



## **APPENDIX Q      SoHI ADDENDUM**



Wind Energy Partners Pty LTD



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Development Management by:



## Hills of Gold Wind Farm – Devil's Elbow Section

Statement of Heritage Impact Addendum  
Report

21 September 2021

Project No.: 0550690/15

<b>Document details</b>	t.
Document title	Hills of Gold Wind Farm – Devil’s Elbow Section
Document subtitle	Statement of Heritage Impact Addendum Report
Project No.	0550690/15
Date	21 September 2021
Version	1.0
Author	Erin Finnegan
Client Name	Hills of Gold Wind Farm Pty Ltd

#### Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	00	E. Finnegan	S. Eagle	M. Curtis	06.08.21	
Final Draft	01	E. Finnegan	A. Antcliff	M. Curtis	12.08.21	Minor amendments
Final	00	E. Finnegan	A. Antcliff	M. Curtis	22.09.21	

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## Signature Page

21 September 2021

# Hills of Gold Wind Farm – Devil's Elbow Section

## Statement of Heritage Impact Addendum Report



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## Acronyms and Abbreviations

Name	Description
The Burra Charter	The Australia ICOMOS Burra Charter for Places of Cultural Significance
CHL	Commonwealth Heritage List
EIS	Environmental Impact Statement
EP&A Act	NSW Environmental Planning & Assessment Act 1979
EPBC Act	Environmental Protection and Biodiversity Conservation Act
ERM	Environmental Resources Management Australia Pty Ltd
HOGWFPL	Hills of Gold Wind Farm Pty Ltd
IHO	Interim Heritage Order
LEP	Local Environmental Plan
LGA	Local Government Area
RNE	Register of the National Estate
SEARs	Secretary's Environmental Assessment Requirements
SoHI	Statement of Heritage Impact
SHI	State Heritage Inventory
SHR	State Heritage Register
SSD	State Significant Development
TRC	Tamworth Regional Council

## EXECUTIVE SUMMARY

*Environmental Resources Management Australia Pty Ltd prepared a Statement of Heritage Impact (Final Report Nov 2020) that assessed the potential heritage impacts on the proposed Hills of Gold Wind Farm Project as a whole, including the proposed bypass alignment at Devil's Elbow on the Black Snake Gold Mine. The assessment determined that the proposed works would have a negligible impact on the setting of the Black Snake Gold Mine, however the works have potential to impact archaeological remains associated with historical mining operations, such as mine shafts.*

*Tamworth Regional Council has requested that additional information be provided in the form of an Addendum Report to further examine any indirect heritage issues associated with potential impacts to Black Snake Gold Mine's historic environmental setting.*

*The proposed temporary transport route at Devil's Elbow traverses an approximate 600 m length of Black Snake Gold Mine heritage curtilage, in the locality of existing informal tracks through regrowth forest. The proposed works are considered a minor development against the size and extent of the listed Black Snake Gold Mine heritage item and considered visually compatible as it would be a formalisation of a track that has already existed at the location for at least 55 years (but likely much longer). How the road is modified or used following Project completion has not yet been determined, however the nature of the project also allows for heritage interpretive opportunities and community value-add that wouldn't otherwise occur.*

*Construction of the 'Devil's Elbow' proposed transport route upgrade will have no adverse indirect impacts through removal of secondary growth vegetation and minor cut and fill activities on the listed heritage values of Black Snake Gold Mine (LEP I134), based on the following:*

- *Black Snake Gold Mine's listing covers an extensive area, and includes over 20 (but likely many more) locations of historical diggings. Evidence such as tunnels, shafts, landform works, and plant locations are distributed widely across the heritage item's curtilage area, and are by no means concentrated in the location of the 600 m length of proposed road.*
- *Removal of what is secondary growth eucalypt forest along the proposed alignment presents no indirect adverse impact to the heritage item's listed heritage values (Criterion a – historical significance).*
- *The road would only be visible from access points at Barry Road, and not from any other significant location or view shed (e.g. Hanging Rock lookout). Further, the visual nature of these works would have no impact on the listed values of the heritage item.*
- *Approximately 35 – 40% of the Black Snake Gold Mine LEP listed area is under logging forest/plantation which would have had (and continues to have) direct and indirect impacts to industrial archaeological remains and the historical setting of the heritage item. The footprint of the proposed transport alignment is very minor development in comparison to the continuing forestry activity.*

*As select members of the local community have expressed their desire to see awareness of the area's gold mining history raised through interpretation opportunities, recommendation No. 4 'Heritage Interpretation Planning' has been made to address this. Heritage interpretation relating to the transport alignment upgrade should be investigated as a possible community value-add, in terms of development into a unique future heritage interpretation site. This would likely include interpretative signage, possibly as part of a heritage trail, or potentially expose a section of historical diggings if possible from an engineering solution.*

## 1. INTRODUCTION

### 1.1 Project Overview

Hills of Gold Wind Farm Pty Ltd (HOGWFPL, or the Proponent) is seeking approval to construct and operate the Hills of Gold Wind Farm (the Project), located on the ridgeline between Hanging Rock and Crawney Pass in the Northern Tablelands region of New South Wales (NSW). The Project will supply renewable energy directly into the national electricity grid, through a proposed connection into the existing TransGrid Liddell to Tamworth 330 kV transmission line and involves the construction and operation of 65 turbines and ancillary infrastructure.

As the oversized components will require additional space to be manoeuvred to site, several road upgrades and amendments are proposed along the route. At one location, identified as 'Devil's Elbow' on Barry Road, Hanging Rock, the road conditions are entirely unsuitable for transportation of the blades and a new road will need to be installed to bypass the small radii bends. The proposed Project works will involve installation of a private road at Hanging Rock in order to bypass 'Devil's Elbow' at Barry Road Elbow' and is within the Tamworth Local Environmental Plan (LEP) listed heritage item curtilage of 'Black Snake Gold Mine' (I134), which is afforded protection under the *Heritage Act 1977*. Road works will include cut and fill, grading, installation of road base, and asphalt sealing. Detailed design and construction methodology is still to be finalised.

Environmental Resources Management Australia Pty Ltd (ERM) prepared a Statement of Heritage Impact (SoHI; Final Report Nov 2020) that assessed the potential heritage impacts on the proposed Project as a whole, including the proposed bypass alignment at Devil's Elbow on the Black Snake Gold Mine. The assessment determined that the proposed works would have a negligible impact on the setting of the Black Snake Gold Mine, however the works have potential to impact archaeological remains associated with historical mining operations, such as mine shafts.

Tamworth Regional Council (TRC) has requested that additional information be provided in the form of an Addendum Report to further examine any indirect heritage issues associated with potential impacts to Black Snake Gold Mine's historic environmental setting. Concerns raised by TRC include people walking near the area to prospect for gold, the 'inherent value to the community in the tunnel network and heritage of gold prospecting in the area that impacting this land (environmental setting) would generally affect'.

This Addendum Report presents the results of a targeted examination of the proposed transport bypass route at Devil's Elbow on Barry Road. The proposed impact area within LEP Item I134 has been identified as the 'Assessment Area' throughout this report for ease of reference, and is shown in Figure 1.2, presented at the end of the chapter. The Black Snake Gold Mine LEP-listed area is shown in Figure 1.3.

### 1.2 Description of Proposed Transport Route Alignment & Setting

Black Snake Gold Mine is situated in the hills and gullies north-west of Hanging Rock, NSW. The proposed transport alignment (the Assessment Area) roughly follows an existing track through the Black Snake Gold Mine LEP listed curtilage running roughly east west. The site visit undertaken for the SoHI report (ERM 2020a) described the terrain as generally steep and rugged, with rocky outcrops occurring regularly throughout the area. The hills south of Barry Road are well vegetated with dense undergrowth and primary and secondary growth eucalypt forest. The tracks, while remaining cleared, are generally steep and only accessible by 4WD or other appropriate vehicles. There are several drainage scours on the southern side of the proposed track location, often quite deep. Existing past ground disturbance throughout the Assessment Area was noted to include construction of the access tracks and Barry Road.

## 1.3 Scope and Methodology

This Addendum Report provides supplementary information to ERM's November 2020 SoHI report and has been prepared in accordance with the former NSW Heritage Office guideline for the Preparation of Statements of Heritage Impact<sup>1</sup>. The scope was addressed by the following tasks:

- primary research undertaken at the Historical Collection, State Library of Victoria (30 July 2021);
- online source analysis of archival documentation held at the National Library of Australia (Trove); ResearchGate, and other government websites for Hanging Rock State Forest;
- analysis of historical archival photographs 1967-1990 (NSW Spatial Services); and
- conversation with a local resident.

The report aims to:

- undertake additional desktop research on the history and development of Black Snake Gold Mine, including current land uses in other portions of the LEP listed heritage item;
- assess the potential indirect impacts of the proposed transport route amendment on listed heritage values of Black Snake Gold Mine; and
- provide recommendations for any mitigation measures, as well as opportunities to highlight identified heritage values through the project.

## 1.4 Statutory Framework and Heritage Context

### 1.4.1 NSW State Legislation

The New South Wales (NSW) *Heritage Act 1977* establishes the NSW Heritage Council and the State Heritage Register (SHR). The aim of the Act is to conserve the heritage of NSW. The aim of heritage management is not to prevent change and development, but to ensure that the heritage significance of recognised heritage items is not harmed by changes and developments.

### 1.4.2 Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) regulates a system of environmental planning and assessment for NSW. Land use planning requires that environmental impacts, including those on cultural heritage, must be considered when making decisions about the future of a place. The EP&A Act allows for the preparation of planning instruments to direct development within NSW. This includes Local Environment Plans (LEP), which are administered by local government, and principally determine land use and the process for development applications. LEPs usually include a schedule of identified heritage items.

The Assessment Area sits within Tamworth Regional Council, and Black Snake Gold Mine is item ID I134 on the TRC LEP.

#### 1.4.2.1 State Heritage Inventory

The NSW State Heritage Inventory (SHI) contains over 25,000 heritage items on statutory lists in NSW. This information is provided by local councils and State government agencies. The level of information for each heritage item can range from basic identification information such as name, address and listing to full information such as detailed descriptions, histories, significance and images. While Heritage NSW (former Heritage Division) seeks to keep the SHI up to date, the most recent statutory listings may not yet be included.

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<sup>1</sup> Heritage Office and Department of Urban Affairs & Planning 1996, revised 2002

The SHI contains a database listing for Black Snake Gold Mine (Database ID 2471886), which records the TRC LEP listing. The SHI listing also contains the Register of the National Estate (RNE) indicative location (refer to *Section 1.4.1*).



**Figure 1.1** Extent of Black Snake Gold Mine, as per the Register of the National Estate citation ([NSW State Heritage Inventory listing](#))

## 1.5 Non-Statutory Considerations

### 1.5.1 Register of the National Estate

The RNE is now an archive of information about more than 13,000 places throughout Australia including many places of local or state significance. The RNE is maintained on a non-statutory basis as a publicly available archive and educational resource.

Black Snake Gold Mine is listed on the RNE as an 'Indicative Place' (ID 101052). Mapping of the RNE Indicative Place, identified in the SHI, deviates from the LEP listed curtilage, placing Black Snake Gold Mine exclusively south of Barry Road and east of 'Devil's Elbow' (see *Figure 1.1*). It is noted that this mapping provides no statutory protections.

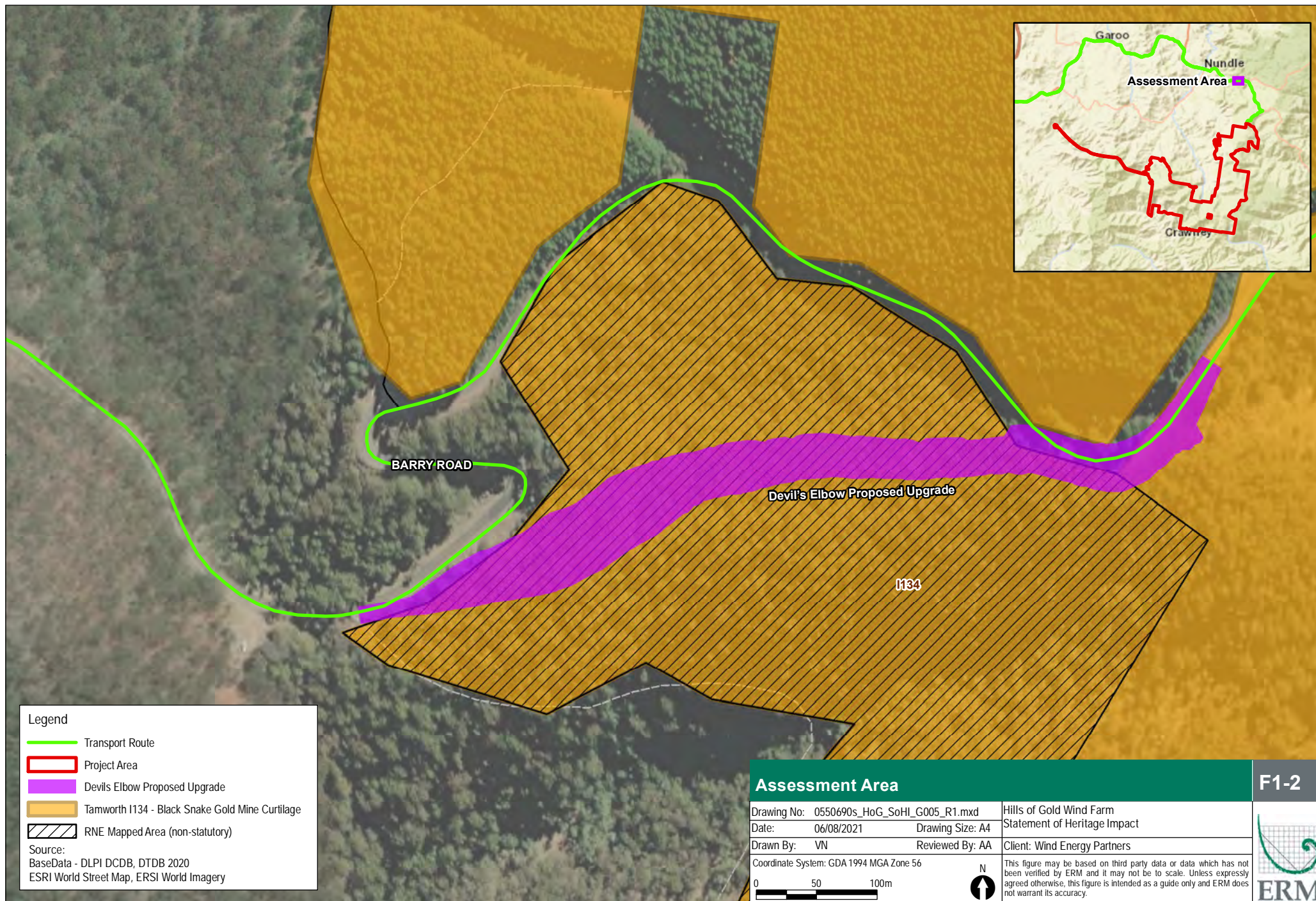
## 1.6 Authorship

This report has been prepared by ERM Principal Heritage Consultant, Erin Finnegan, with a technical review undertaken by Principal Consultant Stefani Eagle. Quality Assurance review was undertaken by ERM Partner, Murray Curtis.

## 1.7 Limitations

A comprehensive social significance assessment based on community engagement was beyond the scope of this study, however a local resident (name withheld as requested) has provided opinion of community understanding and interest in the area's gold mining history (refer Section 5), and the insights are acknowledged with gratitude.

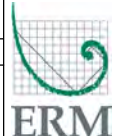

It is noted that there is considerable conflicting historical information on nomenclature, dates, and names in both primary and secondary sources. The author has attempted to clarify particular matters of relevance to this study throughout the report.

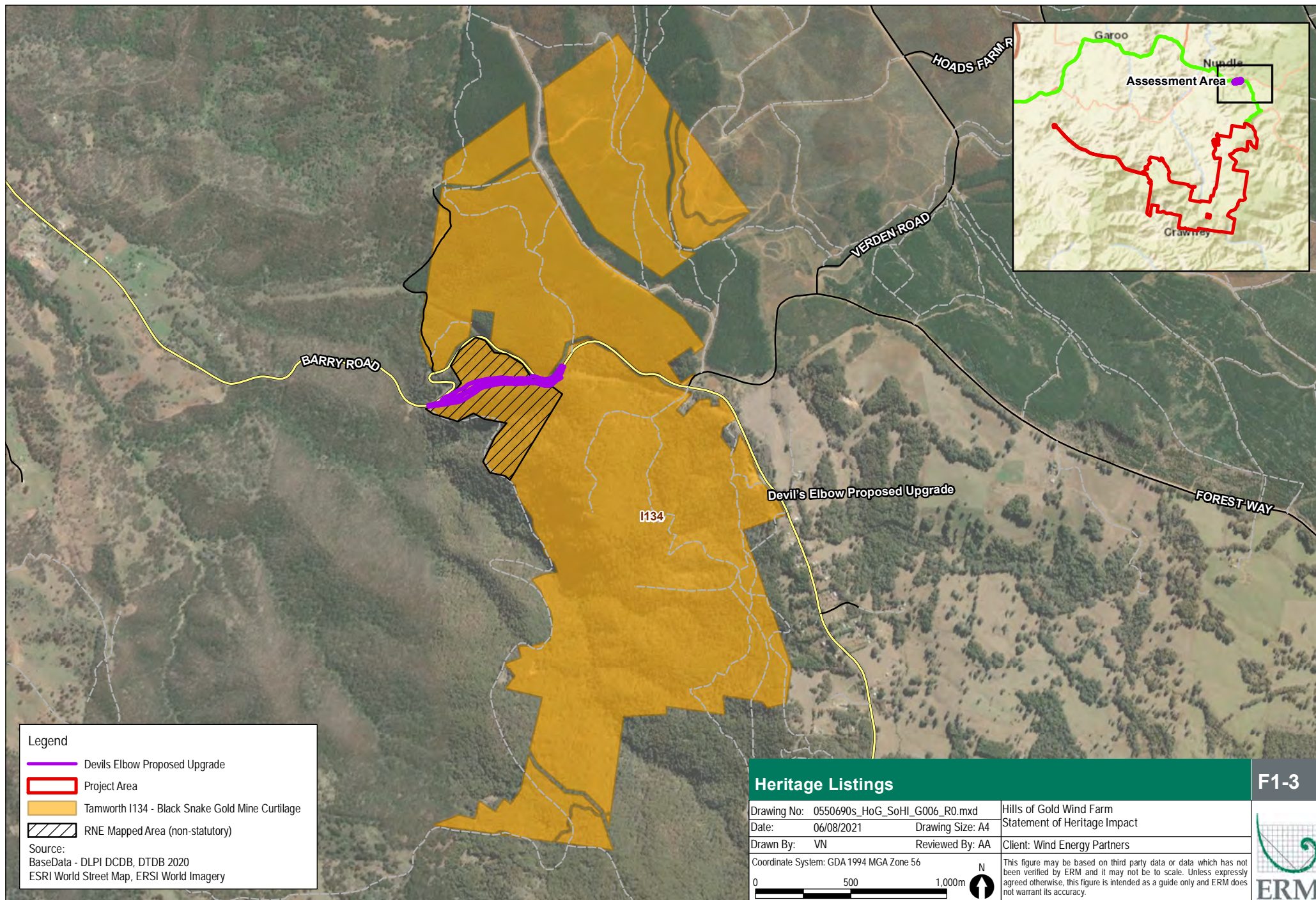


**Legend**

- Transport Route
- Project Area
- Devils Elbow Proposed Upgrade
- Tamworth I134 - Black Snake Gold Mine Curtilage
- RNE Mapped Area (non-statutory)

Source:  
BaseData - DLPI DCDB, DTDB 2020  
ESRI World Street Map, ERSI World Imagery

Assessment Area			F1-2
Drawing No: 0550690s_HoG_SoHI_G005_R1.mxd		Hills of Gold Wind Farm	
Date: 06/08/2021	Drawing Size: A4	Statement of Heritage Impact	
Drawn By: VN	Reviewed By: AA	Client: Wind Energy Partners	
Coordinate System: GDA 1994 MGA Zone 56			
<div><div><div>0</div><div>50</div><div>100m</div></div><div><div>N</div><div></div></div></div>		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	



**Legend**

- Devil's Elbow Proposed Upgrade
- Project Area
- Tamworth I134 - Black Snake Gold Mine Curtilage
- RNE Mapped Area (non-statutory)

Source:  
BaseData - DLPI DCDB, DTDB 2020  
ESRI World Street Map, ERSI World Imagery

### Heritage Listings

Drawing No: 0550690s_HoG_SoHI_G006_R0.mxd	Hills of Gold Wind Farm
Date: 06/08/2021	Statement of Heritage Impact
Drawn By: VN	Client: Wind Energy Partners
Reviewed By: AA	
Coordinate System: GDA 1994 MGA Zone 56	
0 500 1,000m	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

**F1-3**

## 2. UNDERSTANDING THE PLACE

This chapter presents a summary history for Devil's Elbow within the context of the Peel River Catchment/Nundle Goldfields, specifically Black Snake Gold Mine. It includes a review of primary and secondary resources including available heritage assessments, reports, publications, historical maps and aerial imagery for the local area. This material will be used to help determine the Assessment Area's history and development over time, and is the foundation for the consideration of impacts to the listed values of the heritage item.

A comprehensive history, structured according to NSW Historic Themes, was prepared for the Project's Historic Heritage Assessment, and can be found as Appendix N to the EIS (ERM 2020b). The history was targeted and further supplemented by additional research by ERM as presented in the SoHI (ERM 2020a). As such, only relevant information will be reproduced here, to provide context for this additional targeted research on the Black Snake Gold Mine and the historic goldfields environment.

### 2.1 Discovery of Gold – Peel River Catchment

Settlement at Hanging Rock started soon after the discovery of gold by Nathan Burrows at Swamp Oak Creek in 1851. The announcement of the find was made by *Maitland Mercury* on 24 January 1852 and a heavy influx of prospectors and miners soon followed. The gold discovery led prospectors to other alluvial deposits along the Peel River catchment, including high-level terraces and old valley leads buried by basalt lava flows. The main mining centres developed around Nundle, Hanging Rock and Bowling Alley Point. The alluvial deposits were largely worked out by 1890, but some were reworked by dredging during 1907-1914. At least 15 mines were in operation by the early 1890s.<sup>2</sup>

Numerous, small quartz-reef gold deposits were also found, such as at Brown/Blake Snake Mine, and some of these had rich patches of near-surface, secondary gold, but most production was of alluvial gold, and the total production from the field is estimated at about 10 tonnes.<sup>3</sup> The quartz reef mining used steam-run crushing machines which could largely replace the laborious work of panning for gold by hand. Quartz vein-chasing resulted in the hills and valleys around Nundle and Hanging Rock becoming honeycombed with shafts and tunnels.<sup>4</sup>

### 2.2 Settlement at Hanging Rock

Tiny settlements quickly sprang up to provide for the needs of prospectors who flocked to the Nundle district. Along Oakenville Creek, west of the foot of Hanging Rock, stores and public houses appeared quickly, and by June 1852 there were 300 diggers and their families camped along the valley in tents and bark huts. By 1854, with the arrival of international prospectors, further shanty settlements sprang up along the Peel River and the creeks that flowed into it, including Happy Valley, Golden Point, Diamond Creek and Nuggety Creek.

Road traffic in the area greatly increased which prompted the Government to extend the Great North Road from the Hunter Valley to the New England Tablelands. One of the major challenges of this project was cutting a route up the notorious Moonbi Range, the mountain barrier between Tamworth and the New England Tablelands. It was a daunting climb for heavily laden bullock teams and coaches. As bullock drays had no brakes, on steep hills logs were dragged behind the vehicle to slow their progress. The route from Maitland to Hanging Rock was said to be completed in four days on horseback, though the long steep pinches over the Crawney Pass were known to be dangerous.<sup>5</sup>

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<sup>2</sup> McClelland, Thomas, 1997: 110.

<sup>3</sup> McQueen, K.G. (2018) Mining History of the New England Region. University of Canberra Technical Report. Sourced from ResearchGate.

<sup>4</sup> Boileau, J. (2007) Thematic History of Nundle, Manilla and Barraba, Tamworth Regional Council Community Based Heritage Study, p. 44.

<sup>5</sup> Boileau, 2007: 22.

Improvements were made to some of the major roads in the Nundle district during the 1870s. In December 1874, a new road was completed to Hanging Rock, climbing over 500 m from Nundle to Hanging Rock village in just over 8 km and 900 m to the highest part of Hanging Rock (*Photograph 2.1*). This road is now Barry Road, and has one of the steepest grades of any road in NSW.



**Photograph 2.1**      **The steep road from Nundle to Hanging Rock (now Devil's Elbow)**  
**c.1880s (Bayley 1953: 30)**

### 2.3      **Brown and Black Snake Gold Mining Claims**

*NB: 'Brown' and 'Black' in relation to the mining claim area at Hanging Rock appear to be used interchangeably throughout the historical mining period. There have been some contention by historians that 'Brown' was used as an early or informal name for the mining area at Hanging Rock<sup>6</sup>, but newspaper articles from the period (e.g. 1878) refute this by describing the 'Snake' line of reef with workings at both Brown and Black reefs. A substantial amount of research would be required to determine and clarify precise claim boundaries, claimants, and names, and these level of detail is not considered relevant for the purposes of this study.*

The quartz reef which traverses under Barry Road was first discovered by Joseph Clarke and William Henry in 1877, and worked by them for a couple of weeks. After sinking a shaft to a depth of 30 feet, they obtained a small amount of gold. At this point, the gold seemed to have pinched out and the two men abandoned the claim. Thomas Bakewell and Richard Northmore jumped on it, sank another shaft not far from Clarke's and discovered a rich lode, much to Clarke's disappointment who was then forced to move on to another location on the reef.

By 1878 parties (Bakewell & Patey; Prisk, Steward & Paul; Rackham & Graham) on adjacent claims across the Black Snake Reef area were engaged in sinking shafts into the reef. The Bakewell and party shaft secured between 200 and 300 oz. of gold for their efforts, and later cut a road from the reef to Ration (now Morgan's) Gully where their crushing plant was erected.

<sup>6</sup> Both the RNE and SHI citations include this nomenclature information.

'The Snake line of reef still continues to yield gold in considerable quantities....No. 1 North Brown Snake, Stephen Pauli and Co. are down 10 feet; with the exception of one patch of 15 oz they have obtained nothing. No. 2 North Brown Snake, Pittfield and Co., depth 120 feet,...**Black Snake Prospecting claim, opened in January last by Joseph Clarke and Cairns, who are at present tunnelling through very hard rock to strike a vein**, a slip in the mountain rendering such a course necessary. No. 1 South Black Snake, Messrs. Anderson, Shorter and Cairns; yield of gold up to the 24<sup>th</sup> last, 276 oz...' <sup>7</sup>

The claim of Joseph Clarke and George Cairns was regarded as one of the most difficult to work, as it was positioned along a steep incline, and *"40 feet of loose rock had to be removed and sluiced before a good formation could be found to drive a tunnel or level. The slightest movement of stones or soil would send tons of rock and earth careering down the face of the [slope], carrying trees, stumps or anything in its path to the bottom."*<sup>8</sup> By 1880, Clarke and Cairns had driven four tunnels to a length of 100 feet, two at 120 feet, and one at 70 feet (Table 2.1). It appears that another section of the reef 'Black Snake Reef 'South' was taken over by Clarke in 1895.

Table 2.1 below presents a selection of known workings across Brown/Black Snake Reef in the late 1870s to early 1880s. The list of prospectors/miners is by no means exhaustive. There are also records of numerous unnamed/unknown miners working informally during this period. At least 20 shafts/tunnels were sunk into the Snake Reef in a six year period.

**Table 2.1 Known mine workings at Black Snake Gold Mine, 1877-1883 (McClelland, 1997: 157-159)**

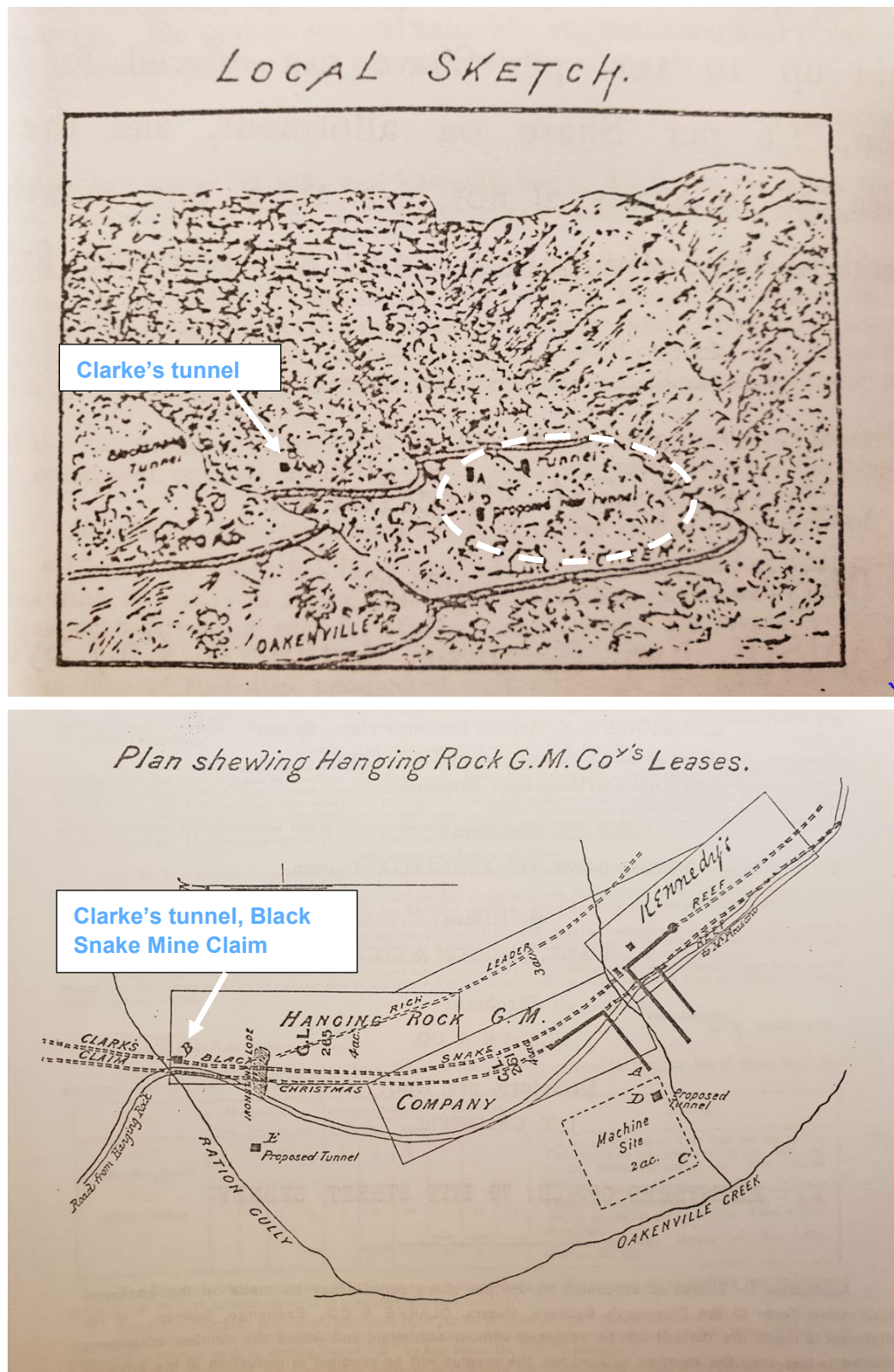
Date	Prospecting/Mining Claim	Workings
1877	Original shaft <sup>9</sup> – Joseph Clarke and William Henry	One shaft to 30 ft.
1878	Pittfield & party	One shaft 120 ft.
1877-79	Bakewell & Patey (and later Northmore)	Two shafts – 150 ft. each
1879	T. Stephen & Chas Hoares	North of Patey's claim, shaft to 100 ft.
1879	Unknown miner	Took over Bakewell's old claim, driven both shafts to 160 ft.
1879	R. Albruey & party	Quarter of a mile north-east of Brown Snake line of reef, a tunnel driven to 80 ft.
1880	Bakewell & party	Shaft to 100 ft.
1880	R. Morris & party	Tunnel to 150 ft., and two shafts to 60 ft.
1880	Joseph Clarke and George Cairns	7 tunnels (four at 100 ft.; two at 120 ft.; one at 7 f.t)
1880-1882	C. B. Anderson, James Cairns & party	Two shafts (200 ft.; 170 ft.)
1880-1881	Prisk, Stringer & party	Tunnel 140 ft.
1883	W. H. Kennedy & J. Shorten	Claim near Hanging Rock – shaft sunk to 100 ft.

<sup>7</sup> Nundle and Hanging Rock, Rangers' Valley June 24. Australian Town and Country (Sydney NSW: 1870 -1919) Sat 29 June 1878, page 39

<sup>8</sup> McClelland 1997: 153.

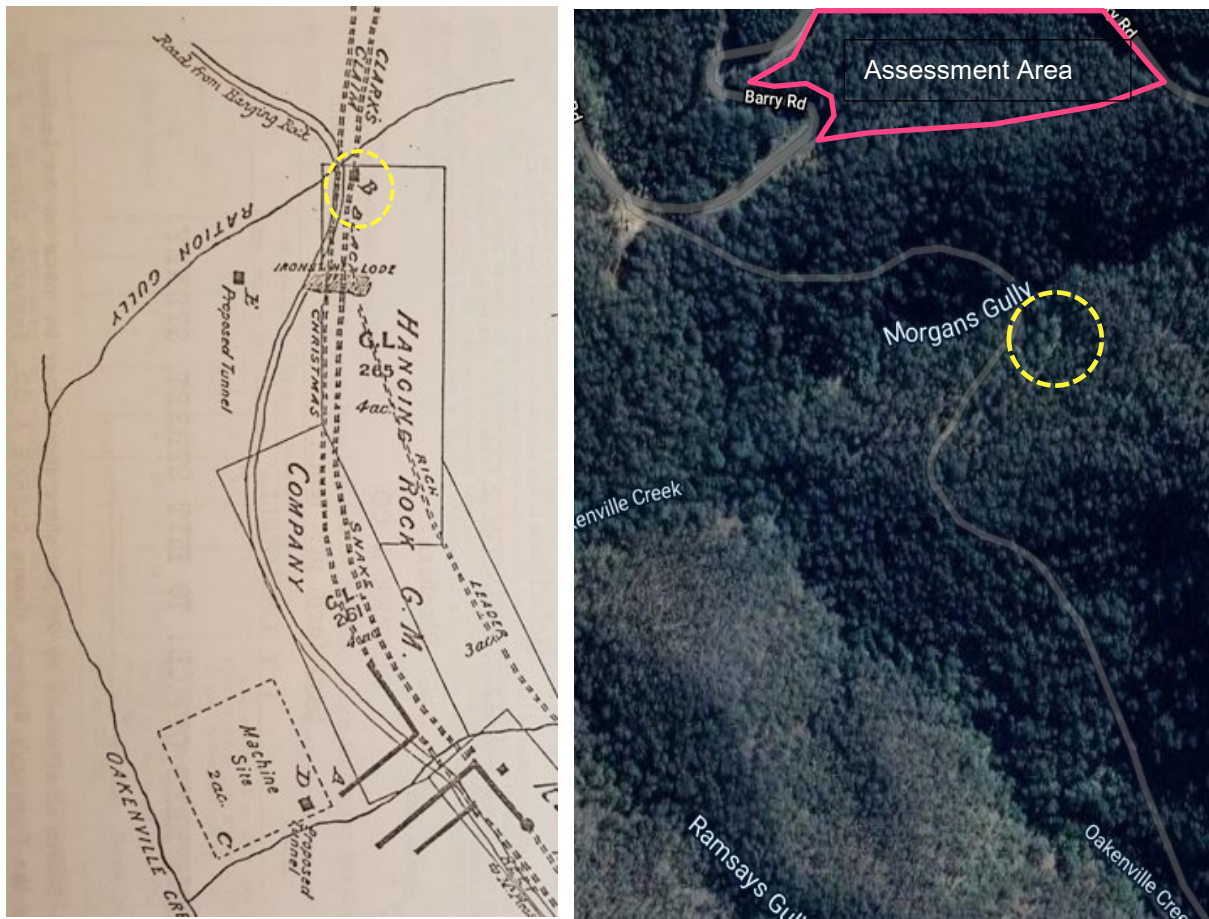
<sup>9</sup> Shaft: An excavation of limited area compared with its depth. It may be vertical or inclined (McClelland 1997: 182)

A number of proposed and existing shafts and tunnels are shown in the Hanging Rock Gold Mine Company's lease plan, circa 1880 (*Figure 2.1*). Joseph Clarke's Black Snake Claim area is shown running through the Hanging Rock leases in Detail B.



**Figure 2.1 (A – Top; B – Bottom) Details of Plan showing Hanging Rock Gold Mine Company Leases, circa 1880 (reproduced in McClelland 1997: 125)**

The road shown in the 1880 plan is an old track which drops to the south of Devil’s Elbow, descending the escarpment to Morgan’s Gully (former Ration Gully, shown in Photograph 2.2). The general Assessment Area is shown on the aerial photograph below. It appears that (at least one) of Clarke & Cairn’s ‘Black Snake’ claim tunnels is situated to the south of Morgans Gully, some distance from the Assessment Area.



**Figure 2.2** Detail of 1880 Hanging Rock Plan aligned to north  
Photograph 2.2 Aerial image of same area (Google Earth 2021). Note Clarke & Cairn’s tunnel indicated on both (approximate tunnel location on Photograph 2.2).

### 3. REVIEW OF PHYSICAL EVIDENCE

This section will consider the historic Black Snake Gold Mine from an environmental perspective, evaluating impacts to setting across the broader LEP-listed area, as well as the type of impacts which would adversely harm heritage values. The impacts from on-going forestry activities will be considered, and aerial photographs dating to 1967 will be analysed through this lens.

#### 3.1 The Historic Goldfields Environment

The gold rush brought about intensive alteration of the Australian environment and huge ecological upheaval on native flora and fauna in a relatively short amount of time. Some contemporaries noted with dismay the changing landscape, such as artist Eugene von Guerard in 1852, who wrote:

...and how changed it all is in that short time. Stretches of fine forest transformed into desolate-looking bare spaces, worked over and abandoned. In many parts, where a year ago all was life and activity, there now is a scene of desolation. At the same time the population has enormously increased, and there is less and less chance of having a lucky find...<sup>10</sup>

However, most newcomers – particularly prospectors and miners – viewed the land as something to exploit, and were ‘far too occupied with the race for gold to entertain any thoughts that they may be having a negative impact on the landscape.’<sup>11</sup> Gold mining in the Peel River catchment was no different. Extensive numbers of trees were felled to house and warm the miners, and also to use as shaft support in the mines. Shafts were sunk, dynamite was used to blast open rock, water races were dug, and tracks were cut. The landscape at Hanging Rock was greatly altered, with the Tamworth Observer noting in 1885:

These men were the great captains of the days gone by [...] **they dug up the valleys, turned the river courses, pierced the great mountains** and obtained thousands of ounces of gold for their labour [...] (Tamworth Observer 1885, cited in W. A. Bayley and I. R. Lobsey, 1988: 20).

At Black Snake Mine, an account of Clarke & Cairns efforts described entire scree sheets eroding off the escarpment, and significant depth of overburden to remove before tunnelling could even begin:

...40 feet of loose rock had to be removed and sluiced before a good formation could be found to drive a tunnel or level. The slight movement of stones or soil would send tons of **rock and earth careering down the face of the [slope], carrying trees, stumps or anything in its path to the bottom.**”<sup>12</sup>

<sup>10</sup> Smith, *Documents on Art and Taste in Australia: The Colonial Period 1770-1914*, 1975, p. 119. Accessed at < <https://sovereignhilledblog.com/2014/09/01/the-environmental-impact-of-the-gold-rush/> >

<sup>11</sup> ‘Environmental devastation on the diggings’. Accessed at < <https://www.sbs.com.au/gold/story.php?storyid=124> >

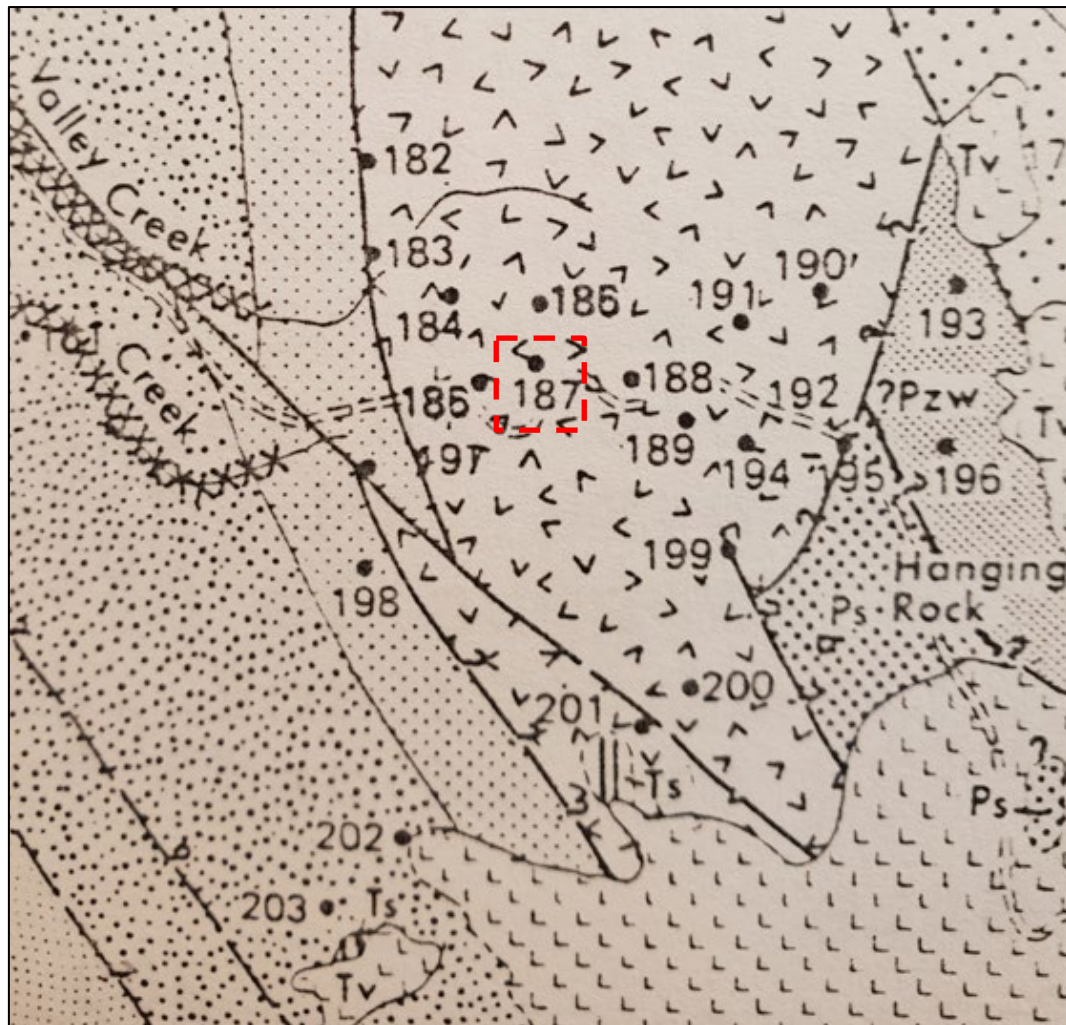
<sup>12</sup> McClelland 1997: 153.



**Photograph 3.1**      **Water races, Nundle Goldfields – exact location unknown.**  
(McClelland 1997: 16)



**Photograph 3.2**      **Bowling Alley Point, centre of the early 'Peel River Diggings' 1952**  
(Bayley 1953: 29)



**Figure 3.1 Geology and Mineral Deposits in the Nundle Area**  
An approximation of the Assessment Area and Black Snake Gold Mine (187) are indicated (McClelland 1997<sup>13</sup>, with ERM mark-up, 2021)

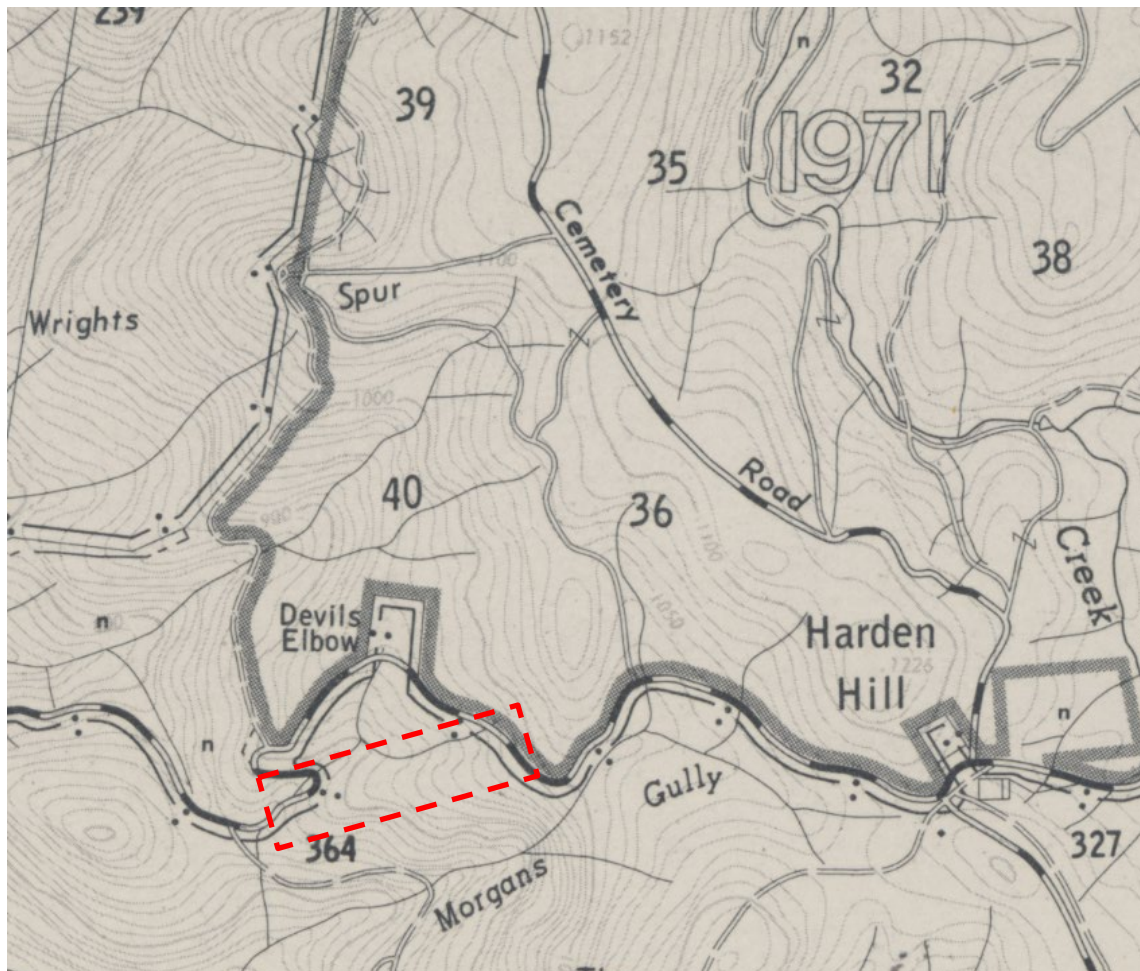
A plan of the geology and mineral deposits in the Nundle area indicates the location of historic mines (Figure 3.2). Whilst the locations are somewhat questionable (for example, Black Snake Mine is shown to the north of Barry Road (187), while 'Brown Snake Mine' at 197 is shown much further to the south-east), it indicates over 327 mines or reefs across the region, and eight mines/reefs between Barry Road and Hanging Rock. The majority of these had major workings or diggings associated with them.

Environmental impacts that can be inferred from the known activity in the Black Snake claim areas, include: extensive tree cover loss, ground surface modification, levelling, excavation and construction of berms and batters, erosion rills and gullies. Owing to the extent of activity around Black Snake mine circa 1880, the area is likely to have been substantially cleared. Photograph 3.2 shows denuded lower valleys and sparse tree cover at Bowling Alley Point (to the north of Devil's Elbow) well into the 1950s.

<sup>13</sup> Also available in a modified version in NSW DPI 2007 Primefact 251 'Nundle Gold'  
<[http://www.resourcesandenergy.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0010/109495/nundle-gold.pdf](http://www.resourcesandenergy.nsw.gov.au/__data/assets/pdf_file/0010/109495/nundle-gold.pdf)>

### 3.2 Plantation History

Australian native tree species from the Nundle State Forest area were being investigated for their quality as early as 1917. The trees included Mountain Woollybutt, Ribbon Gum Stringybark and Scrub box. The timber value testing was undertaken by the Department of Public Works.<sup>14</sup> Hardwood logging is known to have commenced in 1949, however records were not actively kept until 1978.<sup>15</sup> The Forestry District Plan for Glen Innes (1979) (Figure 3.3) shows the area that was cleared and planted in 1971 (see also Photograph 3.4, taken after clearing activities).



**Figure 3.2 Detail of Glen Innes Forestry District Plan 1979, with the (approx.) Assessment Area indicated (Forestry Commission of New South Wales, with ERM mark-up, 2021)**

<sup>14</sup> The Soil Nundle State Forest: A Wealth of Timber. The Daily Telegraph, Fri 16 Feb 1917, page 8 (Sydney, NSW: 1883 – 1930)

<sup>15</sup> Mapping of Forest Management History Report UNE, LNE, and Southern Region: State Forests of NSW. A project undertaken for the Joint Commonwealth NSW Regional Forest Agreement Steering Committee as part of the NSW Comprehensive Regional Assessments project number NA21/EH [https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/rfa/regions/nsw-statewide/na21eh\\_ForestMgtHistory.pdf](https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/rfa/regions/nsw-statewide/na21eh_ForestMgtHistory.pdf).

The management history of Nundle Management Area centred on the development of plantations in this area.<sup>16</sup> Forestry activity, namely clearing and ripping, is very impactful on the ground. Ripping ensures that any rainfall is stored in the soil profile, and ripping to a depth of at least 500 mm for tree planting site preparation is the standard.<sup>17</sup> Ripping for radiata pine plantation at Nundle State Forest and Hanging Rock State Forest involves breaking up of the compacted soil with a bulldozer and mounding (creating rows of soil mounds to allow young seedlings to establish their root systems). During the life of a plantation, activities such as thinning and final harvest involve machinery (harvesters), which also require a track network for large transport vehicles.<sup>18</sup>

Forestry activity in the area shown in Figure 3.3 would have impacted on the surface expressions of at least ten historic mines, as shown in Figure 3.2 (Nos. 182 – 183).

### 3.3 Review of Historical Aerial Photographs

The following section presents a review of aerial photographs between 1967 and 1990. Forestry activities are clearly shown in the sequence to the north of Barry Road. The Assessment Area is indicated, which shows the west-east informal tracks previously used as an access to Hanging Rock<sup>19</sup>. The series also show a braided track network which likely (in some form) date to the historic mining era. At the time of survey in late 2020, at least three well-formed tracks through the Assessment Area were noted, one that forks north from the main east-west track, one that forks south-east of the main track, and one parallel track to the south. It is likely this network of tracks is more extensive, although comprehensive investigation of the LEP listed curtilage beyond the proposed road upgrade alignment was outside the scope of this assessment.

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<sup>16</sup> Government Gazette Notices - Government Gazette of the State of New South Wales (Sydney, NSW : 1901 - 2001) Friday 8 October 1976 - Page 4347

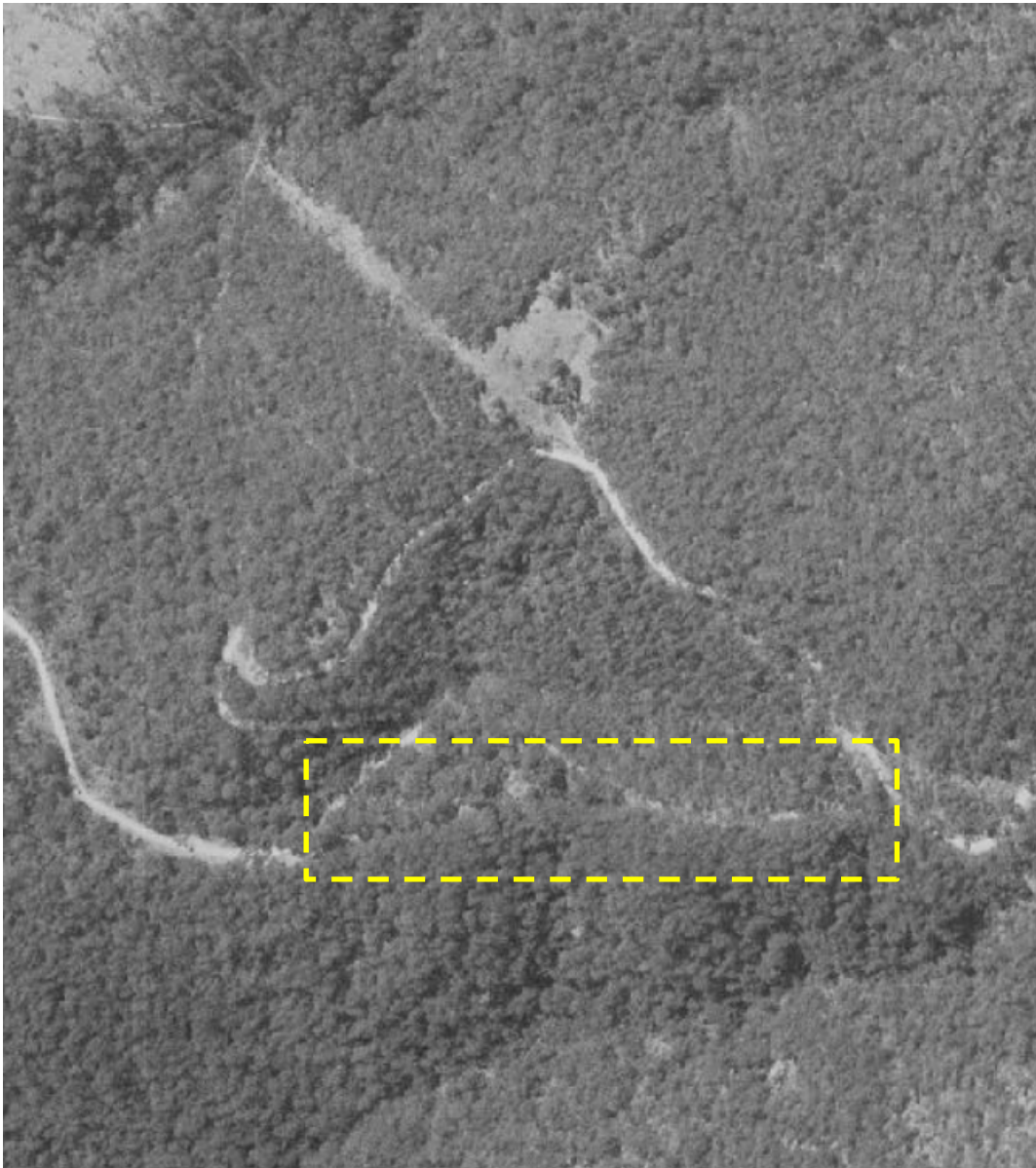
<sup>17</sup> NSW Local Land Services North West, u.d. Site Preparation Guidelines – Brigalow Nandewar Biolinks.

<sup>18</sup> Forestry NSW within the Department of Primary Industries, u.d.  
[https://www.forestrycorporation.com.au/\\_\\_data/assets/pdf\\_file/0009/238473/pine-plantation-rotation.pdf](https://www.forestrycorporation.com.au/__data/assets/pdf_file/0009/238473/pine-plantation-rotation.pdf)

<sup>19</sup> Information from anecdotal evidence provided during the Community Consultative Committee Meeting, October 2020

### 3.3.1 1967

Barry Road shown just before a road upgrade at Devil's Elbow. The informal track within the Assessment Area is shown to be in regular use.

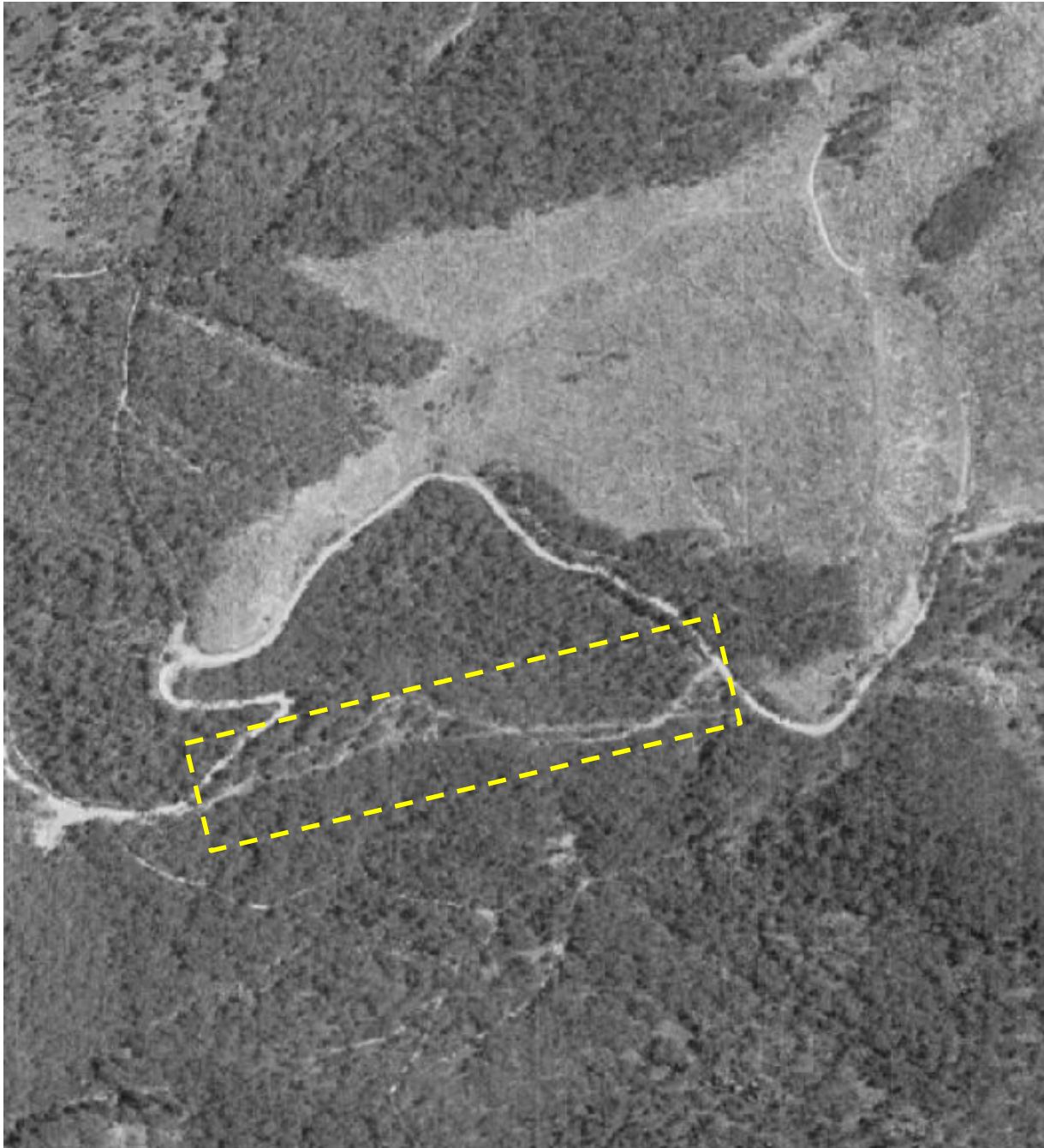


**Photograph 3.3**

**Run 5N frame 5200, Date: 30/08/1967**

### 3.3.2 1970

Barry Road at Devil’s Elbow has been upgraded, and the clearing for forestry activities to the north of the road is clearly visible. Tracks within the Assessment Area and the network to the south are visible.

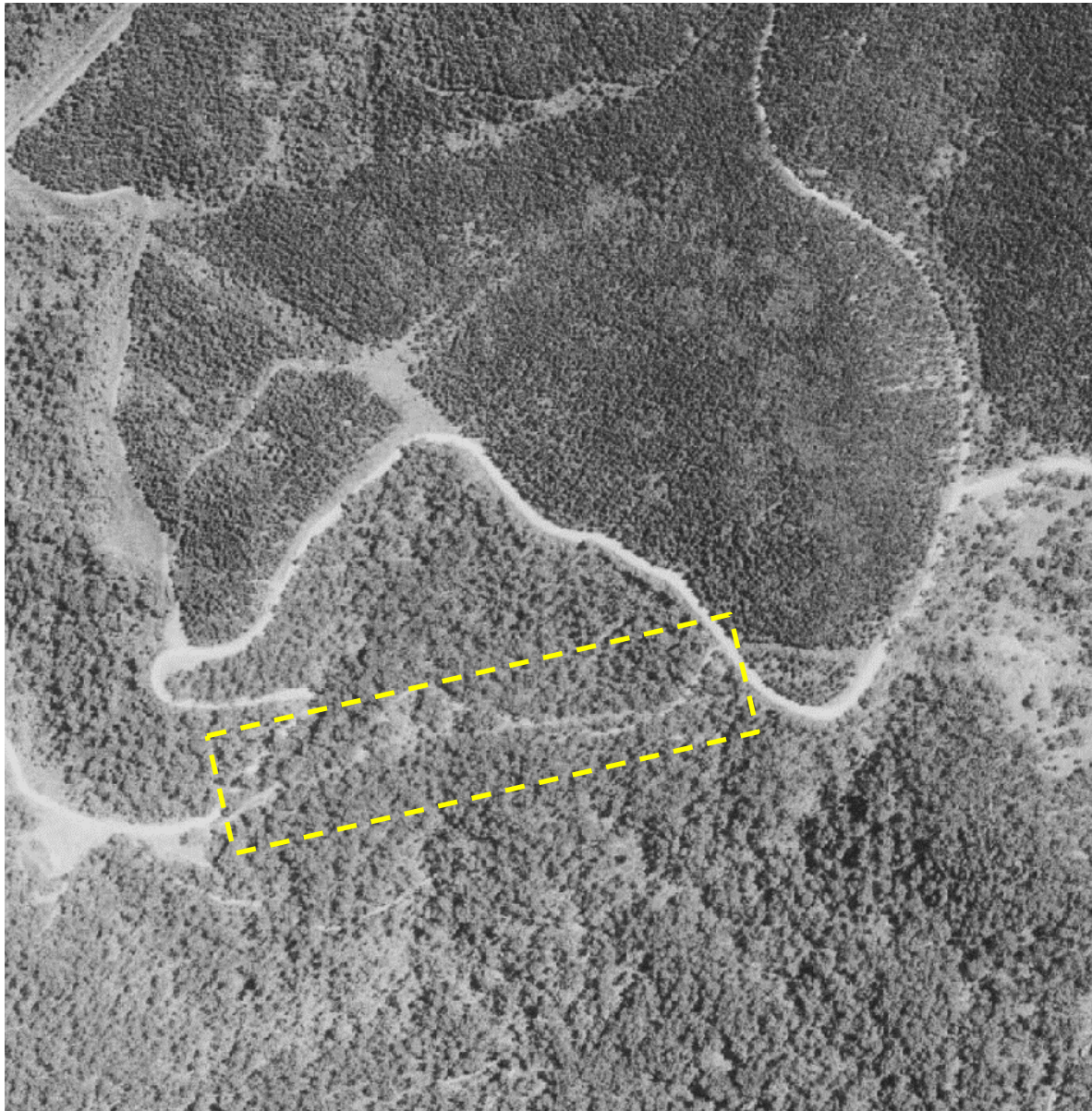


Photograph 3.4

Run 4N Frame 5007 Date: 13/11/1970

### 3.3.3 1983

Plantation well established to the north of Barry Road. No major changes within the Assessment Area are noted – the west-east tracks continues to be in use.



**Photograph 3.5**

**Run 8 Frame 83, Date 10/11/1983**

### 3.3.4 1990

Good plantation growth noted to the north of Barry Road. Minor road verge works noted at the hairpin turns. The straighter track alignment through the Assessment Area that is visible in the 1970 aerial photograph appears to be the preferred track by this stage.



Photograph 3.6 Run 13 Frame 10, Date: 11/03/1990

## 3.4 Discussion of Evidence

The following summary points are drawn from the review of historical and physical evidence:

- Black Snake Gold Mine area was the focus of intensive mining activity in the late 19<sup>th</sup> century, with at least 20 shafts/tunnels were sunk into the Snake Reef in a six year period (1877-1883) with many of these locations reworked up until the 1920s;
- environmental impacts inferred from the known activity in the historic Black Snake claim areas include: extensive tree cover loss (clearing), ground and subsurface modifications, including backfilling (RNE citation);
- extensive track network was in place by late 1870s, used for movement of plant (mechanical crushing operations) and miners;
- the west-east track from the base of Devil's Elbow is a known and used short cut by the community, and has been in place for at least 55 years but likely much longer; and
- environmental impacts from forestry activities to the north of Barry Road have occurred since the late 1940s and plantations have been established across an area containing at least ten historic mines, having a far greater cumulative impact on the historic mining landscape than the proposed road works within the Assessment Area.

## 4. ASSESSMENT OF HERITAGE IMPACTS

The following section provides further assessment of potential indirect impacts arising from the proposed transport alignment works at Devil's Elbow to the heritage significance of the Black Snake Gold Mine.

### 4.1 What are the Listed Heritage Values for Black Snake Gold Mine?

Black Snake Gold Mine is listed on the Tamworth LEP (Item I134) for its historic value only<sup>20</sup> (Criterion a). The citation is based on the RNE listing, and the Statement of Significance which states:

*The place has both historical and geological significance to Nundle, the Tamworth district and to local and national mining development beginning in this instance from the mid-1800s.*

The original RNE citation noted that that a broader comprehensive identification survey of the elements which remain from the Nundle Goldfields would be required to enable further assessment of the Black Snake Mine within its context, as there was insufficient information to prepare an assessment of the Mine.

### 4.2 Are there any Social Values associated with Black Snake Gold Mine?

Associated social values (social significance) does not form part of the identified heritage values in the LEP listing for Black Snake Gold Mine.

Social significance is viewed as a value held by persons or community. Assessing social significance is therefore not the same thing as doing a social history of a place (although good historical research can provide a strong foundation for contextualising social values). The process of understanding contemporary social values associated with Black Snake Gold Mine would involve identifying and engaging with groups of people with stated interest in the place<sup>21</sup>, which was beyond the scope of this study<sup>22</sup>. Through this type of analysis, the special meanings that the place holds for the community can be identified and appreciated, and also captured within management regimes going forward.

Some consultation was undertaken with a local experienced resident who shared personal opinions of visitor and community sentiment, as well as thoughts on previous impacts in the area<sup>23</sup>.

- Black Snake Mine area **is a small area in the scheme of all the** old mine sites which extend ~10 miles.
- Most people (meaning locals) have **never been in that country** and wouldn't know what is there.
- This particular area is more dangerous than most and not encouraged to visit - it is not sign-posted or highlighted as a heritage area.
- A lot of the mines have caved in.
- Most tourists are looking for gold and sapphire but not really interested in heritage. Most tourists are looking for a good place to go fossicking and want somewhere safe that they are allowed to go. People trespassing at the moment frustrates some landowners. A designated fossicking area would be really helpful.
- 'Two Mile Walk' is the access down to river that some people have used in the past for fossicking. However, a landslide a few years ago about 1.5 miles down the walk and large openings are a significant risk and the walk has been closed for a few years due to risks, and Council have not encouraged people to use this track.<sup>24</sup>

<sup>20</sup> Note that 'geological' value would be a natural heritage value, which is not a NSW Heritage Assessment Criteria under the Heritage Act 1977 and beyond the scope of this study.

<sup>21</sup> 'Associated communities' refers to groups of people with special associations with a place (as defined in the Burra Charter, Article 1.1.5). The association may be based on shared experience, culture and/or values, and is not limited to geographically defined communities.

<sup>22</sup> E.g. using approaches such as canvassing the community through questionnaires or social media platforms, or extensive group or one-on-one interviews.

<sup>23</sup> Pers. comm 29 July 2021. Phone conversation with ERM Principal Heritage Consultant Erin Finnegan.

<sup>24</sup> NB. The location of Two Mile Walk is some distance from the proposed access track, adjacent to much steeper terrain. Any erosional processes do not pose any risk to the projects proposed access track within the Assessment Area.

### 4.3 Results of Previous Assessments and Relevance to this Project

This Addendum report aims to establish a robust analysis of **potential indirect impacts** to Black Snake Gold Mine setting primarily based on historical and environmental landscape information, which will be addressed in the following sections. However, the results of the assessment of direct impact on potential historical archaeological evidence are summarised here, as these possible features may present opportunities to provide community value for the Project (based on feedback presented above in Section 4.2).

The SoHI (ERM, 2020a) recommended a geophysical and / or geotechnical assessment be undertaken to determine if there are any subsurface voids beneath the proposed Devil's Elbow upgrade alignment or other anomalies that may be indicators of archaeological features of the former Black Snake Gold Mine.

The 'Devil's Elbow Proposed Upgrade – Geophysical Interpretative Report' (Coffey, 2021) employed an electrical resistivity testing methodology to assess potential for subsurface voids relating to abandoned mine workings, and to highlight other possible anomalies that may indicate the presence of archaeological features, was completed in March 2021. The geophysical investigation identified three resistivity anomalies (Areas 1, 2 & 3). The assessment noted that while it is possible that the anomalies identified at Areas 1, 2, and 3 are the result of natural processes and unrelated to the Black Snake Gold Mine, the discrete nature of the anomalies, their very high resistivity values, and their proximity to known abandoned mine workings suggest these are likely associated with abandoned (historic) mine workings.

Based on the outcomes of the assessment (Coffey, 2021), Turnbull Engineering redesigned and defined two realignment options for the road such that the expected void locations are in areas of fill, reducing the risk of removing earth support. Neither option has yet been subject to further geophysical/geotechnical assessment.

### 4.4 Response to SOHI Guideline Process Questions

The objective of a SoHI is to evaluate and explain how the proposed development, rehabilitation or land use change will affect the heritage value of the site and/or place. A SoHI should also address how the heritage value of the site/place can be conserved or maintained, or preferably enhanced by the proposed works.

This report has been prepared in accordance with the NSW Heritage Office & Department of Urban Affairs and Planning *NSW Heritage Manual* (1996) and NSW Heritage Office *Statements of Heritage Impact* (NSW Heritage Office, 2002). The guidelines pose a series of questions as prompts to aid in the consideration of impacts due to the Project and vary depending on the nature of the potential impact.

The questions outlined in the SoHI guidelines that are relevant to the proposed works are described as 'Minor/Major Partial Demolition', and 'New Landscape works and features', which were both addressed in ERM 2020a. As minor or major partial demolition is an assessment of 'direct' impacts for road construction on potential archaeological evidence, only the landscape process question will be re-addressed in this report (*Table 4.1*).

A relevant process question from the Local Government Heritage Guidelines, 'Does a Proposal 'Materially Affect' the Significance of an Item?'<sup>25</sup> is also addressed by testing the proposed works against the identified heritage significance of Black Snake Gold Mine (*Table 4.1*).

---

<sup>25</sup> NSW Heritage Office, 2002

**Table 4.1 Responses to SOHI Guideline Questions Relevant to the Proposed Activity (construction of new transport road at Devil's Elbow)**

Activity	Question <sup>126</sup> or Guideline <sup>27</sup>	Discussion	Will identified heritage values of I134 (Criterion a – historic value) be potentially affected by proposal
New landscape works and features	<ul style="list-style-type: none"> <li>How has the impact of the new work on the heritage significance of the existing landscape been minimised?</li> <li>How does the work impact on views to, and from, adjacent heritage items?</li> </ul>	<p>The proposed transport route at Devil's Elbow traverses an approximate 600 m length of Black Snake Gold Mine heritage curtilage, in the locality of existing informal tracks through regrowth forest. The proposed works are considered a minor development against the size and extent of the listed Black Snake Gold Mine heritage item. How the road is modified or used following Project completion has not yet been determined, however the nature of the Project also allows for heritage interpretive opportunities and community value-add that wouldn't otherwise occur (further discussed in Section 5.1).</p> <p>There are no 'adjacent' heritage items to the site of works, as the location is within the heritage item curtilage. Construction of the proposed road would result in negligible visual impacts to the heritage item, would be most visible from the access points at Barry Road only. The road would not be visible from other significant amenity and tourist locations within Black Snake Gold Mine heritage curtilage such as the Hanging Rock lookout (confirmed by the Landscape and Visual Impact Assessment addendum, Moir Landscape Architecture, 2021).</p>	No
New development on land which is, or which forms part of, a heritage item	<ul style="list-style-type: none"> <li>Major new development should be assumed to materially affect the significance of the item.</li> <li>Minor new development is small in relation to the bulk of an existing building or work and visually compatible with it.</li> </ul>	<p>The proposed transport alignment is considered to be minor new development. The road works are considered to be very small in relation to the bulk of the LEP listed site, and even within the context of the much smaller RNE site boundary.</p> <p>The development would be considered visually compatible as it would be a formalisation of a track that has already existed at the location for at least 55 years (but likely much longer).</p>	No

<sup>26</sup> Questions taken from *NSW Heritage SOHI guidelines*.

<sup>27</sup> Taken from the *Local Government Heritage Guidelines* (NSW Heritage Office, 2002)

## 4.5 Statement of Heritage Impact

In summary, the proposal will have negligible adverse indirect impacts to the historic environment of Black Snake Gold Mine:

- An extensive informal track network has been in use across the heritage item since the late 1870s, but possibly earlier. The west-east 'short cut' track from the base of Devil's Elbow, which the proposed alignment would follow, is known and used by the community, and has been in place for at least 55 years but likely much longer.
- Black Snake Gold Mine's listing covers an extensive area, and includes over 20 (but likely many more) locations of historical diggings. Evidence such as tunnels, shafts, landform works, and plant locations are distributed widely across the heritage item's curtilage area, and are by no means concentrated in the location of the 600 m length of proposed road (Assessment Area).
- Removal of what is secondary growth eucalypt forest along the proposed alignment presents **no indirect adverse impact to the heritage item's listed heritage values (Criterion a – historical significance)**. The road (effectively, an upgrade to existing tracks) could be considered as having some degree of historic continuity with the 1870s (cutting temporary tracks and some degree of landform modification would align with historical land use and function as a mining area, i.e. the goal of resource acquisition).
- The road would only be visible from access points at Barry Road, and not from any other significant location or view shed (e.g. Hanging Rock lookout), as confirmed by the Landscape and Visual Impact Assessment addendum, Moir Landscape Architecture, 2021. Further, the visual nature of these works would have no impact on the listed values of the heritage item
- Approximately 35 – 40% of the Black Snake Gold Mine listed area is under logging forest/plantation which would have had (and continues to have) direct and indirect impacts to industrial archaeological remains and the historical setting of the heritage item. The footprint of the proposed transport alignment is **very minor development** in comparison to the continuing forestry activity.
- Select members of the local community have expressed their desire to see awareness of area's gold mining history raised through interpretation opportunities.

## 5. CONCLUSION AND RECOMMENDATIONS

Construction of the 'Devil's Elbow' proposed transport route upgrade will have no adverse indirect impacts through removal of secondary growth vegetation and minor cut and fill activities on the listed heritage values of Black Snake Gold Mine (LEP I134).

This assessment has considered the transport alignment as an independent scope item. It is cautioned that the sentiment (or perceived sentiment) towards the larger project should not be conflated with this road works component.

### 5.1 Opportunities to Enhance Heritage Values of Black Snake Gold Mine

Feedback from local individuals in the course of research for this report has highlighted the desire for safe and effective awareness-raising of the area's gold mining history – for both tourists and the local community. Old mines don't have to be a liability for councils; instead they can become an asset. Australia's national policy for old mines recommends "valuing abandoned mines".<sup>28</sup> One of the methods to do this is through industrial archaeological heritage conservation and tourism.

Heritage interpretation is considered a conservation measure, and there already is precedent at Hanging Rock for signage around the village, however there is no signage for Black Snake Gold Mine.

As hiking down to the gullies is not currently advisable due to landslides, the proposed transport route presents an opportunity to:

- establish an safe area for heritage interpretation signage (see Photographs 5.1 and 5.2); and/or
- integrate the road into a future fit-for-purpose walking track/heritage trail/mountain bike trail.



Photograph 5.1

Example of Goldfields heritage interpretation signage<sup>29</sup>



Photograph 5.2

Examples of Goldfields heritage interpretation signage<sup>30</sup>

<sup>28</sup> What should we do with Australia's 50,000 abandoned mines? Corinne Unger  
July 23, 2014 <https://theconversation.com/what-should-we-do-with-australias-50-000-abandoned-mines-18197>

<sup>29</sup> <https://littlewood.com.au/index.php/products/interpretive-signage>. No association with the Littlewood company.

<sup>30</sup> <https://littlewood.com.au/index.php/products/interpretive-signage>. No association with the Littlewood company.

Further, the 'anomalies' in this area identified during geophysical investigation may yield opportunities to 'expose' an historical digging in the form of a shaft, to tie this into the heritage interpretation circuit. This evidence can be made safe through blocking off (see Photograph 5.3 – an open tunnel that should be sealed, and Photograph 5.4. of a shaft entrance that has been sealed).



**Photograph 5.3**      **Example of shaft tunnel entrances in Eureka Reef, Chewton VIC<sup>31</sup>**



**Photograph 5.4**      **Blocking of a gold mine shaft at Bellbird Grove in D'Aguilar National Park<sup>32</sup>**

<sup>31</sup> Gold Fields Guide: Exploring the Victorian Goldfields (2020) <https://www.goldfieldsguide.com.au/blog/92/mining-history-then-and-now>

<sup>32</sup> <https://www.weekendnotes.com/bellbird-grove-walks/>

## 5.2 Recommendations

The three recommendations made in the SoHI (ERM 2020a) still apply:

- Recommendation 1: Geotechnical/Geophysical Assessment
- Recommendation 2: Heritage Induction and Protocols
- Recommendation 3: Unexpected Finds Protocol

Refer to ERM 2020a for specific guidance related to these recommendations.

Geotechnical/Geophysical investigation should be undertaken for any new alignment options that have not previously been assessed.

Recommendation 4 is additional guidance based on the findings of this Addendum Report.

### 5.2.1 Recommendation 4: Heritage Interpretation Planning

Heritage interpretation relating to the transport alignment upgrade should be investigated as a possible community value-add, in terms of development into a unique future heritage interpretation site. This would likely include interpretative signage, possibly as part of a heritage trail, or potentially expose a section of historical diggings if possible from an engineering solution. This recommendation is subject to local Council and community appetite and advice of feasibility.

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