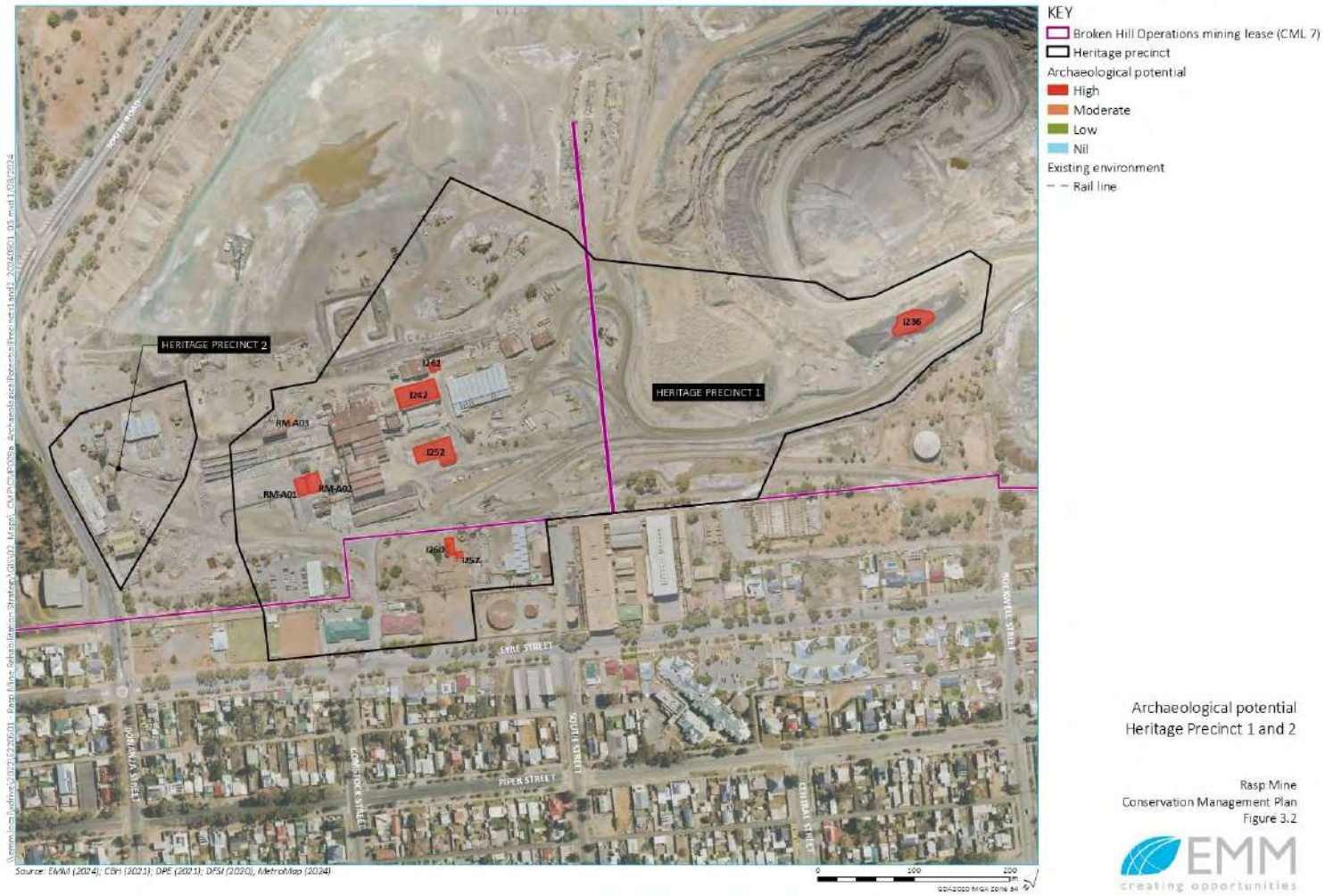

Figure 3.2 **Archaeological potential Heritage Precinct 1 and 2**

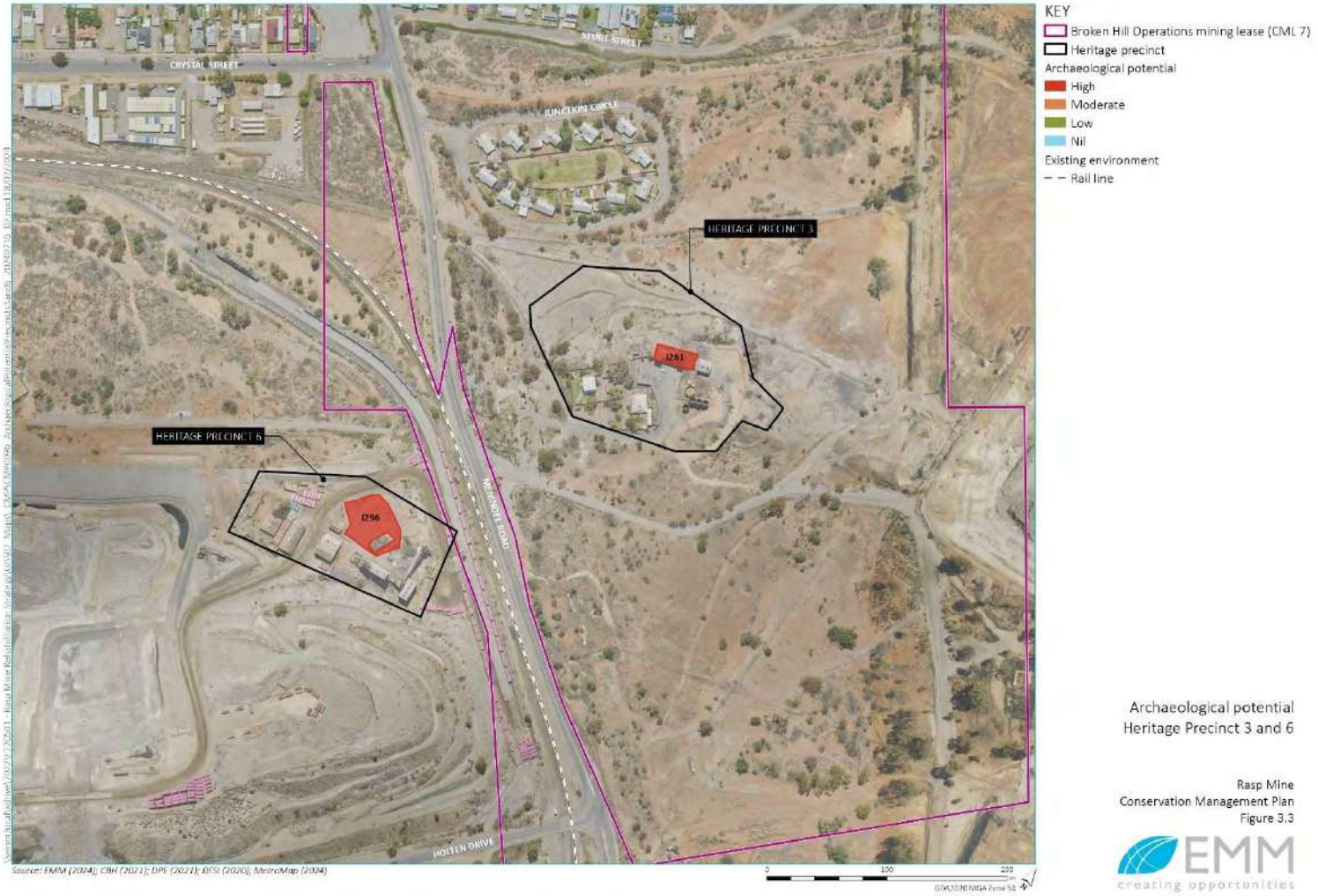

Figure 3.3 Archaeological potential Heritage Precinct 3 and 6

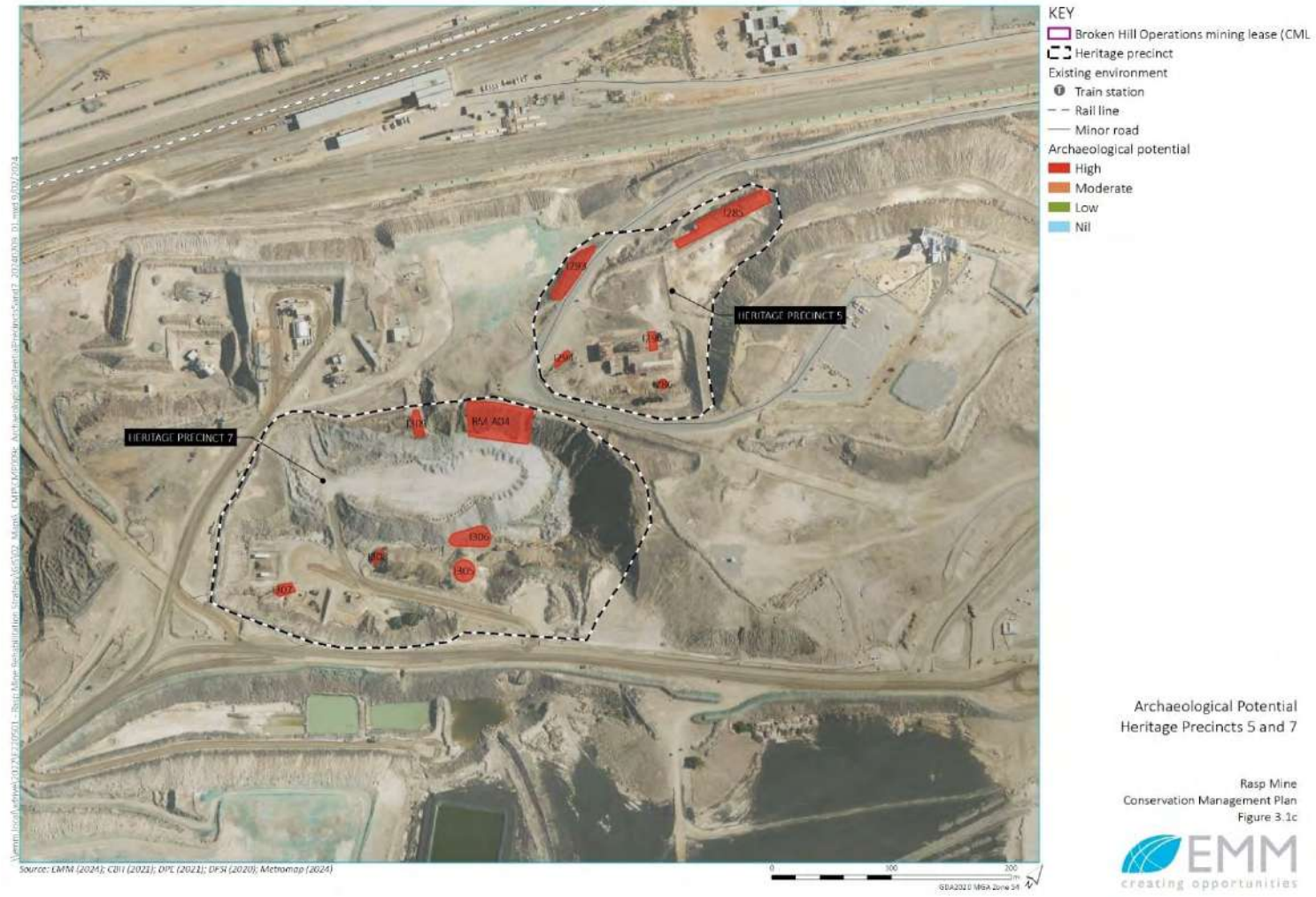

Figure 3.4 **Archaeological potential Heritage Precinct 5 and 7**

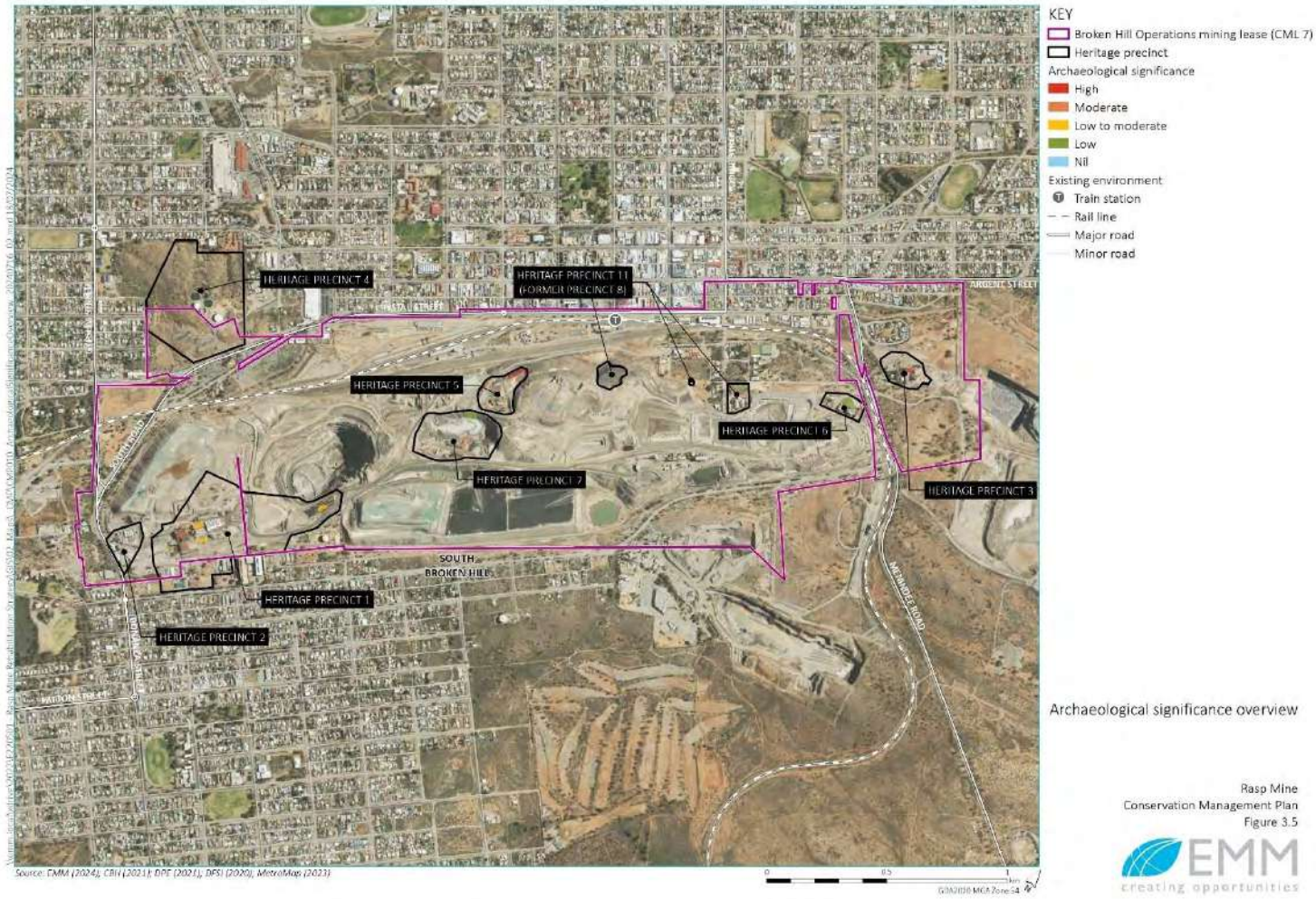

Figure 3.5 Archaeological significance overview

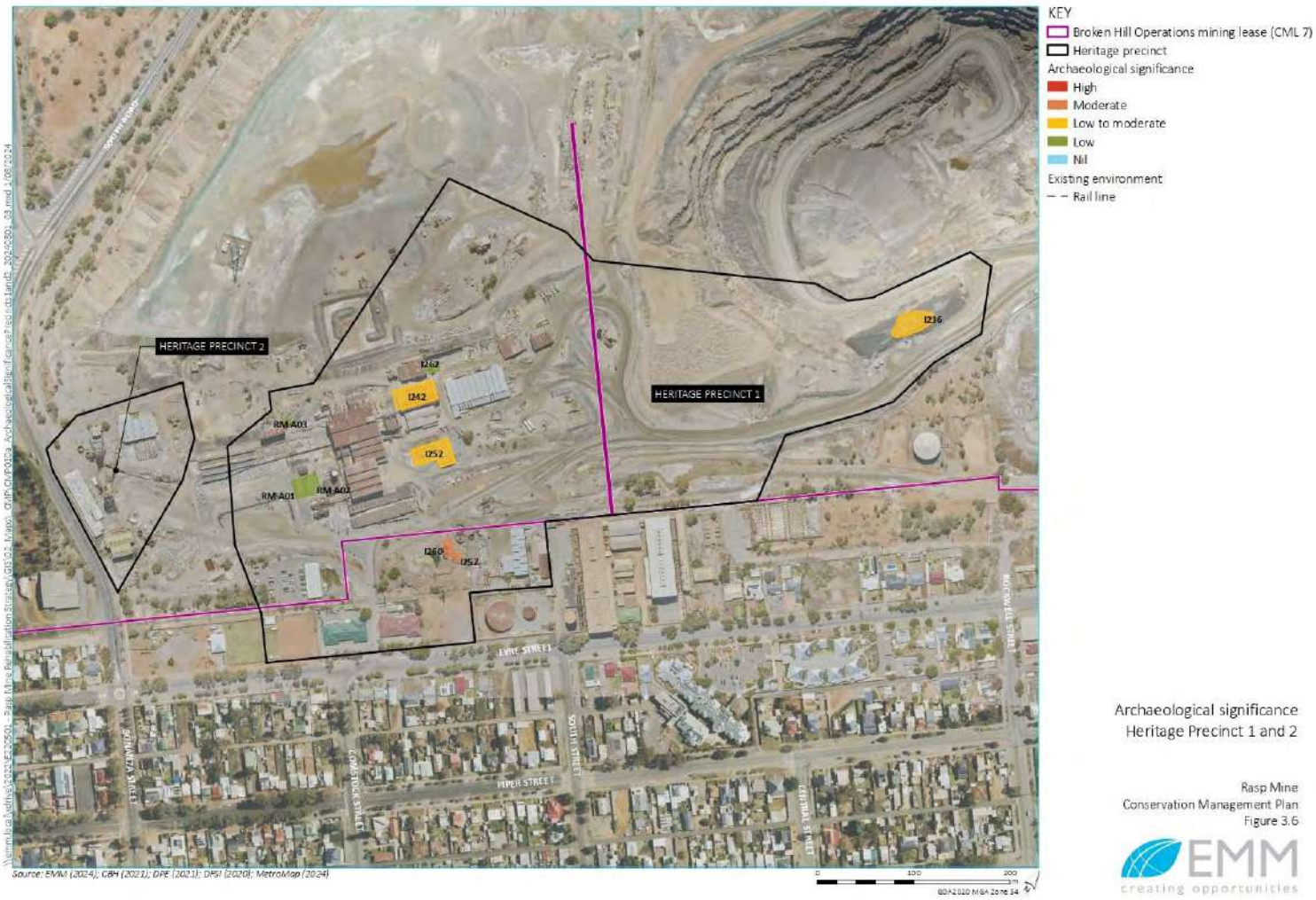

Figure 3.6 Archaeological significance Heritage Precinct 1 and 2

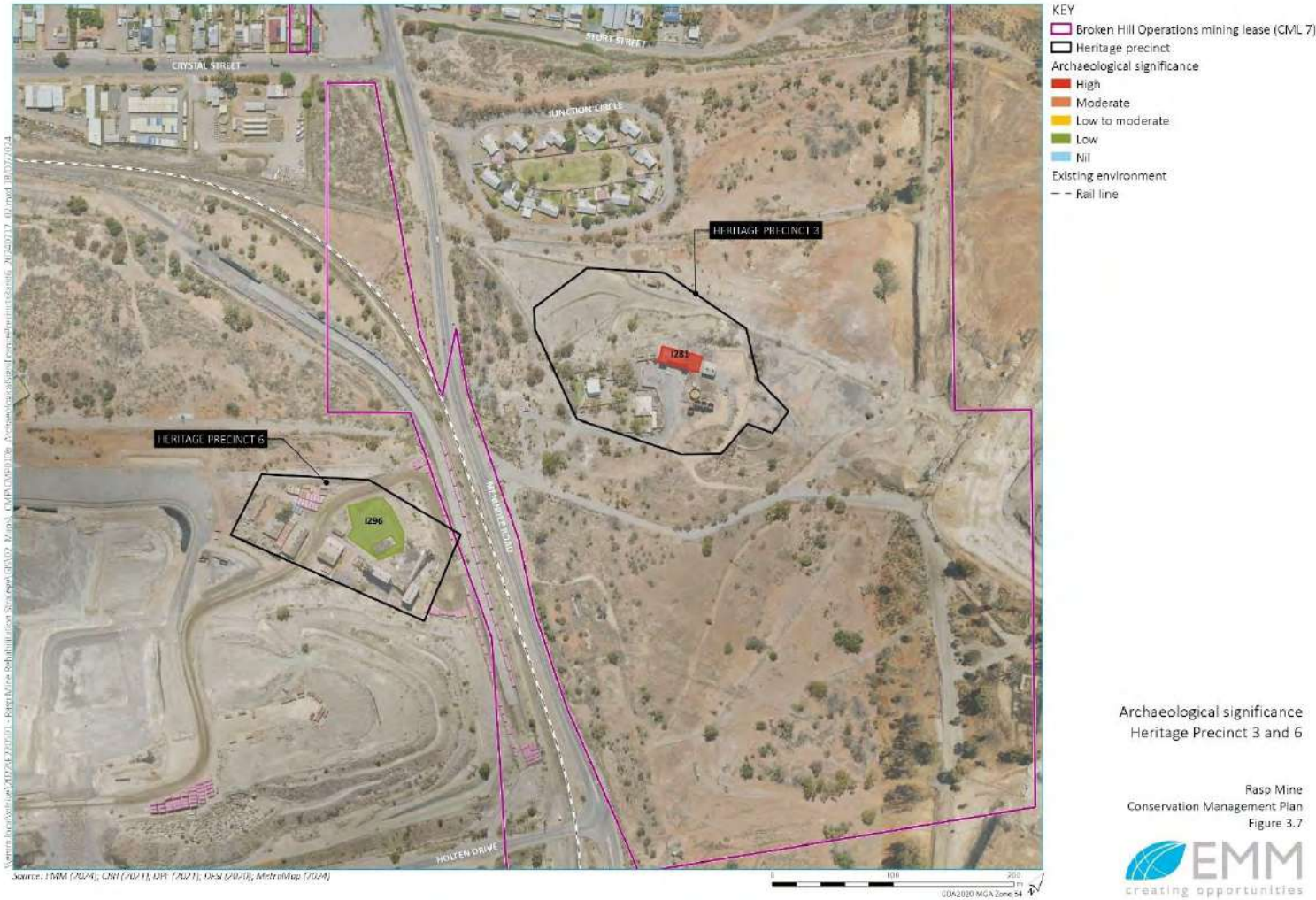

Figure 3.7 Archaeological significance Heritage Precinct 3 and 6

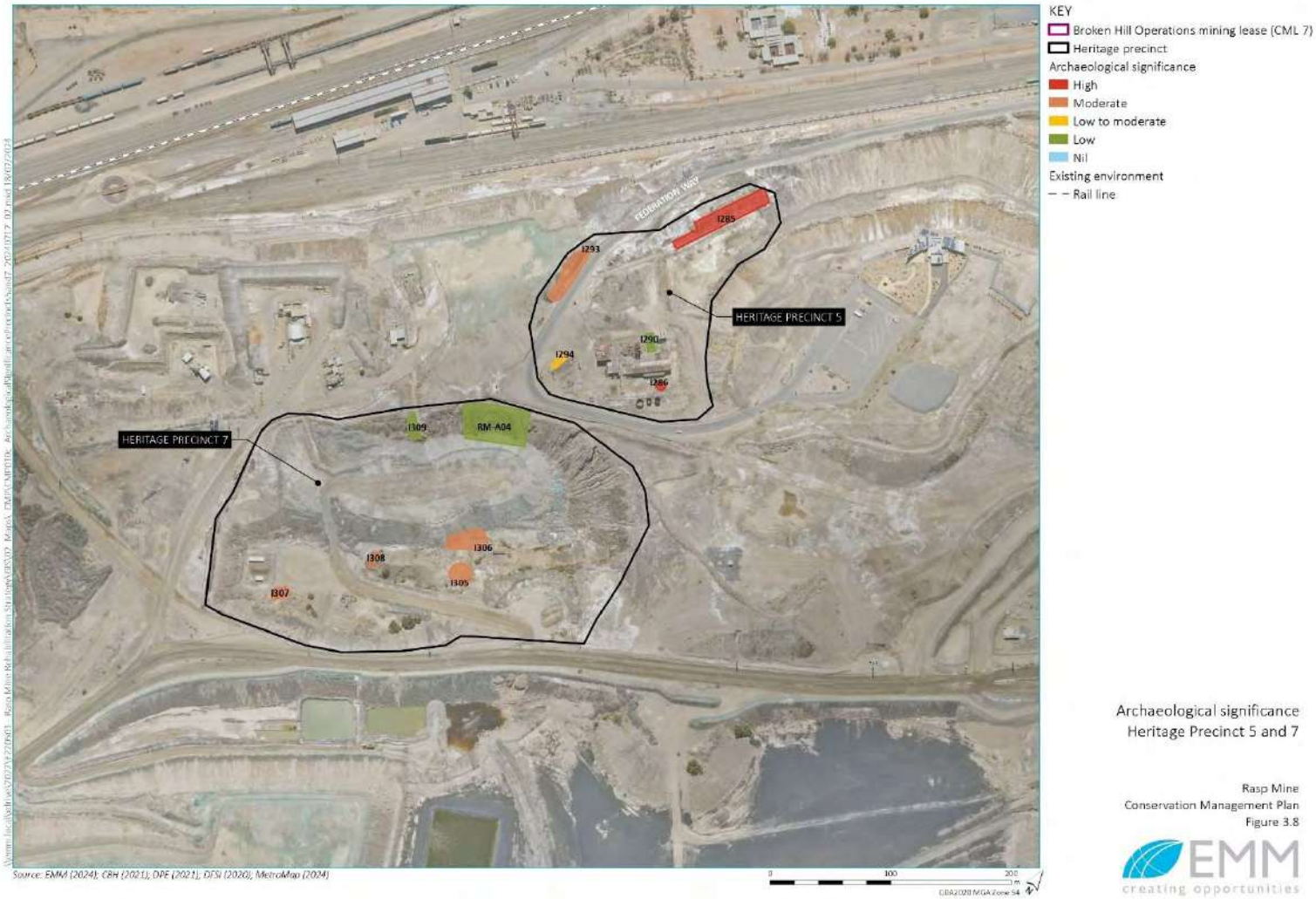

Figure 3.8 Archaeological significance Heritage Precinct 5 and 7

3.4 Visual analysis

3.4.1 Line of Lode landmark siting and setting

The Line of Lode, on which the Rasp Mine sits, is a distinctive and unique landmark of Broken Hill. Situated within an arid landscape, the Rasp Mine stands apart due to the topographical elevation of the Line of Lode, together with the imposing mining infrastructure, slag and mullock dumps. The stark contrast between historical mining heritage and the urban area enhances its visual presence. The abrupt urban edge underlines this distinction, revealing vivid colours extending beyond the city limits, emphasising the difference between urban development and the expansive desert landscape.

Broken Hill, being remote, has been a hub for artists, poets, filmmakers, and TV producers. The 'Brushmen of the Bush,' a group of Australian artists based in Broken Hill, all celebrating their depictions of Broken Hill in the Australian outback. The city has also inspired numerous renowned Australian artists whose works are displayed in galleries and private collections worldwide. The city's historic buildings, precincts, and streetscapes contribute to the Rasp Mine and Broken Hill's aesthetic appeal and is visible along the Line of Lode.

The proximity of the Line of Lode to the city of Broken Hill has allowed the city and its mining operations to function efficiently, with mining leases easily accessible from residential and commercial areas. Broken Hill reflects its isolation, the dominance of the mining and pastoral industry, and the importance of extensive transportation.

The representative photographs from this category include:

Source: EMM Consulting, 2023

Photograph 3.21 **View of the Line of Lode Place ID, RNE 101036**

Source: Broken Hill City Council, 2024

Photograph 3.22 **View of the Line of Lode, RNE Place ID, from Block 10, facing south east**

3.4.2 Views within the Rasp Mine

An evaluation of sightlines from the Rasp Mine to other precincts within CML7, which are not visible from publicly accessible roads or vantage points, is beyond the scope of this report. However, the Rasp Mine offers a diverse range of publicly accessible viewing points that provide valuable insights into the historical and industrial character of Broken Hill. This section highlights two key vantage points of note.

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i Line of Lode Miners Memorial

Located in the Rasp Mine, the Line of Lode Miners Memorial stands as a tribute to the miners of Broken Hill, honouring the memory of over 800 lives lost in mining accidents. Beyond its commemorative role, the memorial site offers valuable insight into the historical context of Rasp Mine and the mining activities along the Line of Lode. Additionally, it presents panoramic views of the city, providing a distinct perspective that encapsulates the interplay between mining and the associated urban development of Broken Hill.

The representative photographs from this category include:

Source: EMM Consulting, 2023

Photograph 3.23 **View of the Broken Earth Cafe Restaurant, with the Line of Lode Miners Memorial beyond, facing north east**

Source: BHOP, 2024

Photograph 3.24 **View of the city, from the Line of Lode Miners Memorial, facing north east west**

ii Heritage Precinct 3 to Heritage Precinct 6

Views from Heritage Precinct 3 extend towards Heritage Precinct 6, whilst also offering a south panoramic view of the surrounding outback landscape. From this vantage point, the industrial elements, such as Browne's Shaft and Headframe (LEP Item I281) and the Ore bin, play a significant role in defining the visual character and form of the surrounding region.

The representative photographs from this category include:

Source: BHOP, 2024

Source: BHOP, 2024

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Photograph 3.25	**View of the Heritage Precinct 3 from Heritage Precinct 6, facing north east**	**Photograph 3.26**	**View of the Heritage Precinct 6 from Heritage Precinct 3, facing south west**

3.4.3 Views toward the Rasp Mine

When examining Broken Hill's industrial heritage along the Line of Lode, it is important to consider the city's vantage points of the Rasp Mine and its surrounding areas. These vantage points are accessible from public roads, including Eyre Street, Bonanza Street, Menindee Road, Federation Way, Iodine Street, and Oxide Street. These views showcase the city's industrial character against its remote backdrop, encapsulating the historical narrative of Broken Hill's mining legacy and its economic contributions to the city's development.

These viewpoints are particularly notable due to the striking juxtaposition they present: the imposing mullock and slag dumps, the industrial structures contrasted with the central business cityscape, seemingly dwarfed by the expansive outback terrain. These heritage elements are fundamental in shaping the visual identity of Broken Hill, emphasising their significance within the broader historical context of the region.

Each of these elements possesses a unique form, material composition, and function, playing a role in defining the character and massing of the historic mine. They not only enhance the visual appeal when observed from the streets but also imbue the landscape with layers of historical and cultural significance, as elaborated in this CMP in Section 4. The analysis below offers a generalised overview, with a specific focus on structures that hold a prominent presence in the landscape and their visual impact within the precincts. The specific views may be subject to partial obstruction or influenced by certain conditions.

i Eyre Street, Heritage Precinct 1

The view from Eyre Street into Heritage Precinct 1 provides insight into the character, form, and scale of the buildings and structures that collectively contribute to the precinct's setting and historical context. The General Offices (LEP Item I244) and Radford House (LEP Item I116) are housed within a sizable red brick buildings featuring a Dutch gable roof form. This architectural focal point along Eyre Street contains features such as double-hung windows, a surrounding verandah, and ornate posts, significantly contrasting the precinct's industrial character and visual appeal, and is set back approximately 14 m from Eyre Street. Adjacent to this, Two Water Tanks and a Stone Foundation (LEP Item I260) diversify the structural fabric. These riveted steel tanks on concrete foundations, accompanied by the adjacent rough stone alignment, likely remnants of a former building foundation, provides insight into the historical development of the precinct.

Looking further into the Rasp Mine, the South Mill (LEP Item I237) dominates this view with its substantial bulk, underpinned by a reinforced concrete foundation and clad in corrugated iron. This structure significantly contributes to the overall setting and views of the precinct. Its saw-tooth corrugated iron roof design and east-facing windows shape the form and massing of the precinct, reaffirming the industrial significance of the area. Complementing this, the Mullock Bin (LEP Item I247) supplements the material grain of the precinct with its timber and steel-framed construction in corrugated iron cladding. Its form, accentuated by its parallel arrangement to Eyre Street, features full views to the steel-framed mullock bins and timber loading chutes.

A notable addition to the precinct's form and scale, the Water Tower (LEP Item I261) stands as a prominent cylindrical feature. Its towering black concrete structure, comprising multiple levels and an iron ladder, adds a distinctive dimension to the overall rectilinear massing and visual character of the precinct, with connecting pipes to the mill further emphasising the interplay of form and scale in the setting.

Furthest from the streetscape, along the horizon line, are three distinctive structures: the Electrical Workshop (LEP Item I242), the Mechanical Workshop (Old General Workshop) (LEP Item I246) and the Compressor Room (Old Powerhouse) (LEP Item I241). These buildings are constructed with a variety of materials and occasionally

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contrasting architectural elements, such as arched windows and doors, which collectively reinforces the industrial fabric and form in the precincts view lines.

The representative photographs from this category include:

Source: BHOP, 2024

Photograph 3.27 **View of Heritage Precinct 1, from Eyre Stret, facing north**

Source: BHOP, 2024

Photograph 3.28 **View of Heritage Precinct 1, from Eyre Stret, facing north**

Source: BHOP, 2024

Photograph 3.29 **View of Heritage Precinct 1, from Eyre Stret, facing north**

Source: BHOP, 2024

Photograph 3.30 **View of Heritage Precinct 1, from Eyre Stret, facing north**

ii Bonanza Street, Heritage Precinct 2

The view from Bonanza Street into Heritage Precinct 2 is characterised by several key heritage elements. Prominently, the rendered No 7 Winding House (LEP Item I275), with the adjacent No 7 Headframe (LEP Item I272) contribute to Heritage Precinct 2's massing and scale. With its 'A' frame design, 9.1 m centre-to-centre placement, and 21 m base span, the No 7 Headframe (LEP Item I272) embodies an iconic architectural form as viewed from Bonanza Street. Its vertical height of 32 m above the shaft collar adds to its imposing presence, thereby contributing to the overall form and setting of the area.

The Underground Offices Building (LEP Item I279) adds a contrasting architectural component to the precinct with its Dutch gabled roof form and wrap around verandah. Despite undergoing alterations since its initial construction, the building maintains its original form with a corrugated galvanised iron structure.

The view line contains additional distinct elements, including the Covered Overpass (LEP Item I265), which is a steel bridge with unpainted corrugated galvanised iron cladding. This overpass horizontally splits the precinct as it connects to the three-story, flat roof Crusher Station (LEP Item I266). Additionally, the view includes housing sheds, characterised by medium to low structures made from unlined and unpainted corrugated galvanised iron.

Lastly, the Headframe, No 4 Shaft (LEP Item I267) is a timber structure, contrasting the other materials used in the area, embodying an iconic architectural form as viewed from Bonanza Street. While its use has shifted to accommodate a sand pass, some original equipment are still in place, with a notable eastward bow in the mid-section.

The representative photographs from this category include:

Source: BHOP, 2024

Photograph 3.31 **View of Heritage Precinct 2 from Bonanza Street, facing north**

Source: BHOP, 2024

Photograph 3.32 **View of Heritage Precinct 2 from Bonanza Street, facing north east**

iii Menindee Road, Heritage Precinct 3 and 6

The buildings, structures, and surroundings within Heritage Precincts 3 and 6 are visible both from Menindee Road and from within their respective precincts, as described below.

a Heritage Precinct 3

To the east of Menindee Road, Browne's Shaft and Headframe (LEP Item I281) is a prominent focal point, marked by the distinctive form of the sheave wheel headframe, its timber composition, and imposing height. These elements are pivotal in defining the massing and scale of the Junction Mine site. Junction Mine's view lines is a synthesis of its distinctive characteristics and qualities that encapsulate its historical and industrial context. The physical features of Browne's Shaft and Headframe (LEP Item I281), along with the winder and winding house (LEP Item I281), in addition to the Concentration and Treatment Plant (LEP Item I281), collectively contribute to the site's overall shape, volume, and arrangement.

The Ore bin's significant scale, mass, and bulk is readily apparent. The Ore bin's construction, characterised by timber cladding at the bottom, contrasted by the corrugated iron cladding at the top, emphasises its form and supplements the material grain of the precinct and the headframe. Its strategic alignment, parallel to Menindee Road, ensured for easy access and allows for unobstructed views of both the ore bins and timber ore feeders (LEP Item I281).

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Furthermore, there are additional low-set structures constructed mainly from corrugated galvanised iron dispersed throughout the Junction Mine site. In contrast, the former Compressor House is constructed of brick and stone. Similar to the aforementioned structures, these buildings share characteristics of a rectilinear form, pitched roofs, and a uniform arrangement. Collectively, these elements play a fundamental role in defining the visual setting of the landscape. When juxtaposed with the towering headframe, ore bins, and other components, they substantially contribute to the scale of this mining precinct.

The representative photographs from this category include:

Source: BHOP, 2024

Photograph 3.33 **View of Heritage Precinct 6 from Menindee Road, facing south**

Source: BHOP, 2024

Photograph 3.34 **View of Heritage Precinct 6 from Menindee Road, facing south west**

b Heritage Precinct 6

To the west of Menindee Road, Thompsons Header Frame, Brace Housing, and Conveyor (LEP Item I303) along with Thompson's Crusher House (LEP Item I301) dominate the views into this precinct, playing an important role in defining its overall character and form. The distinctive sheave wheel headframe, constructed from timber, anchored by concrete footings and reinforced with steel plates and bolts, stands in sharp contrast to the brace housing, which is a timber-framed rectangular structure resting on concrete foundations and cladded in corrugated galvanised iron. This variance in material usage not only diversifies the precinct's setting and grain but also enriches its overall visual character, form, and volume.

The machinery within Thompson's Crusher House (LEP Item I301), including the Thompson's Conveyor, Storage Bin, and Loading Hopper (LEP Item I300), reinforces the area's historical purpose and contextualises the precinct's massing and scale when viewed from Menindee Road. The interaction between the layout, machinery, and built structures emphasises the function and character of this area.

The steel conveyor structure stemming from Thompson's Crusher House (LEP Item I301) and the Thompson's Conveyor, Storage Bin, and Loading Hopper (LEP Item I300) horizontally divides the precinct. It showcases steel-framed elements, an organised layout, and steel handrails, influencing not just the form and character of the precinct but also contributing to its varied visual aesthetics when viewed from Menindee Road. This functional configuration adds to the precinct's visual texture, underscores its visual character, by providing insights into its historical operations, and bolsters the site's scale and view lines.

Additionally, scattered across the site are low-set structures primarily constructed from corrugated galvanised iron. One visually prominent feature is the Thompson's Winderhouse (LEP Item I304) characterised by its pitched roof form, timber-framed interior, clad in corrugated galvanised iron, and built upon concrete foundations. Its distinct two-section design, enhanced by raised wooden verandahs and variations in window placements on the east and west sides, further contribute to the precinct's unique form within its setting.

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The representative photographs from this category include:

Source: BHOP, 2024

Photograph 3.35 **View of Heritage Precinct 6 from Menindee Road, facing east**

Source: BHOP, 2024

Photograph 3.36 **View of Heritage Precinct 6 from Menindee Road, facing north**

iv Block 10 Lookout, Heritage Precinct 4

The Block 10 Lookout, along with its BHP Concentration Mill Site (LEP Item I283) and Block 10 Reservoirs (LEP Item I284), is located outside of CML 7. The mapped heritage curtilage of these listed items extends into Heritage Precinct 4. The Block 10 Lookout is a prominent viewpoint offering a panoramic perspective, particularly of the southern part of the Rasp Mine on the Line of Lode. This area encompasses the old Zinc and the New Broken Hill Consolidated Mine (NBHC), as well as the current PBHOP. The name 'Block 10' derives from its historical significance as the site of the Block 10 Mine's concentration mill, which was erected in 1903 and connected to the mine by an aerial ropeway. Evidence of the mill, which operated until 1923, still exists. Additionally, this hill hosts four reservoirs that contribute to the city's water supply system.

The representative photographs from this category include:

Source: BHOP, 2024

Photograph 3.37 **View from Block 10 Lookout, facing south**

Source: BHOP, 2024

Photograph 3.38 **View from Block 10 Lookout, facing south**

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v Federation Way, Heritage Precinct 5

Federation Way functions as an essential route, facilitating internal access to the Line of Lode Miners Memorial and Café. As it extends along the north side of the Line of Lode, the road offers sweeping views back towards Broken Hill. This vantage point provides visitors with a preview of the industrial landscape that awaits at the top. The road's strategic alignment guides tourists towards the centre of Heritage Precinct 5. Views into Heritage Precinct 5 from Federation Way encompasses the immediate and extended physical environment surrounding a collection of heritage elements.

These significant elements include the Delprat Head Frame and Shaft (LEP Item I289), Delprat Changehouse (LEP Item I287), Delprat General Offices, and Three Water Tanks (LEP Item I295). Additionally, remnants of the BHP Smelter Walls and Stack (LEP Item I286), BHP Concentration Mill Foundations (LEP Item I285), and a Loading Platform (LEP Item I292) contribute to the landscape of the precinct. The North Slag Dump (LEP Item I15) from Heritage Precinct 11 (Former Precinct 8), is also visible. It is within this setting that the distinctive visual character of the precinct take shape.

The physical form and mass within the precinct shape its visual character. This is attributed to the layout, dimensions, and architectural configurations of the heritage structures present. The arrangement, size, and distinctive shapes of these historical elements contribute to the overall aesthetic and defining the visual identity of the precinct as viewed from Federation Way. The steel Delprat Head Frame and Shaft (LEP Item I289), containing two head sheaves, stand out as prominent focal points, with undisrupted view lines, reflecting their historical function. Visible structures and remnants of historic rail tracks diverging from the headframe are also visible from the road.

Furthermore, the architectural diversity within the precinct adds to its unique visual setting. The Delprat Changehouse (LEP Item I287), Delprat Winderhouse (LEP Item I291), and Delprat General Offices exhibit a range of architectural forms, including pitched, hipped, and Dutch gable roof forms. Their distinctive window treatments and rectilinear layouts set-back behind the headframe contribute to the overall aesthetics and character of the precinct.

In contrast, the coexistence of the Three Water Tanks (LEP Item I295) with well-preserved industrial structures and the weathered remnants of the stone BHP Smelter Walls and Stack (LEP Item I286), BHP Concentration Mill Foundations (LEP Item I285), and the timber Loading Platform (LEP Item I292) adds contrast to the precinct's view lines. The historical remnants with well-preserved heritage structures creates a juxtaposition that enhances the visual appeal of the precinct when observed from Federation Way, contributing to the overall visual interest.

The representative photographs from this category include:

Source: BHOP, 2024

Source: BHOP, 2024

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Photograph 3.39	**View of Heritage Precinct 5 from Federation Way, facing north**	**Photograph 3.40**	**View of Heritage Precinct 5 from Federation Way, facing north**

vi Iodine and Oxide Street, Heritage Precinct 11 (Former Precinct 8)

The Iodine and Oxide Street Heritage Precinct is shaped by the surrounding landform and distinctive architectural styles. Iodine Street merges onto McGillvray Drive and Federation Way, providing access to the Line of Lode Miners Memorial and Café. These streets also lead to private roads past The Broken Hill Railway Station and Yard Group (LEP Item I49) and the former Sydney Railway Station (LEP Item I210). Beyond these points lie the British Flats in Proprietary Square (LEP Item I21) and the BHP Chimney Ruins of First Offices (SHR Item I14). The BHP North Slag Dump (LEP Item I15), the only listed item within this report's scope, and is visible from Federation Way. This setting creates a framework that both connects and visually separates key historical features and residential areas.

The character of the precinct is defined by structures such as the BHP Chimney Ruins of First Offices (SHR Item I14) and the mine manager's house (LEP Item I21), which contrast with residential buildings featuring pitched roofs, double-hung windows, and verandahs as part of the British Flats in Proprietary Square. These architectural elements reflect the historical transition from industrial to residential spaces. Landscaped areas and garden beds further enhance the precinct's residential character, providing a visual and functional transition between different building scales. The variation from small, simple residential houses to larger, more ornate structures creates visual diversity and highlights the area's historical development. Architectural configurations, including pitched, hipped, and Dutch gable roofs, along with varying façade treatments, window designs, and verandah details, reinforce the historical architectural styles.

The strategic siting of buildings maximises functionality while preserving view lines and historical integrity. Significant views towards the residential area and the Line of Lode highlight the contrast between industrial and residential landscapes, allowing for a diverse visual narrative. The use of materials like timber, brick, and corrugated iron reflects historical construction methods, ensuring a consistent material palette that unifies the precinct. Muted and natural colour schemes blend with the landscape, making them sympathetic to the historical context.

The representative photographs from this category include:

Source: Emm Consulting, 2023

Photograph 3.41 **View of the BHP Chimney Ruins of First Offices in Heritage Precinct 11 from Oxide Street , facing south**

Source: Emm Consulting, 2023

Photograph 3.42 **View of the mine manager's house on Proprietary Square in Heritage Precinct 11 from Iodine Street, facing south**

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Source: Emm Consulting, 2023

Photograph 3.43 **View of the of Proprietary Square in Heritage Precinct 11 from Iodine Street, facing east**

Source: Emm Consulting, 2023

Photograph 3.44 **View of the of Proprietary Square in Heritage Precinct 11, facing north west**

3.5 Moveable heritage, contents and collections

Moveable heritage, although out of scope for the CMP is evident across CML 7 and can encompass various items and collections related to the mining history of Rasp Mine. While the specific contents may vary, the following categories of moveable heritage have been observed at the site. As these have not been extensively documented, there is potential for further types of moveable heritage content and collections to occur.

The representative photographs from this category include:

Source: EMM Consulting, 2023

Photograph 3.45 **View of internal pumphouse equipment and signage in Heritage Precinct 1**

Source: EMM Consulting, 2023

Photograph 3.46 **View of mining cages, Heritage Precinct 2**

Source: EMM Consulting, 2023

Photograph 3.47 **View of scales and weights, Heritage Precinct 1**

Source: EMM Consulting, 2023

Photograph 3.48 **View of mining ore cart, Heritage Precinct 3**

i Archives and records

The historical archives of the Rasp Mine constitute a substantial collection that has not yet undergone cataloguing, digitisation, or proper storage. Operational records documented daily activities and production figures, offering insights into the mine's day-to-day operations. Financial records provide details on the mine's transactions with suppliers and buyers, shedding light on the economic aspects of the mining venture. Correspondence, including letters, telegrams, and memos, contributes to the understanding of mine management, labour negotiations, and overall business operations. Employment records, such as payroll registers and employment contracts, contain information about the mine's workforce, including names, positions, and payments.

Wage books meticulously record the names, positions, and wages of the mine's workforce, offering insights into labour relations and compensation. Equipment purchase ledgers chronicle acquisitions of machinery and tools, while expense records itemise operational costs, such as utilities, materials, and maintenance expenses.

During the mine's active years, photographs captured the daily lives of miners, machinery, mining operations, and the local community. Vintage film reels provide a cinematic record of activities within the mine, small city life, and industrial processes.

ii Maps and plans

The mine's archives contain blueprints and maps of both the underground and surface workings, though they were not readily available at the time of writing the CMP. Underground mine plans, especially, could provide a depiction of the intricate network of tunnels, shafts, and stopes. These plans would contribute to understanding the spatial layout of the underground mining operations and the connections between different parts of the mine. The surface plant facility layouts would complement this understanding, providing insight into the mine's surface infrastructure, including the arrangement of offices, ore processing plants, storage structures, and other key elements. Additionally, geological maps would serve as visual documentation, offering insights into the evolution of geological formations, mineral deposits, and veins across different phases of the mining's development.

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iii Furniture and mining equipment

The moveable heritage of the Rasp Mine includes a collection of historical mining equipment that provides insights into the site's mining practices. Noteworthy items in this collection include early pneumatic rock drills, essential tools used for drilling blast holes during the ore extraction process. Additionally, the collection showcases technological advancements of the era with items like diesel pumps, rail cars, and ore buckets, contributing to efficient ore transportation within the mine.

Safety gear, such as helmets, respirators, and protective clothing, offers insights into the working conditions and safety practices of miners. The inclusion of flying foxes, carts, and pulleys highlights their significance in material handling and transport innovations of the time. Historical weight scales, necessary for accurate measurement and weighing of valuable ore and minerals, ensured precise record-keeping and proper management of the mining output, contributing to the operational efficiency of the mine.

The mine's moveable heritage extends to various fixtures and fittings within the site. Office spaces in administrative buildings are equipped with typical office furniture, supporting record-keeping and administrative functions. The ambulance garage, dedicated to safety and medical requirements, houses medical equipment, stretchers, ambulances, and maintenance tools for addressing potential emergencies. Staff residences near the mine include domestic furnishings such as beds, wardrobes, dining tables, chairs, and other household items, reflecting the daily lives of the workers.

iv Signage and markers

Historical signage played a fundamental role in communicating essential information to miners and workers. Warning signs marked hazardous areas and alerted personnel to potential dangers. Ventilation directions ensured a safe and breathable environment within the underground chambers. Safety regulations, conveyed through signage, maintained safety standards throughout the mining operations. Directional signage provided guidance through the complex network of tunnels and chambers, facilitating effective navigation.

Above ground, directional signage guided miners and workers through surface facilities, optimising workflow and promoting efficient navigation.

v Collections of assays, ore and minerals samples

The collections of assays, ore, and mineral samples found throughout the site provide insights into the geological and mineralogical diversity of the region. The assays on the site are laboratory analyses of these samples, revealing the composition and concentrations of specific elements and minerals. These analytical tests play a fundamental role in understanding the economic viability of the Rasp Mine's mining operations, fine-tuning mineral processing techniques, and ensuring the quality of metals and alloys produced.

These collections encompass a variety of ore and mineral samples, including specimens of silver, lead, zinc, and other minerals that were prominent in the mining operations of the Rasp Mine. Among these collections are geological specimens that serve as invaluable resources for understanding the geological formations, mineral deposits, and veins that characterised the region.

3.6 Comparative analysis

3.6.1 Review of similar sites

To gain an understanding of the relative significance of the Rasp Mine, as assessed in Section 4, the evaluation of its rarity or representativeness necessitates a comparative analysis of similar sites. This comparison includes an examination of the values outlined in heritage listings, along with archival research and field assessments conducted specifically for this report.

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The Broken Hill National heritage listing is the only current listing to encompass the interrelationships of natural and built elements that comprise a city (Paul Davies Architects and Heritage Consultants, 2021:xiii). The heritage values of the Broken Hill listing draw from the urban city, mining landscape, and surrounding desert (Paul Davies Architects and Heritage Consultants, 2021:xiii). The Rasp Mine is an element of high individual significance that contributes to these overall heritage values (Paul Davies Architects and Heritage Consultants, 2021, p. xiii). As there are no comparative sites for Broken Hill as a whole that take into consideration a city, the natural environment and an active mine, this comparative analysis will review complex mining sites of a similar period of operation.

Austral Archaeology (1994:2) identified four mining sites of with comparative cultural histories to Rasp Mine—Moonta and Wallaroo Mines in South Australia, Kalgoorlie in Western Australia and Mount Lyell in Tasmania. Table 3.10 presents the heritage values of the four mining sites. The values of Rasp Mine will be compared and analysed in Section 4.

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Table 3.10 Comparative analysis

Item name	Description
Australian Cornish Mining Sites: Moonta Location: Verran Terrace, Moonta, South Australia Heritage listings: • South Australia State Heritage Register: State Heritage ID 10187 • National Heritage List: Place ID 106096	**Description** Today, Moonta is situated on the Yorke Peninsula, approximately 165 km northwest of Adelaide. The area includes the Moonta Mines State Heritage Area, which preserves both standing and archaeological remnants from the former mine. This encompasses various town buildings, mining infrastructure, and former miner cottages that housed the significant mine workforce. Presently, Moonta consists of small, scattered residential areas within a broader landscape that retains numerous mining structures and buildings from its mining history. **Summary statement of significance** The Moonta copper mine the is significant for its resilience and innovation of the Cornish mining system in Australia. The transfer of Cornish mining practices to Moonta facilitated large-scale mining operations, marked by advancements in labour organisation, technological improvements, and social advocacy. Led by legendary Captain Henry Richard Hancock, the mine saw significant innovation, including the development of the Hancock Jig, contributing to its status as one of Australia's leading copper producers. The influx of Cornish miners and the establishment of a vibrant Cornish community earned Moonta the moniker 'Australia's Little Cornwall.' Despite the closure of the mine in 1923 and subsequent population decline, Moonta's legacy as a hub of Cornish mining culture continues to shape Australia's mining heritage. **Historical summary** The discovery of copper at Moonta in the 1860s by Patrick Ryan on Walter Watson Hughes' pastoral lease marked the beginning of a significant event in Australia's mining history. This discovery led to the establishment of the Moonta Mining Company and the rapid development of the township to support mining operations. Led by Captain Henry Richard Hancock, the mine flourished, employing nearly 1700 workers at its peak and becoming one of the world's largest copper producers. The township of Moonta emerged to accommodate the burgeoning population, reflecting a distinctive Cornish character. Development of the Moonta mine began in 1861, and by 1863, the Moonta Mining Company had initiated works on the mine. The operation utilised traditional Cornish mining technologies under the guidance of Captain Hancock, who served as mine captain from 1864. Hancock's leadership was instrumental in the expansion of the mine, implementation of social and management systems to support Moonta miners, and the introduction of technological innovations such as the Hancock jig. The underground works expanded across the ten individual ore bodies of the Moonta mine, solidifying its position as a global leader in copper production and exportation. Despite fluctuations in copper prices and eventual mine closure in 1923, Moonta's influence on Australia's mining industry persisted. Cornish miners who had worked at Moonta contributed their expertise to mining ventures across the country **Heritage values** • Moonta's mining infrastructure showcases the effectiveness of Cornish mining techniques, such as shaft sinking, ore extraction, and labour organisation. • The enduring success of the Moonta mine, despite challenges like fluctuating copper prices, reflects the resilience and innovation of the Cornish mining system, including the invention of the Hancock Jig. • Moonta's strong Cornish heritage, evidenced by its nickname 'Australia's Little Cornwall' and the presence of Cornish miners and their families, highlights the cultural impact of mining migration on Australian society.

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Table 3.10 Comparative analysis

Item name	Description
	• The adoption of Cornish steam engine technology and advancements in ore processing at Moonta contributed to the mechanisation and modernisation of Australia's mining industry. • Moonta's mining community, characterised by mutual support networks and social activities, reflects the close-knit nature of Cornish mining communities and their contributions to shaping local societies. • Demonstrating continuous operation from 1861 to 1923, Moonta signifies the enduring exploitation of mineral resources in the area. • Remnant mining structures above and below ground demonstrate the resilience of the Cornish mining system and local technological innovation. • Moonta's strong connections to Cornish culture persist, as reflected in its nickname 'Little Cornwall.' • The mine is associated with individuals like Henry Richard Hancock, who played a key role in mining technology innovation. • The township area provides insight into the lives of mining families and their investments in religion and health. Information has been drawn from Swanbury Penglase (2020).
Wallaroo Smelter Site Location: Emu Street, Wallaroo, South Australia Heritage listings: • South Australia State Heritage Register: State Heritage ID 10137	**Description** The Wallaroo Smelter Site is located on the Spencer Gulf coast of the Yorke Peninsula, approximately 165 km north-west of Adelaide. The site contains remnant structures of the smelting works, the most notable in the landscape being Hughes Stack, but is primarily an archaeological site. Hughes stack was listed on the National Trust register in 1974 and the site was added to the South Australia State Heritage Register at its inception in 1983. **Summary statement of significance** The Wallaroo smelter and refinery, established in 1861, played a significant role in South Australia's industrial history until its closure in 1926. Associated with notable figures such as W.W. Hughes, it was once one of the world's leading smelters. The site's importance lies in its representation of South Australia's largest industrial complex during its operational years and its technological and archaeological significance. The site's cultural significance is attributed to its entirety rather than specific sections, showcasing 60 years of continuous evolution through its phases of development: Welsh method (1861-1889), new technology diversification (1889-1907), and Bessemerizing method (1910-1923). The archaeological importance of the site lies in its preservation of the development of smelting operations, despite some damage. Each phase contributed to the processing of copper and its by-products, with all associated elements considered significant. Overall, the site's significance lies in its depiction of the evolution of South Australia's largest copper smelting complex, with no preference given to individual structures in terms of heritage value. **Historical summary** The Wallaroo Mining Company, later the Moonta Mining and Smelting Company, built the Wallaroo Smelters in 1861 to process ore from their nearby Wallaroo (Kadina) and Moonta mines. The smelter was connected to the mining towns via railway, forming the "Copper Triangle". Operations were extended over the nineteenth century and processing technologies were constantly improved. At its height the Smelter processed all copper ore from the Companies' mines as well as gold, silver, lead and sulphur by-products from Moonta and Tasmania. The

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Table 3.10 Comparative analysis

Item name	Description
	smelter was considered the largest of its type in the world in the nineteenth century and was an important contributor to the economy of South Australia until it was closed in 1926, however, the superphosphate factory, opened in 1900, continued production into the 1990s. The site was stripped of plant and saleable materials commencing from 1923. **Heritage values** • The Wallaroo Smelters site played a central role in South Australia's history as the largest smelters in the state, potentially the largest in Australia, and even the world at some point in the nineteenth century. It was central to the operations of the Wallaroo and Moonta Mining and Smelting Company, a key player in the state's economy for sixty years. • Its physical scale and economic importance distinguish it as having rare and uncommon qualities. Unique features like the McMurtry sintering pot bases further enhance its significance. • The site contains archaeological deposits likely to yield valuable information about nineteenth-century copper smelting technology, making it valuable for archaeological research and contributing to an understanding of state history. • As an almost unique example within South Australia of metallurgical expertise, the Wallaroo Smelters site stands out as a world-renowned, prestigious facility that dominated the base metal industry in Australia for decades. • Various metallurgical developments at the site demonstrate a high degree of technical accomplishment, including the adoption of new technologies like water jacket blast furnaces and converters. • The site holds particular significance for the South Australian Welsh community, whose ancestors comprised much of the skilled workforce at the smelters in the nineteenth century. • It has special associations with notable individuals and organisations in South Australian history, including the Wallaroo and Moonta Mining and Smelting Company and prominent figures like Walter Watson Hughes and Sir Thomas Elder. Information has been drawn from Historical Research Pty Ltd and Austral Archaeology Pty Ltd (2008).
Wallaroo Mine Location: Wallaroo Mines, Kadina, South Australia • The mine area is not listed on the State Heritage Register. • Previously, the site was listed as 'Wallaroo Mine & Harvey's Enginehouse'. • Places associated with the mine area are listed on the South Australia State Heritage Register.	**Description** The former Wallaroo mine is located in the Wallaroo Mines town of Kadina, South Australia. The site is on the Yorke Peninsula, approximately 165 km north-west of Adelaide, in an area known as the "Copper Triangle". The site contains both historical structures including the Harvey's Pumping Station and archaeological resources. **Summary statement of significance** The Wallaroo Mines site holds historical significance, playing a pivotal role in Australia's industrial development, particularly in the copper mining industry from the late nineteenth to early twentieth centuries. Its discovery in 1859 spurred rapid growth, shaping the Kadina area's expansion. With peak operations between 1870 and 1875, employing up to 1000 workers, it became integral to the region's economy and infrastructure. The subsequent merger with Moonta Mines solidified its status as South Australia's largest industrial operation. Furthermore, the site holds scientific importance, offering insights into Australia's natural history and human occupation through geological and technological advancements. Its archaeological remains deepen our understanding of social and cultural dynamics within mining communities.

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Table 3.10 Comparative analysis

Item name	Description
	Socially, it is significant for its historical, cultural, and educational value, with schools and churches embodying its central role in Kadina's community fabric. **Historical summary** The discovery of copper at Wallaroo Mines in 1859 marked the beginning of rapid development, with the establishment of mines employing hundreds of workers and the growth of a surrounding settlement. Peak operations between 1870 and 1875 saw the mine employing up to 1000 individuals, contributing significantly to the local economy and infrastructure development, including schools and churches. Mergers and expansions followed, culminating in the formation of the Wallaroo and Moonta Mining and Smelting Company, South Australia's largest industrial operation. However, post-World War I challenges including declining copper prices, led to closures, ultimately resulting in the mine's closure in 1923. Despite its closure, remnants of the mining infrastructure, such as the Harvey's Pumping Station, stand as reminders of Wallaroo Mines' historical significance, attracting tourists to explore the area's industrial past. **Heritage values** • The Wallaroo Mines site is historically significant as it played a important role in Australia's industrial development, particularly in the copper mining industry during the late nineteenth and early twentieth centuries. • Its discovery in 1859 led to rapid development, contributing significantly to the growth of the Kadina area. • The mine's peak operations between 1870 and 1875, with up to 1000 employees, underscore its important role in shaping the region's economy and infrastructure. • The subsequent merger with Moonta Mines in 1889–90 to form the Wallaroo and Moonta Mining and Smelting Company further solidified the mine as the largest industrial operation in South Australia. • The Wallaroo Mines site holds scientific significance as it provides insights into Australia’s natural history and human occupation. • The mining activities at the site offer valuable information about the geological processes leading to the formation of copper deposits and the technological advancements in mining and ore processing during the nineteenth and early twentieth centuries. • Additionally, the site’s archaeological remains contribute to our understanding of the social and cultural dynamics of mining communities in South Australia. • The site holds social significance as it is highly valued by the community for its historical, cultural, and educational associations. • The establishment of schools, churches, and other community facilities around the mine reflects its central role in shaping the social fabric of the Kadina area. Information has been drawn from Lenton et al (2014).
Kalgoorlie & Boulder Mines: Golden Mile and Super Pit Location: East Coolgardie Goldfield, Western Australia • The mine area is not listed as a whole.	**Description** The Kalgoorlie and Boulder Mines represent historical mine sites and open pits that cover 320,000 km^2 from Wiluna to Norseman, Western Australia. This summary focuses on the “Golden Mile” on the east boundary of the Kalgoorlie-Boulder city area, approximately 600 km east of

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Table 3.10 Comparative analysis

Item name	Description
• Hannan's North Heritage Mine in the East Coolgardie Goldfield is listed on the Western Australia Heritage Register: Place ID 07255.	Perth, Western Australia. The development of the Super Pit, however, has meant much of the earlier mining infrastructure has been removed from the site. **Summary statement of significance** The discovery of gold in Kalgoorlie in 1893 by Patrick Hannan, Thomas Flanagan, and Dan Shea is a significant event in Western Australia's mining history. This generated a significant gold rush, leading to the rapid development of Kalgoorlie and Boulder into twin mining towns. By the early twentieth century, the Kalgoorlie-Boulder region emerged as the primary gold producer in Australia, showcasing advancements in mining technologies and processes. The amalgamation of mining leases in the 1980s facilitated the creation of the Fimiston Open Pit, colloquially known as the 'Super Pit,' representing a transformative phase in mining practices. This monumental open-pit mine, spanning 3.5 km long, 1.5 km wide, and over 600 meters deep, is a historically significant part of Western Australia's mining innovation and engineering ability. The Golden Mile and Super Pit hold profound social and historical significance, symbolising the resilience and ingenuity of mining communities over the past century. These sites have not only shaped the social and economic landscape of Kalgoorlie-Boulder but also played a significant role in Western Australia's mining heritage. Furthermore, the enduring presence of mining infrastructure, along with surviving structures and archaeological resources along the Golden Mile, reflects the tradition of technological innovation and the contributions made by individuals and communities to the development of these sites. **Historical summary** Patrick Hannan, Thomas Flanagan and Dan Shea discovered gold in the Kalgoorlie area in 1893. The group pegged out the Coolgardie mining leases a few days later. Will Brookman and Sam Pearce came to the region in June the same year and took up over 17 leases to the south and east of the Coolgardie blocks, the eastern leases became known as the Great Boulder mine. Prospectors flooded the area claiming leases and forming the most concentrated mining district in the world. The mining camps adjacent to the leases were developed as twin towns of Kalgoorlie and Boulder, which were connected to Perth via railway in 1896. From the early twentieth century, the Kalgoorlie-Boulder miners began to develop new gold extraction technologies and processes that revolutionised the industry. The processing of refractory sulpho-telluride ore was a significant technology developed on the mines. By 1903, the region was the primary gold producer in Australia, with half of the country's gold coming from the leases and, by 1905, the Kalgoorlie-Boulder mines were world leaders in gold processing. Moreover, the wealth generated allowed the Western Australia Government to borrow money on the public market to fund infrastructure and public works. The gold towns also supported one-third of Western Australia's population. The majority of leases had ceased operations by the 1970s. Driven by the rising gold market, Alan Bond began purchasing the Golden Mile leases with the aim of creating an open cut. Kalgoorlie Consolidated Gold Mines began work on the Fimiston Open Pit in March 1989. The open cut is colloquially known as the "Super Pit". **Heritage values** • The Golden Mile and Super Pit in Kalgoorlie-Boulder are historically significant, marking the site of a major gold rush in 1893 led by Patrick Hannan, Thomas Flanagan, and Dan Shea.

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Table 3.10 Comparative analysis

Item name	Description
	• These sites are significant in the development of Australia's mining industry, with the region becoming the primary gold producer in the country by 1903. • The amalgamation of leases in the 1980s led to the formation of the Fimiston Open Pit, colloquially known as the Super Pit, representing a significant evolution in mining practices. • The Super Pit, spanning 3.5 km long, 1.5 km wide, and over 600 meters deep, is a rare example of a large-scale open-pit mine and a prominent landmark in the Australian mining landscape. • The Golden Mile and Super Pit hold cultural significance in Western Australia's mining heritage, reflecting the resilience and ingenuity of mining communities. • These sites have played a significant role in shaping the social and economic fabric of Kalgoorlie-Boulder, providing employment opportunities and supporting local economies. • The enduring presence of mining infrastructure serves as a source of pride for residents and underscores the contributions made by individuals and communities to the mine's development over the c.130 years. • Surviving structures and archaeological resources along the Golden Mile reflect the tradition of technological innovation over the mine sites. • Over the course of a century, mining activities have left a lasting imprint on the physical landscape of the region, making The Super Pit a prominent visual landmark and psychological icon for local residents. Information has been drawn from The Institution of Engineers Australia-Western Australia Division (2001) and Eastern Goldfields Historical Society Inc (2023).
Mount Lyell Mine Location: Penghana Road, Queenstown, Tasmania The mine area is not listed as a whole. • The mine area is not listed as a whole. • Mount Lyell Mine Co Office Complex is listed on the Tasmania Heritage Register: Place ID 8224.	**Description** The Mount Lyell copper mine is located in Queenstown on the west coast of Tasmania, approximately 250 km north-west of Hobart. The site encompasses a range of mining operations, including open-cut mines and underground tunnels. It also features essential infrastructure such as the concentrator plant, railway lines, and tailings storage facilities. Additionally, there are archaeological resources associated with all phases of mining activities throughout the site's history. **Summary statement of significance** The Mount Lyell copper mine has a 130-year legacy, making it one of Australia's longest continuous mining operations from 1880 to the 2010s. Manager Robert Sticht's innovations, including the 1896 pyritic smelting process and 1916 flotation technology, propelled productivity. Despite closure in 1994 due to low metal prices, the mine reopened in 1995 under the Copper Mines of Tasmania. Its surviving structures and archaeological treasures reflect Tasmania's mining heritage, while its contribution to Queenstown's social and economic fabric endures, solidifying its status as a local landmark with social and aesthetic significance. **Historical summary** Gold was first discovered in the area in the 1880s, leading to early mining activities. However, it was not until the late 1890s that commercial copper production commenced by the Mount Lyell Mining Company. The North Lyell orebodies, rich in copper and silver, brought rapid

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Table 3.10 Comparative analysis

Item name	Description
	development to the area after the formation of the Mount Lyell Mining and Railway Company in 1903. Manager Robert Sticht introduced various technological innovations during this period, including the development of a new pyritic smelting process in 1896 and the adoption of flotation technology in 1916, enabling the mining of lower-grade ores and increasing production efficiency. The closure of the Mount Lyell Mining and Railway Company was announced in December 1994 due to low metal prices, leading to ecological remediation efforts between 1994 and 1996. The mine was later reopened by the Copper Mines of Tasmania in 1995, but mining operations were suspended in the 2010s due to safety concerns. **Heritage values** • Mount Lyell's 130-year mining tradition marks one of Australia's longest continuous mining operations, beginning in 1880 and lasting until the 2010s. • Formation of the Mount Lyell Mining and Railway Company in 1903 facilitated rapid development, supported by Manager Robert Sticht's technological innovations. • Introduction of pyritic smelting process in 1896 and adoption of flotation technology in 1916 revolutionised ore processing, enabling extraction of lower-grade ores and boosting productivity. • Closure of the Mount Lyell Mining and Railway Company in 1994 due to low metal prices, followed by reopening under Copper Mines of Tasmania in 1995, reflects industry's cyclical nature. • Surviving structures and archaeological resources reflect the tradition of technological innovation over the mine sites, highlighting their contributions to Tasmania's mining heritage. • Integral role of the Mount Lyell copper mine in shaping the social and economic fabric of Queenstown and surrounding areas underscores its social significance and community connections. • Over the course of a century, mining activities have left a lasting imprint on the physical landscape of the region, making Mount Lyell a prominent visual landmark and psychological icon for local residents. Information has been drawn from Godden Mackay Logan Pty Ltd (GML) (1994).

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3.6.2 Summary of analysis

The comparison between the Moonta Mine, Wallaroo Mine, Wallaroo Smelter site, Kalgoorlie and Boulder Mines, and Mount Lyell Mine to the Rasp Mine reveals both similarities and differences. These include historical context, structural attributes, visual characteristics, technological innovations, social associations and their connections to significant individuals.

The Rasp Mine in Broken Hill stands out for its unique mineral diversity, setting it apart from other mining sites. Broken Hill itself represents a unique example of a well-established mining town with a rich industrial heritage and a powerful union presence. The unions associated with the Rasp Mine have been particularly active in safeguarding jobs, enhancing community facilities, and ensuring the safety and well-being of workers, displaying an intensity of commitment not seen in other mining areas. The Barrier Industrial Council, a prominent social, regulatory, and economic entity, had significant influence over employment practices and community dynamics. Despite its location in NSW, the Rasp Mine and Broken Hill maintains close connections with South Australia, relying heavily on South Australian rail services and adhering to Central Australian time. Moreover, historically, the financial interests of mining companies were overseen from Melbourne and London. Additionally, within the broader context of Broken Hill, the Rasp Mine stands out as a notable example of a mining town where 'green belt' regeneration initiatives were researched, tested, and put into action. From the 1930s onwards, with support from mining companies, efforts were made to replant areas stripped of vegetation near urban areas, effectively mitigating the adverse effects of dust storms.

Historically, all six mines have played an important role in shaping Australia's mining industry and economy since the late nineteenth century. Each mine has undergone distinct phases of development reflecting changes in events and processes, technology, economics, and societal dynamics. Like the Kalgoorlie and Boulder Mine, the Rasp Mine, under BHP, emerged as a central player atop Broken Hill’s Line of Lode, contributing significantly to Australia's mineral wealth and marking a milestone in Broken Hill's development as a mining town.

Structurally, the mines display a diverse array of buildings and features reflecting the evolution of mining technologies over time. Despite the absence of many historical structures in the South Australian sites, surviving elements and areas of archaeological potential remain as landmarks. Kalgoorlie and Boulder Mines feature production buildings, processing areas, and associated infrastructure, similarly to the Rasp Mine, which comprises production buildings, headframes, staff facilities, and administration buildings. However, the Rasp Mine's 76 structures provide a more in-depth understanding of its industrial evolution.

With this said, the impact of mining activities on both the natural and built environments are evident. Mullock heaps, tailings, and slag heaps are evident across all sites, reflecting extensive mining activities. The Rasp Mine, along with Mount Lyell Mine and the Kalgoorlie and Boulder Mine, showcases human interventions that transformed landscapes into defining features with prominent visual characteristics valued by the surrounding communities. The Rasp Mine’s unique juxtaposition of mining infrastructure, altered landscapes, urban architecture, and arid desert landscape defines its visual appeal. Moonta Mines, known as ‘Australia's Little Cornwall,’ and the Wallaroo Smelter Site contain some historical buildings and mining infrastructure, showcasing the visual cultural influences of its Cornish community.

The social attributes of mining sites vary significantly, reflecting the diverse historical and cultural contexts in which they operate. Active sites like the Rasp Mine, Kalgoorlie and Boulder Mines, and the recently closed Mount Lyell Mine have served as predominant employers within living memory, forging enduring social bonds between local towns and the mine sites. In the case of the Rasp Mine, its central position along the Line of Lode serves as a symbol of community pride and identity, embodying the resilience of Broken Hill's mining community. Conversely, mines such as Moonta and Wallaroo, have ties to specific cultural communities, such as the Cornish culture.

Technological advancements have played a significant role in shaping the mining industry, with each mine contributing unique innovations that have significantly contributed to mining processes. For instance, Moonta Mine's adoption of the Cornish mining system revolutionised labour organisation and ore processing efficiency. This system introduced innovations such as the use of Cornish engine technology for pumping water out of deep

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mine shafts and the implementation of man engines for transporting miners, enhancing productivity and safety underground. Similarly, Wallaroo Mine and Wallaroo Smelter Site showcased advancements in smelting technologies, including the adoption of the Welsh method and innovations like the Bessemerizing method, which improved the efficiency and environmental sustainability of copper extraction processes. Kalgoorlie and Boulder Mines in Western Australia spearheaded innovations in gold extraction techniques, such as the pyritic smelting process, enabling the efficient extraction of lower-grade ores. In contrast, the Rasp Mine distinguished itself through a myriad of technological achievements in mining practices. Pioneering techniques like square set timbering addressed ground instability issues, while the revolutionary froth flotation process facilitated efficient ore separation, leading to enhanced productivity and resource recovery rates. Moreover, the Rasp Mine's technological contributions extended beyond mining to impact major industries like steel production and cement manufacturing, showcasing its far-reaching influence on industrial processes in Australia.

Significant individuals associated with these mines underscore their contributions to the industrial mining landscape. Captain Henry Richard Hancock at Moonta and Charles Rasp at the Rasp Mine played key roles in their respective mines' development, while pioneers like Patrick Hannan and Robert Sticht were key figures at the Kalgoorlie and Boulder Mines and Mount Lyell Mine, respectively.

While Moonta Mine, Wallaroo Mine, Wallaroo Smelter site, Kalgoorlie and Boulder Mines, and Mount Lyell Mine represent a broader spectrum of mining activities across different regions, Rasp Mine offers a more focused examination of Broken Hill's mining history.

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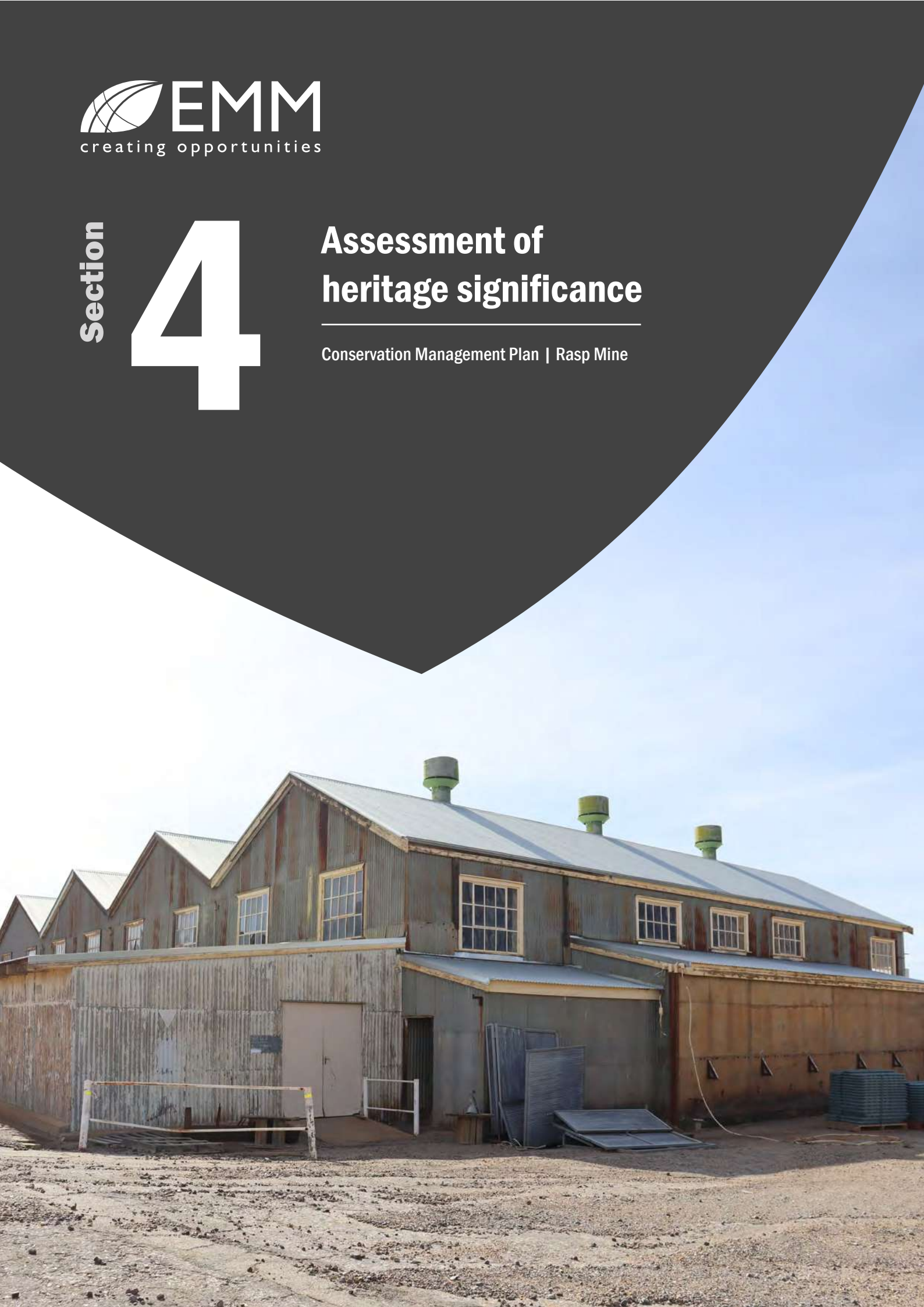
Section 4

Assessment of heritage significance

Conservation Management Plan | Rasp Mine



4 Assessment of heritage significance

4.1 Introduction

The 2013 Draft CMP focused on assessing the State significance of individual elements and their designated heritage precincts, following criteria set by the Heritage Council of NSW (Heritage Council). However, this analysis did not extend to evaluating the Rasp Mine as a whole, and its elements in relation to the City's National Heritage values. While heritage precincts are organised based on remnant infrastructure groupings, they reflect their connection to the phased development along the Line of Lode and their contributions to Broken Hill's National Heritage values. Therefore, there is a need to re-evaluate the significance of the Rasp Mine and its components. This reassessment aligns with Regulation 10.01A of the EPBC Regulations, providing a structured framework to identify the State Heritage values of the Rasp Mine and understand their contribution to Broken Hill's National Heritage values.

To assess the heritage significance of an item or location, various factors must be considered, including its geographical context, physical attributes, functional use, surroundings, historical associations, symbolic meaning, research value, and comparisons to similar places or items. In the context of Broken Hill, sites along the Line of Lode, Rasp Mine curtilage of CML 7, and related structures underwent a prior significance assessment in 1996. This assessment led to 60 individual items in the Rasp Mine curtilage gaining local listing status. Presently, a total of 76 items in the Rasp Mine curtilage managed by BHOP are locally listed on Schedule 5 of the LEP.

The aim of this section is to establish a hierarchy of relative values for the Rasp Mine, where the individual significance of buildings and infrastructure contributes to the overall site-wide values of the Rasp Mine. Detailed information regarding the significance of individual buildings and infrastructure can be found in Appendix C, taking into account their relationship to the National Heritage listing.

4.2 Identifying heritage values and themes

4.2.1 Heritage values

The heritage assessment process aims to determine whether a place possesses heritage values, discern what those values are, and interpret why the place and its elements are deemed significant and of value to the community. Heritage value, also referred to as cultural significance or heritage significance, is ingrained in the location, structure, and fabric of a place or its elements (encompassing setting and relationships with other items), the associated records, and the emotional response it elicits from the community.

The identification of heritage value(s) or heritage significance hinges on an understanding and analysis of documentary evidence, the context, and historical themes pertinent to a place or item. It involves examining how the extant fabric illustrates and embodies its function, as well as considering its associations and formal or aesthetic qualities.

This heritage assessment section makes references, as needed, to supporting evidence presented in earlier sections of this CMP, including Section 2 and Section 3.

4.2.2 Heritage themes

The Australian Historic Heritage Themes Framework is applicable at the National, State, or local level for identifying and assessing heritage significance, interpreting, and managing heritage places. It aids in understanding the historical context of places across Australia.

This framework consists of nine thematic groups, each further detailed by specific sub-themes. The NSW Heritage Manual, tailored for NSW, highlights a set of historical themes relevant to NSW, providing a lens through which the heritage values of a place, like the Rasp Mine, can be examined in its immediate and Australia-wide context.

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Both the Australian and NSW heritage systems utilise historic themes to guide historical understanding and investigation. When conducting a historic heritage assessment, it is important to consider these themes to provide proper context for the area or place being researched. These themes complement each other, offering a unified understanding of how an area fits into Australian history and aiding in the assessment of heritage significance at different levels.

Historic themes also play a pivotal role in developing interpretation and management strategies for items of heritage significance. For a list of these themes, one can refer to the Heritage NSW website. The study area identified historic themes based on historical background information in Section 2 and the results of the heritage inventory sheets in Appendix C.

Table 4.1 in this report lists the Australian and NSW historic themes relevant to the project boundary area.

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Table 4.1 Historic themes

Australian Theme	NSW Theme		Notes	Rasp Mine summary
1 Tracing the natural evolution of Australia	Environment – naturally evolved	LOCAL THEMES	Features occurring naturally in the physical environment which have shaped or influenced human life and cultures.	The Rasp Mine, located in Broken Hill along the Line of Lode, spans approximately 8 km in length and up to 2 km in depth, with visible ore bodies within Heritage Precincts 2 and 6. Since 1884, the Line of Lode has been central to mining activity, shaping the landscape and impacting residents and miners. Its renowned for hosting 19 mineral species, including rare ones, showcasing the region's diverse mineral wealth. The secondary zone of the ore body contains exceptionally rare well-crystallised minerals, reflecting natural mineral formation processes over time. Mining practices at the Rasp Mine have adapted to local environmental challenges. Innovative methods like square set timbering have addressed ground instability issues, demonstrating adaptability to geological conditions.
2 Peopling Australia	Migration		Activities and processes associated with the resettling of people from one place to another (international, interstate, intrastate) and the impacts of such movements.	Charles Rasp's discovery of the silver/lead/zinc ore bodies in 1883 sparked a notable influx of miners, prospectors, and settlers seeking employment opportunities and economic prosperity. The discovery of these ore bodies at the Rasp Mine attracted a diverse range of individuals, including miners, engineers, labourers, and their families, who migrated to Broken Hill from different parts of Australia and even from overseas. The establishment and subsequent expansion of mining operations at the Rasp Mine generated employment opportunities, drawing workers from both interstate and intrastate regions of Australia. The population growth in Broken Hill resulting from the mining activities at the Rasp Mine necessitated the development of infrastructure, services, and amenities to support the burgeoning community, further facilitating migration to the area. The ongoing mining operations at the Rasp Mine continued to attract workers and their families, contributing to the ongoing population growth of Broken Hill and the broader region.

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Table 4.1 Historic themes

Australian Theme	NSW Theme	Notes	Rasp Mine summary
3 Developing local, regional and national economies	Environment – cultural landscape	Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings.	The establishment and operation of the Rasp Mine spurred rapid economic growth in Broken Hill, establishing it as a prominent mining hub in Australia. The mining activities generated considerable wealth and employment opportunities, benefiting not only the local community but also the broader region and the nation. The economic prosperity derived from the Rasp Mine facilitated the growth of supporting industries and businesses in Broken Hill, such as transportation, retail, and services, thereby further boosting local and regional economies. Revenue generated from the Rasp Mine's operations played a vital role in Australia's overall economic growth and development, as the minerals extracted were crucial for various industries and sectors across the country. The cultural landscape of Broken Hill, marked by its mining heritage, reflects the profound impact of the Rasp Mine and other mining operations. Distinctive features such as mine shafts, mullock heaps, and industrial infrastructure have shaped the environment, contributing to the cultural identity of the region.
3 Developing local, regional and national economies	Events	Activities and processes that mark the consequences of natural and cultural occurrences.	The discovery of ore bodies at the Rasp Mine led to the establishment and growth of BHP, which became one of the world's largest mining companies, impacting Australia's national economy. The continuous mining activities at the Rasp Mine and other sites contributed to economic prosperity both locally and nationally. Pioneering innovative mining techniques leading to enhanced productivity and resource recovery rates at the Rasp Mine and Australia. Broken Hill, including the Rasp Mine, was a stronghold of unionism and witnessed significant strikes advocating for better working conditions. These strikes led to the implementation of improved safety standards and legislation for occupational health and safety across Australia. The Rasp Mine's association with mining companies like the Sulphide Corporation underscores its role in shaping labour rights and social welfare policies. Mining at the Rasp Mine and along the Line of Lode spurred on essential infrastructure development, such as water supply systems and transportation networks to better facilitate mining operations and economic growth in Broken Hill. Despite various mining-related disasters, the establishment of the Miners Memorial in Broken Hill serves as a tribute to those who lost their lives, highlighting the human cost associated with economic development through mining.

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Table 4.1 Historic themes

Australian Theme	NSW Theme	Notes	Rasp Mine summary
3 Developing local, regional and national economies	Industry	Activities associated with the manufacture, production and distribution of goods.	The extraction of mineral ores, such as silver, lead, and zinc, from the Rasp Mine served as a fundamental input for downstream industrial activities. These ores acted as catalysts for industrial growth, providing the raw materials necessary for the manufacture, production, and distribution of goods. The discovery of ore bodies at the Rasp Mine catalysed the establishment and growth of the BHP, which evolved into one of the world's largest mining companies, thereby significantly impacting Australia's national economy. The continuous mining activities at the Rasp Mine and other sites contributed to economic prosperity both locally and nationally. The ores extracted from the Rasp Mine were processed to yield refined metals, essential for various industries like machinery, electronics, construction, and consumer goods. These refined metals were versatile inputs that went beyond mining, influencing major sectors such as steel and cement production. This broader industrial impact contributed significantly to economic growth and development, not confined to the mine's immediate operations. It fostered the growth of ancillary industries and services in Broken Hill and nearby areas. To overcome logistical challenges posed by Broken Hill's remoteness, infrastructure developments such as tramlines and trainlines were established to facilitate the transportation of goods from the mine to wider economic markets. The establishment of the Silverton Tramway Company Ltd. provided a link between Broken Hill's mining outputs and the seaports, thus expanding its economic reach and integrating the community into broader economic spheres.
3 Developing local, regional and national economies	Mining	Activities associated with the identification, extraction, processing and distribution of mineral ores, precious stones and other such inorganic substances.	The Rasp Mine, active in Broken Hill since 1883, has been fundamental for the local, regional, and national economies for over 140 years. It improved transportation with tramlines and trainlines, connecting the area to wider markets despite its remote location. The mine's research and development expertise benefited various industries, from mining to manufacturing. Additionally, it played a vital role in developing innovative mining practices and technology. Overall, the Rasp Mine's contributions have been essential for economic growth and innovation.

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Table 4.1 Historic themes

Australian Theme	NSW Theme	Notes	Rasp Mine summary
3 Developing local, regional and national economies	Technology	Activities and processes associated with the knowledge or use of mechanical arts and applied sciences.	The Rasp Mine in Broken Hill has been at the forefront of technological innovation in mining and associated industries. One notable advancement was the invention of the Potter-Delprat zinc-floatation process in 1903, developed by BHP's general manager GD Delprat. This process, perfected at the Rasp Mine, revolutionised ore separation by using water and oil to create a froth that effectively separated minerals. Additionally, the mine pioneered square set timbering to address ground instability and introduced innovative methods for treating difficult ores. Furthermore, Broken Hill's research and development expertise extended beyond mining to influence major industries like steel production and cement manufacturing. Technological advancements in metalliferous and coal mining, engineering, and chemical manufacturing industries were also significant.
3 Developing local, regional and national economies	Transport	Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements.	The discovery of the Line of Lode prompted the development of transport systems to connect the Rasp Mine and other mine leases to local, national, and international markets. The Port Point Pirie and Silverton Tramway connected Broken Hill to South Australia. In addition, tramways, aerial tramways, and more recently the Long Driver allowed for the movement of ore and other materials over the Rasp Mine area. The establishment of transport infrastructure, such as the Silverton Tramway Company Ltd in 1886, demonstrates efforts to overcome the challenges posed by Broken Hill's remoteness. This narrow-gauge track facilitated the transportation of ore and concentrates to South Australian ports, enabling the export of minerals to broader markets. Subsequent connections to NSW's standard gauge rail network in 1927 and the completion of the east-west railway corridor in 1970 further enhanced transport links, connecting the mines to major cities like Sydney, Newcastle, and Perth. These developments not only supported mining operations but also integrated the Rasp Mine and Broken Hill into national transportation networks, facilitating economic interactions on a broader scale. The transportation links established by the mining companies expanded the trade and commerce networks, drawing the community into the economic sphere of influence of Adelaide, Melbourne, and Sydney. This facilitated the movement of goods and people, contributing to economic growth and development not only locally but also regionally and nationally.

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Table 4.1 Historic themes

Australian Theme	NSW Theme	Notes	Rasp Mine summary
4 Building settlements, towns and cities	Utilities	Activities associated with the provision of services, especially on a communal basis.	The introduction of electrical and plumbing services, particularly with the establishment of a central power plant, played a role in bolstering the growth of settlements, towns, and cities near the Rasp Mine and along the Line of Lode. These utilities powered essential mining operations and facilitated the development of residential areas for mine workers and their families. The availability of electricity and running water enhanced living standards, attracting more residents and fostering community expansion. Moreover, the provision of various utilities at the Rasp Mine, extending beyond basic infrastructure. Recreational amenities, housing facilities, rest areas, ice making rooms, and emergency services were integral parts of the mine's infrastructure. These services supported the well-being and morale of mine workers but also promoted cohesion and stability within the community.
4 Building settlements, towns and cities	Accommodation	Activities associated with the provision of accommodation, and particular types of accommodation – does not include architectural styles – use the theme of Creative Endeavour for such activities.	The Rasp Mine played an important role in shaping Broken Hill as a mining town. Its operations attracted a significant population influx, leading to the development of residential areas and supporting infrastructure. Providing housing for workers was essential for the mine's workforce management, given the remote and harsh conditions. The Rasp Mine implemented innovative solutions, such as company-provided housing and housing cooperatives, reflecting a commitment to worker well-being and community development. These initiatives contributed to the sustainable growth and resilience of Broken Hill as a mining settlement.
5 Working	Labour	Activities associated with work practises and organised and unorganised labour.	The Rasp Mine played a key role in the emergence of organised labour movements in Australia. Early instances of trade unionism arose in response to poor working conditions, with notable strikes like the 1919-20 strike leading to substantial improvements in workers' rights. These movements, centred around the Rasp Mine and other mines in Broken Hill, influenced labour laws and practices nationwide, shaping the social and labour landscape of mining communities. The site has been a focal point for fostering advancements in health and safety practices.

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Table 4.1 Historic themes

Australian Theme	NSW Theme	Notes	Rasp Mine summary
9 Marking the phases of life	Persons	Activities of, and associations with, identifiable individuals, families and communal groups.	The Rasp Mine is linked to individuals, groups, and companies that have exerted influence at various levels, from local to international. Albert Morris, notably associated with the Central Mine at the Rasp Mine, later assumed the role of chief assayer for the company. Later in his career, Morris made significant contributions to combating dust storms, showcasing the mine's dedication to environmental sustainability. His work, recognised nationally and internationally, spurred the establishment of regeneration areas around Broken Hill. Charles Rasp, credited as the discoverer of the ore body at the Rasp Mine, played a pivotal role in shaping Broken Hill's mining history. His vision and determination led to the establishment of the mine, marking a significant milestone in the town's evolution as a mining hub. The Rasp Mine distinguished itself through numerous technological achievements, reflecting innovation and ingenuity in mining practices. Other notable figures associated with the Rasp Mine include engineer and metallurgist Guillaume Daniel Delprat, along with George McCulloch, James Poole, David James, Philip Charley, George Urquhart, and George Lind. These individuals brought diverse backgrounds, intellect, and foresight to form the first mining company, today forming part of the Rasp Mine.

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4.3 Assessment criteria

This section delineates the existing criteria used to assess whether a location possesses National Heritage values and/or State Heritage values.

4.3.1 National heritage criteria

In Australia, sites can meet significance criteria for heritage listing at the World, National, State/Territory, and/or local levels. The 2013 Draft CMP (2013:20–32) assessed the significance of the individual components within the Rasp Mine and their corresponding mining areas, examining their significance at both local and State levels. The findings indicated that most of these individual items met the criteria for State significance and thus justified their inclusion on the SHR. The subsequent significance assessments draw from this earlier State evaluation while also evaluating the precincts against the National Heritage list criteria to ascertain their level of contribution to the National Heritage values of the City of Broken Hill.

The National Heritage List encompasses natural, historical, and Indigenous places of outstanding significance to the Australian nation. A place identified with outstanding heritage values is eligible for inclusion on the National Heritage list. Additionally, the EPBC Act mandates that a place has National heritage value if it meets one of the National heritage criteria specified in EPBC Act Regulation 10.01A. The reason that enables a place to meet the criteria is defined in Section 324C of the EPBC Act as the National Heritage values of the Place. EPBC Regulation 10.01A defines nine National Heritage Criteria for evaluating, identifying, and assessing the National heritage values of the place. The threshold for inclusion on the NHL is that a place meets one or more of the National Heritage Criteria outlined in Table 4.2. A "National Heritage Place" meets one or more criteria of Section 324C of the EPBC Act.

The assessment of heritage significance at the National level is based on *Burra Charter* (ICOMOS (Australia), 2013) and further expanded upon in *Guidelines for the Assessment of Places for The National Heritage List* ((Australian Heritage Council, 2009)). The National Heritage Guidelines list nine criteria to identify and assess heritage values that apply when considering if an item is of National heritage significance, as set out in Table 4.2.

4.3.2 New South Wales State Heritage Register criteria

In NSW, historical value is attributed to buildings, places, archaeological sites, and landscapes modified in the Australian historical period for purposes other than traditional Aboriginal use. Similar to the NHL, the assessment of heritage significance in NSW is based on the *Burra Charter* (ICOMOS (Australia), 2013) and further expanded on in *Assessing Heritage Significance* ((Department of Planning and Environment (NSW), 2023a)). The heritage manual lists seven criteria that apply when considering if an item is of state or local heritage significance. These criteria parallel those of the National Heritage List and Table 4.2 sets out the NSW criteria against the relevant NHL criteria. To be assessed for listing on the State Heritage Register (SHR), an item will, in the opinion of the Heritage Council of NSW, meet two or more of the criteria set out in the Table 4.2.

These frameworks provide a method to identify the heritage gradings for items (or features or components) recorded on-site, offering context for each item's contribution to the cultural landscape. The assessments may determine that the Rasp Mine or its individual items do not meet the threshold National significance but may instead contribute to the significance of Broken Hill more broadly. The resulting assessment of significance then guides the type of management necessary for the item in Section 6.

The National heritage assessment criteria, outlined in Table 4.2, offer a structured framework for evaluating the significance of the Rasp Mine in 6 by considering its role in the following:

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Table 4.2 National heritage assessment criteria and NSW heritage assessment criteria

National heritage assessment criteria		Comparative NSW heritage assessment criteria	
Criterion	**Explanation**	**Criterion**	**Explanation**
a)	The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history (**Events and processes**).	a)	An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (**Historical Significance**).
b)	The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history (**Rarity**).	f)	An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (**Rarity**).
c)	The place has outstanding heritage value to the nation because of the place's potential to provide information that makes a contribution of national importance to the understanding of Australia's history, cultures, or the natural world (**Research**).	e)	An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (**Research Significance**).
d)	The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of: (i) a class of Australia's natural or cultural places; or (ii) a class of Australia's natural or cultural environments (**Principal characteristics of a class of places**).	g)	An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (**Representativeness**).
e)	The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group (Aesthetic characteristics).	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) (Aesthetic Significance).
f)	The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period (**Creative or technical achievement**).	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) (**Aesthetic Significance**).
g)	The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (**Social value**).	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 (**Social Significance**).
h)	The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history (**Significant people**).	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 (or the local area's) cultural or natural history (**Associative Significance**).
i)	The place has outstanding heritage value to the nation because of the place's importance as part of Indigenous traditions (**Indigenous tradition**)	n/a	The NSW, historical value is ascribed to buildings, places, archaeological sites and landscapes modified in the Australian historical period for purposes other than traditional Aboriginal use

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Table 4.3 Significance gradings

Grading	Justification
Outstanding/ Exceptional	Element of outstanding/ exceptional significance or heritage value— embodies Commonwealth Heritage values or State heritage significance in its own right and makes an irreplaceable contribution to the significance/heritage value of the place as a whole.
High	Element of high significance or heritage value—embodies Commonwealth Heritage values or State heritage significance in its own right and makes an irreplaceable contribution to the significance/heritage value of the place as a whole
Moderate	Element of moderate significance or heritage value—embodies Commonwealth/Regional/State heritage values in its own right and makes a significant contribution to the values of the place as a whole
Some	Element of some significance that makes a contribution to the overall Commonwealth Heritage values of the place as a whole
Neutral	Element which is neutral, with little or no heritage value.
Intrusive	Intrusive element which detracts, or has the potential to detract, from the significance of the place.

Source: *Assessing heritage significance* (Department of Planning and Environment 2023, p.19).

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4.4 Statements of significance

The required threshold to satisfy each of the State heritage criteria and National heritage criteria establishes different levels of significance for each value type. For instance, at the National level, a place must possess outstanding heritage values, while at the State level, a place must be significant to NSW. The subsequent evaluation examines the Rasp Mine against both the National and State Heritage criteria.

In evaluating significance against the National and State criteria, if a place meets National criteria, it can be assumed that it would also meet State criteria. Likewise, if it meets the criteria at a State level, it will meet the same criteria at a local level. However, a place meeting a criterion at the State level will not necessarily fulfil that (or a related) criterion at the National level. As such, both the State Heritage Register criteria and National Heritage Register criteria have been applied to the Rasp Mine's assessment of significance (Appendix E). As the Rasp Mine and its individual elements all hold at least State significance, the assessment does not include a separate assessment of local heritage significance.

The assessment of the Rasp Mine and associated elements, is evaluated against each criterion, as most individual items are related to one another. This analysis is incorporated into the Statement of Significance provided before assessing the significance of its individual elements (Appendix C). This assessment is a synthesis of the National Heritage Listing and State Heritage Register heritage significance assessments for the site, and it relies on the significance assessments in the following sources:

- the 1994 Conservation Management Plan (1994 CMP)
- 2013 Draft Conservation Management Plan (2013 Draft CMP) both authored by Austral Archaeology Pty Ltd
- the 2021 National Heritage Values Study, authored by Paul Davies For Broken Hill Council and the Department of Environment.

4.4.1 Summary statement of significance

The Rasp Mine holds significance across multiple criteria at National, State, and local levels, including historical significance[1], rarity[2], research significance[3] principal characteristics of a class of places[4] / representativeness [5] aesthetic significance[6], creative or technical achievement[7], social value / significance[8], and association with significant people / associative significance[9]

The Rasp Mine holds outstanding historical and heritage value for Australia as a nation, with its location atop the Line of Lode orebody, the world's largest and richest mineral deposit of its kind, which underscores its geomorphological (natural) significance [National and State criterion (a)]. Its geological features, including the Line of Load and diverse mineral deposits, serve as evidence of substantial environmental changes over time, as

1 [National and State criterion (a)]

2 [National criterion (b) and State criterion (f)]

3 [National criterion (c) and State criterion (e)]

4 [National criterion (g)]

5 [State criterion (d)]

6 [National criteria (e) and State criterion (c)]

7 [National criterion (f)]

8 [National criterion (g) and State criterion (d)]

9 [National criterion (h) State criterion (b)]

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demonstrated by the visible ore bodies in Heritage Precincts 2 (LEP Item I276) and 6 (LEP Item I297). [National and State criterion (a)].

Culturally, since its establishment in 1884, the mine has been a central hub of human activity, shaping the social and economic fabric of Broken Hill and significantly contributing to the evolution of Australia's mining sector [National and State criterion (a)]. The discovery of ore bodies in Block 12 around Heritage Precinct 5 and 7 of the Rasp Mine led to the establishment and growth of BHP, which became one of the world's largest mining companies, impacting Australia's national economy. The continuous mining activities at the Rasp Mine and other sites contributed to economic prosperity both locally and nationally. Mining at the Rasp Mine and along the Line of Lode spurred essential infrastructure development, such as water supply systems and transportation networks, to better facilitate mining operations and economic growth in Broken Hill. Moreover, the mine's pioneering efforts in establishing occupational health and safety standards have had a significant impact on labour rights and ethical mining practices. Its continuous operation and adaptability exemplify the cultural phases and developmental processes inherent in Australia's mining heritage [National and State criterion (a)].

The Rasp Mine in Broken Hill is distinguished by its rare mineralogical diversity, making it a historic site of outstanding value within the Australian mining landscape. With a rich array of minerals, the mine offers insights into the region's complex environmental history and geological activity, highlighting the dynamic nature of the environment and its impact on mineral deposition [National criterion (b) and State criterion (f)].

Further, its high survivability of elements and continuous operation for more than a century underscore its exceptional significance. Despite economic pressures and fluctuations in commodity prices, the Rasp Mine has demonstrated resilience, highlighting its enduring importance in the face of changing circumstances for more than a century. Further, the Rasp Mine retains a suite of intact infrastructure representative of all mine phases from the 1890s to the 1990s. The high survivability of elements from a wide date range is uncommon among comparative historical and active mine sites due demolition from more recent mineral exploitation [National criterion (b) and State criterion (f)]. As a result, the mine serves as tangible evidence of extensive mining activities, reflecting its significant role in the region's economic and industrial development. [National criterion (b) and State criterion (f)].

The high geological and industrial research value of the Rasp Mine offers insights into Australia's natural history, mineralogy, geology, and the evolution of mining techniques [National criterion (c) and State criterion (e)]. Archaeological resources, with high archaeological significance within the mine precincts, such as Precinct 3's Browne's Shaft (LEP Item I281), and Heritage Precinct 5's BHP Concentration Mill Foundations (LEP Item I285), and BHP South Smelter Walls and Stack (LEP Item I286), have the potential to significantly contribute to scientific research, aiding in understanding the evolution of the mining industry and historical context. In addition, the Rasp Mine can provide a wider understanding of the mining techniques used at Broken Hill and its contributions to advancements in mining efficiency, safety, and sustainability, as evidenced by the Sulphide Corporation mining lease area, encompassing Heritage Precinct 1 (LEP Item I116, I244, I236-I262, I280), and Heritage Precinct 4. Additionally, the mine's archival materials dating from its inception offer insights into mining practices, working conditions, and the social dynamics of mining communities. Furthermore, the mine's collection of unique specimens and rare minerals present opportunities for further research into Australia's mineralogical heritage [National criterion (c) and State criterion (e)].

The Rasp Mine serves as a demonstration of principal characteristics of a place and a representative example of early silver/lead/zinc mining operations in Australia. Surviving elements from different Heritage Precincts provide exceptional examples of how mining operations at the Rasp Mine evolved over time. This evolution involved the integration of new technologies and the adaptive reuse of infrastructure across an extended period, all within a remote setting. This distinguishes the Rasp Mine from other mining sites, highlighting its unique development trajectory and outstanding heritage value. It showcases significant characteristics of mining sites, contributing to Australia's mining heritage and demonstrating cultural processes inherent in Australian mining. Notably, the mine's unique mineral diversity, union association, and pioneering implementation of improved safety standards make it stand out within the broader context of Broken Hill and Australia, as evidenced by the Sulphide

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Corporation mining lease area, encompassing Heritage Precinct 1 (LEP Item I116, I244, I236-I262, I280), and Heritage Precinct 4 [National criterion (g) State criterion (d)].

The Rasp Mine embodies a diverse range of industrial production buildings, structures, and infrastructure typical of late nineteenth and early twentieth century mining operations, showcasing distinctive architectural styles reflecting technological advancements and engineering principles of its time. Its high aesthetic qualities extend beyond individual structures to encompass the broader landscape of Broken Hill, creating a distinctive cultural landscape contrasting with the natural and residential surroundings, enhancing its significance as a cultural landmark within the community. The community holds the aesthetic qualities of the Rasp Mine in high esteem, documented through photographs, artwork, and literature, underscoring its enduring cultural significance and emotional attachment. Notably, local and visiting artists, including Kevin Charles 'Pro' Hart, a member of the 'Brushmen of the Bush,' have depicted the mine in their artworks. Its aesthetic elements exhibit a high level of rigour and integrity, surpassing comparison to other industrial heritage sites, resonating with aritists, visitors and experts alike [National criteria (e) and State criterion (c)].

The Rasp Mine demonstrates outstanding technical achievement, particularly through pioneering advancements in mining technology [National criterion (f) State criterion (c)]. The invention of the Potter-Delprat zinc-floatation process in 1903 revolutionised ore separation methods, showcasing innovative thinking and technical excellence in mineral processing, as demonstrated in Heritage Precinct 5 (LEP Item I15, I285-I296). Additionally, the mine introduced innovative techniques like square set timbering to address ground instability, significantly advancing mining practices in terms of safety and efficiency. Beyond mining, these technological advancements influenced industries such as steel production and cement manufacturing, highlighting the mine's broader National significance in industrial development [National criterion (f) State criterion (c)].

The Rasp Mine holds high significance to the Broken Hill community. For generations within living memory, the mine has been a significant employer, forming lasting social connections between local communities and the mining operations. It has attracted individuals from various backgrounds seeking economic opportunities. [National criterion (g) and State criterion (d)]. The mine's operations facilitated the city's growth, fostering a deep and enduring connection between the community and the mine. Symbolically, the Rasp Mine, along with the Line of Lode, embodies the resilience, spirit, and identity of Broken Hill, shaping its social, cultural, and economic landscape. Tangible connections such as preserved historical sites and community events underscore its enduring presence in the city's history. The mine's significance is demonstrated through the preservation of historical infrastructure and public use of shared spaces, fostering a continued sense of pride and identity among residents [National criterion (g) and State criterion (d)].

The Rasp Mine is closely associated with prominent individuals and groups who have significantly influenced Australia's natural and cultural history [National criterion (h) State criterion (b)]. Albert Morris, for instance, made notable contributions to the mining industry during his tenure at the Central Mine, later transitioning to a pivotal role as the chief assayer. After his departure, his dedication extended beyond mining to include pioneering efforts in combating dust storms. Charles Rasp, credited with the discovery of the ore body at the Rasp Mine located in Block 12, within Heritage Precincts 5 and 7, occupies a central position in Broken Hill's mining history. His foresight and determination laid the foundation for the mine's establishment, marking a significant milestone in the town's transformation into a prominent mining centre. The Rasp Mine's legacy of technological advancements reflects Rasp's vision and pioneering spirit, demonstrating innovation and ingenuity in mining practices. Additionally, the mine boasts associations with distinguished individuals such as engineer and metallurgist Guillaume Daniel Delprat, who, alongside others, played significant roles in the formation of the first mining company, laying the groundwork for the Rasp Mine's enduring legacy. These close associations highlight the mine's significant relationship with influential figures in engineering, metallurgy, and industrial development, shaping the history and development of Broken Hill and leaving a lasting impact on the community and the mining industry as a whole.

The significance of the Rasp Mine's individual elements has been assessed in (Appendix C) and illustrated in Figure 4.1 to Figure 4.8.

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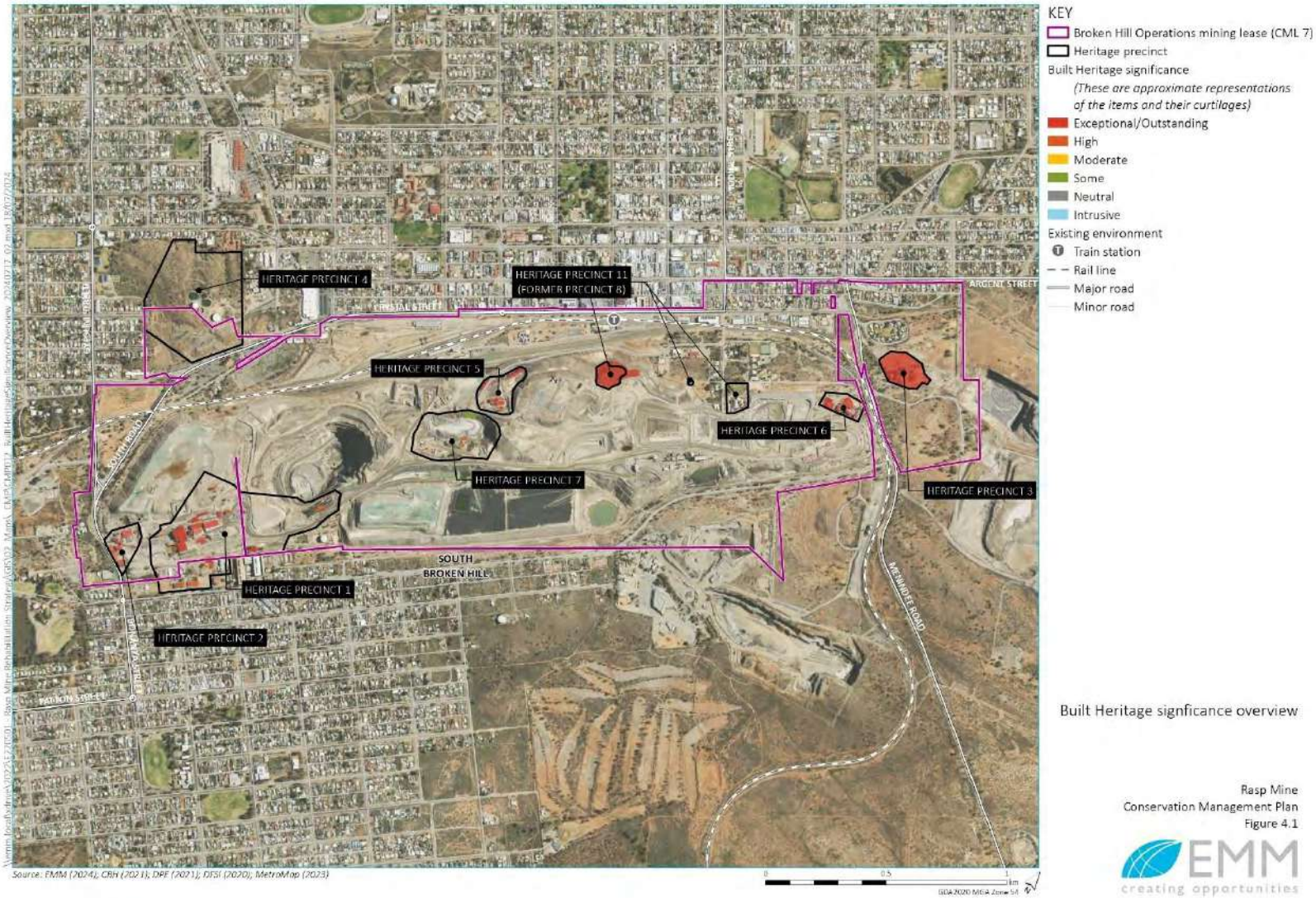

Figure 4.1 Built Heritage significance overview

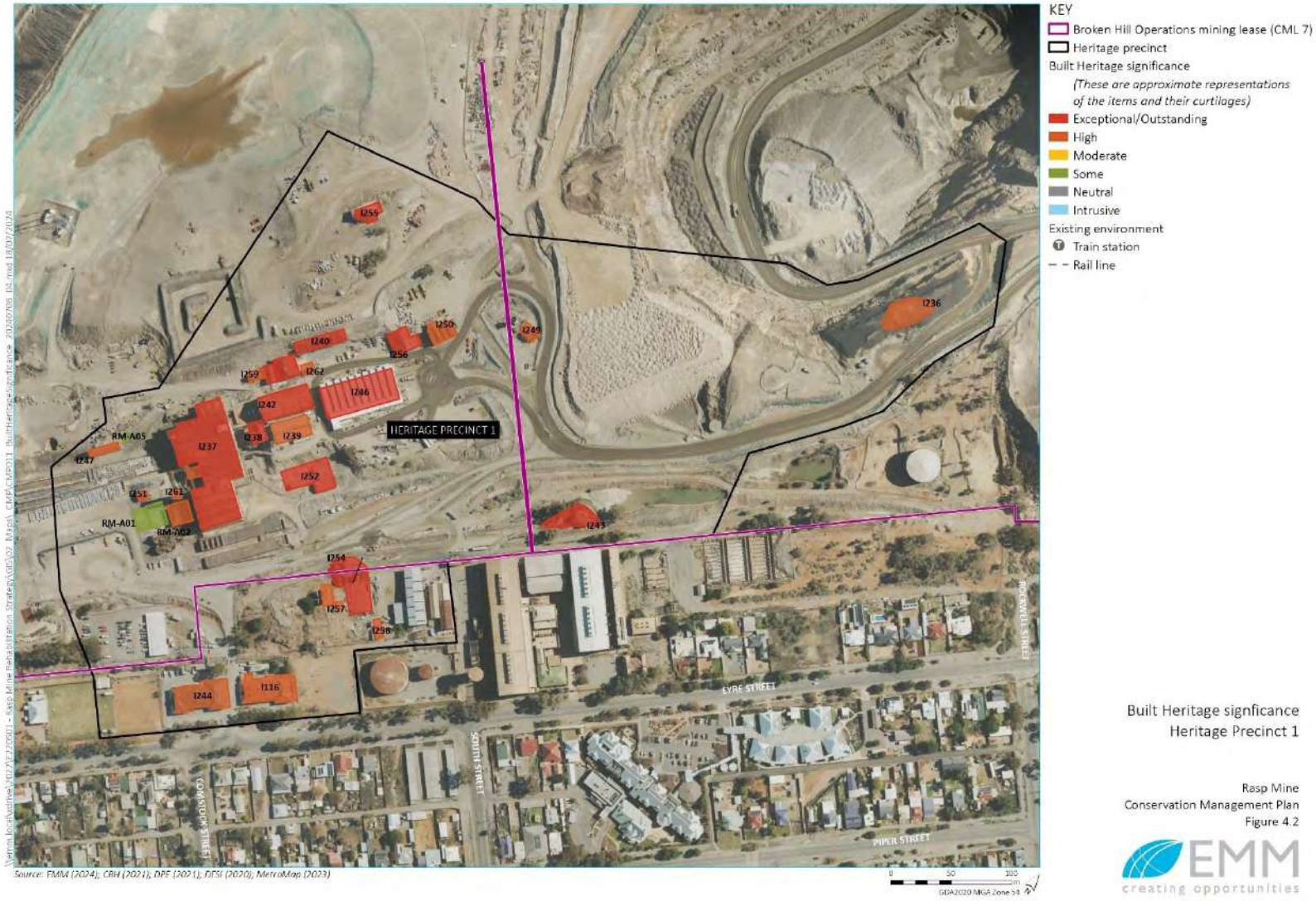

Figure 4.2 Built Heritage significance Heritage Precinct 1

Figure 4.3 Built Heritage significance Heritage Precinct 2

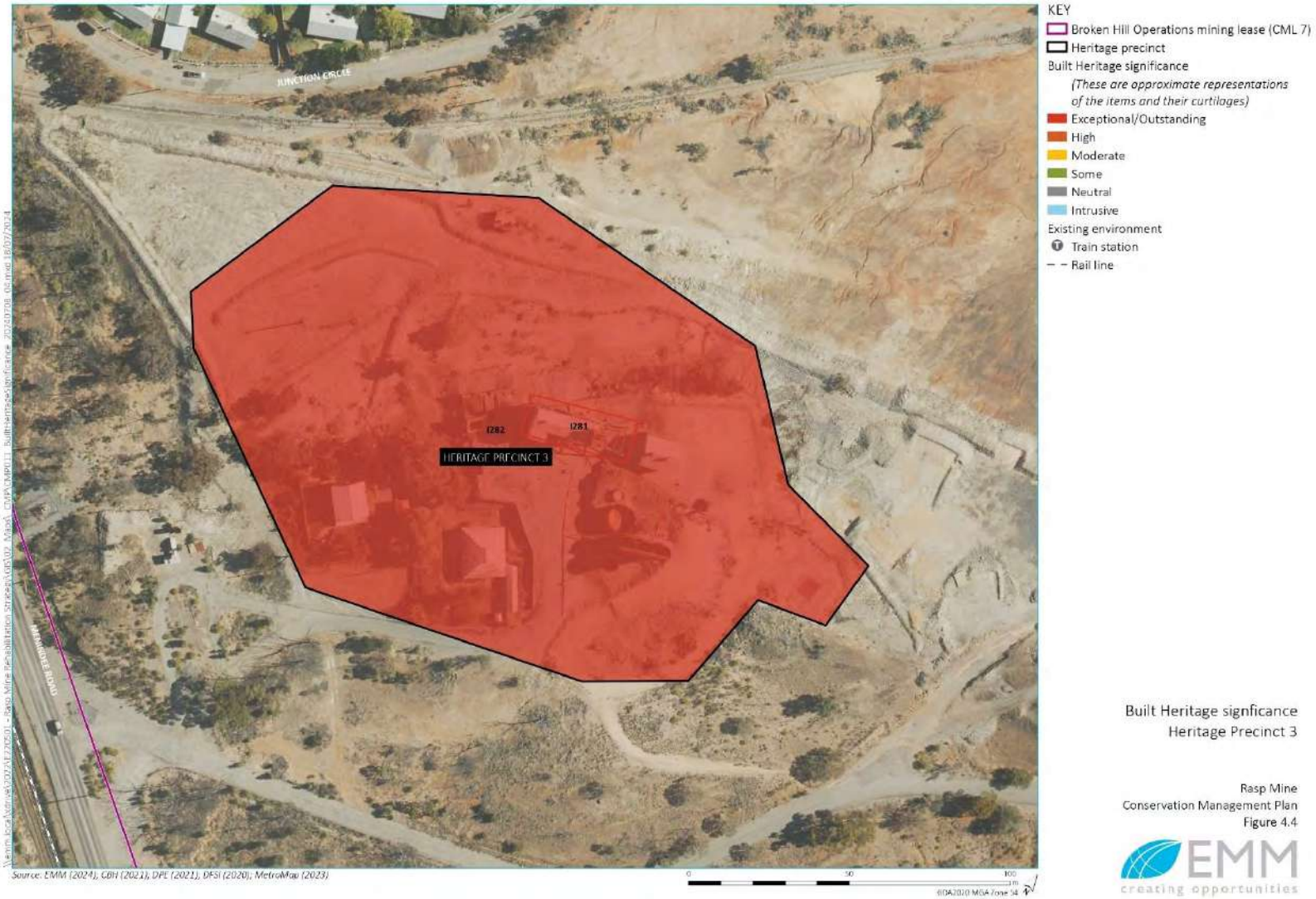

Figure 4.4 Built Heritage significance Heritage Precinct 3

Figure 4.5 Built Heritage significance Heritage Precinct 5

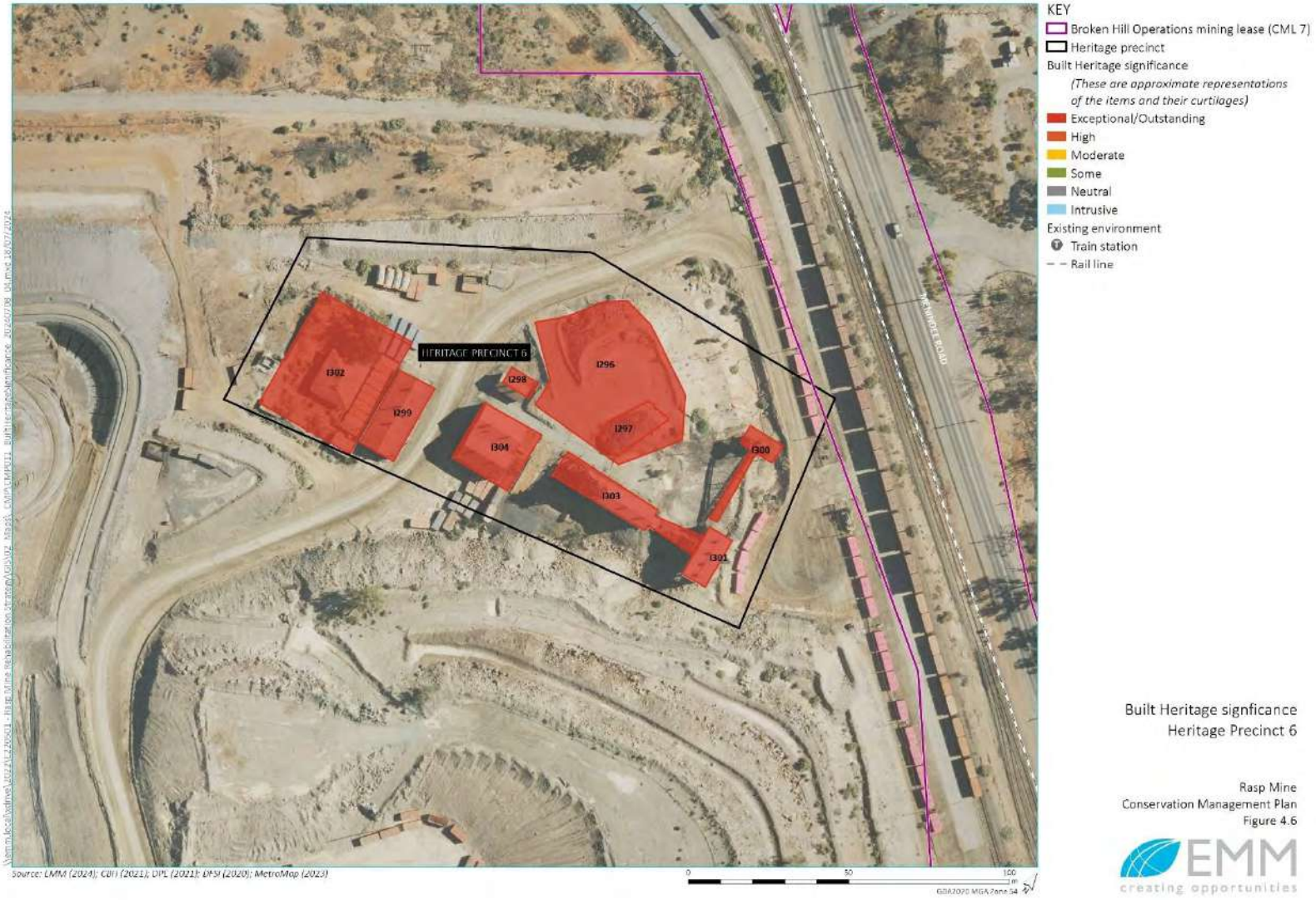

Figure 4.6 Built Heritage significance Heritage Precinct 6

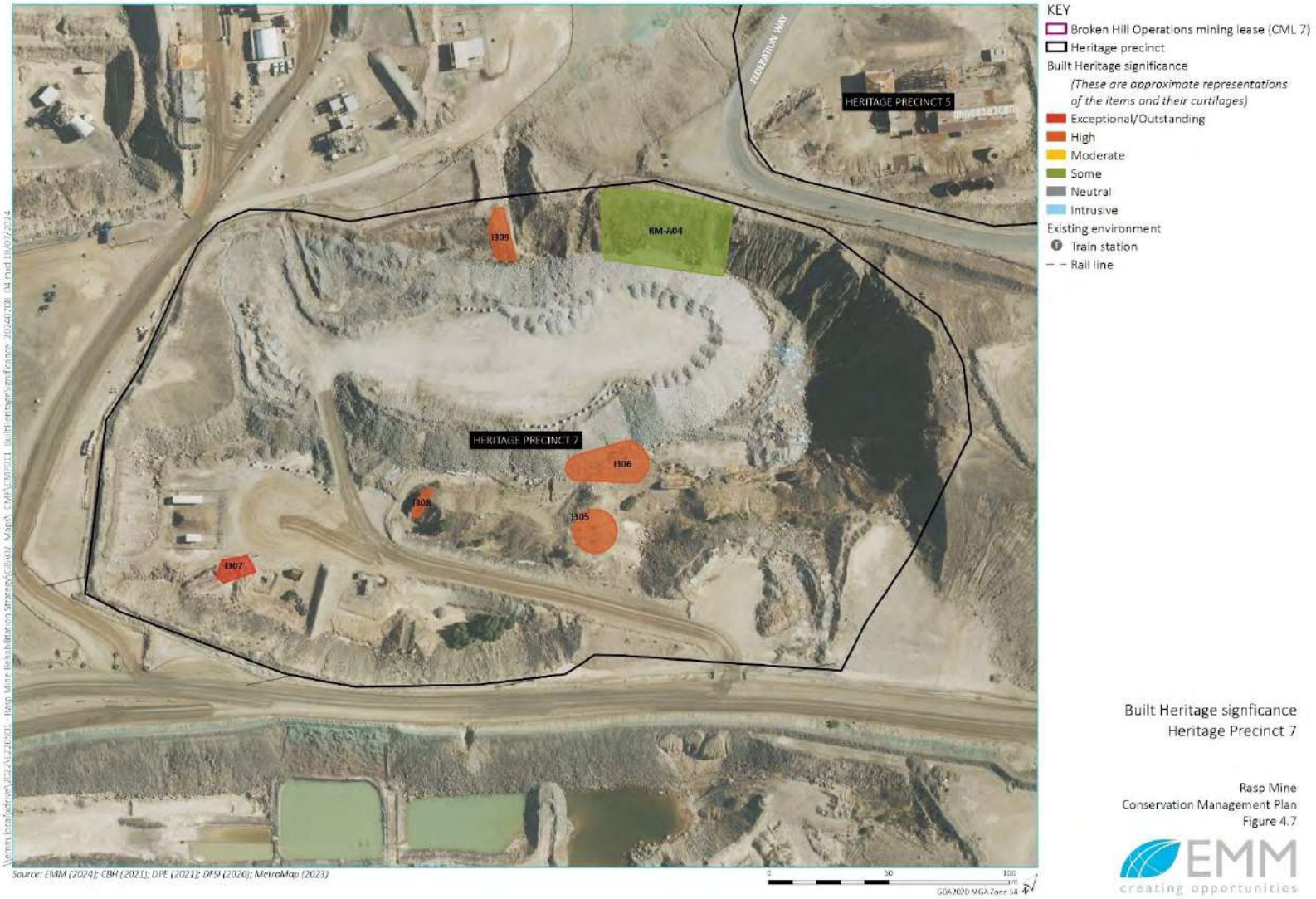

Figure 4.7 Built Heritage significance Heritage Precinct 7

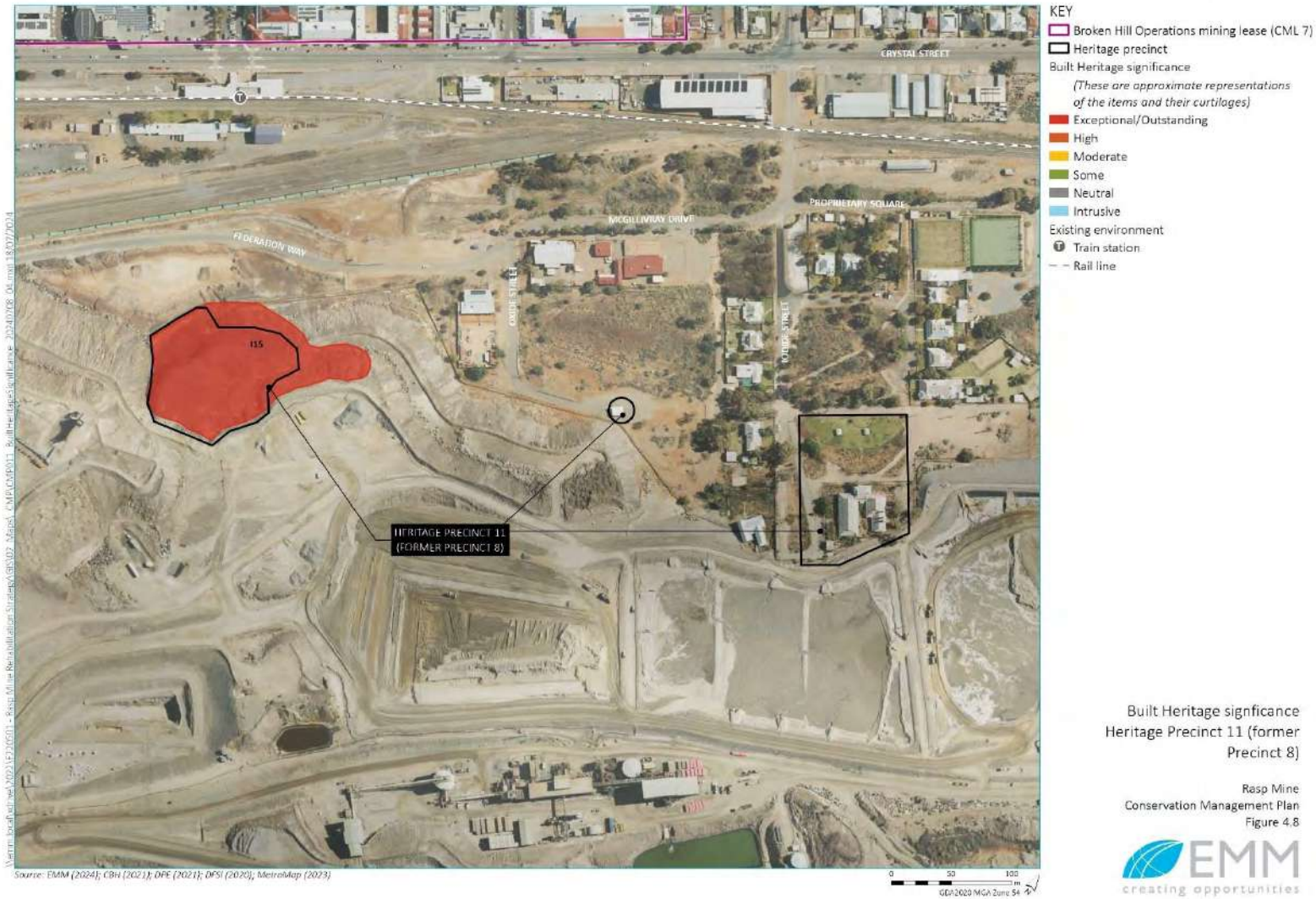

Figure 4.8 Built Heritage significance Heritage Precinct 11 (Former Precinct 11)

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creating opportunities

Section 5

Conservation policy considerations: Constraints and Opportunities

Conservation Management Plan | Rasp Mine

5 Conservation policy considerations: Constraints and opportunities

5.1 Introduction

The National, State, and local heritage values of the Rasp Mine, as discussed in Section 4 and the heritage inventory forms in Appendix C introduces a set of considerations that will shape the future utilisation and management of the site. To ensure the ongoing conservation and maintenance of the site during current mining operations and in anticipation of its future land use, it is necessary to consider these factors. The following sections delineate the core heritage-related considerations and opportunities that arise due to relevant State and local legislation, as well as the Commonwealth EPBC Act.

Potential constraints and opportunities may arise from the following areas:

- Heritage values and significance
- Ownership
- Land occupiers and future tenancies
- Security, safety, and access
- Operational interactions with heritage
- Cultural landscape
- Physical condition and maintenance
- External constraints
- Adaptive reuse
- Interpretation
- Statutory obligations.

5.2 Constraints and opportunities arising from significance

5.2.1 General discussion

The initial consideration in the development of the conservation policies for Rasp Mine revolves around establishing the prerequisites for the retention of its historical significance. These prerequisites draw from the significance outlined in the Statement of Significance, as detailed in Section 4 of the CMP. They also consider the more detailed evaluations provided in the heritage inventory forms in Appendix C.

5.2.2 Opportunities and constraints

In the prospective conservation, development, and ongoing management of Rasp Mine, it is important to acknowledge the limitations and opportunities imposed by the identified heritage values of the site and its surroundings. Moreover, there is a need to explore opportunities for preserving, reinstating, and enhancing these heritage values, particularly when they can be integrated into the daily use and continuous upkeep of the site.

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The opportunities and constraints that arise from the cultural significance are mainly related to the need to conserve the significant values and fabric of the heritage items in the site in accordance with accepted best-practice conservation principles, including *Australian ICOMOS Charter for the Conservation of Places of Cultural Significance 2013* (ICOMOS (Australia), 2013). The Burra Charter is widely accepted across Australia as the guideline by which all works to sites/buildings that have been identified as having heritage significance may be undertaken. Significance should not be considered as exclusively a constraint to development, as there are many opportunities available to retain and enhance heritage values and fabric, which would be beneficial to the future use, and future development of the site.

Additional obligations stemming from the assessed heritage values encompass:

Opportunities and constraints:

- Adhering to the relevant articles of the Burra Charter (ICOMOS (Australia), 2013) These articles include retaining significance (Article 3), ensuring security and maintenance (Articles 2 and 16), minimising interference (Article 3), preserving visual setting (Article 8), retaining fabric (Articles 9, 5, 13, and 15), maintaining records (Articles 27 and 28), retaining removed fabric (Article 33), allocating adequate resources (Article 34), and maintaining a relationship with cultural significance (Article 7).
- To address mining features and safety concerns, a strategic approach is key. This involves assessing each element considering its significance, condition, costs, future use, maintenance needs, and safety. The challenge is balancing preservation, adaptability, and, as a last resort, ruination instead of demolition as discussed in Section 5.11.
- The site's location near the central area of Broken Hill, its proximity to surrounding industrial and residential developments, and its position along the Line of Lode provide opportunities for enhancing visitor engagement and programming.
- Recognising the significance of records and other information, such as oral histories and personal recollections, and ensuring their appropriate maintenance and management.
- Encouraging the involvement of interested individuals and organisations, such as the families of former Rasp Mine workers and local residents, in the preservation and conservation of the site.
- Collaborating with local Indigenous communities to explore Aboriginal and Torres Strait Islander cultural heritage values associated with landscape of which the Rasp Mine was developed.

5.3 Ownership

The Rasp Mine spans approximately 3.8 km in length and 1.2 km in width and comprises a combination of different land tenures, including Crown lands, Crown licenses, and freeholds as detailed in Section 1.3.

The predominant ownership of land within the Rasp Mine rests with the Crown, with particular portions subject to licenses for specific purposes or recognised as freehold land under BHOP. Considering BHOP's constrained financial resources for the preservation of the heritage values of Rasp Mine, in line with their obligations under the EPBC Act and the Heritage Act, it is evident that there are heritage risks associated with their ownership and control of these areas. These risks are reduced when the land reverts back to the Crown's ownership and is managed by Broken Hill City Council or the NSW Government in the public interest upon mine closure.

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Opportunities:

- Creating a dedicated heritage management role can provide structured oversight, ensuring proper preservation of heritage assets and alignment with BHMIAC's PMLU's.
- Engaging the public in considerations of new uses for Rasp Mine, ensuring cultural heritage values are prioritised in decision-making.
- Establishing clear maintenance responsibilities between current and future site custodians is crucial for ongoing upkeep, particularly for areas visible to the public.
- Clear guidelines, policies, and procedures are needed to regulate changes to tenancies, ensuring they do not compromise heritage values or operational requirements.

Constraint:

- The ongoing operation and potential adaptive re-use of Rasp Mine should adhere to modern heritage management practices. However, this alignment may pose constraints, requiring careful balance with operational needs.

5.4 Security, safety and access

The Rasp Mine, being operational, demands careful attention to safety and security, which poses various hazards such as scattered mine shafts. Although some shafts are fenced, they remain susceptible to breaches and vandalism.

The mine's location within a network of roads, including Eyre Street, Holten Drive, South Road, Federation Way, and Menindee Road, requires considerations for traffic and road safety. Standardising speed limits and developing a traffic management plan can enhance safety and pedestrian mobility in and around publicly accessible areas.

Inconsistencies in directional signposts and the lack of interpretive signage across the publicly accessible areas hinder user experience and safety. Standardising signage and wayfinding can improve safety and enhance visitor experience.

Assessing and stabilising disused buildings at the site requires a strategic approach. Each structure's significance, condition, costs, future utility, and safety precautions must be evaluated to strike a balance between preservation, adaptability, and, as a last resort, ruination instead of demolition. This is guided by a matrix model, further discussed in Sections 5.11.2 and 5.11.3.

5.4.1 Opportunities and constraints

Opportunities:

- Improve safety measures around scattered mine shafts to minimise accidents and vandalism.
- Develop a comprehensive traffic management plan for efficient traffic flow and enhanced safety.
- Standardise speed limits on surrounding roads to enhance road safety and encourage pedestrian mobility in publicly accessible areas.
- Achieve standardisation in wayfinding and interpretive signage to guide visitors and prevent them from entering hazardous areas.

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Constraints:

- Complex safety considerations due to scattered mine shafts, historically subject to subsidence, requiring resources to ensure safety while preserving heritage values.
- Financial implications of assessing and stabilising disused buildings, standardising speed limits, and implementing traffic management plans need careful consideration.

5.5 Mining operation considerations to heritage

5.5.1 Environmental issues

The size and the nature of mining at the Rasp Mine results in a number of potential environmental issues. These concerns are mainly linked to the mining process. The open-cuts, pits, and shafts, contrasted by the tailings (often referred to as skimps), slag dumps, and skimping heaps are notable historical features that are not only significant in the landscape but also serve as landmarks within the Rasp Mine area.

The intensive processing involved in lead mining waste, compounded by the exposure of open cuts and pits, gives rise to a range of environmental challenges, particularly contamination concerns. Consequently, the unique and complex environmental challenges associated with the site requires careful management to mitigate potential hazards, especially through the rehabilitation process.

Despite a long history of interaction with the historical slag dumps, in particular, there is currently limited information available regarding their chemical composition and any potential environmental or contamination issues.

One example of a notable feature of the Rasp Mine are the black slag and mullock dumps. BHP maintained ownership of some of the dump until its acquisition by MMM in 1998. Studies conducted in North Queensland have highlighted the potential mobilisation of heavy metals from historical smelting slag dumps to local ground and surface waters, particularly zinc and lead, which can pose long-term sources of metal pollutants. If not already undertaken, further assessment is necessary to identify potential risks and determine appropriate management strategies for these components in the future. (Lottermoser, 2018).

The RMP and RS serve as practical guidelines for mining leaseholders. They encompass elements such as risk assessment, rehabilitation objectives and criteria, progressive rehabilitation practices, and the formulation of detailed RMPs, tailored specifically for large-scale mining operations. However, there are considerations that fall beyond the scope of these documents. In essence, while the RMP and RS are necessary for site rehabilitation, they do not encompass the broader responsibilities of external entities and initiatives vital for the site's heritage preservation, development, and planning for PMLU.

Moreover, it is important to note that the primary focus of these documents is on the preservation of listed heritage items, as mandated by statutory protection, ensuring their retention. However, this approach has not been extended to sites with heritage values identified by future, current or previous CMP that have not yet received official recognition through statutory listing. Additionally, the RMP and RS do not explicitly address the development of mining heritage tourism and commercial opportunities at the Line of Lode, as outlined in the *Line of Lode Precinct: A New Vision For The Miners Memorial and Broken Earth Café* (NSW Department of Primary Industries and Land, 2020). As such, collaboratively exploring rehabilitation and PMLU opportunities and aligning them with heritage preservation efforts could help diversify the site's potential uses and contribute to its long-term sustainability.

5.5.2 Vibrations from mining operations

The Rasp Mine currently has opportunities to evaluate the impact of vibrations on heritage structures due to mining activities. Implementing a frequency-based approach, common in areas near residential zones and

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heritage sites, can effectively address concerns related to heritage preservation, safety, and operational efficiency.

The adoption of a potential frequency-based approach for vibration management at the Rasp Mine centres on achieving precise control over the frequencies of ground vibrations generated during mining activities. While the Rasp Mine is currently compliant with its blasting requirements, there are opportunities to enhance heritage preservation initiatives at the site, similar to successful efforts at other mining sites around Australia. Furthermore, the frequency-based approach should be viewed as a complementary measure alongside existing regulations and guidelines.

The frequency-based approach is a method used to protect historical buildings from damage caused by mining activities. Every building has a natural frequency at which it vibrates, and if the vibrations from mining match this frequency, it can cause significant damage, much like how a singer can break a glass by hitting the right note. To prevent this, the frequency-based approach adjusts the timing and power of the blasts to ensure that the vibrations they produce do not match the natural frequencies of the nearby historical buildings. This proactive strategy helps preserve the structural integrity and cultural significance of these heritage structures.

Unlike blast monitors, which simply measure the strength of the vibrations to ensure they stay within safe limits, the frequency-based approach actively modifies the blasting process to avoid harmful vibrations from occurring in the first place. By combining both methods, the mine can achieve a holistic strategy for managing vibrations. Blast monitors provide data to confirm safety levels, while the frequency-based approach optimises the blasting to prevent potential damage, offering enhanced protection for the heritage buildings at the Rasp Mine.

From a safety perspective, this methodology holds substantial promise. By minimising the risk of structural damage to heritage buildings through the avoidance of resonant frequencies, a heightened level of safety is established for mine workers and future tourism initiatives. The potential hazards associated with structural damage are effectively mitigated, ensuring the well-being of all stakeholders and future visitors.

This approach empowers mining operations to adapt blast designs to avoid resonant frequencies, potentially allowing for more sizeable and cost-effective blasts. Importantly, the efficiency gains achieved through this method do not compromise safety or heritage preservation, underscoring the balance between operational excellence and heritage protection.

5.5.3 Opportunities and constraints

Opportunities:

- Addressing potential environmental issues associated with the size and nature of mining at the Rasp Mine provides an opportunity to mitigate contamination concerns and protect the site's historical features, including tailings, slag dumps and skimping heaps.
- Conducting further assessment of potential risks, such as the mobilisation of heavy metals from historical slag dumps, allows for the identification and management of potential environmental hazards, especially related to zinc and lead pollutants, as guided by the RMP and RS.
- Collaborative efforts can explore opportunities beyond the scope of existing documents (RMP and RS) to integrate rehabilitation and PMLU with heritage preservation, potentially diversifying the site's uses and ensuring long-term sustainability.
- The adoption of a frequency-based approach presents opportunities to enhance heritage preservation by aligning blasting techniques with resonant frequencies, safeguarding the cultural and historical significance of heritage structures. The frequency-based approach allows for more sizable and cost-effective blasts, demonstrating opportunities to balance operational efficiency with heritage protection.

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Constraints:

- The RMP and RS, while necessary for site rehabilitation, do not encompass broader responsibilities for heritage preservation, development, and planning for PMLU, posing constraints on management.
- The primary focus on preserving listed heritage items, as mandated by statutory protection, may constrain efforts to address heritage values identified by future, current, or previous CMP that have not yet received official recognition.

5.6 Availability of resources

BHOP, operating within an expansive leasehold, encompasses a diverse array of relics, both officially listed and numerous unlisted sites, all bearing the historical legacy of over a century of mining endeavours. However, a significant challenge arises from the occasional mismatch between available resources and the substantial requirements for even basic maintenance, let alone the critical tasks to undertake immediate action based on stabilisation and physical conservation requirements. Consequently, any intentions regarding heritage conservation, interpretation, or general recommendations within this CMP must take into consideration the practical implications of fluctuating economic factors in mining operations, encompassing aspects such as metal prices, available technologies, and ore body accessibility.

Implementing all the recommendations and incentives for stabilisation and conservation immediately proves unfeasible. Instead, a carefully considered sequence must align with the resources available through ongoing mining operations, existing maintenance budgets, and potential supplementary sources such as heritage grants or contributions from mine rehabilitation security bonds that may become available for conservation efforts within the site's rehabilitation program. Ultimately, this resource allocation should cater to the future custodians of the Rasp Mine site. While grant funding plays a pivotal role in preserving significant elements, its efficacy hinges on a long-term strategy governing asset management and maintenance. Failure to establish such a strategy could render grant funding a mere delay tactic, potentially leading to later decisions to remove items.

Prudent planning dictates that funding assistance is most accessible when it is part of a clear, well-structured strategy featuring defined time frames, cost projections, and identified objectives. This approach should underpin the maintenance, stabilisation, and conservation efforts for the remaining mining features and structures across the entirety of the City's mining infrastructure.

In the endeavour to safeguard and manage the historical significance and heritage of the Rasp Mine, numerous opportunities arise for leveraging grants in support of its conservation and management. The NSW Heritage Grants Program provides various channels for financial support in the preservation and promotion of heritage.

Here are some key grant categories to consider:

Table 5.1 Heritage grants

Heritage Grants	Availability	Description
Emergency Works Grants	Open all year round	Supports protection or repairs to declared Aboriginal Places or State Heritage Register items damaged by unexpected events.
Activating State Heritage Grant	Rounds open every 2 years.	Encourages investment in heritage activation for NSW State Heritage Register items.

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Table 5.1 Heritage grants

Heritage Grants	Availability	Description
Caring for State Heritage Grants	Rounds open every 2 years.	Supports management, maintenance, conservation, and activation of State Heritage Register items. Significant items protected under the Heritage Act 1977.
Community Heritage Grants	Rounds open every 2 years.	Supports heritage projects actively engaging a large number of participants.
Local Government Heritage Grants	Rounds open every 2 years.	Supports local governments in conserving and promoting heritage, replacing previous funding categories.
Australian Heritage Grants	Annually	Provides ongoing support to protect and promote National Heritage-listed places. Aims to improve conservation, preservation, access, community engagement, and awareness of listed sites.

5.6.1 Training and awareness

Ensuring the effectiveness of the CMP hinges on the training and awareness programs that encompass all stakeholders involved with the Rasp Mine. The objective is to make the CMP a practical and readily accessible tool for anyone associated with the mine, ranging from Trustees to tradespersons and technicians. To achieve this, there are opportunities to undertake routine training and awareness programs centred around heritage protection.

An approach to training and awareness revolves around inclusivity, with an opportunity to implement a two-tiered program designed to cater to all roles within the mine. The foundational tier can include a basic induction that's mandatory for all new staff. This induction serves as an essential introduction to the principles of heritage preservation, fostering a foundational understanding of why the Rasp Mine's heritage matters. It creates a sense of shared purpose and ensures that everyone is aware of their role in maintaining the place's heritage values.

Moving beyond the basics, there is an opportunity to develop an advanced, job-specific training tier that delves deeper into particular aspects of the mine's heritage and conservation. This training is tailored to equip individuals who handle specific responsibilities within the mine, ensuring they possess the specialised knowledge required to make informed decisions alongside the direction of a heritage consultant. This approach not only upholds the significance of the site's heritage but also enhances engagement and commitment among those directly involved.

To maintain easy access to the CMP and to encourage its practical application, it needs to be integrated into briefings and training programs across the site. These efforts are to be coordinated by BHOP, ensuring that heritage values remain at the forefront of all activities. The responsibility for heritage preservation is not confined to a select few; it is a shared commitment that extends to all individuals linked to the mine.

This commitment should be evident in job descriptions and evaluations, reflecting the importance of heritage values in each role. It should also be an integral part of inductions, training programs, and manuals, emphasising its significance throughout the lifecycle of each individual's involvement with the mine. This should be dovetailed with a system of regular monitoring and reviews, complemented by semi-annual audits of current practice.

5.6.2 Opportunities and constraints

Opportunities:

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- Implementing training and awareness programs centred around heritage protection offers opportunities to make the CMP a practical tool for all stakeholders. A two-tiered program, including basic induction and job-specific training, ensures that everyone understands the importance of heritage preservation and their role in maintaining it.

Constraints:

- Implementing training and awareness programs requires resource allocation and commitment from all stakeholders. This may involve additional expenses and time investments.

5.7 Cultural landscape characteristics

The distinctive landscape of the Rasp Mine, within the Line of Lode, located in the centre of Broken Hill, holds significance and necessitates thorough, integrated management. This goes beyond the physical structures that remain; it encompasses their broader context, including the surrounding environment and the social fabric of the place, all of which collectively constitute its heritage values. This includes every facet that contributes to the unique setting of the place, from the visual spectacles to the sounds, scents, and panoramic views.

Currently, the Rasp Mine encompasses a collection of mining infrastructure, railway tracks, routes, production facilities, staff residences, and administrative buildings. The former mining areas are grouped throughout the northeast-aligned mineral lodes, forming distinct precincts across the site, with the remnants of treatment plants marked by the presence of tailings, slag dumps and skimping heaps. Notably, Precincts 1, 2, 3, 5, and 11 of the Rasp Mine, lining the Line of Lode, stand out prominently, visible from the surrounding streetscapes. Interspersed between these mining areas lie the former residences of the miners. The mining sites constitute an integral part of the site's character, offering unique aesthetic values. Many of these structures were disassembled to recycle their building materials. Any proposals affecting these values should be approached with caution, and where applicable, ruined sites should be preserved as ruins, with no attempts at reconstruction.

The original environment, once covered in thick, low-lying native scrub, underwent rapid transformation during early mining operations when it was cleared for construction and fuel, leaving behind a barren landscape. With post-mining operations initiated, it is expected that vegetation will gradually reclaim the former mining area. However, it is important to note that the vegetation itself is not of primary importance and does not directly contribute to the National Heritage values of the place. In some areas, overgrown vegetation obscures historically significant vistas, making it challenging to understand the historic relationships. This regrowth vegetation can pose conservation challenges for the remaining structures and could present fire hazards near former mining workings. Thus, selective vegetation clearing, and sympathetic additions should be considered, with careful management to minimise disruptions to the broader landscape and the sites historical setting.

In this context, the absence of vegetation across the site raises concerns, particularly regarding the potential for weathering, erosion, and land movement. Exposed surfaces like slag dumps, and skimping heaps are susceptible to natural forces, leading to gradual deterioration. Furthermore, the lack of protective vegetation can contribute to land movement, including soil erosion and subsidence, jeopardising the structural stability of mining infrastructure and disrupting the original visual connections between site components - warranting ongoing monitoring and management. Despite these challenges, the stark absence of vegetation serves as a poignant reminder of the site's identity as a mining area. To address these issues and preserve the historical and environmental integrity of the Rasp Mine, strategies such as sympathetic re-vegetation, erosion control measures, and infrastructure preservation should be considered carefully balancing the need for conservation with the site's unique character.

5.7.1 Arts and culture

Broken Hill is a city celebrated for its vibrant artistic and literary community. The city has over two hundred local painters, more than thirty-five galleries, writers, poets, photographers, filmmakers, and other creative talents.

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This arts scene has contributed significantly to Broken Hill's reputation as a hub of artistic endeavour (Johnston, 2016).

The Broken Hill Regional Gallery, established in 1904, plays a role in fostering this artistic community. As the oldest regional gallery in NSW, it has served the city's needs as a "city in isolation." The gallery proudly showcases a diverse selection of local artists' work. Notable figures like Florence May Harding, a teacher at the Broken Hill Technical College, have played pivotal roles in stimulating artistic activity in Broken Hill. Some of her students, including Pro Hart and Eric Minchin, are well-known as the “Brushmen of the Bush”. She also helped found the Willyama Art Society in 1961, which continues to influence the local arts scene (Johnston, 2016).

Local artists often draw inspiration from the unique landscape of Broken Hill, whether looking toward the city and its mines or out into the vast desert. Over the years, a substantial body of artwork, including paintings, photographs, films, novels, and poems, has depicted the physical environment of Broken Hill. Artists have been captivated by the intimate connection between the town and its mines, the presence of a close-knit community surrounded by the vast desert, the mines themselves, the dramatic geological setting of the Line of Lode, and the sensory experiences of heat, dust, and vivid colours.

The art world's fascination with Broken Hill extends to national artists of repute, such as Fred Williams, Sali Herman, Kenneth Jack, George Gittoes, and Idris Murphy. Local talents like Pro Hart, photographers Frank Hurley, Wolfgang Sievers, Rex Dupain, novelists Arthur Upfield and Ken Cook, poets C.J. Dennis and Les Wicks, filmmakers Ted Kotchef, George Miller, Nadia Tass, Gillian Armstrong, Stephan Elliott, and contemporary video artist Shane Gladwell have all drawn inspiration from or depicted Broken Hill. Pro Hart, in particular, has achieved widespread recognition and appreciation (Johnston, 2016).

In the twenty-first century, a symbiotic relationship has developed between the local arts community in Broken Hill and visiting artists from outside the region. These outside artists often take up residencies, conduct workshops, teach local artists, and hold exhibitions of their work (Johnston, 2016). This exchange of ideas and creativity both enhances the enthusiasm of the locals and shares the inspiration drawn from the Broken Hill environment. The artistic output from Broken Hill has significantly shaped how the broader Australian community perceives the city. At the local level, engagement with artistic endeavours is robust and thriving across various forms of expression.

5.7.2 Iconic value of "The Hill"

Symbolically, Broken Hill is referred to as "The Hill." This nickname, in conjunction with the city's physical landscape, carries significant importance. "The Hill" remains at the heart of the city, even though the original "broken hill" has been altered by more than a century of mining. This unique association is represented by the city's official tagline, "the hill that altered a nation" (Johnston, 2016). The name "The Hill" is synonymous with the city itself, illustrating the connection between the community and the land.

Three years after the Miners' Memorial was inaugurated, there was a renewed focus on the Line of Lode, the dramatic geological formation that defines the city. The Line of Lode holds substantial significance, as it also symbolises the strength and resilience of the community. It stands as evidence of the city's determination to progress and adapt to the future (Johnston, 2016).

The Miners' Memorial and Visitors' Centre, situated at the top of the Line of Lode, functions as a tribute to the city's enduring resilience and strength. It is not only a place of remembrance but also a potent symbol of Broken Hill's commitment to its future (Johnston, 2016).

Throughout the city, murals capture images of the past and present, reflecting the distinct character of the community. These public art installations, like the "Community Oasis" murals, are crafted by local artists such as Geoff De Main, offering depictions of people and places that resonate with residents and visitors alike (Johnston, 2016). Other memorials in the city, including the war memorial, the Titanic Memorial, and the Miners' Memorial, further underscore the unique character of Broken Hill. These memorials reflect how the community perceives and portrays itself and the city, highlighting the cultural and historical significance of the city (Johnston, 2016).

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The significance of Broken Hill extends beyond its physical attributes; it is closely intertwined with the collective memories and experiences of its residents. The nickname "The Hill" and the enduring symbolism of the Line of Lode represent the community's connection to the land, its history, and its cultural identity.

This deep-seated connection to the place, along with the city's rich artistic and literary heritage, has contributed to Broken Hill's reputation as a culturally and historically significant city in the eyes of both the local community and the wider Australian population (Johnston, 2016).

5.7.3 Legibility and loss of landscape character

The setting of a place includes the available land area in which it resides and from which it can be viewed. This setting may encompass elements unrelated to the heritage place itself, without heritage value. It is critical to consider the broader context and the intangible aspects, such as social practices and relationships with other places, to preserve the character and cultural significance of the Rasp Mine. At present, there is no representation of the Wilyakali people within this site. However, the relationship between indigenous people, the mine, and the miners deserves to be reintegrated into the site's cultural landscape. This reintegration will help foster a more inclusive heritage narrative, enriching the overall historical context of the site.

i Setting (Articles 8, The Burra Charter)

Conservation requires the retention of an appropriate setting. This includes retention of the visual and sensory setting, as well as the retention of spiritual and other cultural relationships that contribute to the cultural significance of the place. New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.

The commentary adds that:

> Setting may include: structures, spaces, land, water and sky; the visual setting including views to and from the place, and along a cultural route; and other sensory aspects of the setting such as smells and sounds Setting may also include historical and contemporary relationships, such as use and activities, social and spiritual practices, and relationships with other places, both tangible and intangible.

5.7.4 Opportunities and constraints

Opportunities:

- The presence of a vibrant arts community, numerous artists, writers, and filmmakers, presents an opportunity to celebrate and promote the site's cultural significance through artistic expressions and events.
- The site is located in an area that has earned recognition at the National level, contributing to its cultural and historical significance and potentially attracting National support and funding.
- The strong artistic community, as well as the site's recognition, offer potential for heritage tourism, attracting visitors interested in arts and culture.
- The gradual reclamation of the former mining area by vegetation presents an opportunity to restore the natural environment, albeit with selective clearing, to improve the site's aesthetic and ecological value.
- Reintegrating the culture and perspectives of the Wilyakali people into the site's cultural landscape can enrich the overall historical context and promote inclusivity.

Constraints:

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- The exposed surfaces like tailings, slag dumps and skimping heaps are susceptible to natural forces, leading to gradual deterioration, making ongoing monitoring and management necessary.
- Managing potential conflicts and differing opinions among various stakeholders, such as the local community, heritage advocates, and tourism organisations, regarding the site's use and preservation.

5.8 Physical condition

The conservation of the Rasp Mine, as discussed in Section 6 of this CMP, is underpinned by the recommendation to prepare a maintenance and conservation register for the site to guide the ongoing conservation of heritage fabric. Preliminary inspections conducted by EMM during the preparation of this CMP have identified the general condition of the site's buildings and ruins, which ranges from good to very poor, highlighting areas that demand immediate attention. Detailed opportunities and constraints associated with individual structures can be found in the Appendix C of this CMP.

The surviving historic fabric within the Rasp Mine encompasses a diversity of mining structures, both complete and remnant, distributed both above and below ground. In addition, the area holds evidence of mining and ore processing activities, such as tailings, heaps and precipitation works. Given the heritage values of the Rasp Mine, it is necessary that conservation efforts adhere to the highest standards of best practices and that all remaining original fabric is carefully preserved. Notably, due to the mine's extended operational history, many of these structures provides tangible evidence to the evolution of mining technology.

However, since 1994, significant degradation of the building fabric has occurred, and in some cases, there has been partial collapse, primarily due to the effects of aging, lack of regular maintenance, and the impact of harsh weather conditions, especially wind events. The condition of these buildings needs to be reviewed in the context of their potential future use or non-use. The physical condition of the heritage buildings and structures within CML 7 is highly variable, ranging from good condition to very poor and requiring attention. Importantly, it is noted that the condition of these items does not diminish their heritage significance. In the short term, the poor condition of some structures may necessitate restrictions on visitation or use. In most cases, their condition can be improved through basic maintenance, a combination of maintenance and stabilisation, and, in some instances, reconstruction.

It is required to emphasise that the poor condition of these structures and any associated financial constraints should not serve as the sole justification for the demolition of buildings, structures, or features of recognised heritage significance. BHOP has publicly committed to maintaining the heritage infrastructure within CML 7 in various documents and submissions, reinforcing the dedication to preserving the cultural legacy of the Rasp Mine and by extent - its incorporations into BHOP’s annual budgetary commitments.

Furthermore, due to the financial and time constraints imposed on the production of the CMP, as discussed in Section 1.7, comprehensive condition assessments could not be conducted. However, it is noted that the observations and assessments regarding the condition of the site made in the 2013 CMP remain largely relevant to the current state. While the condition types vary across different buildings, it is important to recognise that buildings of similar construction types and time periods exhibit common issues throughout the Rasp Mine. These issues, though consistent in nature, vary in their impact from one location to another

Typical issues are broken down into Table 5.2.

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Table 5.2 Common condition issues at Rasp Mine

Condition issue	Description and impact
Rising damp and salt attack	• Absence of dampproof courses in earlier structures. • Exacerbated by poor stormwater disposal and modifications like concrete floors. • Deterioration of mortar joints, stone, and brick surfaces • Potential risk of wall collapse.
Falling damp	• Deterioration of softer mortar joints and soiling at higher levels and on the top of walls. • Widespread issue due to inadequate roofing of structures. • Broken windows. • Falling damp concentrated in areas with roofs that have not been adequately maintained. • Previous attempts to address falling damp may have caused further damage.
Structural movement	• Cracking, often through weaker mortar joints but occasionally through masonry units. • Concerns about the stability of some structures.
Oxide jacking	• Corrosion of embedded iron or steel straps and bolts in masonry or concrete. • Particularly evident in machine or mounting blocks where holding down bolts remain. • Steel joists integrated into lower portions of concrete may also be affected.
Roof and gutter deterioration	• Missing sections of roof sheeting, flashings, and gutters, allowing water to enter the interior of buildings. • Water ingress leading to the deterioration of building fabric.
Timber weathering	• Breakdown of the organic structure of timber, leading to disintegration over time. • Exposure to biological attacks such as rot. • Typically caused by the deterioration of protective paint surfaces or loss of roof structures. • Unprotected timber elements at risk.
Vegetation growth	• Vegetation growth, including trees and woody shrubs, has re-established itself within and around underutilised spaces and mining structures. • This vegetation poses a significant threat to the preservation of masonry elements. • Requires ongoing control efforts.
Pigeon infestation	• Pigeons have colonised some sites, finding roosting opportunities in abandoned structures. • Accumulations of pigeon excrement can lead to detrimental impacts on building fabric. • Nesting in sheltered roof areas results in blockages in gutters and roof leaks.

The following table, Table 5.3 provides a summary of the condition assessment of Rasp Mine's built fabric and materials. To assess the infrastructure at the mine, they have been categorised it into distinct types, each with unique potential and suitability for ongoing use or management.

To determine the average condition for each category, a numerical value has been assigned to each condition level (Excellent = 4, Good = 3, Fair = 2, Attention Required = 1). This allows for the calculation of an average condition score based on the individual condition assessments of buildings within the category.

To ensure a balanced representation of the average condition scores, the following steps were undertaken:

1. Calculate the total score for each category: Multiply the number of buildings in each condition category by the corresponding condition value and sum these values. This provides the total score for each category.

2. Determine the total number of buildings in each category: Sum the total number of buildings for each category.

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3. Compute the average condition score for each category: Divide the total score by the total number of buildings to obtain the average condition score for each category.

Table 5.3 Summary of condition assessment for Rasp Mine's infrastructure

Category		Condition				Total condition score	Total number of buildings	Average condition score
Infrastructure type		Excellent (4)	Good (3)	Fair (2)	Attention required (1)	Score	Number of buildings	Final score
I.	Mine Production Buildings	4	18	6	4	86	32	2.69
II.	Headframes and Winding Houses and Associated Elements		3	8	3	28	14	2.00
III.	Infrastructure	1	6	1	2	26	10	2.60
IV.	Staff Facilities Buildings		10		3	33	13	2.54
V.	Administration Buildings		10		3	33	13	2.54
VI.	Staff Residences		2			6	2	3.00

5.8.1 Tailings / skimping heaps

The Line of Lode hill is an imposing accumulation of mining tailings that cuts through Broken Hill, shaping the city's distinctive visual profile and standing as a focal element within the city's National heritage values. This monumental mound is not just a landmark; it serves as a defining feature of the Rasp Mine's identity.

At other decommissioned mining sites, like the Moonta mines, substantial quantities of material from Ryans and Hancock's tailings heaps were excavated and repurposed. This material found use as roadbed material for the Highways Department and the local Council. It was also made available to individuals for various applications, including constructing local garden paths, extending its influence beyond the immediate vicinity.

Drawing from the Moonta Mine experience, any quarrying activity affecting the Line of Lode heaps, especially if it threatens their iconic character, is to be strictly prohibited. These heaps, crucial in maintaining the site's unique character, requires protection.

Erosion stemming from water runoff is visibly affecting various parts of these heaps. This issue may intensify if visitors walk on or engage in recreational activities on these mounds in the future. Such activities have the potential to worsen surface erosion, potentially concealing the historical evidence that reveals the original distribution patterns of the skimps, which were integral in forming these remarkable mounds. It is essential to take these factors into account when planning the PMLU of the site.

5.8.2 Archaeology

A significant portion of the former mining areas lining the Line of Lode has been affected by later site activities, leading to the concealment of early structures. Additionally, several major early mining buildings were either demolished to make way for subsequent mining developments or dismantled for re-use. Despite these challenges, numerous above-ground ruins remain. It is of importance to strategize future infrastructure development and rehabilitation processes to minimise its impact on areas holding archaeological potential.

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5.8.3 Moveable heritage

Items of moveable heritage are integral elements that contribute to the significance of a place *Burra Charter* (ICOMOS (Australia), 2013) refers to moveable heritage as 'contents' and states:

> Contents, fixtures and objects which contribute to the cultural significance of a place should be retained at that place. Their removal is unacceptable unless it is: the sole means of ensuring their security and preservation; on a temporary basis for treatment or exhibition; for cultural reasons; for health and safety; or to protect the place. Such contents, fixtures and objects should be returned where circumstances permit, and it is culturally appropriate.

The Rasp Mine possesses movable heritage items whose significance must be evaluated based on their connection to the mine. Preserving these movable heritage items is essential for enhancing our understanding and interpretation of the site. The relocation or removal of these items from their current location within the station would result in a loss of their significance.

A report needs to be prepared to identify and assess the movable heritage items at the Rasp Mine. This report should summarise the findings, presenting opportunities to document these items by outlining their condition, significance, current risk levels, and providing general recommendations for their future management. The aim is to create a detailed account that guides decision-making regarding the preservation and interpretation of these heritage assets.

5.8.4 Maintenance requirements

Consistent and ongoing maintenance is essential for the preservation of the Rasp Mine's historical sites. Currently, maintenance efforts are sporadic, with limited evidence of regular upkeep. The irregularity in maintenance is largely due to budget constraints and the need to allocate resources judiciously. As such it a systematic and routine maintenance program that extends its scope to encompass significant ruins, existing structures, walking trails, fencing, and signage needs to be established. However, this expansion will require resources to ensure the long-term viability of these sites.

The ongoing maintenance of the old mine buildings and infrastructure is a critical aspect of conserving the heritage resources within the Rasp Mine, especially during the next active mining and rehabilitation phase. Notably, LOLA initiated considerable stabilisation works within the lease area, which should be continued by BHOP based on the 2015 CMS structural assessments that have been conducted. While the workload for maintenance may be substantial initially due to the lack of prior upkeep, regular and proactive maintenance undertaken by BHOP will progressively reduce this workload.

Buildings or features that are structurally unsound or require maintenance for safety reasons will understandably be inaccessible for any purpose until they are restored to a safe condition. An all-inclusive maintenance schedule should be developed once these structural assessments have been completed. General maintenance guidelines are provided in the recommendations to ensure for BHOP's efficient and effective site upkeep.

Furthermore, it is essential to highlight a specific instance at the Rasp Mine, where a headframe structure at risk of failure was successfully stabilised using grant funding. This achievement had two significant outcomes: it preserved the headframe, a significant architectural feature of the site, for potential incorporation into the site's long-term remediation and interpretation. Additionally, it established a precedent for securing funding for future key actions over time.

While grant funding plays a crucial role in retaining essential elements of these heritage sites, it is important to accentuate that, without a well-defined long-term strategy for managing and maintaining these assets, grant funding could merely serve as a temporary delay in making decisions about item removal. Securing funding assistance is notably more feasible when it is part of a strategy that includes timeframes, cost projections, and

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specified outcomes, which is out of the scope of this CMP and is suggested to be undertaken in the immediate future.

5.8.5 Opportunities and constraints

Opportunities:

- Heritage conservation, maintenance, interpretation, and recommendations for the site should be synchronised with the resources accessible through ongoing mining operations. This alignment creates an opportunity to integrate heritage preservation into existing operations, assuring the long-term sustainability of conservation efforts.
- Additional funding opportunities can arise from sources like heritage grants and contributions from mine rehabilitation security bonds, which have the potential to bolster heritage conservation within the rehabilitation program. This supplementary funding can significantly improve conservation efforts. The NSW Heritage Grants Program, with its various financial support channels for heritage preservation and promotion, presents an opportunity to access grant funding for the conservation and management of the Rasp Mine's heritage.
- The implementation of a long-term strategy governing asset management and maintenance is essential to ensure that grant funding plays a pivotal role in the preservation of significant heritage elements. Prudent planning dictates that accessible funding assistance is contingent upon its integration into a clear, well-structured strategy that includes defined timeframes, cost projections, and specific objectives. This approach guarantees the efficient utilisation of resources and provides robust support for the maintenance, stabilisation, and conservation of mining features and structures.

Constraints:

- The sporadic nature of maintenance efforts due to budget constraints presents a constraint. The absence of consistent and ongoing maintenance can affect the long-term viability of the heritage site.

5.9 External constraints

5.9.1 Stakeholder consultation

This section is addressed to various stakeholders involved in the management, planning, and preservation of the Broken Hill mining district, particularly those with an interest in the Rasp Mine and associated heritage values. These stakeholders include government bodies, heritage consultants, heritage conservation groups, local councils, property owners, developers, and community members.

The BHMIAC was formed with the purpose of facilitating a coordinated whole-of- government approach to establishing sustainable PMLU use options for the mines within the Broken Hill district. The initial focus of the Committee is limited to the Rasp Mine and adjacent Perilya mining operations and associated facilities. It is the objective that the focus of the Committee will be expanded in the future to the broader Broken Hill mining district. The Committee is comprised of representatives from DPC, EPA, Resources Regulator, Crown Lands, OEH, Broken Hill Lead Program, DPE as well as Broken Hill City Council. Site inspections at Broken Hill were undertaken by Committee 13-14 August 2019.

The purpose of the inspection was to provide the site context to members of the group to ensure they have an understanding of the complexity of issues that need to be addressed in developing a pathway to confirming PMLU option(s). It also intended to provide an opportunity for both BHOP and Perilya Broken Hill Operations Pty Ltd to outline issues that required further clarification to the stakeholders.

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The absence of subsequent communication between BHOP and the committee following the 2019 inspection creates opportunities for mining tourism in specific areas of the site. However, it also poses a constraint due to the lack of explicit guidance from the Committee or Crown Lands. In response to this challenge, BHOP has taken proactive steps by establishing a 'fallback' safe plan, emphasising a safe, stable, and non-polluting final land use that encourages mining heritage tourism across the broader mine area.

BHOP has initiated consultations on the final land use plan with the Committee and other relevant stakeholders. Moreover, they have re-engaged with the Committee, recognising that the complexity of the PMLU issues may necessitate several years to achieve a consensus. These decisions offer both collaborative opportunities and challenges. They require thorough stakeholder and community engagement processes to ensure alignment and support. Consequently, managing potential conflicts and differing opinions among various stakeholders regarding the site's use and preservation can be a constraint impacting resource allocation and decision-making, potentially leading to extended timeframes for reaching a consensus.

5.10 Planning controls, proposed changes, new development or potential threats

5.10.1 Loss of significant buildings:

One of the primary challenges threatening the National heritage significance of Broken Hill pertains to the preservation of significant abandoned structures. Without a strategy, these high heritage value structures are at risk of inevitable loss. The Rasp Mine, situated on the Line of Lode in Broken Hill, faces a particular risk in this regard. This risk arises from ongoing mining activities at the site and the potential risks associated with rehabilitation and PMLU. Many of these structures have significant heritage value, and they are gradually deteriorating due to factors like changing functionality and neglect, thus posing a considerable risk to the National heritage values of Broken Hill.

The Line of Lode, an iconic symbol of Broken Hill, dominates the city's landscape, featuring a collection of shaft heads, buildings, and infrastructure. However, the existing Broken Hill Local Environmental Plan 2013 falls short of adequately addressing the Line of Lode and its contextual significance. It currently considers heritage items in isolation, failing to draw connections between their importance and their relationship to the development of early lease areas. Presently, only one item from the Rasp Mine is listed on the State Heritage Register, with 76 listed in the Broken Hill Local Environmental Plan 2013. This deficiency is a significant oversight, given the central role of mining in the city's history and its National Heritage values.

A selection of abandoned or deteriorating buildings and sites within the study area is identified in Table 5.4, sourced from the 2021 study by Paul Davies (Paul Davies Architects and Heritage Consultants, 2021):

Table 5.4 A selection of abandoned or near to abandoned buildings and sites

Site/Structure	Address	Precinct	Heritage listing	Impact
	Mining Sites			
Browne's Shaft complex (Items I261-I281)	Rasp Mine, Junction Mine	Precinct 1, 2 and 3	Yes	High
Delprats Mine complex (Items I285I295)	Rasp Mine, Delprats and Old BHP Area	Precinct 5	Yes	High
BHOP Mine Buildings	Rasp Mine,	All listed building in CML 7	Yes	High

To address these issues, a strategic approach is required for the future of these significant mining sites within the Rasp Mine. The study recommends establishing a mining heritage conservation area at both the State and local levels, with due recognition of the Line of Lode as a pivotal heritage element. This initiative entails a reassessment of heritage item listings and their relationship to early mining lease areas to ensure a holistic approach to

preserving remnant mining features across various leases. Additionally, it is necessary for BHMIAC to continue engaging with mining companies and government agencies to prevent the marginalisation of heritage values. The study further recommends consolidating various reports and data into a mining site database, which will inform strategic planning, decision-making, and the effective preservation of heritage values (Paul Davies Architects and Heritage Consultants, 2021).

i Local Council management and Local Environmental Plan provisions

The primary opportunities arising from the 2021 study by Paul Davies revolve around entrusting the management and preservation of Broken Hill's National Heritage values to the local Broken Hill City Council (Paul Davies Architects and Heritage Consultants, 2021). This decision is rooted in the understanding that the city's heritage listing encompasses the entire council area, making local-level management the most practical and effective approach. To put this approach into action, the study recommends amending the Broken Hill Local Environmental Plan 2013. Furthermore, it suggests initiating a dialogue with the Federal Department of Environment to provide advice in case a specific issue requires a Federal referral.

An amendment involves explicitly incorporating National Heritage values into the *Broken Hill Local Environmental Plan 2013*. This new objective underscores the commitment to conserving these values as outlined in the National Heritage Register citation. This integration of National Heritage values within the framework of the Broken Hill Local Environmental Plan 2013 makes them an integral part of the local regulatory structure, establishing a robust legal and planning foundation for their preservation.

The work required for the review of the Broken Hill Local Environmental Plan 2013 includes revising and expanding the existing heritage schedule. This revised schedule will serve as the cornerstone for all future assessments, encompassing National, State, and local heritage values for each listed place.

It is worth noting that while local listings for the Rasp Mine have expanded to include several new sites since 2013, the expansion of the schedule is not solely about enhancing preservation efforts. It also presents as a valuable tool for property owners, developers, and council assessors to understand the potential impacts on National Heritage values. This expanded schedule fosters transparency and ensures that everyone involved in assessing development applications or works is aligned regarding heritage preservation.

These recommendations also involve identifying specific places within the Broken Hill Local Environmental Plan 2013 schedule with individual National Heritage values. Although this list lacks statutory weight, it serves as an invaluable checklist for assessing proposals or applications. If a site is listed, it triggers a more thorough analysis to determine potential impacts on National values. This selective identification concentrates conservation efforts on critical sites and aids property owners and developers in understanding the heritage implications of their projects.

5.10.2 Risks associated with cumulative change

Another risk revolves around the cumulative impact of incremental changes in the site, encompassing alterations to roads, landform, adaptive re-use, tourism activities and leased properties. While the mine's evolving character is one of the attributes contributing to its National Heritage values, there is a potential risk when these changes occur without proper consideration of the city's underlying heritage values. Recent works have, at times, proceeded without due regard for National Heritage values, and there are opportunities to ensure that any changes align with heritage preservation. This entails considering heritage values before committing to works, from major infrastructure projects and should always be prioritised over convenience and cost.

While controls are in place for heritage conservation areas within Broken Hill, there is a notable absence of such controls for the broader city area, including the mining leases along the Line of Lode. This lack of control concerning the overall fit and character of developments poses a potential threat to National Heritage values, especially in relation to the PMLU of the Rasp Mine. National Heritage values extend over the entire city, and their preservation requires thorough control mechanisms that transcend localised areas and cover the entirety of the city's heritage landscape (Paul Davies Architects and Heritage Consultants, 2021).

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Incremental changes and demolitions are also observed in the addition of new buildings within the Rasp Mine area. When new structures fail to align with the city's character and design principles, or are demolished, they pose a potential threat to National Heritage values. Although the Broken Hill Development Control Plan 2016 provides a foundation for new development and adaptation within heritage precincts, these controls do not encompass the entire city nor the Rasp Mine, and presently do not align with the National value of the mining precincts. Developing specific controls for heritage precincts while ensuring all new developments respect the Line of Lode's and, by extension, the city's overall heritage character is necessary (Paul Davies Architects and Heritage Consultants, 2021).

i Mining Heritage Conservation Areas in Development Control Plans

The Broken Hill Development Control Plan 2016 recommendations provide a clear roadmap for property owners and developers to navigate the complex landscape of heritage conservation. The primary opportunities arising from the 2021 study by Paul Davies proposes an inclusive revision of planning controls, covering not only heritage items but also the entire council area, recognising the local, State, and National significance of heritage in Broken Hill (Paul Davies Architects and Heritage Consultants, 2021).

Under these revised controls plans, specific provisions for Heritage Conservation Areas are to be established, reflecting the unique requirements of the mining areas. The study suggests creating character statements for each Heritage Conservation Area, aiding in a deeper understanding of their heritage values. Moreover, the revised controls address the spatial and landscape form of the city, including elements like trees and street plantings. Mapping contributory and non-contributory places within heritage conservation areas provides a practical tool for property owners, guiding them when considering work on their properties (Paul Davies Architects and Heritage Consultants, 2021).

It is important to note that the National Heritage values are integrated into these controls. The expanded themes within the Broken Hill Local Environmental Plan 2013 listings that capture National values are directly reflected in the Broken Hill Development Control Plan 2016 provisions, ensuring that the controls are in accord with the broader planning framework.

The study recommends dividing the *Broken Hill Development Control Plan 2016* into dedicated sections for different heritage categories, such as mining, commercial areas, residential areas, heritage items, and heritage conservation areas. Each section will contain material that is consistent with the overall heritage conservation objectives of the *Broken Hill Development Control Plan 2016*. This division ensures that property owners and developers can easily locate the relevant guidelines and controls for their specific projects (Paul Davies Architects and Heritage Consultants, 2021).

5.10.3 Opportunities and constraints

Opportunities:

- Amend the LEP to explicitly incorporate National and State values at the Rasp Mine, establishing a robust legal and planning foundation.
- Identify specific places within the Broken Hill Local Environmental Plan 2013 schedule with individual National heritage value, concentrating conservation efforts on critical sites.

Constraints:

- Lack of specific provisions for Heritage Conservation Areas in the Broken Hill Development Control Plan 2016, reflecting the unique requirements of the mining areas.
- Lack of provisions within the Broken Hill Local Environmental Plan 2013 for addressing the Line of Lode and its contextual significance, affecting the city's National Heritage values.

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- Current listings at the Rasp Mine do not reflect their values.
- Lack of provisions for the effects of cumulative impact of incremental changes, including alterations to roads, landform, tourism activities, and leased properties.

5.11 Adaptive re-use

5.11.1 Risk of obsolescence

Globally, there has been a noticeable increase in the obsolescence of monumental, historic, publicly owned buildings and their associated infrastructure. This phenomenon is a consequence of changes in government structure, services, and contemporary standards. The Rasp Mine, which is likely to transition into public ownership after mining operations cease, faces the risk of obsolescence, vandalism, and inappropriate modifications due to its lack of continued historical use. These challenges collectively jeopardise the preservation of its historical significance.

To address this issue, there are opportunities to explore adaptive re-use while acknowledging the diverse heritage elements within the sites. The cessation of mining operations will render the Rasp Mine functionally obsolete, implying that it will no longer serve its original purpose. With this in mind, it is important to consider how to rejuvenate the site and its landscape without exacerbating obsolescence by pursuing unsuitable uses.

Neglect resulting from a lack of use and vandalism, contrasted by inappropriate adaptation poses significant risks for obsolete buildings. The most effective way to manage this obsolescence risk is to identify compatible new uses for the place. Adaptive re-use involves making sympathetic alterations and additions that enable the site to accommodate new uses and functions while preserving its heritage significance and conveying it to new generations of users. To determine the best uses with the least impact and the greatest benefits, it is fundamental to consider a wide range of potential new uses, rather than assuming that a single use will be the best fit.

The National Heritage significance of the Rasp Mine is rooted in its enduring physical components, the surrounding landscape, and its connections to the city. Safeguarding these values is a multifaceted endeavour that demands thoughtful assessment of various factors. Mining sites present a variety of heritage elements, each presenting distinct prospects and challenges for adaptive re-use and preservation. These concepts were explored in the 2021 study by Paul Davies and are expanded upon in Table 5.5, which categorises the diverse heritage elements within the Rasp Mine and their associated consideration requirements.

Table 5.5 Types of heritage elements in the Rasp Mine

Category		Consideration requirements	
Infrastructure type		**Comment**	**Opportunity**
I.	Mine Production Buildings	These buildings pose significant challenges related to retention, use, maintenance, safety, and management. Their loss or removal could have a major impact on National heritage values.	
II.	Headframes and Winding Houses and Associated Elements		This category comprises components closely linked to mining operations, serving as prominent landmarks along the Line of Lode. Typically, their current state necessitates substantial restoration for potential integration into a tourist site. While they lack interpretation at the moment, they offer significant opportunities for access and interpretation.
III.	Infrastructure		General infrastructure components that support mining operations may offer opportunities for alternative uses.

Table 5.5 Types of heritage elements in the Rasp Mine

Category		Consideration requirements	
IV.	Staff Facilities Buildings	Have good potential for other uses or ongoing use. These elements are at relatively low risk of loss or significant impact from change (in comparison to items i-iii). Item vii contains places that have a viable current use. Memorials have been included in this category and will need to be retained and generally, due to their locations, will be capable of incorporation into future publicly accessible areas.	These elements show good potential for other uses and ongoing use with relatively low risk of loss.
V.	Administration Buildings		Administrative structures can often be integrated into new uses or publicly accessible areas.
VI.	Staff Residences		These offer potential for alternative purposes and are generally suitable for incorporation into publicly accessible areas.
VII.	Modern Buildings and Infrastructure		This category, including memorials, holds intrinsic value and can be incorporated into future accessible areas.

5.11.2 Framework for preservation and adaptability

To effectively address the remnant mining features and structures a strategic approach is required. Each element or categorised group undergoing an assessment for adaptive use should encompass various considerations, including its significance, current condition, cost implications, future potential use, maintenance requirements, and safety. The central challenge lies in striking the delicate balance between preservation and adaptability.

The incorporation of the fundamental principles of maintaining significance is taken from the theoretical framework outlined by the 2021 study undertaken by Paul Davies (Paul Davies Architects and Heritage Consultants, 2021). This research forms the basis for constructing a suggested matrix model, created below, to illustrate the multiple considerations required for a holistic evaluation. After mining operations cease, the significance of these sites becomes rooted in the remaining physical elements, the surrounding landscape, and the relationships that the remnant features along the Line of Lode maintain with the city. Their interpretive role is pivotal in preserving the sites National Heritage values.

Preserving and adapting mining heritage sites is a multifaceted challenge that demands thoughtful consideration of key aspects. In addition, proposed actions, and safeguarding National heritage values requires a meticulous assessment of specific thresholds. To effectively navigate this the 2021 study undertaken by Paul Davies (Paul Davies Architects and Heritage Consultants, 2021) presents a slightly modified structured theoretical framework that encapsulates the essential factors to consider in the preservation and adaptability of mining heritage sites, as well as the thresholds critical for maintaining their National heritage values in Table 5.6.

Table 5.6 Types of heritage elements in the Rasp Mine

Aspect	Description
Key aspects of retaining significance	
Specific Issues	Each place or item has unique characteristics and issues that need to be addressed.
Grouping and Relationship	Understanding the relationships among places and items is essential.
Remediation Requirements	Assessing what is needed to address potential impacts within PMLU's 'heritage domains'.
Future Management	Identifying who will manage the sites and elements in the future.

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Table 5.6 Types of heritage elements in the Rasp Mine

Aspect	Description
Intended Use	Defining how the site/buildings will be used while preserving their heritage value.
Funding for Maintenance	Determining how maintenance and site management will be funded.
Grouping and Relationship	Understanding the relationships among places and items is essential.
Thresholds for significance	
Retention Regardless of Cost	Should everything be retained irrespective of cost and future use?
Minimum Retention for Heritage	What is the minimum retention of buildings/features needed to preserve National Heritage values?
Partial Retention	Can parts of buildings or elements be retained instead of whole structures to satisfy significance retention?
Focus on the Most Significant	Should the focus be on preserving only the most significant elements, regardless of their condition?
Focus on Group Preservation	Should the focus be on preserving key groups of buildings to maintain a context instead of isolated items?
Proposed actions	
Stabilisation	Requires a program of sufficient maintenance to retain the element in its current form.
	Needs funding allocations for required maintenance.
Partial Demolition	This would require a detailed analysis to understand how the element can be interpreted without the whole feature being in place
	Involves initial costs and ongoing commitments for maintenance.
Managed Ruin	Involves substantial removal of failing fabric while retaining elements with a longer-term potential.
	This is likely to apply to masonry features in particular or elements that are quite robust in their materiality
Adaptation	Involves reinterpretation of the element to serve a new purpose in a park or reserve setting with applied interpretation.
	Requires a detailed study on how to integrate the element.
Focused Funding	It is unlikely that a realistic outcome of mine closure will be the retention of all remaining significant infrastructure consequently, making strategic decisions early in the process on how and where funds will be spent, and as a result how to manage the balance of features, is an essential process to retain significance.

5.11.3 Matrix model for adaption

Addressing the complex challenges involved in preserving and adapting historic mining sites like the Rasp Mine requires a systematic approach. To this end, a matrix model needs to be developed, inspired by the work of Paul Davies. This matrix model would need to provide a flexible framework for evaluating heritage elements based on

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their significance, tolerance for change, specific issues, opportunities for change, and proposed actions. The aim is to illustrate the intricate considerations necessary for a holistic evaluation and preservation of National Heritage values.

5.11.4 Adaptive re-use principles

In 2008, the NSW Heritage Office and the NSW Chapter of the Royal Australian Institutes of Architects jointly released a document titled *New Uses for Heritage Places*. This publication outlines a set of seven guiding principles for adapting historic buildings and sites to new purposes, all of which are rooted in the principles of the *Burra Charter* (ICOMOS (Australia), 2013).

The following section presents these New Uses for Heritage Places principles, along with more detailed explanations and discussions of their application, especially in cases where they are particularly relevant and not addressed elsewhere.

- Understand the significance of the place.
- Find a use which is appropriate to the heritage significance of the place.
- Determine a level of change that is appropriate to the significance of the place.
- Provide for the change to be reversed and for the place's future conservation.
- Conserve the relationship between the setting and preserve significant views to and from the heritage place.
- Provide for the long-term management and viability of the heritage place.
- Reveal and interpret the heritage significance of the place as an integral and meaningful part of the adaption project.

Furthermore, in addition to the previously mentioned principles, the Government Architects Office of NSW released a guide called *Better Placed Design Guide for Heritage* in 2019. This latter publication primarily focuses on the design aspects of new developments in a heritage context and also acknowledges the significance of the purpose or use in the preservation and conservation of heritage places.

1. Understand the significance of the place

   Understanding what is important about a place is the first stage of any project. The analysis of the heritage values and the fabric should result in a clear statement of heritage significance and identify significant fabric.

2. Find a use which is appropriate to the heritage significance of the place

   Retain the existing use when it is integral to the heritage significance:

   - Retain or re-establish the relationship between the heritage place and its use.
   - Continue practices or associations that contribute to the cultural significance of the place.
   - Continue public access to heritage places that have historically been accessible to the public.

   A new use should be compatible with heritage significance and involve minimal changes to significant fabric, layout and setting:

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- Reuse the heritage place and significant elements of the place in the new use in preference to constructing major new additions. Where aspects of the new use would have an unacceptable heritage impact, consider accommodating them in sympathetic modest additions.

- Continue significant associations and meanings in any new use.

Inappropriate uses are those where:

- Extensive changes are required to accommodate the new use, resulting in a loss of heritage significance. In this case, either the functional requirements need to be reduced, or an alternative use must be found.

- Changes of use require major structural upgrading that negatively impacts on heritage significance. Changes of use should be compatible with the structural capabilities of the item.

- Changes of use negatively affect the technical performance and durability of the fabric.

- Changes of use require major new services that impact negatively on the heritage significance of the site

3. Determine a level of change which is appropriate to the significance of the place

   - Minimise impact on significant fabric.

   - Minimise impact on significant interiors, interior planning (circulation patterns and use of rooms) and decorative schemes and finishes.

   - Locate new services and service areas so they do not impact on significant spaces or fabric.

   - Changes of use require compliance with the Building Code of Australia (BCA) for disabled access, fire, health and safety, which adversely impact on the significance of the place. However, the BCA is sufficiently flexible so that solutions can be found in most cases.

4. Provide for the change to be reversed and for the place's future conservation

   - Adaptation and development should not prevent the future conservation of a heritage item.

   - New additions and adjacent or related new construction should be undertaken in such a way that, if they are removed in the future, the essential form and integrity of the historic place is unimpaired.

   - Non-reversible changes to a heritage place will only be considered when there is no alternative way of retaining the place as a viable asset.

   - Existing fabric, use, associations and meanings should be recorded and archived before changes are made, according to Heritage Council of NSW guidelines.

5. Conserve the relationship between the setting and preserve significant views to and from the heritage place

   - Where the relationship between the heritage item and its setting contributes to its significance, this relationship should be preserved. Views that have been identified as contributing to the significance of the place should also be retained.

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6. Provide for the long-term management and viability of the heritage place

   - Secure ongoing funds to maintain the heritage place in the future as part of the project. The benefits from the project will the offset the change of use.

   - Link conservation works and proposed new works together by conditions of approval, a heritage agreement, or other appropriate mechanism, so that the conservation works are integral to the project.

   - Prevent fragmentation of the management of the heritage place in large-scale adaptations. Where there is a fragmentation of ownership through lease or sale, a legally binding overarching management framework should be put in place (such as a heritage agreement). This will ensure that the heritage values of the place are appropriately managed.

7. Reveal and interpret the heritage significance of the place as an integral and meaningful part of the adaptation project.

   - Interpretation communicates the history and previous uses of a building to its occupants and visitors and helps to explain how and why the adaptive reuse changes have been made Retaining historic signs, the layout of internal spaces and the physical evidence of past uses contributes to greater understanding of the significance of the place.

5.11.5 Sustainability

Conserving heritage places is one of the highest forms of sustainability, as reusing heritage buildings helps reduce greenhouse gas emissions by reducing the embodied energy needed to produce new building materials, as well as significantly reducing construction waste and the reprocessing of construction waste. Many older buildings are inherently energy efficient when they are used in the way they were designed to perform.

There are a range of policies that address sustainability for government assets, including the Guidelines for Sustainable Development in the Total Asset Management Manual (developed by Department of Public Works and Services for the NSW Government) and the NSW Government Resource Efficiency Policy (State of NSW and Office of Environment & Heritage, 2014). The policies aim to achieve climate change targets through:

- increased energy efficiency and reduced energy consumption
- sourcing a portion of energy from non-fossil fuels
- the fossil-derived energy being sourced from green energy tariffs and/or offsets through accredited providers.

Achieving appropriate energy conservation outcomes for heritage buildings is desirable, however a balance between reducing energy use and greenhouse gas emissions and conserving the heritage must be achieved, i.e. reducing energy consumption must not have a major impact on the heritage significance of heritage items. In maintaining and protecting the cultural significance of the Rasp Mine, a desirable goal is to provide tenant amenity through appropriate air quality, comfort levels and natural light in ways that support heritage considerations.

5.11.6 Interpretation

Interpretation plays a role in the conservation process, as recommended by the Burra Charter (ICOMOS (Australia), 2013). Many places' cultural significance may not be immediately apparent and should be clarified through interpretation. This process aims to enhance understanding and enjoyment while being culturally

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appropriate. Interpretation encompasses various methods, including repairing and conserving the fabric, presenting explanatory material on and off the site, and organising activities.

Understanding the historical significance of the Rasp Mine, in collaboration with the City of Broken Hill and stakeholders, is key. The history and heritage values of the site merit interpretation for visitors and the general public, necessitating the development of an interpretation strategy. Opportunities for interpretation arise through conservation efforts and new developments, which should be integrated into future proposals.

An interpretation strategy outlines policies and strategies for communicating a place's significance. It identifies key themes, storylines, audiences, and provides recommendations for interpretation media, encompassing tools, techniques, and technologies. Specific interpretation proposals may follow in a developed interpretation plan subsequent to the strategy.

The Rasp Mine and its surrounding heritage sites offer a meaningful opportunity for interpretation, fostering public engagement and understanding. The Miners Memorial and Visitor Centre, an iconic feature, serves as the access route to the Line of Lode, offering panoramic vistas of Broken Hill, the mining precincts and paying tribute to miners. The road leading to the Visitor Centre passes remnants of the old BHP Concentration Mill and Delprat's mining complex. This route offers opportunities for static interpretation through the installation of visible and engaging signage. Similar success has been seen at the Junction Mine with informative signage.

Adding to the site's interpretation are the landmark headframes, No. 4 and No. 7, along South Road. Controlled access and self-guided explorations around these precincts can enhance the visitor experience, providing a unique connection to the mining heritage. Thompsons, along a major thoroughfare, allows the creation of roadside lay-bys complemented by interpretive elements, further enriching the visitor experience and deepening their connection to the mining history.

It is essential to recognise that after mining operations cease, the significance of these sites lies in the physical elements that remain, the surrounding landscape, and the relationships of the remnant features along the Line of Lode. These sites will play a critical interpretive role in relation to their National Heritage values.

Given these opportunities, a two-stage interpretation plan should be devised for the Rasp Mine. The first stage focuses on identifying the history and significance of the Rasp Mine and its retained heritage structures. This phase involves creating an updated heritage inventory reflecting the site's historical and cultural importance.

The second stage, an integral part of the mine closure process, addresses how heritage will be presented over the long term. This plan covers all retained heritage assets and is designed to be sympathetic to future ownership and public access. It is important to note that the successful execution of the second stage depends on securing federal funding, surpassing BHOP's commitments. With this two-stage interpretation plan, the Rasp Mine and associated heritage sites will not only be preserved but will also serve as centres of education, inspiration, and historical appreciation for generations to come.

5.11.7 Opportunities and constraints

Opportunities:

- Exploration of adaptive re-use opportunities provide a chance to rejuvenate the Rasp Mine site after mining operations cease, preventing obsolescence and inappropriate modifications.
- Adaptive re-use, by making sympathetic alterations and additions, allows the site to accommodate new uses while preserving its heritage significance, safeguarding against obsolescence.
- The development of a matrix model, inspired by Paul Davies, offers a systematic and flexible framework for evaluating heritage elements based on their significance, tolerance for change, specific issues, opportunities for change, and proposed actions. The matrix model and framework necessitate thoughtful

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consideration of key aspects, including significance, specific issues, groupings and relationships, remediation requirements, future management, intended use, and funding for maintenance.

- Opportunities arise through conservation efforts and new developments, allowing integration of interpretation into future proposals, ensuring a cohesive approach to preserving and presenting cultural heritage.

Constraints:

- The risk of pursuing unsuitable uses during adaptive re-use poses a constraint, necessitating careful consideration to avoid exacerbating obsolescence.
- Achieving a balance between reducing energy use and conserving heritage, as mentioned in sustainability policies, may pose challenges, especially when energy conservation measures impact heritage significance.
- The cessation of mining operations may alter the landscape and accessibility, posing challenges in preserving the physical elements and relationships of the remnant features along the Line of Lode and the Rasp Mine.
- The need for collaboration with the City of Broken Hill and stakeholders is an opportunity, but it also presents a constraint, as coordinating diverse perspectives and interests can be complex.

5.12 Statutory requirements

This section focuses on statutory requirements related to environmental planning and assessment, and particularly heritage management. It should be noted that other statutory considerations such as WHS may also apply.

5.12.1 The Heritage Act 1977

The *Heritage Act 1977* (NSW), also known as the Heritage Act, offers a range of mechanisms to safeguard items and places of historical significance. Its purpose is to protect not only well-known heritage items like standing structures but also those that may not be immediately apparent, such as potential archaeological remains or 'relics'.

i State Heritage Register

The State Heritage Register (SHR) is a key component of this protection. Items of heritage significance can be safeguarded through Interim Heritage Orders (IHO) or inclusion in the SHR. When a heritage item is listed on the SHR or protected by an IHO, any effort to damage or modify the item requires a permit. There are exceptions to these provisions that allow for maintenance and specific actions, which may apply to activities permitted under an approved CMP.

For instance, the 'BHP Chimney Ruin of First Offices,' situated in Heritage Precinct 11 (Former Precinct 8), is included in the State Heritage Register (SHR 01820). Importantly, this feature lies outside the mining lease boundary and is unaffected by mining operations. It is owned by the Line of Lode Reserve Trust.

ii Assessment and approval process for development within CML 7 boundary

As the Rasp Mine is listed within the National heritage curtilage and contains heritage values on a Local, State and National level, any proposal for change or development must undergo a rigorous assessment to determine its compliance with this CMP, and then, if required, submitted to the relevant authority for approval. The statutory framework for this approval process is complex and subject to changes in legislation.

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iii Archaeological Relics

The Heritage Act also contains provisions (Section 139) to protect known or potential archaeological 'relics' from being 'discovered, exposed, moved, damaged, or destroyed' during land disturbance or excavation. This protection extends to cases where there is reasonable suspicion of potential archaeological remains being affected by such activities. This provision applies to all land in NSW that is not included on the SHR.

A 'relic' is defined by the Heritage Act as any deposit, object, or material evidence:

> (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
>
> (b) is of State or local heritage significance

Section 139(1) of the Heritage Act mandates that anyone aware of or having reasonable cause to suspect that their proposed works will impact a 'relic' must obtain an 'excavation permit' from the Heritage Council of NSW or seek an 'exception' under Section 139(4) of the Act. Exceptions to the excavation permit requirement include cases where an approved archaeological assessment indicates a low likelihood of encountering relics.

5.12.2 National Heritage List and Environment Protection Biodiversity Conservation Act

On 20 January 2015, the City of Broken Hill was added to the NHL, primarily to acknowledge the city's industrial and mining history and heritage significance. The NHL serves as Australia's statutory list of natural, historical, and Indigenous sites of outstanding significance to the nation.

Locations listed on the NHL are protected under Australian Government laws, alongside specific agreements involving state and territory governments, Indigenous groups, and private property owners. These NHL sites are categorised as matters of "national environmental significance" (MNES), entailing safeguarding under the EPBC Act[10]. Any proposed actions with the potential for a "significant impact" on the National Heritage values of a listed place necessitate approval under the EPBC Act as outlined in the *Significant Impact Guidelines 1.1 and 1.2*. Actions encompass projects, developments, undertakings, activities, or a series of activities. If a proposed action is anticipated to result in a "significant impact" on a matter considered nationally significant for the environment, the process of development application permits proponents to "refer" their proposed actions to the Commonwealth Minister for Environment for a determination regarding their alignment with the EPBC Act's jurisdiction. It is worth noting that the responsibility for making this referral to the Commonwealth Environment Minister rests with the individual or entity proposing to undertake the action.

Hence, it is essential to consider the provisions of the EPBC Act when evaluating proposed activities within the Rasp Mine. This evaluation should especially focus on whether these activities might substantially affect the national heritage values of the City of Broken Hill. Importantly, the NHL documentation itself recognises the promotion of current and future mining activities in Broken Hill. In practical terms, the NHL listing should not introduce additional constraints on mining operations or significant additional conservation or regulatory costs for BHOP beyond their existing commitments and obligations.

In addition to the above, the Australian Government has a "bi-lateral agreement" under the EPBC Act, which seeks accreditation of NSW approval processes for actions that would otherwise fall under the Australian Government's jurisdiction. The intention is to streamline the approval process, ensuring that only one set of conditions, issued by the NSW Government, applies to matters of MNES.

At a local level, Broken Hill City Council and the Commonwealth Department of the Environment both accept the provisions and procedures outlined in the LEP as an appropriate means of determining whether a specific action

[10] Note that an action does not require approval under the EPBC Act if it meets the criteria for the 'prior authorisation' or 'continuing use' exemptions. These criteria are explained in the Practice Guide entitled Prior Authorisation and Continuing Use Exemptions – Sections 43A and 43B.

within the City of Broken Hill could result in a "significant impact." Therefore, if Broken Hill City Council approves a particular development application (DA), there would be no direct trigger or need for referral under the EPBC Act. However, either the proponent or Broken Hill City Council could choose to "refer" a proposed action if it has the potential to significantly impact National Heritage values or any other MNES. In some cases, third parties may also seek injunctions if they believe a proposed action, even if approved by Broken Hill City Council, would likely have a 'significant impact'.

5.12.3 Environmental Planning and Assessment Act 1974 (NSW)

Planning and development in NSW is carried out under the EP&A Act and *Environmental Planning and Assessment Regulations 2000*. The EP&A Act provides for the preparation of planning instruments to guide land use management at state, regional and local levels. Of particular relevance to heritage matters are the heritage provisions in the various planning instruments and the requirements associated with assessment of development proposals. The relevant State and local strategies and environmental planning instruments are discussed briefly below. The roles and responsibilities of landowners, managers and other site users are also identified where relevant.

As the majority of development assessment and consent is undertaken by Local Government (council), the EP&A Act directs council to prepare a local environmental plan and development control plans for their local government. Local environmental plans are to be developed under the standard instrument, which provides planning consistency across the State. Schedule 5 of the Standard Instrument provides a list of identified environmental heritage within the LGA, impacts to which are to be considered during the development assessment and approval process. development control plans provide policies that are specific to the local environment and character of the LGA or a subset of the LGA. The NSW department with responsibility for planning may also prepare state environmental planning policies (SEPPs) to guide planning across the State.

The principal instrument which applies to the subject site is LEP.

5.12.4 Broken Hill Local Environmental Plan 2013

The LEP outlines its objectives, including:

(a) to conserve the environmental heritage of Broken Hill,

(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

(c) to conserve archaeological sites,

(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

Clause 5.10(2) of the LEP focuses on heritage provisions and distinguishes three types of places: heritage items, heritage conservation areas, and 'relics' (defined as per the Heritage Act).

Development consent is required under Clause 5.10 for activities such as: demolishing or altering heritage items, disturbing archaeological sites, erecting buildings on land with heritage items, or subdividing such land. However, exceptions exist when the proposed development is minor, involves maintenance, or falls under other specific categories.

(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance)—

(i) a heritage item,

(ii) an Aboriginal object,

(iii) a building, work, relic or tree within a heritage conservation area,

(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,

(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

(d) disturbing or excavating an Aboriginal place of heritage significance,

(e) erecting a building on land—

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

(f) subdividing land—

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

However, development consent under this clause is not required if:

(a) the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development—

(i) is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or archaeological site or a building, work, relic, tree or place within the heritage conservation area, and

(ii) would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area, or

(b) the development is in a cemetery or burial ground and the proposed development—

(i) is the creation of a new grave or monument, or excavation or disturbance of land for the purpose of conserving or repairing monuments or grave markers, and

(ii) would not cause disturbance to human remains, relics, Aboriginal objects in the form of grave goods, or to an Aboriginal place of heritage significance, or

(c) the development is limited to the removal of a tree or other vegetation that the Council is satisfied is a risk to human life or property, or

(d) the development is exempt development.

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5.12.5 Broken Hill Development Control Plan 2016

Broken Hill City Council has developed a Development Control Plan (DCP) to complement the LEP. This non-binding guideline document aims to provide additional details regarding Broken Hill City Council's intentions and preferences. The DCP includes specific provisions for "heritage items" listed in Schedule 5 of LEP and applies to the Broken Hill Mining Zone. The DCP for mining zones provides detailed guidance on preserving the heritage values of these areas, ensuring that new developments and mining activities coexist harmoniously with identified heritage items, promoting their conservation, and balancing economic re-use with heritage preservation.

5.12.6 Development Consent

Development consent is obligatory for activities classified as "alterations and additions" to heritage items or the demolition of heritage items. These activities necessitate the submission of a DA to Broken Hill City Council, including a Statement of Heritage Impact Assessment (SOHI) in accordance with the *Guidelines for preparing a statement of heritage impact* (Department of Planning and Environment (NSW), 2023b). Nevertheless, routine maintenance on heritage items is permissible without consent. Demolition of non-heritage items does not require development consent, nor does it require notification to Broken Hill City Council.

As previously noted, the provisions and processes of the LEP are accepted by both Broken Hill City Council and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for evaluating whether a particular action within the City of Broken Hill may cause a "significant impact" as defined by the EPBC Act.

5.12.7 Additional statutory constraints

i Australian heritage database

The Register of the National Estate was originally established under the *Australian Heritage Commission Act 1975*. Under that Act, the Australian Heritage Commission entered more than 13,000 places in the register, including sites, places and landscapes with either Aboriginal or historic heritage values. The Line of Lode (RNE 101036) and Kintore Shaft (RNE 581) were listed on RNE on 21 November 2000. The RNE was established under the *Australian Heritage Commission Act 1975* and listed significant Australian places of natural, Indigenous, and/or historical heritage. The RNE was frozen on 19 February 2007, and is classed as now a non-statutory heritage register.

The RNE was closed in 2007 and is no longer a statutory list. The RNE is maintained as part of the current Australian Heritage Database (AHD) on a non-statutory basis as a publicly available archive and educational resource. As such, The Line of Lode (RNE 101036) and Kintore Shaft (RNE 581) each maintain a non-statutory listing on the AHD.

The AHD is now maintained by the Commonwealth Department of the Environment and the Australian Heritage Council is the principal adviser to the Australian Government on heritage matters. The Council assesses nominations for the National Heritage List, and the Commonwealth Heritage List. The Line of Lode (RNE 101036) and Kintore Shaft (RNE 581) is not currently listed on the World Heritage List or Commonwealth Heritage List but is located with the curtilage of a National Heritage List under the *Australian Heritage Council Act 2003*.

ii National Construction Code of Australia and access requirements

The National Construction Code (NCC), incorporating the Building Code of Australia (BCA) is a national set of building regulations with some state-specific variations. The performance requirements of the BCA are mandatory, although the introductory sections of the Code make clear that not all requirements will apply to a given case. The Code also includes "deemed-to-satisfy" requirements which are accepted as meeting the performance requirements. However, the Code also makes provision for alternative solutions to meet the performance requirements, subject to satisfactory verification.

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Under the Environmental Planning and Assessment (EP&A) Regulation 2000, all new building work must be carried out in accordance with the Building Code of Australia. In the case of an existing building, there is generally no requirement to comply with the BCA unless works are being carried out. However, where works (in particular alterations or additions) are proposed to the place, the building will need to comply on completion with the relevant [performance] requirements of the Building Code of Australia (EP&A Regulation Clause 145). In addition, where an existing building has a change of use, the structural capacity and fire safety of the building must be appropriate for the new use, while for a building which undergoes alterations without a change of use, the structural capacity and fire safety of the building must not be reduced by the work (EP&A Regulation Clause 143).

In certain circumstances, exemption can be obtained from the requirements of the BCA under Clause 187 of the EP&A Regulation. In most cases there will be an acceptable alternative solution to satisfy the performance requirements of the BCA, therefore applications for exemption are sought comparatively rarely. If such an application is contemplated, it should be sought at development application stage.

iii Disability Discrimination Act 1992

Access to premises for people with disabilities, as well as being covered by the Building Code of Australia, is also controlled by the *Commonwealth Disability Discrimination Act 1992* (DDA 1992). Compliance with the BCA does not necessarily signify compliance with DDA 1992, the operation of which is triggered by a complaint lodged with the Australian Human Rights Commission. In 2010 the Commonwealth published the Disability (Access to Premises - Buildings) Standards, compliance with which is intended to meet the requirements of the Act.

Heritage buildings are not exempt from the requirements of DDA 1992. The preparation of an action plan for access assists in preventing or defending a complaint under the Act. A defence of unjustifiable hardship is also available, and the Australian Human Rights Commission has advised that heritage significance may be taken into account when considering unjustifiable hardship. In NSW, the Building Professionals Board has established an Access Advisory Committee to consider referred applications for exemptions to the Premises Code on the basis of unjustifiable hardship.

The Commonwealth Disability Discrimination Act 1992 makes it illegal to discriminate on the basis of a person's disability. The Act applies to buildings that are expected to be used by the general public.

iv Applications of the Burra Charter

The Australia ICOMOS Burra Charter 2013, known as Burra Charter (ICOMOS (Australia), 2013), is widely accepted in Australia as the underlying methodology by which all works to sites and buildings, which have been identified as having National, State and regional significance are undertaken.

Because the Rasp Mine site has identified cultural significance, procedures for managing changes and activities at the site and building should be in accordance with the recognised conservation methodology of the Burra Charter (https://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf).

Principles of the burra charter

In dealing with the built fabric, the conservation principles of The Burra Charter should be adopted. The relevant principles are established in the Articles of The Burra Charter as follows:

Cautious Approach (Article 3)

All conservation work should be based on a respect for the original fabric, should involve the minimum interference to the existing fabric and should not distort the evidence provided by the fabric.

Location (Article 9)

A building or work should remain in its historical location.

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Contents (Article 10)

Contents, fixtures and objects contributing to the cultural significance of a place should be retained at that place.

Change (Article 15)

The contribution of all periods to the place must be respected, unless what is removed is of slight cultural significance and the fabric which is to be revealed is of much greater cultural significance.

Removed significant fabric should be reinstated when circumstances permit.

Adaptation (Article 21)

Adaptation is acceptable where it does not substantially detract from the cultural significance of the place and involves the minimal change to significant fabric.

New Work (Article 22)

New work may be acceptable where it does not distort or obscure the significance.

New work should be readily identifiable as such on close inspection.

Use and Conserving Use (Article 7 and Article 23)

Where the use of a place is of cultural significance it should be retained and a place should have a compatible use.

Modifying or reinstating a significant use may be appropriate and a preferred form of conservation.

Managing Change (Article 27)

Existing fabric, use, associations and meaning should be recorded before disturbance occurs.

Disturbance of Fabric (Article 28)

Minimal disturbance of fabric may occur in order to provide evidence needed for the making of decisions on the conservation of the place.

Responsibility for Decisions (Article 29)

The decision-making procedure and individuals responsible for policy decisions should be identified.

Direction, Supervision and Implementation (Article 30)

Appropriate direction and supervision should be maintained at all stages of the work.

Records (Article 32)

A record should be kept of new evidence and future decisions and made publicly available.

Removed Fabric (Article 33)

Removed significant fabric should be catalogued and protected in accordance with its cultural significance. Where possible it should be stored on site.

Burra Charter (ICOMOS (Australia), 2013) notes that all aspects of cultural significance should be respected. If a place includes fabric, uses, associations or meanings of different periods or different aspects of cultural significance, then emphasising or interpreting one period or aspect at the expense of another can only be justified if removed or diminished is of slight cultural significance, and that which is interpreted is of much greater cultural significance.

In adopting the conservation principles of the *Burra Charter* (ICOMOS (Australia), 2013), the overall architectural design should be considered of paramount importance.

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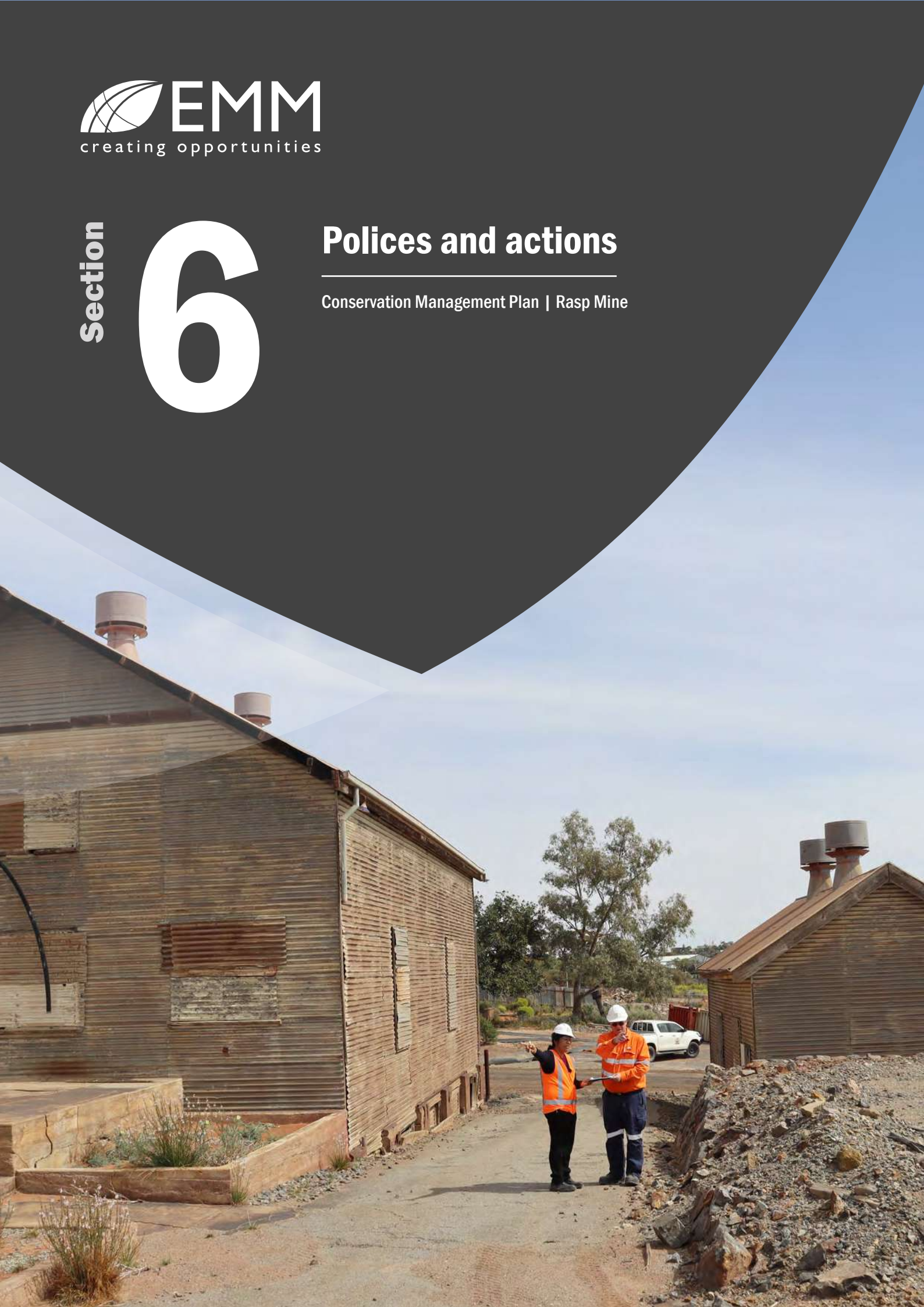
Section 6

Polices and actions

Conservation Management Plan | Rasp Mine



6 Policies and actions

6.1 Introduction

Conservation, in the context of heritage management, is fundamentally about safeguarding the local, State, and National heritage significance of historical sites and items during periods of change and development and ensuring ongoing maintenance is undertaken and in a manner that does not negatively impact the fabric. The conservation policies presented here for the Rasp Mine site aim to facilitate the long-term utilisation, maintenance, conservation, and renewal of this cultural heritage site.

These policies are designed to manage change rather than prevent it, offering guiding principles for the Rasp Mine and relevant approval authorities. They are rooted in overarching principles, being adherence to the Australia ICOMOS *Burra Charter* (ICOMOS (Australia), 2013) and meeting statutory obligations.

The principles for managing National heritage places are outlined below, as set out in the *Environment Protection and Biodiversity Conservation Regulations 2000* (Schedule 5B) of the EPBC Act:

8. Objective:

   The primary objective in managing National heritage places is to identify, protect, conserve, present, and transmit their National Heritage values to all generations.

9. Best practices:

   The management of National heritage places should make use of the best available knowledge, skills, and standards applicable to those places. This should include ongoing technical and community input in decisions and actions that have a significant impact on their National heritage values.

10. Integration:

    Management of National heritage places should respect all heritage values associated with the place and seek to integrate, where appropriate, the responsibilities of the Commonwealth, state, territory, and local governments concerning those places.

11. Consistency:

    The management of National heritage places should ensure that their use and presentation align with the conservation of their National Heritage values.

12. Community involvement:

    It is imperative that the management of National heritage places makes timely and appropriate provisions for community involvement, especially for individuals with a particular interest in or associations with the place, as well as those who may be affected by the management of the place.

13. Indigenous involvement:

    Indigenous people hold a central role as the primary source of information on the value of their heritage. The active participation of indigenous people in the identification, assessment, and management of National heritage places is integral to the effective protection of indigenous heritage values.

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14. Monitoring and reporting:

    The management of National heritage places should provide for regular monitoring, review, and reporting on the conservation of National Heritage values

6.1.1 Approach

The development of these conservation policies has been informed by thorough historical and site-specific research, which includes a review of previous documentation and policies such as the 1994 CMP, the 2013 Draft CMP, and the 2015 CMS. However, they have been revised and refined to align with evolving best practices in heritage preservation and in response to changes in the use of the Rasp Mine, including considerations related to security, safety, access requirements, and operational needs.

In addition to these factors, the preparation of the conservation policies and their corresponding implementation strategies have also addressed several additional considerations. These include the management of moveable heritage, strategies for the preservation of archaeological resources, approaches to interpretation, planning for adaptive reuse, and accommodating the sites listing in the National Heritage List curtilage.

The conservation policies are organised as follows:

- Heritage management principles providing the framework and basis of the conservation principles.
- General policy statements relating to conservation of the cultural significance of the place.
- General policies relating to the role of the CMP and associated administrative requirements.
- Specific policies for the conservation of the place, including significance characteristic features and fabric and the relationship to its wider setting.
- Policies for use, managing change, new development and access.
- Policies for interpretation and engagement with the public
- Policies to detail with the statutory requirement of National, State and local government legislation.

6.2 General conservation policies and cultural significance

The general conservation policies outlined below form the overarching framework for the management of the cultural heritage significance of the Rasp Mine. These policies align with current best practice heritage conservation protocols.

All efforts related to the conservation or future development of the Rasp Mine should be guided by the following principles:

- Aim to retain the cultural significance described in Section 4 and integrity of the fabric that reflects that significance as outlined in Appendix C.
- Prevent damage to or deterioration of significant fabric.
- Provisions should be made for the future maintenance of the place to ensure the preservation of its significance.
- Support appropriate development.

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6.2.1 Role of the Conservation Management Plan

Policy 1. - Access to CMP

Ensure this CMP becomes a publicly available document. All parties responsible for management of the Rasp Mine should have access to this CMP, including new owners, new tenants and staff.

Strategies / Guidelines:

The CMP should be made available and/or distributed to:

- Those staff responsible for day-to-day management of and planning for the place.
- Current and future owners, managers and tenants.
- City of Broken Hill Archives and Library, the Mitchell Library, State Library of NSW (Sydney), The National Library of Australia and the library at Heritage NSW.
- This CMP update should be lodged with the Broken Hill City Council upon completion and/or prior to submitting a Development Application or Planning Approvals for any major works to the Rasp Mine.

Policy 2. - Updating this CMP

The CMP should be reviewed and updated, taking into account changes in legislation, new information and proposed changes in use, ownership or management.

Strategies / Guidelines:

The review of the CMP at regular intervals will ensure that the CMP maintains its relevance and can continue to guide proposals for new works, rehabilitation requirements and PMLU as well as any necessary heritage management documentation including a in accordance with the *Guidelines for preparing a statement of heritage impact* (Department of Planning and Environment (NSW), 2023b).

- This CMP should be formally reviewed at intervals not exceeding ten years unless more frequent reviews are made necessary by changes in ownership, substantial changes to the place or to include new information. This review must be done by an experienced heritage consultant.
- Appropriate professional advice should be obtained to assist in reviewing and/or amending specific polices when required.
- Seek user and community input in review of the CMP, where required.

6.2.2 Co-ordination with other plans

Policy 3. - Coordination with other management plans

The implementation of the CMP should align with the management plans for the Rasp Mine to maintain consistency in goals, approach, and results. If discrepancies arise between plans, priority will be given to the RMP and RS for rehabilitation related efforts over the CMP. This prioritisation is contingent upon compliance with statutory obligations under the EPBC Act, NSW Heritage Act 1977 and the best practice principles outlined in the Burra Charter (ICOMOS (Australia), 2013).

Strategies / Guidelines:

The primary role of this CMP is to provide updated conservation management policies and implementation of strategies for current and future management of the Rasp Mine. Associated management plans that should be coordinated with this CMP include the following documents:

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- *Rehabilitation Management Plan Rasp Mine Plan* (EMM Consulting Pty Ltd, 2022), August 2022.
- *Rehabilitation Strategy Rasp Mine* (EMM Consulting Pty Ltd, 2023), July 2023.
- Management Plan (EMM Consulting Pty Ltd, 2023), November 2023.

6.2.3 Best practice heritage management

Policy 4.: Retention of significance.

The National Heritage values and other cultural values establish the place's cultural significance and should guide future management and conservation of the Rasp Mine. The Statement of Significance provided in this CMP should be adopted as the basis for its heritage management and future use. All decisions should consider and seek to retain the values identified in this Statement of Significance.

Strategies / Guidelines:

The CMP has identified why the Rasp Mine is significant and what elements contribute to the significance. The assessment of heritage significance in Section 4 the significance assessment of individual elements within the site in Appendix C and the conservation policies in this section should be used to guide future planning and work:

- In accordance with the *Burra Charter* (ICOMOS (Australia), 2013) the conservation of the place should recognise the site's layered history of development and the relative contribution of all development phases to the significance of the site. The statements of significance, gradings of significant structures and policies presented in this CMP should be adopted as the basis for the understanding of significance of the site. The structures associated with the earlier phases, specifically Phase 1 and Phase 2, hold greater significance. While the Rasp Mine continued to evolve after 1914, supporting ongoing operations, the physical elements related to these later development phases are generally of lesser importance.
- Ensure that the heritage significance of the item is taken into consideration when planning and assessing the impact of new works. Prepare a SOHI in accordance with the *Guidelines for preparing a statement of heritage impact* (Department of Planning and Environment (NSW), 2023b) when changes are proposed to the use or fabric of the place to assess the impact of work in the context of its identified cultural significance. Assess impacts in accordance with the statements of significance, gradings of significant fabric and policies and theoretical frameworks.
- A heritage training program based on the policies of the CMP should be developed for all Rasp Mine Staff at all capacities of employment, to provide education and awareness to all parties working within the site of its cultural significance to avoid unintended heritage impact arising from ignorance as outline in Section 5.6.
- Impacts and risks to heritage should be integrated into the daily mine notices and thoroughly discussed during lessons learned sessions.
- Alternatives to actions with adverse heritage impacts to the heritage values must be explored and assessed before such actions are undertaken.
- All current and future owners, manager and consent authorities responsible for the care and management of the Rasp Mine and/or its setting should be advised of, and be jointly responsible for, the conservation of the heritage significance of the Rasp Mine as discussed further in Section 6.2.6.

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Policy 5.: Best conservation practice

Ensure that conservation, maintenance and new work to the Rasp Mine is undertaken in accordance with current conservation and planning methodologies, including the principles of the Burra Charter.

Strategies / Guidelines:

- Refer to the *Burra Charter* (ICOMOS (Australia), 2013). Ensure the conservation of the place, using all the processes for care of the place including maintenance, preservation, restoration, adaptation and interpretation to retain the cultural significance embodied in the fabric, use and associations.
- Change may be necessary to retain cultural significance, but it is undesirable where it reduces cultural significance. The amount of change to a place and its use should be guided by the cultural significance of the place and its appropriate interpretation (Burra Charter Article 15.1).
- It may be appropriate to change a place where this reflects a change in cultural meanings or practices at the place, but the significance of the place should always be respected.
- The significant fabric of the Rasp Mine should be conserved in accordance with its identified level of significance identified in Appendix C and Section 4, including implementation of changes to facilitate ongoing use.
- The ICOMOS *Burra Charter* (ICOMOS (Australia), 2013) requires that the organisations and individuals responsible for management and decisions should be identified and specific responsibility taken for each decision. In accordance with this requirement, the owners / managers should identify a management structure in order to integrate the long-term conservation of the place and its day to day running. Staff associated with the ongoing management of the Rasp Mine should become familiar with this document, which should be used to guide decisions about management, conservation and change.

Policy 6.: Heritage Management Structure

The owners/managers responsible for the Rasp Mine should implement a heritage management structure that:

- ***Provides for the long-term conservation of the significant fabric of the site.***
- ***Disseminates the intention, aims and policies of this CMP to all those responsible for the maintenance and development of the site.***
- ***Integrates heritage conservation and future development with the overall management of the site (including tenancy management).***
- ***The delegation of responsibilities for implementing conservation policies and managing maintenance and new work.***
- ***Recording and archiving the decision-making process.***
- ***Provides for ongoing coordination between the owners and managers for the consistent management of the buildings on the site as a whole.***
- ***Seeks specialist input on a regular (i.e. annual) basis to review the overall condition of the building, maintenance staff structure and forward planned maintenance.***

Strategies / Guidelines:

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- Appoint a 'heritage project coordinator' as part of the site management structure to implement the conservation policies contained in the CMP, including mechanisms for the stabilisation and short- and long-term conservation of the place, including buildings, associated elements and open space. Ensure that an appropriately skilled individual makes decisions and reports to the steering committee or other overseeing group.

- Conservation management should be pursued by the owner/manager to fulfil their ongoing responsibility to promote a balance between the function of the Rasp Mine and the conservation of cultural significance.

- It is essential that there is a continuity of approach to the management and conservation of significance. Works to the buildings should not be undertaken on an ad hoc basis. Ideally, one person with an understanding of conservation methodology and practice should be responsible for co-ordinating all works on the site, including the installation of new services.

- The owners / managers should have, at a minimum, an annual consultation with an external heritage specialist (i.e. a heritage consultant) to guide review the overall condition of the buildings, maintenance staff structure and forward planned maintenance in order to achieve the best possible conservation practice.

- A monitoring and approval process should be established by the site owners / custodians to ensure that emergency works, or routine maintenance are undertaken without damaging significant fabric and without causing incremental change. All staff, and contractors should be made aware of the process for obtaining approval for work.

- Agreement with new users or lessee of the property should contain detailed provisions for the ongoing care of the significant fabric of the place. The responsibility for maintaining the fabric should be clearly set out, as should the process for approving any modifications to the building.

- This CMP should be incorporated into further agreements with tenants or for the future occupation of all or parts of the site.

6.2.4 Documenting change and maintaining records

Policy 7. – Recording of maintenance and change

Undertake detailed recording of the site components, spaces, fabric and features in accordance with NSW Heritage Division guidelines before, during and after any works for maintenance and change to fabric, for example in order to repair the structure or to reveal aspects of the building's significance. Retain the record, and if applicable, retain a sample on site.

Policy 8. - Maintaining records

For any future works, continue to acquire, collate, maintain and archive the drawings, schedules of works, photographs and professional reports, including the reasoning for particular works. These records must be placed in an archival storage repository that must be established on site. The storage repository should be available to the public with secure access.

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Policy 9. – Recording in conjunction with major work

Detailed recording, including photographic record and measured drawings in accordance with NSW Heritage Division guidelines, must be undertaken by a suitably qualified and experienced heritage consultant before, during and after any major work. Maintain records of as-built drawings following implementation of work.

Policy 10. - Storage of records

Provide a secure, museum standard storage for archival material and collections and prepare an inventory. These records must be placed in an archival storage repository that must be established on site. The storage repository should be publicly accessible with secure access controls, and it must be located away from active mining operations. A suitable location for this purpose is the currently vacant General Offices on Eyre Street.

Strategies / Guidelines:

- Implement photographic recording, before, during and after changes to the heritage fabric.
- All changes to significant fabric must be recorded in accordance with recording guidelines issued by the Heritage Division - *How to prepare Archival Records of Heritage Items 1998*: http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/infoarchivalrecords.pdf and the *Photographic Recording of Heritage Items Using Film or Digital Capture 2006*: http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/infophotographicrecording2006.pdf prepared by the NSW Heritage Division.
- Recording of maintenance and repair works should be undertaken in accordance with The Maintenance Series Information Sheet 1.2 *Documenting maintenance and repair works*, NSW Heritage Office (now NSW Heritage Division):
- http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/maintenance12documentingmaint.pdf
- The on-site repository of records should be maintained in accordance with museum standards and should include a range of material relating to the, including:
  - historic photographs
  - photographs of building works in progress
  - architectural plans including as-built drawings
  - record of building works undertaken
  - records of investigation into the condition of the fabric
  - record of colour schemes and finishes
  - copies of consultant reports
  - samples of historic finishes and other building elements.
- A collection of base drawings should be established, as well as other archival material such as historic photographs. This documentary evidence should be consulted when detailed proposals are being developed. It should also form the basis for on-going interpretive material for the site.

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6.2.5 Skills and experience

Policy 11. - Early advice

Ensure that appropriate heritage consultants are involved at an early stage, prior to design work commencing, for major works proposed within the Rasp Mine, to address relevant heritage opportunities and constraints relating to major maintenance or upgrade works and proposals for new work.

Policy 12. - Appropriate expertise and skills

Skilled conservation professionals, for example heritage consultants, heritage architects, landscape architects, archaeologists, heritage builders and engineers, must be engaged to advise on, document and implement conservation and upgrading works and proposals for future work. Work on significant heritage fabric must be carried out by tradespeople or professionals with demonstrated skills and experience in heritage building work.

Policy 13. - Traditional construction

For any work on traditionally constructed parts of a heritage building, use traditional methods of construction, maintenance and repair as guided by a heritage consultant, must be used.

Policy 14. - Briefing

Brief all persons working at the site, including contractors and tradespeople, on the significance of the place and the need for care in undertaking works relating to significant heritage fabric, for example via preparation of a brief custodian document. This information must be provided as part of the site induction.

Strategies / Guidelines:

- All conservation work undertaken at the site should be in consultation with qualified and experienced consultants acting within the guidelines of this CMP.
- Work on significant heritage fabric must be carried out by tradespeople or professionals with demonstrated skills and experience in heritage building work, for example a heritage consultant, conservator or a conservation architect for technical matters concerning heritage fabric, masons for stonework, skilled bricklayers for brick repair, carpenters for timbers. Seek proof of their skill levels.
- For any work on original building elements, use methods of construction, maintenance and repair that are appropriate to the construction period of the building, drawing on traditional construction methods where appropriate.
- Prevent damage to the significance of the place and heritage fabric by informing all contractors or tradespeople working at the site of the level of care required, including as part of their site induction.

6.2.6 Ownership, participation and approvals

Policy 15. - Land ownership

Land containing sites of National Heritage value currently owned by the State and local government should be retained in public ownership to ensure that public access is maintained upon initiation of PMLU's for the site.

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Policy 16. - Ownership

If the site passes from public ownership or its use changes, appropriate heritage covenants and/or a heritage conservation agreement (or other appropriate arrangements) must be placed on land titles where there are identified heritage assets in perpetuity to ensure the adequate maintenance of the heritage assets and the provision of public access to the site.

Policy 17. - Ownership of moveable heritage

All moveable heritage items must be retained under single ownership/custodianship in association with the mine itself. In the event that there is a change in the ownership/custodianship of the Rasp Mine, all moveable heritage items must become the property and responsibility of the new owner/custodian.

Policy 18. - Compliance with this CMP under lease, sale or change of ownership

Compliance with this CMP, responsibilities for maintenance and the funding of repairs must be included as part of any future contract for sale or other ownership or control agreement affecting the listed sites; address any non-compliance as a material breach.

Policy 19. - Overarching management structure

Currently, the Rasp Mine is owned by the Crown in trust and managed by BHOP. It is feasible in the future that various areas of the Raps Mine will be controlled under different management regimes. In this case, an overarching management structure is required to ensure the best outcome for the whole site. The current site owner must establish measures to coordinate heritage conservation objectives between future owners and managers within the Rasp Mine and these requirements must be included as part of any future contract for lease, sale or other ownership or control agreement affecting the Rasp Mine. Regular meetings between the various representatives must be implemented at minimum.

Strategies / Guidelines:

- Establish clear maintenance and capital works responsibilities between current and future site custodians to ensure ongoing maintenance and repair of all leased areas, especially those visible from key vantage points.

Policy 20. - Authority consultation

For major development proposals, major change and for overall site masterplans, consultation with appropriate authorities must be taken early during the design development stage so that any stakeholders, including heritage stakeholders, concerns can be addressed.

Policy 21. - Community consultation

Ensure that adaptive reuse, interpretation and new development includes meaningful community consultation. Provide opportunities to involve mining interest groups and other interested community groups and individuals in the development of proposals for the site.

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Strategies / Guidelines

- Where public ownership is no longer feasible, responsibility for caring for the heritage values of the site will be passed to the new owner/s. Under the *NSW Heritage Act, 1977* a heritage conservation agreement could be established, which is a joint agreement between landholders and the Minister for the Environment that provides permanent protection for the special features of a place. The area under the agreement is registered on the title of the land, ensuring that, if the land is sold, the agreement and management requirements remain in place.

- Consideration should be given to placing easements over heritage assets that may be retained in any future development, for example as part of an interpretive display, to provide for their protection and maintenance.

- Engage the public in discussions about potential new uses for existing and future tenancy spaces in the Rasp Mine. Public access to the cultural heritage values should be a prerequisite for space utilisation decisions.

- Prepare a communication strategy for major development proposals, technological changes and for master planning that includes engagement with relevant stakeholders, including the community, at the pre-DA stage.

Policy 22. - Subdivision

Subdivision and amalgamation of land should not occur unless it supports the conservation of historic sites and structures, and it can be established that the boundary previously existed and that the proposed structure and services do not interfere with archaeological remains.

Strategies / Guidelines:

- The land subdivision pattern at the Rasp Mine, while not directly impacting the visual appreciation of the National values, serves as a historical record of settlement and mining patterns. Indirectly, it defines the morphology of structures. In general, the land boundaries within the area should be maintained to preserve this record and pattern, unless further subdivision or amalgamation of titles is advantageous for the conservation of a historic site, and the associated development risks do not conflict with the need to preserve archaeological remains. This consideration should be taken into account when assessing the suitability of the proposed title changes.

Policy 23. - Statutory approvals

Ensure that all works within the Rasp Mine, including individual elements and spaces, do not commence without obtaining the necessary statutory approvals. Proponents are responsible for securing these approvals before initiating any works.

Policy 24. - Statement of Heritage Impact Assessment

New work planning and design should incorporate heritage advice and impact assessments from the early stages. A SOHI should be prepared to accompany Development Applications. This should consider the CMP, particularly the assessment of significance and conservation policies.

Strategies / Guidelines:

- Undertake initial pre-application discussions with consent authorities to determine requirements and nature of approvals.

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- Initial pre-application discussions with relevant consent authorities should be undertaken to identify any concerns and to determine requirements and nature of approvals for any major development proposals. Consultation with statutory authorities should be ongoing throughout design stages to ensure that stakeholder concerns are adequately addressed.

- Seek advice and input from a suitably qualified heritage specialists when planning new works.

- Engage suitably qualified heritage specialists to provide a SOHI to accompany Development Application to Council in accordance with the *Guidelines for preparing a statement of heritage impact* (Department of Planning and Environment (NSW), 2023b). SOHI for major proposals should provide an overview of the options explored in the development of the proposal, provide an analysis of the selected option, and assess the impact of the proposed works on the significant values of the Rasp Mine and its setting within the Line of Lode. The SOHI should be prepared with consideration of this CMP, in particular the assessment of significance and gradings of significance in Sections 4 and Appendix C, and the Conservation Policies in Section 6.

    - Refer to the *Broken Hill Local Environmental Plan 2013* https://legislation.nsw.gov.au/view/html/inforce/current/epi-2013-0506

    - Refer to the *Broken Hill Development Control Plan 2016* https://www.brokenhill.nsw.gov.au/Council/Other-strategies-documents/Development-Control-Plan

    - Refer to the *Broken Hill Heritage Strategy 2020-2023*

      https://www.brokenhill.nsw.gov.au/Council/Other-strategies-documents/Heritage-Strategy-2020-2023

    - Broken Hill National Heritage Values Study

      https://www.brokenhill.nsw.gov.au/Council/Other-strategies-documents/Broken-Hill-National-Heritage-Values-Study

    - Refer to *The Burra Charter:*

      https://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf

- Line of Lode Masterplan, later updated to become the Line of Lode Precinct: A New Vision For The Miners Memorial and Broken Earth Café (NSW Department of Primary Industries and Land, 2020).

6.2.7 Current and future compatible use

Policy 25. - Ongoing use

The ongoing use of sites within the Rasp Mine should be encouraged and supported, with a preference for their continued use over new development.

Policy 26. - Compatible use of the site

Future uses proposed for the Rasp Mine, including buildings and spaces, must retain or enhance the significance of the place and respect its' character as an industrial mining precinct. Any change in use is subject to relevant statutory approvals.

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Policy 27. - Appropriate future uses

Appropriate future uses must be determined with consideration for the following criteria:

- ***Sympathetic to the significance of the overall site and the configuration of existing buildings.***
- ***Sympathetic to the industrial mining character of the place.***
- ***Sympathetic to the setting and established uses within the locality.***
- ***Utilise traditional entry points and circulation routes as a priority over new ones.***
- ***Do not result in unacceptable levels of wear and tear on extant fabric to be retained.***

The use of the place must be organised in a way that allows the conservation of significant fabric with consideration for:

- ***The effect of statutory requirements, including code compliance.***
- ***The effect of structural loadings and service installations.***
- ***The effect of meeting access needs.***

Policy 28. - Public access

Encourage uses and/or opportunities to facilitate public access to the site and its elements within the limits of security required for operation of the site and physical security.

Strategies / Guidelines

- The future use of the place and its circulation pattern must aim to:
  - minimise intervention to the significant fabric
  - minimise impact on the building in terms of requirements for fire safety, access and egress
  - provide public access to promote appreciation of the cultural significance of the site
  - provide economic resources to ensure the long-term maintenance of the significant fabric.

6.2.8 Adaptive reuse

Policy 29. – Understanding place

When undertaking adaptive reuse works, develop place specific solutions that minimise the heritage impact and are compatible with the industrial mining character and historic use of the place.

Policy 30. – Retention of cultural significance

Adaptation must be derived from an understanding of and enhance the cultural significance of the individual elements and the site as a whole. Adaptation must allow for the retention of significant spaces, materials and details, scale and quality of the existing fabric.

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Policy 31. – Adaptation of the site

The level of adaptation to the site must have regard to significant views and the sites' relationship to the wider setting. The relationship between the buildings and the wider site and setting must be conserved and enhanced.

Policy 32. – Minimising change and damage to fabric

Adaptation must involve the minimum amount of change necessary to significant spaces and fabric.

Strategies / Guidelines

- Conservation of the place should recognise the site's layered history of development and the relative contribution of all development phases to the significance of the site and conserve the historic evidence that distinguishes the different phases of the site's development. Refer to Section 6.2.10.
- The cessation of mining and the pending rehabilitation provides an opportunity to adaptively reuse the site. It is accepted that adaptation will involve change to the physical fabric of the place, however this must occur with a considered outcome for retaining aspects that contribute to the significance of the place, including significant fabric and views. Adaptation can provide new functional and economic uses for the place.
- Change may be necessary to retain cultural significance, but it is undesirable where it reduces cultural significance. The amount of change to a place and its use should be guided by the cultural significance of the place and its appropriate interpretation (Burra Charter Article 15.1).
- Adaptive reuse provides direct or capital value to places. Adaptation also provides indirect value to adjacent properties or a locality by, for example, enhancing the streetscape and encouraging tourism. The Rasp Mine, being situated in the centre of Broken Hill and the Line of Lode, is uniquely placed to add value to both the site and the locality in conjunction with appropriate adaptation.

6.2.9 Conservation of significant fabric and elements

Policy 33. – Character

Retain and conserve the Rasp Mine buildings; retain the industrial mining character of the buildings.

Policy 34. Historic layering

Fabric conservation will respect the historic layering of individual building structures and ruins.

Policy 28. – Conservation Actions Schedule

Prior to undertaking any conservation, maintenance or upgrading works on any part of significant building fabric or spaces, a Conservation Actions Plan must be prepared by a suitably qualified and experienced heritage consultant and archaeologist.

The schedule should be a succinct document that:

- ***Identifies more detailed investigations to be undertaken in the area of proposed works with reference to the assessment of cultural significance.***

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- ***Records and assesses documentary and physical evidence.***
- ***Determines applicable conservation policies.***
- ***Sets out a schedule of conservation actions based upon the conservation policies.***

Strategies / Guidelines

The purpose of these additional investigations would be to:

- Assist in the determination of the impact of future works, in particular on the objects, elements or spaces of Exceptional and High and Moderate significance.
- Assess the suitability of specific works required for the conservation, maintenance, and accommodation of a new uses, including an assessment of the impact of detailed alterations (in relation to significant spaces and fabric) and removal of additions (which may or may not reveal or deface significant fabric).
- Additional investigations would be required to assist proposed conservation works including room layout, detail of fabric / finishes used and colour schemes, etc.

Policy 35. - Prioritised works

Prioritise conservation action according to conservation needs. Address unstable fabric or deterioration that endangers significant fabric first.

Policy 36. - Conservation and upgrading work

Conservation work and adaptation with appropriate sensitive upgrading work can be undertaken where it enhances public appreciation and does not detract from or impact on that identified significance, including:

- ***Demolition of intrusive additions, finishes and fitout to buildings which detract from the cultural significance.***
- ***Introduction of new services to rationalise existing ad hoc service installations, improve amenity and comply with the Building Code of Australia.***
- ***Construction of new facilities, in consultation with a suitably qualified and experienced heritage consultant, that are related to the use of the significant buildings or the re-presentation of the site.***

Policy 37. – Structure

The extant buildings, including their foundations, must be investigated by structural engineers experienced in working on heritage structures prior to any major works being undertaken on the existing buildings and any recommended remedial action implemented in consultation with an experienced heritage consultant.

Strategies/Guidelines

- Ensure the conservation of the place, using all the processes for care of the place including maintenance, preservation, restoration, adaptation and interpretation to retain the cultural significance embodied in the fabric, use and associations. The current methodology stresses the need to document the reasoning behind the selection of a particular approach, either conservation or intervention, to enable those undertaking work in the future to understand the aims and intentions of a particular project.

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The conservation of the site can be best achieved by:

- The conservation and adaptive reuse of significant buildings in the Rasp Mine.
- The conservation of the setting of these buildings, associated structures and infrastructure.
- The accommodation of uses that enhance public appreciation of the cultural significance of the place and facilitate long term conservation.
- The strict control of change and development within the site with regard to its significance.
- The minimisation of intervention to significant fabric in order to minimise the loss of cultural significance. Where greater intervention is required, it should occur in areas of lower significance. Intrusive elements should be removed.
- The implementation of fire safety measures to comply with the intent of the BCA.

Policy 38. – Unpainted Surfaces

Existing surfaces originally intended to be left unpainted should remain unpainted. This includes external brickwork and metalwork.

Policy 39. - Reconstruction of significant building features

The reconstruction of elements to a known earlier state is encouraged provided that it does not distort existing evidence and is clearly identified as reconstruction.

Policy 40. – Salvage and Reuse

Fabric of Exceptional significance must be retained in-situ. If fabric of high significance must be removed during alterations and additions to the buildings, it must be carefully removed and salvaged for reuse within the buildings. A record must be kept of removed/relocated material.

Policy 41. – Changes to fabric

Where change or removal of fabric is necessary, for example to facilitate repair, maintenance or introduction of a compatible use, it should preferably be undertaken to fabric of Moderate or less significance, as determined by the heritage consultant. Removal of significant fabric should only occur where it allows for conservation of fabric of greater cultural significance or is essential for conservation of the place as a whole.

Strategies / Guidelines

The surviving fabric of the Rasp Mine is subject to a variety of impacts on its physical fabric from active and natural threats. The fabric is to be conserved in the manner described in the subsequent policies. Significant heritage fabric and design integrity should be retained through the conservation of the materiality of the fabric in accordance with its assessed level of significance.

- Demolition of heritage fabric is generally not acceptable, although exceptions may exist in cases where minor demolition of significant fabric will serve as a conservation measure (for example, in the case of deteriorating fabric, the removal of which would prevent surrounding fabric from deteriorating further).

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However, removal or demolition of significant heritage fabric should generally be considered as a final option, after exploration and exhaustion of all other possibilities.

- Where impact to significant fabric is unavoidable, works should aim to minimise adverse heritage impact as much as possible.
- Unsympathetic modern additions/fabric should be considered for removal, relocated, revision and/or replacement with fabric and form, to be more sympathetic to the heritage values of the site.
- Alterations to existing fabric should seek to remove and replace intrusive elements with those that will have a neutral impact or positive contribution to the significance of the Rasp Mine.
- Conserve significant existing fabric by repair, reconstruction and preservation. Elements identified as having Exceptional or High significance should be retained, and conserved, preferably in situ. The retention of items of Moderate significance is desirable, however there is greater scope for change to these elements. Items of Little significance may be retained or removed as required. Intrusive items should, eventually, be removed.
- Reconstructing elements to a known earlier state, for example by removing later elements, is acceptable only if it is required for conservation, if it enhances the significance, does not distort existing evidence and allows interpretation of the change.
- If existing significant fabric has to be removed, for example in order to repair the structure, or to reveal aspects of the building's significance, it must be recorded before any intervention is to take place and if applicable, a sample retained on site.

6.2.10 Setting and views

Policy 42. – Views to the buildings

Retain and preserve significant views of the Rasp Mine, encompassing its architectural and industrial heritage elements, from key vantage points within the precincts and surrounding areas. These views, capturing the historical and industrial character of Broken Hill, contribute to the visual identity and cultural heritage of the Rasp Mine and the region.

Strategies / Guidelines:

- The overall layout of heritage items across the site, including their positions and relationships to each other, is exceptionally significant, as identified in Section 3.4, Section 4 and Appendix C. It represents the original layout of early mining precincts, reinforcing the interconnected relationships among the site's heritage elements, the Line of Lode, and the broader context of Broken Hill. This sense of place should be retained.
- Views to and from mining infrastructure, particularly along the Line of Lode, to and from the Tailings Heaps, and the streetscape pattern are of significance to the National Heritage values and should be managed to maintain and enhance those views.
- The Rasp Mine holds significance due to its heritage-listed buildings, locational context, and the broader landscape setting. The cultural landscape and aesthetic of the Rasp Mine, including main street approaches and views, should be preserved.

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Policy 43. - The 'sense of place' and the visual setting of the Rasp Mine site

The Rasp Mine site's heritage values, as expressed through its visual landscape, historical, functional, and spatial relationships, should be safeguarded, conserved, and thoughtfully interpreted. This involves maintaining the arrangement of the site's layout, buildings, structures, and ruins, as well as preserving the site's configuration and the relationships among its various components.

Strategies / Guidelines:

- Uphold the stark contrast between the historical mining heritage and the urban area, enhancing its visual presence and cultural significance.
- Surrounding development should aim to be sympathetic to, retain, and conserve the industrial character of the Rasp Mine, including its overall form, detailing, and early fabric.

Policy 44. – Connections

Promote appropriate, safe, and equitable access to and circulation in publicly accessible areas of the Rasp Mine. Separate 'back of house' and 'front of house' operations to ensure the site remains accessible and safe for visitors.

Strategies / Guidelines:

- Retain and enhance opportunities for physical and visual connections with the surrounding context. Future works and development should aim to re-establish and enhance the physical and visual connections between the heritage buildings on site.

Policy 45. - New works

New development, including structures, pathways, routes, and visitor facilities in the Rasp Mine, should be designed to avoid impacting the ability to appreciate and understand visual connections within and to the Rasp Mine and the setting of individual places. This includes avoiding disturbances to archaeological remains or underground features. New works should also consider vehicle traffic and the visual impacts of associated fencing and car parking to prevent intrusion upon significant views and vistas. New fencing should be avoided unless necessary for safety or to interpret a historical boundary.

Strategies / Guidelines:

- Where news works encompass change in ownership, participation or approval, refer to Section 6.2.6.
- While there is potential for the modification and adaptive re-use of the site upon cessation of mining activities, the physical links and connections through and between the precincts should be maintained.
- Any new uses and development adjacent to or outside of the Rasp Mine should be compatible with the wider setting of the site and its heritage buildings. Approval authorities should consider the heritage significance of the setting and the context of the Rasp Mine site, including significant views and vistas, in their consideration of future design and approvals for adjacent works and future development within the site and the immediate vicinity.
- There is potential for sensitive new development within the Rasp Mine area, but this should only occur when the existing building stock cannot accommodate the proposed use. New development must align with the historic setting in terms of scale and respect for the area's character. It should be situated so as not to obstruct important views and vistas, adhering to the guidelines and policies outlined in the Broken Hill Development Control Plan.

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- The site's context encompasses both the overall area character and the visual relationships among its elements within the broader landscape. Preserving the clustered development along the Line of Lode and the visually prominent tailing heaps and slag dumps is fundamental for the physical landscape and National Heritage values. When planning new routes or pathways, the focus should be on restoring historic routes where feasible. Introducing new roads and fencing should be avoided unless necessary for safety, conservation, or to interpret historical boundaries.

6.2.11 Archaeology and ruins

Policy 46.– Exposed Archaeological resources

A management plan is to be developed for exposed archaeological resources, including ruins.

Policy 47. - Archaeological management

The archaeological heritage of the Rasp Mine, including relics, ruins, standing structures, subsurface deposits, and artefacts, should be systematically identified, conserved, and effectively managed.

Policy 48. - Vegetation management

Vegetation removal should be carried out according to the ruin management strategy specific to each site. If vegetation regrowth poses a threat to the stability of the ruins, it should be promptly removed. Caretakers must receive training in the proper methods for vegetation removal to ensure the protection of the historic fabric.

Policy 49. - Ruin assessment and stabilisation

Develop a ruin assessment to guide a ruin management strategy for all structures contributing to the National and other cultural values of the Rasp Mine. Prioritise appropriate interventions for ruins identified as at risk, ensuring urgent action is taken to address their preservation needs.

Strategies / Guidelines

- Where archaeological resources are considered for permanent display as exposed archaeological resources, evaluation of feasibility is to include assessment of deterioration factors including fragility of the archaeological context, environment and supporting structures.
- The materials and stability of the archaeological context is to be considered and may require expert engineering input.
- Assessment of the surrounding environment (including micro-environment) of the archaeological context is to be undertaken and include consideration of exposure to the elements including weather and ultraviolet radiation, or in enclosed environments managing microclimates including moisture levels and ventilation.
- The feasibility of a permanent display as exposed archaeological resources must consider the structures needed for supporting and/or enclosing the exposed archaeological resources and ensure that public benefit and access is maintained.
- The conservation of archaeological materials, managing the surrounding environment and installation of supporting structures must be outlined in an exposed archaeological resources management plan.

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Policy 50. - Archaeology in development assessment

The primary option for state significant archaeological relics is retention in situ, unless otherwise approved by the NSW Heritage Council. The assessment of new developments should take into account the archaeological potential of the subject site, as determined by reference to the area's identified as having archaeological potential. Provisions must be made for revising the development plans if findings of major significance are uncovered during the course of construction.

Strategies / Guidelines

- The management of archaeological resources is to follow the procedures outlined below where there is potential for archaeological material to be uncovered:

  a) Investigate.

  b) Assess significance.

  c) Manage.

- This work must be undertaken by a suitably qualified and experienced historical archaeologist. An archaeological assessment will need to be undertaken to assess the impact of the proposed works on the archaeological resource. The assessment will inform whether further investigations and approvals are required from the NSW Heritage Council. Works and/or investigations will need to be undertaken in accordance with the Heritage Division approval. The significance of relics, if identified, must be considered and the relics managed in accordance with policies for archaeology, as well as with the Heritage Division approval conditions.

Policy 51. – Ground disturbing work

If ground disturbing works are proposed in areas with archaeological potential, a qualified archaeologist is to provide an archaeological assessment which assesses the impact of the proposed works on the archaeological resource.

Policy 52.– Obligations of contractors

Suitable clauses must be included in all contractor and subcontractor contracts to ensure that on-site personnel are aware of their obligations and requirements in relation to the archaeological provisions of the Heritage Act 1977. Contractors and subcontractors contracts must also specify obligations which need to be met relating to the National Parks and Wildlife Service Act 1974 relating to Aboriginal 'objects' or relics.

Strategies / Guidelines

- Avoiding impact on the archaeological resource is best achieved by avoiding ground disturbance wherever possible, for example by reusing existing service trenches when in ground services are to be renewed or upgraded.

- Where works are proposed to be carried out in close proximity to known or probable archaeological relics able to be retained in situ, strategies must be put in place to ensure that construction work and/or heavy machinery does not disturb or damage those relics. Conservation in situ may be achieved by covering the relics over in a manner which does not impact on them or conserving them as exposed archaeology.

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Policy 53. - Unforeseen discovery of historical archaeological remains

Should unexpected archaeology be uncovered during excavation works the Heritage Council of NSW must be notified in accordance with Section 146 of the Heritage Act 1977. Works must stop and a suitably qualified and experienced archaeologist must be engaged to assess the finds. Depending on the results of the assessment, additional approvals may be required before works can recommence on site.

Policy 54. - Unforeseen discovery of human remains

If suspected human skeletal remains were uncovered at any time during earthworks for the project, the following actions apply in the following order:

1. ***Immediately cease all excavation activity.***
2. ***Notify NSW Police (131 444) and NSW Coroner's Office (02 8584 7777).***
3. ***Follow any subsequent directions and requirements of the NSW Police.***
4. ***Should the human remains be released by the NSW Police as being archaeological, notify Heritage NSW via the Environment Line on 131 555. Provide details of the remains and their location, and seek advice on next steps to resolve the situation.***
5. ***Ensure no recommencement of excavation activity unless authorised in writing by NSW Police, NSW Coroner's Office and/or Heritage NSW.***

Communication with the heritage advisor should be undertaken through 1–5 who will have experience in these situations and be able to provide advice and direction through the process.

6.2.12 Moveable heritage and collections

Policy 55. – Moveable heritage management study

Prepare a movable heritage study to catalogue and assess items, evaluating their current condition, significance, and potential risks, while proposing strategies for future management and preservation, including terms for movement and loans. Controls will be required which include regular inspection and management regimes for care and upkeep by professionally qualified contractors. Items should generally remain on-site within the Rasp Mine's curtilage and be identified with signage. Unless necessary, they should remain in their current locations, with any previously relocated items reinstated where possible. Before reinstatement, these items should be marked as movable heritage and secured in their current location. Movable heritage items, especially furniture, should maintain their original function, avoiding any use that may cause wear or negatively impact their heritage values.

Strategies / Guidelines

- Items of moveable heritage are integral elements that contribute to the significance of a place. Article 10 of The Burra Charter (ICOMOS (Australia), 2013) refers to moveable heritage as "contents" and states:

  Contents, fixtures and objects which contribute to the cultural significance of a place should be retained at that place. Their removal is unacceptable unless it is: the sole means of ensuring their security and preservation; on a temporary basis for treatment or exhibition; for cultural reasons; for health and safety; or to protect the place. Such contents, fixtures and objects should be returned where circumstances permit and it is culturally appropriate.

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- The Rasp Mine site includes movable heritage items, and the retention of these items is important for the interpretation of the site's historical context. Transferring or relocating these items from their current location within the mine would significantly reduce their historical and cultural value.
- Should circumstances change which impact on the future management of items of moveable heritage, including a change in ownership of/responsibility for the Rasp Mine or a change of use, assessment and strategies will be required to ensure that their heritage values are not diminished or compromised. The protection and long-term preservation of these items must be prioritised.

Policy 56. – Retention in situ

Moveable heritage items generally identified in the movable heritage study must be retained on site and in situ. Fixed items should remain in their existing locations. Any future change to the use of the mine and mine buildings must consider the significance of the items and ensure that provision is made for the continuing sympathetic use of items (particularly furniture) in situ and consistent with their heritage significance.

Policy 57. – Removal or relocation of items of moveable heritage

The removal of movable heritage items from their existing locations should be avoided unless it is:

- ***The sole means of ensuring their security and preservation.***
- ***On a temporary basis for treatment or exhibition.***
- ***For cultural reasons.***
- ***For health and safety.***
- ***To protect the heritage asset.***

Policy 58. – Prohibition of disposal of items of moveable heritage

No items of moveable heritage should be disposed of. Any proposal to remove an identified item of moveable heritage requires relevant consent or permission.

Any items which require relocation for the reasons described in Policy 57 must be returned to their original locations where circumstances permit, and where it is culturally appropriate to do so. Thorough documentation must be undertaken to assist in establishing the provenance, context and associations to people and to place. It will also aid later reinstatement.

Policy 59. – Temporary loan of items of moveable heritage

Temporary loan of items for exhibition may be considered by the managing authority, subject to mutually agreed conditions that support these policies for moveable heritage.

Policy 60. – Documentation

Moveable heritage items must be appropriately researched, documented and recorded prior to any adaptive reuse or redevelopment.

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Strategies / Guidelines

- An archival record of the moveable heritage items needs to be prepared subsequent to closure of the Rasp Mine to ensure that moveable heritage items have been recorded, documented and photographed in their existing locations. Further documentation must be prepared in the event of any proposed relocation of items of moveable heritage.

- It is further recommended that an oral history study of the Rasp Mine be undertaken prior to introduction of a new use; this oral history study should include interviews with current and former mine employees to understand how the spaces, furniture and fittings were used.

Policy 61. – Reinstatement

Where possible and appropriate, moveable heritage items should be reinstated to their original location and context. This should be done based on historical research and in consultation with a suitably qualified heritage consultant. If the original context/location of an item is not known, then the item is to be relocated to an appropriate and secure location on-site.

6.3 Existing buildings and site elements

6.3.1 Designing and detailing of new work to existing buildings

Policy 62. –New/closed openings

Significant window and external door openings must be preserved. Generally, new openings in fabric of Exceptional or High significance should aim to reinstate openings that have been modified.

Strategies / Guidelines

- Any new openings required in conjunction with adaptive reuse should be subject to strict controls as determined in consultation with an experienced heritage consultant.

Policy 63. – Heritage expertise for new work

The design of minor alterations to the interiors and exteriors should respect the historic form and detailing of the existing buildings and must be designed in consultation with a suitably qualified heritage consultant.

Policy 64. – New work to be complementary

New work must not be visually dominant over adjacent significant fabric. The introduction of new elements should occur using a combination of heritage and design skills.

Policy 65. – New fabric to be reversible

New fabric introduced to existing buildings must be designed and detailed so that it is reversible and can be removed without adverse heritage impact.

Policy 66. – New reconstruction work

New reconstruction work must be distinguishable from existing fabric on close inspection, so as not to confuse the historical development of the building, but should not affect the integrity of the item.

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Policy 67. – Materials and colours

New materials and colours should respect that of the heritage buildings and significant fabric and be historically appropriate materials and colours, which may be determined in conjunction with further research (in particular for interiors).

Strategies / Guidelines

- New work to existing heritage buildings must be sympathetic to the appearance and character of the extant significant fabric.
- Where it is necessary to reconstruct fabric that is missing or damaged beyond repair, the new work must be distinguishable on close inspection.
- Where other changes are proposed that do not relate to the restoration or reconstruction of historic fabric, a contemporary aesthetic that is sympathetic to the historic detailing is acceptable.

6.3.2 Building code compliance

Policy 68. – Building use

The buildings must not be used for any purpose for which building code compliance will require an unreasonable level of change to significant spaces or fabric. Compliance with building regulations must not unduly affect the heritage significance of the place.

Policy 69. – Compliance with BCA

Compliance with building regulations must be achieved using their objective and performance requirements rather than deemed-to-satisfy provisions, where deemed to satisfy requirements in the BCA cannot be met without adverse heritage impact. Any proposed changes will require relevant statutory approvals.

Strategies / Guidelines

- Where the BCA deemed-to-satisfy requirements will result in adverse heritage impacts on the building, use the alternative objectives and performance requirements instead.
- Consult the Fire, Access and Services Advisory Panel of the Heritage Council of NSW when proposals may have an impact on significant fabric and/or spaces.

6.3.3 Security, safety and accessibility

Policy 70. – Equitable access

Equitable access must be provided to the publicly accessible areas in a manner that does not unduly affect its heritage significance. Major intervention to the building fabric must be minimised. Any proposed changes will require relevant statutory approvals as indicated in Section 5.12.

Strategies / Guidelines

- If equitable access is to be provided for selected spaces, for example via installation of a lift, minimising the visual and fabric impact is important. Any new lift installation should be a lightweight and glazed element to minimise visual impact.

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- Any new lift installation should incorporate a motor room at the base or alternatively be a motor room-less type so as to minimise impact on ceilings and roof structure. Heritage advice must be sought prior to the design of any new installations.

Policy 71. – Seismic strengthening

The buildings and infrastructure must be reviewed by a structural engineer and architect with experience working on heritage buildings to determine the least intrusive method to stabilise. Any changes to the methodology for seismic strengthening should be implemented with consideration for potential underfloor archaeological deposits.

6.3.4 Sustainability

Policy 72. – Sustainable Measures

Desings for building alterations should integrate measures that work toward the objectives of NSW and Commonwealth policies for sustainability, where these can be accommodated without adverse impact to heritage significance.

Strategies / Guidelines

- Identify the factors contributing to thermal discomfort prior to developing any solutions.
- Investigate and implement sustainable and passive solutions and measure their effectiveness before installing any mechanical solutions.

Policy 73. – Air Modification Systems

In upgrading air modification systems to the building, the visual and fabric impact of new installations, including outdoor units, must be minimised. Do not install window mounted air conditioning units.

6.3.5 Maintenance and repair

Policy 74. - Cyclical maintenance

The significant fabric should be conserved through approved programs of regular maintenance and corrective works. The Rasp Mine Maintenance Plain n Appendix F serves as a basis for regular maintenance and repair. This plan must be reviewed/updated as required and augmented by condition and restoration advice of a number of specialist consultants and tradespeople with experience in heritage restoration.

Policy 75. - Approach to maintenance

Maintenance of fabric must be undertaken in accordance with the following:

- ***Regular inspections and maintenance must be carried out by persons with demonstrated skills and experience in heritage building work and with an understanding of the heritage value of the Rasp Mine.***
- ***Repair, rather than replace, significant fabric.***
- ***Repair fabric with compatible materials, for example repair masonry joints with lime mortar.***
- ***Do not apply water repellent coatings unless researched and recommended by a suitably qualified and experienced heritage consultant.***

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Policy 76. - Repairs

Repair elements in need of urgent attention. It is better to retain and patch/repair existing fabric if it can function in situ, rather than replicate original material. Areas where this will have to be considered include:

- ***Repair of decaying and damaged timber joinery.***
- ***Repair of cracks to brickwork and damaged stonework. A structural engineer's report may be required to assess the implications of significant cracks, existing repair methodologies (e.g. stitching) and to recommend remedial action for stabilisation.***
- ***Repair of broken glazing; consider rationalising introduced glazing with clear glazing where glazing finishes are mismatched within a space.***
- ***Removal of wildlife occupying roof spaces and seal access hole.***
- ***Installation of new damp proof courses as required.***

Policy 77. – Funding maintenance

The owners of significant heritage fabric must commit adequate and ongoing financial resources to provide for corrective maintenance as required and for long-term preventative maintenance of the heritage assets. This requirement must be included as part of any future contract for lease, sale or other ownership or control agreement affecting the site.

Policy 78. – Urgent works

Carry out urgent works that are necessary for the protection of significant fabric whenever they are identified, for example preventing water ingress. Any urgent works must still be implemented with minimum impact on significance and with consideration for other policies contained in this CMP.

Policy 79. – Hazardous materials

Assess hazardous materials and heritage issues at the beginning of the planning stage of any intended new maintenance or repair work. Seek advice of appropriately qualified professionals, including a heritage consultant, prior to undertaking any work involving intervention to hazardous materials in areas of significant fabric.

Policy 80. - Modern materials

Modern materials will be avoided where they may impact on or cause damage to significant original fabric.

Policy 81. - Damage to significant fabric

If damage to significant fabric occurs during works, work in the area will cease and appropriate advice will be sought from a suitably trained and qualified person with expertise in the principles of the Burra Charter (ICOMOS (Australia), 2013).

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Strategies / Guidelines

- Preserve the buildings (in the short-term) where required by stabilising deterioration, including making watertight, structurally stable, etc.

- Preserve the building (in the long-term) by continuing maintenance, the single most important process of conservation. Carry out maintenance inspections and repairs in accordance with the *Rasp Mine Maintenance Plan*, Emm Consulting, 2024 Appendix F.

6.3.6 Painting of existing buildings and elements

Policy 82. – Existing paint layers

New painting should generally be undertaken without disturbing the existing paint layers, unless these layers are loose, flaking or blistering. Use traditionally appropriate methods and materials as advised by a suitably qualified heritage specialist. Existing surfaces originally intended to be left unpainted (such as exposed metalwork, stonework, external brickwork) should remain unpainted

Policy 83. – Colour schemes

When selecting a paint colour scheme for the building, it should be like for like or based upon documentary and physical evidence of past paint schemes where possible. This work must be carried out by a suitably qualified heritage specialist.

Strategies / Guidelines

- Regular painting forms an essential part of maintenance for a number of building materials, especially timberwork, and can extend their service life.

- When undertaking cyclic painting works seek to introduce historically appropriate colour schemes for significant fabric and spaces. Undertake research into original and subsequent colour schemes as the opportunity arises.

- While historic schemes are appropriate for the exterior of the building, such as the external joinery, and for the major internal spaces, contemporary colour schemes may be appropriate in areas that have been altered, such as bathroom and kitchen amenities.

6.3.7 New services within existing buildings and elements

Policy 84. – Planning New services

Plan the introduction of news services in detail before installation, so that potential impacts can be avoided. All new work requires relevant statutory approvals as indicated in Section 5.12.

Strategies / Guidelines

- It is recognised that services and safety features may need to be updated in heritage buildings. At the Rasp Mine, the services have been upgraded in an ad hoc fashion as required. As such, a wholistic upgrade of services is likely to be required in the future, which would facilitate rationalisation of the existing, sometimes intrusive, services and assist in ensuring that an ongoing use is achievable.

- Although service and access upgrades may seem fairly straightforward, they can have negative heritage impacts if they are not sensitively planned and installed. New services must be designed to be unobtrusive and have minimum impact upon heritage fabric. In addition to the recommendations below, the NSW

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Heritage Council has a Fire, Access and Services Advisory Panel (FASAP) that can provide advice on specific proposals. They can also provide suggestions about the latest performance based solutions, which can minimise heritage impacts.

Policy 85. – Redundant services

Remove redundant or intrusive service runs where possible.

Policy 86. – New services

New services must be installed inconspicuously and cause least damage to the fabric. To minimise impact and loss of original fabric, the replacement of services, such as wiring and plumbing, must aim to use existing service routes/ducts or replace existing surface mounted services without damaging or removing significant fabric, including the identified and potential archaeological resource. New service runs must be grouped and concealed where possible and new penetrations through heritage fabric must be minimised.

Policy 87. – Minimise visual impact of new services

New services must not give rise to adverse visual impacts. Externally mounted air-conditioning, ventilation equipment, water heaters or service components must not be visible from the streetscape or impact negatively on the external presentation of the building fabric.

Strategies / Guidelines

- Include an assessment of the impact of new services in heritage impact statements. Ensure that upgrading of services:
  - minimises impact on significant fabric, including the identified and potential archaeological resource
  - locates services in areas designed for, or previously utilised for, services
  - are complementary to their surroundings
- It is preferable that reverse cycle air conditioning is not installed due to its impact on building fabric. If it is necessary, consult with a heritage consultant prior to purchase and installation to ensure that the appropriate system has been selected, that the unit locations are acceptable with respect to their visibility and that the noise impact on adjoining properties is acceptable.

6.4 Tourism

Policy 88. – Tourism

To sustain ongoing investment in the preservation of nationally significant heritage sites, it is essential to promote and bolster heritage tourism centred on the Rasp Mine along the Line of Lode. However, this promotion should always align with the goal of conveying the National Heritage values, in accordance with the conservation policies outlined in the CMP, to preserve the authenticity of the place and its surroundings.

Policy 89. – Facilities

Provide adequate facilities, safety, security and interpretation for visitators at publicly accessible sites.

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Strategies / Guidelines

- Prioritise conservation objectives over tourism to safeguard National Heritage values. Align tourism development with the stringent requirements of World Heritage status to enhance the chances of inscription.
- Ensure that any tourism development aligns with and supports the conservation goals outlined in the CMP.
- Conduct heritage risk assessments to identify potential threats and vulnerabilities related to tourism development.
- Include a range of potential risks, from visitor-related damage to visual impacts on heritage sites.
- Develop and implement mitigation strategies to address identified risks.
- Strategies may include visitor education, site protection measures, and design guidelines for visitor facilities.
- Ensure that any tourism development initiatives do not compromise the authenticity of heritage sites.
- Avoid introducing features or facilities that detract from the historic character of the place.
- Collaborate with local authorities, heritage organisations, and tourism stakeholders to ensure that development efforts are in accord with broader community and conservation goals.
- Continuously monitor the impacts of tourism development on heritage sites.
- Be prepared to adapt strategies and make necessary changes to protect the National Heritage values.

6.5 New development

Policy 90. – Approach to site

Consider the site as a whole when planning future works, including the site, open space areas, buildings, extant structures and site elements.

Policy 91. – Collaboration

Any new development must be subject to rigorous design, planning and conservation consultation. New design and heritage conservation teams must work together from initial stages through design concepts, design development and construction.

Policy 92. – New development to be sympathetic to context

New development must provide a considered response to both the significance of items within the Rasp Mine, in addition to their height and scale, and that of the adjacent precincts, Line of Lode and the Broken Hill City Centre and the adjoining Heritage Conservation Areas.

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Policy 93. – Character of future development

Any new buildings and elements should not attempt to replicate heritage detailing and should be clearly recognisable as new work, however, new work must be designed to respect and complement the heritage buildings in terms of their scale and envelope, proportions, materials, colours and finishes. New development may be contemporary, but should not detract from the historic character of the existing buildings.

Policy 94. – Planning approach

The siting of new buildings must retain significant views and vistas within the precinct and the locality, including maintaining a vista through the site from the surrounding streetscapes and vantage points.;

New development must allow for pedestrian permeability through the site.

New development should be suitably modelled to provide visual interest and diversity, adopting strategies to break up building bulk, where appropriate.

Policy 95. – New structures to be self-supporting

New structures must be self-supported and have minimal contact with the existing buildings.

Strategies / Guidelines

- Any future development should be carefully sited so that it respects the cultural significance of the place. Proposals for new development on the site should demonstrate design excellence achieved through competitive design process.
- The scale and siting of new development should be determined with consideration for the need to retain important identified views.

6.6 Landscaping

Policy 96. – Existing mature trees

Retain and conserve the existing mature trees.

Policy 97. – Rehabilitation

Rehabilitation works should conserve the heritage value of the site, recognising that the mining landscape is integral to the National Heritage values of Broken Hill.

Policy 98. – Intrusive vegetation

Remove intrusive vegetation that are adversely impact on significant views, element and fabric.

Policy 99. –New landscaping

New landscaping is acceptable in conjunction with compatible future use where it is designed to be sympathetic to the cultural significance of the site.

Areas of hard landscaping are appropriate to complement the historic industrial mining character.

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Soft landscaping may be introduced in conjunction with adaptation of the site and new development where it does not unduly affect the industrial character of the place and does not damage building fabric (e.g. by the activity of tree roots in close proximity to significant fabric).

Any new vegetation must be selected with consideration for the need to retain important identified views, including visual links between the mining buildings and structures and the views to and from the site.

New landscaping for the site must be designed by a landscape architect with experience working on heritage sites.

Policy 100. –Historical landscaping

Landscape work should be preceded by an investigation of earlier features. Any significant surviving features are to either be retained and incorporated into the site plan or are to be recorded.

Strategies / Guidelines

- Consideration should be given to introducing suitable species that offer similar amenity/aesthetic value subsequent to the rehabilitation procedures.
- Any landscaping work that disturbs or removes soil and which may result in the disturbance of archaeological resources, such as excavation to lay paving or plant trees, may require approval.

6.7 Signage and external lighting

Policy 101. - External lighting

External lighting to the buildings and site may be upgraded. Additional external lighting to enhance the presentation of the place can occur where it is designed with respect to its cultural significance.

Policy 102. – Existing signage

Existing signage should be retained to contribute to the interpretation of the site.

Policy 103. – New signage

New signage that may be required in association with a future use should be of contemporary style, designed to complement the historic and visual character of the buildings. New signage must be located so that it does not obscure significant external features. Fixings for new signage must be designed to minimise impact on historic fabric.

6.8 Interpretation

Policy 104. – Interpretation Strategy / Interpretation Plan

An Interpretation Strategy / Interpretation Plan for the Rasp Mine must be prepared by an experienced heritage consultant or interpretation specialist and subsequently implemented following approval by relevant authorities.

Policy 105. – Interpretation themes

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Interpret the following themes relevant to the Rasp Mine, as indicated in Section 4.2.2.

Policy 106. – Community consultation

Ensure that interpretation is undertaken in consultation with the local community and interested heritage groups in relation to the interpretation strategy / plan.

Policy 107. – Railway lines and routes

Retain a section of the railway lines and routes for interpretation (extent to be determined in conjunction with a suitably qualified and experienced heritage interpretation consultant). Any proposed changes require relevant statutory approvals.

Policy 108. – Interpretation of new technologies

Opportunities should be explored utilising new technologies to help interpret and develop a better community understanding of the Rasp Mine's mining systems, existing and lost fabric. The development of a digital resource exhibiting the underground workings would benefit the understanding of the scale and significance of the mining activity and be a useful research tool.

Policy 109. – Interpretation of moveable heritage

Moveable heritage items that contribute to the interpretation of the station and its personnel must be displayed and interpreted in conjunction with any future proposal for work at the site.

Policy 110.– Interpretation of archaeology

Identified archaeological resources associated with Rasp Mine should be interpreted as part of a wider interpretation plan for Rasp Mine.

Policy 111.– Moveable heritage and exhibition

Moveable heritage must be catalogued and options sought for their public exhibition, in accordance with their assessed significance and interpretive value.

Strategies / Guidelines

Artefacts associated with archaeological resources are considered relics under the *Heritage Act 1977* and are therefore protected under Section 60, within the SHR curtilage/s, or Section 139 in areas external to the SHR curtilage/s. All artefacts must be catalogued. Options relating to artefacts include:

- curation and exhibition as part of the development and adaptive reuse of the site
- curation and exhibition at a local museum
- permanent storage of artefacts at State Records

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- the options relating to deposition of artefacts at the local museum or State Records require appropriate consultation. An appropriate storage area must be maintained at the Rasp Mine until an agreement on their future has been determined.

Policy 112. – Public Access

Allow public access to interpretive elements for research and education. Ensure inclusion of interpretive media in public domain areas and connectivity between these throughout the site. Provision of public access to closed mining areas will be considered following assessment and determination by BHOP of safety, health and public liability risks.

Policy 113. – Review of interpretation

The interpretative media and strategy should be reviewed at maximum five year intervals as part of the management and maintenance, including to check for condition/vandalism, upgrading of content and location etc. The custodian/owner must establish a funding mechanism to provide for the ongoing maintenance and upgrading of interpretive media.

Strategies / Guidelines

- Measures to appropriately interpret the major aspects of the significance of the place must be incorporated into the conservation and development proposals for the site as a whole.

- Methods of interpretation include conservation and display of original features and fabric, reconstructing missing or damaged elements based on documentary and/or physical evidence, introducing interpretative devices such as discreet labelling, the use of historic photographs, preserving evidence of original finishes and fabric (e.g. a cleaned patch of original wall colour) and allowing access for specialist study and/or presentation in publications. Where adaptation is part of the conservation work, measures should be incorporated to show the location, character and/or role of removed or altered elements where appropriate.

- There must be an ongoing commitment to make financial resources available for the interpretation of the site.

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References

3-D Projects. (2002). *Line of Lode Heritage Precinct - Broken Hill Interpretation Plan*.

Aboriginal Housing Office. (n.d.). *Broken Hill*. Retrieved July 7, 2023, from https://www.aho.nsw.gov.au/applicants/era/about/chapters/locations/Broken-Hill#:~:text=Aboriginal Culture,Paakantji%2C Mayyankapa%2C and Nyiimpaa.

Austral Archaeology Pty Ltd. (1992). *Headframes 4 & 7 Study Broken Hill*.

Austral Archaeology Pty Ltd. (1994). *Broken Hill Line of Lode Identification Study: Volume 1*.

Austral Archaeology Pty Ltd. (2012a). *Conservation Management Plan Rasp Mine, CML7, Broken Hill: Volume 2 - Heritage Inventory Forms, Part 1*.

Austral Archaeology Pty Ltd. (2012b). *Conservation Management Plan Rasp Mine, CML7, Broken Hill: Volume 2 - Heritage Inventory Forms, Part 2*.

Austral Archaeology Pty Ltd. (2012c). *Conservation Management Plan Rasp Mine, CML7, Broken Hill Volume 2*.

Austral Archaeology Pty Ltd. (2013). *Conservation Management Plan Rasp Mine, CML7, Broken Hill: Draft report, Volume 1 (23 January 2013)*.

Australian Heritage Council. (2009). *Guidelines for the Assessment of Places for The National Heritage List*.

Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS). (1996). *Map of Indigenous Australia*. AIATIS. https://aiatsis.gov.au/explore/map-indigenous-australia

Bailliere, F. F. (1866). *Bailliere's New South Wales gazetteer and road guide : containing the most recent and accurate information as to every place in the colony : with map*. F. F. Bailliere. https://archive.org/details/baillieresnewsou00bail/page/318/mode/2up

Broken Hill City Council. (2023a). *Silver Trail: 11. Delprat Shaft - 1900*. Visitbrokenhill.Com. https://www.visitbrokenhill.com/Trails/Silver-Trail/11.-Delprat-Shaft-1900

Broken Hill City Council. (2023b). *Silver Trail: 68. Junction Mine and Lookout*. Visitbrokenhill.Com. https://www.visitbrokenhill.com/Trails/Silver-Trail/68.-Junction-Mine-and-Lookout

Broken Hill Proprietary Company Ltd. (1935). *The B.H.P. Review Jubilee Number, Australia June 1935: Fifty Years of Industry and Enterprise 1885 to 1935*. JT Picken and Sons.

CBH Resources Limited. (2023). *Rasp Mine*. https://www.cbhresources.com.au/operations/rasp-mine/

Connah, G., & Hobbs, D. (1988). Of the Hut I Builded: the archaeology of Australia's history. *(No Title)*.

Department of Planning and Environment (NSW). (2023a). *Assessing heritage significance*. Environment and Heritage, Department of Planning and Environment (NSW).

Department of Planning and Environment (NSW). (2023b). *Guidelines for preparing a statement of heritage impact*. Environment and Heritage, Department of Planning and Environment (NSW). https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Heritage/guidelines-for-preparing-a-statement-of-heritage-impact-230201.pdf

Eastern Goldfields Historical Society Inc. (2023). *Golden Mile & Super Pit*. Goldfields History. https://www.kalgoorliehistory.org.au/goldfields-history/super-pit/

Edward Higginbotham & Associates PTY LTD. (2005). *Archaeological Assessment of the Proposed "Big Cadia" Mining Development, Cadia Valley Operations, near Orange, N.S.W. Including 'The Iron Duke', 'West Cadia Copper Mine', 'East Cadia Copper Mine', and Associated Heritage Items.*

EMM Consulting Pty Ltd. (2022). *Rehabilitation Management Plan Rasp Mine*. *August*.

DRAFT

EMM Consulting Pty Ltd. (2023). *Rehabilitation Strategy Rasp Mine*. *September*.

Godden Mackay Heritage Consultants, & Mary Dallas Consulting Archaeologists. (1998). *Central Darling Shire: Heritage Cultural Tourism Study: Volume One - Heritage Study*.

Godden Mackay Logan Pty Ltd (GML). (1994). *Mount Lyell Mining Lease: Cultural Heritage Assessment Study Volume 1 - Main Report*. https://nla.gov.au/nla.obj-2011873741/view

Historical Research Pty Ltd, & Austral Archaeology Pty Ltd. (2008). *Wallaroo Smelters Site: Heritage Assessment*.

ICOMOS (Australia). (2013). *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*. Australia ICOMOS.

Johnston, C. (2016). Seeing through others' eyes: Understanding the aesthetics and meanings of place. *Historic Environment*, *28*(1), 26.

Kearns, R. (1982). *Broken Hill: a Pictorial History*. Adelaide Investigator Press.

Kerr, J. S. (2013). The Seventh Edition Conservation Plan: A Guide to the Preperation of Conservation Plans for Places of European Cultural Significance. *Australia ICOMOS Publication*, *7*, 76. http://australia.icomos.org/wp-content/uploads/The-Conservation-Plan-7th-Edition.pdf

Latona Masterman and Associates. (1987). *A Tale of Tin and Silver: Broken Hill Heritage Study*.

Lenton, D. ., Frieman, C., & May, S. K. (2014). *Australian Cornish Mining Heritage Site: Moonta & The Copper Triangle, SA. National Heritage Research Report.*

Lottermoser, B. G. (2018). *Mobilization of heavy metals from historical smelting slag dumps, north Queensland, Australia*.

Moblie Language Team. (n.d.). *Wilyakali*. Retrieved July 7, 2023, from https://mobilelanguageteam.com.au/languages/wilyakali/

Morning Bulletin. (1908, September 28). Death of a Pastoral Pioneer. *Morning Bulletin*, 4. http://nla.gov.au/nla.news-article53167151

New South Wales Archaeology Pty Limited. (2007). *Silverton Wind Farm, NSW: Stages 2 and 3 and Powerline route (Broken Hill to Red Cliffs) Aboriginal Heritage and Non Indigenous Heritage [February 2007]*.

New South Wales Government Gazette. (1866, February 8). Transfer of Runs. *New South Wales Government Gazette (Sydney, NSW : 1832 - 1900)*, 402. http://nla.gov.au/nla.news-article225371012

Nixon, J. (n.d.). *The "Long Drive."*

Nixon, J. (2017). *Shafts of The Broken Hill Line of Lode: A pictorial history*. Broken Hill Historical Society Meeting (September 2017).

NSW Department of Primary Industries and Land. (2020). *Line of Lode Precinct: A New Vision For The Miners Memorial and Broken Earth Cafe*.

NSW Government and Heritage Council of NSW. (2021). *Statement of best practice for conservation management plans*. 1–6.

NSW Heritage Office. (1977). *Local Government Heritage Guidelines*.

NSW National Parks and Wildlife Service. (2003). *The Bioregions of New South Wales - their biodiversity, conservation and history.* NSW National Parks and Wildlife Service. https://www.environment.nsw.gov.au/resources/nature/bioregionscontentsintro.pdf

NSW Resources Regulator. (2023). *1895 South Broken Hill Silver Mine*. NSW Government. https://www.resourcesregulator.nsw.gov.au/safety/safety-events-and-education-programs/learning-from-disasters/learning-from-disasters/1895

DRAFT

OzArk Environmental & Heritage Pty Ltd. (2011). *Historic Heritage Assessment: Mount Boppy Mine: Proposed Recommencement of Mining Operations*.

Paul Davies Architects and Heritage Consultants. (2021). *Broken Hill National Heritage Values Study*.

Recorder. (1945, February 28). B.H.P Open Cut. *Recorder*, 2. http://nla.gov.au/nla.news-article96193906

South Australian Chronicle. (1895, July 20). A Mine Disaster. *South Australian Chronicle (Adelaide, SA : 1889 - 1895)*, 21. http://nla.gov.au/nla.news-article91463152

State Heritage Inventory Online. (2023). *BHP Chimney Ruin of First Offices*. State Heritage Inventory Online. https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=5061024

Stedinger Assosciates. (2001). *An Historical Archaeological Assessment of the Broula King Gold Mine, Bumbaldry, N.S.W* (Issue 02).

Stedinger Assosciates. (2003). *The Ottery Mine, Emmaville, NSW. An Archaeological Assessment*.

Swanbury Penglase. (2020). *Australian Cornish Mining Sites: Moonta Conservation Management Plan*.

The Institution of Engineers Australia-Western Australia Division. (2001). *The Kalgoorlie-Boulder Mines: Nomination for Award as National Engineering Landmark*.

Tindale, N. B. (1974). *Aboriginal Tribes of Australia: Their terrain, Environmental Controls, Distribution, Limits and Proper Names*. Australian National University Press.

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Appendix

A

Planning approval

Conservation Management Plan | Rasp Mine

EMM
creating opportunities

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

I, as delegate for the Minister for Planning, approve the project application referred to in Schedule 1, subject to the conditions in Schedules 2 to 4.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

SHaddad

Sam Haddad
Director-General

Sydney 31st January 2011

SCHEDULE 1

Application Numbers:	07_0018
Proponent:	Broken Hill Operations Pty Ltd
Approval Authority:	Minister for Planning
Land:	See Appendix 1
Project:	Rasp Project

NSW Government
Department of Planning

DEFINITIONS

Annual review	The review required by Condition 3 of Schedule 4
BCA	Building Code of Australia
Conditions of this approval	Conditions contained in Schedules 2 to 4 inclusive
Council	Broken Hill City Council
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning
Director-General	Director-General of the Department, or delegate
EA	*Rasp Mine Zinc-Lead-Silver Project: Environmental Assessment Report*, prepared by Broken Hill Operations Pty Ltd and dated July 2010
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence issued under the POEO Act
Feasible	Feasible relates to engineering considerations and what is practical to build or carry out
Heritage Branch	Heritage Branch of the Department
I&I NSW	Department of Industry and Investment, trading as Industry and Investment NSW
Incident	A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this approval
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning, or delegate
Mitigation	Activities associated with reducing the impacts of the project
NOW	NSW Office of Water
POEO Act	*Protection of the Environment Operations Act 1997*
PPR	*Rasp Mine Zinc-Lead-Silver Project: Preferred Project Report*, prepared by Broken Hill Operations Pty Ltd and dated September 2010
Project	The development to which this approval applies
Proponent	Broken Hill Operations Pty Ltd
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Rehabilitation	The treatment or management of land disturbed by the project for the purpose of establishing a safe, stable and non-polluting environment, and includes remediation
Response to Submissions`	*Rasp Mine Zinc-Lead-Silver Project: Response to Submissions Report*, prepared by Broken Hill Operations Pty Ltd and dated July 2010
RTA	Roads and Traffic Authority
Site	The land listed in Appendix 1
Statement of Commitments	The Statement of Commitments reproduced in Appendix 5

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SCHEDULE 2
ADMINISTRATIVE CONDITONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation or rehabilitation of the project.

TERMS OF APPROVAL

2. The Proponent shall carry out the project generally in accordance with the:
   (a) EA;
   (b) Response to Submissions and PPR;
   (c) Statement of Commitments; and
   (d) conditions of this approval.

   Note to Condition 2: The general layout of the project is shown in Appendix 2.

3. If there is any inconsistency between the documents listed in condition 2 above, the most recent document in the relevant condition shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.

4. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
   (a) any reports, strategies, plans, programs, reviews, audits, or correspondence that are submitted in accordance with the conditions of this approval; and
   (b) the implementation of any actions or measures contained in these documents.

LIMITS ON APPROVAL

Mining Operations

5. The Proponent may carry out mining operations on site until 31 December 2026.

   Note to Condition 5: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Director-General and the Director-General of I&I NSW. Consequently, this approval will continue to apply in all respects - other than the right to conduct mining operations - until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

Production

6. The Proponent shall not extract more than 750,000 tonnes of ore per annum, or more than 8,450,000 tonnes of ore over the life of the project.

Transport

7. Until ore processing facilities have been constructed and commissioned on the site, the Proponent is permitted to transport crushed ore by road to the Endeavour Mine, or such other location approved by the Director-General, for processing. Following commissioning of the ore processing facilities, the Proponent shall only transport zinc and lead concentrates from the site by rail, except in an emergency situation and with the prior written approval of the Director-General.

STRUCTURAL ADEQUACY

8. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

   Notes to Condition 8:
   - *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works; and*
   - *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

DEMOLITION

9. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

Air Quality Management Plan

11. The Proponent shall prepare and implement a detailed Air Quality Management Plan for the project to the satisfaction of the Director-General. This plan must:
    (a) be prepared in consultation with DECCW and submitted to the Director-General for approval prior to the commencement of construction on the site;
    (b) identify all major sources of particulates and other air pollutants that may be emitted from the project, being both point source and diffuse emissions, including identification of the potential for lead contamination to be carried by these particulates;
    (c) include an air quality monitoring program that:
        - provides for periodic point source monitoring at Point 1 (Ventilation Shaft – Little Kintore Pit) and Point 2 (Process Enclosure/ Baghouse Stack);
        - provides for continuous ambient monitoring across an ambient air quality and dust monitoring network comprising no fewer than ten monitoring locations (Points 3 to 12) for total suspended particulates, PM_{10}, lead and dust deposition. Monitoring locations shall be informed by the outcomes of the air quality assessments presented in the EA and PPR and identified in consultation with DECCW; and
        - provides for continuous meteorological monitoring using a meteorological monitoring statio located on the site;
        - is consistent with the requirements of *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (DECC, 2007), the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment (Clean Air) Regulation 2010*.
    (d) pro-active and reactive management and response mechanisms for particulates with specific reference to measures to be implemented and actions to be taken to minimise and prevent potential elevated air quality impacts (including ambient air and deposited dust impacts) on surrounding land uses as a consequence of meteorological conditions, upsets within the project, or the mode of operation of the project at any time;
    (e) procedures and processes for monitoring ambient dust and deposited dust impacts;
    (f) provision for regular review of dust monitoring data, with comparison of monitoring data with that assumed and predicted in the documents referred to under Condition 2 of Schedule 2;
    (g) details of measures to be implemented to address any situation in which monitored dust impacts exceed those assumed and predicted in the documents referred to under Condition 2 of Schedule 2;
    (h) specific complaints management procedures in the event that dust monitoring indicates elevated off-site impacts;
    (i) procedures for the minimisation of dust generation on the site;
    (j) protocols for regular maintenance of plant and equipment to minimise the potential for elevated dust generation, leaks and fugitive emissions; and
    (k) a contingency plan should an incident, upset or other initiating factor lead to elevated dust impacts, whether above normal operating conditions or above environmental performance goals/ limits.

LEAD AWARENESS AND PUBLIC HEALTH

Contribution to Public Blood lead Monitoring & Public Education

12. During the implementation of the project, the Proponent shall make a reasonable contribution towards the cost of:
    (a) public health monitoring, particularly in relation to child blood lead levels; and
    (b) public education campaigns about the health risks associated with lead,
    to the satisfaction of the Director-General.

    Note: The Director-General will consult with the Director-General of the NSW Department of Health on the reasonableness of the proposed contribution prior to making any decisions under this condition, and determine the date upon which the contributions shall commence.

Lead Management Plan

13. The Proponent shall prepare and implement a Lead Management Plan for the project to the satisfaction of the Director-General. This plan must:
    (a) be prepared in consultation with the Lead Reference Group, including the NSW Department of Health (Western Area Health Service) and Council;
    (b) be submitted to the Director-General for approval by 30 June 2011;
    (c) outline the proposed commitment towards the cost of:
        - public health monitoring, particularly in relation to child blood lead levels, and tracking of this data over time; and
        - public education campaigns about the health risks associated with lead, including lead hygiene, lead and children, tank water lead risks and soil lead contamination risks.
    (d) identify additional reasonable and feasible measures that could be implemented either on site or in the areas adjoining the site to minimise the potential lead impacts of the project and "free areas";

(e) include a program for the staged implementation of the measures identified in (d) above in the event that dust emissions are higher than predicted or the public health monitoring suggests further action is required to reduce blood lead levels in the environment surrounding the site; and

(f) include a detailed communication strategy, that outlines how the relevant dust and blood level monitoring data would be reported on the Proponent's website along with any relevant public education material.

Updated Human Health Risk Assessment

14. Within one year of the commencement of operation of the project, and every five years thereafter, unless otherwise agreed by the Director-General, the Proponent shall update the human health risk assessment prepared for the project and presented in the EA to the satisfaction of the Director-General. The updated risk assessment shall:

(a) be prepared by a suitably-qualified expert whose appointment has been endorsed by the Director-General;

(b) take into account monitoring data collected under this approval, and such other information as may be relevant to the assessment; and

(c) be submitted to the Director-General, DECCW and the Western Area Health Service within one month of its completion.

NOISE AND VIBRATION

Construction Noise Restrictions

15. Construction activities associated with the project shall only be undertaken between 7:00am and 7:00pm on any day.

Note to Condition 15:

- *Construction activities include, but are not limited to, all construction work, front-end loader on the ROM pad, rock breaking and primary crushing in the process area, conveyors in the process area, flat-bed road truck haulage from the process area to the rail load-out area, locomotives at the rail load-out area and forklift at the rail load-out area.*

Operational Noise Restrictions

16. Operational activities associated with the project are permitted to occur at any time, subject to compliance with the noise limits specified in this approval, and subject to the following restrictions:

(a) crushing shall only occur between 7:00am and 7:00pm on any day;

(b) shunting of concentrate wagons shall only occur between 7:00am and 6:00pm on any day; and

(c) production rock blasting shall only occur between 6:45am and 7:15pm on any day.

Noise Limits

17. The Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 7.

Table 7: Operational Noise Criteria

Location	[a] Day (dB(A))	[b] Evening (dB(A))	[c] Night (dB(A))
A1 – Piper Street North	38	37	35
A2 – Piper Street Central	38	37	35
A3 – Eyre Street North	44	41	39
A4 – Eyre Street Central	44	41	39
A5 – Eyre Street South	44	41	39
A6 – Bonanza and Gypsum Streets	48	41	39
A7 – Carbon Street	35	35	35
A8 – South Road	48	39	39
A9 – Crystal Street	46	39	39
A10 – Barnet and Blende Streets	42	41	35
A11 – Crystal Street	46	39	39
A12 – Crystal Street	46	39	39
A13 – Eyre Street North 2	38	35	35
A14 – Piper Street North	35	35	35

Notes to Condition 17:

- *Receiver locations are as identified in the noise assessments presented in the EA and PPR;*
- *Noise limits are to be measured in accordance with the NSW Industrial Noise Policy (EPA, 2000);*
- *[a] Day is defined as 7:00am to 6:00pm Mondays to Saturdays and 8:00am to 6:00pm on Sundays and public holidays;*
- *[b] Evening is defined as 6:00pm to 10:00pm on any day; and*
- *[c] Night is defined as 10:00pm to 7:00 am Mondays to Saturdays and 10:00pm to 8:00am on Sundays and public holidays.*

Blasting Limits

18. The Proponent shall ensure that air blast overpressure generated by blasting associated with the project does not exceed the criteria listed in Table 8, when measured at the nearest affected residential or other sensitive receiver.

Table 8: Airblast Overpressure Criteria

Airblast Overpressure (dB(Lin Peak))	Allowable Exceedance
115	5% of the total number of blasts over a 12-month period
120	Never

19. The Proponent shall ensure that ground vibration generated by blasting associated with the project does not exceed the criteria listed in Table 9, when measured at the nearest affected residential or other sensitive receiver.

Table 9: Peak Particle Velocity Criteria

Peak Particle Velocity (mms^{-1})	Allowable Exceedance
5	5% of the total number of blasts over a 12-month period
10	Never

Noise Management Plan

20. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:
    (a) be prepared in consultation with DECCW, and submitted to the Director-General for approval by the end of June 2011;
    (b) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant conditions of this approval, including a real-time noise management system that employs both reactive and proactive mitigation measures;
    (c) include a noise monitoring program that:
        - uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the project; and
        - includes a protocol for determining exceedances of the relevant conditions of this approval;
    (d) describe the blast mitigation measures that would be implemented to ensure compliance with the relevant condition of this approval;
    (e) describe the measures that would be implemented to ensure that the public can get up-to-date information on the proposed blasting schedule on-site; and
    (f) include a blast monitoring program to evaluate the performance of the project.

SOIL AND WATER

21. Except as may be expressly provided by an Environment Protection Licence issued under the *Protection of the Environment Operations Act 1997*, the Proponent shall comply with section 120 of that Act, which prohibits the pollution of waters.

Water Supply

22. The Proponent shall ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations to match its water supply.

Note: The Proponent is required to obtain the necessary water licences for the project under the Water Act 1912 and/or Water Management Act 2000.

Water Management Plan

23. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must be consistent with the Stormwater Management Plan presented as Annexure K to the EA, incorporate any changes to reflect the final detailed design of the project, and be prepared in consultation with DECCW, NOW and I&I NSW. The plan must: be submitted to the Director-General for approval by the end of June 2011, and must include:
    (a) a Site Water Balance, which must:
        - include details of:
            - sources and security of water supply;
            - water use on site;
            - water management on site;
            - any off-site water transfers; and
        - investigate and implement all reasonable and feasible measures to minimise water use by the project;
    (b) an Erosion and Sediment Control Plan, which must:
        - identify activities that could cause soil erosion, generate sediment or affect flooding;
        - describe measures to minimise soil erosion and the potential for transport of sediment to downstream waters, and manage flood risk;
        - describe the location, function and capacity of erosion and sediment control structures and flood management structures; and
        - describe what measures would be implemented to maintain the structures over time;
    (c) a Surface Water Management Plan, which must include:
        - detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the project;
        - surface water and stream health impact assessment criteria including trigger levels for investigating any potentially adverse surface water impacts;
        - a program to monitor and assess:
            - surface water flows and quality;
            - impacts on water users;
            - stream health; and
            - channel stability.
    (d) a Groundwater Monitoring Program, which must:
        - provide a program to monitor seepage movement within and adjacent to the tailings storage facility;
        - include details of parameters and pollutants to be monitored for:
            - water from mine dewatering;
            - groundwater locations to the east of TSF1;
            - surface water represented by Horwood Dam;
            - water captured by the toe drains of the tailings storage facility;
            - water seepage from the tailings storage facility; and
            - the background local groundwater system.
        - outline performance parameters against monitoring data will be compared to determine whether seepage is occurring, and whether an unacceptable impact on local groundwater may be occurring;
        - include details of contingency measures to be implemented in the event that an unacceptable impact is identified.

TRANSPORT

24. The Proponent shall maintain the existing 66 carparking spaces, or an equivalent number elsewhere on the site, for the duration of the project.

25. The Proponent shall consult with the RTA and BHCC in relation to the footpath modifications required at the Eyre Street site access and shall address the design requirements of those agencies in relation to those works. All footpath works shall be completed prior to the commencement of operation of the project, and shall be undertaken at no cost to the RTA or BHCC.

26. A truck waiting area with capacity to accommodate at least two B-Double vehicles at any time shall be provided inside the Eyre Street site access to avoid trucks queuing into Eyre Street.

27. If the Holten Road site access is required during construction of the project, the Proponent shall, prior to using this access, consult with and address the requirements of the RTA and Council with respect to traffic access at this location.

28. The Proponent shall commission dilapidation reports for roads likely to be affected by the construction of the project, prior to the commencement of construction and immediately prior to completion of construction. The Proponent shall fund rectification of any deterioration of road pavement quality as a result of construction-related traffic.

Traffic Management Plan

29. The Proponent shall prepare and implement a traffic management plan to the satisfaction of the Director-General. The plan shall focus on traffic management during construction of the project, and must be developed in consultation with the RTA and Council. The plan must be submitted for the approval of the Director-General prior to the commencement of construction.

HERITAGE

30. The Proponent shall prepare and implement a Conservation Management Plan for the site to the satisfaction of the Director-General. This plan must provide a strategic framework for all heritage items located on the Lease, based on the principles of the Burra Charter, and developed in consultation with the Department (Heritage Branch) and Council. The plan must be submitted for the approval of the Director-General by December 2011.

VISUAL AMENITY

31. The Proponent shall:
    (a) minimise the visual impacts, and particularly the off-site lighting impacts, of the project;
    (b) take all practicable measures to further mitigate off-site lighting impacts from the project; and
    (c) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting*, or its latest version,

    to the satisfaction of the Director-General.

WASTE

32. The Proponent shall:
    (a) minimise the waste generated by the project; and
    (b) ensure that the waste generated by the project is appropriately stored, handled, and disposed of,

    to the satisfaction of the Director-General.

33. The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This plan must:
    (a) be prepared in consultation with I&I NSW, and submitted the Director-General for approval by the end of March 2011;
    (b) identify the various waste streams of the project;
    (c) estimate the volumes of tailings and other waste material that would be generated by the project;
    (d) describe and justify the proposed strategy for disposing of this waste material;
    (e) describe what measures would be implemented to meet the requirements set out above in condition 32; and
    (f) include a program to monitor the effectiveness of these measures.

REHABILITATION

Rehabilitation Objectives

34. The Proponent shall:
    (a) carry out rehabilitation progressively, that is, as soon as reasonably practicable following disturbance; and
    (b) achieve the following rehabilitation objectives:
        - sealing and/ or treating 'free areas' of the site and other potential sources of wind-blown dust to prevent the emission of dust following closure;
        - preserving the heritage value of the site; and
        - making the site suitable for commercial and/ or educational uses,

    to the satisfaction of the Director-General of I&I NSW.

Rehabilitation Management Plan

35. The Proponent shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Director-General of I&I NSW. This plan must:
    (a) be prepared in consultation with the Department, DECCW, NOW, Council and I&I NSW;
    (b) be prepared in accordance with relevant I&I NSW guidelines;
    (c) be generally consistent with the closure concept presented in the EA;
    (d) reflect the aims of rehabilitation and closure to:
        - retain heritage items, as agreed by relevant regulators;

- manage stormwater to minimise erosion and restrict the potential for off-site pollution;
- provide final landforms that are safe, stable and sympathetic to the mining heritage of Broken Hill;
- minimise the generation of dust and adequately contain potentially hazardous materials within the landform; and
- install barriers to restrict access to potentially hazardous locations (eg decline, shafts or open cut pits);

(e) build, to the maximum extent practicable, on the other management plans required under this approval; and

(f) be submitted to the Director-General of I&I NSW for approval by the end of December 2011.

APPENDIX 2
PROJECT AREA

DRAFT

SCHEDULE 4
ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
   (a) be submitted to the Director-General for approval by the end of June 2011;
   (b) provide the strategic framework for the environmental management of the project;
   (c) identify the statutory approvals that apply to the project;
   (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
   (e) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the project;
      - respond to any non-compliance; and
      - respond to emergencies; and
   (f) include:
      - copies of any strategies, plans and programs approved under the conditions of this approval; and
      - a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.

Management Plan Requirements

2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with relevant guidelines, and include:
   (a) detailed baseline data;
   (b) a description of:
      - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
      - any relevant limits or performance measures/criteria; and
      - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;
   (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
   (d) a program to monitor and report on the:
      - impacts and environmental performance of the project; and
      - effectiveness of any management measures (see (c) above);
   (e) a contingency plan to manage any unpredicted impacts and their consequences;
   (f) a program to investigate and implement ways to improve the environmental performance of the project over time;
   (g) a protocol for managing and reporting any:
      - incidents;
      - complaints;
      - non-compliances with the conditions of this approval and statutory requirements; and
      - exceedances of the impact assessment criteria and/or performance criteria; and
   (h) a protocol for periodic review of the plan.

   Note: The Director-General may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Annual Review

3. By the end of June 2012, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:
   (a) describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year;
   (b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the:
      - relevant statutory requirements, limits or performance measures/criteria;
      - monitoring results of previous years; and
      - relevant predictions in the documents referred to in Conditions 2 of Schedule 2;

(c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
(d) identify any trends in the monitoring data over the life of the project;
(e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
(f) describe what measure will be implemented over the next year to improve the environmental performance of the project.

Revision of Strategies, Plans & Programs

4. Within three months of:
(a) the submission of an annual review under Condition 3 above;
(b) the submission of an incident report under Condition 5 below;
(c) the submission of an audit report under Condition 7 below, or
(d) any modification of the conditions of this approval (unless the conditions require otherwise),
the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.

REPORTING

Incident Reporting

5. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within seven days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

Regular Reporting

6. The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any approved plans or programs of the conditions of this approval.

INDEPENDENT ENVIRONMENTAL AUDIT

7. By the end of December 2011, and every three years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
(a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
(b) include consultation with the relevant agencies;
(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
(d) review the adequacy of any approved strategies, plans or programs required under these approvals; and, if appropriate
(e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General.

8. Within six weeks of the completing of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

9. From the end of March 2011, the Proponent shall:
(a) make copies of the following publicly available on its website:
- the documents referred to in Condition 2 of Schedule 2;
- all current statutory approvals for the project;
- all approved strategies, plans and programs required under the conditions of this approval;
- the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans or programs;
- a complaints register, updated on a monthly basis;

- the annual reviews of the project;
- any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit; and
- any other matter required by the Director-General;

(b) keep this information up-to-date,

to the satisfaction of the Director-General.

APPENDIX 1
SCHEDULE OF LAND

Mineral Authorities/ Lot Number	Deposited Plan Number
CML 7	-
MPL 183	-
MPL 184	-
MPL 185	-
MPL 186	-
EL 5818	-
1	26/ 758018
2	26/ 758018
3	26/ 758018
4	26/ 758018
5	26/ 758018
6	26/ 758018
7	26/ 758018
8	26/ 758018
9	26/ 758018
10	26/ 758018
17	26/ 758018
1	809279
2	809279
1	134676
2	134676
3	134676
11	725393
675	761716
1790	757298

APPENDIX 2
PROJECT AREA

APPENDIX 3
PROJECT LAYOUT PLANS

1 – CML 7 Boundary	2 – Haul Road	3 – ROM Pad	4 – Old Concentrator Building	5 – Old Sand Fill Plant
6 – Old No. 7 Shaft	7 – Old No. 1 Shaft	8 – Old No. 6 Shaft	9 – Electrical Workshop	10 – Maintenance Workshop
11 – Core Shed	12 – Old No. 7 Underground Offices	13 – Telecommunications Compound	14 - CBH Main Offices	15 – Radford House (additional offices)
16 – Bowling Green	17 – Access Roads	18 – Pipe Corridor	19 - Proposed Decant Pond	20 – Proposed 22kV Power Supply
21 – Current Eyre St 22kV Power Supply	22 – New Railway Siding	23 – Access Road to Broken Earth Cafe	24 – Truck Wash	25 – Surface Magazines
26 – Surface Ventilation Fans	27 – Temporary Change Rooms	28 – New Change Rooms	29 – Car Park	30 – Backfill Plant

APPENDIX 3
PROJECT LAYOUT PLANS

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PROJECT AREA

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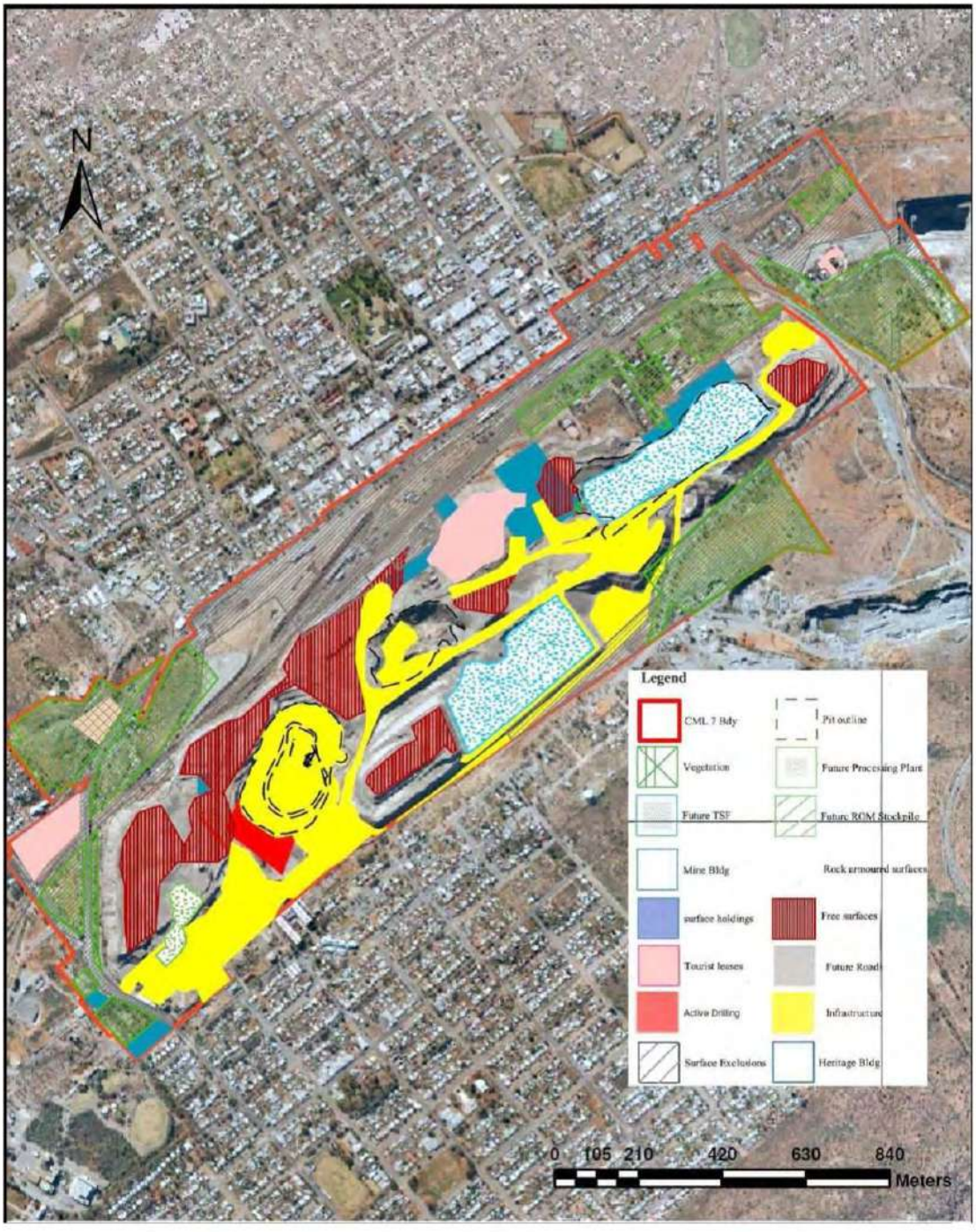
APPENDIX 4
PLAN OF FREE AREAS



APPENDIX 5
STATEMENT OF COMMITMENTS

Appendix

B

Heritage precinct development

Conservation Management Plan | Rasp Mine

EMM
creating opportunities

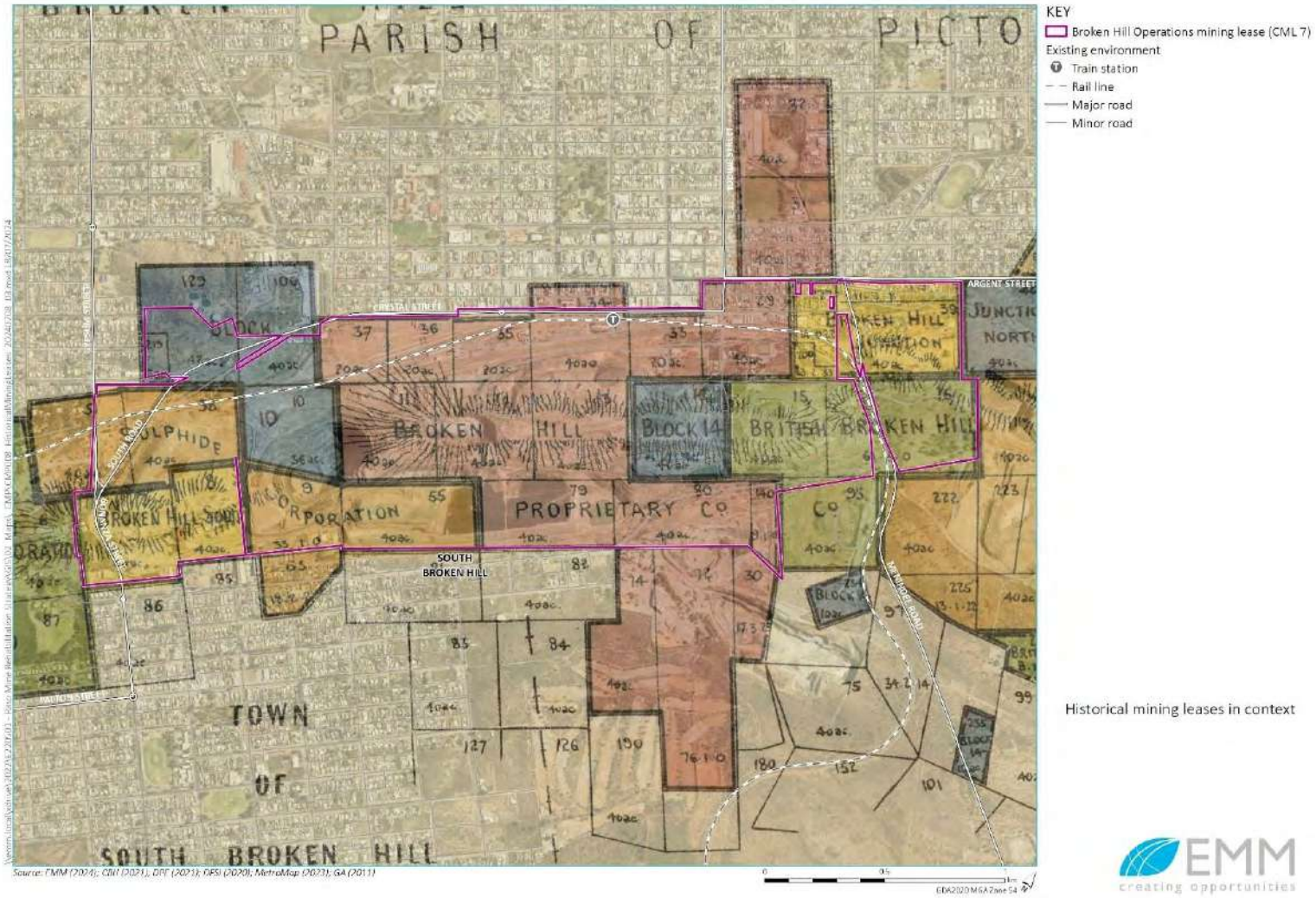


Figure B.1 Historical mining leases in context

B.1 Heritage Precinct 1 historical overview

Heritage Precinct 1 includes the historical mining lease areas of Blocks 7, 8, 9 and 39. Specifically, Blocks 7 and 8 were components of the BHS mining leases, while Block 9 had affiliations with the former Central Mine. The timeline of the development of the South Mine portion of Heritage Precinct 1 (Block 7 and 8) is outlined in Section B.2. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1.

B.1.1 Broken Hill South Mine

Blocks 5 to 7 were pegged out by hoteliers William, George and Charles Maiden in 1884, and the holdings became known as Maiden's Great Bonanza (Nixon, 2017:186). Block 8, to the west, was claimed by George White around the same time (Nixon, 2017:186). In late 1884, Blocks 5 to 8 were sold to Keats and Company, which floated their holdings on the Melbourne stock exchange as the BHSSMC in 1886 (Nixon, 2017:186).

The BHSSMC initiated operations on Blocks 7 and 8 in 1886, sinking No 1 Shaft on Block 8 and No. 3 Shaft on Block 7 (Photograph B.1) (Nixon, 2017:191). The Company sold the extracted ore to neighbouring companies with lead smelters (Austral Archaeology Pty Ltd, 1994:17). In 1888, operations expanded rapidly with the sinking of nine shafts across Blocks 7 and 8 (Nixon, 2017:191). The Company also began experimenting with ore treatment, resulting in the installation of three blast furnaces on their holdings in 1891, with smelters in operation by 1892 (Austral Archaeology Pty Ltd, 1994:17). However, the mine's high grade oxidised ores were exhausted by 1893, leading to the decommissioning of the furnaces (Austral Archaeology Pty Ltd, 1994:17). Nevertheless, a lead concentrating mill was constructed around No 2 Shaft in 1894, and additional surface plant, including a crusher, bundles, slime tanks, and workshops, were added to the site over the 1890s (Austral Archaeology Pty Ltd, 1994:17). In July 1895, disaster struck when subsidence caused an air blast in the main blast, resulting in the deaths of nine men and injuries to many more (NSW Resources Regulator, 2023; South Australian Chronicle, 1895, p. 21).

In 1900, BHS extended its holdings by constructing a manager's residence south of the mine holdings in the town of Alma (Town of South Broken Hill) (Austral Archaeology Pty Ltd, 1994:17). Surface works expanded over the early twentieth century with the addition of new plants, including a 6000-tonne gravity concentration mill capable of processing 250 tonnes of ore per day, which was added to the South Mine in 1906 and opened in 1908 (Photograph B.2) (Austral Archaeology Pty Ltd, 1994:18–19). Additional upgrades and plant expansions continued as ore processing technologies evolved and new shafts were sunk over Blocks 7 and 8 (Austral Archaeology Pty Ltd, 1994:18–19).

With the outbreak of the First World War and the cessation of European lead imports, BHS had to send its product to BHP for smelting due to Commonwealth directives (Austral Archaeology Pty Ltd, 1994:20). Work on the mine slowed during this period, but construction and alterations continued over the war years (Austral Archaeology Pty Ltd, 1994:20). Labour strikes, beginning in May of 1919, and a fire in July of the same year disrupted underground operations on the company's holding, shifting the focus of surface works to the reconstruction of fire damaged areas (Austral Archaeology Pty Ltd, 1994:21). The BHSSMC was also renamed BHS at this time (Nixon, 2017:187).

Mine operations and expansion resumed in 1920, with the fire reconstruction works completed in 1921 (Austral Archaeology Pty Ltd, 1994:22). In 1931, the BHS and neighbouring companies, the Zinc Corporation and NBH, commissioned a powerplant large enough to serve all three mine areas, which was opened in 1931 (Austral Archaeology Pty Ltd, 1994:23). By 1932, the company's underground mines reached the limits of ore extraction, leading to the closure of Shafts No 1 and No 3 (Austral Archaeology Pty Ltd, 1994, p. 24). Photograph B.3 illustrates the extent of the surface plant on the Blocks 7 and 8 in 1939.

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Starting from the 1940s, BHS expanded their operations as neighbouring companies vacated their holdings (Nixon, 2017:187). The company acquired Block 9, previously the Sulphide Corporation's Central Mine in 1940, and BHP's Blocks 10 to 13 in 1943 (Austral Archaeology Pty Ltd, 1994:24–25; Nixon, 2017:187). Although BHS closed all works in 1972, the holdings were purchased and reopened by MMM in the same year (Nixon, 2017:188–189). Ore processing continued to be processed at the South Mine mill until operations were sold to The Normandy Group in 1991 (Austral Archaeology Pty Ltd, 2013:13).

Source: Nixon 2017:194

Photograph B.1 An early shaft on the South Mine, 1887

Source: CBH Resources archives

Photograph B.2 Panorama of Broken Hill South Silver Mining Company No Liability Mine, 1908

Source: CBH Resources archives, Surface plan 13M7 1939

Plate B.1 Plan of surface infrastructure on the Broken Hill South Limited holding, 1939

Source: CBH Resources archives.

Photograph B.3 Undated photograph (post 1931) of South Mine surface plant around the South Mill. Image looking east

B.1.2 Broken Hill Central Mine

Block 9, known as The Elizabeth, was initially pegged by Michael Farrell and Thomas Harwood Nutt in 1884, and was named after Farrell's wife (Nixon, 2017:55). The first shaft, the Kintore Shaft, was sunk in 1884, followed by the first Main Shaft in 1885, which was used for hauling (Austral Archaeology Pty Ltd, 1994:26; Nixon, 2017:61). The Kintore Shaft was used as a mullock dump for future underground works (Austral Archaeology Pty Ltd, 1994:26). Following Howard Nutt's death in 1886, Block 9 was sold to Central Broken Hill Company No Liability (CBHCNL), renaming it the Central Mine (Austral Archaeology Pty Ltd, 1994:26). The Central Mine, with support from the South Mine, opened North Shaft, South Air Shaft, and Central Shaft in 1888 (Nixon, 2017:56). Despite building a smelting plant on the mine in 1890, the Central Broken Hill Company (CBHC) struggled to treat their sulphide ore, leading to its collapsed in 1892 (Austral Archaeology Pty Ltd, 1994:26). Photograph B.4 shows Central Mine at the time of the Company collapse.

In 1895, Block 9 was reacquired by the Broken Hill Central Silver Mining Company (BHCSMC). Block 38 to the northwest was acquired by the Sulphide Corporation Ltd (Austral Archaeology Pty Ltd, 1994:26; Nixon, 2017:61). The Corporation transported their ore to their smelter and electrolytic treatment plant at Newcastle for processing (Nixon, 2017:56). By 1902, the mine was running at a profit, following the opening of three shafts on Block 9 in 1900 (Nixon, 2017:55, 61).

However, localised subsidence issues affected the operations. In 1902, two workers were killed due to subsidence on Block 9. Major subsidence events in 1905 and 1906 destroyed the 1880s shafts, offices, and much of the surface plant structures (Austral Archaeology Pty Ltd, 1994:26; Nixon, 2017:57). The Haulage Shaft, sunk in 1903, allowed work to restart soon after the 1905 collapse, and the New Kintore Shaft was sunk later that same year (Austral Archaeology Pty Ltd, 1994:26; Nixon, 2017:57).

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Nevertheless, subsidence issues persisted and in 1906 the Corporation's concentration mill, and all surviving surface plant structures, were relocated to the vicinity of the old Kintore Shaft. Further, a new mill precinct was completed in the area in 1907 (Austral Archaeology Pty Ltd, 1994:26). Interestingly, the new surface plant precinct was connected to the recently established Kintore Shaft through a 450 m long arial ropeway, known as a flying fox (Nixon, 2017:57). This connection was part of the ongoing collaboration with the South Mine, extending into the twentieth century. Collaboration also involved the construction of a railway line that connected the holdings of the Sulphide Corporation and the South Mine during the reconstruction efforts (Nixon, 2017:57).

Between 1923 and 1925, the mine was temporarily closed due to an underground fire. To ensure continuous ore processing during the closure, the Sulphide Corporation purchased the Junction Mine (Nixon, 2017:58). The Sulphide Corporation continued its operations until ore reserves were depleted in 1940 (Austral Archaeology Pty Ltd, 1994:26; Nixon, 2017:58). Photograph B.5 illustrates the extent of the Central Mine before its closure. Subsequently, due to the exhaustion of ore reserves, the headframes were demolished, and the mine lease was transferred to BHS Austral Archaeology Pty Ltd, 1994:26).

The Central Mine was re-opened under the management of BHS c.1945, and significant modifications were introduced to the remaining surface plant structures. The headframe and winder engine from the South Mine's No. 5 Shaft was installed at Kintore Shaft (Austral Archaeology Pty Ltd, 1994:26). Notably, the former fire and ambulance stations were repurposed into flats for married mine workers (Austral Archaeology Pty Ltd, 1994:26). The transportation of ore from the Central Mine to the South Mine for processing continued via an underground railway from 1952 until operations ceased in 1959 (Nixon, no date:10; Austral Archaeology Pty Ltd, 1994:26).

In 1972, Block 9 changed hands and became the property of MMM (Nixon, 2017:188–189). Although MMM stopped underground operations in 1976, discussions were initiated to extend open-cut mining. The proposed second phase of the Kintore open-cut was intended to pass into Kintore Shaft and in the Old Kintore area (Austral Archaeology Pty Ltd, 1994:26). In 1981, an IHO was issued for Block 9 to prevent the proposed works, but this order eventually lapsed, but phase one of the Kintore open-cut commenced on Block 10 (Austral Archaeology Pty Ltd, 1994:26–27, 36, 2013:13). Notably, the Kintore Shaft headframe, formerly the South Mine No 5 Shaft headframe, was relocated to the Broken Hill city museum precinct in 1986. This relocation was part of preparations for the never fully realised phase two of the Kintore open-cut, as illustrated (Photograph B.6) (Austral Archaeology Pty Ltd, 1994:27; Nixon, 2017:58).

Source: Nixon 2017:63

The Main Shaft headframe is in the centre of the image and Kintore Shaft is visible in the top left.

Photograph B.4 Central Broken Hill Company No Liability Central Mine, 1892

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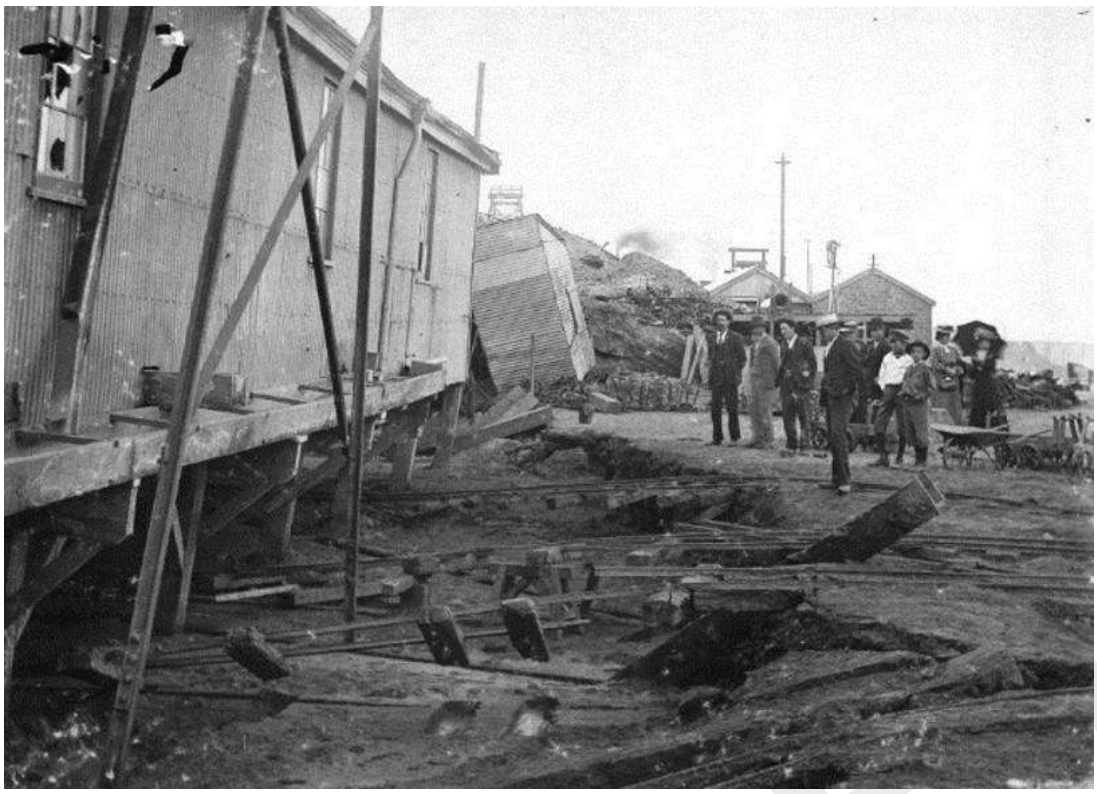

Source: Nixon 2017:70

Photograph B.5 **Group inspects damaged buildings and tramway following subsidence on Central Mine, 1906**

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Source: CBH Resources archives, Surface plan 13M7 1939

Plate B.2 Plan of surface infrastructure on the Broken Hill Central Mine Block 9, 1939

Source: Nixon 2017:68

Photograph B.6 Kintore Shaft headframe (Old South Mine No 5 Shaft headframe) at the Broken Hill city museum precinct, 2017

B.2 Heritage Precinct 1 timeline

Table B.1 Timeline of the development of the South Mine portion of Heritage Precinct 1 (Block 7 and 8)

Date	Developments
c.1884	Blocks 5 to 7 claimed by William, George and Charles Maiden. The claim was named Maiden's Great Bonanza. Block 8 claimed by George White. Blocks 5 to 8 sold to Keats and company.
1886	Blocks 5 to 8 floated on Melbourne Stock Exchange and BHSSMC forms. Mining of ore commences on Blocks 7 and 8 with material being sold to neighbouring companies operating lead smelters. No 3 Shaft sunk on Block 7 and No 1 Shaft sunk on Block 8.
1888	BHSSMC introduces Cornish hand jigger onto holdings for ore processing. Machinery Shaft, Old Mulloch Pass, No 4 Mulloch Pass, No 4 Shaft and No 5 Shaft sunk on Block 7. No 1 Trial Shaft, No 2 Trial Shaft, No 6 Shaft and No 8 Shaft open on Block 8.
1891	Three blast furnaces built.
1892	AMA strike Overhead tramway built from smelters to hauling shaft on Blocks 7 and 8.

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Table B.1 Timeline of the development of the South Mine portion of Heritage Precinct 1 (Block 7 and 8)

Date	Developments
1893	BHSSMC 's mine is exhausted of high-grade oxide ores and blast furnaces are decommissioned. A blacksmith shop, compressor plant and electrical lighting in the smelter are noted on on Blocks 7 and 8 by this date.
1894	Lead concentrating plant constructed on on Blocks 7 and 8.
1895	Additions of jigs and bundles to BHS's lead concentrating plant. Nine men killed as ground fall causes an air blast in the main drive shaft and crosscut.
1896	Additions of crushers, bundles, and slime tanks the lead concentrating plant/mill.
1899	Reconfiguration of the lead concentrating plant reconfigured.
1900	No 2 Shaft sunk on Block 8. Manager's residence built on southern boundary of BHS's holding, in the Town of Alma.
1900-1901	Addition of Wilfley tables and regrinding section to BHS's mill.
1903	BHSSMC restructured as a no liability company. Addition of automatic feeders to BHS's mill.
1904	Steam Driven winding engine and poppet heads constructed on No 1 Shaft.
1905	Construction of new 6000 tonne gravity concentration mill. No 3 Mulloch Pass sunk on Block 7.
1906	Construction of compressor plant, completion electrical power plant, extension of workshops (blacksmith, carpenter, fitters) and additions of boiler tanks to new boiler house. Offices for underground shift bosses, change house, stables and pumping station built in vicinity of No1 shaft. No 5 Shaft cleared for open cutting. Fire service equipped on BHS's holdings. New rail line linking BHS mine to the Sulphide corporation's holdings.
1907	Addition of fuel economiser, draught fans and steam main to old concentration plant. Construction of timber storage area, slime tanks and drainage tanks on the east side of the new concentration plant.
1908	New mill opens and old mill decommissioned. No 2 Shaft and all associated plant closed along with old steam mill power plant.
1909	BHS experiments to boost zinc extraction resulting in addition of rock sharpening machine and water softening unit to new concentration plant. No 2 Shaft stripped. Change house to accommodate 1000 men built next to No 1 Shaft. Coal worker's strike and lockout.
1910	No 2 Shaft converted to fan-driven vent shaft. Addition of offices (both above and below ground), and septic tanks.
1911	Luhrig removed from the BHS concentration mill and replaced with grinding tables. Addition of exhaust turbine, condensing plant and cooling tower to power plant as well as concentrate storage floor on the first floor of the mill and a ventilating fan in No 1 Shaft. Renovations to main change house. Construction of sawmill.

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Table B.1 Timeline of the development of the South Mine portion of Heritage Precinct 1 (Block 7 and 8)

Date	Developments
1912	No 5 shaft opened in south end of BHS holding. Additions and renovations to various plant.
1913	Mining of No 1 and No 5 shafts continues, No 2 shaft reopened, and No 4 shaft stripped of plant and converted to a haulage shaft. Overhaul of No 1, 4 and 5 Shaft winder engines. Ore breaking station constructed in vicinity of No 4 Shaft headgear. Experimental laboratory and assay office built at south boundary of mining leases, Blocks 7 and 8. Silverton Tramway Co. strike.
1911-1913	Labour shortages.
1914	European contracts cancelled resulting in BHS delivering product to BHP for smelting. Work on mine occurs on alternate weeks only. No 1 Shaft sinking gear transferred to No 3 Shaft. Works begin on Slime floatation plant, acid plant and sulphide storage plant.
1915	Slime floatation plant, acid plant and sulphide storage plant complete. No 5 Shaft headframe and winder complete.
1916	Removal of underground administration office, a portion of the underground change house, and air compressor receivers to make way for the new powerhouse. Old powerhouse demolished. New underground offices at No 3 Shaft and addition of a coal bun in the vicinity of the shaft. New change house and electric winder at No 4 Shaft. Electrical workshop and stores constructed in front on general office. Munitions shop constructed but soon closed due quality control issues. Strike for better wages and shorter working week occurs in the middle of the year and is quickly resolved.
1917	Experimental cascade floatation plant constructed. No 3 Shaft reequipped with an electric winder. Ther Barrier Roasting company builds a roasting plant in the vicinity of the acid plant. Workers strike in sympathy with the Sydney Railways strike.
1918	BHSSMC becomes BHS. Slime dam constructed towards the south of the leases. Union and industrial action across the Line of Lode.
1919	Fire on 30 July 1919 destroys crushing section of BHS concentration mill including No.1 Shaft poppet heads, brace and ore bins, the course crushing plant, and mill engine house. New power plant and No 3 Shaft winder and headframe completed. Grinding pans in the regrinding section of the mill replaced with Marcy Mills. The Big Strike (AMA strike) brings production to a halt in May.
1920	The Big Strike continues. Reconstruction of fire damaged areas with the inclusion of fire prevention and firefighting equipment.
1921	Bicycle shed and basement offices added to No 1 Shaft control room. No 5 Shaft Poppet head, winding drums, break gear and operating platform complete. Partial resumption of work.
1922	Additions to the mill.

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Table B.1 Timeline of the development of the South Mine portion of Heritage Precinct 1 (Block 7 and 8)

Date	Developments
1923	Extensive modifications to the regrinding and floatation sections of the mill including the removal of the Marcy Mills and grinding pans, which were replaced with four tube mills. Lead concentration vats were demolished in relocated to above the railway lines.
1924	Old Zinc Bins dismantled and replaced by classifiers, an unloading bridge, and tank for the transport of steel balls used in the tube mills. Boiler house extended.
1925	No 7 Shaft sunk on Block 7, south of No 4 shaft. Fire service tank added west of the store.
1926	Minor modifications to south change house, floatation plant, store yard, and cooling tower.
1927	New carpenter shop and timber storage yard built. Addition of glass to the engineering workshop roof and rock drill area extended and raised.
1928	Concentration mill reconstruction works. Concrete tanks and stands added to the mill. Plant for dehydrating tailings, timber gangway and blower house built next to No 2 Shaft. Sample room in the assay department converted to electricity.
1929	Agreement for central power plant to service BHS, NBH, and The Zinc Corporation Mines.
1930	No 1 Shaft motor control room extended. Addition of apron feeders to the mill and an electric butt welder in the steel sharpening shop.
1931	Mill reconstruction complete. Ore conveyor built from No 7 Shaft to the mill. The conveyor was housed a concrete tunnel near the shaft and raised on steel piers towards mill. Central Power Station (CPS) was commissioned, and old boiler and power plants decommissioned.
1932	Great depression No 1 and 3 Shaft closed. Ventilation fan added to No 5 Shaft. Subsidence impacts resulted in construction of underground offices and an ambulance building south of No 7 Shaft. Water pumps in the pump house converted to electricity. General and assay offices on Eyre Street completed.
1933	Work starts on the new floatation plant in the concentrating mill area. The plant was connected to the slime thickening system via steel bridge. Rock drill sharpening shop added at No 7 Shaft. Mill offices and changerooms relocated to No 1 Shaft area. Pulp thickening tanks built. Corrugated galvanised iron fence built from Eyre Street to No 7 Shaft.
1934	No 1 Shaft headframe demolished. Two 20 tonne weighbridges built under the filter plant.
1935	New floatation plant complete. Pump house replaced by brick and iron building. Filtered drinking water service.

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Table B.1 Timeline of the development of the South Mine portion of Heritage Precinct 1 (Block 7 and 8)

Date	Developments
1936	Minor alterations to plant. Old plant demolished and wooden structures dismantled.
1937	Workshops refurbished. The mill's centrifugal pumps replaced. Old floatation plant and filter press demolished.
1938	Additions to the workshops including saw sharpening area at the carpenters' shop, construction of valve and meter store and repair shop, metal saw, pipe and bolt screwing machine and residue pumps. Fireproof record room added to the main store. Surface offices renovated. Works begin on new mill pump house. Old boiler house demolished and replaced by storage yard.
1939	Electric surfacing and thicknessing machine, band saw, sawdust and shavings collection system, and dust collection added to the carpenters' shop.
1940	Central Mine lease transferred to BHS.
1940-1943	BHS acquires Central Mine Block 9 and Blocks 10, 11, 12, and 13 of the BHP Mine.
1945	New Kintore head frame and winding gear transferred from No 5 Shaft.
1950	Underground haulage drive (railway) shaft constructed from Delprat Shaft to No 7 Shaft. No 7 Shaft found to be devoid of payable ore.
1952	Ore from the Central and Kintore shafts transported to BHS No 7 Shaft via underground railway.
1972	BHS cease operations. South Mine and Central Mine leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1984	New Kintore head frame moved to city museum precinct.
1991	MMM ceases operations. The South Mill is decommissioned and closed. South Mine blocks are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16.
2004	CBH Resources subsidiary Broken Hill Operations Pty Ltd.
2007	Broken Hill Operations Pty Ltd begin exploratory works on Rasp Mine.
2010	Broken Hill Operations Pty Ltd obtains lease of CML 7.

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Table B.2 Timeline of the development of the Central Mine portion of Heritage Precinct 1 (Block 9)

Date	Developments
c.1884	Block 9 pegged out but Michael Farrell and Thomas Harwood Nutt. The block was named after Farrell's wife Elizabeth. Old Kintore Shaft sunk on Block 9.
1885	[Old] Main Shaft sunk on Block 9.
1886	Block 9 sold to CBHCNL following Nutt's death.
1888	North Shaft, South Air Shaft, and Central Shaft sunk on Block 9. A winding engine, pumping gear, boiler-house, blacksmith shop and assay office are present in the vicinity of Main Shaft.
1890	Smelting plant built.
1892	CBHCNL collapses due to inability to treat sulphide ore and reforms as the BHCSMC. AMA strike.
1895	Blocks 9 and 38 taken over by the Sulphide Corporation Limited. The Corporation establishes a smelter and electrolytic treatment near Newcastle to deal with the mine's output. Open mining of Old Kintore Shaft, which is used as a dump for mullock from underground works.
1900	A2 Internal Shaft, No 2 Shaft, and Parkers Shaft sunk on Block 9.
1902	Localised subsidence "creep" begins over the Sulphide Corporation's holdings. Two people killed as a result of subsidence.
1903	Haulage shaft sunk.
1905	Extensive subsidence destroys shafts, offices and the boiler plant. New Kintore Shaft sunk on Block 9.
1906	New rail line linking BHS mine to the Sulphide corporation's holdings. The Sulphide Corporation's concentration mill destroyed by subsidence. All surface plant is moved to stable ground around the Kintore Shaft, and a new concentration mill is built. 450 m flying fox constructed to transport ore from Kintore Mine to the concentration mill.
1909	Coal worker's strike and lockout.
1913	Silverton Tramway Co. strike.
1911-1913	Labour shortages.
1916	Strike for better wages and shorter working week.
1918	Union and industrial action across the Line of Lode.
1923-1925	Underground fire closes the Central Mine. The Junction Mine is purchased for $150 000 to supplement ore until works resume.
1940	Central Mine ore reserves exhausted and mining ceases. Headframes demolished.
1940-1943	BHS acquires Block 9.

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Table B.2 Timeline of the development of the Central Mine portion of Heritage Precinct 1 (Block 9)

Date	Developments
1945	Mine reopened. Modifications to underground cages. Ambulance room added to the winder house. New Kintore head frame relocated from No 5 shaft, South Mine.
1948	Old fire and ambulance stations converted to flats for married couples.
1952	Ore from the Central Mine and Kintore shafts transported to BHS No 7 Shaft via underground railway.
1959	Kintore Shaft closed. Operations cease.
1972	South Mine and Central Mine leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds except Block 14.
1980	MMM plans to excavate a new Kintore opencut, beginning on Block 10 with Phase 2 encompassing Kintore Shaft.
1981	Interim Conservation Order placed on Kintore mine to prevent opencut mining, but the order expires.
1983	Phase 1 of Kintore opencut begins on Block 10.
1986	Building demolished for impending Phase 2 of the Kintore Open Cut, but the project never proceeded. New Kintore head frame moved to city museum precinct.
1991	MMM ceases operations. Central Mine blocks are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16.
2004	CBH Resources subsidiary Broken Hill Operations Pty Ltd.
2007	Broken Hill Operations Pty Ltd begin exploratory works on Rasp Mine.
2010	Broken Hill Operations Pty Ltd obtains lease of CML 7.

B.3 Heritage Precinct 2 historical overview

Heritage Precinct 2 encompasses the west section of Block 7 of the South Mine, which is the location of No 4 and No 7 Shafts along with their associated plant. The development timeline of the South Mine portion of Heritage Precinct 2 (Block 7) is detailed in Section B.3.1. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1. This section of the South Mine, as outlined in Heritage Precinct 1 historical overview forms part of the broader history of the South Mine.

The initial development of the west area of South Mine's Block 7 began with the sinking of No 4 Shaft in 1888 (Nixon, 2017:191). Concurrently, a Cornish hand jigger was installed as the BHSSMC ventured into experimenting with ore treatment. Previously, they had sold their ore to other companies for processing (Austral Archaeology Pty Ltd, 1992:7, 1994:17). By 1891, three blast furnaces were erected in the west part of Block 7, marking the onset of the ore treatment within the South Mine. However, the furnaces were closed just two years later, as the company had exhausted its supply of high-grade oxidised ore (Austral Archaeology Pty Ltd, 1992:7, 1994:17).

No 4 Shaft remained the primary active mine in the west part of Block 7 throughout the late nineteenth and early twentieth centuries, with various supporting surface plant structures added in its vicinity (Austral Archaeology Pty Ltd, 1992:7). Notably, in 1894, a lead concentrating plant was constructed to process friable sulphides, and by

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1904, a winch plant was in operation at No 4 Shaft (Austral Archaeology Pty Ltd, 1992:7). In 1913, No 4 Shaft underwent a transformation into a haulage shaft, and extensive underground plant works cleared the depth of 102 m. The ground surface was regraded, and a new headframe, change house and electric winding engine were installed at No 4 Shaft (Photograph B.7) (Austral Archaeology Pty Ltd, 1992:7). It is noteworthy that the electric winding engine, installed in 1916, is believed to be the first of its kind on the Line of Lode (Austral Archaeology Pty Ltd, 1992:7).

In 1929, the sinking No 7 Shaft commenced, situated south of No 4 Shaft, along with the construction of associated surface plant structures (Photograph B.8) (Austral Archaeology Pty Ltd, 1992:8; Nixon, 2017:191). By 1932, structures around the South Mine had suffered damage from subsidence, prompting the construction of offices and an ambulance building on stable land south of No 7 Shaft (Austral Archaeology Pty Ltd, 1992:8). Furthermore, as South Mine shafts were decommissioned during the mid twentieth century, essential infrastructure, such as the pumping station was erected in the west part of Block 7 (Austral Archaeology Pty Ltd, 1992:8). Plate B.3 provides an overview of the infrastructure surrounding No 4 Shaft and No 7 Shaft in 1939.

By the 1950s, No 7 Shaft had been depleted of economically viable ore. Nonetheless, Heritage Precinct 2 assumed the role of the primary ore processing centre for the combined holding of BHS (Photograph B.9) (Austral Archaeology Pty Ltd, 1994:25). In 1950, a 1.8 km-long haulage shaft, known as the Long Drive, was excavated between Delprat Shaft and No 7 Shaft. The initial aim was to access an ore lode known as the Western Mineralisation (Nixon, no date:12). However, the Western Mineralisation project was abandoned in 1960, and a decision was made to extend the Long Drive to Browne Shaft in Junction Mine by 1962 (Plate B.4) (Nixon, no date:17–20; Austral Archaeology Pty Ltd, 1994:25–26). Ore processing operations continued at the South Mine until 1991 (Austral Archaeology Pty Ltd, 2013:13).

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Source: Nixon 2017:218

Photograph B.7 No 4 Shaft headframe, 1919

Source: Nixon 2017:216

No 4 headframe is on the left and No 7 headframe if on the right of the image.

Photograph B.8 No 4 Shaft and No 7 Shaft headframes, c.1932, looking east

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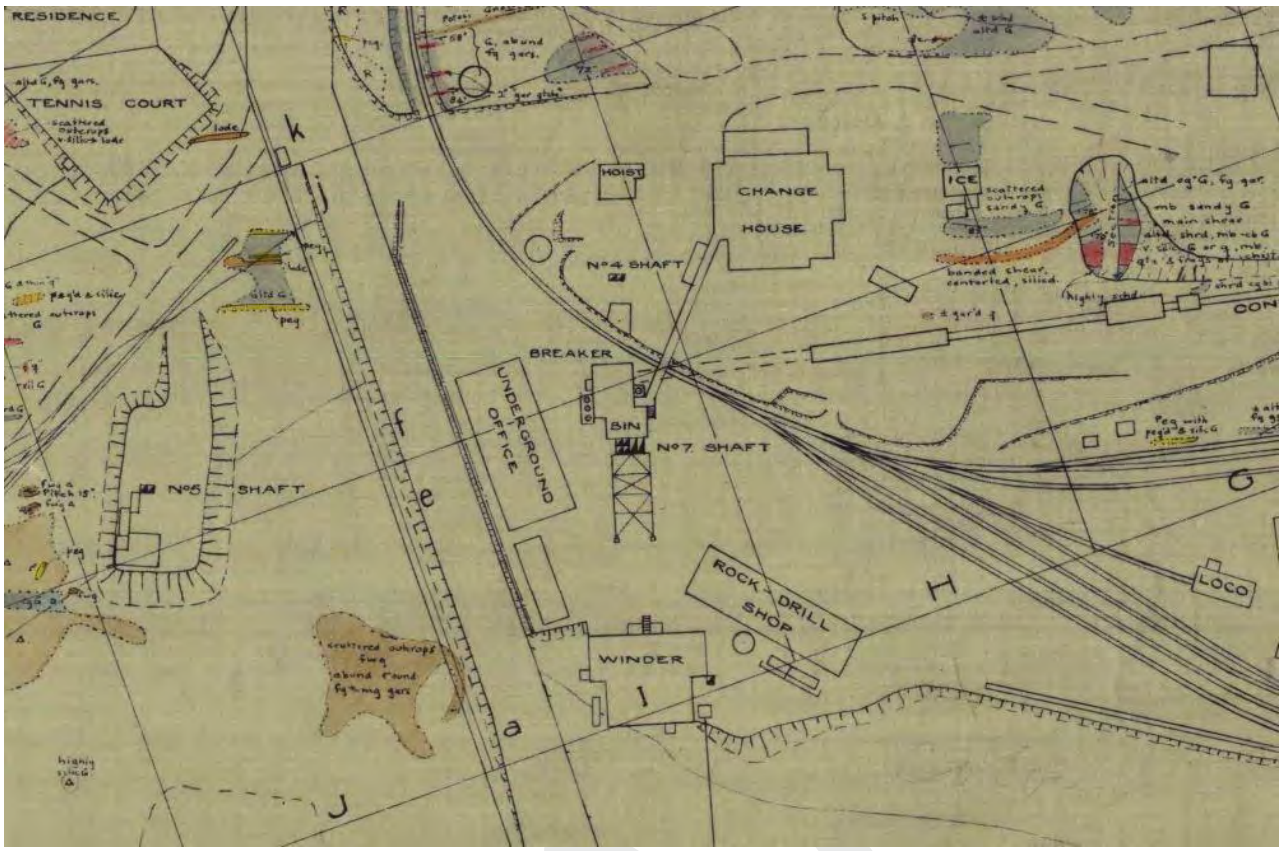

Source: CBH Resources archives, Surface plan 13M7 1939

Plate B.3 **Detail of plan of surface infrastructure on the Broken Hill South Limited holding showing NO 4 and No 7 Shafts, 1939**

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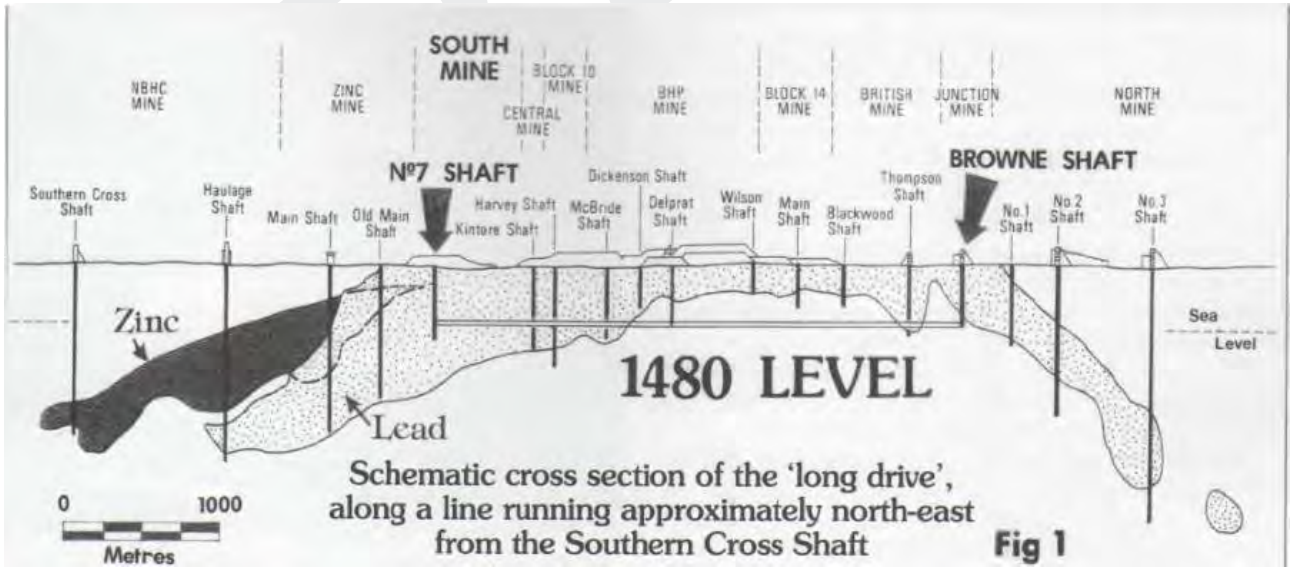
No. 7 headframe is on the left and No 4 headframe if on the right of the image. Trucks of ore brought to South Mine for processing can be seen in the foreground of the photograph.

Source: Nixon 2017:217

Photograph B.9 Surface infrastructure around No 4 and No 7 Shafts, 1959, looking west



Source: Nixon n.d:19

Plate B.4 Schematic section of the Long Drive

B.3.1 Heritage Precinct 2 timeline

Table B.3 Timeline of the development of Heritage Precinct 2

Date	Developments
c.1884	Blocks 5 to 7 claimed by William, George and Charles Maiden. The claim was named Maiden's Great Bonanza. Blocks 5 to 8 sold to Keats and Company.
1886	Blocks 5 to 8 floated on Melbourne Stock Exchange and BHSSMC forms. Mining of ore commences on Blocks 7 and 8 with material being sold to neighbouring companies operating lead smelters.
1888	No 4 Shaft sunk of Block 7. BHS installs Cornish hand jigger.
1891	Three blast furnaces constructed to treat oxidised ore.
1893	Blast furnaces cease operation as high-grade oxidised ore exhausted.
1894	Lead concentrating plant built in the upper levels to treat friable sulphides.
1903	BHSSMC restructured as a no liability company.
1904	A winch house is present at No 4 Shaft.
1905-1908	Gravity concentrating mill constructed.
1907	"New Magazine" present north of No 4 Shaft.
1908	Winch and rope working recorded on No 4 Shaft
1913	No 4 Shaft stripped of plant and converted to a haulage shaft. No 4 Shaft winder engines replaced by geared electric winders. Ore breaking station constructed in vicinity of No 4 Shaft headgear.
1914-1915	Gound level contour alterations around No 4 Shaft.
1916	New headframe, change house and electric winding engine at No 4 Shaft. Gasometer installed north-west No 4 Shaft.
1918	BHSSMC becomes BHS.
1919	Ice making plant installed next to magazine.
1922	Bicycle shed added to change house.
1925	No 7 Shaft approved to be sunk south of No 4 Shaft.
1929	Works begin at No 7 Shaft.
1931	New crusher station processing ore from No 7 Shaft. No 7 Shaft skip winder operating under automatic control.
1932	No 7 Shaft cage winder operating under manual control. Subsidence impacts across South Mine result in construction of underground offices and an ambulance building south of No 7 Shaft.
1933	Rock drill sharpening shop added at No 7 Shaft. New water pumping system constructed in the vicinity of No 7 Shaft following the closure of No 1 Shaft. Galvanised iron fence built from Eyre Street to No 7 Shaft.
1936	Covered railway built between change house to No 7 Shaft.

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Table B.3 Timeline of the development of Heritage Precinct 2

Date	Developments
1939	Change house, underground offices, and rock drill shop renovated. Ambulance room rearranged.
1940-1943	BHS acquires Central Mine holdings and Blocks 10, 11, 12, and 13 of the BHP Mine.
1950	Underground haulage drive constructed from Delprat Shaft to No 7 Shaft. No 7 Shaft found to be devoid of payable ore.
1952	Ore from the Central and Kintore shafts transported to BHS No 7 Shaft via underground haulage drive.
1962	Works begin to extend the "Long Drive" haulage shaft to connect the Junction Mine to the No 7 Shaft on the BHS Mine.
1972	BHS ceases operations. South Mine and Central Mine leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds except Block 14.
1991	MMM ceases operations. The South mill is decommissioned and closed. South Mine blocks are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16.
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.
2010	BHOP obtains lease of CML 7.

B.4 Heritage Precinct 3 historical overview

Heritage Precinct 3 is situated within the boundaries of mining lease Block 39, known as the Broken Hill Junction Mine. Junction Mine holds significant historical importance along the Line of Lode, as it operated continuously from its inception in 1884 until 1972 (Austral Archaeology Pty Ltd, 1990:4). The development timeline of Heritage Precinct 3 (Block 39) is detailed in Section B.5. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1.

Block 39 was originally pegged out by Penglase and Carson in 1884, and the claim was named the Great Northern Junction (Nixon, 2017:112). The first shaft, known as North Shaft, was sunk adjacent to the ore outcrop in 1885 (Nixon, 2017:117, no date:7). The mine was officially registered as the Broken Hill Junction Silver Mining Company Limited (BHJSMC) the following year, and Browne's Shaft, King Shaft and Macintyre Shaft were sunk after the discovery of rich ore in the upper levels of the mine (Photograph B.10)) (Austral Archaeology Pty Ltd, 1990:7; Nixon, 2017:112, 117). Notably, the wooden Browne's Shaft poppet head and winder was raised in 1890 (Photograph B.11) (Nixon, no date:7; Austral Archaeology Pty Ltd, 1990:7). It is important to mention that the Browne's Shaft headframe still stands today and is recognised as the oldest headframe along the Line of Lode (Broken Hill City Council, 2023b). Macintyre Shaft was converted to serve as the mine's haulage shaft in 1890, while Browne's Shaft becoming the primary working shaft (Nixon, no date:7; Austral Archaeology Pty Ltd, 1990:7). Adams Shaft, the fifth and final shaft on the Junction Mine, began development in 1891 (Nixon, 2017:117).

However, the Junction Mine faced challenges due to poor management and inefficiency over the first decade of the twentieth century (Nixon, 2017:13). Its development was closely tied to fluctuation in lead prices, leading to mine closure or reduced operations in the years when the lead prices dropped (Austral Archaeology Pty Ltd,

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1990:10, 13, 15; Nixon, 2017:112–113). Furthermore, an underground fire in 1906 resulted in the flooding of the surrounding mines and the collapse of the Macintyre Shaft (Nixon, 2017:112). The BHJSMC underwent significant reconstructing in 1909, yet the pattern of alternating periods of development and temporary mine closures persisted until the mine's ultimate closure in 1921 (Austral Archaeology Pty Ltd, 1990:10–19; Nixon, 2017:113).

In 1923, the Sulphide Corporation acquired the Junction Mine and constructed a railway line and powerlines to connect it to the Sulphide Corporation's Central Mine the following year (Plate B.5) (Austral Archaeology Pty Ltd, 1990:19). While the Sulphide Corporation crushed ore at the Junction Mine, they continued to use their Central Mine plant for additional treatment (Austral Archaeology Pty Ltd, 1990:19). However, the Sulphide Corporation's ownership of the Junction Mine was relatively short-lived, as the mine closed in 1928 and was taken over by NBH in 1929 (Austral Archaeology Pty Ltd, 1990:19; Nixon, 2017:113). NBH also owned the neighbouring British Mine, so the northwest area of the Line of Lode became known as the British Section (Nixon, 2017:113).

Between 1937 and 1939, efforts were made to drain water from Browne's Shaft, reopening the mine to a depth of approximately 275 m (Austral Archaeology Pty Ltd, 1990:19–21; Nixon, 2017:113). In addition, the Browne's Shaft headframe underwent modifications, and an electric winder was installed at the shaft in 1940 (Photograph B.12) (Nixon, no date:7; Austral Archaeology Pty Ltd, 1990:21). Junction Mine resumed full operations in 1946, continuing until it was sold to BHS in 1961 (Austral Archaeology Pty Ltd, 1990:21; Nixon, 2017:113–114). The 4.5 km Long Drive haulage shaft, connecting the South Mine to Browne's Shaft in 1963, allowed ore from the northern leases to be processed at the South Mine (Nixon, no date:2). By 1964, Browne's Shaft had reached a depth of approximately 457 m (Austral Archaeology Pty Ltd, 1990:21). Operations at the Junction Mine ceased in 1972 when all leases of BHS were transferred to MMM (Austral Archaeology Pty Ltd, 1990:21). The area continues to be a prominent feature of the Broken Hill skyline, and the Junction Mine and Lookout are integral part of the Broken Hill tourist trail (Nixon, 2017:217; Broken Hill City Council, 2023b).

Source: State Library South Australia, call no. B 54756/35

Photograph B.10 The Junction Mine, 1888

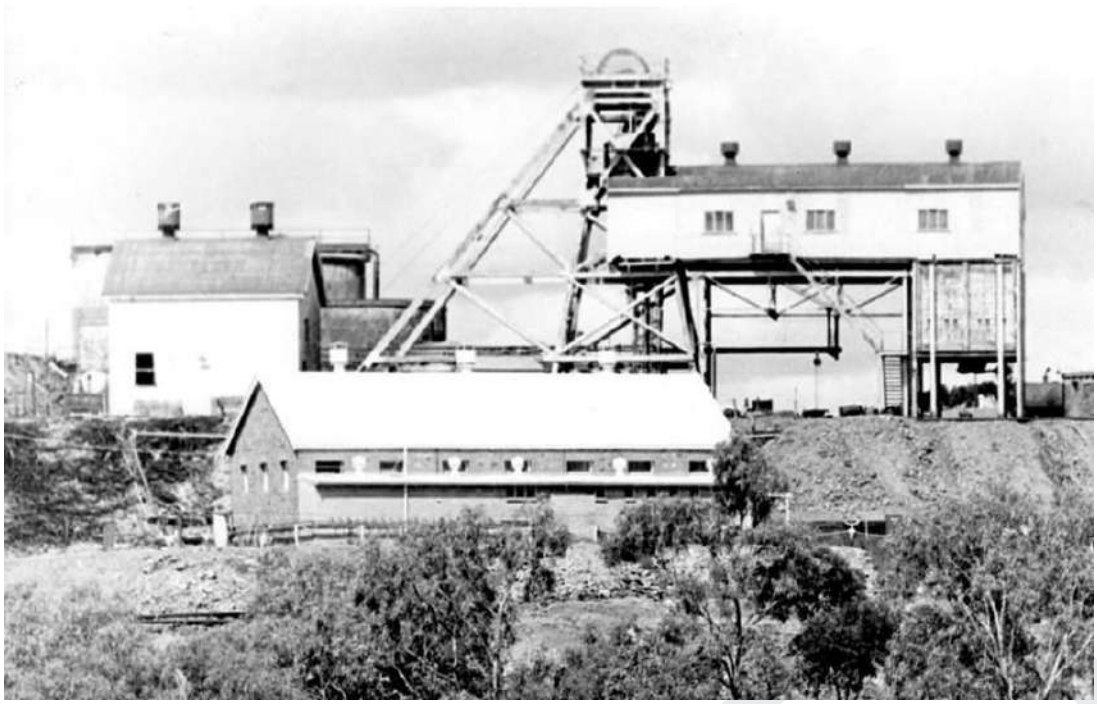
North Shaft is the small headframe visible on the left side of the image and Brownes Shaft headframe is the large structure in the right of the photograph.

Source: Nixon 2017:122

Photograph B.11 Junction Mine, 1906

Source: CBH Resources archives, Surface plan 14M5 and 14M6 1939

Plate B.5 Plan of surface infrastructure on the Junction Mine, 1939



Source: Nixon 2017:123

Photograph B.12 Junction Mine, c.1950

B.5 Heritage Precinct 3 timeline

Table B.4 Timeline of the development of Heritage Precinct 3

Date	Developments
1884	Block 39 pegged out by Penglase and Carson. The claim was named Great Northern Junction.
1885	North shaft sunk.
1886	BHJSMC registered. Browne's Shaft sunk. This shaft was variously known as the Main Shaft and Penglase Shaft before being renamed Browne's shaft after company director Sylvester Browne. King Shaft and Macintyre Shaft sunk. Small pockets of rich ore found in upper levels. George Rogers appointed mine captain.
1890	Knowies steam pumps present on the lease. A second furnace brought to the lease from Port Adelaide. Timber poppet head and winder under construction on the south (Browne's?) shaft. Macintyre Shaft used as a haulage shaft.
1891	Adams shaft sunk.
1897	New plant under construction.
1900	Additional mill machinery installed on the lease. New retreatment plant, jigger, and crusher house under construction.
1901	Mine closed most of the year.
1902	Limited work begins part-way through the year, primarily focused on Browne's Shaft.

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Table B.4 Timeline of the development of Heritage Precinct 3

Date	Developments
1904	Mill machinery refurbished with hopes of increasing recovery and efficiency. Additions included automatic travelling chain and bucket sampler, shaking feeder, classifiers, No 5 Krupp ball mill, and trommels. May jigs were replaced with Wilfley tables. Geared winding engine on Macintyre Shaft relocated to Browne's Shaft. King Shaft leased by British mine for use as a haulage shaft.
1905	Mine closed in June and July.
1906	Extensive underground fire resulting in 104 million litres of water being pumped into the mine to extinguish the blaze. Firefighting caused flooding of the North and Junction North Mines as well as the collapse of the Macintyre Shaft. The collapsed Macintyre Shaft was later used as Mullock dump. Mill continues processing ore.
1907	Mine closed due to falling lead prices.
1909	Mill remodelling works including new mill engine, two water tube boilers, electric generator, and addition of two grinding pans. Mill purchased from the Australian Metal Company at Railwayton (a historical town/suburb south-west of Broken Hill) relocated to the mine. Ore bins from Macintyre Shaft relocated to Browne's Shaft. Building on the mine re-arranged to form three-sides of a square. BHJSMC board of directors is forced to resign due to heavy losses and mismanagement.
1910	Full operations recommence. Browne's Shaft re-timbered. Chimney stack relocated to mine from Australian Metal Company.
1911	No work for the year beyond planning for future plant.
1912	Mining and Milling resume. Lead concentration plant and electrical power plant constructed. Engineering workshops and plant reorganised as mine converted to electricity and electric power tools added to workshops.
1913	Additions to the mill including five concentration tables and a selective floatation set.
1914	Mine closed.
1915	Only maintenance work performed.
1916	Operations resume. Construction begins on a first motion winding plant. Offices, sawmill, and sampling mill added to the mine.
1917	Ore transported to Central Mine for treatment. First motion winding engine complete. Addition of Gates gyratory breaker and air compressor.
1918	Development of underground plant. Change house added near main shaft.
1919	No work due to worker's strike.
1920	Air compressor added to site.
1921	Mine closed.

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Table B.4 Timeline of the development of Heritage Precinct 3

Date	Developments
1923	Block 39 taken over by the Sulphide Corporation.
1924	Railway connects Junction Mine to Central Mine. Power line run from power station at Central Mine to Junction Mine.
1925	Crushing plant continues to be operated on Junction Mine with ore transferred to Central Mine for treatment.
1928	Mine no longer in production.
1929	NBH purchase Block 39, along with the neighbouring British mine. The area becomes known as the "British Section".
1937-39	Water partially drained from Browne's Shaft. The shaft is reconditioned to No 9 level.
1940	Electric winder installed on Browne's Shaft and timber headframe modified.
1946	Junction Mine back in production.
1958	Alterations to ore haulage equipment.
1961	The "British Section" sold to BHS.
1962	Works begin to extend the "Long Drive" haulage shaft to connect the Junction Mine to the No 7 Shaft on the BHS Mine. This allowed ore from the northern leases to be processed on the south leases.
1963	Long Drive works complete.
1964	Development of Level 15 of Browne's Shaft.
1972	BHS ceases operations. All leases transferred to MMM.
1975	Browne's Shaft ore reserves tested to be no longer economical.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.
2010	BHOP obtains lease of CML 7.
Present	Junction Mine and Lookout are a tourist destination.

B.6 Heritage Precinct 4 historical overview

Heritage Precinct 4 is situated within the boundaries of mining lease Block 10. The development timeline of the Heritage Precinct 4 (Block 10) is detailed in Section B.7. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1.

Block 10 was originally part of the original Broken Hill blocks pegged by Rasp and McCulloch in 1884 (Austral Archaeology Pty Ltd, 1994:27). It remained under the ownership of the original leases managed by the Syndicate of Seven and later the BHP until 1888, when BHP established the Broken Hill Proprietary Block 10 Company

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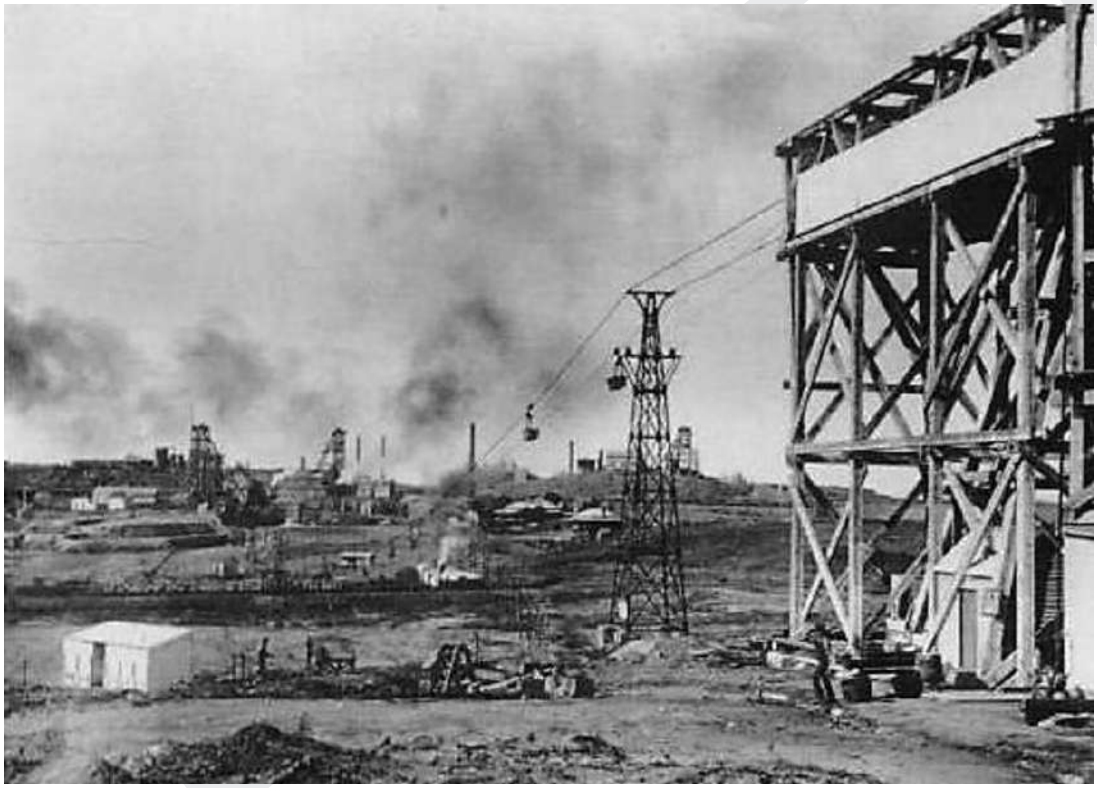
Limited (BHP Block 10) to mine the block (Austral Archaeology Pty Ltd, 1994:28; Nixon, 2017:74). No. 1 Main Harvey Shaft was sunk on Block 10 in 1886, with BHP Block 10 Company primarily focused on extracting ore for export (Nixon, 2017:74, 78).

BHP Block 10 Company began processing their own ore after constructing a concentration mill on the Block between 1889 and 1894 (Austral Archaeology Pty Ltd, 2012:6). However, in 1903, issues related to subsidence arose in the shafts and near the concentration mill. As a result, a new all-electric mill was erected on the adjacent hill, situated 600 m away from the original mill site (Austral Archaeology Pty Ltd, 2012:6; Nixon, 2017:75). To transport ore from the mines to the new mill, an aerial rope tramway was installed in 1904, and new shafts were sunk on Block 10 in 1905 and 1908 (Photograph B.13) (Austral Archaeology Pty Ltd, 2012:6; Nixon, 2017:75, 78). The first decade of the twentieth century marked the peak of Block 10 mining, with the mine consistently profitable from its inception until the BHP Block 10 Company ceased operations in 1923 (Austral Archaeology Pty Ltd, 2012:6; Nixon, 2017:76).

Block 10 was repurchased by BHP in 1924 and mining operations continued until ore reserves were depleted in 1939 (Plate B.6) (Austral Archaeology Pty Ltd, 2012:6). In 1943, the mine was taken over by BHS, who established subsidiary company Barrier Central Pty Ltd to mine Blocks 10 to 13 in 1952, and works continued on Block 10 until 1962 (Austral Archaeology Pty Ltd, 2013:12). MMM took over the mine in 1972 and established the Kintore opencut on Block 10 in 1983 (Austral Archaeology Pty Ltd, 1994:36).



Source: Nixon 2017:84

Photograph B.13 Block 10 Mine viewed from the new concentration mill, showing the aerial tramway, 1910

Source: CBH Resources archives, Surface plan 13M10 1939

Plate B.6 Plan of surface infrastructure on the Block 10 Mine, 1939

B.7 Heritage Precinct 4 timeline

Table B.5 Timeline of the development of Heritage Precinct 4

Date	Developments
1884	Part of the original blocks pegged out by Rasp and McCulloch, later falling under ownership of the Syndicate of Seven.
1885	The Syndicate of Seven reorganises to form BHP.
1888	The BHP Block 10 floated as a subsidiary company of BHP. No 1 Main Harvey Shaft sunk. Works focus on extracting ore to be exported to local and European smelters for processing.
1889	Campbell Shaft sunk. Rich kaolin ore located at 243 feet.
1889-1894	Construction of concentration mill to processes sulfide ore.

Table B.5 Timeline of the development of Heritage Precinct 4

Date	Developments
1890	Kelly Shaft sunk. Mine works overseen by manager "Captain" John Warren.
1903	Subsidence due causes stability issues in shafts and around concentration mill. The concentration mill site is relocated to the more stable ground of the adjacent hill 600 meters away and an electric mill is built on the new site.
1904	Aerial ropeway constructed to transport ore from the mine to the concentration mill, over the main road connecting the north and south section of the Broken Hill township.
1905	New Main Shaft sunk.
1908	New No 2 Main Shaft sunk.
1910	Floatation units added to the concentration mill. Allowed zinc concentrate to be produced from tailings.
1923	BHP Block 10 ceases operation.
1924	BHP re-purchases the mine lease.
1925	Winding engine installed at Main Shaft in preparation for mining the lease.
1939	Ore is exhausted and mining ceases.
1943	Block 10 taken over by BHS.
1945	Kelly Shaft cleared out in preparation for future works. New water dam installed.
1946	General repairs over the lease.
1962	BHS ceases mining activities.
1972	BHS ceases operations. All leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1983	Phase 1 Kintore opencut underway on Block 10.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.
2010	BHOP obtains lease of CML 7.

B.8 Heritage Precinct 5 historical overview

Heritage Precinct 5 encompasses the north portion of mining lease Block 12, which is the location of the heritage precinct centres on Delprat Shaft and the surrounding BHP surface plant structures. The development timeline of Heritage Precinct 5 (Block 12) is detailed in Section B.9. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1.

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Block 12 was originally part of the original Broken Hill blocks pegged out by Rasp and McCulloch in 1884. It remained under the ownership of the Syndicate of Seven and later became a part of the holdings of BHP on the Line of Lode (Austral Archaeology Pty Ltd, 1994:27). BHP South constructed a smelter in the north-end of Block 12 in 1887, marking the first industrial plant in this area of the mine (Austral Archaeology Pty Ltd, 2012:39–40). In 1895, BHP began dumping slag in the north part of Block 12, and the construction of a pump house and tanks marked a period of intense development in the area during the turn of the last century. This phase of development also included the construction of BHP's first sulphide concentration mill and its associated plant structures between 1897 and 1900 (Austral Archaeology Pty Ltd, 2012:28–46).

The first shaft, Stewart Shaft, was sunk in 1899, followed by Delprat Shaft in 1900 (Photograph B.14) (Nixon, 2017:19; Broken Hill City Council, 2023). Delprat Shaft was named after Guillaume Daniel Delprat, who served as the BHP mine manager from 1899 to 1921 and made significant contributions to the Potter-Delprat process, which utilised a hot salt cake solution to extract zinc from ore and tailings (Nixon, 2017:11; Broken Hill City Council, 2023). As a result of this innovation, a sulphuric acid plant and "salt-cake" production plant were constructed on Block 12 in 1904 (Austral Archaeology Pty Ltd, 1994:31). Over the early twentieth century, the Delprat Shaft, the mill, and the acid plant underwent multiple upgrades to adapt to changing technologies and improve ore treatment processes for higher yields (Austral Archaeology Pty Ltd, 1994:33–34). The mine experienced periods of closure during the 1920s and 1930s due to industrial action from 1918, depleting ore deposits, and falling lead prices (Austral Archaeology Pty Ltd, 1994:33–34; Nixon, 2017:12). BHP ceased mining in 1939 as the company shifted its focus toward iron and steel industries (Austral Archaeology Pty Ltd, 1994:33–34; Nixon, 2017:12). Plate B.7 provides an overview of the surface plant's extent around Delprat Shaft at the time of the BHP mine closure.

In 1943, Block 12 was taken over by BHS (Austral Archaeology Pty Ltd, 1994:34). Significant upgrades occurred in Heritage Precinct 5 in 1952 (Austral Archaeology Pty Ltd, 2012:11–52). The original wooden Delprat Shaft headframe was replaced with a steel headframe positioned in the opposite orientation, and the steam-driven winding engine was substituted with an electric model (Austral Archaeology Pty Ltd, 2012:11; Broken Hill City Council, 2023). Additionally, the change house was modernised, and a winder house and offices, which are believed to be relocated earlier structures, were added to the site (Photograph B.15) (Austral Archaeology Pty Ltd, 2012:14–22).

Following the transfer of Block 12 to MMM, Heritage Precinct 5 was opened as a tourist attraction in 1977 (Broken Hill City Council, 2023a). However, the precinct was closed to tourists in 2007 as CBH Resources commenced mining operations in the vicinity of the site (Broken Hill City Council, 2023a).

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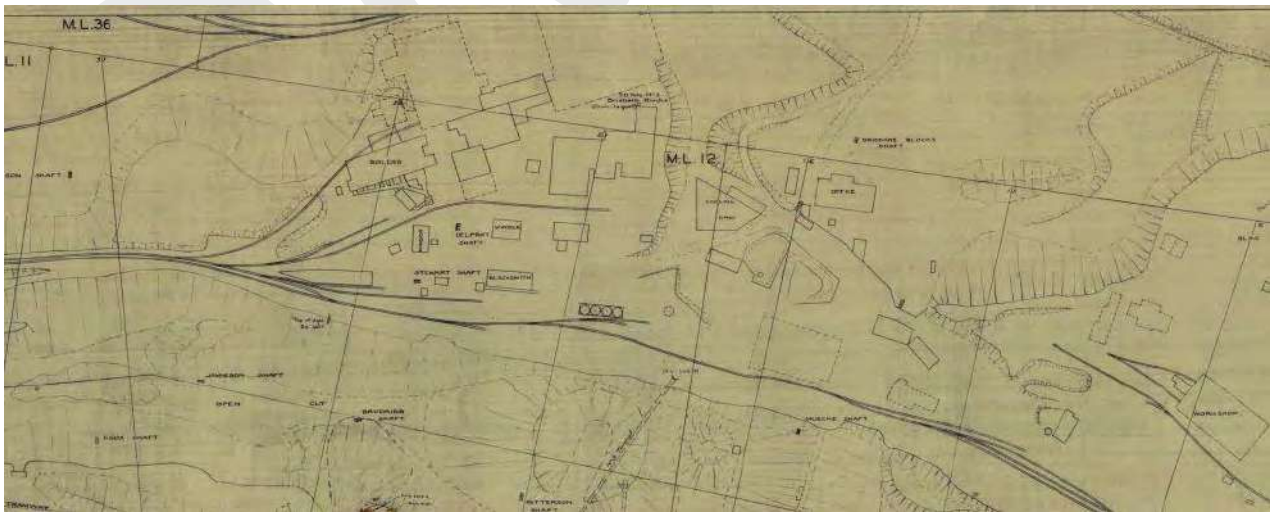
Source: University of Melbourne, Call no: 1974.0040.00466

Photograph B.14 Undated (between 1901 to 1952) photograph of B. H. P. Mine Delprat Shaft Headgear



Source: CBH Resources archives, Surface plan 13M8 1939

Plate B.7 Plan of surface infrastructure on the Block 12, in the vicinity of Delprat Shaft, 1939

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Source: Nixon 2017:39

Photograph B.15 Delprat Shaft, 2017

B.9 Heritage Precinct 5 timeline

Table B.6 Timeline of the development of Heritage Precinct 5

Date	Developments
1884	Part of the original blocks pegged out by Rasp and McCulloch, later falling under ownership of the Syndicate of Seven.
1885	The Syndicate of Seven reorganises to form BHP.
1887	BHP south smelter built north end of Block 12.
1895	Pump house and tanks built north end of Block 12. Dumping of slag begins in this area.
1896	Ore bins and boiler house installed at the north of Block 12.
1897	Construction begins on BHP's first sulphide concentration mill.
1899	Stewart Shaft sunk. All smelters on BHP's holdings closed by this year.
1900	Delprat Shaft sunk. The shaft was named after Guillaume Daniel Delprat, metallurgist and mining engineer, who was BHP's general manager between 1899 to 1921. Concentration mills complete. The site included a crushing plant in the north, engine house and air compressor at the centre, and older sulphide section in the south.
1901	Headframe and winding gear installed at Delprat Shaft. The shaft was connected to the concentration mill via a bridge. Change house built. Magnetic separating machine installed on the site for experimental testing.

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Table B.6 Timeline of the development of Heritage Precinct 5

Date	Developments
1903	Additions to the concentration mill including three ball mills, which replaced the grinding mills, magnetic separator and condenser unit. Delprat patents a zinc-floatation process to treat sulphide ore. Charles Potter of the Block 14 mine, who had patented a similar method instigates litigation.
1904	Sulphuric acid plant and “saltcake” production plant built. Vanner house complete.
1905	Addition of six ball mills to concentration mill
1906	Operations around Delprat Shaft begin to be converted to electricity.
1907	Litigation ends with the zinc-floatation method named the Potter-Delprat process.
1909	Worker’s strike all underground operations cease.
1910	Strike action continues. Additions to the concentration mill include a conveyor belt from the mill to the regrinding plant.
1911	Improvements to concentration plant.
1912	Additions to the concentration mill includes eight Wilfley tables.
1913	Additions to the concentration mill include jigs and the replacement of belt vanners with Wilfley tables.
1916	Strike action for five weeks.
1918	Union and industrial action across the Line of Lode.
1919	The Big Strike (AMA strike) brings production to a halt in May.
1920	The Big Strike continues.
1921-1924	All underground work suspended.
1927	Lack of payable ore and low lead prices result in closure of the BHP mine holdings on 24 September.
1929	Mine re-opens in September. All ore treatment is performed by the Sulphide Corporation.
1930	Mine closed.
1938	Mine re-opens.
1939	All mining operations suspended due to lack of payable ore. All extracted ore stockpiles continue to be processed.
1943	Block 12 taken over by BHS.
1952	The Delprat wooden headframe is replaced with a steel headframe and the orientation of the headframe is reversed. The steam-driven winding gear is also replaced with an electric model and loading platform added to the site. Delprat becomes the primary underground mine. Change house upgraded. Winder house and offices added to the site. These structures may have been relocated from elsewhere on the mine.
1972	BHS ceases operations. All leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds, except Block 14.

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Table B.6 Timeline of the development of Heritage Precinct 5

Date	Developments
1977	Delprat Mine becomes a tourist attraction.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine. The mine is closed to tourists as CBH Resources begins works nearby.
2010	BHOP obtains lease of CML 7.

B.10 Heritage Precinct 6 historical overview

Heritage Precinct 6 is situated within the boundaries of mining lease Blocks 15 and 16, which, in conjunction with Block 95, collectively constituted the British Mine (Nixon, 2017, pp. 40–41). The precinct is specifically focused on Thompson Shaft and its associated surface features. The development timeline of Heritage Precinct 6 (Block 15 and 16) is detailed in Section B.11. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1.

Blocks 15 and 16, located in close proximity to each other, were originally part of the initial Broken Hill blocks pegged out by Rasp and McCulloch in 1884 (Austral Archaeology Pty Ltd, 1994:27). These two Blocks remained under the ownership of the Syndicate of Seven and later BHP until they were acquired by London-based British Broken Hill Proprietary Company Limited (British BHP) in 1887 (Nixon, 2017:41). Development of the British Mine began the following year with seven shafts sunk across Blocks 15 and 16 (Austral Archaeology Pty Ltd, 1994:34; Nixon, 2017:46). In addition, winding gear and pumping plant were under construction at No 1-3 and 6 Shafts, and work had begun on a concentration plant (Austral Archaeology Pty Ltd, 1994:34). Thompson Shaft, on Block 15, was one of these first shafts and was originally referred to as No 5 Shaft (Austral Archaeology Pty Ltd, 1994:34; Nixon, 2017:46). Thompson Shaft and Patton Shaft were converted to haulage shafts following collapse of their sides due to the friable soil matrix in the area (Austral Archaeology Pty Ltd, 1994:34). Excavation progress of the *British Mine* shafts was influenced by the variable geology and high water table in Blocks 15 and 16 (Austral Archaeology Pty Ltd, 1994:35).

Thompsons Shaft was closed in 1892 due to lack of payable ore, nevertheless, the construction of surface plant, workshops, and offices continued over the mine (Plate B.8) (Austral Archaeology Pty Ltd, 1994:35). In 1899, however, Thompsons Shaft was reopened and pumping operations were started to remove water from the upper levels of the Shaft (Austral Archaeology Pty Ltd, 1994:35). As the water receded, a new headframe and winding equipment was installed to support ore exploration works and in 1905, payable sulphide ore was found (Photograph B.16) (Austral Archaeology Pty Ltd, 1994:35, 2012:54–55). Ore blocking began at Thompsons Shaft in 1906 and an aerial tramway was built to convey ore from Thompson Shaft and Marsh Shaft to the new mill site (Austral Archaeology Pty Ltd, 1994:35). In 1908, ore exploration connected Thompsons and Howell Shaft at a depth of 244 m (Austral Archaeology Pty Ltd, 1994:35). Works continued around Thompsons Shaft leading up to the First World War, including the relocation of the Howell Shaft winding engine to Thompsons in 1911 and construction a time office in 1913 (Austral Archaeology Pty Ltd, 1994:35–36).

The *British Mine* closed during the First World War and the years following the war punctuated by industrial action across the Line of Lode (Austral Archaeology Pty Ltd, 1994:36). Even so, progress was made during the Big Strike of 1919 with Thompsons Shaft re-timbered and general and assay offices built in that year (Plate B.9)

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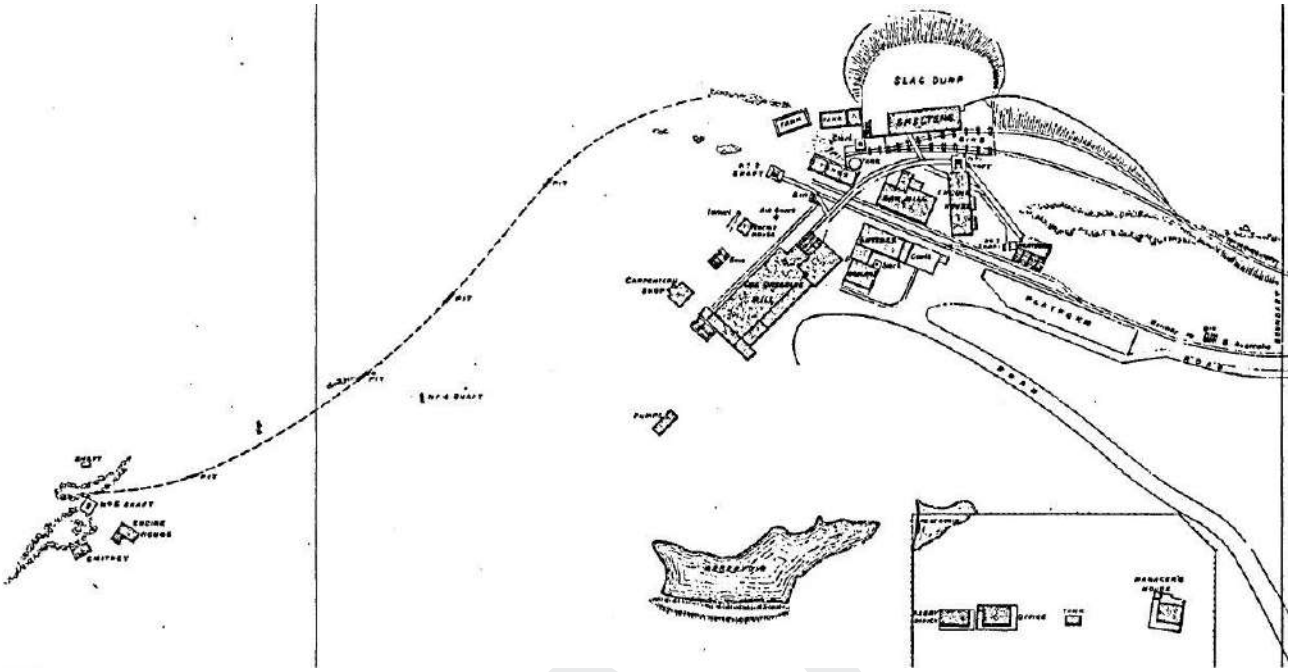
(Austral Archaeology Pty Ltd, 1994:36). The interruptions to works did affect the *British Mine's* profitability, however, and the mine was sold to the British Australian Broken Hill Proprietary Co. Ltd in 1923 (Nixon, 2017:41). NBH took over the mine in 1929 and works continued through the ownership BHS from 1962 until MMM ceased all underground mine works in 1976 (Nixon, 2017:41).



Source: Artefact 1994:72

Plate B.8 British BHP Co Ltd layout of surface plant, 1892

Source: Nixon 2017:49

Photograph B.16 Thomsons Shaft, c.1930

Source: CBH Resources archives, Surface plan 14M5 1939

Plate B.9 Plan of surface infrastructure in the vicinity of Thompsons Shaft, 1939

B.11 Heritage Precinct 6 timeline

Table B.7 Timeline of the development of Heritage Precinct 6

Date	Developments
1884	Part of the original blocks pegged out by Rasp and McCulloch, later falling under ownership of the Syndicate of Seven.
1885	The Syndicate of Seven reorganises to form BHP.
1887	British BHP acquire Blocks 15 and 16 from BHP.
1888	Blackwood's Shaft (No 1 Shaft), No. 3 Shaft, Eyre Shaft (No 4 Shaft), Thompsons Shaft (No 5 Shaft), Patton Shaft (No 7 Shaft), sunk on Block 15. Howell Shaft (No 2 Shaft), Marsh Shaft (No 6 Shaft) sunk on Block 16. Winding gear and pumping plant noted to be under construction at Nos 1-3 and 6 Shafts. Concentration plant under construction.
1889	Nos 5 and 7 Shafts converted to haulage shafts following collapses at the sides due to friable matrix. The headframe is removed from Thompsons Shaft. AMA strike impacts work.
1890	Retallick Shaft sunk on Block 16.

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Table B.7 Timeline of the development of Heritage Precinct 6

Date	Developments
1892	Work suspended on Thompsons Shaft due to lack of payable ore. Manager's, general and assay offices present on site by this time in the vicinity of Proprietary Square. AMA strike impacts work.
1895	Construction of change house and rock drill shop. Old store converted to a repair shop and old carpenters shop converted to a store.
1899	Pumping operations begin on Thompsons Shaft and a headframe and winding gear are installed to start exploratory works in levels 1 and 2.
1901	Pumping operations at Thompsons Shaft continue.
1905	Patton Shaft sunk on Block 15. Payable grade sulphide ore found on Thompsons Shaft.
1906	Ore blocking works at Thompsons Shaft. Aerial tramway to convey ore from Thomspon and Marsh Shaft to the mill under construction. Boilers completed at Thomspon and Marsh Shafts.
1907	Sinking of Thompsons Shaft remains slow due to water at lower levels.
1908	Thompsons Shaft connected to Howell Shaft at 800 feet to investigate ore lode between the shafts.
1909	Renovations to surface plant around Thompsons Shaft including replacement of poppet heads, and increase in height of the brace, truck way and ore bins.
1911	The winding engine from Howell shaft moved to Thompson Shaft.
1913	Time office built near Thompson Shaft.
1914-1916	Mine closed due to First World War and falling ore markets.
1917	Mine works resume.
1918	Union and industrial action across the Line of Lode.
1919	Thompsons Shaft retimbered. New general and assay offices built. The Big Strike (AMA strike) brings production to a halt in May.
1920	The Big Strike continues.
1921	Thompson Shaft reaches level 12.
1923	Blocks sold to British Australian Broken Hill Proprietary Co. Ltd.
1929	Mine purchased by NBH.
1962	Blocks 15 and 16 taken over by BHS.
1972	BHS ceases operations. All leases transferred to MMM.
1974	Blackwood opencut begins on Block 15.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1980	MMM plans to extend Blackwood opencut.

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Table B.7 Timeline of the development of Heritage Precinct 6

Date	Developments
1981	Blackwood opencut expands to meet the new Block 14 Blackwood opencut.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.
2010	BHOP obtains lease of CML 7.

B.12 Heritage Precinct 7 historical overview

Heritage Precinct 7 is the location of the first BHP open-cut operation, situated within mining lease Blocks 11 and 12 (Austral Archaeology Pty Ltd, 2012a:97–112). The development timeline of Heritage Precinct 7 (Block 11 and 12) is detailed in Section B.13. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1.

Blocks 11 and 12 were part of the initial claims pegged out by Rasp and McCulloch in 1884 and remained under the ownership of the BHP, forming part of the BHP "Big Mine" until 1943 (Austral Archaeology Pty Ltd, 1994:27; Nixon, 2017: 9–10). Mining activities began within BHP's Big Mine with the sinking of Rasp Shaft on Block 13 in October 1884 (Austral Archaeology Pty Ltd, 1994:27). Development across Blocks 11 and 12 followed soon after , with the construction of the first smelting furnace and the sinking of three shafts, presumably Knox, Jamieson and Brodribb Shaft, on Block 12 in 1885 (Austral Archaeology Pty Ltd, 1994:27). Further additions to the mining infrastructure took place throughout 1886, and the Paterson Shaft was also sunk on Block 12 during this time (Austral Archaeology Pty Ltd, 1994:27–28).

In 1887, extensive excavation and retaining wall works were carried out around the Brodribb Shaft in preparation for six, 80-tonne furnace smelters, and the machinery became operational the following year (Austral Archaeology Pty Ltd, 1994:28). The development included the establishment of various infrastructures such as an assay office, blacksmith shop, mills, machinery, and engines across the BHP Blocks between 1887 and 1890 (Austral Archaeology Pty Ltd, 1994:28–29). Additionally, the MacGregor and McBryde Shafts were sunk on Block 11 (Austral Archaeology Pty Ltd, 1994:28–29). The introduction of the Port Pirie railway and the Silverton Tramway to connect the mines with Point Pirie, South Australia in 1881 significantly reduced mining costs and within two years, production soared, making the Broken Hill mines highly profitable (Austral Archaeology Pty Ltd, 2013:10).

BHP ventured into amalgamation extraction, leading to the construction of an amalgamating mill on Block 12 in 1890, which was completed in 1892 (Austral Archaeology Pty Ltd, 1994:29). The mill, believed to be located near the open-cut area, included a 50-stamp wet crushing mill, amalgamating pans, and settlers (Austral Archaeology Pty Ltd, 1994:29–30, 2012a:101). Wigg Shaft was sunk close to the eastern boundary of Block 11, positioned between McBryde and Knox shafts in 1891. It is believed that the headframe of Wigg Shaft has survived into the present (Austral Archaeology Pty Ltd, 2012a:101).

Significant transformations took place across BHP's mine leases over the late nineteenth and early twentieth century. In 1892, the company moved its smelting activities to Point Pirie and commenced open-cut mining in conjunction with underground operations (Broken Hill Proprietary Company Ltd., 1935:11–12; Austral Archaeology Pty Ltd, 2013:11). Open-cut mining commenced between McCulloch and Wilson Shafts on Block 13 in 1891 (Austral Archaeology Pty Ltd, 1994:29). The open cut expanded west towards Patterson Shaft in 1892, and

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a second open cut started to be excavated on Block 12, stretching between Paterson and Brodribb Shafts (Austral Archaeology Pty Ltd, 1994:29). The growth of the open-cut operations in the 1890s led to the removal and reconfiguration of surface infrastructure (Austral Archaeology Pty Ltd, 1994:29–30). Shafts were also engulfed by the open-cut works, with the headframe of McCulloch, Brodribb and McBryde Shaft headframes being dismantled in 1894 and Patterson, Drew, Wigg, Mueke, and Wilson shafts were decommissioned the following year (Photograph B.17) (Austral Archaeology Pty Ltd, 1994:30). Various challenges, including underground fires across Blocks 11 and 12, labour shortages, inflation, and ore depletion, led to the cessation of open-cut mining in 1907 (Austral Archaeology Pty Ltd, 1994:31). At the time of closure, the open-cut measured 1.2 km in length and had been excavated to a depth of 91 meters (Photograph B.18) (Nixon, 2017:10).

Despite the discontinuation of the open-cut mining, underground mining and ore processing operations persisted across the leases in the early twentieth century (Austral Archaeology Pty Ltd, 1994:31–32). By 1935, BHP's underground mines were approaching their maximum ore extraction capacity, while the open-cuts were expanding to the boundaries of the leaseholds (Plate B.10) (Austral Archaeology Pty Ltd, 2013:12). In 1939, BHP discontinued mining operations in Broken Hill, and Blocks 10 to 13 were acquired by the BHS in 1943 (Austral Archaeology Pty Ltd, 2013:12). Upon obtaining these leases, representatives from BHS expressed concerns about the poor condition of the former Blocks and the significant safety hazards posed by the open cut to the NSW Legislative Assembly. However, these concerns were not addressed by the Minister of Mines (*Recorder*, 1945:2). Subsequently, BHS established Barrier Central in 1953 and continued mining activities across Block 10 to 13 throughout the twentieth century, leading to the accumulation of mullock heaps that covered earlier mining infrastructure (Austral Archaeology Pty Ltd, 1994:34, 2013:12).

Source: Broken Hill Proprietary Company Ltd 1935:12

Photograph B.17 BHP opencut, 1896

Source: CBH Resources archives.

Photograph B.18 Main opencut, propriatory mine, 1907

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Source: CBH Resources archives, Surface plan 13M8 1939

Plate B.10 Plan of surface infrastructure in and around the BHP opencut, 1939

B.13 Heritage Precinct 7 timeline

Table B.8 Timeline of the development of Heritage Precinct 7

Date	Developments
1884	Part of the original blocks pegged out by Rasp and McCulloch, later falling under ownership of the Syndicate of Seven. Rasp Shaft sunk on Block 13.
1885	The Syndicate of Seven reorganises to form BHP. Smelting furnace constructed. Knox, Jamieson and Brodribb Shafts sunk on Block 12. McCulloch Shaft sunk on Block 13.
1886	Two smelters constructed between Rasp and McCullock Shafts and processing of ore begins on the holdings. The smelting area also included a masonry smelter stack, condensing chambers, and feed and crushing floors. Boiler houses, furnaces, ore bins and water tanks constructed over Blocks 12 and 13. A road is cut through the hillside. Brodribb Shaft is fitted with a steam winch. Winding engines and boilers present on Rasp, McCullock, and Jamison Shafts. A pair of poppet heads are also present on McCullock Shaft.
1887	Five 30 tonne furnaces are in operation. Three of the furnaces are located at the smelting plant. Smelting plant is recorded to include six baker blowers, condensing and auxiliary engines, charging and running floor, flues, hoppers, automatic scavenger, draught ways, water tanks, and hoist. Three ore crushers are present in the shed at the rear of the smelting plant. All plant is run using on-site boilers. Excavation and retaining wall work in the vicinity of Brodribb shaft in preparation for six 80-tonne furnaces. Patterson Shafts sunk on Block 12. The shaft is fitted with winding engines and boilers. A large stream pump is installed on McCulloch Shaft. Jamison and Rasp Shafts are fitted with plant. Main assay office, fitting and blacksmith shops constructed.
1888	Construction of the Port Pirie railway and Silverton Tramway connects the mines to Point Pirie, South Australia. Tram siding constructed to connect the Blocks with the Silverton mainline. Six furnaces installed in the vicinity of Brodribb Shaft and new smelting plant begins production. Pumping and hoisting plant under construction at Patterson Shaft. Ore bin installed at Brodribb Shaft. Blowers moved into the old blacksmith shop inside the smelter building. Timber mill constructed.
1889	Concentration and ore dressing mill completed. Ten furnaces recorded to be operating. Trestlework laid for railway connecting Patterson Shaft to the ore dressing mill. Construction of Lixiviation plant, also known as the leaching plant. Ore bin installed at Rasp Shaft. Wilson Shaft sunk on Block 13. MacGregor (old No 1) and McBryde (old No 2) Shafts in operation on Block 11. The shafts include gallows frames and winding equipment. AMA strike.

Table B.8 Timeline of the development of Heritage Precinct 7

Date	Developments
1890	Eight 80 tonne furnaces replace smaller tonnage furnaces on the BHP holdings and flue and air connections re-routed to new plant. A total of 13, 80 tonne furnaces are recorded working on the mine. Five furnaces were located in the old 30 tonne furnace building known as the "North Smelter", the remaining five were located 400 m away in the "South Smelter". The following plant is present on the working shafts: • McGregor Shaft: three compartment shafts with two winding engines, two boilers, and wrought iron poppet heads contained in corrugated iron building. • McBryde Shaft: old plant had been removed and replaced with two winding engines housed in a corrugated iron building, iron poppet heads, and elevated tramway. • Brodribb Shaft: plant removed so hill could be graded, and mining continued from a lower level. New plant rebuilt at lower grading. • McCulloch: two winding engines housed in a corrugated iron building, and pumping engine. Renovations to the ore dressing plant including the installation of 14 jigs. New blower stack, and Lixiviation plant complete. Construction begins on amalgamating mill on Block 12. Pumping plant under construction.
1891	Open cut mining begins between McCulloch and Wilson Shafts on Block 13. Wigg Shaft, between McBryde and Knox Shafts and Drew Shaft, between McBryde and McGregor Shafts, sunk on Block 11. Electric lighting plant constructed. Concentration and Lixiviation plant closed temporarily due to lack of water.
1892	Open cut mining continues west towards Paterson Shaft. A second open cut is begun on Block 12, between Paterson and Brodribb Shafts. Amalgamating mill complete including a 50-stamp wet crushing mill, amalgamating pans, and settlers. Lixiviation plant crushing plant upgraded with Horwood patent chloritizing furnace. Smelting activities moved to Point Pirie. AMA strike.
1893	Expansion of open cut operations. Block 11 cut down to level of railway line from Brodribb Shaft to the western boundary. MacGregor Shaft sunk on Block 11 and Daling Shaft sunk on Block 13. Liquation furnace constructed in vicinity of South Smelters.
1894	McCulloch, Brodribb and McBryde Shafts are decommissioned as they are consumed by the open cut, and headframes removed. All ore bins in this area are also removed. All plant removed from the south of Block 11 to the north of Block 13 with the exception of the new chloritizing plant on Block 11, as well as the leaching works, amalgamating and the concentration plant. Mueke Shaft sunk on Block 11 and Weatherly Shaft sunk on Block 11.
1895	Patterson, Drew, Wigg, Mueke, and Wilson Shafts are decommissioned as they are consumed by the open cut, and headframes removed with exception of Wigg Shaft headframe. Eight revolving furnaces added to the chloritizing plant.
1896	Underground fire near Drew Shaft on Block 11. Assay office and sampling mill built.

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Table B.8 Timeline of the development of Heritage Precinct 7

Date	Developments
1897	Underground fire in the old timbered areas of Brodribb and Jamison Shafts. Smelters were temporarily closed to ensure there was enough water for the fire-fighting effort. New open cut section begun south of Jamison Shaft. Rail line constructed from Dickenson Shaft to Wigg Shaft. Roasting plant with two Ropp roasters built. Construction begins on new concentration mill. Eight furnaces dismantled.
1898	Sulphide concentration plant in operation. Included crushing, sizing, jigging, grinding, and slime dressing sections. Work begins on Central Steam Station, which aimed to bring all steam rising plant and air compressors into one area.
1899	Full fire service installed on the mine. Ore dressing mill and extensions to sulphide plant under construction. Slimes plant and air compressing plant built in the vicinity of the sulphide treatment plant. Extensions to the sulphide plant and crushing plant including the addition of new boilers. Stewart Shaft sunk on Block 12. BHP smelting operations cease at Broken Hill and are moved to Point Pirie.
1900	Concentration mill complete. The layout of the mill is noted to have the crushing plant at the north, engine house and air compressor in the centre and sulphide section of the south of the mill. Plunger pumps in the mill are replaced with two centrifugal pumps. Delprat sunk in the north of Block 12.
1902	Electrical power plant on south smelter slag sump complete. Roasting plant under construction. Fire on Block 12.
1903	Changes to the concentration mill including the replacement of the grinding mills with three ball mills, and the addition of a magnetic separator. Condenser unit and new zinc concentrating plant under construction.
1904	New ore processing mill built. Additional chamber added to the sulphuric acid plant.
1905	Chemical laboratory built on the north smelter slag dump area. Water storage area built for the fire service. Three stone changing houses built on the site of the old changing houses.
1906	New slimes plant built. Continuous rope hauling system installed in shafts. Renovations to plant include the addition of an engine in the power plant, Gates breaker in the crushing section, a third condenser, and an engine in the power, as well as the replacement of screening trommels with shaking screens. Serious fire in McBryde Shaft.

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Table B.8 Timeline of the development of Heritage Precinct 7

Date	Developments
1907	Works cease in the opencut. At closure the open cut measured 1.2 km in length and 91 m in depth Four electric water pumps installed around the shafts. Fire continues to smoulder on Block 11. Machine shop on the north dump, zinc regrinding plant with 15 grinding pans and electric powered crushing plant built. Steam engines begin to be replaced with electrical engines. Air compressors added to the compressor plant.
1908	Tube mills and Wilfley tables added to concentration plant. Retreatment plant converted to electricity. Conveyor belt system fitted between the zinc plant and the railway siding.
1909	Worker's strike all underground operations cease. Plant continues to run. Rateau exhaust steam turbine added to the electric power plant. Fire in Block 11 continues to smoulder.
1910	Strike action continues. Shaft sunk into open cut on Block 12, near Jamison Shaft to inspect the fire. 1000 Kw generator added to the power plant turbine.
1911	Partial return to mining. Turbine condenser plant and cooling tower installed at powerplant. Extension to the aerial ropeway from the zinc plant to the east side of the open cut to allow for the dumping of zinc tailings.
1913	Diamond drilling over the mine area to determine areas suitable for future prospecting. Experimental floatation plant built. Burst water main leads to water shortage on the mine. Silverton Tramway Co Strike. Labour shortages.
1915	Test drilling continues.
1916	Area sealed due to fire on Block 11, reopened with the fire found to be extinguished. Maintenance at the regrinding plant. Strike action for five weeks.
1917	Shaft sunk in the open cut in the vicinity of McBryde Shaft, but output found to be low. Works restart at regrinding plant.
1918	Area sealed due to fire on Block 13, reopened with the fire found to be still smouldering. Underground Oregon timber replaced with Australian timbers. Union and industrial action across the Line of Lode.
1919	The Big Strike (AMA strike) brings production to a halt in May.
1920	The Big Strike continues.
1921-1924	All underground work suspended.
1927	Lack of payable ore and low lead prices result in closure of the BHP mine holdings on 24 September.
1929	Mine re-opens in September. All ore treatment is performed by the Sulphide Corporation.

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Table B.8 Timeline of the development of Heritage Precinct 7

Date	Developments
1930	Mine closed.
1938	Mine re-opens.
1939	All mining operations suspended due to lack of payable ore.
1943	Blocks 10 to 13 taken over by BHS.
1952	BHS forms subsidiary company Barrier Central Pty Ltd. to work mining leases Blocks 10 to 13.
1972	BHS ceases operations. All leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1980	MMM plans to re-open and extend the old BHP opencut.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.

B.14 Heritage Precinct 11 (Former Precinct 8) historical overview

Heritage Precinct 11 (Former Precinct 8) includes three items across mining lease Blocks 13, 14, and 15— British Flats in Proprietary Square, Chimney of the First BHP Offices, and the BHP North Slag Dump. Blocks 13, 14, and 15 were originally part of the claim pegged out by Rasp and McCulloch in 1884 but Blocks 14 and 15 were later subdivided to be worked by subsidiary companies (Austral Archaeology Pty Ltd, 1994:28–29). Although the items are in close proximity, they are not directly related, as such, this section will explore the British Flats, Chimney and Slag Dump separately, moving east to west across the Line of Lode. The development timeline of Heritage Precinct 11 (Former Precinct 8) (Block 13, 14 and 15) is detailed in Section B.15. The location of the precinct in relation to the historical mining lease is outlined in Figure B.1.

i British Flats in Proprietary Square

The British Flats in Proprietary Square are situated within the historical mining lease of Block 15 (Austral Archaeology Pty Ltd, 2012a: 113–114). Block 15 was acquired by the British BHP in 1887 (Austral Archaeology Pty Ltd, 1994:28). In 1888, The British BHP Company constructed a general office and assay office in the southeast of Block 15 (Austral Archaeology Pty Ltd, 2012a:113–114). Concurrently, staff accommodations for BHP were constructed in Proprietary Square (State Heritage Inventory Online, 2023). In 1919, the two offices were replaced by a single brick building, which was subsequently repurposed into flats for mine personnel in 1936 and 1946 (Plate B.11) (Austral Archaeology Pty Ltd, 2012a:113–114). The British Flats still exist in CML 7 (Austral Archaeology Pty Ltd, 2012a:113–114).

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Source: CBH Resources archives, Surface plan 14M5 1939

Plate B.11 Plan of surface infrastructure showing the British Flats building, 1939

ii Chimney of the First BHP Offices

The chimney of the first BHP offices is located at the east of corner of Gaffney and Oxide Streets in Proprietary Square on the historical mining lease Block 14 (State Heritage Inventory Online, 2023). The chimney is a remanning part of a hut that was constructed in 1885 as accommodation for William Jamison, the first BHP mine manager, and the initial staff of the mine (State Heritage Inventory Online, 2023). The hut, historically described as a tent rather than a permanent structure, occupied a central location on the Broken Hill ore body and served as the BHP mine's office during the company's early years (State Heritage Inventory Online, 2023). By 1887, when Block 14 was taken over by Broken Hill Proprietary Block 14 Company Limited, the hut appeared to have been out of use (Nixon, 2017:87; State Heritage Inventory Online, 2023). In 1907, a wooden railing was placed around the chimney to preserve the site, which was considered "one of the most historical spots on the Hill" (Plate B.12) (Curtis 1908 in State Heritage Inventory Online, 2023).

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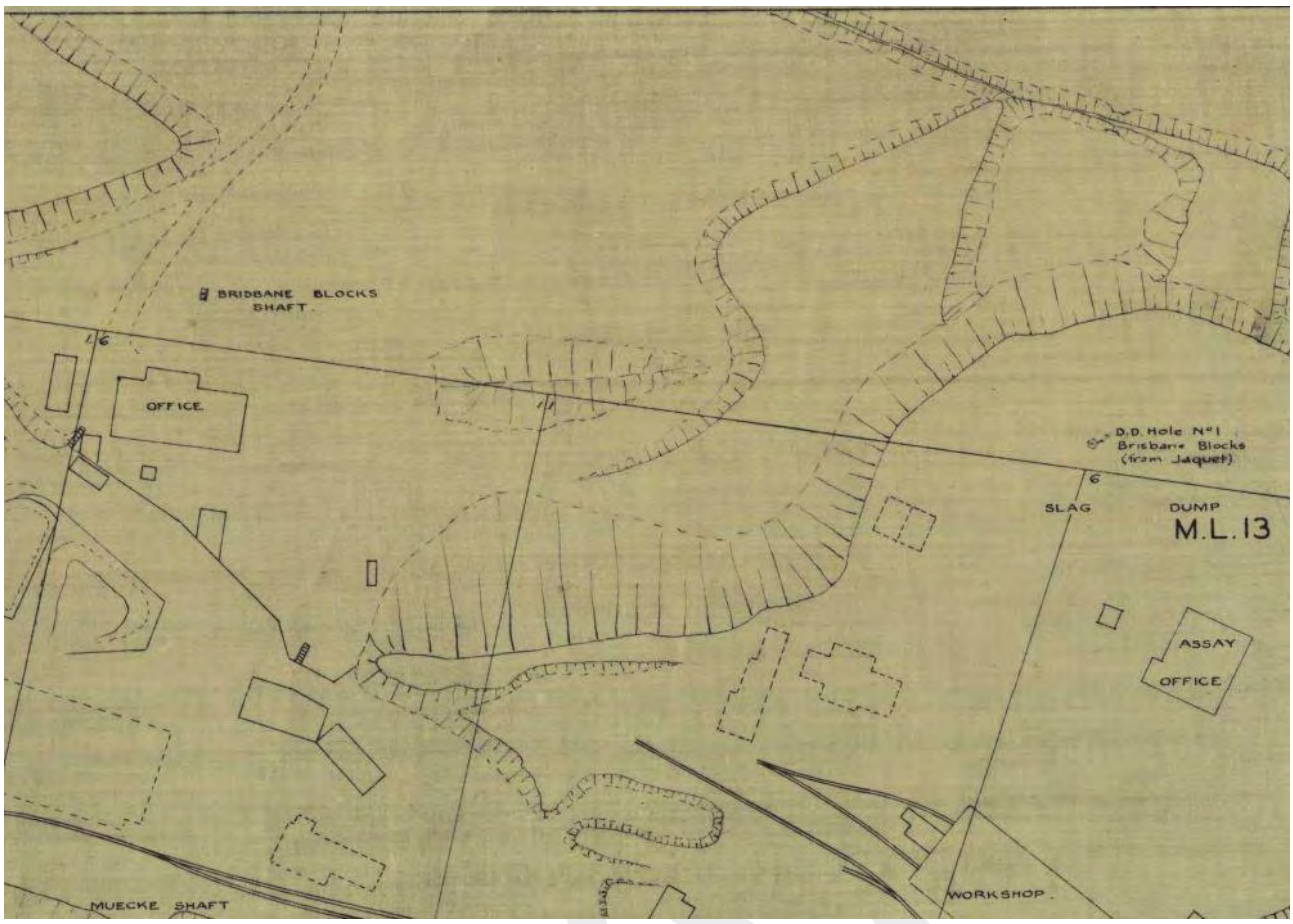
Source: State Library South Australia, call no: B 54756/46

Plate B.12 Broken Hill: old chimney, 1907

iii BHP North Slag Dump

The BHP North Slag Dump is situated on the historical mining lease of Block 13, which was part of the BHP mine (Plate B.13) (Austral Archaeology Pty Ltd, 1994:27; Nixon, 2017:9–10). Furnaces were present on the BHP mine site from 1885, and by 1887, the operation boasted five, 30-tonne furnaces (Austral Archaeology Pty Ltd, 1994:27). BHP began depositing slag on the north dump in 1888 (Austral Archaeology Pty Ltd, 2012a:120–121). Currently, the dump spans 100 m in length and 20 m in height (Austral Archaeology Pty Ltd, 2012a:120–121).



Source: CBH Resources archives, Surface plan 13M8 1939

Plate B.13 Plan of surface infrastructure on the BHP Mine showing the location of the slag dump, 1939

B.15 Heritage Precinct 11 (Former Precinct 8) timeline

Table B.9 Timeline of the development of Heritage Precinct 11 (Former Precinct 8): British Flats in Proprietary Square (Block 15)

Date	Developments
1884	Part of the original blocks pegged out by Rasp and McCulloch, later falling under ownership of the Syndicate of Seven.
1885	The Syndicate of Seven reorganises to form BHP.
1887	British BHP acquire Blocks 15 and 16 from BHP.
1888	General office and assay office constructed on Block 15.
1919	A new combined general and assay office building is built on the site of the previous offices.
1923	Blocks sold to British Australian Broken Hill Proprietary Co. Ltd.
1929	Mine purchased by NBH.
1936	A portion of the office building is converted into flats.
1946	The remaining portion of the office building is converted into flats.

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Table B.9 Timeline of the development of Heritage Precinct 11 (Former Precinct 8): British Flats in Proprietary Square (Block 15)

Date	Developments
1962	Blocks 15 and 16 taken over by BHS.
1972	BHS ceases operations. All leases transferred to MMM.
1974	Blackwood opencut begins on Block 15.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1980	MMM plans to re-open and extend the old BHP opencut.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.

Table B.10 Timeline of the development of Heritage Precinct 11: Chimney of the First BHP offices (Block 14)

Date	Developments
1884	Part of the original blocks pegged out by Rasp and McCulloch, later falling under ownership of the Syndicate of Seven.
1885	The Syndicate of Seven reorganises to form BHP. A hut is built on Block 14 for BHP mine manager William Jamieson and is used as an office for the early BHP mining works.
1887	Broken Hill Proprietary Block 14 Company Limited, a subsidiary of BHP, acquires Block 14.
c.1907	A wooden barrier is present surrounding the chimney to protect the site.
1933	Block 14 Company in liquidation. Willyama Mining Proprietary Limited takes over Block 14.
1942	Block 14 becomes part of the North Mine holdings.
1962	BHS takes over Block 14.
1972	BHS ceases operations. All leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1983	MMM begins second phase of the Blackwood opencut on Block 14.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16

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Table B.10 Timeline of the development of Heritage Precinct 11: Chimney of the First BHP offices (Block 14)

Date	Developments
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.

Table B.11 Timeline of the development of Heritage Precinct 11: BHP North Slag Dump

Date	Developments
1884	Part of the original blocks pegged out by Rasp and McCulloch, later falling under ownership of the Syndicate of Seven. Rasp Shaft sunk on Block 13.
1885	The Syndicate of Seven reorganises to form BHP. Smelting furnace constructed.
1886	Two smelters constructed between Rasp and McCullock Shafts and processing of ore begins on the holdings.
1887	Five 30 tonne furnaces are in operation.
1888	BHP begins dumping slag on the north slag dump. Six furnaces installed in the vicinity of Brodribb Shaft and new smelting plant begins production.
1889	Ten furnaces recorded to be operating.
1896	The slag dump extends to the current visible area.
1939	All mining operations suspended due to lack of payable ore.
1943	Blocks 10 to 13 taken over by BHS.
1952	BHS forms subsidiary company Barrier Central Pty Ltd. to work mining leases Blocks 10 to 13.
1972	BHS ceases operations. All leases transferred to MMM.
1976	MMM ceases underground operations on all leaseholds, except Block 14.
1991	MMM ceases operations. Blocks 7-16 and 39 are transferred to Normandy Group.
2001	Redfire Resources, later CBH Resources, takes over Blocks 7-16
2004	CBH Resources subsidiary BHOP.
2007	BHOP begin exploratory works on Rasp Mine.

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Appendix

C

Heritage inventory sheets

Conservation Management Plan | Rasp Mine

EMM
creating opportunities

C.1 Outside of CML 7

C.1.1 Item number I116

Table C.1 Radford House

Aerial view of Radford House and small substation, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the side and the rear entrance of Radford House, facing east

Source: EMM Consulting, 2023

View to the side and the rear entrance of Radford House, facing east

Source: EMM Consulting, 2023

View of the front entrance of Radford House, facing west

Source: EMM Consulting, 2023

Name of Item	Radford House.	**Location**	Heritage Precinct 1, Eyre Street, Rasp Mine, not in CML 7, Broken Hill, NSW.
Item type/feature type	Extant buildings	**Date**	Built in 1932 out of material from other demolished plant buildings.
		Associated sites	The General Offices
Historic name/function	Radford House was originally built as an Assay Office and was used by Lifeline.		
Current name/function	Currently being used as offices for BHOP.		
Future use	The building should continue to be used as offices.		

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Table C.1 Radford House

Physical description	Radford House is a large brick building with a corrugated galvanised iron roof. The roof shows signs of wear, and it needs repair. The brickwork follows a colonial bond pattern, and concrete sills and lintels are used in construction. The roof features multiple gables for ventilation. Inside, are small offices along a central corridor. The building has undergone some extensions to the rear. It is a single-story structure with two-pane sliding sash windows. The roof is now painted red, and some large air-conditioning units have been installed on it.			
Modifications (if any) and dates	BHOP has made alterations to Radford House. These changes consist of the addition of split-system air conditioners and a hot water system, which have been unsympathetically placed on the verandahs. Furthermore, a new double door opening was introduced on the western side, designed to match the existing structure.			
Historical background	Built in 1932 out of materials from other demolished plant buildings.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	Radford House, built in 1932, directly ties into the Rasp Mine's mining narrative, serving originally as an Assay Office. The building's initial function as an Assay Office, where the analysis and testing of the composition and purity of precious metals took place, representing the historical events and processes associated with ongoing scientific research on the Broken Hill ore body. This association with mining activities aligns with the building's historic significance, as it contributes significantly to Australia's history, representing an aspect of the nation's industrial past. The building's transitions, from an Assay Office to later being adopted by Lifeline and BHOP, represent the evolving historical phases of the Rasp Mine. The use of recycled materials from other plant buildings in Radford House adds research significance. It represents a sustainable approach and can potentially contribute to understanding construction methods and material reuse during that period. The distinctive colonial bond pattern brickwork, concrete details, and gables contribute to the aesthetic significance of Radford House. The building's unique style, despite modifications, demonstrates a particular concept of design.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The building is fully intact externally and currently in use. Archival recording is recommended for retaining and conserving records, associated equipment, and furniture. Retaining, maintaining, and continuing use as offices is endorsed.			
Management requirements	Do's • Radford House and The General Offices were built as a pair and would be best preserved as a pair. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation.		Don'ts • Avoid impacting views of the buildings whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials.	

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Table C.1 Radford House

	• Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.1.2 Item number I244

Table C.2 General Offices

Aerial view of General Offices, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the side and rear entrance of the General Offices building, facing west

Source: EMM Consulting, 2023

View of the front entrance and side of the General Offices building, facing west

Source: EMM Consulting, 2023

View of the front entrance to the General Offices building, facing north

Source: EMM Consulting, 2023

Name of Item	General Offices	**Location**	Heritage Precinct 1, Eyre Street, Rasp Mine, CML 7, Broken Hill, NSW.
Item type/feature type	Extant building	**Date**	Built in 1932 out of material from other demolished plant buildings.
		Associated sites	Radford House
Historic name/function	General Offices was previously used as administrative offices of Broken Hill South Ltd followed by administration for MMM Pty Ltd.		
Current name/function	Currently empty		
Future use	The building should continue to be used as offices.		

Table C.2 General Offices

Physical description	Large red brick building with Colourbond roof (previously corrugated galvanised iron), set on concrete foundations. Double-hung windows, verandah all around building, ornate verandah posts, colonial bond brickwork, metal air vents, some posts need repainting/repair. Suspended ceiling fitted air-conditioning in 1960s/1970s, strong room original with two solid metal vaults c. 1960s (use as wages office), wood-panelling original, door surrounds and joinery original, layout original. Cornices, picture rails, and skirting boards are original in parts of the building. Interior divided into a number of small offices. In Task Services Room, the original ceiling is left as well as original drawing desk/drafting desk. Bike shed and small substation positioned behind the building.			
Modifications (if any) and dates	The General Offices building has been reroofed in Colourbond.			
Historical background	Built in 1932 out of materials from other demolished plant buildings.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The General Offices, built in 1932 using materials from other plant buildings, is historically significant in the Rasp Mine's mining narrative. The building's transitions, initially serving as The General Office to support the South Mine and later being adopted by BHOP, reflect the evolving historical phases of the Rasp Mine. The use of recycled materials from other plant buildings in The General Offices adds research significance. It represents a sustainable approach and can potentially contribute to understanding construction methods and material reuse during that period. The distinctive colonial bond pattern brickwork, concrete details, and gables contribute to the aesthetic significance of The General Offices. The building's unique style, despite modifications, demonstrates a particular concept of design, playing a key role in contributing to the overall character on Eyre Street.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☒	Good ☐	Fair ☐	Attention Required ☐
Further comments	The building is fully intact externally and currently in use. Archival recording is recommended for retaining and conserving records, associated equipment, and furniture. Retaining, maintaining, and continuing use as offices is endorsed.			
Management requirements	Do's • Radford House and The General Offices were built as a pair and would be best preserved as a pair. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation.		Don'ts • Avoid impacting views of the buildings whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters,	

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Table C.2 General Offices

	• Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.2 Heritage Precinct 1

C.2.1 Item number I236

Table C.3 Brick Pier Foundations

Aerial view of Brick Pier Foundations, located southwest of Rasp Mine

Source: MetroMap, 2023

View of Brick Pier Foundations, facing northwest

Source: EMM Consulting, 2023.

View of Brick Pier Foundations, facing southeast

Source: EMM Consulting, 2023

View of Brick Pier Foundations, facing southeast

Source: EMM Consulting, 2023

Name of Item	Brick Pier Foundations	**Location**	Heritage Precinct 1, on top of the slag heap on the east edge of Kintore cut, MMM area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	Unknown
Historic name/function	Brick Peir Foundations	**Associated sites**	Kintore Pit
Current name/function	N/A		
Future use	Retain for interpretation		

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Table C.3 Brick Pier Foundations

Physical description	Two 2 m x 2 m red brick piers-oriented E-W, c. 1.5 m high and c. 5 m apart. Each pier has a number of steels holding down bolts through the centre. The east pier has another smaller pier on the north side measuring 50 cm x 80 cm with two holding down bolts through it. All three have a thin cement skin across the top, and the east pier slopes up at the east end. Located at E543562 and N6462623 Elevation 327m Accuracy 5m. Red bricks by Hallett of Adelaide and fire bricks from Gartcraig Brickworks of Scotland.			
Modifications (if any) and dates	N/A			
Historical background	The date of construction and function of these foundations is unknown.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☒	
Statement of significance	The Brick Pier Foundation, active from the 1880s to the 1990s, survived demolitions, potentially preserving earlier mining infrastructure and is likely associated to the Sulphide Corporation. The Sulphide Corporation played a crucial role in enacting legislation to safeguard the community from lead poisoning. However, the responsibility for implementing social welfare programs, including the provision of recreational amenities, fell to the Sulphide Corporation rather than relying solely on legal mandates. Notably, red brick piers reveal high archaeological potential tied to Broken Hill's mining history, particularly the Line of Lode's evolution. Despite limited records, it offers research potential in defining events and contributing to the historic understanding of the site. These significant sites can potentially reveal valuable information about the technological evolution, industrial practices, and human activities associated with the Rasp Mine during specific historical phases.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	It was noted in the 1994 inspection that with the remainder of the structure missing, these piers represent only a very small portion of the original. Each one as a unit is complete.			
Management requirements	Do's • Develop a management plan for exposed archaeological resources, including ruins, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits. • Avoid new developments without considering the archaeological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist. • Do not alter or add to significant archaeological fabric without prior impact assessment and approval.	

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Table C.3 Brick Pier Foundations

	the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources. • Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.		• Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
GML Heritage

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C.2.2 Item number I237

Table C.4 South Mill

Aerial view of South Mill, located southwest of Rasp Mine

Source: MetroMap, 2023

View of South Mill, facing north

Source: EMM Consulting, 2023

View of South Mill, facing southeast

Source: EMM Consulting, 2023

View of South Mill, facing southeast

Source: EMM Consulting, 2023

Name of Item	South Mill	**Location**	Heritage Precinct 1, South Mine, southwest corner of old Mine Lease 8, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1908
Historic name/function	Full gravity feed mill	**Associated sites**	Buildings within South Mill precinct
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Access to this building was not permitted in 2011 by BHOP due to safety concerns. In 1994 it was described thus: This is a huge building on a reinforced concrete foundation slab, clad in corrugated galvanised iron supported on the west end by a timber frame and on the east end by a steel frame. The corrugated galvanised iron roof is of the saw tooth design with east facing windows, and the north side of the east end has a concrete race with rail lines along it, turning towards and past the old change house. The south-east end has a concrete apron leading to the old slime settling vats of which there are only three remaining. There are two of these aprons parallel to		

Table C.4 South Mill

	each other with a channel between them, possibly for rail lines or service ducts. The interior contains all the machinery for a full gravity feed mill. The west end is the earliest section, and it still contains a No. 5 Gates gyratory breaker (out of the original three and one jaw breaker). The rest of the mill contains a full complement of ball mills and floatation equipment.			
Modifications (if any) and dates	The east end of the Mill was rebuilt in 1920.			
Historical background	The west end of the mill is the original 1908 section while the east end was rebuilt in 1920. The machinery was constantly being added to and replaced over the years.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☐	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The South Mill, constructed in 1908, stands as a rare and representative full gravity feed mill from the early twentieth century, unique along the Line of Lode. Despite disuse, it houses the original 1908 No. 5 Gates gyratory breaker used for ore processing. With a reinforced concrete foundation, corrugated galvanised iron cladding, and a sawtooth roof, the mill's design contributes significantly to Eyre Street's character, earning high regard from the community. The building holds importance as a valuable source of information on mining processing at the Rasp Mine, serving as a potential research site. It provides insights into technological advancements and industrial practices, contributing to a broader understanding of ore milling processes in mining across Australia. In terms of technical significance, the South Mill showcases historic milling functions and preserved original machinery, highlighting its technical achievement. Continuous additions and replacements of machinery underscore the mill's adaptive nature over time, reflecting the evolving historical phases of the Rasp Mine.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒	
Further comments	In 1994, the Mill was deemed to be in good condition, although many windows were broken, and significant portions of the corrugated galvanised iron cladding were rusted and detaching. The plant was considered complete at that time. However, by 2011, the condition had deteriorated, and LOLA had replaced and repaired some of the rusted corrugated galvanised iron cladding. Since LOLA shut down, the building has not undergone maintenance. During the 1994 inspection, it was noted that the building needed corrugated galvanised iron fixing, window covering, and sealing of the west end where the loading race from the main shaft used to be. BHOP reported issues such as the loss of iron sheets in high winds, concrete cancer, and safety concerns, declaring the building unsafe to enter. Despite an assessment for reuse as a mill for current operations, it was found to be in poor condition, unfit for heavy-duty milling purposes. While retention as a stabilised ruin demands less structural integrity than as a fully operational industrial building, a structural assessment is recommended to determine the appropriate course of action.			

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Table C.4 South Mill

Management requirements	Do's • Given the poor condition, prioritise retention. • If full retention is not feasible, consider stabilising as a ruin with the removal of loose fabric to achieve a safe form. • Record extensively through Photographic Archival Recording before and during any changes. • If possible, retain major fittings and equipment in situ. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and/or maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that change/new uses do not significantly impact the significance. Interpret and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions without a prior impact assessment and approval. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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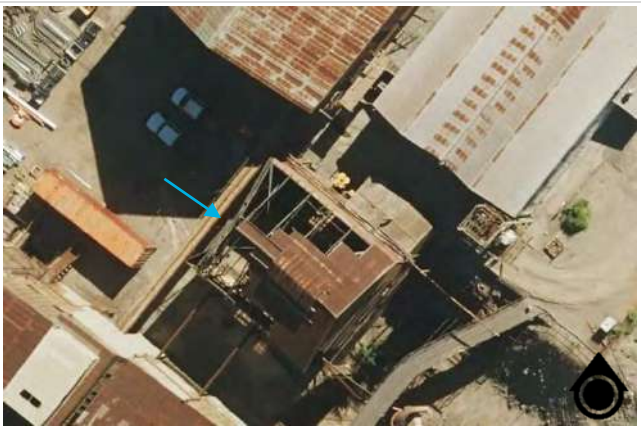
C.2.3 Item number I238

Table C.5 Carpenter's paint shop (Old Winderhouse)



Aerial view of the Carpenter's paint shop, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Carpenter's paint shop, facing southeast

Source: EMM Consulting, 2023

View of the Carpenter's paint shop, facing southeast

Source: EMM Consulting, 2023

View of the Carpenter's paint shop, facing southeast.

Source: EMM Consulting, 2023

Name of Item	Carpenters paint shop (Old Winderhouse)	**Location**	Heritage Precinct 1, north of the Mill, south of the Electrical Workshop, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1904
		Associated sites	Buildings within South Mill precinct
Historic name/function	Originally Winding House and then Carpenters Shop and Paint Shop		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The 1994 description provided as access was not permitted in 2011 due to condition. Main building is Carpenter's Shop consisting of timber framed corrugated galvanised iron building on		

Table C.5 Carpenter's paint shop (Old Winderhouse)

	concrete foundations with a concrete floor. Inside the carpenters shop gear is still extant and no remains of the winder are present. The floor has been re-laid to remove the winder foundations and to add two sets of rail lines and underground service ducts. A steel frame crane support has been added although the crane is not present. The west side has a wooden sliding front door and sheets of corrugated galvanised iron over the old winder rope opening. The gables have circular gable windows with louvred wooden panels. The east and south sides have 8-pane and 16-pane windows. The smaller building on the north side is the Paint Shop consisting of an addition built of a timber frame with corrugated galvanised iron cladding, and Masonite internal walls			
Modifications (if any) and dates	N/A			
Historical background	This is the original building which housed the No. 1 shaft winder gear and was built in 1904. It is the earliest surviving winder building on the South Mine and the Line of Lode.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Carpenters Paint Shop, transitioning from a winder house to its final function as a carpenter's paint shop, holds historical significance within the South Mine. Although historical records are limited, it provides research opportunities into material use, construction techniques, and technological advancements, enhancing our understanding of the Rasp Mine and Broken Hill's industrial history. The Carpenters Paint Shop offers valuable insight into the evolution of mining structures, showcasing the earliest winder house on the Line of Lode. It encapsulates key features of early mining infrastructure, enriching our understanding of the industrial heritage of the Rasp Mine.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	N/A ☒
Further comments	In the 1994 inspection it was noted that the building was complete with the machinery no longer in place. On the north side, some windows were broken, and corrugated galvanised iron was missing. The front door was off its track. In 1994, the building was deemed to be in good condition. However, by 2011, it had deteriorated to poor condition due to significant wind damage. This damage involved the collapse of two rafters with the ridge beam failing and shifting sideways. Additionally, a major framing upright was out of position.			
Management requirements	Do's • Given the poor condition, prioritise retention. • If full retention is not feasible, consider stabilising as a ruin with the removal of loose fabric to achieve a safe form. • Record extensively through Photographic Archival Recording before and during any changes. • If possible, retain major fittings and equipment in situ.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions without a prior impact assessment and approval. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.	

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Table C.5 Carpenter's paint shop (Old Winderhouse)

	• Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and/or maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that change/new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.4 Item number I239

Table C.6 Changehouse

Aerial view of the Changehouse, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Changehouse, facing northeast

Source: EMM Consulting, 2023

View of the rear of the Changehouse, facing southwest

Source: EMM Consulting, 2023

Name of Item	Changehouse	**Location**	Heritage Precinct 1, adjoins Electrical Workshop on the east side, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1922
		Associated sites	Buildings within South Mill precinct
Historic name/function	Changehouse		
Current name/function	Storage		
Future use	Sympathetic adaptive reuse		
Physical description	A large steel framed, corrugated galvanised iron building on concrete foundations with a Masonite hung ceiling and Masonite interior walls. The roof has two peaks and there are small extensions built onto the north, east and west sides. The north extension is surrounded by a large concrete apron under which runs a service duct/tunnel with concrete access steps on the NW corner. The		

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Table C.6 Changehouse

	west extension is made of concrete and extends to within 1 m of the Electrical Workshops. The east extension is made of concrete and corrugated galvanised iron cladding and houses two sets of toilets. This extension has louvred windows. The south end has wooden doors while the north end has a large and later opening for access which is c. 4 m wide and 4 m high. There is large 9 pane windows all around the sides of the building. Inside the tiled shower facilities and soap dishes are still visible on the west wall.			
Modifications (if any) and dates	N/A			
Historical background	Built in 1922 after the previous one is demolished for the powerhouse.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	Constructed in 1922 after the demolition of its predecessor for the powerhouse, the change house is a significant part of Rasp Mine's industrial history in Broken Hill. Archaeological exploration of these sites offers research opportunities to uncover insights into technological advancements, industrial practices, and human activities during South Mine's historical periods. The change house, transformed from its original purpose to storage, illustrates the evolution of mining structures, contributing to an understanding of historical patterns in the area. The introduction of electrical and plumbing services enhanced working standards. This structure marks a shift in mining practices. Its utilitarian design, distinctive extensions, and preserved internal features provides insights into its role as a change house and reflects the evolution of the mining workforce.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection, it was noted that the internal fittings of the building were largely absent, except for tiles and soap dishes in the shower areas. However, the toilets remained intact. Additionally, the north wall was notably lacking a significant portion of its corrugated galvanised iron, and some windows were found to be broken. Despite these issues, the overall condition of the building was deemed good during the 1994 inspection and has been maintained as such, with certain alterations. Contrary to the ERM report (2007: Item No. 285), which suggests significant changes, the author asserts that the change house has remained largely unaltered. The reported alterations include the addition of a concrete floor, a false ceiling, and banks of showers in the eastern section of the interior, along with extensions and ad-hoc repairs to the exterior. However, the author disputes this, contending that, except for the concrete floor, the building remains in the same condition as it was in 1994. Furthermore, they argue that the changes to the ceiling and exterior were implemented much earlier, around 1940-50, and should be considered integral components of the historic fabric.			
Management requirements	Do's • The original building and in situ equipment (shower facilities and soap dishes) should be retained. • Reuse is possible for any number of purposes e.g. for a Crib room, training room, first aid centre and underground offices as stated in		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric.	

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Table C.6 Changehouse

	the CBH Resources Environmental Assessment dated July 2010. • Archival recording. • Adapt for future operations. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.5 Item number I240

Table C.7 Coal Bins

Aerial view of the Coal Bins, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Coal Bins, facing west

Source: EMM Consulting, 2023

View of the Coal Bins, facing south

Source: EMM Consulting, 2023

View of the Coal Bins, facing west

Source: EMM Consulting, 2023

Name of Item	Coal Bins	**Location**	Heritage Precinct 1, north of Compressor Room, east of the Mechanical Workshops, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	South end of coal bins was built prior to 1891 at the same time as the original Compressor Room (Riggers Shop). The north end of the coal bins was a new extension built in 1906.
		Associated sites	Buildings within South Mill precinct, specifically the 1905 Compressor Room.
Historic name/function	Coal Bins		

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Table C.7 Coal Bins

Current name/function	Currently disused			
Future use	Retain for interpretation			
Physical description	1994 description: Large timber framed, and timber clad structure built as coal bins standing on a stone base wall, with a timber capping. One section of this base wall is concrete where the old boiler stack has been removed and the space it occupied has been filled in. The whole structure is aligned N-S with only the south section remaining. Approximately 50-60 m remain of the base wall with the timber bin sections reaching c. 8-10 m in height. The east side is effectively the front with 8 coal chutes evenly spaced at intervals of c.5 m along this side. The loading devices for these chutes are iron doors which are elevated vertically by a cantilevered arm system. The south end of the structure has a timber enclosed chute which leads underground as a sand pass. The south end of the base wall is incorporated as part of the same structure as the Compressor Room. The south end also has an overhead timber conveyor race which was added to shift sand from the sand plant to the sand pass. The north end of the structure has been almost completely destroyed with the only remaining sections being parts of the lower and internal dividing walls made of stone. The south end internal rear wall (west side) is made of concrete and slopes down towards the east side lower level for the chutes.			
Modifications (if any) and dates	N/A			
Historical background	The south end of the coal bins was built prior to 1891 at the same time as the original Compressor Room (Riggers Shop) and a large retaining wall was built which later become the west wall of the 1905 Compressor Room. The north end of the coal bins was a new extension built in 1906 and had a capacity of 1,000 tons.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☐	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Coal Bins hold significant historical significance, integral to Rasp Mine's operations in Broken Hill since the late nineteenth century. Constructed in 1891 and extended in 1906, these structures showcase the growth in production, embodying early mining practices and aligning with the evolution of steam technology with a capacity of 1,000 tons. This structure provides insights into Broken Hill's industrial history, particularly in mining, showcasing the use of steam technology during distinct periods of South Mine's operation. As one of the earliest intact components of the mine plant utilising steam technology, the Coal Bins represent a key functional aspect along the Line of Lode. Providing valuable insights into pre-electricity mining operations, these bins, within their historical context, contribute significantly to enhancing our understanding of Broken Hill's mining history.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	In the 1994 inspection it was noted that the coal bins were only 50% complete with all of the north end timber sections of the structure missing. The stone wall sections were complete for the full length. Various pieces of timber were missing all along the bins and only one internal timber dividing wall is extant. The Coal Bins were considered to be in fair condition when inspected in 1994 which has now been changed to poor condition with the structure considered to be unstable.			

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Table C.7 Coal Bins

Management requirements	Do's • The structure is an important contributing element of the group but is in very poor condition. Evidence of it should be retained for interpretation purposes in some form. • Undertake urgent stabilisation works. • Archival recording • Given the structure's poor condition, prioritise retention if possible. • If full retention is not feasible, consider stabilising the structure as a ruin with the removal of loose fabric to achieve a safe form. • Record the structure extensively through Photographic Archival Recording before and during any changes. • If possible, retain major fittings and equipment in situ. • Conduct a thorough condition assessment to identify existing and potential damage to the structures fabric. • Enhance and/or maintain the condition of the structures fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the structure 's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works on the structure. • Preserve unique views of the structure and its surroundings within the visual context. • Ensure that change/new uses do not significantly impact the structure 's significance. • Interpret the structure and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views of the structure whenever possible. • Refrain from making alterations or additions without a prior impact assessment and approval. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the structure's heritage value.

Tolerance for Change	Form	Fabric	Function	Location
1 Low tolerance **2 Medium tolerance** **3 High tolerance**	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.6 Item number I241

Table C.8 Compressor Room (Old Power House)

Aerial View of the Compressor Room, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the northern aspect of the Compressor Room, facing south

Source: EMM Consulting, 2023

General view of the Compressor Room and its association with nearby items, facing south

Source: EMM Consulting, 2023

Detailed view of the base of the Compressor Room, facing south

Source: EMM Consulting, 2023

Name of Item	Compressor Room (Old Power House)	**Location**	Heritage Precinct 1, east end of the Electrical Workshops, north of the Riggers Shop, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1905
		Associated sites	Buildings within South Mill precinct, specifically the Riggers Shop (then the Compressor Room.
Historic name/function	Old Power House		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		

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Table C.8 Compressor Room (Old Power House)

Physical description	Large stone building with brick quoins, corrugated galvanised iron roof, timber trusses and a concrete floor. The west wall has been countersunk into the hill and has three arched windows towards the top, and a number of small, ceramic steam pipe inlets. The west wall also has three arched windows, one bricked up opening, and two door provisions - one with a sliding door and the other is bricked up. Steam pipes protrude from the east side and extend to both the north and the south. To the south they cross the Riggers Shop frontage and to the north they turn across the north end of the building. An exhaust vent also protrudes through the east side of the building. The north side has a small wooden door and the brick and stonework on the NW corner adjoins that of the coal bins. A later alteration is evident on the north side with a concrete footing and some stretcher bricks in the base of the wall. The south side immediately joins the Riggers Shop, sharing the same internal wall. Internally a set of rolled steel joists have been erected as a crane support. One of the original two Belliss and Morcom triple expansion steam engines remains in situ and is connected to the steam pipe leading out of the east wall. Sections of the floor are wooden. The west wall is braced on the inside by a number of large timber beams, and the east side wall is underpinned by a series of rolled steel joists which formed the top of an underground tunnel for steam pipes to the Electrical Workshop. This section is covered with wooden planks. The roof has two glassed box skylights.			
Modifications (if any) and dates	N/A			
Historical background	Built in 1905 as an extension to the Riggers Shop (then the Compressor Room) to be the new compressor and electric power plant.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Compressor Room (Old Power House), constructed in 1905 as an extension to the Riggers Shop, holds historical significance in the technological evolution of mining operations within the Rasp Mine and holds broader relevance within the Australian industrial landscape. The building aligns with overarching evolutionary trends in Broken Hill's industrial history, particularly within the mining sector, contributing to a better understanding of a key phase in the industrial development of the South Mine. In addition, the building's transitions, from a powerhouse to later being adoptively reused as a compressor room, represents the evolving historical phases of the Rasp Mine. With research significance, the Compressor Room provides insights into the technological progression of industrial facilities in Broken Hill. Serving as an example of early twentieth century industrial architecture, it exemplifies key characteristics within the context of South Mine, showcasing advancements in power generation and compression methods. From a technical perspective, the Compressor Room stands out for its design as an early twentieth century industrial facility, incorporating steam engines for power generation. This technical achievement adds to its overall significance within the historical and industrial context.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☒
Further comments	In the 1994 inspection it was noted that most of the window glass was gone on the west and east sides of the building and in the skylight. Half of the engine plant was extant; some corrugated iron was missing on the west side of the roof. The building was considered to be in good condition when inspected in 1994 and is still considered to be in the same condition in 2011.			

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Table C.8 Compressor Room (Old Power House)

Management requirements	Do's • The steam engine and any fittings should be retained. • Building will require basic maintenance – weather sealing, closure sealing and security. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.2.7 Item number I242

Table C.9 Electrical Workshop

Aerial view of the Electrical Workshop, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Electrical Workshop, facing southwest

Source: EMM Consulting, 2023

View of the Electrical Workshop, facing northeast

Source: EMM Consulting, 2023

View of the exterior of the electrical workshop, facing east

Source: EMM Consulting, 2023

Name of Item	Electrical Workshop	**Location**	Heritage Precinct 1, north of the Mill, old South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1917
Historic name/function	Powerhouse	**Associated sites**	Buildings within South Mill precinct, specifically the Riggers Shop.
Current name/function	Maintenance officers and fixed plant workshop		
Future use	Sympathetic adaptive reuse		
Physical description	Large brick building with alternate course header/stretcher bond, concrete floor and foundations, corrugated galvanised iron roof on steel trusses and wooden gables. A filled circle of bricks appears as an aesthetic feature on the upper gable area. Inside the walls have brick buttresses which support the steel rails for the overhead gantry crane (20 ton). The east side has 7 evenly spaced arched windows, while the west side has 6 with a space for the 7th being occupied by 3 small vent openings. The west side has 3 small vent openings in each alternative bay between the buttresses, while the east side has 5 small vent openings per buttress bay, but they are unevenly spaced, and brick filled. Both the north		

Table C.9 Electrical Workshop

	and south ends have a sliding door. The north end floor has a large square opening down to the basement level where a turbine used to sit. The basement is concrete with rolled steel joist supports for the floor and some concrete covered, arched corrugated galvanised iron spans supporting the south end floor. The east side of the basement has a service duct covered with wooden planking. Switchgear mounted on the ground floor level east and west sides are still extant as are the cable brackets with ceramic insulators. The external west wall has a transformer extension with a concrete base and corrugated galvanised iron top, enclosed by wire and housing 5 transformers. The west side also has a brick and corrugated galvanised iron "lean-to" for fire extinguishing gear, while the south end has a narrow-gauge rail line passing parallel to the end of the building. Outside on the north end is an underground duct system leading to the adjacent change house. Original equipment included: 2 3000 Kw, 600 volts, 3 phase, 40 cycle turbo alternators. Switchgear by General Electric, electrical gear by Vickers, Weir turbine pumps, steam power by Fraser and Chalmers and a Belliss and Morcom reciprocating air compressor.			
Modifications (if any) and dates	N/A			
Historical background	Built in 1917 and required the removal of the underground administration offices, half of the underground change house and the air compressors.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Electrical Workshop, constructed in 1917 as an extension to the Riggers Shop, holds historical significance in the evolution of mining operations and the provision of amenities within the Rasp Mine. This contribution extends to the broader industrial landscape, aligning with evolutionary patterns in Broken Hill's industrial history, providing insights into the industrial development of the South Mine. Its construction in 1917 led to the removal of underground administration offices, half of the underground change house, and the air compressors. The Electrical Workshop contributes to understanding the technological progression of industrial facilities in Australia. As an example of early twentieth century industrial architecture, it showcases advancements in power generation and compression methods, providing insights into its historical and technological context. However, the workshop has a low potential for artefact deposits, offering minimal insights into historical processes and maintenance, making it unlikely to yield significant archaeological resources that can significantly contribute to an enriched understanding of the Rasp Mine. Aesthetically, its large brick construction with an alternate course header/stretcher bond, gables, and a filled circle of bricks as an aesthetic feature adds to its significance. Technically, the Electrical Workshop stands out for its achievements in electricity generation, incorporating turbo alternators, General Electric switchgear, Vickers electrical gear, Weir turbine pumps, steam power by Fraser and Chalmers, and a Belliss and Morcom reciprocating air compressor. These technical aspects contribute to its overall historical and industrial significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☒	Good ☐	Fair ☐	Attention Required ☐
Further comments	Excellent. Structure considered to be in the same condition as when inspected in 1994. All of the exterior of the building is intact, but inside most of the original fittings and machinery are missing with the exception of the switchgear. The interior has been refitted with some modern equipment and offices (1994) Archival recording, retain stabilise and adapt for new uses. Conserve mechanical and			

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Table C.9 Electrical Workshop

	electrical equipment in situ Retain, maintain and use Continue use as part of current mining operations. Sympathetic adaptive reuse.	
Management requirements	Do's • The original building and in situ equipment (electrical fittings, overhead and gantry crane and wall fittings) should be retained. • Building will require basic maintenance – weather sealing, closure sealing and security. • Pigeons to be removed and bird access points sealed. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.2.8 Item number I243

Table C.10 Fire and Ambulance Station

Aerial view of the Fire and Ambulance Station, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Fire and Ambulance Station, facing northeast

Source: EMM Consulting, 2023

View of the side of the Fire and Ambulance Station, facing west

Source: EMM Consulting, 2023

View of the back of the Fire and Ambulance Station, facing southwest

Source: EMM Consulting, 2023

Name of Item	Fire and Ambulance Station	**Location**	Heritage Precinct 1, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	Prior to 1909
		Associated sites	Buildings within South Mill precinct
Historic name/function	Fire and Ambulance Station		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	1994 description: Two storey stone and red brick building with evidence of cement rendering on the SE corner. The roof is clad in corrugated galvanised iron and supported on timber trusses. The north end has a corrugated galvanised iron extension on the west side with a porch, bathroom, and corridor. The east side of the north end has a verandah and balcony clad in small fluted		

Table C.10 Fire and Ambulance Station

	corrugated galvanised iron and painted in yellow. Inside, there is evidence of the 1948 conversion of this building to flats with a stove and some evidence of bathroom fittings still extant. The east side of the building has brick buttresses. Some of the wooden doors and double hung windows are still extant, with one door on the east side having been blocked up with brick and stone. The floors are wooden. On the east side is a temporary wooden access overpass, below which is a timber stairway. Internal walls have been plastered and in one of the upstairs rooms there are small square openings in the floorboards through which the supporting rolled steel joists are visible. Overall, there are three rooms upstairs and four downstairs. Fireplaces are evident on both levels in the SE corner. External privy to the south of the building is clad in corrugated galvanised iron. Outside there is a stone retaining wall on the east side and a set of concrete steps to the south allowing access to the lower levels.			
Modifications (if any) and dates	1948			
Historical background	Built by the Sulphide Corporation before the 1909 move to the Kintore area and converted to flats in 1948 by Broken Hill South Ltd.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Fire and Ambulance Station, originally constructed by the Sulphide Corporation prior to 1909, was adaptively reused into flats in 1948 under Broken Hill South Ltd, marking significant events in its history. The fire and ambulance reflect the historical phases of the Rasp Mine, offering insights into the broader understanding of emergency services, particularly through historical research. Serving as a significant research site, the station holds the potential to provide insights into the development of safe mining practices within the Rasp Mine and the broader Broken Hill context. The Sulphide Corporation had a fundamental role in enacting legislation for community health, coupled with its proactive stance in social welfare, adding to the building's historical and research significance. Representatively, the Fire and Ambulance Station is a key example of structures associated with emergency services in the South Mine context. As rare example of one of the two surviving structures from the Sulphide Corporation, it is a representation of early mining architecture associated with the company along the Line of Lode. Aesthetically, the building, characterised by brick buttresses, wooden doors, and double-hung windows, embodies a utilitarian design concept. Despite deterioration, it retains aesthetic appeal, especially with distinctive elements like the corrugated galvanised iron roof.			
Grading of significance	Exceptional/ Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	The Fire and Ambulance Station was considered to be in good condition when inspected in 1994 even though windows were missing. The external walls and upper floor were intact, the lower floor was partially intact, and the roof was missing 8-10 sheets of corrugated galvanised iron. The floors were badly damaged due to the lack of drainage in this area, and similarly the lower 600 mm of the west wall has also been water affected. Otherwise, it was considered structurally sound. The Fire and Ambulance Station is now (2011) considered to be in poor condition. LOLA must have repaired the roof as it is now sealed. The verandah on the northeast side has collapsed. An internal wall is collapsed.			
Management requirements	Do's		Don'ts • Avoid impacting views whenever possible.	

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Table C.10 Fire and Ambulance Station

	• Given the poor condition, prioritise retention if possible. • If full retention is not feasible, consider stabilising as a ruin with the removal of loose fabric to achieve a safe form. • Record extensively through Photographic Archival Recording before and during any changes. • If possible, retain major fittings and equipment in situ. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and/or maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that change/new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Refrain from making alterations or additions without a prior impact assessment and approval. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.		
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.9 Item number I245

Table C.11 General Store Office

Aerial view of the General Store Office, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the General Store Office, facing north

Source: Austral Archaeology, 2012

View of the General Store Office, facing northwest

Source: Austral Archaeology, 2012

View of the General Store Office, facing northwest

Source: Austral Archaeology, 2012

Name of Item	General Store Office	**Location**	Heritage Precinct 1, South Mine, inside the line of the Mill on the south side, old Mine Lease 8, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1932
Historic name/function	General Store Office	**Associated sites**	Buildings within South Mill precinct
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		

Table C.11 General Store Office

Physical description	Access to this building was not permitted in 2011 by BHOP due to safety concerns. In 1994 it was described thus: Cement rendered brick building on concrete foundations with timber trussed, corrugated iron roof. Roof is built with a hipped gablet peak. The windows are all of 16 panes and are intact as the wooden doors. The interior has plastered walls, Masonite floor and hung ceiling, a strong room and an air conditioning system. Some of the desks remain intact.			
Modifications (if any) and dates	N/A			
Historical background	This building was constructed in 1932 as a reaction to subsidence in the south end of the mine, which also had the General and Assay offices shifted to Eyre St.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The General Store Office, constructed in 1932 in response to subsidence in the south end of the Rasp Mine, is of historical significance, providing insights into the operational challenges and adaptive measures within the mining industry during the early twentieth century. Its establishment not only addressed immediate logistical needs but also contributes to the broader understanding of geological issues in the Rasp Mine's industrial history. These challenges were a legacy of early decisions about mining methods, shedding light on the complexities and consequences of those choices.			
Grading of significance	Exceptional/ Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The condition appears to be good although building was only inspected from afar. Inside of building not inspected due to health and safety concerns. Windows are broken.			
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.	

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Table C.11 General Store Office

	• Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.10 Item number I246

Table C.12 Mechanical Workshop (Old General Workshop)

Aerial view of the Mechanical Workshop, located southwest of Rasp Mine.

Source: MetroMap, 2023.

View of the northern entrance of the Mechanical Workshop, facing west.

Source: EMM Consulting, 2023.

General view of the Mechanical Workshop, facing northeast.

Source: EMM Consulting, 2023.

Close up view of the Mechanical Workshop roofing, facing east.

Source: EMM Consulting, 2023.

Name of Item	Mechanical Workshop (Old General Workshop)	**Location**	Heritage Precinct 1, north of the Electric Workshop, old South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant Building	**Date**	1905-1913
		Associated sites	Buildings within South Mill precinct
Historic name/function	Mechanical Workshop		
Current name/function	No longer in use		
Future use	Sympathetic adaptive reuse		
Physical description	Large wood and steel framed building clad in corrugated galvanised iron with a saw tooth roof facing south with windows. Floors and foundations are of concrete and there are two overhead cranes inside. Two 15 cm drainage pipes run along the west side from a box gutter which collects from drainpipes and box gutters at the base of each roof peak. There are two double and one		

Table C.12 Mechanical Workshop (Old General Workshop)

	single sliding doors on the south end, where there are also wooden brackets protruding which are grooved to hold overhead pipes. The east side has an extension with a lower roof and an open sided "lean-to". All of the sides have windows of varying sizes on various levels. The north end has two doors, one sliding and one swing. There is also an overhead gantry crane frame outside on the north end over the top of a concrete based loading area. The exterior west side has bays marked with signs - No. 7 shaft, Browne (written over Junction), Rock Drill and Sundries. The interior still has some of the old wooden work benches in position.			
Modifications (if any) and dates	N/A			
Historical background	This building appears to be the final product of a process of accumulation. Fitting, Blacksmiths and Carpenters shops were built in this position in 1905 and were added to up until 1913. The whole building is listed on the company plans as one area, the General Workshops, in 1909.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Mechanical Workshop holds historical significance, stemming from its construction between 1905 and 1913, and continuous use since then as a mechanical workshop. Its evolution from disparate Fitting, Blacksmiths, and Carpenters shops into a consolidated General Workshop mirrors the dynamic growth and development of industrial infrastructure in Broken Hill during the early twentieth century. This transformative process, documented by its listing as the entirety of the General Workshops area in 1909 company plans, demonstrates its central role as a central hub for industrial activities in the South Mill precinct.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	Structurally unsounds.			
Management requirements	Do's • Urgent securing of loose roof and wall cladding works. • The laths and other original in situ mechanical equipment should be retained in situ. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.	

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Table C.12 Mechanical Workshop (Old General Workshop)

	• Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.11 Item number I247

Table C.13 Mullock Bin

Aerial view of the Mullock Bin, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Mullock Bin, facing east

Source: EMM Consulting, 2023

View of the Mullock Bin, facing northeast

Source: EMM Consulting, 2023

View of the Mullock Bin, facing north

Source: EMM Consulting, 2023

Name of Item	Mullock Bin	**Location**	Heritage Precinct 1, South Mine, south of the west end of the Mill, old Mine Lease 7, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	Between 1929 and 1931
		Associated sites	Buildings within South Mill precinct linked to the implementation of the No. 7 shaft conveyor and ore-handling processes.
Historic name/function	To store waste rock or ore		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	1994: Steel framed, corrugated iron clad structure containing steel framed and wooden sided mullock bins and loading chutes. The 10 loading chutes are made of steel and the bin is steel lined. The foundations and loading floor are made of concrete. Loading the bin was facilitated by		

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Table C.13 Mullock Bin

	an overhead conveyor belt which entered through the upper south end wall. The framework and rollers for the conveyor are still intact. The west side has four windows in the upper corrugated iron section. The middle portion of the bin is all made from wood on a steel frame without a corrugated iron covering. At the south end a concrete foundation adjoins the floor level and the NW corner also has a concrete foundation with a retaining wall and machinery foundations. Mullock piled up against the west wall has caused damage to the corrugated iron cladding.			
Modifications (if any) and dates	N/A			
Historical background	This bin appears to have been built at the same time as the conveyor from No. 7 shaft, between 1929 and 1931.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Mullock Bin is a typical structure associated with ore-handling facilities in mining operations during the 1929-1931 period. The Mullock Bin holds historical significance as it was constructed between 1929 and 1931, aligning with the period of implementation of the No. 7 shaft conveyor and ore-handling processes. It is associated with the South Mine precinct and the broader mining operations in Broken Hill, serving an important function in the storage of waste rock or ore during the mining process. The structure reflects the industrial practices and technological advancements of its time, contributing to the understanding of Broken Hill's mining history during the early twentieth century. With steel framed, corrugated galvanised iron cladding, and a wooded loading chute, the Mullock Bin's design contributes significantly to Eyre Street's character, earning high regard from the community.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	Good, same as previous inspection. The west wall is somewhat damaged by mullock and is being pushed into the centre of the structure. The framework in this area appears to be stable. Structurally this is complete and most of the conveyor is present including the belt which is damaged. Whether the ore was removed by another conveyor or loading trucks is unknown because the features which would determine this are not present (1994).			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.	

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Table C.13 Mullock Bin

	• Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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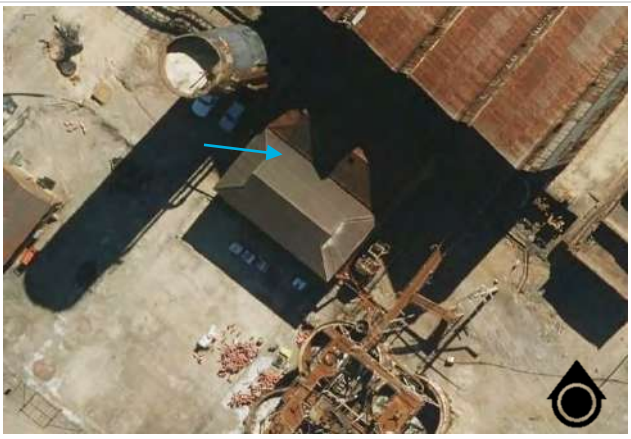
C.2.12 Item number I248

Table C.14 No 2 Control Substation



Aerial view of No 2 Control Substation, located southwest of Rasp Mine

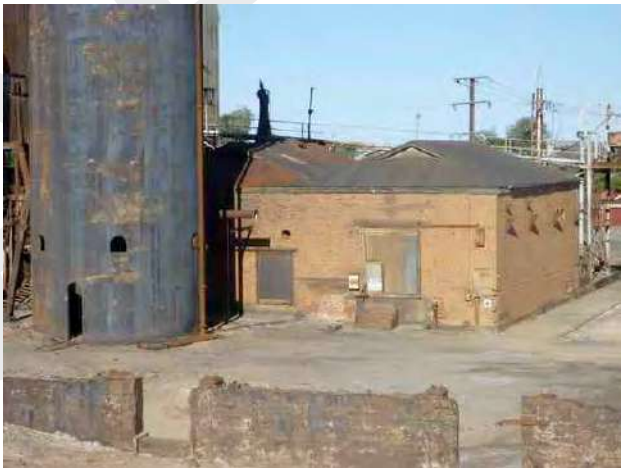
Source: MetroMap, 2023

General view of No 2 Control Substation and surrounding structures, facing southeast

Source: EMM Consulting, 2023

View of No 2 Control Substation, facing southeast

Source: Austral Archaeology, 2012



View of No 2 Control Substation, facing southeast with remnant walls of the Thickening Plant in the foreground

Source: Austral Archaeology, 2012

Name of Item	No 2 Control Substation	**Location**	Heritage Precinct 1, South Mine, inside the line of the Mill on the south side, old Mine Lease 7, 8, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1920 and 1929
		Associated sites	Buildings within South Mill precinct
Historic name/function	Substation		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		

Table C.14 No 2 Control Substation

Physical description	Red brick building on concrete foundations with a corrugated galvanised iron roof on timber trusses. The building is divided into two sections, as is the roof both with a hipped gablet. Bricks are bonded as alternate courses of headers and stretchers. North section: two 10 pane windows in the north side with concrete window surrounds and both the east and west side doors have concrete lintels. The south (interior) wall has one door opening into the south section and 4 bricked up arched openings which once also went through to the south section. The roof has a large skylight. South Section: the centre of the raised concrete floor has two concrete machine footings. The north and south walls have GE switchgear along each side and this section is accessed by one sliding door on the west side with concrete and brick steps.			
Modifications (if any) and dates	N/A			
Historical background	The building was built in two sections: the south section in 1920 as the No. 2 motor control room that replaced the mill pumphouse, and the north section in 1929 as a blower house equipped with three Roots blowers.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The construction of the No 2 Control Substation in 1920 and 1929 represents a significant historical event in the operational history of the Rasp Mine. This reflects key advancements in the mine's infrastructure and technological capabilities, marking a transformative period in its development. The No 2 Control Substation served as a pioneering example of motor control technology during the 1920s. By consolidating controls into a single structure outside the engine house, it showcased advancements in industrial practices and technological innovation of the era. The association with the installation of three patented Roots blowers in 1929 further highlights its role in the technological evolution of motor control systems, demonstrating its technical significance in the mining industry's progression.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection it was noted that all of the internal machinery and equipment of the No 2 Control Substation was missing with the exception of the switchgear; the skylight glass was missing, and the east side door was missing. Externally complete and intact. The substation was considered to be in good condition with the only damage appearing to be the east side door which had been widened by a bulldozer. The No 2 Control Substation was only inspected externally and considered to be in good condition when inspected in 2011.			

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Table C.14 No 2 Control Substation

Management requirements	Do's • Undertake basic maintenance – fixing loose cladding, closure sealing and security. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.2.13 Item number I249

Table C.15 No 6 Shaft Vent Fan

Aerial view of No 6 Shaft Vent Fan, located southwest of Rasp Mine

Source: MetroMap, 2023

View of No 6 Shaft Vent Fan, facing west

Source: EMM Consulting, 2023

View of No 6 Shaft Vent Fan, facing west

Source: EMM Consulting, 2023

View of No 6 Shaft Vent Fan, facing north

Source: EMM Consulting, 2023

Name of Item	No 6 Shaft Vent Fan	**Location**	Heritage Precinct 1, south of Kintore Cut, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1919
		Associated sites	Buildings within South Mill precinct, No. 6 shaft.
Historic name/function	No. 6 shaft vent fan		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Old rectangular timber framed, corrugated galvanised iron building and corrugated galvanised iron vent fan cowling, and a concrete service duct leading underground. This is all situated on a solid concrete foundation slab which houses the vent fan, the services and the base supports for the building. Inside the building the motor drive shaft and belts are still intact although the motor		

Table C.15 No 6 Shaft Vent Fan

	itself has been removed. The impellor is still in situ inside the vent cowling. The west end has a 3 m x 2.5 m concrete apron leading to a newer vent fan. The newer vent fan has another small square concrete building adjacent to its which houses the switch gear, and a new steel vent cowling surrounded by a wire fence.			
Modifications (if any) and dates	N/A			
Historical background	The shaft was first sunk in 1915 and the vent fan and motor building were added in 1919. The new vent fan is considerably more modern although the exact date is unknown.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The No. 6 Shaft Vent Fan holds historical significance as it was added in 1919, associated with the operations of the shaft, which was first sunk in 1915. It represents an important aspect of the mining infrastructure in Broken Hill during the early twentieth century, serving an important role in ventilation within the mine. The No. 6 Shaft Vent Fan contributes to the understanding of ventilation systems utilised in mining operations during the early twentieth century. Its integration into the ventilation system of the mine showcases the technical expertise involved in maintaining air quality and safety underground.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☒	Attention Required ☐
Further comments	In the 1994 inspection it was noted that there were a few corrugated iron sheets missing from the building and the motor equipment was gone. The No. 6 Shaft Vent Fan was considered to be in fair condition when inspected in 1994 and is still considered to be in the same condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.15 No 6 Shaft Vent Fan

	• Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.14 Item number I250

Table C.16 Pattern Store (Carpenter's Shop)

Aerial view of the Pattern Store, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the rear of the Pattern Store, facing east

Source: EMM Consulting, 2023

View of the southern extent of the Pattern Store, facing east

Source: EMM Consulting, 2023

View of the Pattern Store, facing southeast

Source: EMM Consulting, 2023

Name of Item	Pattern Store (Carpenter's Shop)	**Location**	Heritage Precinct 1, north of the Sawmill, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1937
		Associated sites	Buildings within South Mill precinct
Historic name/function	Carpenter's Shop		
Current name/function	Storage		
Future use	Sympathetic adaptive reuse		
Physical description	Timber framed, corrugated iron building on concrete foundations. The roof is of a saw tooth design with the windows facing south. One of two corrugated iron extensions that had been added to the west side remain; the north one was a low roofed lean-to but is now gone, while the south one is a more substantial addition beginning just below the roof level. An internal exhaust fan outlet protrudes from the north wall on the west side near the roof level. The north end has a sliding door and a very narrow-gauge rail line running through it. The east side has three large		

Table C.16 Pattern Store (Carpenter's Shop)

	windows. Two pipes run along the east side of the building at c. 2.5 m off the ground - one is for water and the other for compressed air; both join onto the sawmill. The north end has a concrete entrance apron.			
Modifications (if any) and dates	N/A			
Historical background	Built in 1927.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Pattern Store, originally built in 1937 as a Carpenter's Shop within the South Mine precinct, played a fundamental role in supporting mining operations in the Rasp Mine. Although it now functions as storage, the building maintains its historical ties to the mining industry, preserving the industrial heritage of Broken Hill. Its construction in 1937 marks a period of significant growth and advancement in the region's mining infrastructure. The Pattern Store's former role in carpentry activities contributes to the broader historical context of the South Mine, representing an essential aspect of workshop facilities necessary to mining operations. Furthermore, the building presents valuable research opportunities, offering insights into historical carpentry practices and construction methods prevalent in twentieth century mining.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	It was recommended during the 1994 inspection that the northwest corner extension verandah required urgent attention and that a post should be inserted here to stabilise the roof section. In the current inspection it was noted that the verandah is no longer present.			
Management requirements	Do's • A structural assessment should be undertaken and building repaired. • Archival recording. • Adapt for future operations. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.	

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Table C.16 Pattern Store (Carpenter's Shop)

	• Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
GML Heritage

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C.2.15 Item number I251

Table C.17 Pumphouse

Aerial view of the Pumphouse, located southeast of Rasp Mine

Source: MetroMap, 2023

View of the pumphouse facing southwest

Source: EMM Consulting, 2023

View of the Pumphouse, facing north

Source: Austral Archaeology, 2012

View of the Pumphouse, facing southwest

Source: Austral Archaeology, 2012

Name of Item	Pumphouse	**Location**	Heritage Precinct 1, South Mine, immediately west of the Reagent shed, old Mine Lease 7, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1926
		Associated sites	Buildings within South Mill precinct
Historic name/function	The building would have originally housed pumps in order to pump water from the water tower to the Reagent Shed and the South Mine Mill.		
Current name/function	Currently disused		
Future use	Retain for interpretation		

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Table C.17 Pumphouse

Physical description	In 1994 the building was described as: Small brick building with concrete rendering, concrete floor and a combination of steel and timber roof trusses with a corrugated iron roof. The interior wall is buttressed to support the rails for the overhead 2-ton gantry crane. The east and west sides have 12 pane windows, while the north door is a roller shutter, and the south door is wooden. Inside there are two vacuum pumps still intact. One is a Thompsons (Castlemaine) 1955, 26 x 10, 250 rpm unit and the other is an Ingersoll-Rand (New York) 26 x 8. Two air receivers are abutted to the west side wall outside.			
Modifications (if any) and dates	Rebuilt as brick and steel building in 1937.			
Historical background	Historical plans in the company records show a newly constructed building in this position in 1926, which was rebuilt as a brick and steel building in 1937.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Pumphouse, erected in 1926 and later reconstructed in 1937, served as a fundamental component of the South Mine precinct's infrastructure, housing pumps to convey water from the water tower to the Reagent Shed and South Mine Mill. Its historical function underscores its significance in supporting mining operations in Broken Hill, illustrating the region's dependence on water management for industrial processes during the early to mid-twentieth century. The presence of intact vacuum pumps, including a Thompsons (Castlemaine) 1955 unit and an Ingersoll-Rand (New York) unit, within the Pumphouse provides valuable insights into the technological advancements and equipment utilised in water management systems during the mid-twentieth century. Its connection with the water tower, demolished Reagent Shed, and South Mine Mill highlights its historical function and significance in the mining processes of that era.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	When previously inspected in 1994 the building was considered to be in excellent condition. In 2011 it is considered to be in good condition but with windows broken and some damage to the roof with panels missing.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities.		Don't's • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.	

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Table C.17 Pumphouse

	• Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.16 Item number I252

Table C.18 Pumphouse and Cooling Water Reservoir

Aerial view of the Pumphouse and Cooling Water Reservoir, located southeast of Rasp Mine

Source: MetroMap, 2023

Pumphouse and Cooling Water Reservoir, facing northeast

Source: EMM Consulting, 2023

View of the Pumphouse and Cooling Water Reservoir, facing east

Source: EMM Consulting, 2023

View of the Pumphouse and Cooling Water Reservoir, facing west

Source: EMM Consulting, 2023

Name of Item	Pumphouse and Cooling Water Reservoir	**Location**	Heritage Precinct 1, north of the east end of the Mill, South Mine, Mine Lease 8, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1906
		Associated sites	Buildings within South Mill precinct
Historic name/function	Cooling boiler water for the steam engines which operated the winders		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	The pumphouse is a small red brick building on concrete foundations, with a corrugated iron roof and steel trusses. Four 16-pane windows dominate the east side, with two on the north end. Access is through a wooden door on the south end. The windows and doors all have concrete		

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Table C.18 Pumphouse and Cooling Water Reservoir

	lintels. The roof has two tall air vents. Inside there are solid concrete foundations to below ground level with a full complement on pumping equipment in situ. The building abuts the water reservoir on the immediate west side. The reservoir has concrete outside walls and 33 (out of 34 original) concrete footings evenly distributed throughout the reservoir area.			
Modifications (if any) and dates	N/A			
Historical background	Both were built in 1906. The reservoir was originally surmounted by a tower which rested on the concrete footings and served for cooling boiler water for the steam engines which operated the winders. The reservoir is listed as having a capacity of 1,995,733.5 litres (439,000 gallons).			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Pumphouse and Cooling Water Reservoir, constructed in 1906, hold exceptional historical significance as the oldest and most complete structures of their kind along the Line of Lode. The pumphouse served the critical function of cooling boiler water for the steam engines powering the winders in Broken Hill's South Mine precinct. These structures showcase the region's reliance on steam-powered machinery during the early twentieth century. The presence of intact pumping equipment within the Pumphouse offers insights into early twentieth-century water management systems. The original capacity of the Cooling Water Reservoir, 1,995,733.5 litres (439,000 gallons), highlights the engineering challenges of supplying water for industrial processes in a mining environment. Both structures represent typical water management infrastructure of early twentieth-century mining operations. Their architectural elements contribute to their visual appeal. Despite some deterioration, with broken windows and the reservoir filled with sludge, their historical and architectural integrity remains noteworthy. The Pumphouse retains its original machinery, providing a complete and structurally sound example. Pumphouse and Cooling Water Reservoir present a medium level of archaeological potential. While the Pumphouse has minimal artefact preservation potential, it contributes to industrial archaeology. The Reservoir, with concrete footings and technological remnants, has the potential to deepen understanding of the technological evolution of mining processes.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection it was noted that the building was structurally complete, with all machinery presents. The reservoir was filled with water and only one concrete footing was missing. Some of the windowpanes were broken. The pumphouse and cooling water reservoir was considered to be in excellent condition when inspected in 1994 which has now changed in 2011 to sound condition for the pumphouse and fair condition for the reservoir. The building is still in good structural condition although most of the windows have been smashed. The reservoir has been mostly filled with sludge.			
Management requirements	Do's • The sludge is to be removed from the reservoir and consideration given to reducing the level so that the upper fabric of the structure can be seen more clearly. • Archival recording.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval.	

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Table C.18 Pumphouse and Cooling Water Reservoir

	• Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.17 Item number I253

Table C.19 Rigger's Shop

Aerial view of the Rigger's Workshop, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Rigger's Shop, facing south

Source: EMM Consulting, 2023

View of the Rigger's shop, facing west

Source: EMM Consulting, 2023

View of the Rigger's shop, facing southwest

Source: EMM Consulting, 2023

Name of Item	Rigger's Shop	**Location**	Heritage Precinct 1, south end of Compressor Room, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	Prior to 1891
		Associated sites	Buildings within South Mill precinct
Historic name/function	Compressor plant / Riggers Shop		
Current name/function	Emergency services storage		
Future use	Sympathetic adaptive reuse		
Physical description	Stone building with brick quoins, concrete floor, timber trusses and a single peak, corrugated galvanised iron roof. Stylistically the same as the Compressor Room and joins onto it. The east side wall is only partly made of brick and stone with the centre and upper sections being made of		

Table C.19 Rigger's Shop

	corrugated galvanised iron with a concrete base. Most likely this section was for a large door which was replaced by the corrugated galvanised iron. The corrugated galvanised iron section now has two windows in it and a wooden double swing door. Both the south and west walls are of brick and stone. The south wall has two windows and one stone filled window quoin. The west wall is countersunk into the hill (as is the Compressor Room) with one small window. Immediately behind (c. 3 m) the west wall is a small retaining wall of stone which joins the west wall of the Compressor Room. There is some evidence of cement rendering on the external walls. The north wall is an interior wall only as it forms the south wall of the Compressor Room and is made of corrugated galvanised iron. The roof has a corrugated galvanised iron, box skylight with glass panes around the sides. Internal walls are plastered, and the ceiling is made of small fluted corrugated galvanised iron. Two steam pipes from the compressor room cross the east side of the building and then around and along the south side. There is no guttering on the roof joint between the Riggers Shop and the Compressor Room.
Modifications (if any) and dates	N/A
Historical background	When first built the current Riggers, Shop was actually the compressor plant which was built prior to 1891. The current Compressor Room was added to it in 1905.
Heritage significance	Historic / Events and processes ☒ Rarity ☒ Research ☒ Representativeness ☒ Creative or technical achievement / Aesthetic ☒ Social ☐ Associative ☐
Statement of significance	The Rigger's Shop, constructed prior to 1891, stands as one of the oldest buildings on the Line of Lode, and is significant within the South Mine precinct. Originally serving as the compressor plant, it represents one of the earliest complete structures of its kind in the area, showcasing historical significance. Its role as part of the compressor plant was important in contributing to the technological advancements of its time, playing an integral part in the mining operations of Broken Hill. The connection between the Rigger's Shop and the adjacent Compressor Room, added in 1905, further enriches its contextual significance within the historical development of the South Mine. Despite its transformation over time into emergency services storage, it maintains its historical fabric, emphasising adaptive reuse practices. Additionally, the presence of steam pipes from the adjacent compressor room provides tangible evidence of technological progress and the integration of machinery in industrial settings during that era. Moreover, its incorporation into the natural landscape, particularly the countersunk west wall, illustrates the practical considerations in constructing structures in mining environments, reflecting the environmental context of the time.
Current level of significance	Exceptional / Outstanding ☒ High ☐ Moderate ☐ Some ☐ Neutral / Little ☐
Context of significance	National ☒ State ☒ Local ☒ N/A ☐
Condition	Excellent ☐ Good ☒ Fair ☐ Attention Required ☐
Further comments	In the 1994 inspection it was noted that the building was structurally complete but that some windows and skylight glass was missing. The building was considered to be in good condition when inspected in 1994 and in 2011 is still considered to be in the same condition with roof intact.

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Table C.19 Rigger's Shop

Management requirements	Do's • The masonry chimney base behind the building is considered part of the original fabric and must be retained in situ. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
GML Heritage

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C.2.18 Item number I254

Table C.20 Roaster Plant

Aerial view of the Roaster Plant, located southeast of Rasp Mine

Source: MetroMap, 2023

General view of the Roaster Plant, facing northeast

Source: EMM Consulting, 2023

View of the Roaster Plant, facing east

Source: EMM Consulting, 2023

View of the Roaster Plant facing, southwest

Source: EMM Consulting, 2023

Name of Item	Roaster Plant	**Location**	Heritage Precinct 1, east of the Pumphouse and Mill, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	1917
		Associated sites	Buildings within South Mill precinct
Historic name/function	Roaster Plant		
Current name/function	Structural ruin		
Future use	Retain for interpretation		
Physical description	A large concrete and steel two level structure on a concrete foundation. Both levels are concrete floor slabs, with the upper level supported by rolled steel joists. The structure houses three brick vats between the two floor levels which are now capped with concrete. There are five door-like openings on the north side along with a concrete floored apron countersunk below ground level and bounded by a retaining wall. Below the floor level on the east end is the remains of two brick		

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Table C.20 Roaster Plant

	flues which are partly destroyed. The south side has two feed chutes leading from the outside of the upper level to the inside of the ground level. There are three concrete vats sitting along the south side aligned with those inside the concrete housing; they are also concrete capped. On the SW side is another large concrete foundation with two vats set into it; these vats appear to be thickeners. One large steel riveted vat sits on the west side immediately adjacent to the west end of the concrete structure on a concrete apron which is a continuation of the ground floor level.			
Modifications (if any) and dates	N/A			
Historical background	Built in 1917 by the Barrier Roasting Company to de-sulphurise slimes by roasting them.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Roaster Plant, erected in 1917, contains considerable historical importance as it was established by the Barrier Roasting Company for the purpose of desulphurising slimes through roasting. Its creation and operation signify a central era in Broken Hill's mining history, illustrating the technological advancements and industrial methods utilised in ore treatment during the early twentieth century. Despite the challenge of interpreting its function based on the existing remnants, it remains the sole surviving remnant of a roasting plant along the Line of Lode, thereby imparting significant research and historical significance to the area. The development of slime roasting technology by BHP in Broken Hill further enhances its historical and technological significance. From a research standpoint, the roaster plant maintains its archaeological context, suggesting the presence of enduring archaeological resources at subsurface levels.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☒	Attention Required ☐
Further comments	In the 1994 inspection it was noted that the Roaster Plant was structurally in good condition but that there appeared to be a lot of the plant missing. It is still considered to be in the same condition in 2011. Stabilise and mothball.			
Management requirements	Do's • Develop a management plan for exposed archaeological resources, including ruins, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays.		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits. • Avoid new developments without considering the archaeological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist.	

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Table C.20 Roaster Plant

	• Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources. • Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.	• Do not alter or add to significant archaeological fabric without prior impact assessment and approval. • Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.19 Item number I255

Table C.21 Sand Plant

Aerial view of the Sand Plant, located southeast of Rasp Mine

Source: MetroMap, 2023

View of the northern end of the Sand Plant, facing southwest

Source: Austral Archaeology, 2012

View of the western and southern sides of the Sand Plant, facing east

Source: Austral Archaeology, 2012

View of the eastern side of the Sand Plant, facing west

Source: Austral Archaeology, 2012

Name of Item	Sand Plant	**Location**	Heritage Precinct 1, west of the main mine area, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1930
		Associated sites	Buildings within South Mill precinct
Historic name/function	Sand Plant		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	Timber framed, corrugated galvanised iron clad building. The east side roof is steeply pitched, while the east side of the building is partly masked by a tall wooden frame which was designed to support a "cyclone" or centrifugal separating machine to feed the sand plant; this structure has its own set of timber stairs for access to the upper levels. Also on the east side is a set of steel steps giving access to the interior where a number of classifier machines can be found still in situ. There are 8 classifiers all intact and sitting on a wooden floor. There are 5 small simple conveyor		

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Table C.21 Sand Plant

	type classifiers, 2 medium size elliptical arm type Dorr classifiers and one large elliptical arm type classifier. All of these were driven by an overhead belt drive system of which the driving gear remains, but the belt is missing. The plant was designed to function in the following way: the slimes/sand were pumped into the high tower to be fed through the cyclones, then through the classifiers to separate the sand from the water. The water was then pumped back to the mill and the sand was dropped through chutes in the floor onto a conveyor and then conveyed out of the south end to the sand pass. This process is said to have been invented here.			
Modifications (if any) and dates	N/A			
Historical background	This plant was built in 1930 and was the first of its kind, as this form of sand filled stoping was developed on the South Mine resulting in the construction of this plant.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☐	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Sand Plant, erected in 1930, holds significant historical importance as it was the first of its kind, pioneering a new method of sand-filled stoping developed on the South Mine. Its construction and operation were a milestone in the mining history of Broken Hill, showcasing innovative techniques and technologies employed in ore processing during the early twentieth century. The Sand Plant's design and function, including the use of cyclones and classifiers to separate sand from water, represent advancements in ore processing technology during the early twentieth century. Its role in the invention and implementation of sand-filled stoping techniques contributes to our understanding of mining practices and innovations in Broken Hill and beyond.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection it was noted that much of the corrugated iron was loose, the machines were rusty and covered with sand as was most of the floor. The external timberwork on the stairs was in very poor condition although the structure was solid. The Sand Plant was considered to be in fair condition when inspected in 1994 but is now considered to be in good condition due to apparent roof repairs. The corrugated galvanised iron has also been reclad. However, the tall wooden frame on the east side of the building is in poor condition.			
Management requirements	Do's • The tall wooden frame on the east side which was designed to support a "cyclone" centrifugal separating machine to feed the sand plant, is in poor condition. • This timber frame should be stabilised. If this is not possible it should be archivally recorded and loose, or failing fabric and equipment removed and/or dismantled and stored. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion.	

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Table C.21 Sand Plant

	• Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.2.20 Item number I256

Table C.22 Saw Mill and Extension

Aerial view of the Saw Mill and Extension, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Saw Mill and Extension, facing southeast

Source: EMM Consulting, 2023

View of the southern extent of Saw Mill and Extension, facing south

Source: EMM Consulting, 2023

View of the western extent of Saw Mill and Extension, facing southwest

Source: EMM Consulting, 2023

Name of Item	Saw Mill and Extension	**Location**	Heritage Precinct 1, north of Compressor Room and Mechanical Workshops, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant Building	**Date**	1911
		Associated sites	Buildings within South Mill precinct
Historic name/function	Saw Mill		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	Timber framed building with corrugated iron east and west walls and roof. The north and south walls are both open. The extension is a corrugated iron roofed open shed on the east end of the		

Table C.22 Saw Mill and Extension

	north side. The south side uprights lean in on an angle. The west end has a small internal shed which doesn't reach the roof level and has no north wall or roof. The floor of this section is concrete and has been countersunk c.30 cm. The remainder of the current floor is made of bitumen and dirt. There is a square concrete footing adjacent to the east side of the internal shed measuring 2.5 m x 3 m. Outside the west end are two concrete slabs aligned N-S where the sawdust ducting system was located. All of the uprights have concrete footings. The south side roof has a timber overhead race leading off to the west over the top of the stone walls of the coal bins and also along the south side roof to the east end. There is another extension on the south end which is of the same timber and corrugated galvanised iron construction with no walls except for the west one. It also has an overhead gantry crane and a narrow-gauge rail line on the south side.			
Modifications (if any) and dates	N/A			
Historical background	Built in 1911.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☐	Representativeness ☒
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Saw Mill and its Extension, dating back to 1911, represent the oldest surviving sawmill along the Line of Lode. It has considerable historical significance as vital elements of the South Mine precinct, offering insights into the industrial activities and infrastructure that characterised mining operations in Broken Hill during the early twentieth century. The construction and function as a sawmill highlight the importance of timber processing in supporting mining operations, providing essential materials for construction, shoring, and other purposes.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection it was noted that the building was structurally all complete and that the machinery was missing as well as some sections of the timber overhead race. The Saw Mill was considered to be in good condition when inspected in 1994 which still remains the case in 2011.			
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion.	

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Table C.22 Saw Mill and Extension

	• Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value. .	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.21 Item number I257

Table C.23 Square Concrete Foundations

Aerial view of the square concrete foundations, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Square Concrete Foundations, facing northeast

Source: Austral Archaeology, 2012

View of the Square Concrete Foundations, facing northeast

Source: Austral Archaeology, 2012

Name of Item	Square Concrete Foundations	**Location**	Heritage Precinct 1, immediately south of the Roaster Plant, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	1917
		Associated sites	Buildings within South Mill precinct, and roaster plant.
Historic name/function	Foundation of a small building that may have been associated with the Roaster Plant.		
Current name/function	Structural ruin		
Future use	Retain for interpretation		
Physical description	Square concrete foundation measuring 5 m x 5 m with each side section measuring 50 cm in thickness. There are three steel brackets protruding along the top of each side and each is 4 cm		

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Table C.23 Square Concrete Foundations

	high, although two of these have been sheared off to the base while four have been flattened and two are standing. The two standing retain their securing bolts.			
Modifications (if any) and dates	N/A			
Historical background	This appears to be the small square building appearing on the 1917 plan, contemporary with the Roaster plant.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Square Concrete Foundations, dating back to 1917, stand as remnants of a structure that may have been associated with the Roaster Plant. These foundations maintain their archaeological context, indicating potential archaeological resources at subsurface levels. Located immediately south of the Roaster Plant, these foundations can contribute to understanding the industrial evolution of Broken Hill during the early twentieth century.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The concrete foundations were considered to be in good condition when inspected in 1994 and are still considered to be in the same condition.			
Management requirements	Do's • Develop a management plan for exposed archaeological resources, including ruins, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources.		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits. • Avoid new developments without considering the archaeological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist. • Do not alter or add to significant archaeological fabric without prior impact assessment and approval. • Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle.	

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Table C.23 Square Concrete Foundations

	• Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.		• Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.22 Item number I258

Table C.24 Tankstand

Aerial view of the Tankstand, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Tankstand, facing southwest

Source: EMM Consulting, 2023

Name of Item	Tankstand	**Location**	Heritage Precinct 1, east of the Mill slime floatation vats and south of the Roaster Plant, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	1922-1925
		Associated sites	Buildings within South Mill precinct
Historic name/function	Tankstand		
Current name/function	Structural ruin		
Future use	Retain for interpretation		
Physical description	Three north-south aligned concrete piers, approximately 50 cm wide, c. 6 m high and parallel were recorded in 1994. Two are c. 8 m long while the other was c. 3 m long.		
Modifications (if any) and dates	N/A		
Historical background	Built in 1922 as a group of three tanks with a fourth tank added in 1925.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐

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Table C.24 Tankstand

Statement of significance	The Tankstand holds historical significance, representing a pivotal phase in the industrial evolution of Rasp Mine. Erected between 1922 and 1925 to facilitate tanks linked with ore processing, it is intricately tied to the mining procedures of that era. While its individual importance may seem modest without the presence of tanks, the Tankstand gains associative significance within the Roaster Plant area. Furthermore, they maintain their archaeological context, suggesting persisting archaeological resources at subsurface levels, contributing to a wider understanding of the site's industrial past.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The tank stand was considered to be in good condition when inspected in 1994. There are currently (2011) only two long concrete piers remaining and are considered to be in good condition.			
Management requirements	Do's • Develop a management plan for exposed archaeological resources, including ruins, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources. • Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits. • Avoid new developments without considering the archaeological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist. • Do not alter or add to significant archaeological fabric without prior impact assessment and approval. • Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.	

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Form	Fabric
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.2.23 Item number I259

Table C.25 Two Water Tanks

Aerial view of Two Water Tanks, located southwest of Rasp Mine

Source: MetroMap, 2023

View of Two Water Tanks, facing southeast

Source: EMM Consulting, 2023

View of Two Water Tanks, facing east

Source: EMM Consulting, 2023

View of Two Water Tanks, facing southeast

Source: EMM Consulting, 2023

Name of Item	Two Water Tanks	**Location**	Heritage Precinct 1, south of the Riggers Shop, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structures	**Date**	Unknown
		Associated sites	Buildings within South Mill precinct
Historic name/function	Water tanks possibly for boiler water feed		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Two riveted steel water tanks elevated on wooden stands that are sitting on a concrete foundation bed. Both tanks are painted black and have outlet pipes leading from the east side and turning immediately down into the ground. The south tank also has one pipe leading out to		

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Table C.25 Two Water Tanks

	the west and another out from the east side which runs across and around the south end of the Electrical Workshop.			
Modifications (if any) and dates	N/A			
Historical background	The actual date of construction is unknown, but it is likely to be after the 1930's considering that it does not appear on any of the historic mine plans before that date.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Two Water Tanks are historically significant extant structures associated with industrial processes, possibly serving as water tanks for boiler feed. Although the exact construction date is unknown, they likely date from post-1930, reflecting the era's technological needs. These tanks provide valuable insights into the industrial history of the Rasp Mine and represent a typical example of water storage infrastructure in mining sites. Furthermore, they maintain their archaeological context, suggesting persisting archaeological resources at subsurface levels, contributing to a wider understanding of the site's industrial past.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection it was noted that the item was complete except for one pipe leading west from the north tank. The water tanks were considered to be in excellent condition when inspected in 1994 which still remains the case in 2011.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.25 Two Water Tanks

	• Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Form	Fabric
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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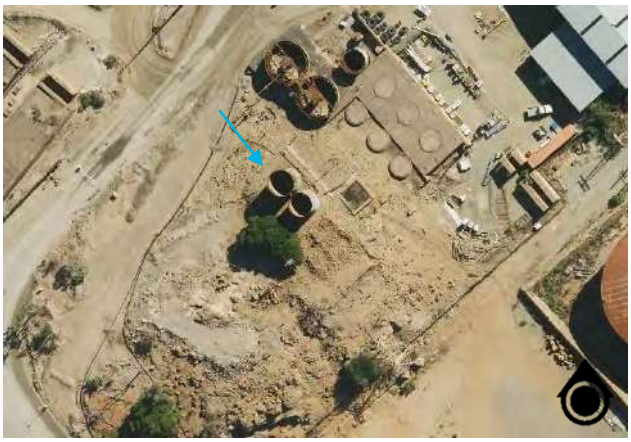
C.2.24 Item number I260

Table C.26 Two water tanks and a stone foundation



Aerial view of Two Water Tanks and a stone foundation, located southwest of Rasp Mine

Source: MetroMap, 2023

View of Two Water Tanks and a stone foundation, facing northeast

Source: EMM Consulting, 2023

View of the stone foundation, facing east

Source: EMM Consulting, 2023

View of the Two Water Tanks, facing northeast

Source: EMM Consulting, 2023

Name of Item	Two water tanks and a stone foundation	**Location**	Heritage Precinct 1, immediately south of the Roaster Plant, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structures and foundations	**Date**	1917
		Associated sites	Buildings within South Mill precinct
Historic name/function	Water tanks		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Two riveted steel tanks set on concrete foundations. There is a water pipe leading out of the north side of the west tank and running west to the top of the thickeners at the west end of the		

Table C.26 Two water tanks and a stone foundation

	Roaster Plant. Due east of the two tanks is a rough stone alignment which appears to be a building foundation. Four separate sections (rooms?) are apparent with the east side having a small section of a probable wall. The rough alignments of stone have no formal structure except for the east side which has a stone and brick segment.			
Modifications (if any) and dates	N/A			
Historical background	The tanks appear to be contemporary with the Roaster Plant from 1917, while the stone foundation appears earlier but there is no documentary information to support this.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Two Water Tanks and Stone Foundation, hold historical significance. Dating back to 1917, contemporaneous with the Roaster Plant, they provide tangible links to the industrial development of Broken Hill in the early twentieth century. Located immediately south of the Roaster Plant, these foundations can contribute to understanding the industrial evolution of Broken Hill during the early twentieth century.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection it was noted that the Two Water Tanks and Stone Foundation were complete, but the stone alignment was ruined beyond understanding with little structural morphology visible. The tanks were considered to be in excellent condition while the stone foundation is very poor. The Two Water Tanks are still in good condition in 2011 while Stone Foundation should be considered an archaeological site.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.26 Two water tanks and a stone foundation

	• Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Form	Fabric
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.25 Item number I261

Table C.27 Water Tower

Aerial view of Water Tower, located southeast of Rasp Mine

Source: MetroMap, 2023

View of Water Tower, facing southeast

Source: EMM Consulting, 2023

Name of Item	Water tower	**Location**	Heritage Precinct 1, South Mine, West of No. 2 Control Substation, old Mine Lease 7, 8, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1928
		Associated sites	Buildings within South Mill precinct
Historic name/function	Water tank		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Access to this tank was not permitted in 2011 by BHOP due to safety concerns. In 1994 it was described thus: Large black concrete water tower of c.7 m in diameter and c. 15 m high. Built with three levels, the bottom currently being a storeroom with an iron door. The top two levels are separate water tanks. The south section has two 15 cm diameter pipes leading out and down to the ground while the east section has two larger pipes protruding and connecting to two cross pipes leading to the mill. There is an iron ladder up the side and small arched windows or outlets up the sides.		
Modifications (if any) and dates	N/A		
Historical background	Built in 1928.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐

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Table C.27 Water Tower

Statement of significance	The Water Tower, holds historical significance. Built in 1928, it represents typical water storage facilities of the early twentieth century. Despite being currently disused, its large concrete structure, comprising three levels with separate water tanks, showcases the engineering practices of its time.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	Access to this structure was not permitted in 2011 by CBH due to safety concerns. In 1994 comments were thus: Appears to be complete but missing the iron door hinge pins and whatever equipment was originally inside unless the tools currently there are original.			

Management requirements

Do's

- Stabilise.
- Archival recording.
- Adapt for future operations.
- Retain and maintain.
- Preserve and safeguard archival records.
- Plan for adaptability to future operations.
- Utilise while ensuring its preservation.
- Conduct a thorough condition assessment to identify existing and potential damage to the fabric.
- Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.
- Follow the Maintenance Plan's scheduled inspections and maintenance activities.
- Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them.
- Conserve the layout, configuration, and relationships with other site elements.
- Obtain an impact assessment and approval before initiating any works.
- Preserve unique views and its surroundings within the visual context.
- Ensure that new uses do not significantly impact the significance.
- Interpret and recognise its visual contribution to the surrounding environment.

Don't

- Avoid impacting views whenever possible.
- Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval.
- Do not remove significant fabric.
- Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials.
- Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion.
- Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.
- Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.
- Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	1	1

DRAFT

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.2.26 Item number I262

Table C.28 Yardman's Office

Aerial view of the Yardman's Office, located south of Rasp Mine

Source: MetroMap, 2023

View of the Yardman's Office, facing north

Source: EMM Consulting, 2023

Name of Item	Yardman's Office	**Location**	Heritage Precinct 1, north of the Compressor Room, east of the Coal Bins, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant Building	**Date**	c. 1938.
		Associated sites	Buildings within South Mill precinct
Historic name/function	Yardmans Office		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Small timber framed corrugated iron building (c. 4 m x 4 m) with hipped gablet roof. The north and south sides have two windows each, while the east side has one door. The internal walls are made of Masonite and are rendered with a pseudo "stucco" plasterwork finish. Also inside, the north end has a built-in work bench, and the south corner has a small hand basin. The exterior is painted yellow. Currently used for storage.		
Modifications (if any) and dates	N/A		
Historical background	This building stands where the old boiler house used to be, which was demolished in 1938. In the same year this area was prepared for use as a storage yard, so it could be expected that this building was constructed as part of this preparation.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐

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Table C.28 Yardman's Office

Statement of significance	The Yardman's Office, Is a historically significant extant building dating back to approximately 1938. It played a role in the industrial operations of the site, likely serving as an administrative hub for yard workers. Constructed during the demolition of the old boiler house and the establishment of a storage yard, the office can provide insight into the evolving needs of the mining facility.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	In the 1994 inspection it was noted that the guttering on three sides of the building was missing as well as the door. The Yardmans Office was considered to be in good condition when inspected in 1994 and this is still the case in 2011. A door has been fitted but the windows are now either broken or missing.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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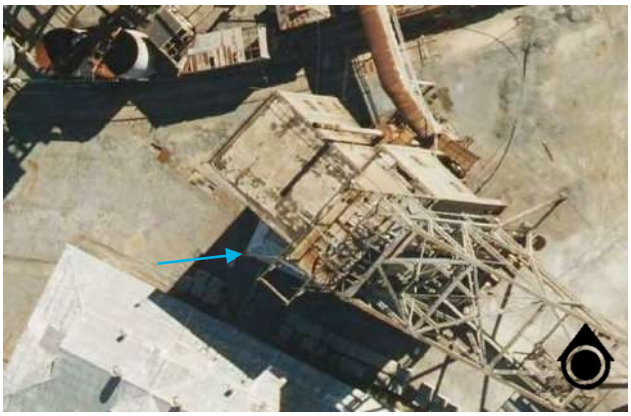
C.3 Heritage Precinct 2

C.3.1 Item number I263

Table C.29 Ambulance Garage



Aerial view of the Ambulance Garage, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Ambulance Garage, facing southeast

Source: EMM Consulting, 2023

View of the Ambulance Garage, facing northwest

Source: EMM Consulting, 2023

Name of Item	Ambulance Garage	Location	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	Date	1932
		Associated sites	Rasp Mine, generally
Historic name/function	Ambulance Garage		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The garage is a simple corrugated galvanised iron structure with a concrete floor but lacking gutters and drainpipes. It has a lift-up double door in the west wall and one large window in the		

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Table C.29 Ambulance Garage

	east wall. The interior is lined with Masonite. Internal fittings consist of a blackboard and a cupboard.			
Modifications (if any) and dates	N/A			
Historical background	This building was constructed in 1932 as part of the development of No 7 shaft. Originally the ambulance based here served all the mines and this was the garage that housed it. When the South Mine closed in 1972, other companies used the town ambulance when required.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Ambulance Garage holds significant historical significance. Constructed in 1932 as part of the development of No. 7 shaft, it served as the garage for the ambulance that provided essential medical services to all the mines in the area. This simple corrugated galvanised iron structure with concrete flooring reflects the typical architectural style of early twentieth-century industrial facilities. Despite being currently disused, its historical significance as a vital component of the mining community's safety infrastructure is evident. The Ambulance Garage's association with the provision of emergency medical care to mine workers underscores its importance within the broader context of industrial heritage.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the Ambulance Garage was found to be in good condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.29 Ambulance Garage

	• Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.2 Item number I264

Table C.30 Changehouse

Aerial view of the Changehouse, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Changehouse, facing northwest

Source: EMM Consulting, 2023

View of the Changehouse, facing southeast

Source: EMM Consulting, 2023

View of the Changehouse, facing southeast

Source: EMM Consulting, 2023

Name of Item	Changehouse	Location	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	Date	1916
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Changehouse		
Current name/function	Storage		
Future use	Sympathetic adaptive reuse		
Physical description	All of the buildings around Nos 4 and 7 headframes form a compact and complete complement of surface infrastructure. The site has significance for the interpretation of mining history. The high level of intactness of all the surface infrastructure makes the site technologically significant. This building is an essential component to show how and where the miners changed and dried their		

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Table C.30 Changehouse

	clothes after underground shifts drain to the east side. Each of the gabled roof sections has three elevated, cowled, circular air vents. The structure has been internally gutted to remove all the asbestos sheet lining. The basins have been removed from the west side. Evidence of the ceiling pulleys, showers and underfloor heating ducts is still extant and visible.			
Modifications (if any) and dates	1939 – addition of one bay in order to improve and increase the accommodation for underground employees			
Historical background	The Changehouse was erected in 1916 to provide facilities for the miners with the shift of operations to No 4 shaft. It was a standard design having ducted underfloor and upright contact drier hot water heating distributed throughout the building, with shower recesses at either end. A row of hand basins lined the east and west walls. Clothes racks attached to a pulley system were used by the miners to hoist their wet clothes up to the ceiling for drying; whilst underground they hoisted their street clothes up for security. Heating was initially supplied by a boiler on the east side of the building. Other alterations were made to the building during its functional life. These included the enlarging of the building by one extra bay, the construction of a ceiling and the provision of additional showers.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Changehouse, erected in 1916 alongside the operational shift to No. 4 shaft, holds significant historical importance within Broken Hill's mining landscape. Serving as a vital hub for miners, it offered crucial amenities such as changing and drying facilities, underscoring its role in supporting the workforce and sustaining mining operations. The building's design and functionality reflect the technological advancements of its time, such as ducted heating and drying systems. Moreover, the introduction of electrical and plumbing services further improved working standards, showcasing a shift towards modernisation within the mining industry. The Changehouse's architectural design, with distinctive extensions and preserved internal features, provides valuable insights into its functional role and the evolving needs of the mining workforce over time. Notably, modifications such as the addition of extra bays and showers demonstrate its adaptive nature, attesting to its ability to meet the requirements of the workforce throughout its operational lifespan.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the Changehouse, No. 4 Shaft was found to be in good condition.			
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials.	

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Table C.30 Changehouse

	• Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.3 Item number I265

Table C.31 Covered Overpass

Aerial view of the Covered Overpass, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Covered Overpass, facing west

Source: EMM Consulting, 2023

View of the Covered Overpass showing the railway tracks running below, facing east.

Source: EMM Consulting 2023.

View of the Covered Overpass, facing east.

Source: EMM Consulting, 2023.

Name of Item	Covered Overpass	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1936
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Pedestrian overpass		
Current name/function	Currently disused		
Future use	Retain for interpretation		

Table C.31 Covered Overpass

Physical description	The covered overpass consists of a steel bridge with three pairs of upright steel supports and a set of steel stairs at either end. The overpass is clad and roofed with unpainted corrugated galvanised iron.			
Modifications (if any) and dates	N/A			
Historical background	The covered overpass was built over the railway line from No 7 shaft to the nearby change house to protect underground employees from both the weather and railway accidents in 1936. The construction of the overpass probably also led to the alterations to the north side of the lamp room in 1940 to create a corridor.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Covered Overpass holds historical significance. Erected in 1936 over the railway line from No. 7 shaft to the nearby change house, it served as a protective passageway for underground employees, shielding them from adverse weather conditions and railway accidents. This steel bridge structure with upright supports and steel stairs reflects typical mid-twentieth century engineering practices and safety measures implemented in industrial environments. Despite being currently disused, its association with the operational activities of the mine, and its influence on the surrounding infrastructure layout, underscores its importance within the broader context of industrial heritage.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Heritage significance	After the 2011 inspection the covered overpass was found to be in good condition.			
Management requirements	Do's • Railway tracks below Overpass should also be retained. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.31 Covered Overpass

	• Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change	Form	Fabric	Function	Location
1 Low tolerance **2 Medium tolerance** **3 High tolerance**	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.4 Item number I266

Table C.32 Crusher Station

Aerial view of the Crusher Station, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Crusher Station, facing southeast

Source: EMM Consulting, 2023

View of the Crusher Station, facing northwest

Source: EMM Consulting, 2023

View of the Crusher Station, facing east

Source: EMM Consulting, 2023

Name of Item	Crusher Station	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	Between 1929-1931
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Crusher Station		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The plant is housed in a reinforced concrete structure incorporating skip ore bin, shaft collar and feed end of the conveyor tunnel. The walls of the crusher house are 15 cm (6 in) thick between columns. Floors are 15cm (6 in) thick and flat roof 11.4 cm (4.5 in) thick; concrete stairways provide access to machinery floors and roof.		

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Table C.32 Crusher Station

Modifications (if any) and dates	N/A			
Historical background	Built as part of the surface infrastructure associated with the No. 7 shaft. The No. 4 and 7 Headframes and their surrounding infrastructure and equipment are historically significant for forming the core of South Mine's later operations between 1916 to 2006. Broken Hill South Ltd sold the lease to MMM in 1972 which was then acquired by Normandy Ltd in 1997.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Significance / Associative significance ☐	
Statement of significance	The Crusher Station is a historically significant extant building dating back to between 1929-1931. As part of the surface infrastructure associated with the No. 7 shaft, it played a vital role in the operations of the South Mine, serving as a central facility for crushing ore extracted from the mine. Constructed of reinforced concrete, the Crusher Station housed essential machinery such as skip ore bins and conveyor tunnel feed ends. Its historical significance is evident, reflecting the core infrastructure that supported mining operations in the area for several decades.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the No. 7 Crusher Station was considered to be in good condition			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.32 Crusher Station

	• Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change 1 Low tolerance 2 Medium tolerance 3 High tolerance	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.5 Item number I267

Table C.33 Headframe, No. 4 Shaft

Aerial view of Headframe, No. 4 Shaft, located southwest of Rasp Mine

Source: MetroMap, 2023

View of Headframe, No. 4 Shaft, facing southeast

Source: EMM Consulting, 2023

View of Headframe, No. 4 Shaft, facing southeast

Source: EMM Consulting, 2023

View of Headframe, No. 4 Shaft, facing southeast

Source: EMM Consulting, 2023

Name of Item	Headframe, No. 4 shaft	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1912/13
		Associated sites	No. 7 Winder and Headframe
Historic name/function	Headframe		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The headframe stands on concrete footings and is a timber structure braced diagonally with iron rods. With its change of use to a sand pass, much of the equipment related to the operation of cages and skips has been removed from the base of the headframe. Items which remain in situ are the safety gates, the chairing levers, and the platman's signal bells. A grille for the sand pass has been added on the west side of the headframe. The removal of the landing brace was probably the cause of the eastward bow in the mid-section of the headframe.		

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Table C.33 Headframe, No. 4 Shaft

Modifications (if any) and dates	N/A			
Historical background	No 4 shaft first appears on historical records in approximately 1904 when it was excavated to a depth of 75m (246 ft). From that period, it developed as a minor hauling shaft until 1912/13 when it was decided to fit it with electric winders. The shaft was enlarged and retimbered in 1912/13. It was a standard three compartment shaft which ultimately reached a depth of 500m (1638 ft). The shaft ceased to be used as a hauling shaft in 1969. In 1974 or 1975 it was converted to a sand pass for back-filling stopes. The headframe also dates to 1912/13. Historical records indicate that it once possessed a landing brace on the east side; most of this structure has been removed except for the lower supports. This probably occurred when it was converted to a sand pass. The Nos 4 and 7 Headframes and their surrounding infrastructure and equipment are historically significant for forming the core of South Mine's later operations between 1916 and 2006. Broken Hill South Ltd sold the lease to MMM in 1972 which was then acquired by Normandy Ltd in 1997.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The No. 4 shaft and its associated headframe are historically significant due to their role in the mining operations of Broken Hill. The No. 4 shaft and headframe in the context of Heritage Precinct 2 represent a complete class of mining infrastructure, contribute to the understanding of Australia's mining history, particularly in terms of technological advancements and operational practices. As part of Broken Hill South Mine's core operations, the structures embody the characteristics of a significant mining site. The shaft's conversion to a sand pass reflects evolving techniques in mine rehabilitation. The early headframe, despite alterations for its use as a sand pass, retains aesthetic significance. The timber structure and iron rod bracing of the headframe not only contribute to its visual appeal but also enhance its cultural value. These elements play a significant role in shaping the overall character of Eyre and Bonanza Street.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ / Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the Headframe on No. 4 Shaft appears to be in good condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials.	

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Table C.33 Headframe, No. 4 Shaft

	• Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.3.6 Item number I268

Table C.34 Ice-making Plant Building

Aerial view of the Ice-making Plant Building, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the General Ice-Making Plant building, facing southeast

Source: EMM Consulting, 2023

View of the General Ice-Making Plant building, facing southeast

Source: EMM Consulting, 2023

View of the Ice-Making Plant building and Magazine, facing northwest

Source: EMM Consulting, 2023

Name of Item	Ice Making Plant Building	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1919
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Ice-Making Plant		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse / retain for interpretation		
Physical description	The ice-making plant building is a simple rectangular building with a concrete floor. The corrugated galvanised iron roof and bargeboards are painted in the green and white livery of the old South Mine Company. The external walls are painted white and consist of weatherboards on		

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Table C.34 Ice-making Plant Building

	the east, north and west sides and corrugated galvanised iron on the south. There are single green painted doors in the west and north walls and a double roll-up slatted door in the south wall. There is a single window in the east wall. Remnants of bales of straw lie in the corridor between the magazine and the Ice-making building; this was probably used as insulation. The building is currently filled with old core trays and core			
Modifications (if any) and dates	N/A			
Historical background	This building was erected to the north of No 4 shaft and next to the magazine in 1919. According to oral sources, the South Mine provided free ice to its staff employees. It has not been ascertained how long the building was used for the ice-making function. It has most recently been used as a storage shed for the storage of core trays and all previous equipment has been removed.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Ice Making Plant Building is a historically significant structure dating back to 1919. Originally serving as an ice-making plant, it provided essential services to the staff employees of the South Mine, reflecting the industrial and social infrastructure of the early twentieth century mining community. It has a typical industrial design, including weatherboard and corrugated galvanised iron walls and a painted roof in the livery of the old South Mine Company.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	After the 2011 inspection the Ice-Making Plant Building was found to be in poor condition.			
Management requirements	Do's • Given the condition, prioritise retention if possible. • If full retention is not feasible, consider stabilising as a ruin with the removal of loose fabric to achieve a safe form. • Record extensively through Photographic Archival Recording before and during any changes. • If possible, retain major fittings and equipment in situ. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and/or maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions without a prior impact assessment and approval. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.34 Ice-making Plant Building

	• Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that change/new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.7 Item number I269

Table C.35 Lamp Repair Room

Aerial view of the Lamp Repair Room, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Lamp Repair Room, facing southwest

Source: Austral Archaeology, 2012

Name of Item	Lamp Repair Room	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. 1916
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Lamp Repair Room		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	The lamp room is an unpainted, rectangular, corrugated galvanised iron building with a concrete floor. It has a single door in the north and south walls. The northern door has one board (panel) missing. Both the doors are painted green, and their frames are painted white. In the west wall there is a single mid-level window opening without frame or glass. Internally the building is lined with Masonite. The building has a skillion roof which slopes to the southwest. This roof has two rotating ceiling vents. The building has only a short box gutter between itself and the lamp room; no other gutters are apparent.		
Modifications (if any) and dates	N/A		
Historical background	There is no date for the construction of the lamp repair room. It seems likely however that it would have been required when operations commenced at No 4 shaft in 1916. Given that other facilities such as the change house were built in 1916, it seems likely that this building was also constructed then.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐

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Table C.35 Lamp Repair Room

Statement of significance	The Lamp Repair Room holds historical significance as an integral part of the infrastructure at the Rasp Mine, likely constructed around 1916 to support operations at No. 4 shaft. Its existence reflects the development of essential facilities to meet the needs of mine workers and ensure efficient mining operations. The Lamp Repair Room holds research significance, providing a broader understanding of infrastructure supporting the well-being and safety of mine workers at the Broken Hill. Its function in maintaining essential equipment contributes to the overall safety and productivity of the mining community.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	After the 2011 inspection the Lamp Repair Room was found to be in good condition. It has recently had a large split system air conditioner added. The external unit is obtrusive to the historic character of the precinct.			
Management requirements	Do's • All fittings, signs and shelving should be retained. • Air conditioner external motor should be relocated to less obtrusive position. • Adapt for future operations. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		Don't • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.35 Lamp Repair Room

Tolerance for Change	Form	Fabric	Function	Location
1 Low tolerance **2 Medium tolerance** **3 High tolerance**	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.8 Item number I270

Table C.36 Lamp Room

Aerial view of the Lamp Room, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Lamp Room

Source: EMM Consulting, 2023

Name of Item	Lamp Room	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. 1916
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Lamp Room		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	The lamp room is an unpainted, corrugated galvanised iron rectangular building with a concrete floor. There are two single doors in the west wall, a single door in the south wall and a single door in the west wall. The door from the south wall has been removed from its hinges and is lying in the building. All the doors are painted green, and all their frames are painted white. In the south wall there is a single mid-level window and four high level windows with corrugated galvanised iron hoods. Internally the southern half of the building is lined with small-fluted corrugated galvanised iron. The walls are green and the ceiling white. A row of lamp racks forms a dividing wall in the centre of the building. A bench runs the length of the room on the south side of the lamp racks. The northern half of the building is effectively a corridor which is itself a continuation of the covered way from the No 7 shaft. The lamp racks form the central dividing wall. The ceiling of this corridor has three sheets of fibreglass sheeting acting as a skylight. The external north wall features two windows – both have white painted frames and lack glass. The building has a skillion roof which slopes to the northeast. This roof has four rotating ceiling vents.		
Modifications (if any) and dates	1945		
Historical background	There is no date for the construction of the lamp room. It seems likely however that it would have been required when operations commenced at No 4 shaft in 1916. Given that other facilities such as the change house were built in 1916, it seems likely that this building was also constructed then. One historical plan dated 1945 shows the building in its present form. This plan is entitled “Modification to Lamp Room” so presumably the arrangement was somewhat different prior to this. This plan is also annotated with the words “Annexe added 5/7/40”. This is		

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Table C.36 Lamp Room

	logical as the covered way from No 7 shaft was built in 1936; the corridor is an extension of this covered way providing access for the miners from the shaft, via the lamp room to the change house.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Lamp Room holds historical significance as an integral part of the infrastructure at the Rasp Mine, likely constructed around 1916 to support operations at No. 4 shaft. Its existence reflects the development of essential facilities to meet the needs of mine workers and ensure efficient mining operations. The Lamp Room holds research significance, providing a broader understanding of infrastructure supporting the well-being and safety of mine workers at Broken Hill. Its function in maintaining essential equipment contributes to the overall safety and productivity of the mining community.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the Lamp Room was found to be in good condition.			
Management requirements	Do's • All fittings, signs, shelving, lamps and battery packs should be retained. • Archival recording. • Adapt for future operations. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.36 Lamp Room

	• Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.9 Item number I271

Table C.37 Magazine

Aerial view of the Magazine, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Magazine, facing northwest

Source: EMM Consulting, 2023

View of the Magazine, facing northeast

Source: EMM Consulting, 2023

Name of Item	Magazine	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1904 and 1907
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Storage of explosives		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	It is a concrete structure with an inverted u-shaped roof. It has a single riveted steel door set into a timber frame and located in the south wall.		
Modifications (if any) and dates	N/A		

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Table C.37 Magazine

Historical background	This is the oldest building in the group at the south end of the mine. It was built between 1904 and 1907 to serve the quarry which was located to its immediate north.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Magazine Building holds historical significance as one of the oldest extant structures in Heritage Precinct 2 of the Rasp Mine, dating back to 1904-1907. Its primary function as a storage facility for explosives reflects the important role it played in safe mining operations during the early twentieth century. Additionally, its construction aligns with the development of the quarry and the establishment of essential infrastructure to support mining activities. The Magazine holds research significance, providing a broader understanding of infrastructure supporting the safety of mine workers at Broken Hill. Its function in isolating and containing explosive equipment contributes to the overall safety of the mining community and mine workers.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	After the 2011 inspection the Magazine was found to be in good condition.			
Management requirements	Do's • Archival recording. • Adapt for future operations. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.37 Magazine

	• Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.10 Item number I272

Table C.38 No 7 Headframe

Aerial view of No. 7 Headframe, located southeast of Rasp Mine

Source: MetroMap, 2023

View of No. 7 Headframe, facing southwest

Source: EMM Consulting, 2023

View of No. 7 Headframe, facing southeast

Source: EMM Consulting, 2023

View of No. 7 Headframe, facing northwest

Source: EMM Consulting, 2023

Name of Item	No. 7 Headframe	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	Construction authorised in 1925 but did not become operational until late 1931.
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Headframe		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The structural steel headframe is designed to carry the rope loads from the four head sheaves which serve the two skip and two cage compartments of the shaft. The headframe is of the 'A' frame type, with parallel sides, set at 9.1m (30 ft) centres apart. The distance between centres of		

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Table C.38 No 7 Headframe

	front and back legs at the base is 21m (70 ft). The bases of front and back legs are securely bolted to reinforced concrete footings, founded on country rock. The vertical height of the apex of the 'A' frame is 31.7m (104 ft) above footings or 32m (105 ft) above the shaft collar. Cage, skip and skip tipping shaft guides are carried by a sky shaft, a steel framework placed between the front of the headframe and the reinforced concrete skip ore bin. Four 3m (10 ft) diameter cast-steel head sheaves are mounted on steel shafts. A 4-tonne travelling crane 3.6m (11 ft 9 in) in span is provided at the top of the headframe. The headframe was fabricated by Australian Iron and Steel Co Ltd of Sydney according to plans supplied by the South Mine Co. The headframe was erected by Messrs H Haunstrup & Co.			
Modifications (if any) and dates	N/A			
Historical background	Construction of No. 7 shaft authorised in 1925. Shaft operational in late 1931. No 7 shaft ultimately reached a depth of 755.3m (2478 ft). In 1992 the pumps in No. 7 shaft were being kept operational to prevent water from entering Pasminco's underground workings which adjoin the South Mine lease. The Nos 4 and 7 Headframes and their surrounding infrastructure and equipment are historically significant for forming the core of South Mine's later operations between 1916 to 2006. Broken Hill South Ltd sold the lease to MMM in 1972 which was then acquired by Normandy Ltd in 1997.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☒	Associative ☒	
Statement of significance	The No. 7 Headframe is a historically significant structure that played a central role in the operations of the South Mine. Authorised for construction in 1925 and operational by late 1931, it exemplifies the engineering and industrial advancements of the early twentieth century mining industry. Standing as a towering 'A' frame type structure, the headframe supported shaft operations with its innovative design, incorporating features such as sky shafts, steel head sheaves, and a travelling crane. Fabricated by Australian Iron and Steel Co Ltd and erected by Messrs H Haunstrup & Co, it demonstrates the collaborative efforts between mining companies and engineering firms of the era. With its imposing presence and industrial architectural style, as viewed from Bonanza Street, the No. 7 Headframe serves as a tangible reminder of Broken Hill's mining heritage and its significance to the local community.			
Current level of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Context of significance	National ☐	State ☒	Local ☒	N/A ☐
Re-assessed level of significance	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the No. 7 Headframe was considered to be in good condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric.	

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Table C.38 No 7 Headframe

	• Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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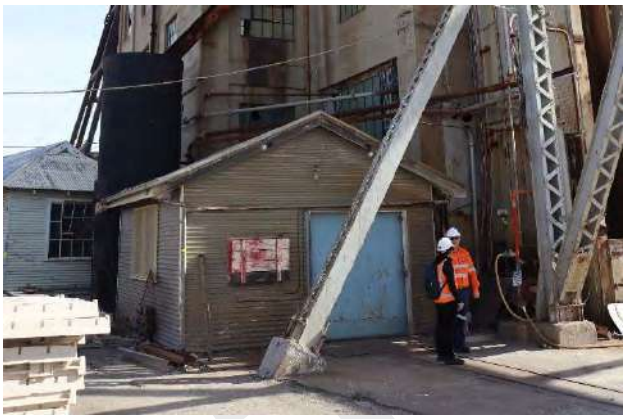
C.3.11 Item number I273

Table C.39 No 7 Rescue Equipment Building

Aerial view of Rescue Equipment Building, located southwest of Rasp Mine

Source: MetroMap, 2023



View of the Rescue Equipment Building, facing northwest

Source: EMM Consulting, 2023

Name of Item	Rescue Equipment Building	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. 1930s
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Rescue Equipment Building		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The rescue equipment building is located to the immediate south of the No 7 headframe. It is a simple corrugated galvanised iron structure with a gabled roof and a concrete floor. It has a double door in the east wall and one large window in the south wall.		
Modifications (if any) and dates	N/A		
Historical background	No definite date for the construction of the No 7 Rescue Equipment Building has been ascertained. It was probably erected sometime in the 1930s to serve the new operations at the No 7 shaft. The building was constructed to house the rescue and safety equipment. It continued to be used for that purpose for the working life of the shaft.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐

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Table C.39 No 7 Rescue Equipment Building

Statement of significance	The Rescue Equipment Building is a historically significant structure dating back to the 1930s. Constructed to house rescue and safety equipment for the operations at the No. 7 shaft, it reflects the commitment to worker safety in the mining industry during the early to mid-twentieth century. With its simple corrugated galvanised iron construction and gabled roof, the building represents a typical structure used for this purpose in mining operations of the era. Adjacent to the No. 7 headframe, it played a crucial role in supporting shaft operations and ensuring the safety of workers. Its historical significance lies in its association with the operational history of the No. 7 shaft			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	After the 2011 inspection the No 7 Rescue Equipment Building was found to be in good condition			
Management requirements	Do's • Archival recording. • Adapt for future operations. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

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Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.12 Item number I274

Table C.40 No 4 Rescue Equipment and Waiting Sheds

Aerial view of No 4 Rescue Equipment and Waiting Sheds, located southwest of Rasp Mine

Source: MetroMap, 2023

View of No 4 Rescue Equipment and Waiting Sheds, facing south

Source: EMM Consulting, 2023

View of No 4 Rescue Equipment and Waiting Sheds, facing southwest

Source: EMM Consulting, 2023

View of No 4 Rescue Equipment and Waiting Sheds, facing southeast

Source: EMM Consulting, 2023

Name of Item	No 4 Rescue Equipment and Waiting Sheds	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. 1916
		Associated sites	Surface infrastructure around No.4 and No.7 Headframes/Shaft
Historic name/function	Rescue Equipment Building		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	These sheds are constructed of unlined, unpainted corrugated galvanised iron with concrete floors. A bench is attached to the wall in the waiting shed. The waiting shed is open sided on the northern side. The two small rooms at the western end were used for storing the fire and rescue		

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Table C.40 No 4 Rescue Equipment and Waiting Sheds

	equipment. The easterly room has a single doorway from which the door has been removed. The other room has double doors which have been forced. Both rooms still contain firefighting equipment.			
Modifications (if any) and dates	N/A			
Historical background	No definite date for the construction of the No 4 Rescue Equipment and Waiting Sheds has been ascertained. It seems likely however that they would have been required when operations commenced at No 4 shaft in 1916. Given that other facilities such as the change house were built in 1916, it seems likely that these sheds were also constructed about that time.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The No. 4 Rescue Equipment and Waiting Sheds are historically significant structures likely built around 1916 to support operations at the No. 4 shaft in the Rasp Mine. Their role as facilities for storing fire and rescue equipment underscores the priority placed on safety measures and emergency preparedness during early twentieth century mining operations in Broken Hill. These sheds contain research significant as they represent the safety protocols and emergency response measures typical of early mining practices. They were significant components of mining infrastructure aimed at safeguarding the well-being of mine workers.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ / Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the No 4 Rescue Equipment and Waiting Sheds was found to be in good condition.			
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.	

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Table C.40 No 4 Rescue Equipment and Waiting Sheds

	• Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.13 Item number I275

Table C.41 No 7 Winding House

Aerial view of No 7 Winding House, located southwest of Rasp Mine

Source: MetroMap, 2023

View of No 7 Winding House, facing southwest

Source: EMM Consulting, 2023

View of No 7 Winding House, facing southeast

Source: EMM Consulting, 2023

View of No 7 Winding House, facing southeast

Source: EMM Consulting, 2023

Name of Item	No 7 Winding House	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1931 No. 7 skip winder commenced operating under automatic control and No. 7 cage winder commenced operating under manual control in 1932.
		Associated sites	Surface infrastructure around No 4 and No 7 Headframes/Shaft
Historic name/function	Winding House		
Current name/function	Currently disused		

Table C.41 No 7 Winding House

Future use	Retain for interpretation			
Physical description	The electric winders with Ward-Leonard control, which were supplied by Messrs Metropolitan Vickers of Trafford Park, Manchester, England, consisted of two double cylindrical drum winders with direct coupled direct current motors and two equalised Ward-Leonard motor generator sets with switch board and auxiliaries. The winders and motor generator sets were housed in two rooms. The winders were in continuous use until approximately 1976 when the skip winder was removed for transfer to a mine in Fiji. The Motor Generator set remains in situ in the winder house. The cage winder was still in use in 1992. The switchboards and other equipment all remain in situ.			
Modifications (if any) and dates	N/A			
Historical background	1931 No 7-skip winder commenced operating under automatic control and No 7-cage winder commenced operating under manual control in 1932. The No 4 and 7 Headframes and their surrounding infrastructure and equipment are historically significant for forming the core of South Mine's later operations between 1916 and 2006. Broken Hill South Ltd sold the lease to MMM in 1972 which was then acquired by Normandy Ltd in 1997.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The No. 7 Winding House is a historically significant structure dating back to 1931. Operated by electric winders with Ward-Leonard control, supplied by Messrs Metropolitan Vickers of Trafford Park, Manchester, England, it played a crucial role in the operations of the No. 7 shaft. The winding house housed two double cylindrical drum winders with direct-coupled DC motors and two equalised Ward-Leonard motor generator sets. While the skip winder was removed in approximately 1976, the cage winder remained in use until 1992. The switchboards and other equipment remain in situ, preserving the technological heritage of the site. The No. 7 Winding House, along with the No. 4 and 7 Headframes and their surrounding infrastructure, formed the core of the South Mine's operations until its closure in 2006. Retaining significant historical significance, the No. 7 Winding House deserves preservation for interpretation within the precinct.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the No. 7 Winding House was considered to be in good condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials.	

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Table C.41 No 7 Winding House

	• Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.3.14 Item number I276

Table C.42 Ore Outcrop

Aerial view of the Ore Outcrop, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Ore Outcrop, facing northeast

Source: EMM Consulting, 2023

View of the Ore Outcrop, facing northeast

Source: EMM Consulting, 2023

View of the Ore Outcrop, facing northeast

Source: EMM Consulting, 2023

Name of Item	Ore Outcrop	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Landscape feature, geological formation	**Date**	The outcrop is part of the original Line of Lode discovered in 1883.
		Associated sites	Line of Lode, generally.
Historic name/function	N/A		
Current name/function	N/A		
Future use	Retain for interpretation		
Physical description	The measurement of the ore outcrop is approximately 2m width x 4m length and is part of the original line of outcropping lode after which Broken Hill was named. The ore outcrop is located southeast of the Magazine Building in Heritage Precinct 2.		

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Table C.42 Ore Outcrop

Modifications (if any) and dates	N/A			
Historical background	The Outcrop is part of the Line of Lode that Hieronymous von Pereira (Charles Rasp) discovered in 1883. In September 1883 he discovered silver-lead ore at Broken Hill and registered the first mineral lease. The outcrop is located within old Mine Lease 7 which is within the Nos 4 and 7 Headframes mine area (Heritage Precinct 2) being historically significant for forming the core of South Mine's later operations between 1916 and 2006.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Ore Outcrop holds historical significance as part of the original Line of Lode discovered in 1883 by Hieronymous von Pereira (Charles Rasp). This discovery marked the beginning of mining activities in Broken Hill and played a pivotal role in shaping the region's economic and social development. The outcrop's location within old Block 7, forming the core of South Mine's later operations, further emphasises its historical importance. The Ore Outcrop has research significance as a geological formation within the Line of Lode, providing evidence of long-term geological processes and environmental changes. Its presence within the Rasp Mine area, alongside visible ore bodies and diverse mineral deposits, offers valuable insights into past climates, landscapes, and ecosystems. Additionally, the discovery of rare mineral species and well-crystallised minerals within the ore body further underscores its research importance in understanding geological and ecological processes. The Ore Outcrop represents a significant geological feature within the broader context of the Line of Lode, which spans approximately 8 km in length and up to 2 km in depth. Its dimensions and location southeast of the Magazine Building in Heritage Precinct 2 exemplify the geological diversity of the region and provide a tangible link to the mining history of Broken Hill. As part of the original Line of Lode, the outcrop typifies the geological formations that attracted early prospectors to the area and initiated mining activities. The Ore Outcrop holds associative significance as a tangible link to the pioneering efforts of early prospectors like Hieronymous von Pereira (Charles Rasp), who discovered the Line of Lode in 1883. Its association with the mining lease Block 7 and operations in the South Mine area underscores its role in the development of Broken Hill as a major mining centre. The outcrop serves as a physical representation of the perseverance and ingenuity of those who sought mineral wealth in the region.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the ore outcrop was found to be in good condition.			
Management requirements	Do's • Develop a management plan for exposed archaeological resources, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk areas urgently and develop a ruin management strategy for all existing		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological and geological deposits.	

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Table C.42 Ore Outcrop

	ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources.		• Avoid new developments without considering the archaeological and geological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological and geological assessment by a qualified professional. • Do not alter or add to significant archaeological or geological fabric without prior impact assessment and approval. • Avoid removing significant archaeological or geological fabric from structures. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological or geological structures.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.15 Item number I277

Table C.43 Rectifier Room

Aerial view of the Rectifier Room, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Rectifier Room, facing south

Source: EMM Consulting, 2023

Name of Item	Rectifier Room	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. 1930s
		Associated sites	Surface infrastructure around No. 4 and No. 7 Headframes/Shaft
Historic name/function	Rectifier Room		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	This building is constructed of unlined, unpainted corrugated galvanised iron with a concrete floor. It has a hipped corrugated galvanised iron roof with two gablets. It has a single door on the south side and windows on the east and west sides. The western window has been covered over with corrugated galvanised iron. Doors and frames are painted in the usual colours.		
Modifications (if any) and dates	N/A		
Historical background	No definite date for the construction of the Rectifier Room has been ascertained. Given the essential role in supplying DC power to charge cap lamps, it would have been required when electric cap lamps were introduced in the 1930s.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐

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Table C.43 Rectifier Room

Statement of significance	The Rectifier Room played a vital role in the mining operations of its time. Constructed of unlined, unpainted corrugated galvanised iron with a hipped roof, its primary function was to supply DC power to charge cap lamps, a critical aspect of ensuring miner safety underground. Although its exact construction date is uncertain, its necessity aligns with the introduction of electric cap lamps in the 1930s, highlighting its significance in adapting to technological advancements in mining safety practices. The Rectifier Room remains an integral part of the surface infrastructure surrounding the No. 4 and No. 7 Headframes/Shaft. Preserving its original features provides valuable insights into the technological evolution of the mining industry during the early to mid-twentieth century and the development of safety protocols.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	After the 2011 inspection the Rectifier Room was found to be in good condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

DRAFT

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.16 Item number I278

Table C.44 Saw Mill

Aerial view of Saw Mill, located southwest of Rasp Mine

Source: MetroMap, 2023

View of the Saw Mill, facing southwest

Source: Austral Archaeology, 2012

View of the Saw Mill, facing northeast

Source: Austral Archaeology, 2012

View of the Saw Mill, facing southeast

Source: Austral Archaeology, 2012

Name of Item	Saw Mill	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	Unknown
		Associated sites	Surface infrastructure around No 4 and No 7 Headframes/Shaft
Historic name/function	Sawmill		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The sawmill consists of an electrically powered saw, gantry, rollers and set of skids or slides for stacking the sawn timber. The gantry presumably provided easy movement of the timbers and then for swinging them out to the adjoining railway for transportation to the shaft.		

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Table C.44 Saw Mill

Modifications (if any) and dates	N/A			
Historical background	No definite date for the construction of this feature has been ascertained from the documentary records. The saw was used by the underground crew to cut the large mine timbers to size.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Saw Mill is an extant structure whose exact date of construction remains unknown. Primarily functioning as a sawmill, it features an electrically powered saw, gantry, rollers, and a set of skids or slides for stacking the sawn timber. The gantry facilitated the movement of timbers, allowing for easy transportation to the adjacent railway for further distribution. The Saw Mill retains its original features, providing valuable insight into the techniques and equipment used in timber processing within the mining industry. Although the precise date of its construction is uncertain, historical records indicate its use by the underground crew to cut large mine timbers to size. As part of the surface infrastructure surrounding the No. 4 and No. 7 Headframes/Shaft, the Saw Mill holds significance in supporting the mining operations of its era.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the Sawmill was found to be in good condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.44 Saw Mill

	• Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.17 Item number I279

Table C.45 Underground Offices Building

Aerial view of the Underground Offices Building, located southwest of Rasp Mine

Source: MetroMap, 2023

View of Underground Offices Building, facing southeast

Source: EMM Consulting, 2023

View of Underground Offices Building, facing south

Source: EMM Consulting, 2023

View of Underground Offices Building, facing northwest

Source: EMM Consulting, 2023

Name of Item	Underground Offices Building	**Location**	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1932
		Associated sites	Surface infrastructure around No 4 and No 7 Headframes/Shaft
Historic name/function	Office		
Current name/function	Storage		
Future use	Retain for interpretation		
Physical description	The underground offices building is a corrugated galvanised iron building with a concrete floor. The building has undergone both internal and external alterations throughout is period of use yet retains much of its original form. Its first alterations were in 1939; at this time, it was extended at		

Table C.45 Underground Offices Building

	the western end at the internal arrangement of rooms was slightly altered. Subsequent alterations extended the building to the east and further re-arranged the internal layout.			
Modifications (if any) and dates	The western end and internal arrangement of rooms were slightly altered with an extension in 1939.			
Historical background	This building was erected in 1932 as part of the development associated with the No 7 shaft. It was required to provide better facilities for the underground staff. The easterly extension connected the Underground Offices building with another building; this was used for sharpening the saws. Other uses of rooms in this area were a change house for the winder drivers, a storage area for various equipment including the liquid oxygen containers, the cages for the canaries and storage of underground rescue stretchers. The Ambulance and Proto (Rescue Equipment) Rooms were still fully equipped in 1994 but all equipment has since been removed.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Underground Offices Building, dating back to 1932, contains historical significance. Initially designed to accommodate underground staff, the building's presence and architectural features reflect the industrial heritage of the mining era. Despite undergoing alterations over time, such as extensions and internal rearrangements, it remains an integral part of the surface infrastructure surrounding the No. 4 and No. 7 Headframes/Shaft. This building served multifaceted roles, from providing office space to housing essential equipment like liquid oxygen containers and rescue stretchers. Its connection to another building for saw sharpening further highlights its significance in supporting mining operations. Such versatility underscores its importance in facilitating efficient and safe mining practices, contributing to the broader understanding of the mine's mining history. Although currently repurposed for storage, the Underground Offices Building retains its historical integrity, offering valuable insights into the working conditions and operational dynamics of the mining industry.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	After the 2011 inspection the Underground Offices was found to be in good condition. The medical equipment and much other equipment and records have been removed since last inspection in 1994			
Management requirements	Do's • Retain remaining internal signs and fittings where possible. If not store and retain on site. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials.	

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Table C.45 Underground Offices Building

	• Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Form
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.3.18 Item number I280

Table C.46 Winding House and Motor, No 4 Shaft

Aerial view of the Winding House and Motor, No 4 Shaft, located southwest of Rasp Mine

Source: MetroMap, 2023

Aerial view of the Winding House and Motor, No 4 Shaft, facing southeast

Source: EMM Consulting, 2023

Aerial view of the Winding House and Motor, No 4 Shaft, facing northeast

Source: EMM Consulting, 2023

Aerial view of the Winding House and Motor, No 4 Shaft, facing southeast

Source: EMM Consulting, 2023

Name of Item	Winding House and Motor, No 4 Shaft	Location	Heritage Precinct 2, South Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	Date	1913
		Associated sites	Surface infrastructure around No 4 and No 7 Headframes/Shaft
Historic name/function	Winding House		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	The winder house is a corrugated galvanised iron building erected on concrete footings. The roof and bargeboards are painted in the green and white livery of the old South mine company. The		

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Table C.46 Winding House and Motor, No 4 Shaft

	external walls are unpainted corrugated galvanised iron, the windows have been covered externally with sheets of corrugated galvanised iron to help secure the building.			
Modifications (if any) and dates	N/A			
Historical background	The winder house was erected, and the winder installed in 1913 but the engine did not become operational until 1916 due to the exigencies of the war. It was reputedly the first electric winder on the Broken Hill field. It was powered by a 150 horsepower, 3 phase, 550 volts, 40 cycle, 300 rpm, contactor control induction motor. It remains mainly as built but the equipment in the contactor room has been partially gutted. The rectifier house on the east side of the headframe provided the DC power for charging cap lamps. The Nos 4 and 7 Headframes and their surrounding infrastructure and equipment are historically significant for forming the core of South Mine's later operations between 1916 to 2006. Broken Hill South Ltd sold the lease to MMM in 1972 which was then acquired by Normandy Ltd in 1997.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	The Winding House and Motor at No. 4 Shaft hold considerable historical significance as integral components of Rasp Mine's mining operations. Erected in 1913 and operational by 1916, it was reportedly the first electric winder in Broken Hill, marking a significant technological advancement. This innovation reflects the evolution of mining practices in response to industrial progress. Moreover, the Winding House and Motor offer potential insights into the technical aspects of mining technology and industrial development in Broken Hill. As pioneers in electric winding technology, further research can enhance the wider understanding of the adoption of electricity in mining operations and its impact on efficiency and safety. These structures exemplify a class of industrial buildings essential to early twentieth century mining operations. Their corrugated galvanised iron construction and distinctive green and white livery are characteristic of similar structures found in mining complexes across Australia during that period. As part of the surface infrastructure around No. 4 Shaft, they represent the core operations of South Mine and its technological advancements. In terms of technical achievement, the Winding House and Motor demonstrate advanced engineering and electrical expertise. The installation of a 150-horsepower induction motor represented cutting-edge technology, leading to increased efficiency and productivity in mining operations. The twin headframes, especially No. 4 and No. 7, are landmarks in Broken Hill. Their aesthetic elements of the Rasp Mine exhibit a high level of rigour and integrity, surpassing comparison to other comparable types of industrial heritage sites.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	After the 2011 inspection the Winding House and Motor, No. 4 Shaft was found to be in good condition however a window is smashed on the south side of building, other windows still intact. Interior has pressed metal wall, well-sealed, steam pipes are still in situ on south side of building.			

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Table C.46 Winding House and Motor, No 4 Shaft

Management requirements	Do's • Repair window/seal openings as required. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.4 Heritage Precinct 3

C.4.1 Item number I281

Table C.47 Browne's Shaft

Aerial view of Browne's Shaft, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Browne's Shaft, facing north

Source: EMM Consulting, 2023

View of Browne's Shaft, facing west

Source: EMM Consulting, 2023

View of Browne's Shaft, facing southwest

Source: EMM Consulting, 2023

Name of Item	Browne's Shaft	**Location**	Heritage Precinct 3, Menindee Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1890-1970s
		Associated sites	Central Mine and South Mine
Historic name/function	Shaft		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	The Junction Mine originally consisted of the Browne's Shaft and Headframe (the shaft and headframe dating to 1890 with the height of the headframe being increased several times 1890-1899 and in 1900 and modified again in 1909 until being reduced to its present level in either 1939, 1946 or 1958); an existing landing brace and ore bins that were relocated in 1962 from the		

Table C.47 Browne's Shaft

	British Mine and used until the mine closed in 1972; the first winder and winding house dating to 1889 as the winding house contained its own boiler to supply steam to the winding engine, in 1904 the winding engine from McIntyre's Shaft was relocated to Browne's Shaft, the winding engine was overhauled in 1910 and most likely powered by new boilers, a new winding plant was installed in 1916 – it is assumed this was an electric winder since the mine converted to being powered by electricity since 1912; the Concentration and Treatment Plant dating to 1912; the tanks dating from 1890 to the latest phase of mining; the Powder Magazine; the Changehouse; and the Boiler House Site. The Junction Mine site opened to the public in 1994 as one of Broken Hill's tourism sites showing the mine's surface workings.			
Modifications (if any) and dates	N/A			
Historical background	Browne's Shaft was a main hauling shaft from about 1890 to 1972.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☐	
Statement of significance	Browne's Shaft, in operation from around 1890 to 1972, holds historical significance for both Rasp Mine and Broken Hill's industrial operations. Serving as a primary hauling shaft, its long operational history underscores its importance in the region's mining activities. Dating back to around 1890, the shaft underwent numerous upgrades, reflecting the continuous evolution of mining technology. The transition from manual hauling to electric winding exemplifies advancements in mining practices during this period. The installation of new technologies, such as electric winding engines and boilers, signifies the progress in mining technology during the late nineteenth and early twentieth centuries. Browne's Shaft, alongside associated structures like the winding house and concentration plant, showcases the technical complexities of mining operations at the Rasp Mine and Broken Hill. These advancements offer insights into ore extraction processes and highlight the integration of various technologies within the mining industry. Moreover, Browne's Shaft and associated structures contribute to the visual character of Broken Hill's mining landscape, evoking its rich industrial heritage. The presence of industrial structures like the headframe and winding house adds to the visual allure of Menindee Road, providing a tangible connection to the region's mining history. he presence of Browne's Shaft and the Junction Mine within Heritage Precinct 3 offers significant opportunities for scientific research and archaeological investigation. These sites offer a comprehensive view of the mining activity at the Rasp Mine throughout its history, showcasing the evolution of the industry over time. Browne's Shaft, with its lengthy operational history, and the Junction Mine, representing different phases of mining, are valuable for understanding changes in mining practices and technology. Moreover, these archaeological sites have the potential to uncover hidden artefact deposits, further enhancing our understanding of the development of the mining industry.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The headframe, ore bins, winding house, tanks, compressor house and manager's house were. considered to be in sound condition when inspected in 1990. The remains included: the brick and stone engine footings and the stone ore bins on the south side of the landing brace ore bins: the			

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Table C.47 Browne's Shaft

	outcrop remaining of the original line of outcropping lode after which Broken Hill was named; the concrete floors and footings located in close proximity to the headframe; the tramways located under the headframe; ore cart bodies used as part of the retaining wall of the ramp leading to the Sand Pass; the remains of the Changehouse (since removed) that included parts of two walls and the floor and a cutting remaining on the site where the building for the Boiler House was once located. After the 2011 inspection the extant buildings and structures located at the Junction Mine such as the headframe, ore bins, winding house, tanks, compressor house and manager's house were considered to be in good condition. The remains as previously recorded in 1990 were in fair condition except the change house remains which are gone.

Management requirements

Do's

- Archival recording.
- Retain, maintain, and use.
- Preserve and safeguard archival records.
- Plan for adaptability to future operations.
- Utilise while ensuring its preservation.
- Conduct a thorough condition assessment to identify existing and potential damage to the building fabric.
- Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.
- Follow the Maintenance Plan's scheduled inspections and maintenance activities.
- Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them.
- Conserve the layout, configuration, and relationships with other site elements.
- Obtain an impact assessment and approval before initiating any works.
- Preserve unique views of the building and its surroundings within the visual context.
- Ensure that new uses do not significantly impact the significance.
- Interpret and recognise its visual contribution to the surrounding environment.

Don'ts

- Avoid impacting views whenever possible.
- Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval.
- Do not remove significant fabric.
- Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials.
- Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion.
- Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.
- Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.
- Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
GML Heritage

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C.4.2 Item number I282

Table C.48 Junction Mine and Lookout

Aerial View of Junction Mine and Lookout, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Junction Mine and Lookout, facing north

Source: EMM Consulting, 2023

View of Junction Mine and Lookout, facing northwest

Source: EMM Consulting, 2023

Name of Item	Junction Mine and Lookout	**Location**	Heritage Precinct 3, Menindee Road, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1890-1970s
		Associated sites	Central Mine and South Mine
Historic name/function	Structural ruin		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	Structural ruin		
Modifications (if any) and dates	N/A		

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Table C.48 Junction Mine and Lookout

Historical background	The Junction Mine site was one of the earliest leases at Broken Hill pegged in 1884 by Carson and Walter Penglase and operated fairly continuously from 1886 to 1972. The site formed part of the Great Northern Junction, so named as it formed a continuation of the orebody beyond the break caused by the British mine geological fault. Browne's Shaft was a main hauling shaft from about 1890 to 1972; parts of the existing headframe probably date back to the 1890s; a boiler house was built c. 1904; a new chimney stack was purchased from the Australian Metal Co and erected in 1910; the ore bins were moved from McIntyre's Shaft and erected at Browne's Shaft in 1909; remains of the lead concentration plant survive and probably date to the 1909-1912 remodelling of the mill that included works on the boiler plant; mine office, candlehouse, assay office and the mill; the first motion winding engine and first motion winder house (1916-1917) was being built and new offices, saw mill and a sampling mill had recently been completed. A modern changehouse was built in 1918 (built on the site of part of the 1904 Treatment Plant) with a Compressor House being built in 1920. The mine was purchased by the Sulphide Corporation (Central Mine) in November 1923 and a railway system was connected between the Central Mine and the Junction Mine. The mine was sold to North Broken Hill company on 31 October 1929. Work was undertaken to the shaft in 1937-1939 and mining commenced in 1946 after work was interrupted due to the war. The mine was sold to Broken Hill South Ltd in October 1961. A drive commenced in 1962 from No 7 Shaft at South Mine to Brown's Shaft at the 451m (1480 ft) level that was completed in April 1963. Work ceased in 1972 when South Broken Hill terminated mining operations at Broken Hill and sold to MMM. The Junction Mine site opened to the public in 1994 as one of Broken Hill's tourism sites showing the mine's surface workings.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	Established as one of Broken Hill's initial leases, the mine maintained consistent operation from 1886 to 1972. Junction Mine within Heritage Precinct 3 offers significant opportunities for scientific research and archaeological investigation. These sites offer a comprehensive view of the mining activity at the Rasp Mine throughout its history, showcasing the evolution of the industry over time. Browne's Shaft, with its lengthy operational history, and the Junction Mine, representing different phases of mining, are valuable for understanding changes in mining practices and technology. Moreover, these archaeological sites have the potential to uncover hidden artefact deposits, further enhancing our understanding of the development of the mining industry, notably highlighting the transition from steam-powered machinery to electrical systems.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The headframe, ore bins, winding house, tanks, compressor house and manager's house were considered to be in sound condition when inspected in 1990. The remains included: the brick and stone engine footings and the stone ore bins on the south side of the landing brace ore bins: the outcrop remaining of the original line of outcropping lode after which Broken Hill was named; the concrete floors and footings located in close proximity to the headframe; the tramways located under the headframe; orecart bodies used as part of the retaining wall of the ramp leading to the Sand Pass; the remains of the Changehouse (since removed) that included parts of two walls and the floor and a cutting remaining on the site where the building for the Boiler House was once located. After the 2011 inspection the extant buildings and structures located at the Junction Mine such as the headframe, ore bins, winding house, tanks, compressor house and manager's house were considered to be in good condition. The remains as previously recorded in 1990 were in fair condition except the changehouse remains which are gone.			

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Table C.48 Junction Mine and Lookout

Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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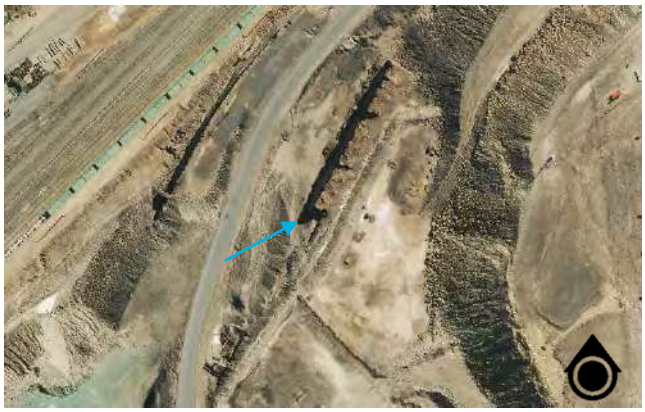
C.5 Heritage Precinct 5

C.5.1 Item number I285

Table C.49 BHP Concentration Mill Foundations



Aerial view of BHP Concentration Mill Foundations, located northwest of Rasp Mine

Source: MetroMap, 2023

View of the BHP Concentration Mill Foundations from Federation Way, facing southeast

Source: Austral Archaeology, 2012

View of the BHP Concentration Mill Foundations from Federation Way, facing northeast

Source: Austral Archaeology, 2012

View of the BHP Concentration Mill Foundations from Federation Way, facing south

Source: Austral Archaeology, 2012

Name of Item	BHP Concentration Mill Foundations	**Location**	Heritage Precinct 5, NW of Delprat shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	Built in phases between 1897 and 1900.
		Associated sites	Old BHP Area
Historic name/function	Concentration Mill		
Current name/function	Disused		
Future use	Retain for interpretation		

Table C.49 BHP Concentration Mill Foundations

Physical description	The structure is a substantial stone and brick edifice approximately 50 meters in length and 15 meters in height, aligned in a north-south direction. It extends towards the south, potentially connecting with the loading platform area (refer to BH 079). At the southern extremity, the foundation wall turns eastward for about 7 meters, then south for an additional 10 meters, eventually being covered by a mullock heap. The structure exhibits two discernible sections in terms of height: the first, approximately 13 meters high, is entirely constructed of stone, featuring numerous sizable timber joists extending along its length at consistent intervals of 2 meters. Two lines of these joists are visible, one at around 5 meters and another at approximately 10 meters above the ground. The second section comprises the uppermost two meters of brickwork, including brick-lined openings along the wall, with dimensions of approximately 1.5 meters and 3 meters. Timber beams cap the outer top edge and offset stonework in this upper section creates the visual effect of buttressing. The north end wall measures around 5 meters in length before quickly turning southward for an additional 4 meters, connecting with the underlying slag heap. Stone and brick footings are scattered along the top, and a pair of concrete and brick footings with steel reinforcing rods are situated at the north end. Various steel brackets support much of the timberwork, and a significant timber beam protrudes through the upper brickwork. No east or south walls are currently visible. Some timber floorboards are observable at the south end. An additional set of large stone foundations constitutes a second section, located at a lower level to the west of the Delprat access road, near the rail lines. These foundations run parallel to the first set and share a similar construction.			
Modifications (if any) and dates	N/A			
Historical background	The mill was the first of BHP's concentration mills and was built in phases between 1897 and 1900.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The BHP Concentration Mill Foundations holds outstanding historical significance due to its association with the early industrialisation of Broken Hill and the growth of BHP, a major player in Australia's mining history. Further research into this area of archaeological potential could offer insights into the historical ore concentration techniques and technological advancements of the late nineteenth and early twentieth centuries. As one of the earliest concentration mills, it represents a significant class of industrial structures essential to Australia's mining heritage. Despite its ruined state, the mill's structural remains are rare and contribute to the industrial aesthetic of Federation Way in Broken Hill's landscape, reflecting the region's mining history. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	It was noted in 1994 that no urgent conservation strategy Is required but the stability of ruins should be monitored.			
Management requirements	Do's		Don'ts	

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Table C.49 BHP Concentration Mill Foundations

	• The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Avoid impacting views whenever possible. • Refrain from making alterations or additions without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. •	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.5.2 Item number I286

Table C.50 BHP South Smelter and Stack

Aerial view of BHP South Smelter Walls and Stack, located northeast of Rasp Mine

Source: MetroMap, 2023

View of the BHP South Smelter Walls and Stack, facing south

Source: EMM Consulting, 2023

View of the BHP South Smelter Walls and Stack, facing west

Source: EMM Consulting, 2023

View of the BHP South Smelter Walls and Stack, facing northeast

Source: EMM Consulting, 2023

Name of Item	BHP South Smelter Walls and Stack	**Location**	Heritage Precinct 5, east of the Delprat shaft and changehouse, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	1887
		Associated sites	Old BHP Area
Historic name/function	Old BHP South smelter		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	Stone smelter stack c. 4 m high ending with a lip at the top and iron bolts for attaching a steel flue. The north side has a bricked-up brick flue arch which leads onto a segment of stone retaining wall which stretches for c. 6 m. This segment of wall is c. 2.5 m high and is interrupted by a 10 m gap before continuing north for another 5 m. This stone wall has a timber cap and		

Table C.50 BHP South Smelter and Stack

	timber floorboards extending from the top out to the east side. The south side of the stack also has a bricked flue arch which is not connected to the wall. The visible wall segment on the south side of the stack is only 1.5 m long and also has a timber cap and floorboards. The stack is currently housing the fire hydrant pump. The flue bricks are stamped with "cowan" and "...arnki... patented" (partly obscured). To the south the wall is rubble for c. 30 m and then turns to the east and then to the south again where it passes behind Stewarts shaft for c. 20 m then turns west again forming a wide alcove. On the high ground above the walls on the east side are a set of 12 concrete piers (in two rows of 6) at the north end of the wall. The west side line of 6 retains steel bolt/brackets protruding from the piers. Much of the wall has collapsed and the remainder of the building and machinery are gone. The upper steel stack is also gone.			
Modifications (if any) and dates	N/A			
Historical background	These walls and stack are the remains of the old BHP South smelter which was built during 1887 and 'blown in' on February 18, 1888.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The BHP South Smelter Walls and Stack holds outstanding historical significance due to its association with the early industrialisation of Broken Hill and the growth of BHP, a major player in Australia's mining history. Further research into this area of archaeological potential could offer insights into the historical smelting techniques and technological advancements of the late nineteenth and early twentieth centuries. As remnants of an early smelting facility, they represent a class of industrial structures essential to Australia's mining history and the evolution of mineral processing. Despite its ruined state, the smelter walls and stack's structural remains are rare and contribute to the industrial aesthetic of Federation Way in Broken Hill's landscape, reflecting the region's mining history. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	The BHP South Smelter Walls and Stack was considered to be in poor condition when inspected in 1994 with the stack assessed to be very weathered across the base with much of the wall being damaged. The BHP South Smelter Walls and Stack are considered to be in a similar condition after the 2011 inspection. It was noted in the 1994 inspection that the condition of the walls and stack should be monitored and stabilisation undertaken when required.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions without a prior impact assessment and approval. • Do not remove significant fabric.	

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Table C.50 BHP South Smelter and Stack

	• Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. •		
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.5.3 Item number I287

Table C.51 Delprat Changehouse

Aerial view of the Delprat Changehouse, located northeast of Rasp Mine

Source: MetroMap, 2023

View of the Delprat Changehouse, facing west

Source: EMM Consulting, 2023

View of the Delprat Changehouse, facing northeast

Source: EMM Consulting, 2023

View of the Delprat Changehouse, facing southwest

Source: EMM Consulting, 2023

Name of Item	Delprat Changehouse	**Location**	Heritage Precinct 5, east of the Delprat shaft and changehouse, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1904
Historic name/function	Changehouse	**Associated sites**	Old BHP Area
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	This is a large timber framed, corrugated galvanised iron clad building sitting on a concrete foundation with concrete floors. Windows are double hung and doors are wooden. The west side has a small corrugated galvanised iron extension for the "waiting room". The east side has a 1950s concrete extension with a corrugated galvanised iron roof. The original 1904 section is visible in the centre with another extension on the south side, also of timber and corrugated		

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Table C.51 Delprat Changehouse

	galvanised iron. There are two fire hydrant pipes along the east side which end by going into the SE corner of the concrete extension. The south and west sides have been repainted.			
Modifications (if any) and dates	Upgraded in the 1950s.			
Historical background	Built in 1904 as part of the original Delprat plant, it was then upgraded in the 1950s when the headframe was rebuilt.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	Constructed in 1904 as part of the Delprat plant, the Changehouse holds historical significance due to its association with the early industrialisation of Broken Hill and the growth of BHP, a major player in Australia's mining history. While primarily a functional building, the Changehouse offers insights into the working conditions and social dynamics of mining communities. Despite its partial obstruction, the Changehouse contributes to the industrial aesthetic of Federation Way in Broken Hill's landscape, reflecting the region's mining history. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Delprat Changehouse was considered to be in excellent condition when inspected in 1994 with the item assessed externally to be totally complete. However, the interior Changehouse fittings have been completely removed. After the current inspection in 2011 the Delprat Changehouse is still considered to be in good condition.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.	

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Table C.51 Delprat Changehouse

	values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.5.4 Item number I288

Table C.52 Delprat General Offices

Aerial view of the Delprat General Offices, located northeast of Rasp Mine

Source: MetroMap, 2023

View of the Delprat General Offices in the foreground, facing north

Source: EMM Consulting, 2023

View of the Delprat General Offices in the foreground, facing southeast

Source: EMM Consulting, 2023

Name of Item	Delprat General Offices	**Location**	Precinct 5, SE of Delprat Shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. 1900s
		Associated sites	Old BHP Area
Historic name/function	Delprat General Offices		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	Timber framed, corrugated galvanised iron clad building with double hung windows and wooden doors. The west end is an old ambulance and stretcher station with access on the north side. The north side has the access doors to the general offices. The east end has a lower roofline than the centre section. Fire hydrant and water pipes run along the east side approximately 2m off the ground. The south end has a modern electrical set up and transformer.		

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Table C.52 Delprat General Offices

Modifications (if any) and dates	May have been new or rebuilt in 1952 however its form of construction suggests it dates from the early 1900s.			
Historical background	This building was apparently new or rebuilt in 1952 during the re-opening of the Delprat shaft area, although it appears to be from the early 1900's.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	Constructed in 1900's as part of the Delprat plant, the Delprat General Offices holds historical significance due to its association with the early industrialisation of Broken Hill and the growth of BHP, a major player in Australia's mining history. While primarily a functional building, the Delprat General Offices offers insights into the working conditions and social dynamics of mining communities. Despite its partial obstruction, the Delprat General Offices contributes to the industrial aesthetic of Federation Way in Broken Hill's landscape, reflecting the region's mining history. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Delprat General Offices was considered to be in excellent condition when inspected in 1994 with the item assessed to be structurally sound and the only damage being to the fire hydrant pipes on the SE corner. After the current inspection in 2011 the Delprat General Offices is still considered to be in good condition.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.	

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Table C.52 Delprat General Offices

	• Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change	Form	Fabric	Form	Fabric
1 Low tolerance **2 Medium tolerance** **3 High tolerance**	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.5.5 Item number I289

Table C.53 Delprat Head Frame and Shaft

Aerial view of the Deprat Head Frame and Shaft, located northeast of Rasp Mine

Source: MetroMap, 2023

View of the Delprat Head Frame and Shaft, facing south

Source: EMM Consulting, 2023

View of the Delprat Head Frame and Shaft, facing southeast

Source: EMM Consulting, 2023

View of the Delprat Head Frame and Shaft, facing northwest

Source: EMM Consulting, 2023

Name of Item	Delprat Head Frame and Shaft	**Location**	Precinct 5, centre of the Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1900-1901
		Associated sites	Old BHP Area
Historic name/function	Headframe and Shaft		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Concrete footed steel headframe with two headsheaves. The cages are extant and in good condition. It also has a concrete shaft collar with rail tracks entering on a N-S alignment. On the north side the two rail tracks join into one set and continue out onto a timber trestle which has a steel handrail and is supported on rolled steel joists. This structure is possibly for tipping or turning ore carts		

Table C.53 Delprat Head Frame and Shaft

Modifications (if any) and dates	Headframe and winding gear were replaced in 1952.			
Historical background	The shaft was originally sunk in 1900 and fitted with a headframe and winding gear in 1901. In 1952 the headframe and winding gear were all replaced, and the headframe was turned around so that its back legs faced south rather than north.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Delprat Head Frame and Shaft hold significant historical importance as they represent early mining infrastructure in Broken Hill. The original sinking of the shaft in 1900 and the installation of the headframe and winding gear in 1901-mark important milestones in the development of the Rasp Mine and the broader mining industry in the region. The headframe and shaft offer insights into early mining techniques and engineering practices. The construction methods and materials used in the headframe and winding gear reflect the technological advancements of the early twentieth century and contribute to the technical understanding of mining operations during that period. While primarily functional in design, the headframe and shaft possess a certain aesthetic appeal inherent in their industrial character. The concrete footed steel headframe and associated structures contribute to the visual landscape of the Old BHP Area, adding to its cultural heritage value. These elements play a significant role in shaping the overall character Federation Way. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The headframe and shaft were considered to be in excellent condition when inspected in 1994 with all of the features associated with the item assessed to be present and working with the exception of the tipping or turning mechanism on the timber trestle. After the current inspection in 2011 the headframe and shaft are still considered to be in very good condition.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.	

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Table C.53 Delprat Head Frame and Shaft

	• Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
GML Heritage

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C.5.6 Item number I290

Table C.54 Delprat Winder Foundations

Aerial view of Delprat Winder Foundations, located northeast of Rasp Mine

Source: MetroMap, 2023

View of the Delprat Winder Foundations, facing southeast

Source: EMM Consulting, 2023

View of the Delprat Winder Foundations, facing southwest

Source: EMM Consulting, 2023

Name of Item	Delprat Winder Foundations	**Location**	Precinct 5, immediately north-east of Delprat shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	1901
		Associated sites	Old BHP Area
Historic name/function	Winder		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	Stone and brick footings with iron foundation bolts protruding upwards. There are two sections of this footing either side of a large, quarried hole over which sits the wooden rail race which extends from the bottom of the shaft. There is approximately 5 m of foundation visible on each side, and the structure was originally built on top of the old slag dump which is visible in the quarried hole. Only structural foundations are extant.		

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Table C.54 Delprat Winder Foundations

Modifications (if any) and dates	N/A			
Historical background	This winder was built in 1901 when Delprat shaft was first fitted with winding gear shortly after it opened			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☒	
Statement of significance	The Delprat Winder Foundations possess historical significance as they are remnants of the winding infrastructure associated with the Delprat shaft, which was fitted with winding gear in 1901. This represents an important development in the operational history of the Rasp Mine and reflects the technological advancements in mining practices during the early twentieth century. Further research into this area of archaeological potential could offer insights into mining infrastructure commonly found in underground mining operations of the early twentieth centuries. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	The Delprat Winder Foundations were considered to be in a poor condition when inspected in 1994 with the item assessed to be badly damaged and weathered. The Delprat Winder Foundations are now (2011) also considered to be in a poor condition.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.54 Delprat Winder Foundations

	• Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.5.7 Item number I291

Table C.55 Delprat Winderhouse

Aerial view of the Delprat Winderhouse, located northeast of Rasp Mine

Source: MetroMap, 2023

View of the Delprat Winderhouse, facing northeast

Source: EMM Consulting, 2023

View of the Delprat Winderhouse, facing southwest

Source: EMM Consulting, 2023

View of the Delprat Winderhouse, facing southeast

Source: EMM Consulting, 2023

Name of Item	Delprat Winderhouse	**Location**	Precinct 5, south of Delprat Shaft, Old BHP Area, ML 12, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. early 1900s or 1952
		Associated sites	Old BHP Area
Historic name/function	Winderhouse		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	Timber framed, corrugated galvanised iron clad building on concrete foundations. Both the east and west ends have hipped gablets on the corrugated galvanised iron roof. The east end has three 20 pane windows, while the south side has four. The roof has two tall roof vents. The west end has a large wooden door. The north side is the winding side with two ropes exiting from the rope windows and leading to Delprat shaft. This side also has three 20 pane windows and a		

Table C.55 Delprat Winderhouse

	wooden door. Inside it has the original 1952 winding engine and gear all run on electricity with the appropriate switchgear.			
Modifications (if any) and dates	Possibly constructed dismantled material in 1952 s as the building resembles other buildings along the Line of Lode from the early 1900s.			
Historical background	Like the general offices, this building is documented as being built in 1952 during the reopening of Delprat shaft and is fitted with contemporary 1950s winding gear. However, by its appearance it would seem as though it was brought from another location and rebuilt here. It resembles other buildings along the Line of Lode from the early 1900's.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Delprat Winderhouse holds historical significance as it represents a building associated with the operation of the Delprat Shaft at the Rasp Mine. While documented as being constructed in 1952, its resemblance to buildings from the early 1900s along the Line of Lode suggests a continuity of architectural style and function, reflecting the historical evolution of mining infrastructure in the area. Moreover, the Depart Winderhouse offers potential insights into the technical aspects of mining technology and industrial development in Broken Hill. The presence of the original 1952 winding engine and gear, powered by electricity, reflects advancements in mining technology and automation during that period. The presence of the original 1952 winding engine and gear, along with the switchgear for electricity, highlights the technical advancements in mining operations during the mid-twentieth century. The Winderhouse demonstrates the integration of modern electrical systems into mining infrastructure to improve efficiency and safety. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Delprat Winderhouse was considered to be in excellent condition when inspected in 1994 with the item assessed to be 100% complete and in working condition. After the current inspection in 2011 the Delprat Winderhouse is still considered to be in good condition.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials.	

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Table C.55 Delprat Winderhouse

	• Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value. •

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
GML Heritage

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C.5.8 Item number I292

Table C.56 Loading Platform

Aerial view of the Loading Platform, located northeast of Rasp Mine

Source: MetroMap, 2023

View of the Loading Platform, facing southeast

Source: EMM Consulting, 2023

Name of Item	Loading Platform	**Location**	Precinct 5, west of Delprat shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	Unknown
		Associated sites	Old BHP Area
Historic name/function	Appears to be a loading/tipping trestle for ore trucks from Delprat shaft		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	Wooden structure supported at the east end by an embankment (lined with waste rock to form a retaining wall, or may be an extension of the mill wall). The west end is supported by 8-10 inch square oregon piles braced with angle iron. The top is decked with ten 3 inch boards and has a rail water pipe balustrade/guard rail covering two-thirds of its length. There is a hole in the extreme west end c. 4 m x 2 m. A line of sleepers aligns from Delprat headframe to this structure. Overall measurements are c. 10 m in length and c. 2.5-3 m in width. Appears to be a loading/tipping trestle for ore trucks from Delprat shaft, to be unloaded through the hole into ore trucks below.		
Modifications (if any) and dates	N/A		
Historical background	The structure is said to have been used in the 1950s (pers. comm. Graham Dawes, Delprat engine driver) and as it does not feature on the Company's historic plans it was probably built around the same period.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐

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Table C.56 Loading Platform

Statement of significance	The Loading Platform in the Old BHP Area of Rasp Mine, Broken Hill, NSW, is an extant structure of unknown date. The platform is believed to have functioned as a loading or tipping trestle for ore trucks originating from the Delprat shaft. It was likely used in the 1950s, although it does not appear on the company's historic plans, suggesting construction around that period. This structure played a crucial role in the mining operations of the area, facilitating the transfer of ore from the Delprat shaft to trucks below for transportation. Its unique design and function provide insights into the logistical challenges and operational techniques employed during the mid-twentieth century mining practices in the region.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☐	Fair ☒	Attention Required ☐	
Further comments	The Loading Platform was considered to be in fair condition when inspected in 1994 with the item assessed to be approximately 80% complete with only the apparent tipping mechanism missing. The Loading Platform is still considered to be in a fair condition after the 2011 inspection.			

Management requirements

Do's

- The item should be interpreted from the vehicle lay-by beside the road.
- Archival recording.
- Retain and maintain.
- Preserve and safeguard archival records.
- Plan for adaptability to future operations.
- Conduct a thorough condition assessment to identify existing and potential damage to the fabric.
- Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.
- Follow the Maintenance Plan's scheduled inspections and maintenance activities.
- Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them.
- Conserve the layout, configuration, and relationships with other site elements.
- Obtain an impact assessment and approval before initiating any works.
- Preserve unique views and its surroundings within the visual context.
- Ensure that new uses do not significantly impact the significance.
- Interpret and recognise its visual contribution to the surrounding environment.

Don'ts

- Avoid impacting views whenever possible.
- Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval.
- Do not remove significant fabric.
- Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials.
- Avoid using incompatible materials.
- Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.
- Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone.
- Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance**	Form	Fabric	Function	Location
	1	2	1	1

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Table C.56 Loading Platform

2 Medium tolerance **3 High tolerance**			

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.5.9 Item number I293

Table C.57 Slag Dump, Foundations and Timber Piles

Aerial view of Slag Dump, Foundations and Timber Piles, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Slag Dump, Foundations and Timber Piles, facing northwest

Source: Austral Archaeology, 2012

View of Slag Dump, Foundations and Timber Piles, facing southwest

Source: Austral Archaeology, 2012

View of Slag Dump, Foundations and Timber Piles, facing southwest

Source: Austral Archaeology, 2012

Name of Item	Slag Dump, Foundations and Timber Piles	**Location**	Precinct 5, north-west of entrance road to Delprat area, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Mining landscape feature and structural ruins	**Date**	Concrete footings 1950s; Brick footings estimated to be 1895 to 1904; Slag Dump began in 1895 and expanded to the visible section by 1899.
		Associated sites	Old BHP Area

Historic name/function	Slag dump
Current name/function	Disused
Future use	Retain for interpretation

Physical description	This feature is a c. 40 m long and 10-15 m high section of slag dump with concrete and brick footings and remnants of a pile of waste oregon timber. The dump is cut by the track to the former South Mine and may continue for another 20-30 m. Slag Dump - The slag is in chunks rather than poured and the chunks range in size from granular to 600-800 mm boulders. The footings post-date the dump as they are built on top of it. Concrete machine base (dated 8/10/54) and one pair of oregon ramp piles - located approximately centrally along the dump toward the western edge. The piles are diagonally cross-braced with angle iron. The concrete base is approximately 2 m x 1 m and holds 8 tie down bolts and sits on slightly larger footings. Brick footings - toward the southern end are brick and cement footings and a pile of large size oregon timber. The footing is c. 2 m x 1.5 m and is oriented N-S.			
Modifications (if any) and dates	N/A			
Historical background	The concrete foundations are clearly from after the reopening of the area in the 1950s while the brick footings could belong to one of a number of early structures: the vanner house (1900-1904), the mill (1900), ore bins (1896), the pumphouse (1895) or the tanks (1895). The slag dump began in 1895 and expanded to the visible section by 1899.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☒	Associative ☒	
Statement of significance	The Slag Dump, Foundations, and Timber Piles serve as representative examples of mining landscape features characteristic of early mining operations in Broken Hill. The combination of slag dumps, concrete and brick footings, and timber piles reflects the infrastructure commonly associated with ore extraction and processing facilities of that era. While primarily functional in nature, the Slag Dump, Foundations, and Timber Piles possess aesthetic significance within Federation Way and the wider mining landscape of Broken Hill. The barren, steep mullock heaps and remnants of mining infrastructure contribute to the distinctive visual imagery of the area, which is highly valued by the local community and recognised nationally. The research potential of the slag dump includes uncovering valuable insights into metallurgical processing, shedding light on the technological evolution and industrial practices of the time. The Slag Dump, Foundations, and Timber Piles hold significant social value for the Broken Hill community as they symbolise the industrial and economic foundation of the city. The mining landscape, including the mullock heaps and slag dumps, is deeply ingrained in the local identity and serves as a reminder of Broken Hill's origins and continued resilience. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☒	Attention Required ☐
Further comments	The Slag Dump, evaluated as in poor condition in 1994 due to incomplete construction during different work phases, has stabilised. Despite weathered footings, the items remain stable as of the 2011 inspection. Management should focus on preserving the incomplete structures and monitoring weathering.			

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C.5.10 Item number I294

Table C.58 Stone Wall and Concrete Footings

Aerial view of Stone Wall and Concrete Footings, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Stone Wall and Concrete Footings, facing northeast

Source: EMM Consulting, 2023

View of Stone Wall and Concrete Footings, facing northeast

Source: EMM Consulting, 2023

View of Stone Wall and Concrete Footings, facing south

Source: EMM Consulting, 2023

Name of Item	Stone Wall and Concrete Footings	**Location**	Precinct 5, south of Delprat Winderhouse, Old BHP Area, ML 12, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	c. 1895-1896
		Associated sites	Old BHP Area
Historic name/function	Possibly remnants of the pump house or boiler house.		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	Description in 1994: Stone wall of length c. 20 m, 2.5 m high and aligned N-S. The east side upper level has a small (c. 50 cm high) parallel wall stretching for 2.5 m adjacent to which is a concrete floor with two concrete footings each with iron foundation pins. Each footing is c. 30 cm x 60 cm. On the west side lower level at the south end are 6 concrete footings in a line parallel to the wall. Each footing has a semicircular depression in it probably for holding two water tanks (the footings		

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Table C.58 Stone Wall and Concrete Footings

	are grouped as two sets of three). Each is 1 m long and 15 cm wide. Little remains of any diagnostic structure. Sections of both the footings and wall are missing.			
Modifications (if any) and dates	N/A			
Historical background	Although no exact information is available for these features it is possible that they are remnants of the pumphouse (1895), or the boilerhouse (1895/6).			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The stone wall and concrete footings may represent remnants of significant infrastructure, possibly associated with the pump house or boiler house dating back to 1895-1896. While exact information is lacking, their presence suggests involvement in critical functions supporting mining operations during that period. These ruins have the ability to contribute to understanding the industrial history of the area, shedding light on past technologies and practices in mining. Their research may provide insights into construction methods, infrastructure development, and the operational dynamics of historical mining activities.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	The stone wall and concrete footings were considered to be in a poor condition when inspected in 1994 with the item assessed to be damaged, with some wall sections collapsed. The items could not be relocated in 2011 survey except for part of a retaining wall. Other parts may be buried or removed.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Refrain from altering the form in a way that significantly impacts the heritage value.	

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Table C.58 Stone Wall and Concrete Footings

	• Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.5.11 Item number I295

Table C.59 Three Water Tanks

Aerial view of Three Water Tanks, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Three Water Tanks, facing northwest

Source: EMM Consulting, 2023

View of Three Water Tanks, facing east

Source: EMM Consulting, 2023

View of Three Water Tanks, facing southeast

Source: EMM Consulting, 2023

Name of Item	Three Water Tanks	**Location**	Precinct 5, south-east of Delprat Changehouse, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	Unknown
		Associated sites	Old BHP Area
Historic name/function	3 Water Tanks		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Three riveted steel tanks currently connected to the fire hydrant system. Each tank is c. 2.5 m in diameter and c. 4 m high. There is a ladder up the side of each. The south tank is wider (c. 3 m in diameter) and slightly shorter (c. 3.5 m). All three tanks are set on concrete foundations and are very rusty.		

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Table C.59 Three Water Tanks

Modifications (if any) and dates	N/A			
Historical background	There is no documentary evidence to shed any light on the historical background of these tanks.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The three water tanks, despite lacking documented historical background, represent an aspect of industrial infrastructure. Their presence suggests involvement in water storage and distribution, which would have been vital for supporting mining operations in the area. While specific historical events associated with these tanks may not be known, their existence contributes to understanding the industrial history of the Old BHP Area and the importance of water management in mining. The research into the water tanks can provide insights into historical water storage and distribution practices in mining areas. Their examination may offer valuable information about past engineering techniques, materials used, and water management strategies employed during the period when they were in use.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☒	Attention Required ☐
Further comments	The Three Water Tanks were considered to be in a fair condition when inspected in 1994 with all three items assessed to be rusting badly with the concrete foundations heavily weathered. The Three Water Tanks are still considered to be in a fair condition after the 2011 inspection.			
Management requirements	Do's • The item should be interpreted from the vehicle lay-by beside the road. • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Refrain from altering the form in a way that significantly impacts the heritage value.	

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Table C.59 Three Water Tanks

	• Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.6 Heritage Precinct 6

C.6.1 Item number I296

Table C.60 Mullock Dump with Tram Lines

Aerial view of the Mullock Dump with Tram Lines, located east of Rasp Mine

Source: MetroMap, 2023

View of the Mullock Dump with Tram Lines, facing southwest

Source: EMM Consulting, 2023

View of the Mullock Dump with Tram Lines, facing south

Source: EMM Consulting, 2023

View of the Mullock Dump with Tram Lines retaining wall, facing northeast

Source: EMM Consulting, 2023

Name of Item	Mullock Dump with Tram Lines	**Location**	Heritage Precinct 6, north Thompsons Winderhouse and Headframe, British BHP area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Flat topped mullock dump with tram line sleepers and stone retaining walls	**Date**	1889
		Associated sites	British BHP Area
Historic name/function	Mullock dump		
Current name/function	Disused		
Future use	Retain for interpretation		

Table C.60 Mullock Dump with Tram Lines

Physical description	Flat topped mullock dump with stone retaining walls to the west and northwest sides. There are also some remnant sleepers from narrow gauge railway tracks that the ore carts ran along to dump the mullock.			
Modifications (if any) and dates	N/A			
Historical background	The dump was probably established in 1889 and was subsequently used as a storage and work area.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☒	Associative ☒	
Statement of significance	The Mullock Dump with Tram Lines serve as representative examples of mining landscape features characteristic of early mining operations in Broken Hill. They holds substantial historical significance as it dates back to 1889, marking a significant period in the development of the Rasp Mine and Broken Hill's mining industry. Its establishment coincides with the peak of mining activities in the region, reflecting the intensive ore extraction efforts during that era. This feature provides insights into historical mining practices and transportation methods utilised in Broken Hill during the late nineteenth century. The presence of tram line sleepers and stone retaining walls offers research potential into the infrastructure associated with ore cart transportation and mullock disposal, contributing to the study of mining technology and industrial heritage. While primarily functional in nature the Mullock Dump with Tram Lines possesses aesthetic significance within the mining landscape of Broken Hill. The flat-topped dump, complemented by stone retaining walls, contributes to the visual character of the area, enhancing its historical and cultural appeal within Federation Way and the wider mining landscape of Broken Hill. The barren, steep mullock heaps and remnants of mining infrastructure contribute to the distinctive visual imagery of the area, which is highly valued by the local community and recognised nationally. The Mullock Dump with Tram Lines hold significant social significance for the Broken Hill community as they symbolise the industrial and economic foundation of the city. The mining landscape, including the mullock heaps and slag dumps, is deeply ingrained in the local identity and serves as a reminder of Broken Hill's origins and continued resilience. Potential associations with influential figures in mining history, such as Charles Rasp and Guillaume Daniel Delprat, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The dump and stone retaining walls are in good condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric.	

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Table C.60 Mullock Dump with Tram Lines

	• Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.6.2 Item number I297

Table C.61 Ore Outcrop

Aerial view of Ore Outcrop, located east of Rasp Mine

Source: MetroMap, 2023

View of Ore Outcrop, facing northeast

Source: EMM Consulting, 2023

View of Ore Outcrop, facing southeast

Source: EMM Consulting, 2023

View of Ore Outcrop, facing south

Source: EMM Consulting, 2023

Name of Item	Ore Outcrop	**Location**	Heritage Precinct 6, north of Thompsons Headframe, Brace Housing and Conveyor, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Landscape feature, geological formation	**Date**	The outcropping is part of the original Line of Lode discovered in 1883.
		Associated sites	Line of Lode, generally
Historic name/function	Geological formation		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	The measurement of the ore outcropping is approximately 3m x 8m and is part of the original line of outcropping lode after which Broken Hill was named. The ore outcrop is located to the north-		

Table C.61 Ore Outcrop

	east of the Thompsons Ambulance Station and north of Thompsons Header Frame, Brace Housing and Conveyor in Heritage Precinct 6.			
Modifications (if any) and dates	N/A			
Historical background	The Outcrop is part of the Line of Lode that Hieronymous von Pereira (Charles Rasp) discovered in 1883. In September 1883 he discovered silver-lead ore at Broken Hill and registered the first mineral lease. The ore outcrop is located within old Mine Lease 16 which was one of the original BHP leases, which was transferred in the floating of the new subsidiary company, British Broken Hill Pty Ltd in late 1887.			
Heritage significance	Historic / Events and processes ☒	Rarity ☒	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☐	
Statement of significance	The Ore Outcrop holds historical significance as part of the original Line of Lode discovered in 1883 by Hieronymous von Pereira (Charles Rasp). This discovery marked the beginning of mining activities in Broken Hill and played a pivotal role in shaping the region's economic and social development. The outcrop's location within old Block 16, forming the core of BHP's operations, further emphasises its historical importance. The Ore Outcrop has research significance as a geological formation within the Line of Lode, providing evidence of long-term geological processes and environmental changes. Its presence within the Rasp Mine area, alongside visible ore bodies and diverse mineral deposits, offers valuable insights into past climates, landscapes, and ecosystems. Additionally, the discovery of rare mineral species and well-crystallised minerals within the ore body further underscores its research importance in understanding geological and ecological processes. The Ore Outcrop represents a significant geological feature within the broader context of the Line of Lode, which spans approximately 8 km in length and up to 2 km in depth. Its dimensions and location in Heritage Precinct 6 exemplify the geological diversity of the region and provide a tangible link to the mining history of Broken Hill. As part of the original Line of Lode, the outcrop typifies the geological formations that attracted early prospectors to the area and initiated mining activities. The Ore Outcrop holds associative significance as a tangible link to the pioneering efforts of early prospectors like Hieronymous von Pereira (Charles Rasp), who discovered the Line of Lode in 1883. Its association with the mining lease Block 16 and operations in the South Mine area underscores its role in the development of Broken Hill as a major mining center. The outcrop serves as a physical representation of the perseverance and ingenuity of those who sought mineral wealth in the region.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	After the 2011 inspection the ore outcrop was found to be in good condition.			
Management requirements	Do's • Develop a management plan for exposed archaeological resources, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability.		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts	

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Table C.61 Ore Outcrop

	• Stabilise at-risk areas urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources.		• on significant archaeological and geological deposits. • Avoid new developments without considering the archaeological and geological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological and geological assessment by a qualified professional. • Do not alter or add to significant archaeological or geological fabric without prior impact assessment and approval. • Avoid removing significant archaeological or geological fabric from structures. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological or geological structures.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Form	Fabric
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.6.3 Item number I298

Table C.62 Thompsons Ambulance Station

Aerial view of Thompsons Ambulance Station, located east of Rasp Mine

Source: MetroMap, 2023

View of Thompsons Ambulance Station, facing northwest

Source: EMM Consulting, 2023

View of Thompsons Ambulance Station, facing northeast

Source: EMM Consulting, 2023

View of Thompsons Ambulance Station, facing northeast

Source: EMM Consulting, 2023

Name of Item	Thompsons Ambulance Station	**Location**	Heritage Precinct 6, north of Thompsons Winderhouse, British BHP area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	c. 1892-1912
		Associated sites	British BHP Area
Historic name/function	Ambulance Station		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	A small timber framed, corrugated galvanised iron clad building standing on timber stump foundations with a corrugated galvanised iron roof and turret roof air vents. The floor is of concrete and the two windows on each of the south and north sides are both covered with corrugated galvanised iron. The wooden doors are on the west and east sides.		

Table C.62 Thompsons Ambulance Station

Modifications (if any) and dates	N/A			
Historical background	There is a lack of documentary evidence regarding this feature. It is only known that it was built between 1892 and 1912.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Thompsons Ambulance Station possesses historical significance as it represents an essential component of the infrastructure associated with the British BHP area of the Rasp Mine. Its construction between 1892 and 1912 coincides with a period of significant industrial development in Broken Hill, reflecting the provision of medical services and emergency response facilities to support mining operations. Serving as a significant research site, the Ambulance Station offers insights into the healthcare and emergency response practices prevalent in mining during the late nineteenth and early twentieth centuries. Its design and construction materials provide evidence of architectural and technological standards employed in the provision of medical services at that time, contributing to the understanding of healthcare infrastructure in mining regions, Representatively, the Thompsons Ambulance Station is a key example of structures associated with emergency services in in Broken Hill. Aesthetically, the building, exhibits the use of timber and corrugated galvanised iron, along with the turret roof air vents, enhancing its historical and cultural appeal within Menindee Road and the wider mining landscape of Broken Hill. Potential associations with influential companies in mining history, such as British BHP, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Thompsons Ambulance Station was considered to be in good condition when inspected in 1994; it was also noted that the ground level corrugated galvanised iron and timber was decaying. After the 2011 inspection the Thompsons Ambulance Station was assessed to be in good condition. One of the barge boards is missing at the southern end, the windows and doors are still sealed, and a section of the front gutter is coming loose. The ground level corrugated galvanised iron wall panels do not appear to have deteriorated further.			
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing,	

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Table C.62 Thompsons Ambulance Station

	• Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.6.4 Item number I299

Table C.63 Thompsons Changehouse

Aerial view of Thompsons Changehouse, located east of Rasp Mine

Source: MetroMap, 2023

View of Thompsons Changehouse, facing southwest

Source: EMM Consulting, 2023

View of Thompsons Changehouse, facing southeast

Source: EMM Consulting, 2023

View of Thompsons Changehouse, facing north

Source: EMM Consulting, 2023

Name of Item	Thompsons Changehouse	**Location**	Heritage Precinct 6, south-west of Thompsons Headframe, British BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1912
		Associated sites	British BHP Area
Historic name/function	Changehouse		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	This is a timber framed, corrugated galvanised iron clad building resting on concrete foundations. The west side has one door and two double hung windows. The north side has been modified to have a steel roller door with the concrete base having been cut to accommodate this alteration. The east side has five windows while the south side has only one. The southern 5 m of the		

Table C.63 Thompsons Changehouse

	building has been subdivided to provide housing for a furnace and a pair of overhead tanks for water heating. The furnace and tank stands are brick while the tanks are steel. The furnace flue is of brick and steel. On the west side of this furnace is another tank mounted on its side on concrete footings. The roof has five turret roof vents.			
Modifications (if any) and dates	1937. it is unclear what modifications were made.			
Historical background	Originally built in 1912, it was then renovated in 1937.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Thompsons Changehouse holds historical significance as it represents an integral part of the infrastructure associated with the British BHP Area of the Rasp Mine. Constructed in 1912, it reflects a period of industrial development and workforce. Constructed in 1912, it reflects a period of industrial development and workforce accommodation practices in Broken Hill's mining history. The changehouse served as a facility for miners to change into and out of work attire, highlighting the working conditions and organisational structures in mining operations during the early twentieth century. While primarily a functional building, the Thompsons Changehouse offers insights into the working conditions and social dynamics of mining communities. The Thompsons Changehouse provides insights into the architectural design and functional layout of facilities catering to the needs of miners in remote mining locations. The incorporation of furnaces and overhead water tanks demonstrates the adaptation of amenities to meet the specific requirements of miners' daily routines. Despite its partial obstruction, the Thompsons Changehouse contributes to the industrial aesthetic of Menindee Road in Broken Hill's landscape, reflecting the industrial character of buildings constructed during the period of mining expansion in Broken Hill. Potential associations with influential companies in mining history, such as British BHP, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Thompsons Changehouse was considered to be in good condition when inspected in 1994. Some of the windows and sections of the brickwork around the furnace were missing. All of the interior changehouse fittings have been removed. After the 2011 inspection the walls of the Thompsons Changehouse were assessed to be in fair condition while parts of the roof structure (some trusses and framing) were assessed to be in poor condition. Moveable heritage – assay crucibles next to boiler and furnace. Potential for asbestos around boiler. Core trays stacked at north end of building. Displaced machine equipment at other end of furnace inside building.			
Management requirements	Do's • The potential presence of asbestos around the boiler and displaced machine equipment inside the building highlights specific management requirements. • Archival recording. • Retain, maintain, and use.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric.	

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Table C.63 Thompsons Changehouse

	• Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		• Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.6.5 Item number I300

Table C.64 Thompsons Conveyor, Storage Bin and Loading Hopper

Aerial view of Thompsons Conveyor, Storage Bin and Loading Hopper, located east of Rasp Mine

Source: MetroMap, 2023

View of Thompsons Conveyor, Storage Bin and Loading Hopper, facing southeast

Source: EMM Consulting, 2023

View of Thompsons Conveyor, Storage Bin and Loading Hopper, facing southeast

Source: EMM Consulting, 2023

View of Thompsons Conveyor, Storage Bin and Loading Hopper, facing southeast

Source: EMM Consulting, 2023

Name of Item	Thompsons Conveyor, Storage Bin and Loading Hopper	**Location**	Heritage Precinct 6, extending to the north from Thompsons Crusher House, British BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	1938
		Associated sites	British BHP Area
Historic name/function	Storage bin and loading hopper		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Long conveyor constructed with a steel frame, base and rollers. It is joined to the Crusher House by the loading chutes and the E-W conveyor from the Brace House. At the south end the two		

Table C.64 Thompsons Conveyor, Storage Bin and Loading Hopper

	conveyor motors are still present, one by Richardson and one by General Electric. The northern section of the conveyor has a steel framed, steel sided housing over the roller section and a wooden gangway along the east and west sides for access to the roller section stretching all the way up to the storage bin with a steel handrail. The north end conveyor motor is still present. The conveyor unloads into a large round steel riveted storage bin with a conical base standing over a steel framed corrugated galvanised iron clad structure on a concrete base. This small building houses a loading chute and a small conveyor off to the east to the loading hopper. Inside this small building is also a set of concrete footings c. 1 m tall each with steel reinforcing pins or machinery brackets probably for the conveyor motor. The loading hopper is a steel framed extension to the storage bin with a small conveyor and a steel loading chute which is activated by a long handle on the east side.
Modifications (if any) and dates	N/A
Historical background	The conveyor and hopper were added in 1938 to the recently built crusher house.
Heritage significance	Historic / Events and processes ☒ Rarity ☐ Research ☒ Representativeness ☐ Creative or technical achievement / Aesthetic ☒ Social ☐ Associative ☒
Statement of significance	The Thompsons Conveyor, Storage Bin, and Loading Hopper hold historical significance as they represent a pivotal development in the infrastructure of the British BHP Area of the Rasp Mine Potential associations with influential companies in mining history, such as British BHP, further enhance its historical significance. Constructed in 1938, these structures reflect advancements in mining technology and materials handling practices during the mid-twentieth century. The addition of the conveyor system and loading facilities to the existing crusher house facilitated the efficient transportation and processing of ore, contributing to the operational efficiency and productivity of the mining operations in Broken Hill. From a research perspective, these structures offer insights into the engineering design and construction methods employed in the development of materials handling systems within mining operations. The steel-framed conveyor, storage bin, and loading hopper demonstrate the application of industrial engineering principles to optimise the handling and processing of bulk materials such as ore. Additionally, the presence of intact conveyor motors and concrete footings provides evidence of the technological innovations implemented in mining operations during the 1930s. The Thompsons Conveyor, Storage Bin, and Loading Hopper possess technical significance due to their innovative design and functional integration within the mining process. The steel-framed conveyor system, equipped with conveyor motors and rollers, enabled the efficient transportation of ore from the crusher house to the storage bin. The loading hopper, with its steel frame and loading chute, facilitated the controlled discharge of ore into the bin, optimising storage capacity and operational logistics. These structures highlight the application of engineering principles to enhance materials handling efficiency and productivity in mining operations. The Thompsons Conveyor, Storage Bin, and Loading Hopper contributes to the industrial aesthetic of Menindee Road in Broken Hill's landscape, reflecting the industrial character of buildings constructed during the period of mining expansion in Broken Hill. Potential associations with influential companies in mining history, such as British BHP, further enhance its historical significance.
Grading of significance	Exceptional / Outstanding ☒ High ☐ Moderate ☐ Some ☐ Neutral / Little ☐
Contributes to values at	National ☒ State ☒ Local ☒ N/A ☐

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Table C.64 Thompsons Conveyor, Storage Bin and Loading Hopper

Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Thompsons Conveyor, Storage Bin and Loading Hopper was considered to be in good condition when inspected in 1994 however the extant rubber was found to be in poor condition, the corrugated galvanised iron on the storage bin base was in need of attention and the loading chutes at the crusher station were rusty. It was recommended that the corrugated galvanised iron under the storage bin should be secured. After the 2011 inspection the Thompsons Conveyor, Storage Bin and Loading Hopper was found to be in fair condition. The corrugated galvanised iron under the storage bin was not secured as previously recommended in 1994.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.6.6 Item number I301

Table C.65 Thompsons Crusher House

Aerial view of Thompsons Crusher House, located east of Rasp Mine

Source: MetroMap, 2023

View of Thompsons Crusher House, facing southeast

Source: EMM Consulting, 2023

View of Thompsons Crusher House, facing northwest

Source: Austral Archaeology, 2012

View of Thompsons Crusher House, facing southeast

Source: Austral Archaeology, 2012

Name of Item	Thompson Crusher House	**Location**	Heritage Precinct 6, east of Thompsons shaft, British BHP area, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1936
		Associated sites	British BHP Area
Historic name/function	Crusher house		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	Steel framed, corrugated galvanised iron clad building with three levels. Extant machinery includes two cone crushers (Gates Ironworks Builders, Chicago. Patented April 21 1896) which are fed from the conveyor from the shaft. A spare cone section is lying on the floor of the upper level, and the overhead crane is still in situ. The middle level contains the bottom of the crushers and chute to the S-N conveyor (to loading hopper) and two electric motors to drive the crushers (built		

Table C.65 Thompsons Crusher House

	be Australian General Electric). The bottom level contains a small furnace (possibly for assaying?), the base of another Gates crusher and miscellaneous pieces of iron and steel. The furnace (measuring c. 2 m x 2 m and located in the SE corner) is flued through the east wall to a steel flue on a brick base. There are four vents in the roof. At the base of the external stairs on the south side is a sand pass and steel grizzly (coarse screen). The pass is filled in and only part of the grizzly is visible.			
Modifications (if any) and dates	The crusher house underwent unspecified alterations in 1958.			
Historical background	This crushing station was built in 1936 when the plant was converted to electricity and underwent some further unspecified alterations in 1958.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Thompson Crusher Households historical significance as it represents a key component of the mining infrastructure in the British BHP area of Broken Hill. Constructed in 1936, the crusher house played a fundamental role in the processing of ore extracted from the Thompsons shaft. The presence of extant machinery, including cone crushers manufactured by Gates Ironworks Builders in Chicago, patented in 1896, provides evidence of the technological advancements in ore processing during the early twentieth century. The conversion of the plant to electricity in 1936 reflects a significant transition in mining operations towards more efficient and modernised processing methods. The Thompson Crusher House offers insights into the technological innovations and engineering practices employed in ore processing facilities during the twentieth century. The design and operation of cone crushers, along with the integration of electric motors for powering the crushers, exemplify advancements in materials processing and industrial engineering. Additionally, the presence of a furnace, possibly used for assaying or other metallurgical purposes, highlights the scientific aspects of ore analysis and quality control within mining operations. The Thompson Crusher House holds technical significance due to its role in the mechanised processing of ore and the application of industrial machinery for crushing and pulverizing rock. The utilisation of cone crushers, electric motors, and an overhead crane demonstrates the integration of advanced technologies to optimise ore processing efficiency and productivity. The unspecified alterations undertaken in 1958 reflect ongoing efforts to modernise and improve the performance of the crusher house in line with evolving mining practices and technological innovations. The Thompson Crusher House contributes to the industrial aesthetic of Menindee Road in Broken Hill's landscape, reflecting the industrial character of buildings constructed during the period of mining expansion in Broken Hill. Potential associations with influential companies in mining history, such as British BHP, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Thompsons Crusher House was considered to be in good condition when inspected in 1994. Some of the wall corrugated galvanised iron was loose but the roof was intact, the east wall has an opening (possibly from a removed door), and the windows were broken. It was recommended			

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Table C.65 Thompsons Crusher House

	that the east end of the building should be sealed, three corrugated galvanised iron sheets should be replaced on the north wall. Window openings also need to be sealed. After the 2011 inspection the Thompsons Crusher House was assessed to be in fair condition. The repairs to the north wall have been made but the east door is not sealed up. The steel conveyor between the brace housing and the crusher house requires structural assessment.
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.
	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.6.7 Item number I302

Table C.66 Thompsons General Offices

Aerial view of Thompsons General Offices, located east of Rasp Mine

Source: MetroMap, 2023

View of Thompsons General Offices, facing southwest

Source: EMM Consulting, 2023

View of Thompsons General Offices, facing north

Source: EMM Consulting, 2023

View of Thompsons General Offices, facing northwest

Source: EMM Consulting, 2023

Name of Item	Thompsons General Offices	**Location**	Heritage Precinct 6, south-west of Thompsons Headframe, British BHP area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1913
		Associated sites	British BHP Area
Historic name/function	Office building		
Current name/function	Not in use		
Future use	Sympathetic adaptive reuse		
Physical description	Timber framed corrugated galvanised iron building standing on a raised concrete foundation slab with concrete verandahs. It has a combination of 8 pane and single pane double hung windows and wooden doors. Front garden is stone lined with a cement rendered retaining wall while the		

Table C.66 Thompsons General Offices

	back garden bed is stone walled. It is surrounded by a concrete path and has been converted for residential use.			
Modifications (if any) and dates	Unspecified renovations occurred in 1937.			
Historical background	Originally built in 1913, it was then renovated in 1937.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Thompsons General Offices possess historical significance as they represent an important administrative center within the British BHP area of the Rasp Mine. Constructed in 1913, these offices served as the hub for managerial and administrative activities associated with mining operations. From an aesthetic perspective, the Thompsons General Offices exhibit significance through their architectural design and integration into the surrounding landscape. The timber-framed structure, complemented by corrugated galvanised iron cladding and wooden doors, reflects the vernacular architectural style of the period. The presence of stone-lined front gardens and retaining walls adds to the visual interest and character of the building, contributing to its aesthetic significance within the British BHP area. Despite being converted for residential use, the offices retain elements of their original design, preserving their historical and aesthetic significance. Potential associations with influential companies in mining history, such as British BHP, further enhance its historical significance.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Thompsons General Offices was considered to be in excellent condition when inspected in 1994 with the item assessed externally as complete with modern doors but the original interior gone. After the 2011 inspection the Thompsons General Offices was considered to be in fair condition. Many of the windows are broken or boarded up; Morton Bay Fig has damaged front gutter otherwise roof in good condition. Shed and fencing have suffered wind damage, garden remains, square concrete tank/swimming pool previously built.			
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion.	

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Table C.66 Thompsons General Offices

	• Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.	• Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.6.8 Item number I303

Table C.67 Thompsons Header Frame, Brace Housing and Conveyor

Aerial view of Thompsons Header Frame, Brace Housing and Conveyor, located east of Rasp Mine

Source: MetroMap, 2023

View of Thompsons Header Frame, Brace Housing and Conveyor, facing south

Source: EMM Consulting, 2023

View of Thompsons Header Frame, Brace Housing and Conveyor, facing northeast

Source: EMM Consulting, 2023

View of Thompsons Header Frame, Brace Housing and Conveyor, facing southeast

Source: EMM Consulting, 2023

Name of Item	Thompsons Headframe, Brace Housing and Conveyor	**Location**	Heritage Precinct 6, North of Thompsons Winderhouse, British BHP area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structures	**Date**	1909
		Associated sites	British BHP Area
Historic name/function	Headframe, brace housing and conveyor		
Current name/function	Currently disused		
Future use	Retain for interpretation		
Physical description	Wooden headframe standing on concrete footings, held together by steel plates and bolts. The headframe is directly connected to and partly enclosed by a corrugated galvanised iron clad timber framed brace housing also standing on concrete foundations. The Brace house is aligned		

Table C.67 Thompsons Header Frame, Brace Housing and Conveyor

	E-W with windows on the south and north sides. Inside it has a timber frame and an additional steel frame to hold the gantry crane, concrete floors and steel plate mezzanine floors for access to the machinery and the headframe. Extant machinery includes one jawbreaker and engine with the rubber driving belt still intact, one conveyor belt system, loading rail lines and loading chutes. Also included in this group are two small electric motors and the associated switchgear. The second level has a group of electrical switchgear and meters. On the upper level, there is one overhead gantry crane, weigh scales and two manual geared winch rope winders. The headframe still has its cages intact. At the east end there is a hole in the corrugated galvanised iron wall on the second level possibly used for removing machinery and never replaced. The conveyor begins in the basement and runs out through the east end to the crusher. In the basement next to the conveyor is a compressed air duct. The conveyor has a steel frame and base with steel rollers on a timber race supported by rolled steel joists with a steel hand rail along both sides. It leads up to the crusher where the ore would have been offloaded into two chutes which had grilles for sending the oversize to the crusher and the undersize to the next conveyor.
Modifications (if any) and dates	N/A
Historical background	Built in 1909 to replace the previous headframe of 1889
Heritage significance	Historic / Events and processes ☒ Rarity ☐ Research ☐ Representativeness ☐ Creative or technical achievement / Aesthetic ☒ Social ☐ Associative ☒
Statement of significance	The Thompsons Headframe, Brace Housing, and Conveyor possess significant historical significance as integral components of the mining infrastructure in the British BHP area of the Rasp Mine. Constructed in 1909, these structures replaced the previous headframe dating back to 1889, indicating the evolution and technological advancements in mining operations during the early twentieth century. The wooden headframe, corrugated galvanised iron clad brace housing, and associated machinery represent the industrial heritage of Broken Hill and its importance as a major mining center in Australia. From a technical perspective, these structures demonstrate the engineering expertise and construction techniques employed in mining operations during the early twentieth century. The wooden headframe, supported by concrete footings and reinforced with steel plates and bolts, showcases the innovative methods used to extract ore from underground mines. The brace housing, with its timber and steel frame, concrete floors, and mezzanine levels, reflects the functional design tailored to accommodate machinery and provide access to the headframe. Additionally, the presence of conveyor belt systems, loading rail lines, and electrical switchgear highlights the integration of advanced technology into mining processes, contributing to the efficiency and productivity of operations. From an aesthetic perspective, the Thompsons General Offices exhibit significance through their architectural design and integration into the surrounding landscape. The timber-framed structure, complemented by corrugated galvanised iron cladding and wooden doors, reflects the vernacular architectural style of the period. The presence of stone-lined front gardens and retaining walls adds to the visual interest and character of the building, contributing to its aesthetic significance within the British BHP area. Despite being converted for residential use, the offices retain elements of their original design, preserving their historical and aesthetic significance. The Thompson Crusher House contributes to the industrial aesthetic of Menindee Road in Broken Hill's landscape, reflecting the industrial character of buildings constructed during the period of mining expansion in Broken Hill. The Thompsons Headframe, Brace Housing, and Conveyor are associated with the development and expansion of mining activities in the British BHP area. Built in 1909, they played a key role in

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Table C.67 Thompsons Header Frame, Brace Housing and Conveyor

	enhancing the efficiency and capacity of ore extraction, thereby contributing to the economic prosperity of Broken Hill and the broader mining industry in Australia.				
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☐	Good ☐	Fair ☒	Attention Required ☐	
Further comments	The Thompsons Headframe, Brace Housing and Conveyor was considered to be in good condition when inspected in 1994 with the headframe timber assessed to be in good condition except for the upper ladder which was unstable. Some of the corrugated galvanised iron on the brace housing was also deteriorating. The headframe was assessed to be complete, the brace housing had pieces of machinery missing, the windows were gone and the north side had a huge hole in the corrugated galvanised iron. Some of the rail lines were missing as were sections of the electric gauges and meters. Some pieces of the conveyor rollers and frame were missing and the belt was gone. It was recommended that urgent conservation measures are required here to secure all corrugated galvanised iron and seal gaps and windows; the south side roller door requires securing and the east door needs re-hinging. After the 2011 inspection, the Thompsons Headframe, Brace Housing and Conveyor appears to be in basically sound condition but with loose elements that require removal or refixing. None of the previous works recommended were completed. An external flue or vent pipe on the southeast side of the brace housing is corroded and wind damaged and poses a hazard				
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.	

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Table C.67 Thompsons Header Frame, Brace Housing and Conveyor

Tolerance for Change	Form	Fabric	Function	Location
1 Low tolerance **2 Medium tolerance** **3 High tolerance**	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.6.9 Item number I304

Table C.68 Thompsons Winderhouse

Aerial view of Thompsons Winderhouse, located east of Rasp Mine

Source: MetroMap, 2023

View of Thompsons Winderhouse, facing east

Source: EMM Consulting, 2023

View of Thompsons Winderhouse, facing southwest

Source: EMM Consulting, 2023

View of Thompsons Winderhouse, facing west

Source: EMM Consulting, 2023

Name of Item	Thompson Winderhouse	**Location**	Heritage Precinct 6, south-west of Thompsons Headframe, British BHP area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant building	**Date**	1889
		Associated sites	British BHP Area
Historic name/function	Winderhouse		
Current name/function	Currently disused		
Future use	Sympathetic adaptive reuse		
Physical description	This is a timber framed corrugated galvanised iron clad building resting on concrete foundations. Built in two sections (south and north) with two roof peaks. The west end has two corrugated galvanised iron filled windows and one door per section and is accessed by a raised wooden verandah with two staircases. The south side has three corrugated galvanised iron filled windows		

Table C.68 Thompsons Winderhouse

	and a raised wooden verandah which extends around to the east side. Just off the south end is a set of concrete foundations for machinery with four sets of footings each with steel bolt brackets protruding and one large steel pipe in the centre protruding upwards. The north side has two corrugated galvanised iron filled windows. There is also a distinct difference between the south and north sides in that the south side has a full concrete foundation while the north side is set on cement rendered brick piers. The east side has one central access door, three windows in the south half and two windows in the north half including two covered rope openings. There is a wooden verandah across the east side which connects to the one to the south side. The north half has a large concrete slab and a small garden bed. There is also a long concrete-sided garden bed stretching across the full east end of the building. The winding engine and gear are still intact and show the conversion of the equipment from steam to electricity. This would appear to be a 1930's conversion of an earlier winder. The extant winder was made by A. Roberts and Sons, United Ironworks, Bendigo.			
Modifications (if any) and dates	The winder was converted to electricity in 1936.			
Historical background	The winder was set up in 1889 and was converted to electricity in 1936.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☐	Representativeness ☐
	Creative or technical achievement / Aesthetic ☒	Social ☐	Associative ☒	
Statement of significance	The Thompson Winderhouse, originally set up as a winder in 1889 and later converted to electricity in 1936, holds significant historical significance. Its construction and subsequent modifications reflect the evolution of mining technology and practices over time. The conversion from steam to electric power in the 1930s represents a significant moment in the industrial history of Broken Hill, highlighting advancements in engineering and energy utilisation during that period. From a technical standpoint, the structure showcases the ingenuity and adaptability of mining equipment manufacturers like A. Roberts and Sons, United Ironworks, Bendigo. The presence of the extant winding engine and gear, along with the conversion from steam to electricity, demonstrates the technological advancements made to enhance the efficiency and safety of mining operations. The transition to electric power demonstrates a shift towards more reliable and cost-effective methods of powering machinery, contributing to the overall productivity of the mine. The Thompson Winderhouse contributes to the industrial aesthetic of Menindee Road in Broken Hill's landscape, reflecting the industrial character of buildings constructed during the period of mining expansion in Broken Hill. The Thompson Winderhouse is associated with the development and operation of the mine in the British BHP area. Its function as a winder, coupled with the conversion to electric power, highlights its integral role in facilitating ore extraction and transportation within the mine. The manufacturer, A. Roberts and Sons, United Ironworks, Bendigo, is also associated with the broader mining industry in Australia, contributing to its historical significance within the context of mining equipment manufacturing and innovation.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐
Further comments	The Thompsons Winderhouse was considered to be in excellent condition when inspected in 1994 with the item assessed as complete including the winding engine and gear. It was			

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Table C.68 Thompsons Winderhouse

	recommended that windows should be sealed. In the 2011 inspection the Thompsons Winderhouse was assessed to be in good condition. Windows have been sealed. There is minor wind damage to eastern gable façade which is partially missing. Ceiling lining section over driver's platform has fallen in, otherwise ceiling intact. Moveable heritage inside includes winding engine and gear.
Management requirements	Do's • Archival recording. • Retain, maintain, and use. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Utilise while ensuring its preservation. • Conduct a thorough condition assessment to identify existing and potential damage to the building fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the building's heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views of the building and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.
	Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials, especially for metalworks such as roofing, gutters, flashing, and downpipes to prevent galvanic corrosion. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the exterior or interior form in a way that significantly impacts the heritage value.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
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C.7 Heritage Precinct 7

C.7.1 Item number I305

Table C.69 Building Foundation

Aerial view of Building Foundations, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Building Foundation, facing east

Source: EMM Consulting, 2023

View of Building Foundation, facing east

Source: EMM Consulting, 2023

View of Building Foundation, facing north

Source: EMM Consulting, 2023

Name of Item	Building Foundation	**Location**	Heritage Precinct 7, centre of the old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	Unknown
		Associated sites	Old BHP Pit
Historic name/function	Unknown		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	This is a large concrete, brick and stone foundation. The south end has a section of brick wall (about 10 courses of brick high) still standing and a concrete floor apron. The centre section has two E-W aligned stone walls with concrete floors either side with a dropped section in between possibly for a stairway. Each of these walls has steel reinforcing bolts through it as has the north		

Table C.69 Building Foundation

	end of the concrete floor. The east end of each of these walls has several stone piers with reinforcing bolts. The north end wall (also made of stone) is leaning heavily into the pit. There are some timber beams protruding from some of the wall sections. The far north walls are also made of stone standing c. 1.5 m high and have a concrete floor apron. All of this foundation is subsiding into the pit. On the north side of the central walls there is a semicircular groove cut into the stone for a machine footing.			
Modifications (if any) and dates	N/A			
Historical background	There is no documentary evidence to help establish the exact historical background of this feature. From inspection of early company plans it appears to correlate with the position of the 1891 Amalgamating Mill, which was demolished in 1896.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☒	
Statement of significance	The building foundation's location around mining lease Block 12 and construction materials used suggest it played a significant role in the industrial history of the Old BHP Pit area. While its specific function and historical context are unknown, its size and complexity indicate its importance within the precinct. The foundation likely supported a substantial structure, possibly associated with mining or processing operations, contributing to the understanding of early industrial activities in Broken Hill. The building foundation offers opportunities for further research, providing insights into the development of mining, as well as nineteenth century building practices and technological capabilities. Its presence within the Old BHP pit links it to specific mining operations conducted by prominent mining companies like BHP, further contextualising its historical context and significance within the local mining industry.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	The building foundation was considered to be in poor condition when inspected in 1994 because of the extreme amount of subsidence and the ruinous state of the foundation. Inspection in 2011 however, has revealed that further subsidence does not appear to have occurred and the structural remains appear to be in the same condition as previously. It was noted in the 1994 inspection that there was no machinery present across this foundation and no diagnostic structures were extant. Almost all walling above the floor level was gone. In 2011 the area around these ruins has been designated as an area of archaeological potential. In 2023 there were more remains of the 1891 Amalgamating Mill revealed from under the small piles of mullock in this area.			
Management requirements	Do's • Ensure that use of the Old BHP Pit as a modern rubbish dump does not impact heritage resources. • Develop a management plan for exposed archaeological resources, including ruins, addressing materials, surrounding environment, and structures.		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits.	

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Table C.69 Building Foundation

	• Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources. • Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.		• Avoid new developments without considering the archaeological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist. • Do not alter or add to significant archaeological fabric without prior impact assessment and approval. • Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.7.2 Item number I306

Table C.70 Four Concrete Piers

Aerial view of Four Concrete Piers, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Four Concrete Piers, facing northeast

Source: EMM Consulting, 2023

View of Four Concrete Piers, facing northeast

Source: EMM Consulting, 2023

View of Four Concrete Piers, facing northeast

Source: EMM Consulting, 2023

Name of Item	Four Concrete Piers	**Location**	Heritage Precinct 7, centre of the east side of the Old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Structural ruin	**Date**	c. 1890-1900s
		Associated sites	Old BHP Pit
Historic name/function	Unknown		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	Four concrete piers of approximately 1 m in height and each with a single central foundation bolt. The piers are c. 1 m x 1 m at the base and 70 cm x 70 cm at the top and are spaced 5 m apart to form the four corners of a square.		

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Table C.70 Four Concrete Piers

Modifications (if any) and dates				
Historical background	There is no documentary evidence to help establish the historical background of this feature although it would appear to date from the BHP open cutting period in the 1890's through to the early 1900's. The open cut was no longer in use after 1907.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☒	
Statement of significance	The four concrete piers, dating back to the late nineteenth to early twentieth centuries, likely played a role in the industrial activities associated with the Old BHP Pit. While their specific function remains unknown, their presence within the mining precinct suggests their importance in supporting infrastructure or machinery during that period. These piers represent a tangible link to the industrial history of Broken Hill and contributes to understanding the development of mining operations in the region. Although the exact purpose of the concrete piers is unclear, their construction and placement provide opportunities for further research into development of mining in the area. Its presence within the Old BHP pit links it to specific mining operations conducted by prominent mining companies like BHP, further contextualising its historical context and significance within the local mining industry.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☒	Attention Required ☐
Further comments	The four concrete piers were considered to be in fair condition when inspected in 1994. The structure was thought to be slowly subsiding into the pit. Inspection in 2011 however, has revealed that further subsidence does not appear to have occurred and the structural remains appear to be in the same condition as previously. It was noted in the 1994 inspection that each pier is complete but the remainder of the structure is not present. In 2011 the area around these ruins has been designated as an area of archaeological potential. It is likely there may be more remains of the 1891 Amalgamating Mill buried under the small piles of mullock in this area.			
Management requirements	Do's • Ensure that use of the Old BHP Pit as a modern rubbish dump does not impact heritage resources. • Develop a management plan for exposed archaeological resources, including ruins, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits. • Avoid new developments without considering the archaeological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist.	

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Table C.70 Four Concrete Piers

	in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources. • Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.	• Do not alter or add to significant archaeological fabric without prior impact assessment and approval. • Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

GML Heritage

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C.7.3 Item number I307

Table C.71 Headframe

Aerial view of Headframe, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Headframe, facing south

Source: EMM Consulting, 2023

View of Headframe, facing southwest

Source: EMM Consulting, 2023

View of Headframe, facing south

Source: EMM Consulting, 2023

Name of Item	Headframe	**Location**	Heritage Precinct 7, inside the Old BHP pit on the east side, Rasp Mine, CML 7, Broken Hill, NS
Item type/feature type	Structural ruin	**Date**	c. 1891
		Associated sites	Old BHP Pit
Historic name/function	Headframe		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	Two concrete headframe footings with timber uprights and one crossbar. The north side upright has about 1 m remaining while the south upright has c. 2.5 m remaining and has a number of iron bolts protruding from it. Just north of these footings is another concrete footing with no timber uprights.		

Table C.71 Headframe

Modifications (if any) and dates	N/A			
Historical background	This headframe may belong to one of two different shafts. It may be associated with either Knox shaft sunk in 1885 or Wigg shaft which was sunk in 1891. It is more likely that it belongs to the latter as Company records of 1895 list the shafts inside the open cut and Wigg is one of them, while Knox is not mentioned. Conversely, Knox shaft is the closest to the Amalgamating Mill and would at some stage have fallen to the open cut.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☒	
Statement of significance	The headframe, dating back to around 1891, holds historical significance as a ruin of the early mining operations in Broken Hill. Its construction and location within the Old BHP pit provide insights into the mining activities conducted during the late nineteenth century, reflecting the rapid expansion and development of the mining industry in the region. The association with either the Knox shaft or the Wigg shaft further adds to its historical significance, offering potential connections to specific mining operations and technological advancements of the time.\ From a research standpoint, the headframe represents the engineering practices and materials utilised in the construction of mining infrastructure during the late nineteenth century. The combination of concrete footings and timber uprights demonstrates typical construction methods employed for headframes of that era. The presence of iron bolts and other remnants suggests the use of iron fittings, showcasing the integration of different materials for structural support and stability. Archaeological investigation can offer glimpses into technological advancements used. The headframe is associated with the broader history of mining in Broken Hill, particularly with the Knox shaft or the Wigg shaft. Its presence within the Old BHP pit links it to specific mining operations conducted by prominent mining companies like BHP, further contextualising its historical context and significance within the local mining industry.			
Grading of significance	Exceptional / Outstanding ☒	High ☒	Moderate ☐	Some ☐ Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	The headframe was considered to be in a poor condition when inspected in 1994 with very little of this headframe remaining as most of the timbering and footings are missing. Inspection in 2011 however, has revealed that further deterioration does not appear to have occurred and the structural remains seem to be in the same condition as previously.			
Management requirements	Do's • The headframe is located close to the BHOP Explosives Magazine. Ensure that no earthworks or other activities around the area disturb the ruins. • Ensure that use of the Old BHP Pit as a modern rubbish dump does not impact heritage resources. • Develop a management plan for exposed archaeological resources, including ruins,		Don'ts • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits. • Avoid new developments without considering the archaeological potential, as	

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Table C.71 Headframe

	addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources. • Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.		determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist. • Do not alter or add to significant archaeological fabric without prior impact assessment and approval. • Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.	
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	3	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd
GML Heritage

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C.7.4 Item number I308

Table C.72 Stone Wall

Aerial view of Stone Wall, located northeast of Rasp Mine

Source: MetroMap, 2023

View of Stone Wall, facing southeast

Source: EMM Consulting, 2023

Name of Item	Stone Wall	**Location**	Heritage Precinct 7, centre of the old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	c. 1890-early 1900s
		Associated sites	Old BHP Pit
Historic name/function	Possibly remnants of the pump house or boiler house.		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	A 5 m high dry stone retaining wall-oriented N-S for c.10 m and then turning gradually to the east for c. 5 m.		
Modifications (if any) and dates	N/A		
Historical background	There is no documentary evidence to help establish the historical background of this feature although it would appear to date from the BHP open cutting period in the 1890's through to the early 1900's. The open cut was no longer in use after 1907.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒ Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☒
Statement of significance	The Stone Wall, dating back to the late nineteenth to early twentieth centuries, likely served as a retaining wall within the Old BHP Pit, potentially associated with the pump house or boiler house. While its specific function remains uncertain, its presence within the mining precinct suggests its importance in supporting infrastructure or managing the landscape during that period. The Stone Wall represents a tangible link to the industrial history of Broken Hill and contributes to		

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Table C.72 Stone Wall

	understanding the development of mining operations in the region during the late nineteenth and early twentieth centuries. The Stone Wall offers research opportunities into the historical development of mining during the time. The remnants within the Old BHP Pit precinct underscores their associative significance as part of the broader narrative of mining and industrial development in the region.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐	
Condition	Excellent ☒	Good ☐	Fair ☐	Attention Required ☐	
Further comments	The stone retaining wall was considered to be in excellent condition when inspected in 1994. The stone retaining wall is still considered to be in excellent condition in 2011.			
Management requirements	Do's • Ensure that use of the Old BHP Pit as a modern rubbish dump does not impact heritage resources. • Develop a management plan for exposed archaeological resources, including ruins, addressing materials, surrounding environment, and structures. • Implement a ruin management strategy specific to each site for vegetation removal, considering the impact on ruin stability. • Stabilise at-risk ruins urgently and develop a ruin management strategy for all existing ruins contributing to national and cultural values. • Include structures needed for supporting or enclosing exposed archaeological resources in the management plan for permanent displays. • Consider archaeological potential in the assessment of new developments within the Rasp Mine area, following the Archaeological Zoning Plan. • Ensure that contracts for ground-disturbing works include a qualified archaeologist's assessment of the impact on archaeological resources. • Retain State significant archaeological relics in situ as the primary option, following strategies to avoid ground disturbance.		Don't • Avoid permanent displays of archaeological resources without a feasibility assessment, considering deterioration factors and expert input. • Refrain from conducting excavations without a thorough assessment of potential impacts on significant archaeological deposits. • Avoid new developments without considering the archaeological potential, as determined by the Archaeological Zoning Plan. • Refrain from ground-disturbing works without an archaeological assessment by a qualified archaeologist. • Do not alter or add to significant archaeological fabric without prior impact assessment and approval. • Avoid removing significant archaeological fabric from structures. • Do not use dissimilar materials when replacing original archaeological materials; adhere to the 'like-for-like' principle. • Avoid neglect or inadequate/inappropriate maintenance practices that may lead to deterioration of archaeological structures.	

Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Form	Fabric
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.7.5 Item number I309

Table C.73 Timber Chute Race

Aerial view of Timber Chute Race, located northeast of Rasp Mine

Source: EMM Consulting, 2023

View of Timber Chute Race, facing northeast

Source: EMM Consulting, 2023

View of Timber Chute Race, facing northeast

Source: EMM Consulting, 2023

View of Timber Chute Race, facing north

Source: EMM Consulting, 2023

Name of Item	Timber Chute Race	**Location**	Heritage Precinct 7, west side of the Old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Extant structure	**Date**	c. 1890s-1900s
		Associated sites	Old BHP Pit
Historic name/function	Timber Chute		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	This feature consists of c. 20 m of a timber chute in two sections running down the inside of the pit from the top to approximately halfway. It is c. 1 m wide with a slightly concave base and short single plank side walls. Each sloping section is approximately 8 m long with a short 4 m flat section in between them. With the original length unknown, this may only represent half of the structure, or it could be all of it. The extant section appears to be complete.		

Table C.73 Timber Chute Race

Modifications (if any) and dates	N/A			
Historical background	There is no documentary evidence to help establish the historical background of this feature although it would appear to date from the BHP open cutting period in the 1890's and early 1900's. The open cut was no longer in use after 1907.			
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒	Representativeness ☐
	Creative or technical achievement / Aesthetic ☐	Social ☐	Associative ☒	
Statement of significance	The Timber Chute Race, dating back to the late nineteenth to early twentieth centuries, served as a component in the mining operations of the Old BHP Pit. Although its exact function remains uncertain, its design suggests it was used for transporting timber or other materials down the pit. As a tangible relic from the BHP open cutting period, the Timber Chute Race provides valuable insights into the industrial activities of that era, contributing to the understanding of mining practices in Broken Hill during the late nineteenth and early twentieth centuries. Research into the design and use of the chute can provide insights into transportation systems employed in open-cut mining operation. Its presence within the Old BHP pit links it to specific mining operations conducted by prominent mining companies like BHP, further contextualising its historical context and significance within the local mining industry.			
Grading of significance	Exceptional / Outstanding ☐	High ☒	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☐	State ☒	Local ☒	N/A ☐
Condition	Excellent ☐	Good ☐	Fair ☐	Attention Required ☒
Further comments	The structure was considered to be in fair condition when inspected in 1994 with the item assessed to be structurally weak and unstable. It is now (2011) considered to in a poor condition.			
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions to significant fabric without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Avoid using incompatible materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices. • Do not paint surfaces that were originally unpainted or intended to remain unpainted, such as sandstone. • Refrain from altering the form in a way that significantly impacts the heritage value.	

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Table C.73 Timber Chute Race

	• Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context. • Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	2	3	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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C.8 Heritage Precinct 11 (Former Mining Precinct 8)

C.8.1 Item number I15

Table C.74 BHP North Slag Dump

Aerial view of the BHP North Slag Dump, located north of Rasp Mine

Source: MetroMap, 2023

View of the BHP North Slag Dump, facing northeast

Source: Austral Archaeology, 2012

Name of Item	BHP North Slag Dump	**Location**	Heritage Precinct 11 (Former Precinct 8), Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Item type/feature type	Mining landscape feature	**Date**	1889
		Associated sites	Central Mine and South Mine
Historic name/function	Slag dump		
Current name/function	Disused		
Future use	Retain for interpretation		
Physical description	This feature is a huge, black slag dump extending for approximately 100 m and c. 20 m high.		
Modifications (if any) and dates	N/A		
Historical background	The slag dump was started in this area in 1889 and extended to produce the visible section by 1896.		
Heritage significance	Historic / Events and processes ☒	Rarity ☐	Research ☒ Representativeness ☒
	Creative or technical achievement / Aesthetic ☒	Social ☒	Associative ☒

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Table C.74 BHP North Slag Dump

Statement of significance	The BHP North Slag Dump holds significant historical importance as a tangible example of the mining operations in Broken Hill dating back to 1889. Its establishment in the late nineteenth century reflects the early phases of industrialisation and mineral extraction in the region. The expansion of the slag dump to its visible section by 1896 signifies the growth and scale of mining activities during that period, highlighting its historical relevance within the broader context of Australia's mining history. The BHP North Slag Dump serve as representative examples of mining landscape features characteristic of early mining operations in Broken Hill. The slag dump is commonly associated with ore extraction and processing facilities of that era. The research potential of the slag dump includes uncovering valuable insights into metallurgical processing, shedding light on the technological evolution and industrial practices of the time While primarily functional in nature, the BHP North Slag Dump's aesthetic significance is found within its visibility in the streetscape and the wider mining landscape of Broken Hill. The barren remnants of mining infrastructure contribute to the distinctive visual imagery of the area, which is highly valued by the local community and recognised nationally. The BHP North Slag Dump hold significant social value for the Broken Hill community as they symbolise the industrial and economic foundation of the city. The mining landscape, including the mullock heaps and slag dumps, is deeply ingrained in the local identity and serves as a reminder of Broken Hill's origins and continued resilience. The slag dump is closely linked to the extensive mining history of Broken Hill, particularly with notable mining entities such as BHP. This association provides additional context to its historical significance, highlighting its integral role within the local mining industry.			
Grading of significance	Exceptional / Outstanding ☒	High ☐	Moderate ☐	Some ☐	Neutral / Little ☐
Contributes to values at	National ☒	State ☒	Local ☐	N/A ☐	
Condition	Excellent ☐	Good ☒	Fair ☐	Attention Required ☐	
Further comments	The BHP North Slag Dump was considered to be in excellent condition when inspected in 1994 with the item assessed to all be present although the east end of the slag dump is covered by later dumps. The 2011 inspection found the dump to be in stable condition.				
Management requirements	Do's • Archival recording. • Retain and maintain. • Preserve and safeguard archival records. • Plan for adaptability to future operations. • Conduct a thorough condition assessment to identify existing and potential damage to the fabric. • Enhance and maintain the condition of the fabric in alignment with the Burra Charter principles. • Follow the Maintenance Plan's scheduled inspections and maintenance activities. • Ensure all contractors and maintenance workers understand the heritage values and significant fabric, with clear instructions to protect them. • Conserve the layout, configuration, and relationships with other site elements. • Obtain an impact assessment and approval before initiating any works. • Preserve unique views and its surroundings within the visual context.		Don'ts • Avoid impacting views whenever possible. • Refrain from making alterations or additions without a prior impact assessment and approval. • Do not remove significant fabric. • Adhere to the 'like-for-like' principle when replacing original materials, avoiding dissimilar materials. • Prevent deterioration by avoiding neglect or inadequate/inappropriate maintenance practices.	

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Table C.74 BHP North Slag Dump

	• Ensure that new uses do not significantly impact the significance. • Interpret and recognise its visual contribution to the surrounding environment.			
Tolerance for Change **1 Low tolerance** **2 Medium tolerance** **3 High tolerance**	Form	Fabric	Function	Location
	1	1	1	1

Source: Justin McCarthy, Peter Bell, Monique Jacobs, Austral Archaeology Pty Ltd

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Appendix

D

Archaeological inventory sheets

Conservation Management Plan | Rasp Mine

EMM
creating opportunities

D.1 Archaeological inventory forms

Reagent Shed **– Not Listed, identified as RM-A02 (Formerly I279, Broken Hill LEP 1996)**	
Location	Heritage Precinct 1, South Mine, South of the No. 2 Control substation, old Mine Lease 7, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	Unknown
Phase	Unknown
Description of archaeological resource	Only the concrete floor remains. The former building was relatively modern compared to the rest of the South Mill plant and occupied the space once held by the Slime Floatation plant.
Archaeological potential	Archaeological potential is limited to the concrete floor of the Reagent shed. The likelihood for archaeological resources to exist at the subsurface level is low. As a Reagent shed, there is limited potential for artefact deposits as this structure's purpose was to house and store chemical reagents. Archaeological potential: High
Archaeological significance	Other than providing contextual information about the organisation and layout of the Rasp Mine, this item holds minimal archaeological significance. Archaeological significance: Low
Reference	(Austral Archaeology Pty Ltd, 2013)

Filter House **– Not Listed, identified as RM-A01 (Formerly I280, Broken Hill LEP 1996)**	
Location	Heritage Precinct 1, South Mine, SW of the Reagent shed, south of the pump house, old Mine Lease 7, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1930
Phase	3
Description of archaeological resource	Only the concrete floor remains. Built in 1930 as an addition to the Slime Floatation plant.
Archaeological potential	The concrete floor of the Filter House remains, the likelihood for archaeological resources to exist at the subsurface level is low. Archaeological potential: High
Archaeological significance	The surviving feature of the filter house, confined to its concrete floor, offers limited insights into historical industrial processes, technological advancements, and adaptive transformations over time. Designed to accommodate filtration systems and associated equipment, the structure exhibits limited potential for artefact deposits. Surviving remnants of filtration systems and equipment could contribute to an understanding of the technological evolution of such equipment in a mining context however the probability of this occurrence is low, and it is unlikely to contribute any new insights that cannot be discerned from other sources. Other than providing contextual information about the organisation and layout of the Rasp Mine, this item holds low archaeological significance. Archaeological significance: Low
Reference	(Austral Archaeology Pty Ltd, 2013)

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Electrical Workshop (LEP Item I242)	
Location	Heritage Precinct 1, north of the Mill, old South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1917
Phase	2
Description of archaeological resource	Large brick building with alternate course header/stretcher bond, concrete floor, and foundations. Built in 1917, requiring the removal of the underground administration offices, half of the underground changehouse and the air compressors.
Archaeological potential	The site has moderate archaeological potential. As the building required the removal of several facilities, remnants of administration offices and the changehouse in the form of footings or flooring may have been preserved. However, there is a possibility that the new construction led to the complete removal of these earlier foundations. Archaeological potential: High
Archaeological significance	As a workshop, there is limited potential for artefact deposits, which translates to a limited ability to demonstrate the nature of the works undertaken in the building. There is some potential for modifications to the workshop to be demonstrated archaeologically, specifically in relation to the removal of the underground changehouse and air compressors, however, this is unlikely to shed light on the maintenance and management of electrical facilities and plant configuration of the Rasp Mine that cannot be appreciated from other sources. Should archaeological resources related to the earlier underground administration offices, underground changehouse and air compressors be retained, these may answer research questions not answerable from other sources. Archaeological significance: Electrical Workshop: Low to medium. Underground administration offices, underground changehouse and air compressors: low to medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Pumphouse and Cooling Water Reservoir (LEP Item I252)	
Location	Heritage Precinct 1, north of the east end of the Mill, South Mine, Mine Lease 8, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1906
Phase	2
Description of archaeological resource	The pumphouse is a small red brick structure, sitting on sturdy concrete foundations and featuring a corrugated iron roof supported by steel trusses. It abuts the water reservoir on the western side. The reservoir features concrete outer walls and contains 33 of its original 34 concrete footings, evenly spaced within the reservoir area. Initially, a tower was positioned atop these footings, serving as a means to cool the boiler water for the steam engines that powered the winders.
Archaeological potential	The archaeological potential of the site is limited, primarily due to the standing nature of the pumphouse, which reduces the likelihood of significant discoveries. While the reservoir, currently filled with sludge, maintains most of its footings, the absence of any remnants of the once-standing tower leaves the footings as the sole archaeological resource on the site. Although the concrete footings supporting the cooling tower are still present in the reservoir, there is no trace of the tower itself. There is a possibility that discarded materials were disposed of in the reservoir, potentially leading to the formation of artefact deposits. Archaeological potential: High
Archaeological significance	The collaborative function of the pumphouse and cooling water reservoir functioned to cool boiler water for steam engines. While the pumphouse served as a dedicated space for pumps and related equipment, the reservoir stored essential water for cooling machinery. Despite their innovative nature, the potential for preserving artefact deposits is limited, with the pumphouse

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Pumphouse and Cooling Water Reservoir (LEP Item I252)	
	holding minimal archaeological significance. Conversely, the reservoir, retaining concrete footings, may offer insights into the technological evolution of mining processes. Remnants within the reservoir, such as channels and pipes, contribute to the industrial archaeology of the site. Potential insights into miners' history exist through lost or discarded items in the reservoir. However, the reservoir's sludge-filled state compromises the survivability and integrity of these items, significantly reducing their archaeological significance. Archaeological significance: Low to medium.
Reference	(Austral Archaeology Pty Ltd, 2013)

Yardman's Office (LEP Item I262)	
Location	Heritage Precinct 1, north of the Compressor Room, east of the Coal Bins, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	~1938
Phase	3
Description of archaeological resource	A compact timber-framed structure (approximately 4 m x 4 m) featuring a hipped gablet roof now occupies the space once occupied by the former boilerhouse, which was dismantled in 1938. In the same year, this area underwent conversion into a storage yard, suggesting that this building likely arose as part of that redevelopment effort.
Archaeological potential	The site has demonstrated archaeological potential. As the extent to which the boilerhouse was demolished is not known, it is possible that the foundations of the boilerhouse may be preserved beneath the present ground surface. Deposits, including lost or discarded items and potential demolition rubble, may exist. However, there is a chance that the construction of the Yardman's office resulted in the complete removal of these earlier foundations. Archaeological potential: High
Archaeological significance	While the Yardman's office currently stands as an existing structure, it is documented that it occupies the location where the boilerhouse once stood until its demolition in 1938. There is a possibility that remnants of the former boilerhouse, such as footings or flooring, might have been preserved, along with demolition rubble associated with the structure's removal. However, the described archaeological resource exhibits limited capability in demonstrating the nature of the activities conducted in the boilerhouse. However, it's confirmed presence would be of local significance. Archaeological significance: Low
Reference	(Austral Archaeology Pty Ltd, 2013)

Weighbridge foundations – Not Listed, identified as RM-A03 (Formerly I295, Broken Hill LEP 1996)	
Location	Heritage Precinct 1, west of the north end of the Coal Bins, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1905
Phase	2
Description of archaeological resource	This feature no longer exists as of 2012 and were noted to be in poor condition in 1994. It once included a red brick wall segment extending from the road and a terraced landing positioned behind the coal bins. The brick section, oriented to the true east, displayed about 10 visible brick courses. Adjacent to it, aligned with the true north, was a row of red bricks, with only approximately 2 meters in plain view. Near this arrangement, a concrete slab, roughly 60 cm x 60 cm, was present, likely representing a section of flooring. On the west side of the wall alignment stood a concrete pier incorporating steel reinforcing rods.

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Weighbridge foundations – Not Listed, identified as RM-A03 (Formerly I295, Broken Hill LEP 1996)	
Archaeological potential	The site has demonstrated limited archaeological potential. The absence of preserved foundations suggests either significant disturbance or deterioration, likely due to their poor condition. Archaeological potential: Moderate
Archaeological significance	Thes site is unlikely to yield new insights into the management and maintenance of the Rasp Mine that cannot be derived from alternative sources. Archaeological significance: Low
Reference	(Austral Archaeology Pty Ltd, 2013)

Two Water Tanks and a Stone Foundation (LEP Item I260)	
Location	Heritage Precinct 1, immediately south of the Roaster Plant, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1917 (the stone foundation is likely earlier)
Phase	2
Description of archaeological resource	Positioned on the site are two steel tanks, fastened with rivets and resting on concrete foundations. One of these tanks is connected to a water pipe leading to the thickeners at the west end of the Roaster Plant. Adjacent to these tanks, to the east, there is an irregular stone alignment, which seems to represent the foundation of a building. This stone foundation can be divided into four distinct sections or rooms, with the east side featuring a segment constructed with both stone and brick. The tanks are in excellent condition, whereas the stone foundation is notably deteriorated. The tanks likely date from the construction of the Roaster Plant in 1917, while the stone foundation's origin appears earlier, although no supporting documentary evidence exists.
Archaeological potential	The site has demonstrated archaeological potential. The stone foundation demarcates four distinct rooms, each having potential to contain subsurface relics that may offer valuable insights into the function of these rooms and the overall structure. Archaeological potential: High
Archaeological significance	The stone foundation, delineating four distinct rooms, indicates either accommodation or offices, evident from its division into separate spaces. With this distinct feature still intact and considering its probable function for human occupation rather than storage, there is potential for subsurface artefact deposits. These deposits, if present, have the potential to offer insights into the function and utilisation of the structure, contributing valuable information regarding the ancillary structures at the Rasp Mine. Archaeological significance: Medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Square Concrete Foundation (LEP Item I257)	
Location	Heritage Precinct 1, immediately south of the Roaster Plant, South Mine, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1917
Phase	2
Description of archaeological resource	The site contains a 5 m x 5 m square concrete foundation, featuring 50 cm thick side sections, supports a structure. On the top of each side, three steel brackets were initially present, each measuring 4 cm in height. Two of these brackets have been sheared off at their base, while four have been flattened. Two brackets remain standing, still affixed with their securing bolts. This

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Square Concrete Foundation (LEP Item I257)	
	foundation corresponds to the small square building depicted on the 1917 plan and is contemporaneous with the Roaster plant.
Archaeological potential	The site has demonstrated archaeological potential. There is potential for subsurface relic bearing deposits to be present with the intact foundation. Archaeological potential: High
Archaeological significance	If present, deposits have the potential to demonstrate the purpose and use of this structure and can contribute to an enriched understanding of ancillary structures at the Rasp Mine. Archaeological significance: Medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Brick Pier Foundations (LEP Item I236)	
Location	Heritage Precinct 1, on top of the slag heap on the east edge of Kintore cut, MMM area, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	Unknown
Phase	Unknown
Description of archaeological resource	The site contains two red brick piers, each measuring 2 m x 2 m and standing approximately 1.5 m tall, are aligned in an east-west orientation with a separation of roughly 5 m. Each pier features several steel holdings down bolts running through its centre. The eastern pier exhibits an additional smaller pier on its north side, measuring 50 cm x 80 cm, with two holding down bolts securing it. All three piers are capped with a thin layer of cement. Notably, the east pier has a subtle incline at its eastern end. These structures are situated at coordinates E543562 and N6462623, with an elevation of 327m, and are characterised by an accuracy within a 5-meter range. The red bricks used in their construction are sourced from Hallett of Adelaide, while fire bricks originate from the Gartcraig Brickworks of Scotland. The piers are situated atop a 40-50 m slag heap. The exact construction date and purpose of these foundations remain unknown.
Archaeological potential	The site has demonstrated archaeological potential. The placement of piers atop a slag heap suggests the possibility of earlier mining infrastructure being concealed beneath the slag dump. Archaeological potential: High
Archaeological significance	Given the limited available information about this item, the potential archaeological resource, if uncovered, holds the potential to provide additional insights into the structure's function and purpose. Situated on top of a slag heap, there is potential for the survival of earlier mining infrastructure beneath the slag heap, potentially shedding light on the purpose of the brick piers and offering further details about the mine's earlier infrastructure. Archaeological significance: Low to medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Browne's Shaft (LEP Item I281), *Junction Mine and Lookout* (LEP Item I282)	
Location	Heritage Precinct 3, Menindee Road, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1890s-1970s
Phase	1,2 & 3
Description of archaeological resource	The Junction Mine, among the earliest mining leases in Broken Hill, operated continuously from 1886 to 1972. The site encompasses historic structures, including the Browne's Shaft and Headframe dating back to 1890, with various modifications and height adjustments up to 1958. It also features an existing landing brace and ore bins relocated from the British Mine in 1962,

Browne's Shaft (LEP Item I281), *Junction Mine and Lookout* (LEP Item I282)	
	which remained in use until the mine's closure. Other key elements include the original 1889 winder and its winding house, with subsequent relocations and upgrades, reflecting technological advancements.
Archaeological potential	These sites have demonstrated archaeological potential. It is known to contain significant relics and remains spanning all stages of mining, demonstrating the transition in technology from steam to electrical power. It stands as a prominent industrial archaeological site with promising excavation and research prospects. The Concentration and Treatment Plant, tanks from various periods, the Powder Magazine, Changehouse, and Boiler House Site contribute to the site's historical significance. Archaeological potential: High
Archaeological significance	The potential archaeological resource in both the Junction Mine and Browne's Shaft significantly enhances our understanding of a central area of the mine. If subjected to archaeological excavation, these sites possess the continued potential to address national-level research questions related to the management, infrastructure, and overall utilisation of the mine. Archaeological significance: High
Reference	Austral 2012 CMP

Delprat Winder Foundation (LEP Item I290)	
Location	Heritage Precinct 5, immediately north-east of Delprat shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1901
Phase	2
Description of archaeological resource	The site consists of stone and brick footings with iron foundation bolts projecting upward. This foundation is divided into two sections flanking a substantial quarried pit, supporting a wooden rail race extending from the base of the shaft. Each side reveals approximately 5 meters of visible foundation. The entire structure was initially constructed atop an old slag dump, which remains evident within the quarried pit.
Archaeological potential	It has been subjected to a high degree of disturbance with a large, quarried pit dividing the foundation into two sections. Given the level of disruption, it is improbable that any archaeological resources beyond the foundations have survived. Archaeological potential: High
Archaeological significance	Due to substantial disturbance experienced by the Delprat Winder Foundation, the likelihood of preserved artefact deposits is limited. Furthermore, as the foundation pertains to a winder—a structure designed for hoisting miners from underground mines to the surface, it is improbable to yield novel insights about the Rasp Mine that cannot be appreciated from alternative sources. Archaeological significance: Low
Reference	Austral 2012 CMP

Slag Dump, Foundations and Timber Piles (LEP Item I293)	
Location	Heritage Precinct 5, north-west of entrance road to Delprat area, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	Concrete footings 1950s; Brick footings estimated to be 1895 to 1904; Slag Dump began in 1895 and expanded to the visible section by 1899.
Phase	2,3

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Slag Dump, Foundations and Timber Piles (LEP Item I293)	
Description of archaeological resource	The site spans approximately 40 min length and stands 10-15 m in height. It encompasses a slag dump with both concrete and brick footings, along with remnants of discarded oregon timber. The dump is intersected by a track leading to the former South Mine, possibly extending another 20-30 m beyond the visible section. The slag in the dump is characterised by distinct chunks, varying in size from granular fragments to substantial boulders measuring 600-800 mm. The footings post-date the dump, as they were constructed on top of it. A concrete machine base, and a pair of oregon ramp piles, located roughly at the centre of the dump's western edge, contribute to the site's historical makeup. The piles are reinforced with diagonal cross-bracing using angle iron, and the concrete base measures approximately 2 m by 1 m, accommodating eight tie-down points. The concrete foundations are evidently from a later period, likely dating to the reopening of the area in the 1950s. In contrast, the brick footings could potentially be remnants from one of several early structures, including the vanner house (1900-1904), the mill (1900), ore bins (1896), the pumphouse (1895), or the tanks (1895). The slag dump's origins can be traced back to 1895, and it had expanded to its visible section by 1899.
Archaeological potential	The site has demonstrated archaeological potential. The footings of the structure were directly laid upon the 1895 slag dump, possibly covering earlier mining infrastructure to facilitate the installation of more modern structures. Consequently, there exists a possibility of uncovering archaeological resources beyond the visible footings and piles. Archaeological potential: High
Archaeological significance	The archaeological resource linked to this site, particularly the prospect of uncovering earlier mining infrastructure beneath the slag dump, presents an opportunity to gain insights into the early mining operations of the Rasp mine. In the event that archaeological resources are present in this context, it may provide additional insights of the management and maintenance of in regard to the practice of covering older infrastructure to accommodate new facilities rather than demolishing existing structures. Furthermore, there remains the potential to uncover the function and purpose of the structure that was once supported by the timber piles and foundations. Archaeological significance: Medium
Reference	Austral 2012 CMP

Stone Wall and Concrete Footings (LEP Item I294)	
Location	Heritage Precinct 5, south of Delprat Winderhouse, Old BHP Area, ML 12, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1895/6
Phase	2
Description of archaeological resource	The site exhibited a stone wall approximately 20 m in length and standing at a height of 2.5 m, aligned in a north-south orientation. On the upper level of the east side, there is a smaller parallel wall, measuring around 50 cm in height and extending for 2.5 m. Adjacent to this wall, a concrete floor was present, featuring two concrete footings, each secured with iron foundation pins and measuring approximately 30 cm by 60 cm. On the lower level of the west side, at the southern end, were six concrete footings arranged in a line parallel to the main wall. These footings exhibited semicircular depressions, likely intended for accommodating two water tanks. Little remains of any diagnostic structure today. Sections of both the footings and wall are missing, with missing sections of both the footings and wall. In addition, some of the items could not be located except for a portion of a retaining wall. It is possible that the other features were buried or have been removed.
Archaeological potential	The site has demonstrated archaeological potential. However, the site has undergone a level of disturbance, with most of the archaeological resource either significantly disturbed or entirely removed. Archaeological potential: High
Archaeological significance	Due to the substantial impact on the stone wall and concrete footings, the likelihood of archaeological relics surviving has significantly diminished. Nevertheless, if any surviving

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Stone Wall and Concrete Footings (LEP Item I294)	
	archaeological resources are unearthed, they are likely to demonstrate the structure's purpose and function, providing additional insights into the operations of the Rasp Mine. Archaeological significance: Low to medium
Reference	Austral 2012 CMP

BHP south smelter walls and stack (LEP Item I286)	
Location	Heritage Precinct 5, east of the Delprat shaft and changehouse, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1887.
Phase	1
Description of archaeological resource	The site, formerly the Old BHP South smelter, features a 4 m high stone smelter stack with an iron-bolted top for attaching a steel flue. The northern side incorporates a bricked-up brick flue arch leading to a 6-meter-long stone retaining wall, reaching 2.5 m in height. The wall contains a timber cap and floorboards on the east side. On the south, there's another bricked flue arch not connected to the wall, resulting in a shorter wall segment of 1.5 m with a timber cap and floorboards. The stone stack currently houses a fire hydrant pump and displays brick markings reading ”cowan” and “...arnki... patented.” South of the stack, the wall transitions to rubble for 30 m before bending east, then south behind Stewarts shaft for 20 m and finally west to create a wide alcove. On higher ground east of the wall are 12 concrete piers in two rows of six, with the north row's piers retaining steel bolt brackets. Much of the wall has collapsed, the machinery is gone, and the upper steel stack is missing.
Archaeological potential	The site has demonstrated archaeological potential. Already recovered archaeological materials such as the marked bricks have already provided insights into the resourcing of materials for the mine’s construction. The presence of timber floorboards, if not tongue and groove, raises the prospect of uncovering well-preserved artefacts in the form of underfloor deposits. This has the potential to contribute significantly to a deeper understanding of the site's historical use, although limitations are imposed by the structural collapse of the site. Archaeological potential: High
Archaeological significance	The presence of the stone smelter stack and associated structures, such as stone retaining walls, flue arches, and concrete piers, suggests a level of complexity and engineering that could yield valuable archaeological insights. Notably, the existence of timber caps, floorboards, and historical bricks with makers' markings provides avenues for further research. As one of the oldest structures linked to the initial historical phase of the Rasp Mine, any archaeological resources retrieved from this site would hold high significance. Archaeological significance: High
Reference	(Austral Archaeology Pty Ltd, 2013)

BHP Concentration Mill Foundations (LEP Item I285)	
Location	Heritage Precinct 5, NW of Delprat shaft, Old BHP Area, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	Built in phases between 1897 and 1900.
Phase	2
Description of archaeological resource	This archaeological site comprises a large stone and brick structure, extending approximately 50 m in length and standing at a height of around 15 m, aligned in a north-south orientation. At the southern end, the foundation wall turns eastward for approximately 7 m, then extends southward for 10 m before being concealed beneath a mullock heap. The lower section, reaching about 13 m in height, is primarily constructed of stone and features several large timber joists

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BHP Concentration Mill Foundations (LEP Item I285)	
	extending at regular intervals of 2 m. Two lines of these joists are visible at approximately 5 m and 10 m above the ground. The upper two metres of the structure are composed of brickwork, complete with brick-lined openings. Timber beams cap the outer top edge, and the offset stonework in the upper section conveys a buttressing effect. At the northern end, a wall extends approximately 5 m in length, then turns southward for an additional 4 m until it connects with the underlying slag heap. Scattered stone and brick footings are situated along the top, while a pair of concrete and brick footings, reinforced with steel rods, is positioned at the northern end. Much of the timberwork features steel brackets, and a prominent timber beam extends through the upper brickwork. The east and south walls are not visible, although some timber floorboards can be observed at the southern end. Additionally, a second section of large stone foundations is evident at a lower level to the west of the Delprat access road, adjacent to the rail lines. These foundations run parallel to the first set and share similar construction characteristics.
Archaeological potential	The site has demonstrated archaeological potential. Although in poor condition, the site has preserved its external integrity. The existence of timber floorboards and walls suggests that subsurface relics may endure within the site in the form of underfloor deposits either beneath the floorboards themselves or between the structure's walls. Archaeological potential: High
Archaeological significance	The foundations of the concentration mill hold the potential to contain artefact deposits associated with the second historical phase of the Rasp Mine. If discovered, the archaeological resource at this site can provide additional insights into the technological and industrial processes of the mine as well as the labour practices that took place within the concentration mill. Archaeological significance: High
Reference	(Austral Archaeology Pty Ltd, 2013)

Mullock Dump with Tram Lines (LEP Item I296)	
Location	Heritage Precinct 6, north Thompsons Winderhouse and Headframe, British BHP area, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1889
Phase	2
Description of archaeological resource	The site is a flat-topped mullock dump featuring stone retaining walls on its western and northwestern sides. Remnants of narrow-gauge railway sleepers used for transporting ore carts to deposit mullock are also visible on the site.
Archaeological potential	The site has demonstrated archaeological potential. The retaining walls were constructed to provide structural support for the dump, and the presence of timber sleepers signifies their historical use in the tram line for mullock disposal. Beyond these structural elements, the likelihood of uncovering additional archaeological resources is minimal. Archaeological potential: High
Archaeological significance	The archaeological resource associated with this site is less likely to provide significant insights into the operations, management, and maintenance of the Rasp Mine. Although the remnants of the tram lines serve as industrial artefacts, they are unlikely to enhance our understanding of the transportation methods used for mullock disposal beyond what can be ascertained from other sources. Additionally, the mullock dump, due to its apparent exclusive use for mullock disposal and its proximity to the tramline, is less likely to yield archaeological resources related to earlier mining infrastructure that might have been buried by the dump. Archaeological significance: Low
Reference	(Austral Archaeology Pty Ltd, 2013)

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Building Foundation (LEP Item I305)	
Location	Heritage Precinct 7, centre of the old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	Unknown
Phase	Unknown
Description of archaeological resource	The site, although lacking specific historical documentation, corresponds to the approximate location of the 1891 Amalgamating Mill based on early company plans. It is characterised by a substantial foundation constructed from concrete, brick, and stone. The southern section includes a standing brick wall (about 10 courses high), a concrete floor apron, and an dropped area that is potentially a stairway. Both stone walls in the central section have steel bolt reinforcements. The north end of the concrete floor also features these bolts. The east ends of the stone walls have stone piers with bolts. In contrast, the north end stone wall leans heavily into the pit. Some sections contain timber beams, and the far north side features 1.5 m high stone walls with a concrete floor. Overall, the foundation shows signs of subsidence into the pit. A semicircular groove on the north side of the central walls suggests a machine footing.
Archaeological potential	This site has demonstrated archaeological potential. It is likely that additional remnants from the 1891 Amalgamating Mill concealed beneath small mullock piles still exist in this vicinity and the surrounding areas. Moreover, there's a possibility of subsurface deposits within or between the brick and stone walls, particularly in the potential stairway area. Furthermore, this foundation is deemed to be highly significant given that it is likely to be part of the earliest ore processing phases on the BHP mine. Archaeological potential: High
Archaeological significance	The archaeological resource linked to this site, specifically the potential discovery of earlier mining infrastructure beneath mullock piles associated with the 1891 Amalgamating Mill, offers a valuable opportunity to investigate the early mining operations of the Rasp mine. Should archaeological resources be found in this context, it could contribute additional insights into the management and maintenance practices, particularly the strategy of covering older infrastructure to facilitate the construction of new facilities instead of demolishing existing structures. Additionally, there is potential to reveal the function and purpose of the structure once supported by this brick and stone foundation. Archaeological significance: Medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Four Concrete Piers (LEP Item I306)	
Location	Heritage Precinct 7, centre of the east side of the Old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1890s- early 1900s
Phase	1,2
Description of archaeological resource	This site lacks specific historical documentation but is believed to date from the BHP open-cut mining period in the late 1890s to the early 1900s, a period when the open cut ceased operation in 1907. It comprises four concrete piers, each about 1 m tall and featuring a single central foundation bolt. These piers measure approximately 1x1 m at the base, tapering to 70x70 cm at the top. They are positioned 5 m apart, forming the four corners of a square. The 1994 inspection revealed the completeness of the piers, but the remainder of the structure is absent.
Archaeological potential	This site has demonstrated archaeological potential. It is likely that additional remnants from the 1891 Amalgamating Mill concealed beneath small mullock piles still exist in this vicinity and the surrounding areas. Archaeological potential: High

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Four Concrete Piers (LEP Item I306)	
Archaeological significance	The archaeological resource linked to this site, specifically the potential discovery of earlier mining infrastructure beneath mullock piles associated with the 1891 Amalgamating Mill, offers a valuable opportunity to investigate the early mining operations of the Rasp mine. Should archaeological resources be found in this context, it could contribute additional insights into the management and maintenance practices, particularly the strategy of covering older infrastructure to facilitate the construction of new facilities instead of demolishing existing structures. Additionally, there is potential to reveal the function and purpose of the structure once supported by these piers. Archaeological significance: Medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Headframe (LEP Item I307)	
Location	Heritage Precinct 7, inside the Old BHP pit on the east side, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	Approximately 1891
Phase	1
Description of archaeological resource	The site consists of two concrete headframe footings featuring timber uprights and a single crossbar. The north side upright retains approximately 1 m of its original height, while the south upright is approximately 2.5 m and includes several iron bolts protruding from it. In close proximity to these footings, there is another concrete footing, although no timber uprights are present. This headframe likely belongs to one of two different shafts—either Knox shaft, which was sunk in 1885, or Wigg shaft, which was sunk in 1891. Records from the company's archives in 1895 indicate the existence of shafts inside the open cut, with Wigg being one of them. However, the proximity of Knox shaft to the Amalgamating Mill would have eventually led to its incorporation into the open cut.
Archaeological potential	Beyond the footings, this site has limited archaeological potential. As the remnants of a headframe, it is unlikely that any significant archaeological resources beyond the timber and concrete structure exists. Archaeological potential: High
Archaeological significance	The archaeological resource pertaining to the headframe has the ability to shed additional insights into the technological advancements of mining infrastructure and serves as an early example of mining infrastructure within the Rasp Mine. Archaeological significance: Medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Stone Wall (LEP Item I308)	
Location	Heritage Precinct 7, centre of the old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	Between 1890s to early 1900s.
Phase	1, 2
Description of archaeological resource	A 5 m tall dry stone retaining wall stretches north south for approximately 10 m before gradually curving eastward for approximately 5 m. Despite the absence of documented evidence, this feature likely dates to the BHP open-cutting phase during the late 1890s to the early 1900s, a period when the open cut was last in operation, ceasing by 1907.
Archaeological potential	The site has demonstrated archaeological potential with the possibility of archaeological resources existing either within the wall or along its periphery.

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Stone Wall (LEP Item I308)	
	Archaeological potential: High
Archaeological significance	As there is little documentary evidence, the function of the stone wall is unclear. It is possible the wall functioned as a support to an adjacent structure or artefact bearing deposit. Exploring the archaeological resource may provide insights onto the function and purpose of the wall, contributing to an enriched understanding of the mine's operations. Archaeological significance: Medium
Reference	(Austral Archaeology Pty Ltd, 2013)

Timber Chute Race (LEP Item I309)	
Location	Heritage Precinct 7, west side of the Old BHP pit, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	1890s – early 1900s
Phase	1, 2
Description of archaeological resource	This site features a timber chute that extends about 20 m down the inside of the pit, reaching approximately halfway. It measures approximately 1 m in width, with a slightly concave base and short single-plank side walls. The chute consists of two sloping sections, each approximately 8 m in length, with a 4 m flat section in between them. The original length of the chute is unknown, so this section may represent only a portion of the complete structure, or it could be the entirety of it. The visible section of the chute appears to be fully intact.
Archaeological potential	This site has demonstrated archaeological potential. However, given that it's a deteriorating timber chute designed for the transportation of ores and minerals, the likelihood of discovering additional archaeological resources within the vicinity of the chute is low. Archaeological potential: High
Archaeological significance	As a timber chute that transported ore, there is limited potential for artefact deposits, resulting in a limited capacity to offer additional insights into the occurrences at the mine that cannot be inferred from alternative sources. Archaeological significance: Low
Reference	(Austral Archaeology Pty Ltd, 2013)

Rubbish Dump – Not Listed, identified as RM-A04	
Location	Heritage Precinct 7, east side of the Old BHP pit, near the Timber Chute Race, Rasp Mine, CML 7, Broken Hill, NSW
Construction date	n/a
Phase	unknown
Description of archaeological resource	This site features a rubbish dump or scrapyard filled with items associated with the mine and ranges from discarded structural materials including bricks and timber, remnants of machinery and other miscellaneous materials.
Archaeological potential	This site has demonstrated archaeological potential. Functioning as a rubbish dump for discarded items rendered obsolete. The rubbish dump offers a rich source for exploration and insights into the historical discards of the Rasp Mine. Archaeological potential: High
Archaeological significance	The rubbish dump, comprising of discarded mining artefacts, presents a opportunity to reveal insights into the historical mining processes, technological advancements, and daily practices of the mining community. The recovery of these artefacts may provide additional insights regarding

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Rubbish Dump – Not Listed, identified as RM-A04	
	the Rasp Mine's cultural and technological impact, providing valuable contributions to the broader historical narrative at a local level. Archaeological significance: Low

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Appendix

E

Significance assessment

Conservation Management Plan | Rasp Mine

EMM
creating opportunities

E.1 Significance assessment

Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
a) The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history (**Events and processes**). a) An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (**Historical Significance**).	**Evidence of past environments:** • The Line of Load is a geological formation of which the Rasp Mine area is located within, spans approximately 8 km in length and up to 2 km in depth, provide evidence of long-term geological processes. This extensive geological diversity suggests significant environmental changes over time, reflecting variations in climate and landscape. • Visible ore bodies in Heritage Precincts 2 (LEP Item I276) and 6 (LEP Item I297). • The presence of diverse mineral deposits within the mine, including 19 mineral species, some of which are rare, further attests to the region's complex environmental history. These minerals indicate shifts in environmental conditions and geological activity, offering valuable insights into past climates and ecosystems. • Additionally, the discovery of exceptionally rare, well-crystallised minerals in the secondary zone of the ore body underscores the natural mineral formation processes that have occurred over time. This serves as additional evidence of ecological processes within the area, highlighting the dynamic nature of the environment and its influence on mineral deposition. **Cultural features:** • Since its establishment in 1884, the mine has served as a focal point of human activity, sequentially occupied over generations. This prolonged occupation underscores its deep-rooted cultural significance within the community, having served as predominant employers within living memory, forging enduring social bonds between local townships and the mine. • The Rasp Mine's continuous operation for over a century has not only shaped the cultural landscape of Broken Hill but has also left an indelible mark on Australia's economic history. The mine's association with major mining corporations like BHP underscores its fundamental role in shaping NSW's and the nation's mining sector and its broader economic landscape. • Moreover, the Rasp Mine's pioneering efforts in setting occupational health and safety standards and its role in shaping labour rights policies highlight its connection	**Representative examples:** • The Line of Lode (RNE 101036). • Visible ore bodies in Heritage Precincts 2 (LEP Item I276) and 6 (LEP Item I297). • Block 12 mining lease area, where Charles Rasp discovered the ore body before BHP commenced mining. • BHP mining lease area in its entirety. • Sulphide Corporation mining lease area, featuring infrastructure demonstrating enhanced safety standards. • British BHP mining lease area. **Individual items contributing to the National significance:** Heritage Precinct 1: • South Saw Mill (LEP Item I237). • Carpenter's paint shop (Old Winderhouse) (LEP Item I238). • Coal Bins (LEP Item I240). • Electrical Workshop (LEP Item I242). • Fire and Ambulance Station (LEP Item I243). • Mechanical Workshop (Old General Workshop) (LEP Item I246). • Pumphouse and Cooling Water Reservoir (LEP Item I252).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
	to historically significant scientific exploration and methodological developments in the mining industry. By prioritising worker safety and advocating for labour rights, the mine has contributed to the evolution of ethical and sustainable mining practices in Australia. **Association with landmark events:** • The Rasp Mine's many scientific advancements exemplify the transformative influence of the mining industry in shaping Broken Hill's and Australia's trajectory. • The discovery of ore bodies at the Rasp Mine around Block 12 led to the establishment and growth of BHP, which became one of the world's largest mining companies, impacting Australia's national economy. The continuous mining activities at the Rasp Mine and other sites contributed to economic prosperity both locally and nationally. • Pioneering innovative mining techniques leading to enhanced productivity and resource recovery rates at the Rasp Mine and Australia. • Broken Hill, including the Rasp Mine, was a stronghold of unionism and witnessed significant strikes advocating for better working conditions. These strikes led to the implementation of improved safety standards and legislation for occupational health and safety across Australia. • Mining at the Rasp Mine and along the Line of Lode spurred on essential infrastructure development, such as water supply systems and transportation networks to better facilitate mining operations and economic growth in Broken Hill. • The mine's affiliation with major mining corporations such as the Sulphide Corporation, along with its pioneering role in establishing occupational health and safety standards, represents significant milestones in Australia's mining history. These developments reflect broader shifts in cultural attitudes towards worker welfare, positioning the Rasp Mine as an example of progress and innovation in the mining sector. **Cultural phases and development of cultural processes:** • The Rasp Mine serves as an example of the cultural phases and developmental processes that have shaped NSW and Australia's mining heritage. Its continuous operation and adaptation to evolving technological, economic, and social contexts reflect the resourcefulness of Australia's mining communities.	• Rigger's Shop (LEP Item I253). • Roaster Plant (LEP Item I254). • Saw Mill and Extension (LEP Item I256). • Changehouse (LEP Item I264). Heritage Precinct 2: • Headframe, No. 4 shaft (LEP Item I267). • Lamp Repair Room (LEP Item I269). • Lamp Room (LEP Item I270). • Magazine (LEP Item I271). • No 4 Rescue Equipment and Waiting Sheds (LEP Item I274). • Ore Outcrop (LEP Item I276). • Winding House and Motor, No 4 Shaft (LEP Item I280. Heritage Precinct 3: • Browne's Shaft (LEP Item I281). • Junction Mine and Lookout. Heritage Precinct 5: • BHP Concentration Mill Foundations (LEP Item I285). • BHP South Smelter Walls and Stack (LEP Item I286). • Delprat Changehouse (LEP Item I287). • Delprat General Offices (LEP Item I288). • The Delprat Head Frame and Shaft (LEP Item I289). • The Delprat Winder Foundations (LEP Item I290). • Slag Dump, Foundations and Timber Piles (LEP Item I293). Heritage Precinct 6: • Ore Outcrop (LEP Item I297). • The Mullock Dump with Tram Lines (LEP Item I296).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
		• Thompsons Ambulance Station (LEP Item I298). • Thompsons Changehouse (LEP Item I299). • Thompsons Conveyor, Storage Bin and Loading Hopper (LEP Item I300). • Thompson Crusher House (LEP Item I301). • Thompsons General Offices (LEP Item I302). • Thompson Winderhouse (LEP Item I304). Heritage Precinct 7: • Headframe (LEP Item I307). Heritage Precinct 11 (Former Precinct 8). • BHP North Slag Dump (LEP Item I15).
	Meets the criteria a) for State significance. **Meets the criteria a) of National significance.**	
b) The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history (**Rarity**). f) An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (**Rarity**).	**Rare or uncommon historic place:** • The Rasp Mine in Broken Hill holds significance in terms of mineralogical diversity, being part of the unique geological deposits of Broken Hill. The mine area is known for its mineralogical richness, with the type locality for 19 mineral species, including several rare and uncommon species. This exceptional mineralogical diversity demonstrates the mine's importance in geological research and its contribution to understanding mineral formation processes. • The Rasp Mine stands out as a rare and uncommon historic place within the Australian mining landscape. Its long-established presence, continuous operation, and rich industrial heritage distinguish it as a significant site of historical importance. The survival of intact infrastructure, representative of different phases of mining activities, adds to its rarity and historical value, highlighting its importance in preserving the industrial heritage of Broken Hill and Australia as a whole. • The Rasp Mine's proactive approach to environmental conservation, particularly through 'green belt' regeneration measures, showcases its pioneering effort in	**Representative examples:** • The Line of Lode (RNE 101036). • Visible ore bodies in Heritage Precincts 2 (LEP Item I276) and 6 (LEP Item I297). • Winding House and Motor, No 4 Shaft (LEP Item I280). **Individual items contributing to the National significance:** Heritage Precinct 1: • South Saw Mill (LEP Item I237). • Carpenter's paint shop (Old Winderhouse) (LEP Item I238). • Coal Bins (LEP Item I240). • Compressor Room (Old Power House) (LEP Item I241).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
	environmental stewardship and has sets a precedent for sustainable mining practices nationally. **Human activities:** • The Rasp Mine on the Line of Lode, serves as tangible evidence of extensive human activities, particularly in the mining sector. The infrastructure, mine workings, and industrial facilities within the mine are testament to more than a century of mining operations and associated activities, reflecting the significant role the mine has played in the region's economic and industrial development. **Economic pressures:** • The Rasp Mine's historical significance is underscored by its resilience to vulnerabilities in land use changes and economic pressures. As a mining site, it is inherently tied to fluctuations in commodity prices, market demand, and technological advancements in the mining industry. Economic downturns or shifts in global markets could pose threats to the continued viability of the mine and its associated infrastructure, potentially leading to alterations in land use or even closure.	• Fire and Ambulance Station (LEP Item I243). • Pumphouse and Cooling Water Reservoir (LEP Item I252). • Rigger's Shop (LEP Item I253). • Roaster Plant (LEP Item I254). • Saw Mill and Extension (LEP Item I256). Heritage Precinct 2: • Ore Outcrop (LEP Item I276). • Winding House and Motor, No 4 Shaft (LEP Item I280). Heritage Precinct 5: • BHP Concentration Mill Foundations (LEP Item I285). • BHP South Smelter Walls and Stack (LEP Item I286). Heritage Precinct 6: • Ore Outcrop (LEP Item I 297).
	Meets the criteria f) for State significance. **Meets the criteria b) of National significance.**	
c) The place has outstanding heritage value to the nation because of the place's potential to provide information that makes a contribution of national importance to the understanding of Australia's history, cultures, or the natural world (**Research**). e) An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (**Research significance**).	**Wider understanding of Australian history:** • The Rasp Mine's geological and industrial features can provide valuable insights into Australia's natural history, particularly concerning mineralogy, geology, and the evolution of mining techniques. • The archaeological resources identified within different precincts of the Rasp Mine, such as Precinct 3's Browne's Shaft (LEP Item I281), and Heritage Precinct 5's BHP Concentration Mill Foundations (LEP Item I285), and BHP South Smelter Walls and Stack (LEP Item I286) offer potential for scientific research. These sites provide a wealth of information about the mining industry's evolution, technological advancements, and historical context, contributing to a broader understanding of Australia's natural and industrial history.	**Representative examples:** • Areas of medium to high archaeological potential and significance: Precinct 3's Browne's Shaft (LEP Item I281), and Heritage Precinct 5's BHP Concentration Mill Foundations (LEP Item I285), and BHP South Smelter Walls and Stack (LEP Item I286) • Rasp Mine's moveable heritage items, generally. • Slag and mullock dumps, specifically: Slag Dump, Foundations and Timber Piles (LEP Item I293), The Mullock Dump with Tram Lines (LEP Item I296), BHP North Slag Dump (LEP Item I15).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
	Wider understanding of the human occupation: • The migration of workers and their families to Broken Hill, driven by employment opportunities at the Rasp Mine, contributed to the growth of the local population and necessitated the development of infrastructure and services to support the community. This historical context provides valuable insights into the human occupation and industrial development of the region. • The Rasp Mine's cultural significance lies in its role as a hub of mining activity, which played a central part in shaping the social, economic, and industrial landscape of Broken Hill and broader Australia. • Researching mining techniques and technologies at Broken Hill contributes to a wider undertaking of the advancements in mining efficiency, safety, and sustainability. • The Rasp Mine's archival material dating back to inception of BHP contributes to research into the development of mining practices, working conditions, and the social dynamics of mining communities. • The Rasp Mines collection of unique specimens and the presence of rare minerals offer opportunities for further research into Australia's mineralogical heritage.	• Ore Outcrop (LEP Item I 297) and Ore Outcrop (LEP Item I276). • Sulphide Corporation mining lease area, featuring infrastructure demonstrating enhanced safety standards. **Individual items contributing to the National significance:** Heritage Precinct 1: • South Saw Mill (LEP Item I237). • Carpenter's paint shop (Old Winderhouse) (LEP Item I238). • Compressor Room (Old Power House) (LEP Item I241). • Fire and Ambulance Station (LEP Item I243). • Pumphouse and Cooling Water Reservoir (LEP Item I252). • Rigger's Shop (LEP Item I253). • Roaster Plant (LEP Item I254). • Changehouse (LEP Item I264). • Lamp Repair Room (LEP Item I269). • Lamp Room (LEP Item I270). • Magazine (LEP Item I271). • No 4 Rescue Equipment and Waiting Sheds (LEP Item I274). Heritage Precinct 2: • Ore Outcrop (LEP Item I276). • Winding House and Motor, No 4 Shaft (LEP Item I280). Heritage Precinct 3: • Browne's Shaft (LEP Item I281).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
		• Junction Mine and Lookout. Heritage Precinct 5: • BHP Concentration Mill Foundations (LEP Item I285). • BHP South Smelter Walls and Stack (LEP Item I286). • Delprat Changehouse (LEP Item I287). • Delprat General Offices (LEP Item I288). • The Delprat Winder Foundations (LEP Item I290). • Slag Dump, Foundations and Timber Piles (LEP Item I293). Heritage Precinct 6: • Ore Outcrop (LEP Item I 297). • The Mullock Dump with Tram Lines (LEP Item I296). • Thompsons Ambulance Station (LEP Item I298). • Thompsons Changehouse (LEP Item I299). • Thompsons Conveyor, Storage Bin and Loading Hopper (LEP Item I300). • Thompson Crusher House (LEP Item I301). Heritage Precinct 7: • Headframe (LEP Item I307). Heritage Precinct 11 (Former Precinct 8) • BHP North Slag Dump (LEP Item I15).
	Meets the criteria e) for State significance. **Meets the criteria c) of National significance.**	

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
d) The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of: (i) a class of Australia's natural or cultural places; or (ii) a class of Australia's natural or cultural environments (**Principal characteristics of a class of places**). g) An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (**Representativeness**).	**Demonstration of principal characteristics:** • The Rasp Mine's surviving elements from the early Heritage Precinct's 3, 6, 7, 11 showcases the evolution of mining operations over time, reflecting the incorporation of new technologies, adaptive reuse of infrastructure, and the enduring nature of mining activities. • The inclusion of new technologies and the autonomous operation of the British Mine surface buildings (LEP Item I281, I282) in Heritage Precinct 6 illustrate the continual development of mining spaces in remote settings, further supporting the principal characteristics of Australian mining history. • The Rasp Mine serves as a prime example of a mining operation that has endured over an extended period, in a in remote setting especially compared to other mining sites in Australia. **Best representative example:** • The Rasp Mine can be recognised as one of the best representative examples of early silver/lead/zinc mining operations in Australia. • It highlights the significant characteristics of mining sites and serves as a key piece of Australia's mining heritage, demonstrating the evolution and cultural processes inherent in Australian mining. • The Rasp Mine in Broken Hill is distinguished by its unique mineral diversity, setting it apart from other mining sites. • The mine's affiliation with major mining corporations such as the Sulphide Corporation, along with its pioneering role in establishing occupational health and safety standards, represents significant milestones in Australia's mining history. These developments reflect broader shifts in cultural attitudes towards worker welfare and environmental stewardship, positioning the Rasp Mine as an example of progress and innovation in the mining sector. • Despite being in NSW, the Rasp Mine and Broken Hill maintain close ties with South Australia, heavily relying on South Australian rail services and adhering to Central Australian time. • Within the broader context of Broken Hill, the Rasp Mine stands out as a notable example of a mining town where 'green belt' regeneration initiatives were researched, tested, and implemented. From the 1930s onwards, with support from	**Representative examples:** • Remaining structures from the early phases of Heritage Precincts 3, 6, 7, and 11. • Surface buildings of the British BHP Mine area. • Block 12 mining lease area specifically, as the approximate location Charles Rasp discovered the ore body before BHP began mining. • Sulphide Corporation mining lease area, featuring infrastructure demonstrating enhanced safety standards. **Individual items contributing to the National significance:** Heritage Precinct 1: • South Saw Mill (LEP Item I237). • Fire and Ambulance Station (LEP Item I243). • Pumphouse and Cooling Water Reservoir (LEP Item I252). • Rigger's Shop (LEP Item I253). • Saw Mill and Extension (LEP Item I256). Heritage Precinct 2: • Ore Outcrop (LEP Item I276). • Winding House and Motor, No 4 Shaft (LEP Item I280). Heritage Precinct 3: • Browne's Shaft (LEP Item I281). Heritage Precinct 5: • BHP Concentration Mill Foundations (LEP Item I285). • BHP South Smelter Walls and Stack (LEP Item I286). • Heritage Precinct 6:

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
	mining companies, efforts were made to replant areas stripped of vegetation near urban areas, effectively mitigating the adverse effects of dust storm. **Representation of major characteristics:** • The Rasp Mine exemplifies the major characteristics of Australian mining operations. • It showcases the infrastructure, machinery, and social aspects of mining activities, providing insight into the methods, technologies, and way of life associated with mining in Australia. • The preservation of the mine's infrastructure, alongside its adaptive reuse, reflects the significant characteristics of mining sites and demonstrates the evolution of mining operations over time.	• Slag Dump, Foundations and Timber Piles (LEP Item I293). Heritage Precinct 6: • The Mullock Dump with Tram Lines (LEP Item I296). • Ore Outcrop (LEP Item I 297). • Thompsons Ambulance Station (LEP Item I298). Heritage Precinct 11 (Former Precinct 8) • BHP North Slag Dump (LEP Item I15).
	Meets the criteria g) for State significance. **Meets the criteria d) of National significance.**	
e) The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group (**Aesthetic characteristics**). 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) (**Aesthetic significance**).	**Particular aesthetic type:** • The Rasp Mine embodies a diverse range of the industrial production buildings, structures, infrastructure and buildings of its time. • Structures like headframes, ore bins, and workshops showcase a distinctive architectural style typical of late nineteenth and early twentieth century mining operations. • These design elements reflect the technological advancements and engineering principles prevalent during the mine's operational period, making it a quintessential example of industrial architecture in the Australian context. **Aesthetic elements in the broader setting:** • The aesthetic qualities of the Rasp Mine extend beyond its individual structures to encompass the broader landscape across the Line of Lode, cityscape, and streetscape of Broken Hill. • Its industrial infrastructure, slag and mullock dumps contrasts with the natural surroundings, creating a distinctive cultural landscape that defines the character of the entire region.	**Representative examples:** • The Line of Lode (RNE 101036). • Rasp Mine's Heritage Precinct 1, 2, 3, 5 and 6. **Individual items contributing to the National significance:** Heritage Precinct 1: • Electrical Workshop (LEP Item I242). • Fire and Ambulance Station (LEP Item I243). • Pumphouse and Cooling Water Reservoir (LEP Item I252). Heritage Precinct 2: • Headframe, No. 4 shaft (LEP Item I267). • Winding House and Motor, No 4 Shaft (LEP Item I280). Heritage Precinct 3: • Browne's Shaft (LEP Item I281).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
	• This broader setting enhances the aesthetic experience of the mine, reinforcing its significance as a cultural landmark within the community. **High esteem by the community and documented recognition:** • The aesthetic qualities of the Rasp Mine are held in high esteem by the local, State, and National communities. • Documented recognition through photographs, artwork, and literature, of the Rasp Mine elements along the Line of Lode underscores the widespread appreciation and emotional attachment that the community has towards the mine. These records highlight its enduring cultural significance and aesthetic appeal. **Rigorous aesthetic elements:** • The aesthetic elements of the Rasp Mine along the Line of Lode exhibit a high level of rigour and integrity, surpassing comparison to other comparable types of industrial heritage sites. • Its architectural design, historical significance, and cultural value combine to create a compelling aesthetic value that resonates with visitors and experts alike.	Heritage Precinct 5: • BHP Concentration Mill Foundations (LEP Item I285). • BHP South Smelter Walls and Stack (LEP Item I286). • Delprat Changehouse (LEP Item I287). • Delprat General Offices (LEP Item I288). • The Delprat Head Frame and Shaft (LEP Item I289). • Slag Dump, Foundations and Timber Piles (LEP Item I293). Heritage Precinct 6: • The Mullock Dump with Tram Lines (LEP Item I296). • Thompsons Ambulance Station (LEP Item I298). • Thompsons Changehouse (LEP Item I299). • Thompsons Conveyor, Storage Bin and Loading Hopper (LEP Item I300). • Thompson Crusher House (LEP Item I301). • Thompsons General Offices (LEP Item I302). • Thompson Winderhouse (LEP Item I304). Heritage Precinct 11 (Former Precinct 8) • BHP North Slag Dump (LEP Item I15).
	Meets the criteria c) for State significance. **Meets the criteria e) of National significance.**	
f) The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period (**Creative or technical achievement**). c) An item is important in demonstrating aesthetic characteristics and/or a high degree of	**Demonstration of technical achievement:** • The Rasp Mine in Broken Hill demonstrates a high degree of technical achievement, particularly through its pioneering advancements in mining technology. The invention of the Potter-Delprat zinc-floatation process in 1903, developed by BHP's general manager GD Delprat, revolutionised ore separation methods, as demonstrated in Heritage Precinct 5 (LEP Item I15, I285-I296)	**Representative examples:** • Heritage Precinct 5 (LEP Item I15, I285-I296.) • Roaster Plant (LEP Item I254). • Winding House and Motor, No 4 Shaft (LEP Item I280). • BHP mining lease area. • British BHP mining lease area.

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
creative or technical achievement in NSW (or the local area) (**Aesthetic significance**).	• This process showcased innovative thinking and technical excellence in the field of mineral processing. **Innovation in mining techniques:** • The Rasp Mine introduced innovative methods such as square set timbering to address ground instability, which was a significant technical advancement in mining practices. • These techniques not only improved safety but also increased efficiency in ore extraction, demonstrating the mine's contribution to the evolution of mining methods. **Influence beyond mining:** • Beyond its direct impact on mining, the technological advancements made at the Rasp Mine influenced major industries like steel production and cement manufacturing. • This broader influence highlights the significance of the Rasp Mine not only within the context of mining but also in its contribution to industrial development at a National level. **Conservation of technical heritage:** • The Rasp Mine retains tangible evidence of its technical achievements, such as the surviving infrastructure associated with the Potter-Delprat zinc-floatation process and other innovative mining techniques. • The presence of intact structures and machinery provides a physical link to the mine's technological legacy, contributing to its integrity as a site of technical heritage significance.	**Individual items contributing to the National significance:** Heritage Precinct 1: • Coal Bins (LEP Item I240). • Compressor Room (Old Power House) (LEP Item I241). • Electrical Workshop (LEP Item I242). • Fire and Ambulance Station (LEP Item I243). • Rigger's Shop (LEP Item I253). • Roaster Plant (LEP Item I254). • Changehouse (LEP Item I264). Heritage Precinct 2: • Headframe, No. 4 shaft (LEP Item I267). • Winding House and Motor, No 4 Shaft (LEP Item I280). Heritage Precinct 3: • Browne's Shaft (LEP Item I281). Heritage Precinct 6: • Thompsons Conveyor, Storage Bin and Loading Hopper (LEP Item I300). • Thompson Crusher House (LEP Item I301). • Thompson Winderhouse (LEP Item I304).
	Meets the criteria c) for State significance. **Meets the criteria f) of National significance.**	

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
g) The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (**Social value**). 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 (**Social significance**).	**Importance to the Community:** • The Rasp Mine served as a major employer for generations of residents in Broken Hill. • It attracted individuals from diverse backgrounds seeking employment opportunities and economic prosperity. • The mine's operations facilitated the growth of Broken Hill's population and infrastructure. This led to a deep and enduring connection between the community and the mine. **Symbolism and cultural significance:** • The Rasp Mine along with Line of Lode represents more than just a place of employment; it embodies the resilience, spirit, and identity of the Broken Hill community. • Its history is intertwined with the social fabric of the city, shaping its social, cultural, and economic landscape. • Tangible connections such as the preservation of historical sites and recognition in community events highlight its enduring presence in the city's history. **Tangible connections and enduring relationship:** • The mine's significance is demonstrated through the preservation of historical infrastructure and public use of shared spaces for recreational and remembrance purposes such as Heritage Precinct 5's Line of Lode Miners Memorial. • Ongoing cultural events and celebrations pay homage to the mining heritage of Broken Hill, fostering a continued sense of pride and identity among residents. • The enduring relationship between the community and the mine is reflected in the recognition of its role in shaping the city's collective memory and heritage. **Broader community recognition:** • The significance of the Rasp Mine extends beyond local interest groups, being recognised by the broader Broken Hill and Australian community as a significant cultural and historical landmark. • Historical records, cultural artefacts, and preservation efforts substantiate its considerable significance to the community.	**Representative examples:** • The Rasp Mine, generally. • The Line of Lode (RNE 101036). **Individual items contributing to the National significance:** Heritage Precinct 5: • Slag Dump, Foundations and Timber Piles (LEP Item I293). Heritage Precinct 6: • The Mullock Dump with Tram Lines (LEP Item I296). Heritage Precinct 11 (Former Precinct 8). • BHP North Slag Dump (LEP Item I15).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
	Meets the criteria d) for State significance. **Meets the criteria g) of National significance.**	
h) The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history (**Significant people**). 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 (or the local area's) cultural or natural history (**Associative significance**).	**Association with prominent individuals or groups:** • The Rasp Mine is intricately linked with individuals and groups that have left an indelible mark on Australia's natural and cultural history. • Albert Morris, whose tenure at the Central Mine underscored his dedication to the mining industry, later transitioned to a pivotal role as the chief assayer. – His contributions extended beyond mining, as evidenced by his pioneering efforts in combating dust storms, showcasing the mine's commitment to environmental sustainability. – Morris's work gained recognition on a national and international scale, leading to the establishment of regeneration areas around Broken Hill. • Charles Rasp, credited as the discoverer of the ore body at the Rasp Mine, holds a central place in the annals of Broken Hill's mining history. – His foresight and unwavering determination laid the foundation for the establishment of the mine, marking a significant milestone in the city's transformation into a prominent mining centre. • The Rasp Mine's legacy of technological advancements stands as a testament to Rasp's vision and pioneering spirit, reflecting innovation and ingenuity in mining practices. • Additionally, the Rasp Mine boasts associations with a cadre of distinguished individuals, including engineer and metallurgist Guillaume Daniel Delprat, alongside notable figures such as George McCulloch, James Poole, David James, Philip Charley, George Urquhart, and George Lind. • These individuals brought a wealth of expertise, intellect, and forward-thinking perspectives to the formation of the first mining company, which laid the groundwork for the Rasp Mine's enduring legacy.	**Representative examples:** • The Line of Lode (RNE 101036). • Visible ore bodies in Heritage Precincts 2 (LEP Item I276) and 6 (LEP Item I297). • BHP mining lease area. • Block 12 mining lease area, where Charles Rasp discovered the ore body before BHP commenced mining. • Precinct 3's Browne's Shaft (LEP Item I281), and Heritage Precinct 5's BHP Concentration Mill Foundations (LEP Item I285), and BHP South Smelter Walls and Stack (LEP Item I286). • Sulphide Corporation mining lease area, encompassing infrastructure showcasing improved safety standards. • British BHP mining lease area. **Individual items contributing to the National significance:** Heritage Precinct 1: • Fire and Ambulance Station (LEP Item I243). Heritage Precinct 5: • BHP Concentration Mill Foundations (LEP Item I285). • BHP South Smelter Walls and Stack (LEP Item I286). • Delprat Changehouse (LEP Item I287). • Delprat General Offices (LEP Item I288).

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Table E.1 Significance assessment of the Rasp Mine

National criterion NSW criterion	Assessment	Representative examples
	Importance of close associations: • The Rasp Mine demonstrates a close relationship with individuals who have been influential in various fields such as engineering, metallurgy, and industrial development. • These individuals have played significant roles in shaping the history and development of Broken Hill and have left a lasting impact on the community and the mining industry as a whole.	• The Delprat Head Frame and Shaft (LEP Item I289). • The Delprat Winder Foundations (LEP Item I290). • Slag Dump, Foundations and Timber Piles (LEP Item I293). Heritage Precinct 6: • The Mullock Dump with Tram Lines (LEP Item I296). • Thompsons Ambulance Station (LEP Item I298). • Thompsons Changehouse (LEP Item I299). • Thompsons Conveyor, Storage Bin and Loading Hopper (LEP Item I300). • Thompson Crusher House (LEP Item I301). • Thompsons General Offices (LEP Item I302). • Thompson Winderhouse (LEP Item I304). Heritage Precinct 7: • Headframe (LEP Item I307). Heritage Precinct 11 (Former Precinct 8) • BHP North Slag Dump (LEP Item I15).
	Meets the criteria b) for State significance. **Meets the criteria h of National significance.**	
i) The place has outstanding heritage value to the nation because of the place's importance as part of Indigenous traditions (**Indigenous tradition**)	A study of the heritage value of Rasp Mine for Indigenous people past and present was outside of the scope of this CMP. As such, Indigenous tradition has not been included in the significance assessment.	

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Appendix

F

Maintenance plan

Conservation Management Plan | Rasp Mine

EMM
creating opportunities

F.1 Maintenance plan

Table F.1 Maintenance plan

General	
This Maintenance Plan has been prepared to provide a strategy for the ongoing maintenance and management of the heritage fabric and structures that comprises the Rasp Mine. It provides a longer term, generalised plan for ongoing management of the site and its structures and fabric.	
The Burra Charter	The Burra Charter advocates a cautious approach to change: *do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained.* Undertaking regular inspections and property maintenance can reduce the risk of building failures and damage to heritage fabric. A Maintenance Plan provides a framework that safeguards the long-term protection of an asset. This systematic approach to building maintenance proves to be a cost-effective way of preserving an asset, as minor damage can be detected and rectified before it causes major implications.
Inspections	This Maintenance Plan is based upon site visits undertaken by EMM Consulting in 2022 and 2023. Externally, access was limited to inspections of the façades from ground level, with no access to the internal space or the roof. The maintenance plan focuses specifically on built heritage elements, ruins and structures were out of scope of this undertaking.
Types of Maintenance	Repair and restoration are generally required to a building at each generation or at the end of the existing services lifespan, i.e. about 25 years if the extra cost of major repair are to be avoided. Planned preventative maintenance can reduce costs by allowing for planned use of scaffolding: one of the costliest aspects of repair. The NSW Heritage Branch identifies the following types of maintenance for the preservation of heritage fabric: **Corrective or "catch-up" maintenance** Work necessary to bring a building to an acceptable standard to prevent serious, irreparable deterioration as recommended by a heritage consultant such as treatment for rising damp, fixing obvious water leaks and rectifying termite damage. **Planned inspection and maintenance** Work to prevent failure which recurs predictably within the life of a building, such as reviewing watertightness of roofs and cleaning gutters or painting. Refer to Section F.2. **Emergency corrective maintenance** Work that must be initiated immediately for health, safety, security reasons or that may result in the rapid deterioration of the structure or fabric if not undertaken (for example, roof repairs after storm damage, graffiti removal or repairing broken glass, eliminating fire hazards and electrical hazards such as exposed wiring, or loose building elements which may pose a safety risk). A daily response system detailing who is responsible for urgent repairs should be prepared. **Planned maintenance** Routine inspections are considered critical to the effective preservation of heritage buildings. A costing report would forecast the expenses associated with the maintenance works so that a budget can be planned and funding allocated to ensure the upkeep of the building into the future. **Emergency corrective maintenance** Emergency corrective maintenance applies to unforeseeable damage that may occur due to weather, vandalism or other incidents. It is recommended the building owner maintain a list of suitable heritage contractors who can be called upon to rectify emergency damage. Typical emergency corrective maintenance may include: • Blocked or broken stormwater and sewer lines that require clearing or repair. • Clearing of blocked gutters and downpipes.

Table F.1 Maintenance plan

General	
	• Broken water service or leaking faucets and toilet cisterns. • Discontinuance of power water or gas from utility suppliers. • Damaged or defective light fittings and switches. • Failed incandescent light bulbs or fluorescent tubes. • Storm damage to grounds or building fabric. • Vandalism or break and damage to windows and doors. • Broken or defective locks and latches, replacement of keys or lock cylinders.
Maintenance methodology	The following principles shall apply to the carrying out of maintenance at the Rasp Mine: • Maintenance shall be recognised as being of prime importance in the conservation process. • Conservation works need to be undertaken to correct past and current building failures and to prevent further damage occurring to the heritage structure and fabric. • A regular cycle of inspection and maintenance must be followed to ensure that major deterioration of the heritage fabric does not occur. • The fabric should be inspected according to the time intervals shown in this Maintenance Schedule. Inspections should be carried out by a person or persons skilled in the conservation of heritage fabric. • Every five to seven years inspections should be carried out by a heritage consultant to assess the condition of all the heritage fabric. If extensive repairs to original fabric are required, the advice of a heritage architect should also be sought and a detailed schedule of works prepared. • Personnel inspecting and reporting on heritage fabric must be able to demonstrate their skills prior to carrying out the work.
Inspection log and documenting repairs	All inspections and follow up maintenance should be recorded for future reference. Inspections should be logged and photographs taken to document any damage. The log should include the cost of the work done to provide a resource for future budgeting. Refer to Section F.3.

F.2 Planned inspection and maintenance plan

This inspection and maintenance schedule identifies routine cyclical requirements, including for elements that are subject to upgrade or replacement in conjunction with necessary conservation works.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
Building element	**Life cycle expectancy**	**Inspect for:**	**Inspection frequency**	**Consult with:**	**Recommendations / Good conservation practice**
Building					
Generally	General internal and external inspection to check for changes since last inspection including vandalism, unwanted entry and building failures.		Every 4 months		
3. Roofing					
Generally	Check condition of roofs, penetrations, flashings, and roof structure. Check whole roof system for leaks or potential leaks				
		☐ Check for any deterioration caused by incompatible roofing materials.	Every 12 months		
Galvanised corrugated steel roofing	25 years from time of installation or replacement	☐ Inspect for rubbish and leaves on roof. ☐ Clear any blockages. ☐ Inspect for loose or raised or rusted fixings, rusted sheet edges and surfaces which are deformed from being walked on. ☐ Check roof for leaks. ☐ Look for rust stains around fixings, where sheets are lapped and around flashings. ☐ Check roof battens from roof space. Loose fixings may indicate failure of battens.	Every 12 months		☐ In addition to annual inspections, inspections should be undertaken following severe storm events. ☐ Ensure replacement roof sheeting is the same as existing.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
Membranes to roof	20 + years from time of installation or replacement	☐ Inspect for lifting joints, surface blisters or physical damage and cracks. ☐ Check on hot days and after rain as surface dries, as cracks can then be seen wet as the heat draws up moisture.	Every 12 months		☐ Do not lay or rest sharp objects on the membrane surface. Do not test membranes with sharp objects.
Ridge cappings and flashings	Typically, 20 years (refer to manufacturer's details). Sealants will have a shorter life expectancy.	☐ Inspect for loose or raised fixings to metal cappings, cappings that have lifted, slipped or are deformed from wind damage, especially after heavy storm and/or high winds. ☐ Check if ridge and hip cappings are tight without gaps. ☐ Inspect for breakdown of sealants and caulkings. ☐ Check flashings (lead and other) around roof penetrations for breakdown of flashings and sealants.	Every 12 months Inspect after heavy rainfall.	Heritage consultant Heritage roofer	☐ Replace or repair damaged flashings, cappings, caulking and sealant as required to match existing. ☐ Do not use light gauge metal flashings that are prone to wind damage
Facias and eaves lining	20 + years from time of installation or replacement	☐ Check fascia boards for rot. ☐ Inspect for holes from old service pipes where birds can nest, and for surface stains to fascia and soffit that indicate roof or valley and gutter failure. ☐ Identify cobwebs and wasp or hornet nest for removal. ☐ Inspect for paint failure and/or decay to linings which can indicate roof covering failure.	Every 12 months	Heritage consultant Heritage joiner	☐ Allow to replace/splice in timber boards with evidence of rot.
Roof structure including rafters	80 + years	☐ Check if members are secure and true. ☐ Inspect for signs of structural distress which structural engineer should inspect. ☐ Inspect for signs of termite damage or water damage.	Every 12 months	Heritage consultant Structural engineer	☐ Remediate and/or repair in consultation with a structural engineer. ☐ If termite activity is observed, engage timber/termite specialist.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule				
			Timber/termite specialist	☐ If there are signs of structural distress, such as cracking or warping, a heritage structural engineer should be engaged.
4. Roof drainage				
Generally	Remove rubbish, trim overhanging trees, leaves and debris.			Every 4 months; 3 times during autumn
	Check roofs, flashings, box gutters, rainwater heads, eaves gutters and downpipes for blockages.			Every 12 months
	Roof accessories should be replaced when necessary to the original detailing and in the original materials.			As required
Gutters and downpipes generally	25 years from time of installation or replacement	☐ Inspect gutter and downpipe joints for cracks and underside drips. ☐ Check for loose or missing brackets to gutters and downpipes. ☐ Check if gutters are sagging and that water falls to outlets. ☐ Ensure leaf guards are provided to outlets and that rainwater heads and sumps sit correctly and are clear of debris. ☐ Growth, moss or stains surrounding downpipes can indicate blockages or leaks. Check for bent or otherwise damaged downpipes that restrict water flow. Check if downpipes are connected to the stormwater system and, if so, whether joints are sound. Check that stormwater drains are not blocked. ☐ Check whether birds are nesting on downpipe offsets and polluting the building, or whether bird proofing, if installed, is adequate and sound.	Every 12 months	☐ Avoid hosing leaves and debris into downpipe outlets. ☐ Ensure overflows are kept clear. ☐ Avoid placing ladders or leaning objects onto eaves gutters. ☐ Maintain paint finish to gutters and downpipes. ☐ In addition to annual inspections, inspections should also be undertaken following severe storm events. ☐ Allow to refix loose or missing brackets.
Avoid				

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule				
• Combining dissimilar materials that will react with each other (for technical information refer https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Heritage/metalwork-information-sheet.pdf). • Replacing original roof coverings unnecessarily. • Light gauge flashings that are susceptible to wind damage and lift. • Cement mortar repair to over-flashings inserted in masonry joints. • Hosing leaves and debris into downpipe outlets. • Walking in valley gutters or on the edge of flashings and cappings. • Do not lay or rest sharp objects on the membrane surface. Do not test membranes with sharp objects. • Placing ladders or leaning objects onto soft copper or steel gutters.				
5. External facades generally				
Generally	☐ Inspect areas for grime, growth from joints, vermin activity, graffiti and signs of termite infestation (including inspection of timber roof framing). ☐ Inspect for any signs of fabric deterioration due to salt attack and rising and falling damp. Check sub floor ventilation. ☐ Inspect for signs of any structural distress (e.g. movement, cracking) which a structural engineer should inspect.	Every 12 months As required (minimum every 5 years)		
Cleaning	☐ An experienced heritage consultant should assess the building periodically to advise on the need for cleaning and appropriate methods prior to implementing any cleaning work.	Every 12 months	Heritage tradesperson	☐ Wash down the building using water without pressure, with particular attention to areas that cannot be accessed by rainwater e.g. under projecting courses. Do not use abrasive cleaning methods, including sandblasting and high-pressure water spray. ☐ All cleaning should be implemented under guidance of expert advice. ☐ Clarify if cleaning is for technical reasons (e.g. to address corrosion or another reason to conserve material) or aesthetic reasons.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
					☐ Initial cleaning should be low end using only water. If required for technical reasons, detergents may be necessary, however strong cleaning solvents may have a detrimental effect on the surface coating and any cleaning agent must be tested prior to broad application. ☐ Fully test and assess the impact of proposed cleaning and/or graffiti removal techniques on the fabric prior to implementing cleaning works
Sub-floor vents	Indefinite Lifecycle is influenced by maintenance and/or protective coatings.	☐ Check vents are clear and free of rubbish, soil, etc. ☐ Inspect for corrosion, cracked, damaged or missing components, accumulated debris and loose and flaking paint.	Every 12 months		
Brickwork	40+ years	☐ Inspect for loose, fretted or broken bricks. ☐ Repair or where necessary replace with matching bricks (same size, colour and texture). ☐ Inspect to see if the ventilators blocked or covered over with soil. Clear as required. ☐ Inspect for surface salts or soluble salt damage. ☐ Inspect for missing mortar. ☐ Inspect for damage caused by use of hard cement mortars.	Every 7 years	Heritage consultant Heritage tradesperson Structural engineer	☐ Cracks in brickwork which are widening should be inspected by a structural engineer and rectified as required. ☐ Avoid inappropriate cleaning of brickwork e.g. strong water jet cleaning or detergents that can damage brick. ☐ Remediate and/or repair in consultation with a specialist heritage tradesperson.
Timber	20 + years	☐ Inspect for loose or missing weatherboards, corner stops and mouldings. ☐ Check around windowsills and where boarding is in contact with ground for weathering and potential decay.	Every 7 years	Heritage consultant Heritage joiner	☐ Remediate and/or repair to match existing.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
Steel fixings	15-40 years	☐ Inspect for signs of rust and decay. ☐ Assess to determine if fixings are secure.	Every 7 years		☐ Remove rust and apply rust converter and apply zinc rich primer before repainting, if appropriate.
Stone	100+ years Note this life expectancy typically applies to projecting courses and exposed parapets. Other stone surfaces may be expected to have a longer life expectancy.	☐ Inspect areas for grime, biological growth, eroded joints, bird excretion and graffiti. ☐ Inspect for loose, fretted, broken or missing mortar joints to stones around windows, doors, along flashings and on cornices and other projections. ☐ Inspect condition of stone for signs of deterioration, cracking or movement. ☐ Inspect for signs of delamination that can affect the soundness of stone. Inspect for rising, falling or lateral damp, crumbling stone or surface salts, this can indicate a moisture problem. ☐ Inspect mortar joints generally for soundness and for incompatible mortars where lime was originally used.	Every 5 years	Heritage consultant Heritage stonemason Heritage structural engineer	☐ Remediate and/or repair in consultation with a specialist heritage tradesperson. ☐ Repair and remediate stones in consultation with a heritage stonemason and/or replace like for like where necessary. ☐ Avoid inappropriate cleaning of stone e.g. strong water jet cleaning or detergents that can damage the stone. ☐ Cracks that are widening should be inspected by a structural engineer and rectified as required.
Repointing brickwork and stonework	35 + years	☐ Inspect for eroded or missing mortar joints. ☐ Inspect for inappropriate cement-based mortar.	Every 7 years Repoint as necessary	Heritage consultant Heritage tradesperson	☐ Pointing to be repaired and re-pointed using like-for-like mortar. ☐ Colour, composition and consistency of lime mortar is to be approved by a qualified heritage professional or specialist heritage stonemason. ☐ Avoid use of cementitious mortars where the original mortar does not contain cement.
Desalination of stonework	20 + years	☐ Spot test for moisture and salts.	Every 5 years Desalinate as necessary	Heritage consultant Heritage stonemason	☐ Heritage stonemason shall carry out test for moisture and check for salinity by methods such as drill test and/or vacuum and water sample testing. ☐ If appropriate, desalinate masonry.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
Termites		☐ Inspect for termites with subfloor and roof structure.	Every 12 months	Heritage consultant Timber/termite specialist Heritage joiner	☐ If termite activity is observed, engage timber/termite specialist.
Avoid					
• Covering wall ventilators and damp-proof courses with soil or rubbish. • Building up garden beds over damp proof courses, planting close to walls or continual watering of walls. • Applying anti-graffiti or protective coatings. • Inappropriate cleaning of masonry, e.g. strong water jet cleaning, acid or detergents that can damage the masonry. • Cement mortar for repointing i.e. only use traditional lime mortar and mortar that is weaker than the masonry.					
6. External joinery					
Timber windows	Indefinite Lifecycle is influenced by maintenance of protective coatings.	☐ Inspect whether hardware operates properly, or is loose, inadequate or damaged. ☐ Inspect the determine the satisfactory operation of doors and windows. ☐ Inspect for any leaks. ☐ Inspect for loose or damaged mouldings, architraves, decayed stiles at sill level, weathered sills, sashes that bind, noisy pulley wheels that need to be oiled, and sash cords that are decayed or broken. ☐ Check strength by raising weight by hand and dropping- if cord is sound it will carry weight at bottom of drop. ☐ Inspect for loose or decayed sash joints and broken or cracked glass or loose/missing putty.	Every 12 months	Heritage consultant Heritage joiner	☐ Avoid replacing with hardware not in keeping with the building. ☐ Clean and repair as required. Timber windows should all be carefully maintained. ☐ Replace deteriorated elements of the original windows to match existing. ☐ Engage qualified heritage joiner to conduct repairs. Note: Windows should not be boarded up.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
		☐ Check internal finishes around windows for stains that can indicate failed flashings. ☐ Check junction of window frame with masonry wall. If openings have developed caulking should be applied.			
Cast iron windows	Indefinite Lifecycle is influenced by maintenance of protective coatings.	☐ Inspect for corrosion, cracked, damaged or missing components, debris accumulating in joints and loose and flaking paint.	Every 12 months	Heritage consultant Heritage steelworker	
Timber doors	Indefinite Lifecycle is influenced by maintenance of protective coatings.	☐ Inspect for loose jambs, decay at the threshold or damaged locks. Check that the threshold is secure and not decayed, excessively worn or broken. ☐ Check that mouldings or stops are secure, door joints are firm and that the door operates satisfactorily. ☐ Check for missing or damaged mouldings, broken or cracked glass. ☐ Check that furniture is secure and not missing or defective.	Every 12 months	Heritage consultant Heritage joiner	☐ Avoid replacing with hardware not in keeping with the building. ☐ Clean and repair as required. ☐ Maintaining the paintwork in good condition prolongs the life of the joinery considerably. ☐ Engage qualified heritage joiner to conduct repairs. Note: Doors should not be boarded up.
Avoid					

- Restricting fire exits with storage items.
- Installing fans or air-conditioners in windows.
- Replacing with hardware not in keeping with the building.
- Removing original hardware. If necessary for operation, install new adjacent

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
7. Structure external					
Generally	☐ Inspect structural security of timber posts, rafters, bearers and joists.		Every 12 months	Heritage consultant Heritage structural engineer	☐ Inspection and repair of any structural defects should only be undertaken by qualified engineering specialists
Foundations, footings and supporting structure	50 + years	☐ Inspect for structural defects.	Every 7 years	Heritage consultant Heritage structural engineer	☐ Undertake repairs to rectify any structural defects. ☐ Use props to support structural elements which have failed until further repair works can be undertaken.
Cast iron columns and posts	50 + years	☐ Inspect structural security of posts. ☐ Check for signs of deterioration around column bases.	Every 7 years	Heritage consultant Heritage structural engineer	☐ Remediate and/or repair in consultation with a structural engineer.
Timber trusses and timber roof framing	50 + years	☐ Inspect for any signs of structural movement or cracking which a structural engineer should inspect. ☐ Check to determine if the steel strengthening and joint plates bolted to timber structure still secure.	Every 7 years	Heritage consultant Heritage structural engineer	☐ Remediate and/or repair in consultation with a structural engineer.
Later added steel strengthening and bracing	50 + years	☐ Check to determine if steel strengthening and joint plates bolted to timber structure still secure.	Every 7 years	Heritage consultant Heritage structural engineer Heritage stonemason	☐ Cracks in masonry which are widening should be inspected by a structural engineer and rectified as required.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
8. Structure internal					
Generally	Engage a structural engineer to inspect areas for signs of structural distress which a structural engineer should inspect.		Every 12 months		☐ Retain original and significant fixings and signage.
Floor joists, floor boards and stud walls	50 + years	☐ Check to determine if the members are secure and true. ☐ Inspect for signs of termite damage or water damage. ☐ Inspect for termites.	Every 2 years	Heritage consultant Timber/termite specialist Heritage joiner	☐ Inspection should be carried out by structural engineer. ☐ If termite activity is observed, engage timber/termite specialist.
Timber floors	50 + years	☐ Inspect for signs of bounce or excessive squeak in floorboards. ☐ Lift coverings locally to inspect. ☐ Inspect for termites.	Every 12 months	Heritage consultant Timber/termite specialist Heritage joiner	☐ Inspection should be carried out by structural engineer.
Subfloor ventilation	50 + years	☐ Inspect subfloor ventilation and for dampness, ensure DPC is not bridged and that the air vents are not obstructed. ☐ Check to see it is free from debris. ☐ Inspect for signs of ponding water and any damage caused by building movement or tree roots.	Every 5 years		☐ Ensure that missing or broken vent covers are replaced to match existing detailing.
9. Interiors					
Generally	☐ Inspect areas for grime, efflorescence/biological growth, vermin activity and signs of termite infestation.		Every 12 months		
Rendered brick walls	Indefinite Lifecycle is influenced by maintenance.	☐ Check for cracks in the brickwork and that brickwork is straight and true.	Every 2 years	Heritage consultant Heritage tradesperson	☐ Patch repair as required, and replace deteriorated elements beyond repair with like for like, i.e. using traditional repair materials and methods.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
		☐ Check if brickwork is crumbling or has surface salts that would indicate a moisture problem. ☐ Check that mortar is appropriate for exposed brickwork or otherwise as opportunity presents. ☐ Check for cracks or drumminess in render.			☐ Remove any modern fixings causing deterioration to masonry. ☐ Clean masonry surfaces and repaint existing painted surfaces. Note: Do not paint face brick or stone, or other varnished timber surfaces.
Walls and plaster finishes	Indefinite Lifecycle is influenced by maintenance.	☐ Inspect and repair as required to match existing (material, form and finish). ☐ Check for damp with moisture meter.	Every 7 years	Heritage consultant Heritage tradesperson	☐ Remediate and/or repair in consultation with a heritage professional.
Metal ceilings	Lifecycle due is subject to inspection. (Note ripple iron ceilings are concealed)	☐ Inspect finishes for flaking and peeling and repair to match existing as necessary. ☐ Inspect for rust that would indicate moisture problem.	Every 7 years	Heritage consultant Heritage roofer	☐ Remediate and/or repair in consultation with a heritage professional.
Timber floors	70-100 years Lifecycle due is subject to inspection.	☐ Inspect and repair as required to match existing (material, form and finish). ☐ Check for termite damage. When replacement is due, ensure that the original material (species of timber) and detail is followed.	Every 12 months	Heritage consultant Timber/termite specialist Heritage joiner	☐ If termite activity is observed, engage timber/termite specialist.
Encaustic tiles	Indefinite	☐ Check for cracks and damage to treads and floor tiles. Replace floor tiles when necessary with matching fabric (correct size, colour and material).	Routine cleaning may be implemented by cleaning contractors. Tiles should be inspected by a specialist tiler every 2 years.	Heritage consultant Heritage tradesperson	☐ Do not use sealants unless they have been researched, tested and subsequently recommended by a suitably qualified and experienced heritage consultant. ☐ Do not use vinegar, lemon juice, or other cleaners containing acids. Encaustic tiles are sensitive to acidic cleaning products and these should not be used. ☐ Blot up spills immediately to avoid staining.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
					☐ Clean surfaces with mild detergent or soap. Thoroughly rinse and dry the surface with clean clear water after washing and dry with a soft cloth. Do not use scouring powders or creams; these products contain abrasives that may scratch the surface. ☐ Sand, dirt, and grit do the most damage to natural surfaces due to their abrasiveness. Dust mop interior floors frequently using a clean, non-treated dry dust mop.
Timber joinery and linings (including stair soffits)	Indefinite Lifecycle is influenced by maintenance of protective coatings.	☐ Inspect for decay, damage or areas of excessive wear. ☐ Inspect for loose or missing boards, battens, corner stops and mouldings. ☐ Inspect for surface stains or rusted nail heads that would indicate moisture problem. ☐ Apply beeswax coating to maintain shellac finish.	Every 2 years	Heritage consultant Heritage joiner	☐ If termite activity is observed, engage timber/termite specialist. ☐ For any replacement, ensure that the original material (species of timber) and detail is followed.
Timber Doors	Indefinite Lifecycle is influenced by maintenance of protective coatings.	☐ Inspect for loose jambs, decay at the threshold or damaged locks. ☐ Check that the threshold is secure and not decayed, excessively worn or broken. ☐ Check that mouldings or stops are secure, door joints are firm and that the door operates satisfactorily. ☐ Check for missing or damaged mouldings, broken or cracked glass. ☐ Check that furniture is secure and not missing or defective.	Every 2 years		☐ Apply beeswax coating to maintain shellac finish.
Timber floor and skirting finishes	10 – 20 years	☐ Inspect for signs of bounce or excessive squeak in floorboards.	Every 12 months	Heritage consultant	☐ If termite activity is observed, engage timber/termite specialist.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
		☐ Lift coverings locally to inspect. ☐ Inspect for termites.		Heritage joiner	
Floor finishes, carpet etc.	10 – 20 years	☐ Check for wear and tear.	Every 2 years	Heritage consultant Heritage tradesperson	
Hazardous Materials		☐ If asbestos is located, replace deteriorated elements beyond repair with like for like. ☐ Seek specialist advice for any repairs to asbestos cement sheeting – replace with modern fibre cement equivalent.	Every 12 months	HAZMAT consultant Heritage consultant	☐ All items on HAZMAT schedule should be inspected and condition assessed. ☐ Specialist advice to be sought and approvals obtained prior to removal of any hazardous fabric.
Fibre Cement Linings	20 + years	☐ Inspect for broken or damaged sheets, lose or missing trim and cover strips	Every 2 years		☐ Remediate and/or repair as required.
Ceilings	20 + years	☐ Check for holes, cracks, movement at joints, staining or discolouration, cracked, flaking or bubbling paint finishes.	Every 12 months	Heritage consultant Heritage tradesperson	☐ Patch holes, sand and repaint stained, flaking or discoloured finishes.
Wet areas including toilets and kitchens	20 + years	☐ Inspect for loose or drummy tiles, water damage water leaks etc.	Every 2 years	Heritage consultant Plumber	☐ Remove faulty tiles and replace like-for-like.
Avoid					

- Restricting fire exits with storage items.
- Installing fans or air-conditioners in windows.
- Replacing with hardware not in keeping with the building.
- Removing original hardware. If necessary for operation, install new adjacent.
- Installing one way glass when carrying out glazing repairs.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
• Excessive exposure to original lead-based paint. • Inappropriate cleaning methods, e.g. strong water jet cleaning, acid or detergents that can damage historic finishes and masonry. • Cement mortar for repointing, i.e. only use traditional lime mortar and mortar that is weaker than the masonry.					
10. Painting of interior and exterior painted fabric					
General	☐ Inspect fabric for joints cracking, putty coming away from fixings, cracking paint, blisters, fading of colours and efflorescence. Stains can also indicate a moisture problem. ☐ Inspect for paint deterioration, failure and weathering and grime generally. ☐ Inspect for stains and fading of colours. ☐ Future decorative schemes at the Rasp Mine should either be based on documentary and physical investigations of the original decorative scheme or a non-period scheme that complements the design intention, significant fabric and use. ☐ The implementation of a new colour scheme should be guided by an experienced conservation architect.		Every 7 years	Heritage consultant Heritage tradesperson	☐ Repair and or repaint all external and internal previously painted surfaces as necessary incl. timber, render, and metalwork. ☐ Repaint all weather exposed timber surfaces every 5-7 years or sooner to ensure timber is protected from the elements. ☐ Use an appropriate paint system for each type of substrate. ☐ Avoid painting surfaces never intended for painting, such as stone or face brick. ☐ When complete external repainting is undertaken, the colours should be based on a pre-approved heritage colour scheme or a heritage paint scrape analysis prior to commencement.
Timber windows, doors & frames	7-10 years	☐ Inspect for paint deterioration and weathering, failure or damage and grime generally.	Every 7 years	Heritage consultant Heritage tradesperson	☐ Use an appropriate paint system for each type of substrate.
Render and plaster	7-10 years	☐ Check storm moulds and seals to window frames to reveals. ☐ Check for paint decay and weather damage	Every 7 years	Heritage consultant Heritage tradesperson	☐ Use an appropriate paint system for each type of substrate.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
Metalwork	7-10 years	☐ Inspect for paint deterioration, blisters, loose and flaking paint.	Every 7 years	Heritage consultant Heritage tradesperson	☐ Maintaining the paintwork in good condition prolongs the life of the metal elements considerably.
Avoid					
• Painting surfaces never intended for painting, such as stone or face brick. • Inappropriate colours and inappropriate paint types and finishes. • Excessive exposure to original lead-based paint.					
11. Stormwater and services					
Stormwater	25 + for terracotta 30 + for PVC	☐ Inspect dish drains and sumps blocked with rubbish leaves or silt. ☐ Check if water lies in sumps as this can indicate total or partial blockage or inadequate fall in line. ☐ Ensure hose taps discharge into gullies and ensure gullies and sump gratings are operable and not damaged and sit square. ☐ Check whether stormwater drains into sewer system. ☐ Inspect for adequate site drainage around the building. ☐ Check pipework for tree root invasions and other blockages as well as broken pipes using CCTV. ☐ Inspect for dish drains and sumps blocked with rubbish leaves or silt.	Every 4-12 months	Hydraulic engineer	☐ Regular inspections are necessary to prevent the build-up of debris. ☐ Addition inspections should be undertaken following severe storm events.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
		☐ Check if water lies in sumps as this can indicate a total or partial blockage or inadequate fall in line. ☐ Ensure hose taps discharge into gullies and ensure gullies and sump gratings are operable and not damaged and sit square. ☐ Check whether stormwater drains into sewer system.			
Sewerage		☐ Inspect sumps for damaged grates and ensure these are not draining surface water.	Every 2 years		
Water - hot and cold water, taps, cisterns	20 – 25 years	☐ Inspect taps for drips and ease of operation. Check that taps and surface-run pipes are adequately secured to walls or supports. ☐ Look for uncharacteristic wet areas within the property grounds - this can indicate a broken pipe. ☐ Inspect cisterns and taps for leaks. ☐ Flush toilets to ensure sewer traps are re-filled. ☐ Check taps in kitchen and bathroom and allow water to run through to re-fill traps.	Every 12 months	Plumber	☐ Remediate and/or repair as required.
Electricity	30 years for cabling	☐ Check if light bulbs are blown or the fittings damaged and if fittings are well secured to walls or standards. ☐ Check safety of wiring and switching	Every 12 months	Electrician	☐ Remediate and/or repair as required.
Mechanical services	20 + years	☐ Check condition of ducting, condensate lines, drip pans, and inspection hatches. ☐ Check patency of tundishes.	Every 12 months		☐ Remediate and/or repair as required.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
		☐ Check and clean/replace filters at intervals as advised by system manufacturer.			
Gas supply & equipment	25 + years	☐ Inspect for leaks and integrity of supply lines.	Every 12 months		☐ Remediate and/or repair as required.
Air conditioning, plant, piping, ducting, fire services	20 + years	☐ Inspect for operational requirements	Every 2 years		☐ Remediate and/or repair as required.
Fire services	20 + years	☐ Regular inspection as required by law for Annual Fire Safety Certificate. ☐ Check fire detection and control systems, including smoke, heat detectors, fire sprinkler systems and associated alarm and communication systems. ☐ Repair or replace broken fire detection and protection systems as required.	Every 12 months	Fire safety consultant	☐ Repair and replace broken fire detection and protection systems as required. ☐ Engage accredited fire safety practitioner to undertake inspection. Note: For any building (that is not an 'outbuilding') and is unoccupied for a continuous period of 60 days or more, permanent or temporary smoke detection systems must be installed with associated communication systems connected to the Fire Brigade and, if the building will be unoccupied for a period of 6 months or more, provided with a permanent power supply.
Security systems	20 + years	☐ Assess security and any electronic surveillance systems, and whether operating and adequate. ☐ Inspect fixtures, fittings and movable objects to ensure they are secure. Consider other methods to improve security (sensor lights, alarms, security). ☐ Inspect boundary and internal fences and gates, including associated locking mechanisms.	Every 12 months		☐ Upgrade or install security system as required. ☐ Consider other methods to improve security (sensor lights, alarms, security). Note: For any building (that is not an 'outbuilding') and is unoccupied for a continuous period of 60 days or more, if an electronic surveillance or alarm-system is installed, the system must be connected to a commercial security provider; if no system is installed, arrangements must be

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule				
		☐ Inspect doors, windows and other closures, including glazing and associated locking and latching mechanisms, and security screens. ☐ Repair fences, closures and locks as required; or install new fences and security screens as required.		in place for regular surveillance, appropriate to its nature and location.
Avoid				
• Housing leaves and debris in stormwater pits.				
12. Yard and site				
Generally	☐ Inspect for any deterioration to landscape elements including vegetation, paths, fences, and the like. ☐ Inspect fences and gates for any loose or damaged members. Inspect gates for 'squaring and bracing' and 'sound hardware'.		Every 12 months	
Ground surfaces, ramps and paths	20 + years	☐ Inspect for movement to surface. ☐ Check for trip hazards, rotting timbers, cracks in concrete, corroded metals, plant matter build-up.	Every 12 months	☐ Remove weeds and plant matter from paths. ☐ Treat rusted metal with anti-corrosive paints and repaint timber elements. ☐ Ensure that ground levels around the building do not increase from the spread of gravel or other materials. ☐ Ensure any works that change the profile of ground surfaces facilitates surface run off away from the building.
Rubbish	N/A	☐ Check for rubbish. ☐ Remove rubbish and do not store unnecessary items in the building.	Every 12 months	☐ Build-up of rubbish and debris can be a fire hazard. Remove immediately.
Fences	5-10 years	☐ Check fences for damaged, deteriorated or missing elements.	Every 5 years	☐ Ensure fences are secure to prevent trespassers.

Table F.2 Planned inspection and maintenance schedule

Inspection and maintenance schedule					
10. Pests or animal damage					
Termites	NA	☐ Check roof spaces, subfloor and walls for termite infestation. ☐ Treat or remove.	Every 12 months	Heritage consultant Timber/termite specialist Heritage joiner	☐ Treat in accordance with recommendations of a qualified pest control practitioner with appropriate experience with termite eradication. ☐ Seek heritage approval prior to installation of pest treatments that involve changes to building fabric.
Vermin and animal entry	NA	☐ Check roof and eaves for holes used as animal entry. ☐ Cover or patch repair holes.	Every 12 months	Heritage consultant	☐ Seek heritage approval prior to installation of pest treatments that involve changes to building fabric.

F.3 Inspection log

As required by the Rasp Mine Maintenance Plan, the Rasp Mine's heritage assets are to be inspected at regular intervals to identify deterioration to the building fabric and required maintenance work. These inspections should be carried out at the intervals set down in the Cyclical Maintenance Plan and records of these inspections recorded in this Inspection Log.

Table F.3 Rasp Mine management details

Name	
Position	
Phone	
Mobile	
Email	

Table F.4 Contact in case of emergency

Name	
Position	
Phone	
Mobile	
Email	

Table F.5 Record of inspection

Date of inspection	
Inspected by	
Company	
Address	
Phone	
Mobile	
Email	
Comments	

Table F.6 Inspections undertaken

Date carried out	Inspected by	Description and location	Result of inspections and comments

Table F.7 Inspection summary schedule

Item	Material/finish	Condition	Comments/work required
Radford House I116			
General Offices I244			
Brick Pier Foundations I236			
South Mill I237			
Carpenter's paint shop (Old Winderhouse) I238			
Changehouse I239			
Coal Bins I240			
Compressor Room (Old Power House) I241			
Electrical Workshop I242			
Fire and Ambulance Station I243			
General Store Office I245			
Mechanical Workshop (Old General Workshop) I246			
Mullock Bin I247			
No 2 Control Substation I248			

Table F.7 Inspection summary schedule

Item	Material/finish	Condition	Comments/work required
No 6 Shaft Vent Fan I249			
Pattern Store (Carpenter's Shop) I250			
Pumphouse I251			
Pumphouse & Cooling Water Reservoir I252			
Rigger's Shop I253			
Roaster Plant I254			
Sand Plant I255			
Saw Mill and Extension I256			
Square Concrete Foundation I257			
Tankstand I258			
Two Water Tanks I259			
Two Water Tanks and a Stone Foundation I260			
Water Tower I261			
Yardman's Office I262			

Table F.7 Inspection summary schedule

Item	Material/finish	Condition	Comments/work required
Ambulance Garage I263			
Changehouse I264			
Covered Overpass I265			
Crusher Station I266			
Headframe, No. 4 Shaft I267			
Ice-making Plant Building I268			
Lamp Repair Room I269			
Lamp Room I270			
Magazine I271			
No. 7 Headframe I272			
No. 7 Rescue Equipment Building I273			
No 4 Rescue Equipment and Waiting Sheds I274			
No. 7 Winding House I275			
Ore Outcrop I276			

Table F.7 Inspection summary schedule

Item	Material/finish	Condition	Comments/work required
Rectifier Room I277			
Saw Mill I278			
Underground Offices Building I279			
Winding House and Motor, No .4 Shaft I280			
Browne's Shaft I281			
Junction Mine and Lookout I282			
BHP Concentration Mill Foundations I285			
BHP South Smelter Walls and Stack I286			
Delprat Changehouse I287			
Delprat General Offices I288			
Delprat Head Frame and Shaft I289			
Delprat Winder Foundations I290			
Delprat Winderhouse I291			

Table F.7 Inspection summary schedule

Item	Material/finish	Condition	Comments/work required
Loading Platform I292			
Slag Dump, Foundations and Timber Piles I293			
Stone Wall and Concrete Footings I294			
Three Water Tanks I295			
Mullock Dump with Tram Lines I296			
Ore Outcrop I297			
Thompsons Ambulance Station I298			
Thompsons Changehouse I299			
Thompsons Conveyor, Storage Bin and Loading Hopper I300			
Thompsons Crusher House I301			
Thompsons General Offices I302			
Thompsons Header Frame, Brace Housing and Conveyor I303			

Table F.7 Inspection summary schedule

Item	Material/finish	Condition	Comments/work required
Thompsons Winderhouse I304			
Building Foundation I305			
Four Concrete Piers I306			
Headframe I307			
Stone Wall I308			
Timber Chute Race I309			
BHP North Slag Dump I15			

Table F.8 Work undertaken

Item	Date	Contractor(s)	Description and location	Estimated cost	Actual Cost	Warranties provided
Radford House I116						
General Offices I244						
Brick Pier Foundations I236						
South Mill I237						

Table F.8 Work undertaken

Item	Date	Contractor(s)	Description and location	Estimated cost	Actual Cost	Warranties provided
Carpenter's paint shop (Old Winderhouse) I238						
Changehouse I239						
Coal Bins I240						
Compressor Room (Old Power House) I241						
Electrical Workshop I242						
Fire and Ambulance Station I243						
General Store Office I245						
Mechanical Workshop (Old General Workshop) I246						
Mullock Bin I247						
No 2 Control Substation I248						
No 6 Shaft Vent Fan I249						
Pattern Store (Carpenter's Shop) I250						

Table F.8 Work undertaken

Item	Date	Contractor(s)	Description and location	Estimated cost	Actual Cost	Warranties provided
Pumphouse I251						
Pumphouse & Cooling Water Reservoir I252						
Rigger's Shop I253						
Roaster Plant I254						
Sand Plant I255						
Saw Mill and Extension I256						
Square Concrete Foundation I257						
Tankstand I258						
Two Water Tanks I259						
Two Water Tanks and a Stone Foundation I260						
Water Tower I261						
Yardman's Office I262						
Ambulance Garage I263						
Changehouse I264						
Covered Overpass I265						

Table F.8 Work undertaken

Item	Date	Contractor(s)	Description and location	Estimated cost	Actual Cost	Warranties provided
Crusher Station I266						
Headframe, No. 4 Shaft I267						
Ice-making Plant Building I268						
Lamp Repair Room I269						
Lamp Room I270						
Magazine I271						
No. 7 Headframe I272						
No. 7 Rescue Equipment Building I273						
No 4 Rescue Equipment and Waiting Sheds I274						
No. 7 Winding House I275						
Ore Outcrop I276						
Rectifier Room I277						
Saw Mill I278						
Underground Offices Building I279						

Table F.8 Work undertaken

Item	Date	Contractor(s)	Description and location	Estimated cost	Actual Cost	Warranties provided
Winding House and Motor, No .4 Shaft I280						
Browne's Shaft I281						
Junction Mine and Lookout I282						
BHP Concentration Mill Foundations I285						
BHP South Smelter Walls and Stack I286						
Delprat Changehouse I287						
Delprat General Offices I288						
Delprat Head Frame and Shaft I289						
Delprat Winder Foundations I290						
Delprat Winderhouse I291						
Loading Platform I292						
Slag Dump, Foundations and Timber Piles I293						

Table F.8 Work undertaken

Item	Date	Contractor(s)	Description and location	Estimated cost	Actual Cost	Warranties provided
Stone Wall and Concrete Footings I294						
Three Water Tanks I295						
Mullock Dump with Tram Lines I296						
Ore Outcrop I297						
Thompsons Ambulance Station I298						
Thompsons Changehouse I299						
Thompsons Conveyor, Storage Bin and Loading Hopper I300						
Thompsons Crusher House I301						
Thompsons General Offices I302						
Thompsons Header Frame, Brace Housing and Conveyor I303						
Thompsons Winderhouse I304						

Table F.8 Work undertaken

Item	Date	Contractor(s)	Description and location	Estimated cost	Actual Cost	Warranties provided
Building Foundation I305						
Four Concrete Piers I306						
Headframe I307						
Stone Wall I308						
Timber Chute Race I309						
BHP North Slag Dump I15						

Table F.9 Records appended to this inspection log

☐	Photos
☐	Site notes and sketches
☐	Specification notes
☐	Other (please specify)

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