



APPENDIX N HISTORIC HERITAGE ASSESSMENT - OPTIONAL VERDEN ROAD QUARRY



Hills of Gold Wind Farm Pty LTD



Developed by Clean Energy
Partners Pty Limited

Development Management by:



Verden Road Quarry

Historic Heritage Assessment

24 October 2022

Project No.: 0550690

Document details	
Document title	Verden Road Quarry
Document subtitle	Historic Heritage Assessment
Project No.	0550690
Date	24 October 2022
Version	1.0
Author	Lorien Perchard, Erin Finnegan
Client Name	Hills of Gold Windfarm Pty Ltd

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	1.0	Lorien Perchard	E. Finnegan	L. Baker	18.10.2022	
Final	2.0	Lorien Perchard	E. Finnegan	L. Baker	24.10.2022	

Signature Page

24 October 2022

Verden Road Quarry

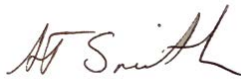
Historic Heritage Assessment



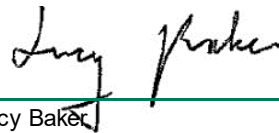
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Acronyms and Abbreviations

Name	Description
ARDG	Australian Resource Development Group Pty Limited
The Burra Charter	<i>The Australia ICOMOS Burra Charter for Places of Cultural Significance</i>
CHL	Commonwealth Heritage List

EIS	Environmental Impact Statement
EP&A Act	NSW <i>Environmental Planning & Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulations 2000</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
ERM	Environmental Resources Management
FCNSW	Forestry Corporation of New South Wales
Forestry Act	<i>Forestry Act 2012</i>
HHA	Historical Heritage Assessment
HoGWF	Hills of Gold Wind Farm
IHO	Interim Heritage Order
LEP	Local Environmental Plan
LGA	Local Government Area
MW	Megawatts
NHL	National Heritage List
RNE	Register of the National Estate
SEARs	Secretary's Environmental Assessment Requirements
SHI	State Heritage Inventory
SHR	State Heritage Register
SoHI	Statement of Heritage Impact
SSD	State Significant Development

EXECUTIVE SUMMARY

Hills of Gold Wind Farm Pty Ltd (the Proponent) is seeking approval to construct and operate the Hills of Gold Wind Farm (HoGWF), located on the ridgeline between Hanging Rock and Crawney Pass in the Northern Tablelands region of New South Wales (NSW). The HoGWF 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.

The proposed development of the HoGWF involves the construction and operation of:

- a maximum of 64 turbines, of approximately 384 megawatts (MW) total install capacity, and maximum height of 230 metres (to blade tip); and
- Ancillary infrastructure including internal access tracks, road upgrades, battery storage, concrete batching facility, underground and overhead electricity cabling, substation and a switching station and grid connection to the 330 kV Liddell to Tamworth transmission line.

Environmental Resources Management Australia Pty Ltd (ERM) has previously prepared a Historical Heritage Assessment (HHA) (Final Report Nov 2020) and two Statement of Heritage Impact (SoHI) (2020; and 2021) reports to examine and understand the potential impact of the HoGWF on historic heritage values identified and to assess the potential impact of road amendment and upgrade works on known heritage sites along the proposed transport route.

To facilitate the construction of the turbines at the HoGWF, Australian Resource Development Group Pty Limited (ARDG) has identified an opportunity to expand an existing Forestry Corporation of New South Wales (FCNSW) quarry site located on Verden Road (the Project Area), Hanging Rock to enable it to supply a range of quarry products solely for construction of the HoGWF Project (SSD-9679) via Verden Road and Forest Way (FCNSW controlled roads), then via the proposed construction transport route for the HOGWF Project of Crawney Road, Barry Road and Morrisons Gap Road which has been previously assessed in the HHA and SoHI by ERM (HHA 2020; SoHI 2020; SoHI 2021) and most recently by ERM in a SoHI of the Peel Inn in Nundle (Final October 2020) and a HHA of three transport options allowing access from Crawney Road through Travelling Stock Route R339, Lot 7301 DP 1136648, Lot 120 DP 7553, Lot 7302 DP 11366448 and Lot 26 DP 755349 (ERM 2022).

The aim of this report is to examine and understand any historic heritage values of the Project Area as the region has a rich history of goldmining, and assess the potential impact upon these sites as a result of the proposed works. Additionally, this report will aim to provide considered management and mitigation measures to avoid or minimise impact on any identified historic heritage values within the Verden Road quarry footprint.

The key findings of this historic heritage assessment are summarised below:

- No historic heritage sites have been identified within the Project Area;
- The proposed quarrying and transport of materials will result in insignificant impacts to four identified heritage items. These items have been previously assessed along the transportation route (ERM HHA 2020; SoHI 2020; SoHI 2021) and road amendments are not proposed in proximity to the heritage items as part of this HHA. The four heritage items, being:
 - Black Snake Gold Mine (Tamworth Regional Local Environmental Plan Item I134);
 - Sheba Dam, Gatekeepers Slab Cottage (Tamworth Regional Local Environmental Plan Item I135);
 - Residence, 751 Barry Road, Hanging Rock (Tamworth Regional Local Environmental Plan Item I136); and
 - Hanging Rock Historical Cemetery (Tamworth Regional Local Environmental Plan Item I137).
- There is low potential for intact historical archaeology related to 19th century mining activities being present within the Project Area boundaries, and any potential evidence would have low integrity and therefore low research value due to the likely significant impact by the forestry land management's practices. Any unexpected finds during Project works will be managed under the Unexpected Finds Protocol.

1. INTRODUCTION

1.1 Project Overview

Hills of Gold Wind Farm Pty Limited (the Proponent) is seeking approval to construct and operate the Hills of Gold Wind Farm (HoGWF), located on the ridgeline between Hanging Rock and Crawney Pass in the Northern Tablelands region of New South Wales (NSW). With an expected power output of up to approximately 384MW, the HoGWF will provide regional jobs and economic benefits for communities in and around Nundle, Hanging Rock and Crawney while producing enough electricity for approximately 182,000 average Australian homes. A locality plan is provided in Figure 1.

ARDG has identified an opportunity to expand an existing Forestry Corporation of New South Wales (FCNSW) quarry site located on Verden Road, Hanging Rock to enable it to supply a range of quarry products solely for construction of the HoGWF Project (SSD-9679) and a Project overview is provided in Figure 2. ARDG investigations indicate that the quarry products (e.g. roadbase, concrete aggregates and drainage rock) produced from the site would be suitable for use by the civil contractor appointed to the HoGWF Project for construction of the internal road network, hardstand areas, wind tower footings and other associated earthworks. Expansion of the FCNSW quarry site for commercial use requires planning approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), which is being sought as 'ancillary development' under SSD-9679.

Environmental Resource Management Australia Pty Ltd (ERM) has been asked to prepare a Historical Heritage Assessment (HHA) of the Verden Road Quarry (the Project Area) as the site is situated within the Hanging Rock locality, a village that was established during early pastoral run settlement, and later transformed into a gold mining village in the late 19th century. The surrounding hills are littered with extant goldmines and shafts from the days when thousands of settlers moved to the area to try their luck as goldminers. The Project Area sits outside of the previously assessed (ERM HHA 2020; SoHI 2020; SoHI 2021) areas and is a recent addition to the HoGWF planning process.

Transport of all material from the quarry site will be directly to the entrance of the HOGWF (Figure 2) via Verden Road and Forest Way (FCNSW controlled roads), then via the proposed construction transport route for the HOGWF Project of Barry Road, Crawney Road and Morrisons Gap Road which has been assessed by ERM (HHA 2020; SoHI 2020; SoHI 2021).

The transportation of the quarried materials will pass by four locally listed heritage items, including:

- Black Snake Gold Mine (Tamworth Regional Local Environmental Plan Item I134);
- Sheba Dam, Gatekeepers Slab Cottage (Tamworth Regional Local Environmental Plan Item I135);
- Residence, 751 Barry Road, Hanging Rock (Tamworth Regional Local Environmental Plan Item I136); and
- Hanging Rock Historical Cemetery (Tamworth Regional Local Environmental Plan Item I137).

1.2 Locality Description and Context

As previously stated the proposed transport routes between the Port of Newcastle and the HoGWF have previously been assessed by ERM (HHA 2020; SoHI 2020; SoHI 2021). This current assessment is solely concerned with the extraction and processing of materials at the existing Verden Road Quarry, the Project Area, which is situated within the FCNSW boundary, and its transportation to the HoGWF project site. The following provides a description of the location of the Verden Road Quarry Project Area, and the proposed transport routes between the quarry and the HoGWF.

The proposed development of the quarry at Verden Road, the Project Area, is part of a broader strategy developed by ARDG in consultation with the Proponent, proponent of the HoGWF, to provide an option to supply quarry materials to the HOGWF Project from on- or near-site quarries, making use of appropriate resources and construction materials from sources located as close as possible to the HoGWF Project. The Proponent has recognised the potential benefits associated with sourcing these materials close to the Project and therefore determined to include the quarry as optional 'ancillary development' to the HoGWF.

The Project Area is located on Verden Road within the Hanging Rock State Forest (Figure 2) on land managed by FCNSW, which is responsible for "carrying out or authorising the carrying out of forestry operations on Crown-timber land or land owned by the Corporation" as detailed under section 11 of the Forestry Act 2012 (Forestry Act). An additional function of FCNSW under section 11 of the Forestry Act is to "take or authorise the taking of forest materials" from this land. Forest materials are defined in the Forestry Act as "rock, stone, clay, shells, earth, sand, gravel or any like material".

With respect to the total quarry materials demand for the HoGWF, the option of sourcing construction materials from the Project Area (compared to sourcing from commercial quarries in the broader region) would significantly reduce the HoGWF construction traffic through Nundle and on the local and regional road network. Therefore the Project objectives/aims is to deliver tangible benefits to the local and broader community by:

- reducing construction traffic noise amenity impacts for residents of Nundle, in particular those along the construction traffic haul route;
- improving road safety (substantially reducing heavy/light vehicle interactions); and
- reducing heavy vehicle wear and potential damage to the local and regional road network by significantly reducing total distance travelled on the local and regional road network.

1.2.1 The Project Area

1.2.1.1 Description of General Setting

The Project Area is located approximately 2 km north of Hanging Rock, 50 km south-east of Tamworth, and approximately 7 km east of the township of Nundle. The route from the Verden Road Quarry to the HoGWF Project Area comprises 11 km, of which 4 km is on FCNSW-controlled roads, and 7 km on Council-controlled roads from the proposed eastern quarry entrance to the HoGWF. The proposed development is located within the Tamworth Regional local government areas (LGA). The general locality includes Hanging Rock State Forest and Nundle State Forest. The locality is a former gold mining area, with the small village of Hanging Rock containing historic listings including, including the Hanging Rock Historical Cemetery and Mount Sheba Recreation Area.

1.2.1.2 Description of Project Area Landscape

Land on which the quarry operations is proposed is comprised of tertiary basalt geology located and managed by FCNSW within the Hanging Rock State Forest. The landscape consists of steep gullies and ridges with a *Pinus radiata* plantation area that supports the existing FCNSW quarry operation. All land surrounding the quarry including the Project Area has been clear-felled in 2020/2021 (per comms. Bruce Brand FCNSW), with some small areas of the site subject to recent replanting with pine. The site is therefore highly disturbed.

1.3 Aims and Objectives

The aim of this report is to examine and understand any historic heritage values within the Project Area and assess the potential impact upon any identified heritage sites as a result of the proposed works. Additionally, this report will aim to provide considered management and mitigation measures to avoid or minimise impact on any identified historic heritage values within the development footprint.

1.3.1 Methodology

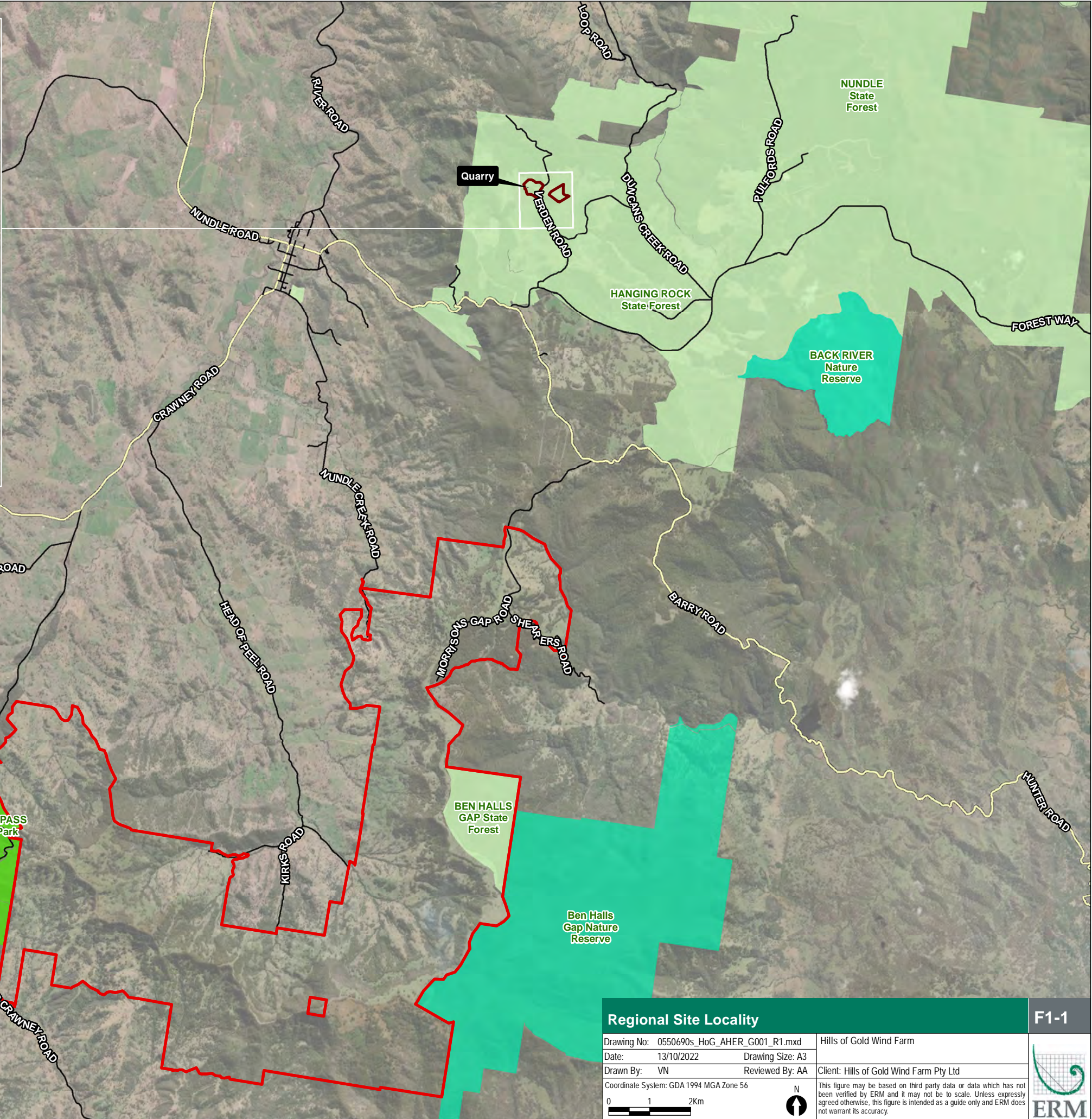
The following tasks were undertaken in the preparation of this report:


- background research and heritage database searches; and
- physical inspection of the Project Area.

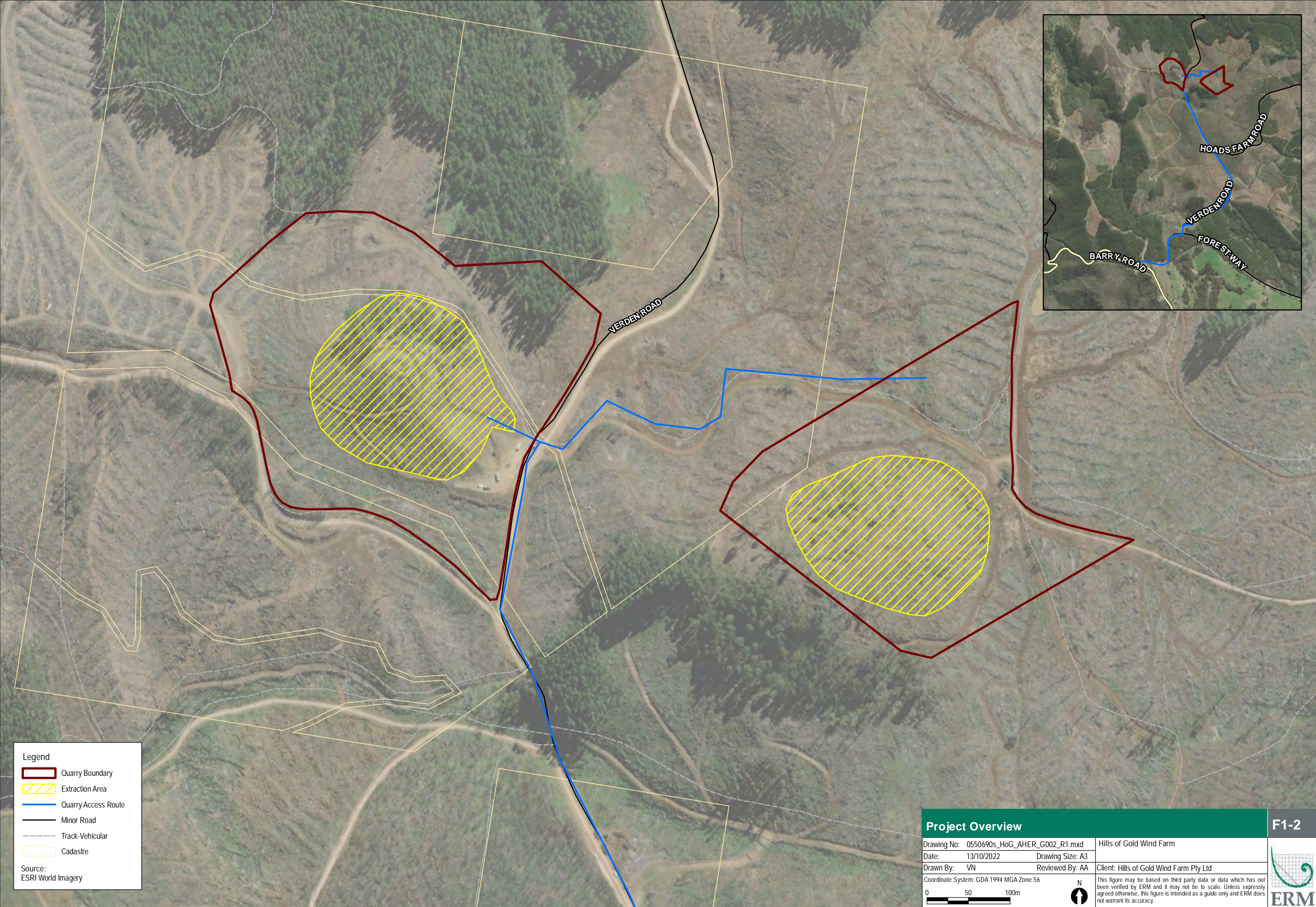
1.4 Authorship and Acknowledgements

This report has been prepared by Lorien Perchard (ERM Heritage Consultant), with technical review undertaken by Erin Finnegan (ERM Principal Heritage Consultant). Quality Assurance review was undertaken by Lucy Baker (ERM Partner).

ERM wishes to acknowledge and thank Bruce Brand from FCNSW who assisted Lorien Perchard during the site visit with a guided tour of the Project Area and Hanging Rock village, whilst sharing his FCNSW knowledge of the area as a long-time local.



Regional Site Locality			F1-1
Drawing No: 0550690s_HoG_AHER_G001_R1.mxd		Hills of Gold Wind Farm	
Date: 13/10/2022	Drawing Size: A3		
Drawn By: VN	Reviewed By: AA	Client: Hills of Gold Wind Farm Pty Ltd	
Coordinate System: GDA 1994 MGA Zone 56			
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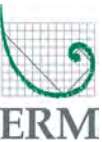
- Legend
- Quarry Boundary
 - Extraction Area
 - Quarry Access Route
 - Minor Road
 - Track-Vehicular
 - Cadastre

Source:
ESRI World Imagery

Project Overview

Drawing No: 0550690s_HoG_AHER_G002_R1.mxd	Hills of Gold Wind Farm
Date: 13/10/2022	Drawing Size: A3
Drawn By: VN	Reviewed By: AA
Client: Hills of Gold Wind Farm Pty Ltd	
Coordinate System: GDA 1994 MGA Zone 56	
0 50 100m	
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F1-2



2. LEGISLATIVE CONTEXT

2.1 NSW Legislation

2.1.1 *Environmental Planning and Assessment Act 1979*

The 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 Project Area is contained one local government area, and is therefore subject to one LEP, as identified below.

- Tamworth Regional Council (Tamworth Regional LEP 2010).

The HoGWF Project is being assessed as State Significant Development (SSD-9679), and was prepared by ERM in 2020 in accordance with:

- the requirements of Section 4.12 of the (EP&A Act);
- Schedule 2 of the Environmental Planning and Assessment Regulations 2000 (EP&A Regulation); and
- the Secretary's Environmental Assessment Requirements (SEARs) issued for the proposed development, dated 22 November 2018.

In relation to historic heritage, the SEARs required that the ERM HHA 2020, SoHI 2020 and SoHI 2021 assessment:

- assess the impact to historic heritage items in accordance with the *NSW Heritage Manual* (Heritage Office and Department of Planning 1996); and
- the Environmental Impact Statement (EIS) must provide a heritage assessment including but not limited to an assessment of impacts to State and local heritage including conservation areas, natural heritage areas, places of Aboriginal heritage value, buildings, works, relics, gardens, landscapes, views, trees should be assessed. Where impacts to State or locally significant heritage items are identified, the assessment shall:
 - outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the *NSW Heritage Manual* (1996);
 - be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria);
 - include a statement of heritage impact for all heritage items (including significance assessment); and
 - consider impacts including, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant).
- where potential archaeological impacts have been identified develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations (terrestrial and maritime as relevant) and include the results of these test excavations.

2.1.2 NSW Heritage Act 1977

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.

The SHR is a separate listing to the State Heritage Inventory (SHI) and includes items which are accorded SHR listing through gazettal in the NSW Government Gazette. Nominated items are considered by the NSW Heritage Council, which then makes a recommendation to the Minister for Environment and Heritage. The Heritage Council is empowered to place Interim Heritage Orders (IHO) on an item of potential state significance. The assessment of significance is made against the criteria shown in Table 2-1.

Table 2-1 NSW State Heritage Significance Criteria

NSW Criterion
(a) Historical <i>An item is important in the course, or pattern, of NSW's cultural or natural history.</i>
(b) Association <i>An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history.</i>
(c) Aesthetic <i>An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW.</i>
(d) Social <i>An item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons.</i>
(e) Scientific <i>An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history.</i>
(f) Rarity <i>An item possesses uncommon, rare or endangered, aspects of NSW's cultural or natural history.</i>
(g) Representativeness <i>An item is important in demonstrating the principal characteristics of a class of NSW's a) cultural or natural places: or b) cultural or natural environments.</i>

2.1.2.1 State Heritage Inventory

The 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.

2.2 Non-Statutory Considerations

2.2.1 National Trust of NSW

The National Trust is a community-based, non-government organisation. The National Trust has a database of important heritage sites across the State.

2.2.2 The Burra Charter

The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Adopted 31 October 2013) (The Burra Charter) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians. The Charter provides specific guidance for physical and procedural actions that should occur in relation to significant places. A copy of the 2013 charter can also be accessed at: <http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf>.

This historic heritage assessment report has been prepared in accordance with this Charter and to the standards and principles it describes.

3. HISTORIC HERITAGE DATABASE SEARCH RESULTS

The following historic heritage databases were searched on 5 October 2022, to identify any known non-Aboriginal heritage sites within the Project Area:

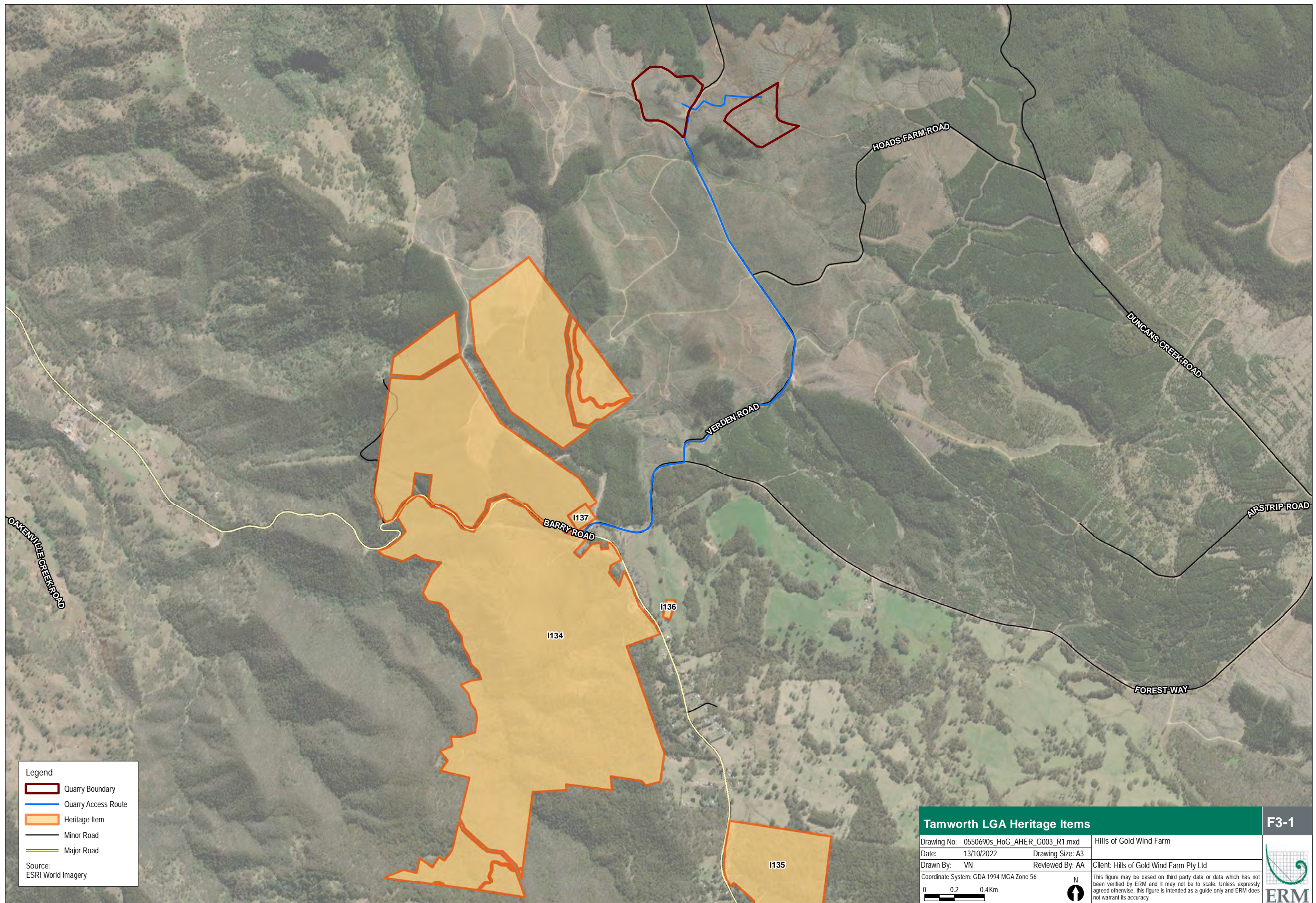
- Australian Heritage Database, which includes:
 - Commonwealth Heritage List (CHL);
 - Register of the National Estate (RNE); and
 - National Heritage List (NHL).
- NSW SHR and SHI;
- Tamworth Regional LEP 2010; and
- The National Trust of Australia (NSW).

The searches indicate that there are no heritage items within the Project Area, and four locally listed (Tamworth Regional Council LEP 2010) heritage items located in proximity to the proposed quarry site or its transport route (Table 3-1).

ERM has provided Figure 3 which identify the locally listed site in relation to the proposed quarry site.

Table 3-1 Tamworth Regional LEP listed sites in proximity to the Project Area

Site Name (LEP Listing)	Register / Item #	Location	Potential Impact from Proposed Works
Black Snake Gold Mine	LEP - I134	Nundle Road, Hanging Rock	Nil – The Project Area is located over 1.4 km from the Black Snake Gold Mine LEP listed area curtilage. The actual location of the Black Snake Gold mine is located southwest of Devil's Elbow and 3.8 km from the Project Area. The LEP heritage curtilage for Item I134 covers an area of numerous historic gold workings, not just the Black Snake Gold Mine. The transportation of quarried materials via truck will occur on established roads adjacent to the curtilage of the heritage listing but not in proximity to the actual mines. The transportation of materials will not have any direct or indirect adverse impact to the identified heritage values contained in the LEP listing.
Sheba Dam, Gatekeepers Slab Cottage	LEP – I135	Barry Road, Hanging Rock	Nil – The Project Area is located 4.3 km from the Sheba Dam curtilage. The transportation of quarried materials via truck will occur on established roads adjacent to the curtilage of the heritage listing. The transportation of materials will not have any direct or indirect adverse impact to the identified heritage values contained in the LEP listing.
Residence	LEP – I136	751 Barry Road, hanging Rock	Nil – The Project Area is located 2.8 km from the Residence curtilage. The transportation of quarried materials via truck will occur on established roads adjacent to the curtilage of the heritage listing. The transportation of materials will not have any direct or indirect adverse impact to the identified heritage values contained in the LEP listing.
Hanging Rock Historical Cemetery	LEP – I137	Corner of Cemetery Road and Forest Way, Hanging Rock	Nil – The Project Area is located 2.6 km from the cemetery curtilage. The transportation of quarried materials via truck will occur on established roads adjacent to the curtilage of the heritage listing. The transportation of materials will not have any direct or indirect adverse impact to the identified heritage values contained in the LEP listing.



Legend

- Quarry Boundary
- Quarry Access Route
- Heritage Item
- Minor Road
- Major Road

Source:
ESRI World Imagery

Tamworth LGA Heritage Items		F3-1
Drawing No: 0550690s_HoG_AHER_G003_R1.mxd	Hills of Gold Wind Farm	
Date: 13/10/2022	Drawing Size: A3	Client: Hills of Gold Wind Farm Pty Ltd
Drawn By: VN	Reviewed By: AA	
Coordinate System: GDA 1994 MGA Zone 56		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.
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4. HISTORICAL CONTEXT

This chapter considers the potential non-Aboriginal heritage values for the Project Area. 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 Project Area's history and development over time.

4.1 NSW Historic Themes

The NSW Historical Themes have been used to assist in the identification, assessment and management of heritage values within the Project Area. Table 4-1 presents the historic themes and sub-themes relevant to each locally significant place within the Project Area (listed Heritage Items). The NSW Historical Themes are present in Appendix E.

Table 4-1 Historic Themes Applicable to listed Heritage Items within proximity to Verden Road Quarries

Place	NSW Historic Theme	Sub-Theme
Hanging Rock and the Hanging Rock Historical Cemetery	1. Tracing the natural evolution of Australia	■ Environment – naturally evolved
	2. Developing local, regional and national economies	■ Exploration ■ Mining
	3. Building settlements, towns and cities	■ Towns, suburbs and Villages ■ Land tenure
Black Snake Gold Mine 1134	4. Developing local, regional and national economies	■ Mining
Sheba Dam Gate keepers Cottage	5. Developing local, regional and national economies	■ Exploration ■ Mining
	6. Building settlements, towns and cities	■ Towns, suburbs and Villages ■ Land tenure
Residence	7. Building settlements, towns and cities	■ Towns, suburbs and Villages ■ Land tenure

4.2 Historical Overview

In addition to the sources mentioned above, the following historical overview has been summarised from ERM's previous heritage assessments (HHA 2020; SoHI 2020 and SoHI 2021) and extracted sections from the *Thematic History of Nundle, Manilla and Barraba, a community based heritage study* prepared for the Tamworth Regional Council by Joanna Boileau in 2007.

4.2.1 Aboriginal History of the New England Region

NSW Historic Theme 2 – Peopling Australia – Aboriginal cultures and interactions with other cultures

The Verden Road Quarries and transport route are within the traditional lands of the Kamilaroi (Gamilaroi/Gamilaraay) and Geawegal (Kayawaykal) people, with the former being situated to the north and west, and the latter to the south and east (Tindale 1974). Within these broader language groups, there would have been various dialects throughout the region, representing different familial or residential groups. It is likely that these groups moved fluidly throughout the landscape to utilise seasonal resources.

Aboriginal people throughout the Upper Hunter and Kamilaroi regions would have utilised inland river systems for subsistence, obtaining fish, eels, crustaceans and shellfish, and would have hunted small animals including possums, gliders, bandicoots and wallabies. Plant resources, such as Kurrajong seeds, honey, roots, acacia gum, bulrush, nuts (quandong), grass seeds, Gubiyaay (a type of lily), *Capparis lasiantha* (a native orange or pomegranate), Emu apple / sour plum, yams, water yams, wild potato, melon and various fruits and berries would also have been sought for subsistence and medicine.

Hunting implements utilised by Aboriginal people may have included spears, throwing sticks, and boomerangs, all constructed of local timber. Bark would have been collected to create containers and shields, and animal skins would have been treated and worn as cloaks. Cloaks were both practical and artistic, as they were worn for warmth and protection, but could be decorated with designs that allowed for self-expression (Sonter and White 2012).

Decline of the Aboriginal population in the region was a direct result of European exploration and settlement, through several avenues including direct violence, rapid decline of traditional resources, and the introduction of alcohol and disease (Wood 1972). Despite this, Aboriginal people maintain a strong connection to the region, through intergenerational sharing of knowledge.

4.2.2 Exploration of Inland NSW

NSW Historic Theme 2 – Peopling Australia – Aboriginal cultures and interactions with other cultures

NSW Historic Theme 3 – Developing local, regional and national economies – Exploration

Initial European exploration into the Kamilaroi lands surrounding Tamworth and Nundle was undertaken by a party lead by Surveyor General John Oxley in 1818. Oxley had been tasked with exploring inland to find the inland sea that was thought to be the source of the rivers in NSW. His earlier expedition, which travelled east from Bathurst, had ended in the discovery of a series of muddy waterholes at the end of the Lachlan River. In May 1818, Oxley and his party again left Bathurst, only this time travelling north along the Macquarie River. After reaching yet more marshy ground at the end of the Macquarie River, Oxley headed east through the Warrumbungle ranges, and eventually discovered the Liverpool Plains (Figure 4-1). By September, Oxley had reached the site of present day Tamworth, from which his party headed east, discovering and following the Cockburn and MacDonald Rivers. Although the inland sea was not identified on this exploratory journey, Oxley reported the fertility of the Liverpool Plains and the harbour and estuaries of Port Macquarie. J Cross' Chart of '*Part of New South Wales*' in 1827 included Oxley's discoveries, leaving the upper Peel blank, but marking the area as two counties – 'Cambridge' to the west and 'Ayr' to the east of Peel River (Bayley 1953:16).



Figure 4 Liverpool Plains, west Prospect from View Hill [picture] / drawn by Major Taylor from a sketch by Mr. Evans (National Library of Australia (NLA) PIC Volume 99 #U8094 NK68

Although the lands around Tamworth had been identified by the early 1800s, there was not yet a safe a reliable way to access the Liverpool Plains, a factor that significantly hindered plans for settlement. Under instructions from Oxley, Henry Dangar made two expeditions into the Liverpool Plains in 1824 and 1825. The first was cut short by violent encounters with the Gamilaroi people; however, the second expedition lead to the discovery of an accessible pass over the Liverpool Range (the route now followed by the New England Highway). Dangar traversed the foothills of the Great Dividing Range heading east until he reached the Peel River, near Nundle. Dangar then crossed the mountains near Hanging Rock and returned along the Barnard River.

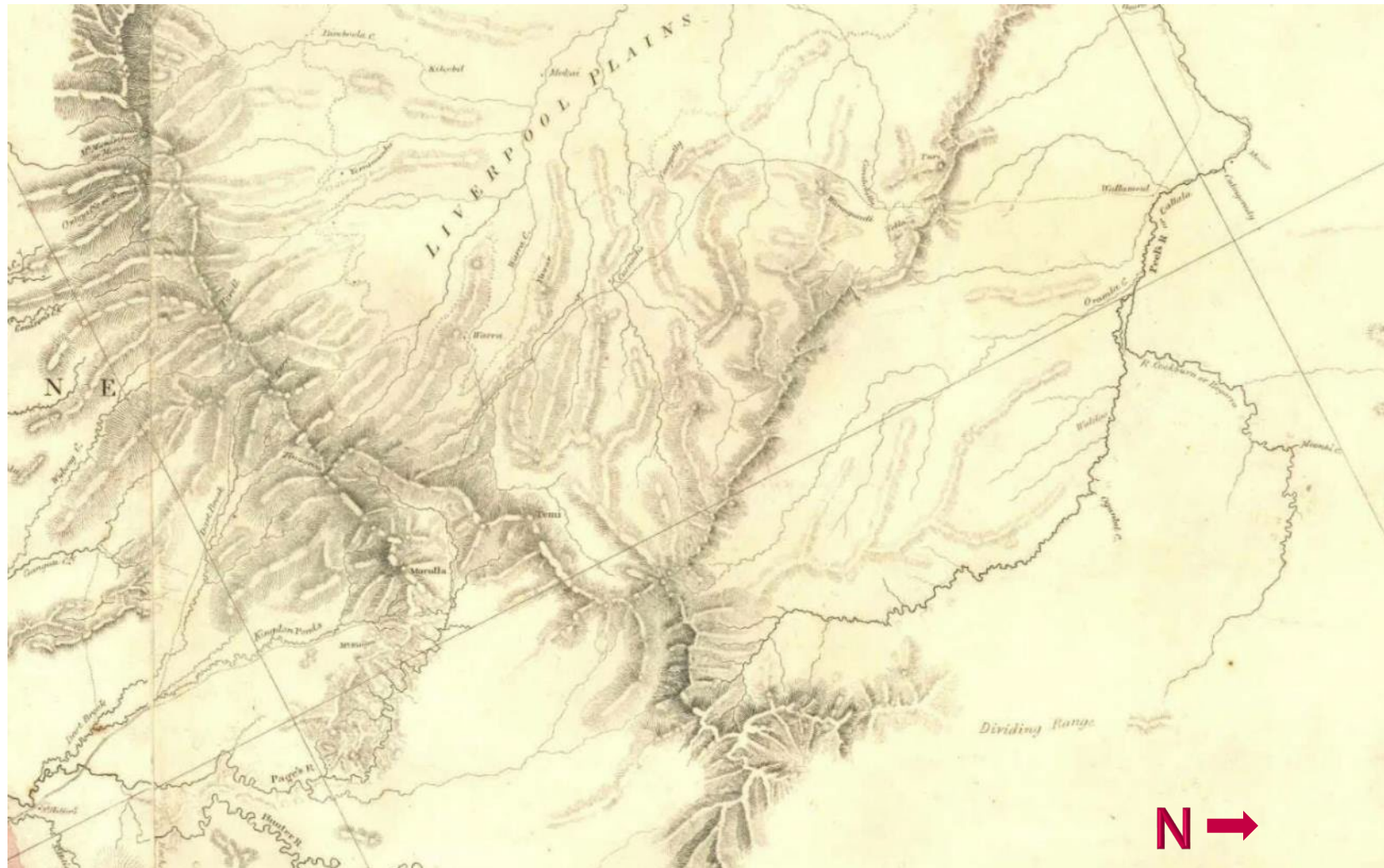


Figure 5 Detail of the *Map of the Colony of NSW 1834*, showing Liverpool Ranges and Peel River, by T.L. Mitchell, Surveyor General (Hunter Living Histories)

4.2.2.1 The Limits of Settlement

From the late 1820s, the Colonial Government attempted to restrict settlement to the nineteen counties established within a roughly 320 km radius of Sydney. Officially, no settlement beyond these limits was permitted; though many settlers moved beyond these limits, making claims to tracks of country, squatting illegally with their sheep and cattle. The valley of Peel River was well beyond the official limits of settlement; however, the reports of rich grazing land made by explorers such as Oxley and Mitchell drew many squatters to the district. Governor Gipps introduced a regulation requiring squatters to pay a licence fee of £10 a year to squat on Crown land, though it was not until 1837 that pasturage licences became compulsory. While the Government made attempts to stop squatters settling outside the nineteen counties, it welcomed all attempts to develop the region within the bounds of these approved settlement areas.

In November 1824, a group in England formed the Australian Agricultural Company, incorporated by Royal Charter, for the purpose of sheep raising. The Government granted the new Australian Agricultural Company with one million acres of land in the colony, free of all restriction and reservation (Bayley 1953:17). The Company's agent, Robert Dawson, selected a million acres of land extending north of Port Stephens. Dawson was later replaced by Sir Edward Parry, a famous explorer, as the Company's new commissioner.

Towards the end of 1831, Henry Dangar was again sent to the Liverpool Plains to inspect a suitable property for the Australian Agricultural Company, finding the Peel River was suitable for grazing. Parry with his party then travelled overland south east up the Peel River, through the site of Nundle, crossing the Crawney Pass to examine the region on 5 March 1832 (Bayley 1953:17). As a result of this journey, the company selected Warrah and the Peel River grant, the latter containing 313,298 acres extending westward from Peel between the sites of Attunga and Nundle, incorporating the Forest Creek Catchment. By August 1833, the Company secured a grant for the land, despite it being beyond the limits set for the location of settlement in the colony. The new Peel River station became known as Goonoo Goonoo (pronounced Gunny Gunnoo) and received 1,400 convicts as labour (Bayley 1953:18). The Goonoo Goonoo Station became known for its fine wool and stock and the company's Peel River asset increased over time, from 6000 head of sheep in 1834 to 130,000 sheep and 6000 cattle by 1934 (Bayley 1953:18).

Return journeys to the district throughout the 1820s and 1830s frequently utilised either Crawney Pass or Hanging Rock to traverse the Range, further background on these early transport routes is provided in *Section 4.2.2.2* below.

4.2.2.2 Early Transport Routes

NSW Historic Theme 4 – Building settlements, towns and cities – Transport

The following section has been largely summarised from the *Thematic History of Nundle, Manilla and Barraba* (J. Boileau 2007:21-22).

For most of the nineteenth century, the two main transport routes through NSW originated from the major ports: Sydney and Newcastle. From these ports the wool, beef and materials that constituted the wealth of the colony were shipped to England. The overland track from the Hunter Valley leading across the Liverpool Ranges and through the Peel River Valley was a major route for supplying the stations and scattered settlements of north west NSW. Baker's Australian Atlas of 1848 shows a track following the eastern bank of the Peel River passing the site of the present town of Nundle, and meeting the Port Stephens track near the junction with the Peel and Ogunbil Creek. From that point the track evidently crossed the Liverpool Range over the Crawney Pass to the Hunter Valley, following the route of the early explorers.

During the early days of settlement all supplies for the Peel River Valley and further north were carried by horse or bullock teams from the Hunter Valley over the steep road across the Liverpool Ranges at Nowlands Gap. Goods were shipped from Sydney to Newcastle then up river to Morpeth in the lower Hunter Valley. This was the terminus for shipping, and from there goods were transported overland to Tamworth. Located at the strategic crossing of the Peel River, Tamworth developed as an important transport hub.

Following the discovery of gold at Hanging Rock in 1852, Rocky River near Armidale in 1856, and Bingara and Bundarra in the 1860s, road traffic in the area greatly increased. This 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. Travellers were advised that out of the two routes over the Pass, travellers should take the easier ascent which began further up the Isis River.

In the early 1850s, William Telfer Junior described the experience of travelling the steep and dangerous route from Nundle to Hanging Rock:

At that time there was a sheep station on the Company's side of the river also one on the other side which was the property of Dr. Jenkins. Crossing the Peel River here saw the Hanging Rock mountain some two miles away proceeding along a very steep track almost perpendicular in appearance [...] the only traffic on this road was Nathan Burrows' bullock team which used to go to Tamworth about twice a year [...] some place you could scarcely discern any road and the mountain was very steep if you went a little off the track the cart would capsize and go down the mountain [...]. (Telfer, W. in R. Milliss 1980 via J. Boileau 2007:22).

Improvements were made to some of the major roads in the Nundle district during the 1870s. In 1879, a new road was surveyed along the eastern side of the Peel River from Nundle to Bowling Alley Point, cutting into the hills that rise steeply from the river leading up to Hanging Rock and the approximate location of the Verden Road Quarries. 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 4-1). This road is still in use today, and has one of the steepest grades of any road in NSW.



Photograph 4-1 The steep road from Nundle to Hanging Rock (now Devil's Elbow) c.1880s (Bayley 1953:30)

4.2.3 First Settlers of the Nundle District

NSW Historic Theme 3 – Developing local, regional and national economies – Pastoralism

NSW Historic Theme 4 – Building settlements, towns and cities – Land Tenure

The following section has been summarised from the *Thematic History of Nundle, Manilla and Barraba* (Boileau 2007: Section 5.1), with additional archival and secondary research by ERM.

The word Nundul was derived from 'nuntul' meaning 'mouth' in the dialect of the local Aboriginal inhabitants, and over time the name evolved to Nundle. One of the earliest references to the word is in a survey of the area carried out in 1842 by Assistant Surveyor Burnett who showed it on a plan as Nundul.

The first record of white settlement within the present township of Nundle was in 1839, when Hamilton Collins Sempill took out a license to depasture stock at 'Nundul' Creek near its junction with the Peel River. Sempill is thought to have learnt of the good prospects for grazing on the Liverpool Plains from Sir Edward Parry, following his track over Crawney Pass to set up a series of stations in the newly explored country beyond the range. Other squatters also appeared in the district around this time, settling on stations beyond the limits of legal settlement.

4.2.4 Early Settlement at Hanging Rock

NSW Historic Theme 2 – Peopling Australia – Migration

NSW Historic Theme 4 – Building settlements, towns and cities – Towns, suburbs and villages

Settlement at Hanging Rock started soon after the discovery of gold in 1851. With the heavy influx of prospectors and miners from across the country and internationally, crude shanty villages were established around Hanging Rock. In February 1853 the Hanging Rock community was substantial enough that it was to be formed into a township:

It is reported that the Hanging Rock is to be formed into a township, and allotments to be sold, a thing much desired by many of the diggers (The Sydney Morning Herald 7 Feb 1853: 2).

By April 1853, the residents of Hanging Rock erected a building to serve the dual purpose of a Church of England and school, and asked the Bishop of Newcastle to appoint a school master as there were at least 30 children living in the area. The residents of Hanging Rock contributed to the erection of the building, and the clergyman's stipend. Though it was recognised at the time that the population of Hanging Rock was largely migratory and a permanent building would be unnecessary. It was therefore suggested that 'a large tent, with bark or slab sides to make it commodious, would answer admirably, and that it could be easily moved on any occasion without great expense' (The Sydney Morning Herald 13 Dec 1853:3).

On 14 May 1853, the Maitland Mercury reported that a 'strong bark building' had been erected at Hanging Rock to serve as a church and a school. This original school served the community of Hanging Rock for over twenty years.

It will be perhaps of some satisfaction to those who have families who are about to try the Hanging Rock that a school has recently been erected and that Mr. Richards, a gentleman recently from England, has been appointed schoolmaster (J. Webster n.d: 10).

Transport in and out of the new Hanging Rock settlement was difficult in the early days of settlement, despite the frequent visitors to the new township. At the time it was noted 'nothing is more badly wanted than a passenger conveyance from Maitland to the Hanging Rock' (The Sydney Morning Herald 8 Sep 1853:5). At the time, there was no other vehicle than the mail coach, and it was difficult for any person to catch a ride, as the seats were often always taken by miners. It was reported by the Sydney Morning Herald in 1853 that:

We often see man and wife separated; the fare is paid for two persons, and when the mail starts they find there is only room for one of them, the husband is compelled to get upon a horse, an animal quite unable to perform the journey (The Sydney Morning Herald 8 Sep 1853:5).

It was not until later years that a passenger service was established between Nundle and Tamworth (Photograph 4-2).

In September 1878, a new public school was erected after the residence petitioned the Council of Education to open a permanent public school. Two years later the Department of Public Instruction took over and erected a new weatherboard school with teacher's residence on a two acre site. During the 1890s a second classroom and two small rooms were added. This early school was again replaced in 1952 and officially closed in 1970. A public cemetery at Hanging Rock was dedicated in 1873, though there were apparently burials here before this date. The dedication of the cemetery was subsequently revoked, but it was officially rededicated in 1896 (Figure 4-3).



Photograph 4-2 The horse and cart that carried passengers between Nundle and Tamworth, c.1890s (Bayley 1953: 44)

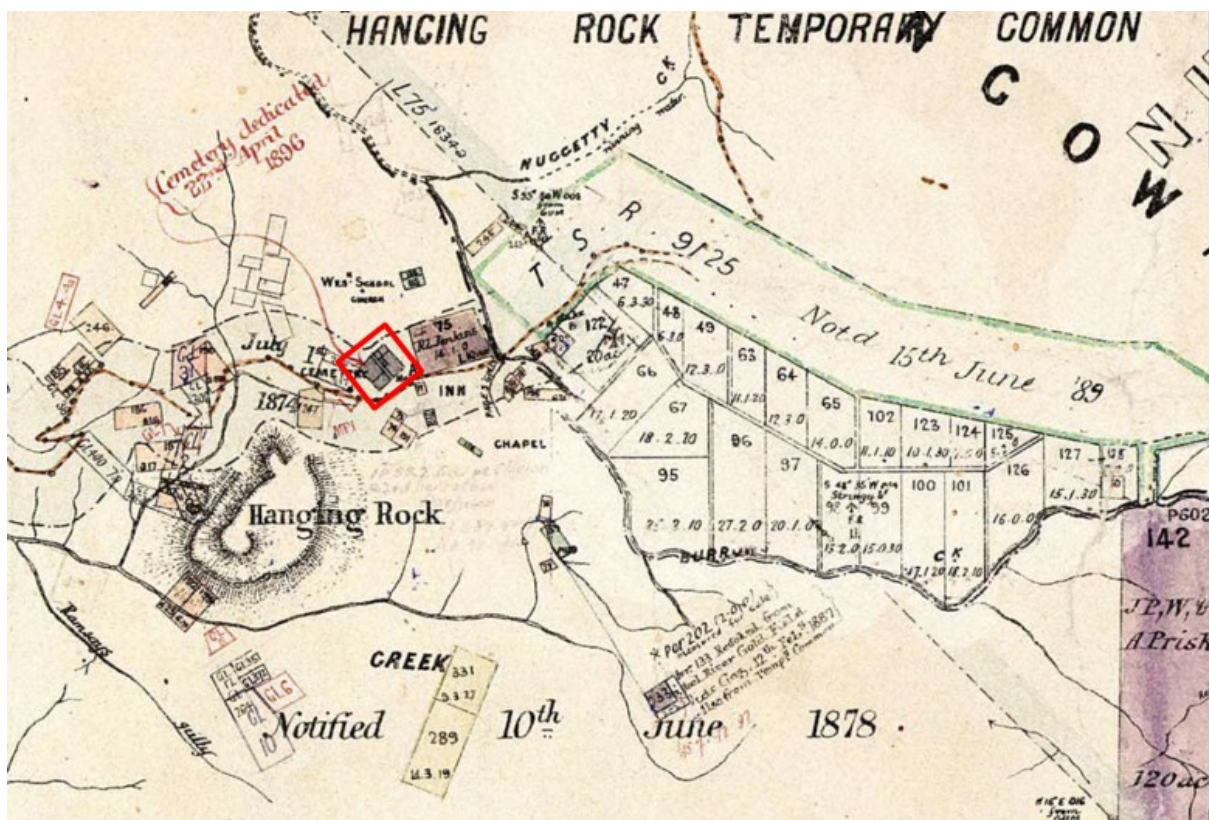


Figure 6 Map of the early town of Hanging Rock, notified June 1878, rededicated Cemetery indicated in red (NSW Land Registry Services - Historical Land Record Viewer)

4.2.4.1 Discovery of Gold at Hanging Rock

NSW Historic Theme 2 – Peopling Australia – Migration

NSW Historic Theme 3 – Developing local, regional and national economies – Mining

NSW Historic Theme 5 – Working – Labour

The following section has been largely summarised from the *Thematic History of Nundle, Manilla and Barraba* (Boileau 2007: Section 5.3) with additional archival research by ERM.

The first discovery of gold at Hanging Rock is attributed to Nathan Burrows in August 1851. Burrows was supposedly riding near Swamp Oak Creek on his run at Hanging Rock when he came across one of his stockmen washing for gold with a pint pot. The stockman found small flecks of gold while washing his pannikin after a meal. Burrows reported the discovery of gold to William Cohen, the storekeeper at Tamworth and the news quickly spread. By 24 January 1852, the *Maitland Mercury* announced that gold had been found at the Hanging Rock, bringing waves of prospectors to the district. Before the end of February 1852, gold from Swamp Creek and Hanging Rock was reaching Maitland. Twenty-seven cradles were operating at Hanging Rock and the number of diggers were increasing daily.

The first strikes at Hanging Rock were followed by an even richer find at Bowling Alley Point on the Peel River (Photograph 4-3 and Photograph 4-4). By the end of March 1852, the main body of miners had moved their operations there, setting up shanty towns of tents and crude bark shelters (Photograph 4-5). At first gold was found in creeks, in riverbanks and on ridges throughout the Nundle district. In May 1852, 223 gold miners' licences were issued, with miners paying very reluctantly until the Government reduced fees from one pound ten shillings per month to ten shillings per year.



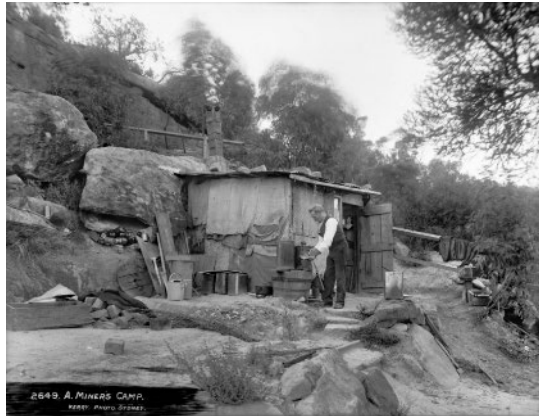
Photograph 4-3 Bowling Alley Point, centre of the early 'Peel River Diggings' 1952 (Bayley 1953:29)



**Photograph 4-4 Alluvial flats in distant valley opposite Bowling Alley Point
1952 (Bayley 1953:29)**

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. In Happy Valley, north of Oakenville Creek, two stores and a public house were operating by 1855. Happy Valley became the principal diggings in winter when miners did not have to contend with rainfall '*...already diggers are going there, and securing their favourite spots*' (The Sydney Morning Herald, 5 Feb 1855: 5).

Miners were able to make a fine living at Hanging Rock, being employed in mining, cradling, sluicing and cutting timber for more sluices. Sawyers were also badly needed at the time, as diggers were constantly needing new timber boards and cradles for panning. Once the gold was brought to the surface, it would be sieved to remove larger material and placed in a box-like cradle adjacent to the windlass (a hand-powered winch used to haul ore up the shaft) (Photograph 4-6).



Photograph 4-5 Example of mining camp, made of bark shelter in NSW (Museum of Applied Arts & Sciences Object No: 85/1284-1383)



Photograph 4-6 Miners panning for gold NSW (Museum of Applied Arts & Sciences Object No: 85/1286-528)

By December 1853, the miners were experiencing hardship and unemployment at the diggings due to heavy and continued rains. The sluicing water was also stopped at this time due to disagreements between sluicing parties. At this time, one-half of the miners had left the diggings, with a correspondent for the Sydney Morning Herald reporting:

[...] I should not have been surprised if such a vicissitude¹ had not seized the gold field, and my only astonishment is that so many diggers have remained so long a time unemployed, waiting for the dry season to set in. (The Sydney Morning Herald 23 Dec 1853:3).

The heavy rains and flooding caused water to rush down the main creek and over the falls, washing away nearly every claim. The sluicing parties came together in 1853 to address grievances and gathering signatures in order to turn the sluicing water from Swamp Creek back on (The Sydney Morning Herald 23 Dec 1853:30).

By 1854, miners started to arrive from as far as China, Europe, California and Jamaica to try their luck on the goldfields. 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. Visitors commented that Nundle district was like being in 'Yankee land', with veterans (known as the Californian Party) of the Californian gold rushes of 1849 dominating the community that gathered on the diggings in the Nundle district. The California Party starting on sluicing 'Nuggety Gully' with apparent great success (The Peoples Advocate and NSW Vindicator 5 Nov 1853:6).

In January 1854, there was some controversy over large area of diggings owned by the Australian Agricultural Company, when Captain Price, a representative of the Company, promised the diggings would be opened to the public. The Secretary of the Company and other officers issued a protest against Captain Price, and cautioned the public from digging on the Company's ground (The Sydney Morning Herald 9 Jan 1854:8). The proposed licences for the public to dig on Company land was the high price of £3 per month, a cost too high for most miners. It was argued that:

[...] persons sluicing would have to pay an ounce of gold per month for water, £3 to the Company, and £5 to the Government. Those diggings should be rich to admit the payment of such expenses (The Sydney Morning Herald 9 Jan 1854:8).

¹ A change of circumstances or fortune, typically one that is unwelcome or unpleasant.

The early locality known as Black Creek was situated on the Government side of the Peel River, 6 miles from Hanging Rock, opposite what was then the Cordillera Company's Diggings. These diggings were also successfully sluiced by the Californian Party (from the American Water Company). On the opposite side of the River was the American Water Company's diggings. In 1854, the American Water Company proposed to bring water to their diggings with water races, in order to employ more miners in the district. However, Dr Jenkins was the owner of the locality, and refused the Company his water:

Who is he Dr Jenkins, that he should obstruct the successful working of the gold fields? [...] he pays £2 per annum for each square mile; the digger pays £6 per annum for twenty square feet! Shall one man, [...] be allowed to dictate to the miners and to the Government, and stem the tide of wealth [...] (The Sydney Morning Herald, 9 Jan 1854: 8).

Dr Jenkins refusal was also met with great local disappointment, with miners hoping the government would not support his opposition to the American Water Company (The Sydney Morning Herald 3 Feb 1854:2). Many of the miners were waiting in anticipation of the water brought by the American Water Company, as the sluicing would decrease the manual labour required to extract the gold from the carts and sacks that had to be brought down to the river by hand (The People Advocate and NSW Vindicator, 4 Feb 1854: 5).

The rush in Happy Valley began in 1854, though by 1859 most of the best alluvial gold had been taken out. In 1857 there were still high hopes for the Peel River diggings, a correspondent for the Empire publication in Sydney noting:

I am still of the opinion that the Hanging Rock will prove the richest gold field yet discovered in the colony, and the successive discoveries of the past month bear me out in that opinion (Empire, 15 Jul 1857: 5)

However, the Peel River diggings never rivalled the finds at Turon or Burragorang, let alone the major Victorian strikes at Bendigo and Ballarat. The diggings were lucrative enough to support hundreds of miners until the mid-1860s when the easily won alluvial gold began to run out. As early as 1861, Happy Valley, which had been populated by hundreds of prospectors from all corners of the globe, was almost deserted, as miners moved onto richer fields. Chinese miners stayed on and made a small living of abandoned European claims for a few more years, though by 1872 there was very little gold mining activity at Hanging Rock:

The Hanging Rock is now a mere relic of its departed greatness, and views from the height where I stood, where all the old workings could be seen, it seemed like a monster basin [...] surrounded by hills from top to base, turned over, where rich patches were first worked, and in after years 're-turned' again, and still gold procured. Two public houses stand in the valley, their signs 'golden ones' now only to serve to remind one of what was when diggers were plentiful and cash abounding. But little business is done there now – a few old hands remain. (Bayley 1988: 66, cited in J. Boileau 2007: 44).

4.2.4.2 Black Snake Gold Mine

NSW Historic Theme 3 – Developing local, regional and national economies – Mining

The Black Snake Gold Mine is one of 10 mines which form the major gold reefs within the Nundle Goldfield, which covers an area of about 15 km north-south by 5 km east-west and is located approximately about 1.3 km south-east of the Project Area. Most of these mines are situated near the hamlet of Bowling Alley Point or between Nundle and Hanging Rock village. Black Snake is a well-known mine that was once touted as a tourist mine and actually occurs outside the heritage area. Despite the naming under Council's records, Heritage Item I134 covers a multitude of historic gold workings between Devils Elbow and Hanging Rock.

Joseph Clark, a miner born in 1832 in England, came to Australia in 1851. Clark established the Black Snake mine in 1876, over a decade after he arrived in the Nundle area. Clarke worked the mine with another miner, George Cairns until 1926. Using primitive equipment limited to hammers, picks and gunpowder, the two miners constructed 112 metres of tunnels by hand. The main tunnel, winding 80 m into the hillside, was built in the 1880s. They named the mine Black Snake because of the way the main reef of gold twisted and turned, although it generally trended north-south. In June 1890, a Tamworth correspondent for Table Talk (Melbourne) reported that important discoveries had recently been made on the Hanging Rock Mountain, on the Black Snake line of reef.

'In the Broomfield Claim the reef has been cut at a low level, and is surprisingly good, the stone going quite 10oz. to the ton, thus bearing out the opinion expressed by the late Rev. B.W. Clarke that the lower levels in this ground would prove richer than nearer the surface' (Table Talk 27 June 1880:6).

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."²

The Black Snake Gold Mine occupies 17.5 hectares, encompassing both the Black Snake and Brown Snake mines and surrounding land. 'Brown Snake' was a previously used informal name for the mine. Mining took place intermittently from 1877/8 to 1908, with a total production of 63.4 kg gold at grades of 20 – 100 gms/tonne Au.

4.2.5 A New Era of Mining

NSW Historic Theme 3 – Developing local, regional and national economies – Technology

During the early 1860s a new era of mining began in the Nundle district, focusing on quartz reefs. It was found that steam quartz crushing machines could largely replace the laborious work of panning for gold by hand, and the hills and valleys around Nundle were honeycombed with shafts and tunnels. Miners gave their claims and reefs names that expressed their hopes and aspirations: Golden Hole, the Golden Chance, The Golden Gate, Hidden Treasure, Golden Point, Diamond Point, or reflected the polyglot community in which they lived and worked, such as Blackfellow's and Kanaka/Quackanacka (Note * Quackanacka gully directly abuts the southern boundary of the Project Area). There was also a single mine that belonged to woman named Sally, called Sally Grey's mine. (Note* today Sally Grey's gully is approximately 400 m south of the south-western boundary of the active Project Area).

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...³

² McClelland 1997: 153.

³ 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/>>

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.’⁴ 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. Soon 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).

By 1864 631 miners’ licences had been issued at Nundle, and the district produced 8,476 ounces of gold, valued at £32,000. During this time, Chinese miners far outnumbered Europeans and were skilled at constructing waterworks. The Chinese miners continued to work the alluvial gold claims abandoned earlier by European prospectors. Water supplies had become a constant problem on the goldfields, as a large and constant supply of water was needed to wash the crushings. In 1862, the rights to all the water of the western slopes of the Liverpool Range was granted to the American Water Company, and later the Mount Sheba Company subsequently leased the rights from them twenty years later.

In the early 1870s, mining the area was centred on two spots, the Hanging Rock and Foley’s Folly, only two miles apart, divided by the Swamp Creek and today’s Project Area. It was noted at this time that Hanging Rock alluvial had once been rich, though there was ‘nothing very lively stirring up on the field’ at the time (Evening News 25 Sep 1871:3). Working reefs known at the time were the ‘Criterion’ (a vein) wrought by ‘Wood and Christie’ and Stephens tunnelling claim ‘in a very peculiar hill, the bottom being still glossy clay capped with a heavy layer of waterworn wash, in which gold was found. Near to this area was a site known as Dangar’s Hill, ‘locally remarkable for a broad layer of tufa or cinder stone of many colours’ (Evening News 25 Sep 1871: 3). The creek which descended from the high ranges of Hanging Rock into the Peel River below was still thought to be rich with gold:

Scattered parties – both British and Chinese – are still searching for treasure hidden in its rocky bed, and I cannot help thinking that a considerable quantity of gold yet remains in this high ground about the creek head. (Evening News, 25 Sep 1871:3).

By 1882 there were a large number of mining claims and known quartz reefs. Joseph Ruzicka discovered ‘very rich patches of gold at Hanging Rock’ area at Hardens Hill, across from the local cemetery at the beginning of 1882 and on Saturday 18 March he obtained 9 pounds weight of gold from the reef (Adelaide Observer, 18 March 1882:32). This reef became known as Ruzickas Reef or ‘Ruzickas Lady of the Mountain’. In November the same year a miner named Lang struck a large reef with payable gold, after he had been tracing some leaders very near to Ruzickas claim (The Sydney Mail and NSW Advertiser, 11 Nov 1882: 845). The innovative crushing technology inspired many other experienced prospectors to the district, with the Sydney Mail noting ‘...something grand may be expected when science and great experience are brought to bear’ (29 Jul 1882: 168). The new Marquis of Lorne and Price’s Hill Gold-mining Company, under the management of Mr. John Stanning had started work at Bowling Alley Point. The Company had started driving a main low-level tunnel, and putting down a main shaft through the old mine. They also had a 50-foot tunnel in order to cut into the reef (The Sydney Mail and NSW Advertiser, 11 Nov 1882: 845). A new water power machine was purchased by Mr. J.P Robinson and a Mr. Weeks to build a new water wheel, this new plant was used to crush stone from the Possum and Foley’s reefs. The Golden Hole reef was also active at this time, working with a steam pump:

⁴ ‘Environmental devastation on the diggings’. Accessed at < <https://www.sbs.com.au/gold/story.php?storyid=124> >

The Golden Hole [...] is pushing ahead [...], they get small prospects, but as yet nothing payable (The Sydney Mail and NSW Advertiser, 11 Nov 1882: 845).

In 1888 the Mount Sheba Company built the two Sheba dams on Swamp Creek at Hanging Rock (Photograph 4-7). The two dams were built by hand in three weeks. From these dams, water was directed to the miners by means of water races, which can still be seen cutting across the landscape around Hanging Rock today. The Mount Sheba Gold Mine was established in the same year (Photograph 4-8).

During the depression of the 1890s, large numbers of alluvial miners returned to the goldfields to try to make a living. During this time, the Peel River goldfields produced the largest quantity of gold in its history with 5,770 ounces produced at a value of £20,224. Though the new Sheba Dams provided miners with a reliable supply of water and inspired new mining companies to the district, this peak only lasted a few years. The Mount Ephraim Mine closed in 1890 and soon mines at Bowling Alley Point, Hanging Rock and Nundle ceased working. The Tamworth Gold Mining Company began operations on the Nundle goldfields in 1897, though when they failed to make a profit the company folded. Between 1905 and 1917 the Nundle Gold Dredging Syndicate undertook dredging operations in the Peel River, though again this was met with little success.



Photograph 4-7 Sheba Dam 1952 (Bayley 1953:42)



Photograph 4-8 Mount Sheba Gold Mine c.1888, lengths of hose used for carrying water to sluicing hydrants shown (Bayley 1953: 43)

4.2.6 20th Century Growth in Nundle

NSW Historic Theme 4 – Building settlements, towns and cities – Towns suburbs and villages

With the end of the mining era, the settlement of Nundle took advantage of the fertile soil surrounding the township. Local farmers, graziers and townsmen united to maintain a prosperous and wealthy district (Bayley 1953:84). A new Progress Committee was formed at a public meeting at the School of Arts on November 1, 1899. The new Committee turned their attention to new roads, bridges and public buildings until a local government was established.

Rebuilding of the town began early in the 20th century, with a new weatherboard official post office constructed at the corner of Oakenville and Jenkins Streets in 1904. In the early stages of town reconstruction, the Nundle Shire was formed, embracing the whole catchment of the Peel River on the northern side of the Dividing Range, with Nundle township at its centre. In 1907 the All Saints Anglican Church was consecrated and by 1913 the Nundle Shire Offices were erected at the corner of Jenkins and Innes Street. The Shire Offices were built by A.A. Moore at a cost of £646 and opened on 25 January, 1913 by Hon. F. Flowers. In 1930, the Nundle Memorial Hall was opened to honour the locals who had served during World War I. In 1948, the Douglas Dc-3 *Lutana* aircraft crashed into Square Peak west-south-west of Nundle on flight between Brisbane and Sydney.

4.2.7 Hanging Rock Village Today

At its peak Hanging Rock had a population of several thousand people and was made up of several small communities, some having their own churches, schools, School of Arts building, general stores and hotels. Today Hanging Rock has a community hall, a New South Wales Rural Fire Service station and a few homes. The main industry is forestry, agriculture and tourism. At the 2021 census, the population of Hanging Rock was 98.

Also located within Nundle is the Chinese Memorial Garden, a memorial that acknowledges the Chinese who died on the goldfields between the 1860s and 1917 at Hanging Rock and Nundle (Monuments Australia 2020).

4.3 Establishment of Nundle State Forest and Verden Road Quarries

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.⁵ Hardwood logging is known to have commenced in 1949, however records were not actively kept until 1978.⁶ The Forestry District Plan for Glen Innes (1979) (Figure 4-4) shows the area that was cleared and planted in 1969 and 1970 (see also Photographs in Chapter 5, taken during the site visit after recent clearing activities. Figure 1-2 also shows the extent of the clearing that has occurred up to most recently).

The management history of Nundle Management Area centred on the development of plantations in this area.⁷ 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.⁸ 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.⁹

The Project Area is located on land zoned RU3 Forestry under the Tamworth Local Environmental Plan 2010. As previously stated, uses authorised under the *Forestry Act 2012* are permitted in the zone. Section 11 of the Act authorises the “...taking of forest materials” from this land and forest materials are defined as “rock, stone, clay, shells, earth, sand, gravel or any like material”. Therefore, extractive industries are permitted in the zone. The FCNSW quarry site currently supports an existing, small (< 30,000 tonnes per annum) FCNSW quarry operation, which utilises the material for upgrade and maintenance of roads and tracks within the Hanging Rock State Forest.

A review of historical aerial photographs between 1989 to present (Figure 10; Figure 11; Figure 12; and Figure 13) shows that the significant extractive industry that was present in the western section of the Project Area during the site survey has not been occurring for many years. The images also show that felling has occurred between December 2021 (Figure 13) and the present day (Photograph 5-1).

A plan of the geology and mineral deposits in the Nundle area indicates the location of historic mines (Figure 8). Whilst the locations are somewhat questionable (due to scale and lack of precise geolocations) it indicates over 327 mines or reefs across the region. Figure 9 demonstrates the locations of the gold workings across the landscape in proximity to the Project Area. The majority of these had major workings or diggings associated with them. The map indicates that no gold mine or shafts are located within the Project Area or in the vicinity of it. Notwithstanding the surface disturbance by FCNSW, the potential for old gold workings to have occurred in the Project Area is very unlikely, given that the Tertiary basalt geology is not prospective for gold mineralisation. All gold working in the area were located in older basement rocks, and these are not the target of proposed quarrying activities.

⁵ The Soil Nundle State Forest: A Wealth of Timber. The Daily Telegraph, Fri 16 Feb 1917, page 8 (Sydney, NSW: 1883 – 1930)

⁶ 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.

⁷ Government Gazette Notices - Government Gazette of the State of New South Wales (Sydney, NSW : 1901 - 2001) Friday 8 October 1976 - Page 4347

⁸ NSW Local Land Services North West, u.d. Site Preparation Guidelines – Brigalow Nandewar Biolinks.

⁹ 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

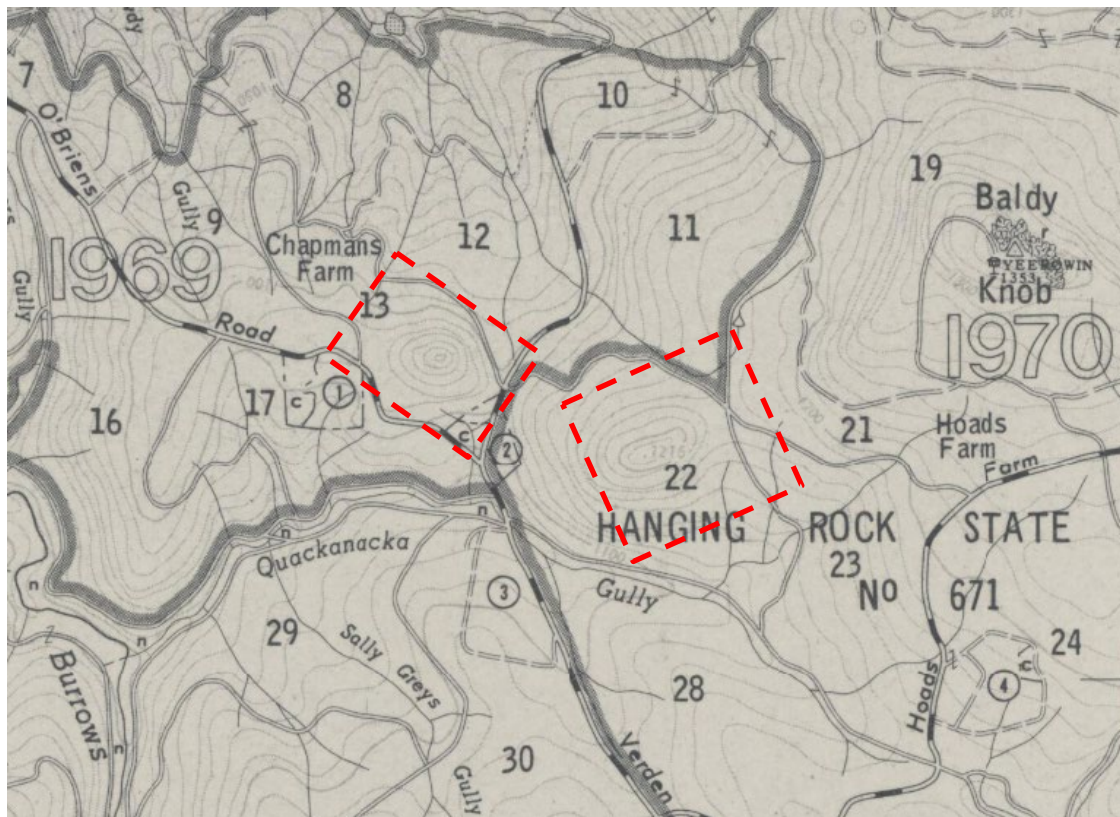


Figure 7 Detail of the Glen Innes Forestry District Plan 1979, with the (approx.) Project Area indicated (Forestry Commission of New South Wales, with ERM mark-up 2022)

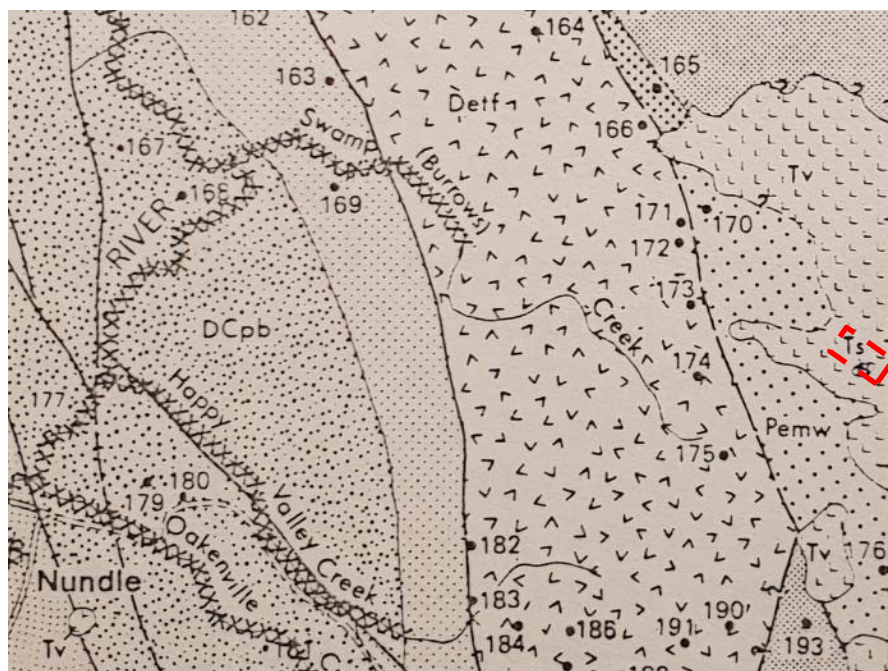


Figure 8 Geology and Mineral Deposits in the Nundle Area. An approximation of the Project Area are indicated (McClelland 1997¹⁰, with ERM mark-up, 2022).

The black dots and numbering indicates known goldmines in the area. No historic mine or shafts are shown in the vicinity of the Project Area

¹⁰ 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>

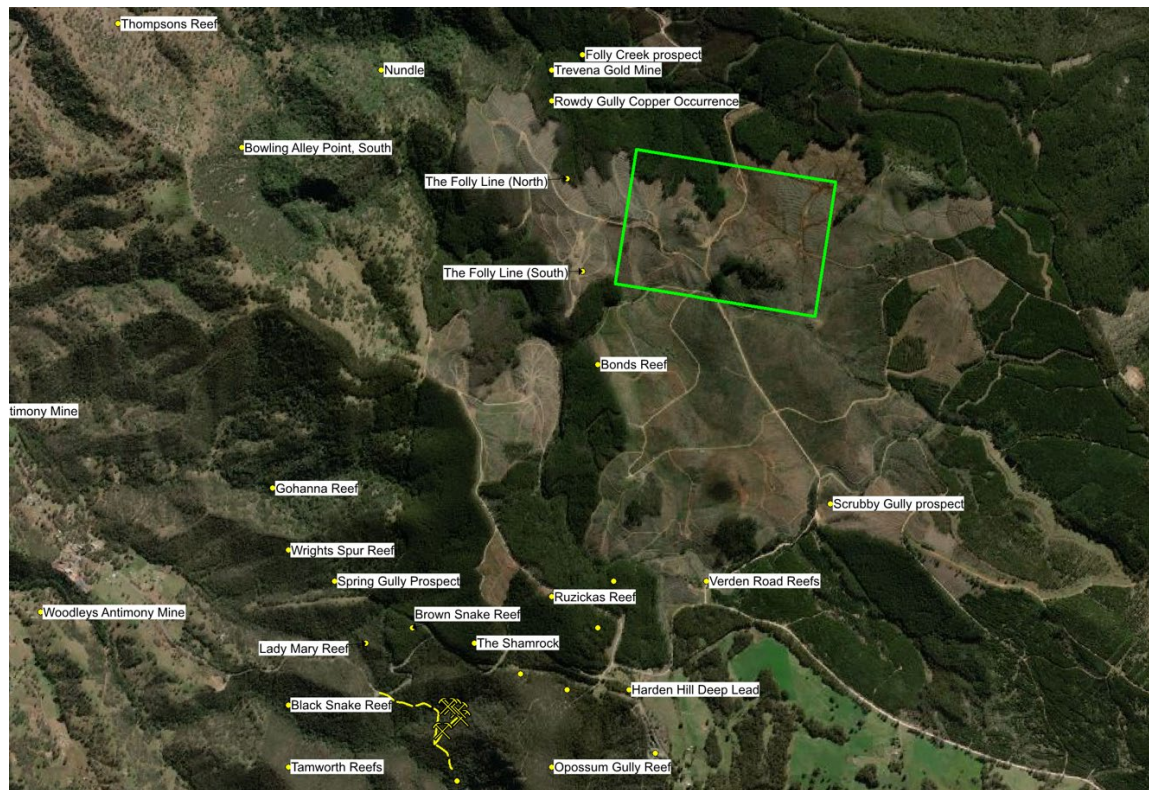


Figure 9 Location of gold mines in proximity to the Project Area (green box).

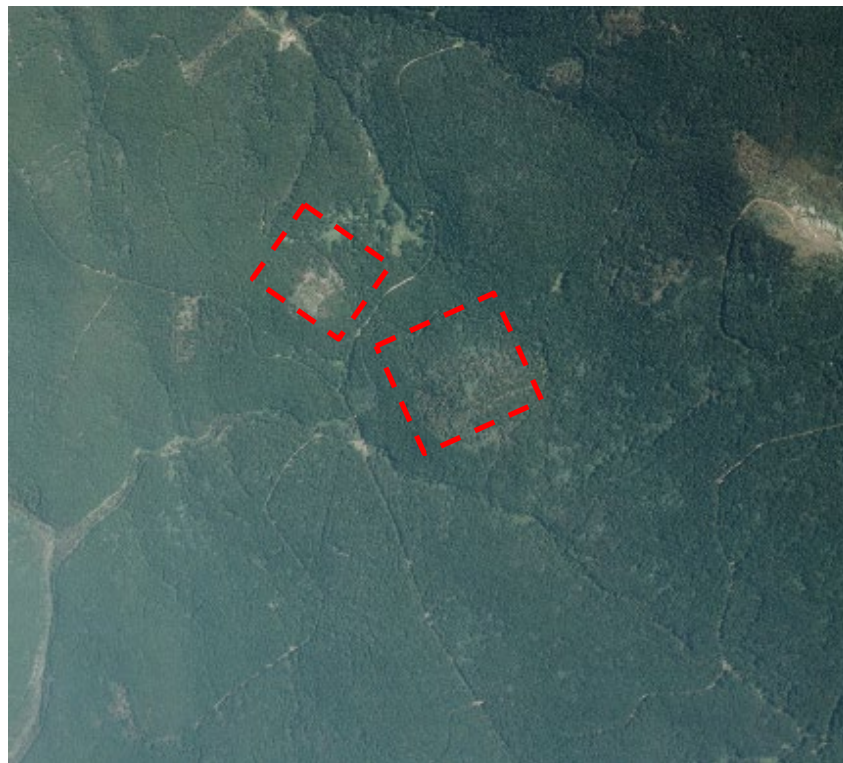


Figure 10 1989 Aerial of the (approx.) Project Area showing the extent of pine forest cover in the region and lack of extractive industry occurring in the western operations section



Figure 11 1997 Aerial of the (approx.) Project Area showing the extent of pine forest cover in the region and lack of extractive industry occurring in the western operations section

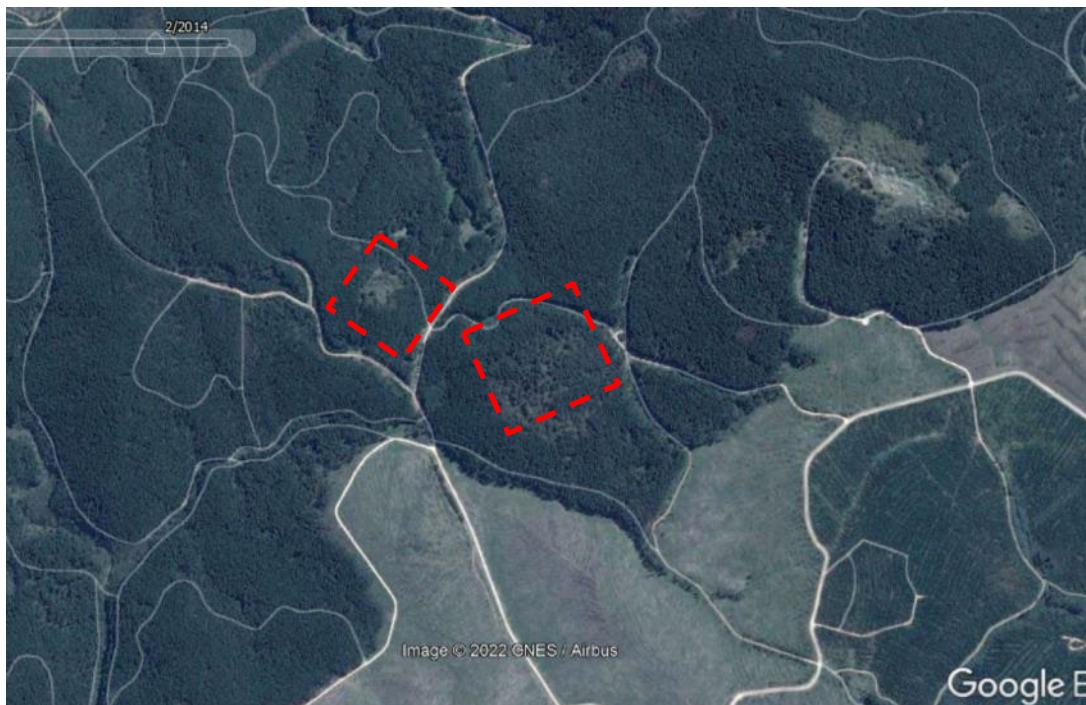


Figure 12 2014 Aerial of the (approx.) Project Area showing the extent of pine forest cover in the region with felling occurring to the south of the Project Area. There still appears to be a lack of extractive industry occurring in the western operations section



Figure 13 2021 Aerial of the (approx.) Project Area showing the extent of pine forest cover in the region with pine growth visible in the felled area to the south of the Project Area. There still appears to be a lack of extractive industry occurring in the western operations section

5. SURVEY DESIGN AND RESULTS

5.1 Survey Aims

The survey methodology adopted for this assessment incorporated a vehicle and pedestrian survey across the proposed quarry area and transport routes used to access those areas identified by the desktop review.

5.2 Methodology

5.2.1 Predictive Modelling

The most effective survey methodology is informed by predictive modelling. Sampling strategies (where to look) can be either *purposive*, where specific areas are targeted as is done with predictive modelling; or *probabilistic*, where decisions are made to survey without any prior knowledge or predictive model of what heritage resources might exist in the landscape to be surveyed. For this survey, a purposive sampling strategy was employed. The field survey was preceded by a desktop-based investigation (Sections 3 and 4), which provided guidance as to the types and location of heritage items and potential heritage values like to be encountered across the Project Area.

Historical and contextual research combined with local information provided by the community enabled an initial assessment of areas known to be of historical interest whilst remaining inside the available timeframes.

5.2.2 Survey and Recording

A guided inspection of the Project Area was undertaken on the 6 October 2022 by ERM Heritage Consultant Lorien Perchard. Bruce Brand from Forestry Corporation of New South Wales (FCNSW) accompanied and guided Lorien during the site inspection. Historical research did not identify any other areas of interest or potential within the Project Area boundaries that required further inspection. The site inspection included a visual inspection of the Verden Road Quarries, and a physical inspection at the location of potential impacts to nearby listed heritage items, including:

- Black Snake Gold Mine (LEP listed area);
- Sheba Dam Gatekeeper's Slab Cottage;
- Residence at 751 Barry Road; and
- Hanging Rock Historic Cemetery.

5.3 Verden Road Quarries

5.3.1 General Setting and Landscape

The Project Area is situated along the elevated ridges of the range south of Nundle and north of Hanging Rock. The landscape is generally characterised by steep gullies, containing drainage lines off the range, and areas of densely vegetated flats. Land use surrounding the Project area is dominated by forestry activities, with low intensity agricultural activities (primarily grazing) occurring within approximately 3 km of the site to the north, northeast and southwest. Today the area is *Pinus radiata* plantation area that supports an existing FCNSW quarry operation. The Project Area is located on land zoned RU3 Forestry under the Tamworth Regional LEP 2010. All land surrounding the quarry including the site has been clear-felled in 2020/2021 per comms.

Quarry operations would be confined to Lot 254 of DP755324 and Lot 6711 of DP1204174. Lot 6711 of DP1204174 is a Crown allotment. At the completion of extraction works, reprofiling of the extraction pit to produce a final landform with batters at 1V:2.5H ($\approx 22^\circ$) and drainage of the surrounding processing and stockpiling area into the pit where possible. If able to hold water, the final pit would function as an additional water storage dam for the property. Stabilisation of the processing and stockpiling area is to be returned to pre-disturbance existing condition in consultation with FCNSW (e.g. plantation ready).

For ease of understanding the quarrying activities have been broken down into two assessment areas: western operations area (Lot 254 of DP755324), and eastern operation areas (Lot 6711 of DP1204174) (Photograph 5-1).



Photograph 5-1 View of the eastern and western operation from the north, therefore the arrow on the left is the eastern operation area and the arrow on the right is the western operation area (ERM 2022)

5.3.2 Western Operations Area

The western operations area is focussed on the existing FCNSW quarry operations area. This site has an area of approximately 13.2 ha, which includes the extraction pit, processing and stockpiling areas, overburden /topsoil emplacement areas and surface water management structures. This would be the primary area for the production of quarry materials (Photograph 5-2). During the site inspection the western operations area had undergone recent blasting and diggers and trucks were onsite.



Photograph 5-2 View towards the south from the east of the western operation area and existing quarry (ERM 2022)

5.3.3 Eastern Operations Area

The eastern operations area is located on the hill immediately to the east of the 'western quarry' (Photograph 5-3). This site has an area of approximately 9.9 ha, which includes the proposed extraction pit, processing and stockpiling areas, overburden /topsoil emplacement areas and surface water management structures. This area would only be used should the quarry materials demand from the HoGWF Project exceed anticipated extraction from the western extraction area (either in total demand quantity and/or rate of demand). To summarise, it would provide a back-up option for the production of quarry materials if required. Note that the two extraction areas would not operate concurrently.



Photograph 5-3 View from north of the eastern operations area (ERM 2022)

5.4 Targeted Site Inspections

The following description of physical inspection areas is provided west to east. Bruce Brand from FCNSW accompanied Lorien Perchard during the site inspection on the 6 October 2022. Bruce Brand commented that the hills in proximity to the Project Area were generally littered by old gold mine shafts, including the area known as Sally Greys Gully, but he wasn't aware of any within the quarry boundaries. He also stated that when FCNSW found these old gold mine shafts in other areas of the forestry reserves, they were usually filled in for safety and their location noted to avoid for future ground works in the area.

5.4.1 Quarry Inspections

5.4.1.1 Western Operations Area

The western operations area is an existing operational quarry with very few structures present except for a portaloo and temporary lunch room. At the time of inspection mechanical diggers and loaders, overburden/topsoil emplacement areas and surface water management structures were in place from the recent blasts that were carried out to loosen up the quarry material. No inspection was carried out in vicinity to the active quarry area or on the slopes below the quarry face. An inspection was carried out from the surrounding landscape and the quarry boundary.

The inspection took into account the nearby heritage listings and their curtilage due to the proximity of the proposed works. The Black Snake Gold Mine listed area (I134) covers a large area of historic hard-rock gold workings to the south of the Project Area, approximately 1.3 km south-west.

The old hard rock mine workings in the district were all strategically located on quartz reefs within old (Palaeozoic) basement rocks (Figure 9). In contrast, the geology of the Project Area is comparatively young (Tertiary-age) basalt, that is entirely unprospective for gold mineralisation. Notwithstanding surface disturbance by FCNSW activities, there is no potential for old mine shafts / workings to occur in the areas proposed for quarry disturbance. They do occur elsewhere in FCNSW land, but only

where older basement rocks occur. No evidence of historic structures was uncovered during the site inspection which could be impacted by the continued quarry operations.



Photograph 5-4 Western operations area (ERM 2022)



Photograph 5-5 Eastern face of the western operations area (ERM 2022)



Photograph 5-6 View of the western operations area from the southern boundary (ERM 2022)



Photograph 5-7 View of the western slope of the western operations area from the western boundary (ERM 2022)

5.4.1.2 Eastern Operations Area

The eastern operation area is located on the hill immediately to the east of the ‘western quarry’ approximately 180 m away. This area comprises approximately 9.9 ha, which includes the proposed extraction pit, processing and stockpiling areas, overburden /topsoil emplacement areas and surface water management structures. Whilst this proposed quarry has not undergone any major earthworks or blasting, it has been subject to significant recent vegetation removal as part of the FCNSW management. During the visual inspection it was noted that all large/mature trees had been removed and water surface management structures (ie. felled tree contouring) had been placed across the entire eastern operations area. This type of land modification for the construction of surface management structures has resulted in significant ground modification throughout the eastern operation area.

This site inspection was used to inspect if any other previously unidentified heritage items are present within the eastern operation boundary. Although the terrain made it difficult to complete a more thorough inspection due to the recent felling and surface management structures no evidence of historic structures was uncovered during the site inspection which could be impacted by the continued quarry operations. Notwithstanding surface disturbance by FCNSW activities, there is no potential for old mine shafts / workings to occur in the areas proposed for quarry disturbance. They do occur elsewhere in FCNSW land, but only where older basement rocks occur. No evidence of historic

structures was uncovered during the site inspection which could be impacted by the continued quarry operations.



Photograph 5-8 Eastern operations area south-west boundary (ERM 2022)



Photograph 5-9 Northern face of the proposed eastern quarry. Note the surface management structures (ERM 2022)



Photograph 5-10 View of the north-east slope of the eastern operations area (ERM 2022)



Photograph 5-11 View of the northern portion of the eastern operations area taken from the base of the proposed quarry slope (ERM 2022)

5.5 Site inspections Heritage items on Hanging Rock

A general inspection of Hanging Rock was undertaken to ascertain if there were any unidentified heritage items that would be impacted by the proposed works. No additional sites were identified; however, this general inspection provided valuable contextual information.

5.5.1.1 *Black Snake Gold Mine, Hanging Rock (Item No. I134, Tamworth Regional LEP 2010)*

A preliminary inspection of the northern portions of the LEP listed curtilage of the Black Snake Gold Mine was undertaken on 6 October 2022. listed area I134 surrounds the area near the Historic Hanging Rock Cemetery of Barry Road and Forest Way junction. The landscape in this area is generally very steep and hilly, being situated close to the top of the range.

5.5.1.2 *Sheba Dam Gatekeeper's Slab Cottage (Item No. I135, Tamworth Regional LEP 2010)*

A preliminary inspection of the Sheba Dam recreation area and the gate keeper's cottage was undertaken on 6 October 2022. Sheba Dam recreation area is open to the public and contains public toilets and parking areas. The location of the slab cottage was not visible from the road or the recreation area.



Photograph 5-12 Sheba Dam (ERM 2022)

5.5.1.3 *Residence at 751 Barry Road (Item No. I136, Tamworth Regional LEP 2010)*

A preliminary inspection of the Residence at 751 Barry Road was undertaken on 6 October 2022. The curtilage of the heritage listed house is set back from Barry Road by approximately 50 m with the house itself set back from the road by approximately 125 m with views of the house obscured by dense tree growth along the Barry Road fence line.

5.5.1.4 *Hanging Rock Historic Cemetery (Item No. I137, Tamworth Regional LEP 2010)*

A preliminary inspection of the Hanging Rock Historic Cemetery was undertaken on 6 October 2022. Hanging Rock Historic Cemetery is located at the end of the Hanging Rock State Forest and is located approximately 2.5 km south of the Project Area. The plaque commemorates the site of the cemetery as surveyed in 13 August 1869 and dedicated 14 February 1873 (Photograph 5-13). It contained five sections, for Roman Catholic, Church of England, Jewish and Wesleyan denominations, and a general section. The dedication of the cemetery was subsequently revoked but it was officially rededicated in 1896. The cemetery was in use until 1964, when its use for all denominations except the general denomination was revoked. Perhaps the most well known person buried in the cemetery is the miner Yankee Jack, who died at the age of 86 on 25 July 1925. It was the final resting place of many of the early miners at Hanging Rock, but few of the original headstones remain today (Photograph 5-15). A new entrance and fence has been installed (Photograph 5-14).



Photograph 5-13 Hanging Rock Historic Cemetery plaque (ERM 2022)



Photograph 5-14 Hanging Rock Historic Cemetery new fence and entrance (ERM 2022)



Photograph 5-15 Collection of head stones within the Hanging Rock Historic Cemetery (ERM 2022)

5.6 Site Inspection Summary

Physical inspection of the western and eastern operation areas identified no previously unknown heritage items. The inspection also confirmed that none of the known heritage sites will be directly impacted by the proposed works.

6. HISTORIC HERITAGE SIGNIFICANCE SUMMARY

6.1 Listed Heritage Items

The field survey of the Project Area did not yield identification of any previously unidentified heritage places that would require assessment of significance.

There are four previously identified heritage site in proximity to the quarry and transport route that are listed on Schedule 5 of the Tamworth Regional LEP. Table 6-1 below provides an overview of the known heritage items along the transport route, and their assessed significance levels, and the heritage criteria under which the place has been assessed as significant.

A comprehensive table outlining the Statement of Significance for each of these sites is provided in *Appendix C*.

Table 6-1 Locally listed heritage items and Heritage Significance Summary

Site Name	LGA	Listing / ID #	Significance Criteria	Significance Level
Black Snake Gold Mine	Tamworth	LEP - I134	Historical	Local
Sheba Dam, Gatekeepers Slab Cottage	Tamworth	LEP - I135	Historical	Local
Residence	Tamworth	LEP - I136	Historical	Local
Hanging Rock Historic Cemetery	Tamworth	LEP - I137	Historical	Local

6.2 Historical Archaeological Potential and Significance

As per comms. with Bruce Brand from FCNSW the possibility for evidence of historical mine activities to be evident throughout the gullies and valleys across Hanging Rock including the landscape surrounding the Project Area is possible. When FCNSW comes across the mine shafts during planting and felling operations within the pine forests they are generally filled in for safety reasons and recorded within the FCNSW database. The level of significance of these historic mines shafts remain low as they would likely have been heavily modified or destroyed. The most likely area for hidden /filled shafts, as per comms, could be in the lower part of the gullies on the north face of the western operations area. Due to the steep terrain surveyed within the Project Area the potential for mine shafts to be present was found to be low.

Historical mine workings within the Hanging Rock State Forest were typically associated with narrow gold-bearing quartz reefs located within Palaeozoic basement rocks. The geology of the Project Area is dominated by much younger (Tertiary-age) volcanic rocks, therefore there it is highly unlikely that any old workings will occur within the Project Area.

Table 6-2 Archaeological Potential Assessment

Location	Potential Archaeological Resource	Integrity of Archaeological Evidence	Archaeological Potential	Potential significance level (Research Value)
Western Operations Area	In-filled mine shafts	The significant impacts from the later forestry management and quarry phases would have effectively removed/destroyed any evidence of this mining land use.	Nil	Low at a Local level of significance - dependent on type and integrity of remains

Location	Potential Archaeological Resource	Integrity of Archaeological Evidence	Archaeological Potential	Potential significance level (Research Value)
Eastern Operations Area	In-filled mine shafts	The significant impacts from the later forestry management phase would have effectively removed/destroyed any evidence of this mining land use.	Nil	Low at a Local level of significance level - dependent on type, date and integrity of remains

Section 4.2 of the NSW Department of Planning 2009 guidelines for *Assessing Significance for Historical Archaeological Sites and Relics* is used for assessing the archaeological significance and research potential of an archaeological site within a relative framework. If an archaeological site or relic was present within the Project Area they would be subject to the following questions and answers:

Can the site contribute knowledge that no other resource can?

No.

Can the site contribute knowledge that no other site can?

No.

Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

No.

7. HERITAGE IMPACT ASSESSMENT

This section provides a summary of the potential impacts for each heritage item identified, and includes a preliminary analysis of consequence. Recommendations for mitigation of impacts and management of heritage items during quarrying activities or transportation are provided in Section 8 of this report. Heritage items listed in the following tables that follow are identified at their highest level of protection. The sections below outline the metrics utilised to undertake the impact assessment.

7.1 Consequence Ratings

The following 'consequence ratings' are used to provide an assessment of level of impact to the heritage item. The consequence ratings have been devised to illustrate the level of impact, and provide a framework against which mitigation and management recommendations can be made.

Table 7-1 Consequence Ratings

Rating	Consequence or Impact to heritage item
5 - Major	Permanent detrimental impact to the heritage item would occur, beyond salvage and where replacement is not possible. The impact would cause irreversible negative impact to the overall heritage significance of the heritage item or place.
4 - Major	Permanent detrimental impact on one or more of the following would occur, but may be reduced through mitigation measures: the significance, any of the values that contribute to significance, the functionality of the item or place, and / or the item or place's availability for access.
3 - Significant	Some damage or change may occur that would require remedial action, and permanent impact would occur to one or more of the following: the significance, any of the values that contribute to significance, the functionality of the item or place, and / or the item or place's availability for access.
2 - Minor	Minor damage or change could be relatively and easily remedied or repaired, with no permanent negative impact to the heritage item's significance or heritage values contributing to significance, the functionality of the item or place, or the item or place's availability for access.
1 - Insignificant	Damage or change, if it occurred at all, would be of an extremely slight or minor nature.

7.2 Type of Impact

The following impact definitions (Table 7-2) have been utilised in the impact assessment to demonstrate the effect of the proposed works on identified heritage items. Table 7-3 below provides details of proposed project impacts at all locations where known heritage items have been identified in proximity to proposed works.

Table 7-2 Types of Impact

Type of Impact	Description
Direct	Direct impact is defined as physical impact on the heritage item or its listed curtilage. Direct impact may result from construction activities, proposed road upgrades, or transportation of materials.
Indirect/Potential	Indirect or temporary impact may include reduction of the listed curtilage of an item, temporary visual impact, or temporary modification of the item. Potential impact is identified where an item has been identified in proximity to works, and has been flagged for further review.
No impact	The heritage item will not be impacted by the proposed works

Table 7-3 Impact Assessment – Listed Heritage Items (TRC LEP 2010)

LGA	ID #	Heritage item	Impact Type	Potential Impact	Consequence Rating
Tamworth	I134	Black Snake Gold Mine	No Impact	<p>The locally heritage listed Black Snake Gold Mine LEP listed area has a low chance to be impacted as it is located over 1.4 km away and the actual location of the Black Snake Gold mine is located at least 3.8 km away.</p> <p>Black Snake is a well-known mine that was once touted as a tourist mine. Figure 9 shows that the Black Snake Mine actually occurs 3.8 km away from the proposed quarry. Despite the naming under Council's records, The listed area for heritage item I134 covers a multitude of historic gold workings between Devil's Elbow and Hanging Rock, all of which will not be impacted by the quarry activities.</p>	1 – Insignificant
Tamworth	I135	Sheba Dam, Gatekeepers Slab Cottage	No Impact	The locally heritage listed Sheba Dam, Gatekeepers Slab Cottage has a low chance to be impacted as it is located over 4.3 km away.	1 – Insignificant
Tamworth	I136	Residence	No Impact	The locally heritage listed Residence has a low chance to be impacted as it is located over 2.8 km away.	1 – Insignificant
Tamworth	I137	Hanging Rock Historic Cemetery	No Impact	The locally heritage listed Hanging Rock Historic Cemetery has a low chance to be impacted as it is located over 2.6 km away.	1 – Insignificant

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The key findings of this historic heritage assessment are summarised below:

- No historic heritage sites have been identified within the Project Area;
- The proposed quarrying of material and transport to the HoGWF site will result in no impacts to nearby listed historic heritage items; and
- There is low potential for intact historical archaeology related to 19th century mining activities being present within the Project Area boundaries as all gold working in the area were located in older basement rocks, and these are not the target of proposed quarrying activities. Historical mine workings within the Hanging Rock State Forest were typically associated with narrow gold-bearing quartz reefs located within Palaeozoic basement rocks. The geology of the Project Area is dominated by much younger (Tertiary-age) volcanic rocks, therefore there it is highly unlikely that any old workings will occur within the Project Area; and
- Any potential evidence would have low integrity and therefore low research value due to the likely significant impact by the forestry land management's practices.

8.2 Recommendations

Based on the results of this report, as summarised above, the following recommendations are made:

- All works should be undertaken in accordance with the Non-Aboriginal Heritage Unexpected Finds Procedure, presented in Section 8.2.1 of this report.

8.2.1 *Unexpected Finds Procedure*

Historical artefacts or material may be unearthed unexpectedly around the proposed works. These could potentially be located on the ground surface or subsurface. In the event of the discovery of any historical artefacts or material during project activities, such as evidence of former historic mining activities or shafts, the steps in Figure 8-1 below should be followed.

If suspected human remains are identified, the following procedure should be followed:

1. cease work in the immediate area;
2. notify site supervisor and protect the suspected remains until an initial assessment can be undertaken by a technical specialist;
3. preliminary notification to NSW Police; and
4. no works to recommence in the area until cleared by the relevant authorities.

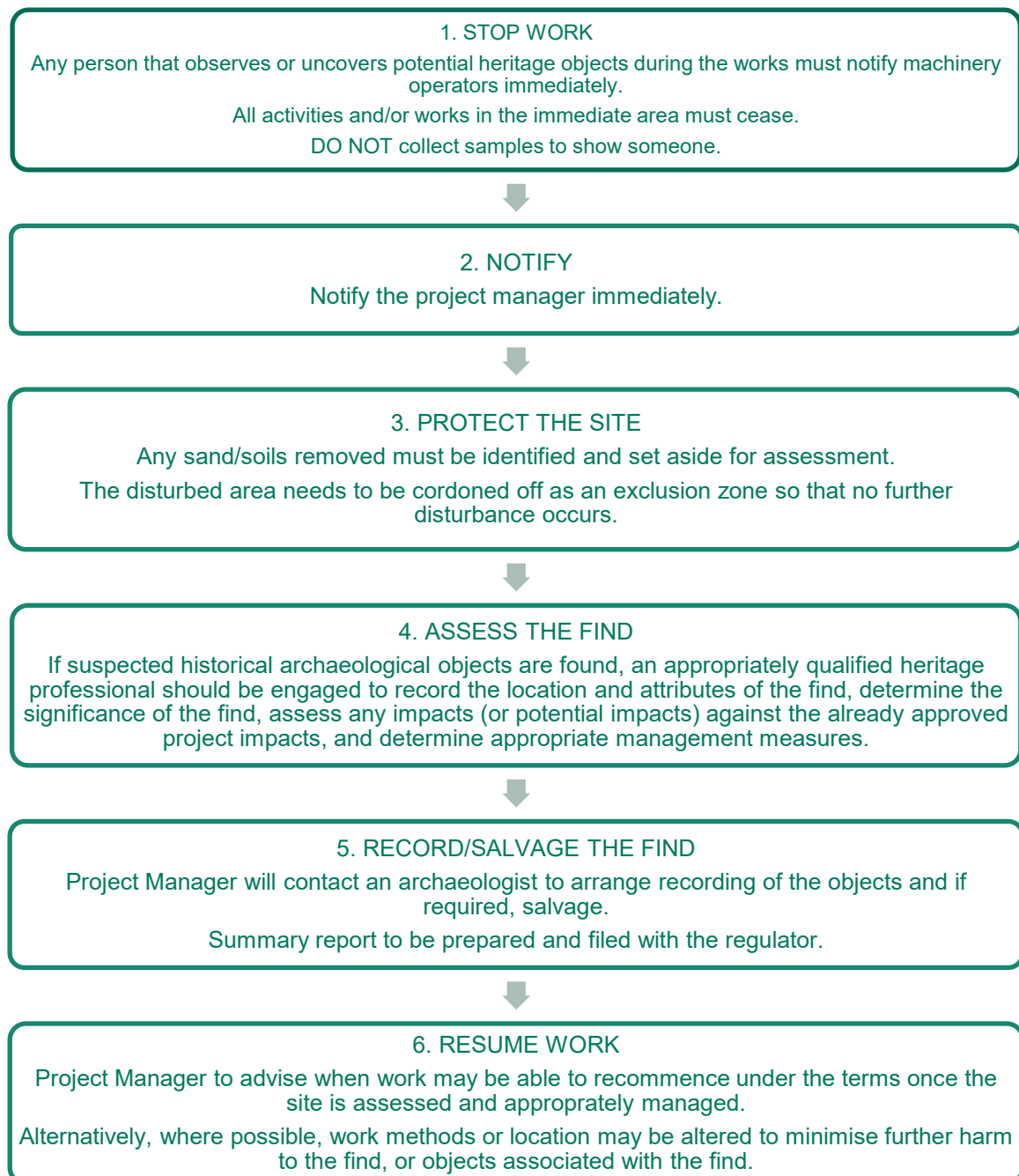


Figure 14 Unexpected Finds Procedure

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APPENDIX A HERITAGE DATABASE SEARCH RESULTS

Tamworth Regional Council Area

Site Name	Register / Item #	Location
Black Snake Gold Mine	LEP – I134 RNE (Ind) – 101052	Nundle Road, Hanging Rock
Sheba Dam, Gatekeepers Slab Cottage	LEP – I135	Barry Road, Hanging Rock
Residence	LEP – I136	751 Barry Road, Hanging Rock
Hanging Rock Historic Cemetery	LEP – I137	Forest Way, Hanging Rock

APPENDIX B KNOWN HERITAGE SITES – STATEMENTS OF SIGNIFICANCE

Site Name	LGA	Listing / ID #	Statement of Significance	Significance Level
Black Snake Gold Mine	Tamworth	LEP - I134	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.	Local
Sheba Dam Gate Keepers Slab cottage	Tamworth	LEP – I135	Sheba Dam Gatekeeper's Cottage is significant due to its links with the gold rush and its potential to reveal technical information.	Local
Residence	Tamworth	LEP – I136	N/A	Local
Hanging Rock Historic Cemetery	Tamworth	LEP – I137	N/A	Local

APPENDIX C NSW HISTORICAL THEMES

New South Wales Historical Themes

**Table showing correlation of national, state and local themes,
with annotations and examples**

Dated 4 October 2001

Australian Theme	NSW Theme		Notes	Examples
1 Tracing the natural evolution of Australia,	Environment - naturally evolved	Local themes	There are two aspects to this theme: (1) Features occurring naturally in the physical environment which have significance independent of human intervention (2) Features occurring naturally in the physical environment which have shaped or influenced human life and cultures.	A geological formation, fossil site, ecological community, island, soil site, river flats, estuary, mountain range, reef, lake, woodland, seagrass bed, wetland, desert, alps, plain, valley, headland, evidence of flooding, earthquake, bushfire and other natural occurrences.
2 Peopling Australia	Aboriginal cultures and interactions with other cultures	Local themes	Activities associated with maintaining, developing, experiencing and remembering Aboriginal cultural identities and practises, past and present; with demonstrating distinctive ways of life; and with interactions demonstrating race relations.	Place name, camp site, midden, fish trap, trade route, massacre site, shipwreck contact site, missions and institutions, whaling station, pastoral workers camp, timber mill settlement, removed children's home, town reserve, protest site, places relating to self-determination, keeping place, resistance & protest sites, places of segregation, places of indentured labour, places of reconciliation

2 Peopling Australia	Convict	Local themes	Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788-1850) – does not include activities associated with the conviction of persons in NSW that are unrelated to the imperial 'convict system': use the theme of Law & Order for such activities	Prison, convict shipwreck, convict system document, ticket-of-leave and probationary living quarters, guards uniform, landscapes-of-control, lumber yard, quarry, gallows site, convict-built structure, convict ship arrival site, convict barracks, convict hospital, estate based on convict labour, place of secondary punishment.
2 Peopling Australia	Ethnic influences	Local themes	Activities associated with common cultural traditions and peoples of shared descent, and with exchanges between such traditions and peoples.	Blessing-of-the-fleet site, ethnic community hall, Chinese store, place or object that exhibits an identifiable ethnic background, marriage register, Coat of Arms, olive grove, date palm plantation, citizenship ceremony site, POW camp, register of ship crews, folk festival site, ethnic quarter in a town.
2 Peopling Australia	Migration	Local themes	Activities and processes associated with the resettling of people from one place to another (international, interstate, intrastate) and the impacts of such movements	Migrant hostel, customs hall, border crossing, immigration papers, bus depot, emigrant shipwreck, Aboriginal mission, quarantine station, works based on migrant labour, detention centre.
3 Developing local, regional and national economies	Agriculture	Local themes	Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture	Hay barn, wheat harvester, silo, dairy, rural landscape, plantation, vineyard, farmstead, shelterbelt, silage pit, fencing, plough markings, shed, fish farm, orchard, market garden, piggery, common, irrigation ditch, Aboriginal seasonal picking camp.

3 Developing local, regional and national economies	Commerce	Local themes	Activities relating to buying, selling and exchanging goods and services	Bank, shop, inn, stock exchange, market place, mall, coin collection, consumer wares, bond store, customs house, trade routes, mint, Aboriginal trading places, Aboriginal ration/blanket distribution points, Aboriginal tourism ventures
3 Developing local, regional and national economies	Communication	Local themes	Activities relating to the creation and conveyance of information	Post office, telephone exchange, printery, radio studio, newspaper office, telegraph equipment, network of telegraph poles, mail boat shipwreck, track, airstrip, lighthouse, stamp collection.
3 Developing local, regional and national economies	Environment - cultural landscape	Local themes	Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings	A landscape type, bushfire fighting equipment, soil conservation structures, national park, nature reserve, market garden, land clearing tools, evidence of Aboriginal land management, avenue of trees, surf beach, fishing spot, plantation, place important in arguments for nature or cultural heritage conservation.
3 Developing local, regional and national economies	Events	Local themes	Activities and processes that mark the consequences of natural and cultural occurrences	Monument, photographs, flood marks, memorial, ceremonial costume, honour board, blazed tree, obelisk, camp site, boundary, legislation, place of pilgrimage, places of protest, demonstration, congregation, celebration.
3 Developing local, regional and national economies	Exploration	Local themes	Activities associated with making places previously unknown to a cultural group known to them.	Explorers route, marked tree, camp site, explorer's journal, artefacts collected on an expedition, captain's log, surveyor's notebook, mountain pass, water source, Aboriginal trade route, landing site, map.

3 Developing local, regional and national economies	Fishing	Local themes	Activities associated with gathering, producing, distributing, and consuming resources from aquatic environments useful to humans.	Fishing boat, whaling station, marine reserve, fisher camp, seafood factory, fish shop, oyster lease, artificial reef, fishing boat wreck, mooring, dock, marina, wharf, fish farm, fish trap
3 Developing local, regional and national economies	Forestry	Local themes	Activities associated with identifying and managing land covered in trees for commercial timber purposes.	Forested area, forest reserve, timber plantation, forestry equipment, saw mill, mill settlement, arboretum, charcoal kiln, coppiced trees, forest regrowth, timber tracks, whim.
3 Developing local, regional and national economies	Health	Local themes	Activities associated with preparing and providing medical assistance and/or promoting or maintaining the well being of humans	Hospital, sanatorium, asylum, surgical equipment, ambulance, nurses quarters, medical school, baby clinic, hospital therapy garden, landscaped grounds, herbalist shop, pharmacy, medical consulting rooms.
3 Developing local, regional and national economies	Industry	Local themes	Activities associated with the manufacture, production and distribution of goods	Factory, workshop, depot, industrial machinery, timber mill, quarry, private railway or wharf, shipbuilding yard, slipway, blacksmithy, cannery, foundry, kiln, smelter, tannery, brewery, factory office, company records.
3 Developing local, regional and national economies	Mining	Local themes	Activities associated with the identification, extraction, processing and distribution of mineral ores, precious stones and other such inorganic substances.	Mine, quarry, race, mining field or landscape, processing plant, manager's office, mineral specimen, mining equipment, mining license, ore laden shipwreck, collier, mine shaft, sluice gate, mineral deposit, slag heap, assay office, water race.

3 Developing local, regional and national economies	Pastoralism	Local themes	Activities associated with the breeding, raising, processing and distribution of livestock for human use	Pastoral station, shearing shed, slaughter yard, stud book, photos of prize-winning stock, homestead, pastoral landscape, common, fencing, grassland, well, water trough, freezer boat shipwreck, wool store.
3 Developing local, regional and national economies	Science	Local themes	Activities associated with systematic observations, experiments and processes for the explanation of observable phenomena	Laboratory, experimental equipment, text book, observatory, botanical garden, arboretum, research station, university research reserve, weather station, soil conservation area, fossil site, archaeological research site.
3 Developing local, regional and national economies	Technology	Local themes	Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	Computer, telegraph equipment, electric domestic appliances, underwater concrete footings, museum collection, office equipment, Aboriginal places evidencing changes in tool types.
3 Developing local, regional and national economies	Transport	Local themes	Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	Railway station, highway, lane, train, ferry, wharf, tickets, carriage, dray, stock route, canal, bridge, footpath, aerodrome, barge, harbour, lighthouse, shipwreck, canal, radar station, toll gate, horse yard, coach stop.
4 Building settlements, towns and cities	Towns, suburbs and villages	Local themes	Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	Town plan, streetscape, village reserve, concentrations of urban functions, civic centre, subdivision pattern, abandoned town site, urban square, fire hydrant, market place, abandoned wharf, relocated civic centre, boundary feature, municipal Coat of Arms

4 Building settlements, towns and cities	Land tenure	Local themes	Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Fence, survey mark, subdivision pattern, land title document, boundary hedge, , stone wall, shelterbelt, cliff, river, seawall, rock engravings, shelters & habitation sites, cairn, survey mark, trig station, colonial/state border markers.
4 Building settlements, towns and cities	Utilities	Local themes	Activities associated with the provision of services, especially on a communal basis	Water pipeline, sewage tunnel, gas retort, powerhouse, County Council office, garbage dump, windmill, radio tower, bridge, culvert, weir, well, cess pit, reservoir, dam, places demonstrating absence of utilities at Aboriginal fringe camps
4 Building settlements, towns and cities	Accommodation	Local themes	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.	Terrace, apartment, semi-detached house, holiday house, hostel, bungalow, mansion, shack, house boat, caravan, cave, humpy, migrant hostel, homestead, cottage, house site (archaeological).
5 Working	Labour	Local themes	Activities associated with work practises and organised and unorganised labour	Trade union office, bundy clock, time-and-motion study (document), union banner, union membership card, strike site, staff change rooms, servants quarters, shearing shed, green ban site, brothel, kitchen, nurses station, hotel with an occupational patronage.
6 Educating	Education	Local themes	Activities associated with teaching and learning by children and adults, formally and informally.	School, kindergarten, university campus, mechanics institute, playground, hall of residence, text book, teachers college, sail training boat wreck, sportsfield, seminary, field studies centre, library, physical evidence of academic achievement (e.g. a medal or certificate).

7 Governing	Defence	Local themes	Activities associated with defending places from hostile takeover and occupation	Battle ground, fortification, RAAF base, barracks, uniforms, military maps and documents, war memorials, shipwreck lost to mines, scuttled naval vessel, POW camp, bomb practice ground, parade ground, massacre site, air raid shelter, drill hall,
7 Governing	Government and administration	Local themes	Activities associated with the governance of local areas, regions, the State and the nation, and the administration of public programs – includes both principled and corrupt activities.	Municipal chamber, County Council offices, departmental office, legislative document, symbols of the Crown, State and municipal flags, official heraldry, ballot box, mayoral regalia, places acquired/disposed of by the state, customs boat, pilot boat, site of key event (eg federation, royal visit), protest site, physical evidence of corrupt practises.
7 Governing	Law and order	Local themes	Activities associated with maintaining, promoting and implementing criminal and civil law and legal processes	Courthouse, police station, lock-up, protest site, law chambers, handcuffs, legal document, gaol complex, water police boat, police vehicle, jail, prison complex (archaeological), detention centre, judicial symbols
7 Governing	Welfare	Local themes	Activities and process associated with the provision of social services by the state or philanthropic organisations	Orphanage, retirement home, public housing, special school, trades training institution, employment agency,
8 Developing Australia's cultural life	Domestic life	Local themes	Activities associated with creating, maintaining, living in and working around houses and institutions.	Domestic artefact scatter, kitchen furnishings, bed, clothing, garden tools, shed, arrangement of interior rooms, kitchen garden, pet grave, chicken coop, home office, road camp, barrack, asylum.

8 Developing Australia's cultural life	Creative endeavour	Local themes	Activities associated with the production and performance of literary, artistic, architectural and other imaginative, interpretive or inventive works; and/or associated with the production and expression of cultural phenomena; and/or environments that have inspired such creative activities.	Opera house, theatre costume, film studio, writer's studio, parade tableau, manuscripts, sound recording, cinema, exemplar of an architectural style, work of art, craftwork, and/or public garden, bandstand, concert hall, rock art site, rotunda, library, public hall; and/or a, particular place to which there has been a particular creative, stylistic or design response.
8 Developing Australia's cultural life	Leisure	Local themes	Activities associated with recreation and relaxation	Resort, ski lodge, chalet, cruise ship, passenger rail carriage, swimming pool, dance hall, hotel, caravan park, tourist brochures, park, beach, clubhouse, lookout, common, bush walking track, Aboriginal Christmas camp site, fishing spot, picnic place, swimming hole.
8 Developing Australia's cultural life	Religion	Local themes	Activities associated with particular systems of faith and worship	Church, monastery, convent, rectory, presbytery, manse, parsonage, hall, chapter house, graveyard, monument, church organ, synagogue, temple, mosque, madrasa, carved tree, burial ground
8 Developing Australia's cultural life	Social institutions	Local themes	Activities and organisational arrangements for the provision of social activities	CWA Room, Masonic hall, School of Arts, Mechanic's Institute, museum, art gallery, RSL Club, public hall, historical society collection, public library, community centre, Aboriginal mission hall or school room.
8 Developing Australia's cultural life	Sport	Local themes	Activities associated with organised recreational and health promotional activities	Oval, race course, swimming pool, bowling club, bowling green, trophies, calendar of fixtures, cricket set, yacht pens, tennis court, rugby field, speedway, sporting equipment, bocce court.

9 Marking the phases of life	Birth and Death	Local themes	Activities associated with the initial stages of human life and the bearing of children, and with the final stages of human life and disposal of the dead.	Birth control clinic, maternity hospital, nursery, baby clinic, baptism register, circumcision equipment, and Hospice, nursing home, funeral parlour, grave furnishings, cremation site, cemetery, burial register, disaster site, memorial plantings, shipwreck with loss of life,
9 Marking the phases of life	Persons	Local themes	Activities of, and associations with, identifiable individuals, families and communal groups	A monument to an individual, a family home, a dynastic estate, private chapel, a birthplace, a place of residence, a gendered site, statue, Coat of Arms, commemorative place name, place dedicated to memory of a person (e.g. hospital wing).

Notes:

Editorial

- The table is arranged numerically in the order of the national themes, and then within each national theme alphabetically in order of the state themes – no other particular order is intended.

Thematic usages

- The inclusion of an example against one theme does not exclude its consideration against one or more of the other themes (e.g Asylum) to indicate that the physical development of an item can be shaped by more than one historical process of theme during its existence.
- Aboriginal histories can be analysed using any theme(s) relevant to the place or object being considered – it is not necessary to restrict analysis to the theme of 'Aboriginal cultures and interactions with other cultures' only
- The theme of 'Domestic Life' can be used to explore the historical contexts for interior or private, domestic spaces and objects.
- The theme of 'Forestry' can be used for the active management of natural and regrowth trees for timber production while the theme of 'Agriculture' can be used for the intensive cultivation of exotic trees for purposes other than timber production.

Correlations

- The placement of the 36 State themes against the National themes was informed by the arrangement of the 84 national sub-themes and 116 national sub-sub-themes developed by the AHC for each of its National themes – the placements are not random.
- The development of local themes is accommodated within this framework with each local theme regarded as a correlation to a State theme in a similar manner to the relationship between the State and National themes
- Generally, local = local government area, but can also be used in other ways, such as a particular ethnic or social community, or a locality that is smaller than an LGA or straddles an LGA boundary, or a locality larger than an LGA such as a SHR historical region or an ecclesiastical diocese or an area smaller than the whole state but larger than an LGA, such as the area within an Aboriginal nation or Land Council.

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