APPENDIX L
Aboriginal cultural heritage assessment

Evolution MINING

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Cowal Gold Operations Open Pit Continuation Project

Aboriginal Cultural Heritage Assessment

Prepared for Evolution Mining (Cowal) Pty Ltd

May 2023

Cowal Gold Operations Open Pit Continuation Project

Aboriginal Cultural Heritage Assessment

Evolution Mining (Cowal) Pty Ltd

J190417 RP1

May 2023

Version	Date	Prepared by	Approved by	Comments
V1	16 March 2023	Taylar Reid, Georgia Burnett and Cameron Neal	Dr Alan Williams	
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Executive Summary

Evolution Mining (Cowal) Pty Limited (Evolution) is the owner and operator of Cowal Gold Operations (CGO), an existing open pit and underground gold mine approximately 38 kilometres (km) north-east of West Wyalong, in the Central West region of New South Wales (NSW). Evolution is seeking approval for further open pit mining operations at CGO through the Open Pit Continuation Project (the Project). The Project primarily seeks to continue the open pit operations by approximately 10 years to 2036 and extend the total mine life by approximately two years to 2042.

This Aboriginal cultural heritage assessment (ACHA) report forms part of the environmental impact statement (EIS) being developed to inform government decisions on whether the Project should be allowed to proceed. It documents the assessment methods, results and the initiatives built into the Project design to avoid and minimise Aboriginal cultural heritage impacts, and the additional mitigation and management measures proposed to address residual impacts which cannot be avoided.

The assessment adopted the processes and methods outlined in Heritage NSW's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010), as well as additional Project-specific communication strategies to promote transparent and frequent two-way dialogue between the Aboriginal community and the Project. Evolution also has a two decade history of working with the local Wiradjuri traditional owners. Overall, the Project has been liaising with three Aboriginal organisations and/or individuals since its inception in early March 2022 to February 2023. The RAPs include well-established Wiradjuri individuals and/or organisations based in West Wyalong and/or Condobolin, and with at least a decade of working with Evolution at CGO. Opportunity for Aboriginal involvement in consultation for the Project was provided throughout the ACHA, including:

1. attendance at two face-to-face meetings during key phases of the Project
2. participation in a two week field survey of the Project area
3. participation in a three week archaeological test excavation of the Project area
4. participation for key knowledge-holders to undertake interviews with a highly experienced anthropologist to discuss cultural values.

Ultimately, over 50 interactions have been undertaken with the RAPs across these opportunities. With two of the organisations, West Wyalong LALC and Wiradjuri Condobolin Corporation, participating in these opportunities, and totalling over 24 days on site cumulatively. Discussions with the RAPs have been extensive and wide-ranging over the 11 month assessment process. Feedback on the Project and ACHA activities has generally been positive, with a strong focus on the cultural values of the region and especially the cultural flows associated with Lake Cowal; who speaks for Country; and what the Project meant for existing approvals and agreements currently in place. These are all acknowledged in this report in Chapter 2, Appendix B.5, and/or proposed for management following Project approval.

The Project area has been subject to over 30 archaeological investigations since the 1990s, and as such a robust archaeological model for the site has been developed. This highlights the importance of the edge of Lake Cowal and localised use of Gilgai water-holes further inland. Sites have been dominated by various densities of surface and/or shallowly buried stone artefacts, hearths and culturally modified trees. However, the Project area has been subject to substantive impacts from mining operations since 2003, and few parts of the Project area have not been subject to recent development activity.

Cultural mapping was undertaken by a highly experienced anthropologist and key knowledge-holders for the Project. Some six specific locations were identified in the general region as having traditional, historical and/or contemporary values to the local Aboriginal community. None of these sites are within the study area, although are in general proximity of Lake Cowal. Most of these sites are visible from the edge of Lake Cowal and in contemporary Wiradjuri belief, all six sites were part of their cultural landscape at the time of first European settlement, with five of them relating to their ceremonial life. Two of these, Booberoi Hills and Manna Mountain, have significant cultural materials in the form of surface stone artefacts; and Marsden is used as a contemporary cultural training site for Wiradjuri people today. The ceremonial site on the southeast bank of Lake Cowal was identified for protection during an earlier phase of the mine's development, and Wamboyne Mountain immediately north, are the only two sites in relatively close proximity of the Project area. Cultural flows were explored and indicated the significance of river and creek flows into Lake Cowal to being crucial for the local Wiradjuri community as they occupy Country dominated by watercourses. The Wiradjuri people desire to have their Country ecologically restored, after the severe damage to parts of the ecosystem through European mismanagement of water resources. They stated that the Lachlan River must continue to flow for the benefit of the physical environment, the wellbeing of their community as well as for both their spiritual and physical health.

The assessment undertook archaeological field survey and test excavations to explore and document the Aboriginal objects, site and places within the study area, and to situate them within the regional context. When combining and ratifying the findings of these various activities, there are some 28 identified sites along with a continuous and complex distribution of surface and shallowly buried stone artefacts distributed across the study area. These can be broken down as:

- One area of past foci and activity (#43-3-0022) characterised by high densities of surface and sub-surface artefacts ($\bar{x}$ = ~52/m^2) and which reflect extensive and/or repeated visitation and occupation by people over the last 5 ka. Based on field observations and the excavation program, this site was considered some ~4 ha (200 x 200 m) in size. At least part of this site has been previously mitigated in the early 2000s, and at some point been described as 'destroyed' on the AHIMS database, but excavations have validated the presence of cultural materials.

- Two area of moderate stone artefact densities that have been identified by other investigations (#39-4-0313) and/or the Aboriginal participants (CGO AS5).

- Twenty-two hearths found across the Project area, which reflect a single period of past Aboriginal activity – CGO H1; #39-4-0305; #39-4-0318; #39-4-0328; #39-4-0329; #39-4-0330; #39-4-0331; #39-4-0332; #39-4-0274; #39-4-0275; #39-4-0276; #39-4-0277; #39-4-0284; #39-4-0291; #39-4-0292; #39-4-0301; #39-4-0302; #39-4-0273; #39-4-0288; #39-4-0289; #39-4-0290; and #43-4-0055. Previous excavations of some assumed hearths elsewhere in the Project area have found that they have been formed through natural processes, such as burning of a tree limb or root system. Given the potential uncertainty in relation to some of these sites, recommendations below propose that additional specialist investigations are undertaken prior to the Project commencement to clarify their status.

- Two culturally modified trees (#39-4-0311 and #43-4-0035) identified as part of previous investigations of the Project area.

- A stone artefact background scatter that is predicted to occur across the Project area and extending beyond its limits within which low artefact densities of ~0.4–5/m^2 may be expected (CGO BS1). This includes a large number of the previously recorded isolated and low density stone artefact sites currently documented across the Project area, including CGO AS1-4, AS6-AS7, and IF1, #39-4-0286, #39-4-0293, #39-4-0294, #39-4-0295, #39-4-0296, #39-4-0297, #39-4-0307, #39-4-0308, #39-4-0309, #39-4-0310, #39-4-0312, #39-4-0313, #39-4-0314, #39-4-0315, #39-4-0319, #39-4-0320, #39-4-0321, #39-4-0322, #39-4-0323, #39-4-0325, #39-4-0326, #39-4-0327, #39-4-0333, #43-4-0024, #43-4-0027, #43-4-0034, #43-4-0035, #43-4-0045, #43-4-0085, #43-4-0086, #43-4-0087, #43-4-0088, #43-4-0089, and #43-4-0092.

- A zone of ~100 m encompassing the Lake's edge micro-environment within which higher densities of stone artefacts and/or other areas of past foci may be expected to be present.

Of the 28 identified sites, 19 would be subject to direct impacts resulting in their complete or partial loss. These consist of 14 potential hearths, two culturally modified trees, and two significant stone artefact sites. However, many of these sites only have a tentative classification at this stage, and some are within areas of ancillary activities where minor design changes may result in their conservation. Importantly, site CGO AS5, which was considered of cultural value by the Aboriginal participants, is one of the six sites that would be avoided. In addition, the Project would directly impact ~34 ha where such cultural material is more likely to be present based on predictive models. A low-density stone artefact background scatter is considered present across the entire additional disturbance area and would also be adversely affected.

While the Project would result in intergenerational/cumulative loss to material culture, the ACHA concludes that there would be numerous cultural heritage benefits. These include additional on-Country opportunities for the local Aboriginal community through archaeological mitigation, a greater understanding of the past and contemporary values in the region, and opportunities for heritage interpretation and public outreach.

Recommendations are proposed for inclusion in the EIS to guide post-approval requirements for Aboriginal heritage. These include (further discussion is presented in Section 10.2):

- Following Project approval, existing Consent 1467/Permit 1468, Consent 1680/Permit 1681 and AHIP C0004570 should be relinquished to avoid conflict with the approval. Prior to relinquishment, a review of the permits should be undertaken to ensure any ongoing and/or outstanding conditions and requirements are incorporated into the Aboriginal Cultural Heritage Management Plan proposed for the Project.

- Prior to construction ground disturbance, an Aboriginal Cultural Heritage Management Plan must be developed by a heritage specialist in consultation with the Registered Aboriginal Parties (RAPs) to provide the post-approval framework for managing archaeological mitigation and Aboriginal heritage within the Project area. The Aboriginal Cultural Heritage Management Plan should include the following issues:

    - Where relevant, inclusion of existing requirements and obligations developed under established agreement between Evolution and the Wiradjuri Condobolin Corporation as part of earlier Native Title legislative requirements.

    - Processes, timing, communication methods and Project involvement (e.g. on-site activities) for maintaining Aboriginal community consultation and participation through the remainder of the Project. This should include a grievance mechanism that is readily available and designed for use by the local Aboriginal community.

    - If not previously completed, discuss and identify any areas of design optimisation with the RAPs to avoid or further minimise harm to identified Aboriginal sites, objects and place.

- If not previously completed and where necessary, provide descriptions and methods for undertaking further investigation and assessment of the sites currently assigned a tentative classification (CGO H1; #39-4-0305; #39-4-0311; #39-4-0318; #39-4-0328; #39-4-0329; #39-4-0330; #39-4-0331; #39-4-0332; #39-4-0274; #39-4-0275; #39-4-0276; #39-4-0277; #39-4-0284; #39-4-0291; #39-4-0292; #39-4-0301; #39-4-0302; #39-4-0273; #39-4-0288; #39-4-0289; #39-4-0290; #43-4-0035; and #43-4-0055) to gain a comprehensive understanding of these sites for subsequent management through construction of the Project.

- Detail descriptions and methods of any additional investigative and/or mitigative archaeological actions that may be required prior to construction works commencing or during the Project. These should include, but not limited to, archival recording of all identified Aboriginal objects, sites and places; suitable recovery or relocation, documentation and analysis of any archaeological sites proposed for direct impacts (Table 9.1); and management of any archaeological excavation of areas of significant buried cultural material (namely, CGO LEZ, #43-3-0022, and #39-4-0313) and where direct impacts are proposed. Further details of these activities are presented in Section 10.2. For these activities, details of location/s, methods, personnel, and timing should be included.

- Description and methods of actions to minimise any inadvertent impacts to identified Aboriginal objects and/or sites and areas of archaeological sensitivity outside of the additional disturbance area. This should include, but not be limited to, cultural inductions for all personnel and subcontractors outlining their location and significance, fencing and clear marking of heritage sites and zones of interest in close proximity to proposed works, appropriate screening for sensitive and gender-specific areas, and any additional requirements identified by the Aboriginal community. A suitable regime of monitoring these activities should also be outlined, including locations, methods, personnel and timing.

- Description and methods for undertaking further Aboriginal cultural heritage assessment, investigation and mitigation of any areas of the disturbance footprint that have changed following completion of the ACHA and/or during the final design and construction phases of the Project.

- Description and methods of post-excavation analysis and reporting of the archaeological investigations and activities implemented as part of the ACHMP. For excavations, these should include suitable collection and processing of stone artefacts, and chronological, soil, and environmental samples.

- Procedures for managing the unexpected discovery of Aboriginal objects, sites and/or human remains during the Project.

- Procedures for the curation and long-term management of cultural materials recovered or relocated as part of the works outlined in the ACHMP and any preceding stages associated with the Project.

- Processes for reviewing, monitoring, and updating the ACHMP as the Project progresses.

• A heritage-interpretation strategy must be developed by a heritage specialist to identify the interpretive values of the Project area, and specifically Aboriginal heritage values across the additional disturbance area, and to provide direction for potential interpretive opportunities for the Project and/or off-site (e.g. at west Wyalong and/or Condobolin). This strategy should be made available for consultation and feedback with the RAPs. Following consultation and feedback on the strategy, a heritage interpretation plan would refine the strategy with content (visual and textual) and design details in order to allow the implementation stage. The interpretation strategy and interpretation plan must include consideration of three main components identified though the ACHA process:

- Input and feedback from the RAPs, which to date include a number of cultural, historical and social history places from both traditional and contemporary connection of the Lake Cowal area with the Aboriginal community; and a range of flora and fauna that have totemic, medicinal and/or economic association with the Aboriginal community.

- The historical record of the study and its immediate environs, which has documented associations with Aboriginal people.

- The past cultural and environmental landscape informed by current archaeological investigations and analysis of the ACHA, and any future activities that may result from the Project (e.g. archaeological salvage of key locales).

- The Construction Environment Management Plan (CEMP), or equivalent, should reinforce how the cultural landscape is considered throughout the Project and detail the rehabilitation of the disturbance footprint. Rehabilitation of areas where infrastructure is not remaining after construction of the Project should be undertaken to determine suitable ecological communities and other factors in returning the cultural landscape as close to its current state as feasible.

- Consultation should be maintained with the RAPs during the finalisation of the assessment process and throughout the Project.

- A copy of the ACHA should be lodged with AHIMS and provided to each of the RAPs.

- AHIMS Site Recording Forms for the newly identified Aboriginal objects and/or sites within the Project area and areas of archaeological sensitivity should be submitted to the AHIMS database once their validation has been completed. In addition, to ensure official documentation is up to date, a suitable audit of the existing AHIMS site registrations within the Project area should be undertaken by a suitable heritage professional, and would include ratification of Evolution's internal clearance data with existing AHIMS sites.

- Where the heritage consultant changes through the Project, suitable hand over should be undertaken to minimise loss or mistranslation of the intent of the information, findings and future steps in heritage management occur.

TABLE OF CONTENTS

Attachments

Tables

Figures

Plates

1 Introduction

1.1 Background

Evolution Mining (Cowal) Pty Limited (Evolution) is the owner and operator of Cowal Gold Operations (CGO), an existing open pit and underground gold mine approximately 38 kilometres (km) north-east of West Wyalong, in the central west region of New South Wales (NSW) (Figure 1.1 and Figure 1.2). CGO is located on the traditional lands of the Wiradjuri People and is immediately adjacent to the western foreshore of Lake Cowal, which is an ephemeral waterbody.

CGO was first approved in 1999, and open pit mining operations commenced in 2005. Underground mining operations were approved in 2021 and development works to enable underground mining are underway. Evolution is seeking approval for further open pit mining operations at CGO through the Open Pit Continuation Project (the Project). The Project primarily seeks to continue the open pit operations by approximately 10 years to 2036 and extend the total mine life by approximately two years to 2042.

This Aboriginal cultural heritage assessment (ACHA) report forms part of the environmental impact statement (EIS) being developed to inform government decisions on whether the Project should be allowed to proceed. It documents the assessment methods, results and the initiatives built into the Project design to avoid and minimise Aboriginal cultural heritage impacts, and the additional mitigation and management measures proposed to address residual impacts which cannot be avoided.

1.2 Project overview

The Project will involve further development of the existing E42 Pit and the development of open pit mining in three new and adjacent orebodies, known as the 'E46', 'GR' and 'E41' (Figure 1.3). It is noted that the three new and adjacent ore bodies are within the existing mining lease (ML 1535). No change to the approved ore processing rate of 9.8 Mt per annum is proposed.

A detailed description of the Project is contained in Chapter 4 of EIS and a conceptual Project layout is shown in Figure 1.3. The project comprises the following key components:

- the continued operation of activities as approved under DA14/98 and SSD 10367
- development of three new satellite open pits (the 'E46', 'GR' and 'E41' pits) to the north and south of the existing open pit, within the current approved mining lease
- extending the existing E42 open pit to the east and south via a 'cutback' within the current approved mine lease
- extending open pit mining operations by approximately 10 years to 2036 and total mine life by approximately 2 years to 2042
- expansion of the IWL to accommodate life of mine tailings
- extension of the lake protection bund (LPB) system to provide continued separation and mutual protection between Lake Cowal and the mine
- backfilling of one of the new open satellite pits (E46) with waste rock and establishment of a new waste rock emplacement on the backfilled pit to minimise the additional area required for waste rock disposal
- expansion of the footprint of the existing WRE areas to accommodate additional waste rock

- development of additional topsoil and subsoil stockpiles to accommodate materials from pre-stripping, with materials to be reused during progressive mine rehabilitation
- upgrades to existing surface water drainage system, to assist with on-site water management and maximise on-site water conservation
- modification of internal site access and haul roads
- development of new water storages and relocation of some components of the surface water drainage system
- modification and relocation of some existing auxiliary mining infrastructure.

The Project will not change existing ore processing rates or methods, tailings disposal methods, main site access, water supply sources or hours of operation. The Project will also retain the existing open pit mining workforce.

Other than the changes to existing approved activities as set out above, all activities that are currently approved under the existing Ministerial development consents are intended to continue. The existing activities approved under the consents are described in Chapter 3 of the EIS.

1.3 Project area

The CGO site (the site) is located in the Central West Region of NSW, approximately 38 km north-east of West Wyalong, 60 km south-west of Forbes and 350 km west of Sydney (Figure 1.1–Figure 1.3).

The site is in the Bland Shire local government area (LGA) and is wholly zoned RU1 Primary Production under the *Bland Shire Local Environmental Plan 2011*. Land adjacent to CGO is used primarily for pastoral activities, including cropping and grazing, which is typical of the broader Bland Shire region. There are fourteen private residences within a 5 km radius of CGO (inclusive of five residences owned by Evolution). The closest non-Evolution owned residence is approximately 1.1 km west of the Project area.

There are several state forests which surround CGO, the closest being the Lake View State Forest and Corringle State Forest which are 7 km north-east and east respectively. Other state forests in proximity to CGO include the state forests Euglo South, Nerang Cowal, Clear Ridge, Wyrra, Boxhall, Back Creek, Little Blow Clear, Blow Clear and Hiawatha. Evolution also manages existing and proposed biodiversity offset areas as well as remnant vegetation enhancement areas, which are all located within a 5 km radius of the CGO, covering an approximate total area of 1,650 ha.

The dominant local feature in the area where the Project will be located is the broad expanse of Lake Cowal, a natural, ephemeral freshwater lake. Lake Cowal covers an area of approximately 13,000 hectares (ha) and is the largest inland lake in NSW. In a regional context the lake forms part of the Wilbertroy-Cowal Wetlands located on the Jemalong Plain (refer Figure 1.1). The Lake Cowal-Wilbertroy Wetlands are listed as being of National significance in the Australian Wetlands Database.

The lake sits within privately-owned land and is not protected under any conservation mechanism. When the lake is full, it supports a range of migratory birds and other fauna. When dry, the lakebed has been historically used for broad acre grain cropping and grazing. This land use continues on the non-Evolution owned portions of the lake however Evolution does not allow agricultural activities within its landholdings within Lake Cowal.

1.3.1 Terminology

A summary of the key terminology used throughout this assessment is provided in below. A full glossary and list of abbreviated terms are provided in the Glossary of this report.

- **Cowal Gold Operations (CGO)** – comprises both the existing open pit mine, underground mine, processing facility, IWL, waste rock emplacement areas, ore stockpiles and ancillary infrastructure.
- **The Project area** – outlines the area that is the subject of the development application as shown in Figure 1.3.
- **Existing and approved disturbance area** – areas that are disturbed and/or approved to be disturbed under the current development consents that apply to CGO.
- **Additional disturbance area** – the areas that will be disturbed by the Project that are outside of the existing and approved disturbance area.
- **Project disturbance area** – this area is a combination of the additional disturbance area and the existing and approved disturbance area.
- **EIS study area (study area)** – the area initially the subject of the Project's environmental assessments including this ACHA. This area has subsequently been refined to the Project area and additional disturbance area.

1.4 Purpose and scope of this report

This ACHA is an appendix to the Project's EIS and should be read in conjunction with it. It documents the results of archaeological and anthropological investigations undertaken to identify the extent and significance of any physical remains and intangible values of past Aboriginal visitation, use and occupation within the EIS study area (study area) and final Project area. The objectives of the investigation were to:

- Consult with and involve key Aboriginal community members and knowledge holders to identify areas and places of cultural value within or in the vicinity of the Project area.
- Compile a review of existing environmental, historical and archaeological information for the Project area, by identifying and summarising known and previously recorded Aboriginal heritage places, cultural values areas and landforms of archaeological interest in its immediate surrounds.
- Determine if any Aboriginal objects, places, cultural values areas, or areas of archaeological potential are present (or are likely to be present) within the EIS study area and final Project area (with a focus on the additional disturbance area), as well as areas of existing disturbance, through ground-truthing, including field survey and test excavations.
- Identify the type, nature, and extent of any Aboriginal sites, objects, archaeological deposits, potential archaeological deposits, and cultural values areas within or near the Project area.
- Map the locations of known and potential Aboriginal sites, objects and deposits and cultural values areas identified.
- Assess the archaeological and cultural significance of the Project area.
- Assess and identify heritage constraints and opportunities and the potential impacts of the Project.

- Identify and recommend measures to mitigate any heritage impacts and risks to the Project.

1.5 Legislative context

There are several Commonwealth and State Acts (and associated regulations) that manage and protect Aboriginal cultural heritage (Appendix A provides further details). These are summarised in Table 1.2.

Table 1.1 Commonwealth and State legislation with potential relevance to the Project

Legislation	Description	Relevant to the Project?	Details
Commonwealth			
Environment Protection and Biodiversity Conservation Act 1999	Recognises sites with universal value on the World Heritage List (WHL). Protects Indigenous heritage places with outstanding heritage value to the nation on the National Heritage List (NHL), and significant heritage value on the Commonwealth Heritage List (CHL).	No	There are no Indigenous heritage places within the Project area that are listed on the WHL, NHL, or the CHL.
Native Title Act 1993	Established a system for recognising Aboriginal and Torres Strait Islander peoples' rights and interests over lands and waters by Aboriginal people. Provides for negotiation and registration of Indigenous Land Use Agreements (ILUAs). Often used in NSW to identify relevant stakeholders for consultation.	No	A request to search the National Native Title Tribunal was made on 7 March 2022. There are no active Native Title claims which interact with the Project area.
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	Preserves and protects declared areas and objects of particular significance to Aboriginal and Torres Strait Islander people that are under threat from injury or desecration.	No	There are no areas or objects within the Project area subject to a Declaration under the Act.
State			
Environmental Planning and Assessment Act 1979	Requires environmental impacts, including to Aboriginal heritage, to be considered in land use planning. Provides for the development of environmental planning instruments, including State Environmental Planning Policies and Local Environmental Plans.	Yes	The Project is being assessed as an SSD project under Part 4, Division 4.1, of this Act, and is subject to Project-specific environmental assessment and reporting requirements. These requirements (SEARs) stipulate that Aboriginal heritage impact assessment is required (in accordance with standard Heritage NSW procedures and guidelines) to assess whether the Project has the potential to impact on Aboriginal objects, sites, or places of Aboriginal heritage significance.

Table 1.1 Commonwealth and State legislation with potential relevance to the Project

Legislation	Description	Relevant to the Project?	Details
National Parks and Wildlife Act 1974	Provides blanket protection for all Aboriginal objects and declared Aboriginal places. Includes processes and mechanisms for development where Aboriginal objects are present, or where Aboriginal Places are proposed for harm.	Yes	While an Aboriginal heritage impact permit to harm tangible Aboriginal cultural heritage under this Act is not required for SSD projects, the SEARs require guidelines prepared under this Act to be adopted.
Aboriginal Land Rights Act 1983	Establishes Local Aboriginal Land Councils (LALCs). Allows transfer of ownership of vacant crown land to a LALC. The Office of the Registrar, *Aboriginal Land Rights Act 1983 (ORALRA)*, registers Aboriginal land claims and maintains the Register of Aboriginal Owners. Often used in NSW to identify relevant stakeholders for consultation.	No	The Project area is within the boundaries of the West Wyalong Local Aboriginal Land Council, which is a registered Aboriginal party for this Project and has been consulted. A request to search the Register of Aboriginal Owners was made to the ORALRA on 7 March 2022. The Project area does not appear to have Registered Aboriginal Owners pursuant to Division 3 of the Act.

1.6 Assessment guidelines and requirements

This ACHA has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the Cowal Gold Operations Open Pit Continuation Project (SSD #42917792) as well as relevant government assessment requirements, guidelines and policies, and in consultation with the relevant government agencies.

The SEARs must be addressed in the EIS. Table 1.2 lists the matters relevant to this assessment and where they are addressed in this report.

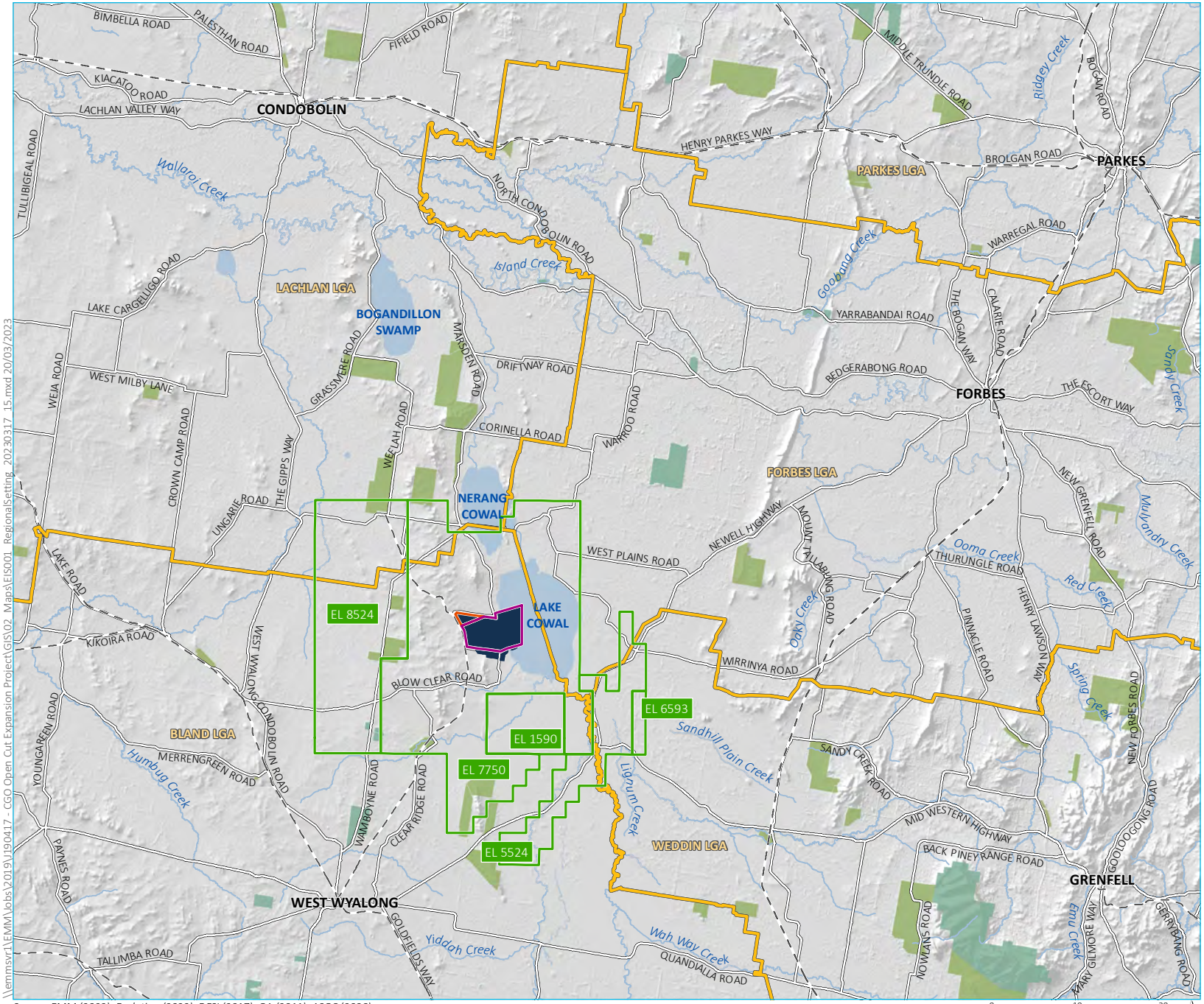
Table 1.2 Relevant matters raised in the SEARs

Requirement	Chapter/Section addressed
Heritage – including:	
• An assessment of the potential impacts of the development on Aboriginal heritage (cultural values and archaeological), including adequate consultation with relevant Aboriginal stakeholders having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010) and documented in an Aboriginal Cultural Heritage Assessment Report (ACHAR) including the significance of cultural heritage values for Aboriginal people who have a cultural association with the land.	Entire report, and specifically Chapters 2, 8 and 9
• Results of any surface surveys (and test excavations, if required) undertaken by a qualified archaeologist to inform the need for targeted test excavation to better assess the integrity, extent, distribution, nature and overall significance of the archaeological record.	Chapter 6
• Avoiding and mitigating impacts on cultural heritage values and identify any conservation outcomes, including mitigation measures and procedures for accidental finds at any stage of the development.	Chapters 9 and 10

1.7 Limitations

This report is based on existing and publicly available environmental and archaeological information (including the AHIMS data) and reports about the Project area. The background research did not include any independent verification of the results and interpretations of externally sourced existing reports (except where the ground-truthing was undertaken). The report further makes archaeological predictions based on these existing data and targeted ground-truthing, and that may contain errors depending on the accuracy of these third-party studies and the extent of ground-truthing investigations.

This report does not consider historical and/or built heritage unless specifically related to Aboriginal heritage values. Such heritage items are addressed in the Statement of Heritage Impact (SOHI) appended to the EIS (refer Appendix S of the EIS).



KEY

- Project area
- Mining lease (ML1535)
- Mining lease (ML1791)
- Exploration licence (EL)
- Rail line
- Main road
- Named watercourse
- Named waterbody
- Local government area
- NPWS reserve
- State forest

Source: EMM (2023); Evolution (2023); DFSI (2017); GA (2011); ASGC (2006)

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Regional setting

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 1.1

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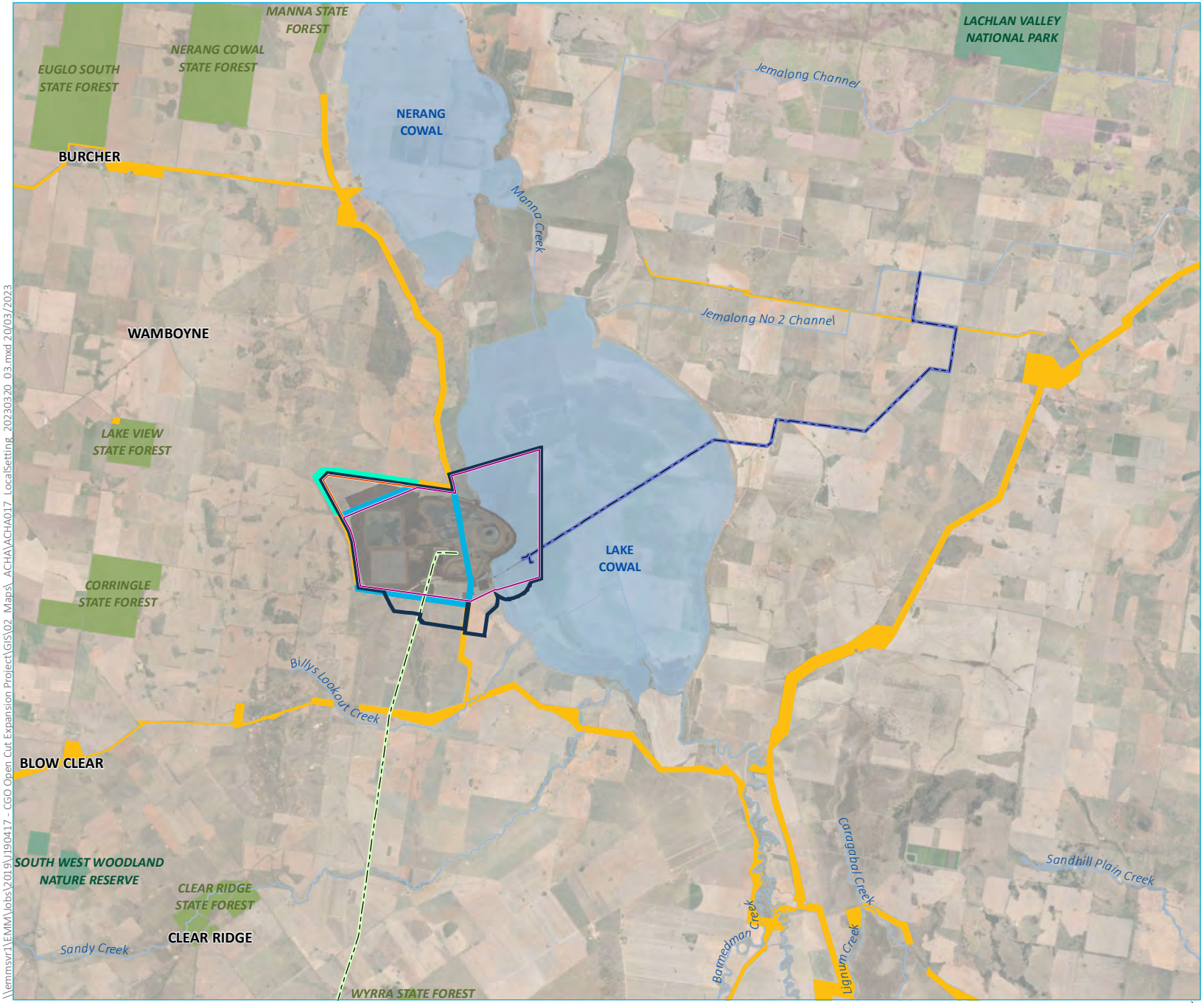

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Source: EMM (2023); Evolution (2023); DFSI (2017)

Local setting

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 1.2

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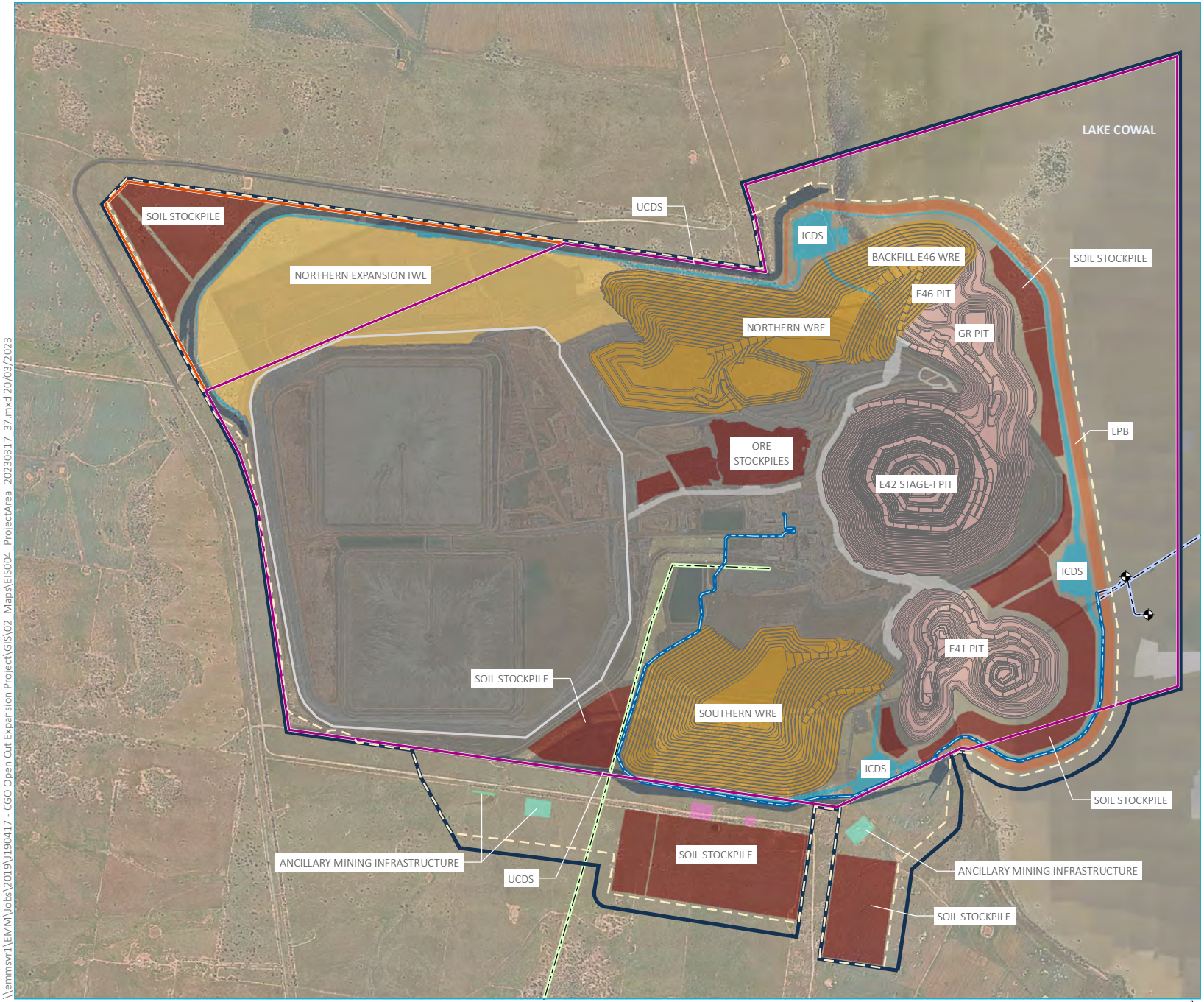

KEY

- Project area
- Proposed disturbance footprint
- DA14/98 approved surface disturbance
- Approved IWL footprint
- Mining lease (ML1535) (offset for clarity)
- Mining lease (ML1791) (offset for clarity)
- Saline groundwater supply bore
- Water supply pipeline
- Electricity transmission line

Conceptual project infrastructure

- Open cut pit footprint
- Northern expansion IWL
- Waste rock emplacement (WRE)
- Lake protection bund (LPB)
- Stockpile
- Up catchment diversion system (UCDS)
- Internal Catchment Drainage System (ICDS)
- Ancillary mining infrastructure
- Magazine
- Road
- Water supply pipeline realignment

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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021)

0 1 2 km

GDA 1994 MGA Zone 55

N

Project layout

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 1.3

EMM
creating opportunities

2 Aboriginal consultation

2.1 Key findings

- The Project assessment adopted the processes and methods outlined in Heritage NSW's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010), as well as additional Project-specific communication strategies to promote transparent and frequent two-way dialogue between the Aboriginal community and the Project. These latter activities included several Aboriginal focus group meetings (face-to-face) throughout the assessment process, other meetings as requested by the local Aboriginal community, and a cultural values mapping investigation with Elders and key-knowledge-holders. Evolution also has a two-decade history of working with the local Wiradjuri traditional owners which is outlined in this section.

- Consultation with Heritage NSW has conformed with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010), and included provision of information on registered Aboriginal parties (RAPs), and notification of the various field survey and excavation activities associated with the Project.

- Overall, the Project has been liaising with three RAP organisations and/or individuals since its inception in early March 2022. These have been identified through the formal notification as part of the Heritage NSW consultation requirements and/or through contacting the Project following word of mouth within the local Aboriginal community. The RAPs include well-established Wiradjuri individuals and/or organisations based in West Wyalong and/or Condobolin, and with at least a decade of working with Evolution at CGO.

- Opportunity for Aboriginal involvement in consultation for the Project was provided throughout the ACHA, including:

    - attendance at two face-to-face meetings during key phases of the Project
    - participation in a two week field survey of the Project area
    - participation in a three week archaeological test excavation of the Project area
    - participation for key knowledge-holders to undertake interviews with a highly experienced anthropologist to discuss cultural values.

- Ultimately, over 50 interactions have been undertaken with the RAPs across these opportunities. With two of the organisations, West Wyalong LALC and Wiradjuri Condobolin Corporation, participating in these opportunities, and totalling over 24 days on site cumulatively.

- Discussions with the RAPs have been extensive and wide-ranging over the 11 month assessment process. Feedback on the Project and ACHA activities has generally been positive, with a strong focus on the cultural values of the region and especially the cultural flows associated with Lake Cowal; who speaks for Country; and what the Project meant for existing approvals and agreements currently in place. These are all acknowledged in this report in Chapter 2, Section 4.3 and Appendix B.5, and/or proposed for management following Project approval.

2.2 History of Aboriginal consultation and involvement at the CGO

Evolution and its predecessors have consulted and supported the local Aboriginal community since the 1990s. During the initial investigations of the site in the mid-1990s, by Scott Cane and others, Wiradjuri people frequently participated in the field surveys.

Following the approval of CGO in the early 2000s, the subsequent management plans required Aboriginal participants to be present during any ground disturbance activities. Since 2003, any ground disturbance activities have had a representative of the Wiradjuri Condobolin Corporation (WCC) and/or the West Wyalong LALC present. Further, the management of recovered cultural materials – currently stored on site – can only be accessed and investigated in the presence of the WCC, and this remains the case currently.

While specific consultation records are not typically kept at CGO, Section 5.3 outlines the investigations that occurred on the site throughout the last 20 years. At least 37 separate studies have been undertaken within the Project area and immediate surrounds since the mid-1990s, all of which included Aboriginal involvement and participation.

Beyond cultural heritage management, CGO employs representatives of the local Aboriginal community in a range of other roles across the mining operations. This has typically been managed with the assistance of the WCC, and includes local Aboriginal participants.

2.3 The process

Two parallel and overlapping consultation processes were undertaken as part of the ACHA. As a requirement of the SEARs, consultation was undertaken in accordance with Heritage NSW guidelines (Section 2.3.1). In addition, due to the size, complexity and fluidity of the Project, numerous other communication strategies were employed to improve and maintain dialogue with the local Aboriginal community (Section 2.3.2).

2.3.1 Heritage NSW guidelines

Aboriginal consultation for this Project has been undertaken in accordance with procedures set out in the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010). These guidelines identify a five-stage process:

1. Pre-notification – identification of the Aboriginal individuals and/or communities relevant to the Project area by contacting several state government agencies.

2. Notification – contacting all Aboriginal individuals and/or communities identified in Stage 1 to determine their interest in being consulted during the Project. This includes direct communication and the placement of advertisements in local media seeking further expressions of interest from Aboriginal individuals and/or communities that may have been missed through Stage 1. Those Aboriginal individuals and/or communities that wish to be consulted become a 'registered' Aboriginal party (RAP).

3. Presentation of Project information/assessment methodology – briefing RAPs about the Project and scope of any Aboriginal heritage assessment and investigations. This is usually undertaken through written correspondence, but can include meetings, and may undergo several iterations throughout the Project as the nature of the assessment changes (e.g. surface ground-truthing may lead to a requirement for test excavations).

4. Impacts and mitigation strategies – discussion of potential impacts to cultural materials and mitigation options with the RAPs prior to developing the ACHA. This is often undertaken either onsite at the end of any field program and/or as part of Stage 5.

5. Report review – the RAPs are provided an opportunity to review and comment upon the draft ACHA, to contribute input into the overall findings, significance and management of cultural heritage.

The consultation process for the Project had two aims:

1. to comply with the Heritage NSW consultation procedures to obtain input on the ACHA process

2. to identify cultural places and intangible values that may be affected by the Project.

2.3.2 Other communication strategies

In addition to the required steps outlined in Section 2.3.1, CGO and EMM implemented a range of other strategies to promote transparent and frequent two-way dialogue between the Aboriginal community and the Project.

Specifically, the strategy included the following additional activities:

- Face-to-face meetings – Aboriginal focus group (AFG) meetings were held to promote two-way dialogue, allow Project flexibility and to maintain regular interaction with the RAPs. These were held during the initial stages of the Project, and during report finalisation, at a location within the Project area and/or nearby venue, with options for online and/or phone meetings as required.

- Social impact assessment (SIA) – teams meetings were held with the Wiradjuri Condobolin Corporation and West Wyalong LALC as part of the Project's SIA (refer Appendix M of the EIS).

- Regular catch ups and a local base of operations – CGO routinely employ and liaise with the WCC and West Wyalong LALC as part of broader socio-economic opportunities at the mine. This enables ongoing consultation that has extended years, and enables regular liaison and discussion to be undertaken.

- Field investigation participation – all RAPs were offered the opportunity to attend a range of field survey and test excavations activities carried out across the Project area. Ultimately, some 24 days of participation in the Project were undertaken by the RAPs.

- Cultural values mapping – a dedicated investigation of intangible and cultural places, stories and values by an experienced anthropologist in consultation with several Elders and/or knowledge-holders across the West Wyalong and Condobolin region. This enabled a broader range of the local Aboriginal community that would otherwise have been unable to provide input to the Project.

2.4 This Project

2.4.1 Liaising with Heritage NSW

As part of the ACHA, various interactions with Heritage NSW have been undertaken:

- Provision of information of the registered Aboriginal stakeholders involved in the Project following the notification process (Table 3.1) –14 April 2022 (Appendix B.1 and Appendix B.3).
- Notification of the initiation of archaeological test excavations for the Project as required by the *Code of Practise for the Archaeological Investigation of Aboriginal Objects in NSW* guidelines – 28 September 2022 (Appendix B.1).

2.4.2 Liaising with the RAPs

Aboriginal consultation for this Project has been undertaken in accordance with procedures set out in Section 2.3.1 and included over 50 interactions with the RAPs between March 2022 and February 2023 (Table 2.1; Appendix B.1); and over 24 days of on-site participation.

Initial stages of the consultation process identified five Aboriginal stakeholders in the region (Appendix B.2). Following notification, three organisations and/or individuals registered an interest in the Project (Appendix B.3). The RAPs included the Wiradjuri Condobolin Corporation, West Wyalong LALC and Wiradjuri Council of Elders, all locally based and representing the local Wiradjuri traditional owners. The Project has been willing to register any Aboriginal organisation and/or individual throughout the Project regardless of when they have become known or expressed their interest. However, to date no additional organisations or individuals have contacted the Project.

Table 2.1 provides a summary of the main steps undertaken to conform with Heritage NSW guidelines.

A summary of the additional activities outlined in Section 2.3.2 included:

- Aboriginal focus group meeting 1 (introduction to Project and assessment aims and methods) – 18 May 2022
- field survey of Project area with the participation of the WCC and West Wyalong LALC – 8–19 August 2022
- test excavations of the disturbance area with the participation of WCC and West Wyalong LALC – 10–13 October 2022, and 9–20 January 2023
- cultural values mapping of the local region by Dr Phil Clarke with representatives of the WCC and West Wyalong LALC to inform the intangible values in the vicinity of the Project area – 5–9 December 2022
- Aboriginal focus meeting 2 – presentation of the report, its findings and proposed future management measures – 20 March-18 April 2023.

Table 2.1 Summary of Aboriginal consultation steps required by Heritage NSW guidelines

Consultation stage	Description	Date initiated	Date completed	Notes
1	Government agency pre-notification	4–7 March 2022	-	Additional details provided in Appendix B.3.
	Advertisement in the West Wyalong Advocate	18 March 2022	1 April 2022	A tearsheet is provided in Appendix B.3.
	Notification and registration of potential Aboriginal stakeholders	17 March 2022	1 April 2022	Additional details are provided in Appendix B.3.
	Advising Heritage NSW and West Wyalong LALC of RAPs	14 April 2022	-	Additional details are provided in Appendix B.3.
2/3	Presentation of information about the proposed project; and gathering information about cultural significance	21 April 2022	18 May 2022	Additional details are provided in Appendix B.4.
-	Field investigations	8 August 2022 10 October 2022 5 December 2022 9 January 2023	19 August 2022 13 October 2022 9 December 2022 20 January 2023	Additional details are provided in Sections 4.3 and Chapter 6.

Table 2.1 Summary of Aboriginal consultation steps required by Heritage NSW guidelines

Consultation stage	Description	Date initiated	Date completed	Notes
4	Review of draft report	20 March 2023	18 April 2023	Additional details are provided in Appendix B.5.

Table 2.2 List of registered Aboriginal parties for the Project

Organisation	Contact	Location	Date of registration
West Wyalong LALC	Linton Howarth	West Wyalong	31 March 2022
Wiradjuri Condobolin Corporation	Ally Coe	Condobolin	31 March 2022
Wiradjuri Council of Elders	David Acheson	-	5 April 2022

2.5 Aboriginal stakeholder feedback

Aboriginal consultation has been extensive between March 2022 and February 2023, and included over 50 interactions, including two discrete meetings with RAPs in groups or one-on-one meetings (Appendix B.1 and Appendix B.6), and some 24 days of on-site activity. As such, discussions have been wide-ranging, initially focussing on who is relevant to the Project area, then the methods and approach to field investigation, and finally into the potential impacts and management of identified cultural sites and values. Where captured, minutes of the meetings are presented Appendix B.6.

In summary, the main discussion topics have included:

- Who speaks for Country – early discussions were focussed on how the consultation process worked and who would speak for Country and participate in on-site activities. A strong preference from the local Wiradjuri traditional owner organisations was to ensure that broader Aboriginal communities that become involved through the Heritage NSW guideline process be limited. This ultimately did not eventuate as part of the process, but CGO did provide commitment to constraining on-site activities to the local Aboriginal community.

- Assessment process – understanding how State significant Development projects are assessed and how Aboriginal heritage fits into this process; and the key components of the ACHA process. In addition, how the proposed process relates to existing approvals and agreements across the site, and what would happen following any project approval. It was advised, and has been recommended as an outcome of the ACHA, that cultural materials across the site still require management into the future, albeit under a single proposed Project Approval, rather than multiple AHIPs, etc.

- Cultural values mapping – understanding the intangible and spiritual values of the Project area, sourced from both traditional and contemporary information, and subsequently discussions on the findings of these investigations towards the end of the Project (Chapter 5). This included a focus on further understanding local cultural flows and how these may be affected by the upriver activities at Wyangala Dam. Further information on the impacts to the surface and groundwater is presented in the surface water and groundwater assessments prepared for the EIS (Appendix G and Appendix H respectively. However, in brief, neither study suggest substantive changes to Lake Cowal or its functions as a result of the Project.

- Field survey and excavations findings – the nature of cultural materials found within the additional disturbance area, and how they may be further investigated, managed and/or protected into the future.

The outcomes of these discussions have been considered in the development and content of the ACHA. While not necessarily individually mentioned throughout the report, they have nonetheless been considered throughout the formulation of the ACHA.

A copy of the ACHA has been provided to the RAPs (Appendix B). An original draft was provided on 20 March 2023 and again on 4 April 2023. Any comments are provided from this process are provided in Appendix B.5 and Appendix B.6 and summarised below:

- Ally Coe (Wiradjuri Condobolin Corporation) and David Acheson (Wiradjuri Council of Elders) expressed their support for the ACHA. They did not suggest any changes.

- Linton Howarth (West Wyalong LALC) stated he was happy with the ACHA, its findings and recommendations. Linton wished to highlight that he is not Wiradjuri and does not want to be misunderstood as speaking on behalf of Wiradjuri people.

- Linton also provided the following feedback on the cultural values report (included in Appendix D):

    - Suggests “Yadhanda” as alternative spelling to “yathenda” [Page 3].

    - Oral histories of the area suggest other massacres may have occurred after the 1820’s. One non-Aboriginal person still alive in the area said previously that his parent had a tobacco pouch made from the breast of an Aboriginal woman and identified the general area where the killing occurred. This timeframe suggests a much later date than 1820 [Page 18, footnote 24].

    - Place name for Manna Mt could also be attributed to the Wiradjuri word “Manhar” meaning wide (Wiradjuri dictionary). Manna Mt is a wide, long ridge like mountain when compared with the nearby Wamboyne Mt which is a steeply pointed, conical shaped mountain [Page 21].

    - Suggests that etymological origin of “Cowal” can be found in the Wiradjuri word “Gawuwal”, meaning “lake”.

    - Oral history suggests that a red ochre mine in Lake Cargelligo (150 km north-west of Lake Cowal) has been utilised for an extended period of time [Page 63].

3 Existing environment

3.1 Key findings

- Following earlier archaeological assessments, the Project area can be broken down into five distinct landform zones: lake bed, beach, slope, lake's edge, and back plain. These landscape management zones have become instrumental in identifying landscape features and applying appropriate management measures. Archaeologically, larger, more complex sites are found on the lake's edge and around Gilgai water holes within back plains, with more dispersed low density sites and isolated finds in the back plain.

- The geology of the region includes a range of materials suitable for anthropogenic use, including shale, siltstone, volcanic rock, quartz and quartzite. These were all used by Aboriginal people in the past for producing stone artefacts. Notably, chert has been noted as present in uncommonly high densities in many of the assemblages close to the lake edge and Gilgai; while quartz is more commonly found in the back plain. This has been hypothesised as trade of raw materials coming into the Lake Cowal region from the north.

- The majority of the soil landscapes across the Project area are characterised by shallow duplex soils, which consist of an upper soil A1-Horizon and underlying B2-Horizon. Cultural materials are typically found in the A1 horizon, although this unit is commonly affected by recent natural and development activities (e.g. vegetation clearance, cropping, mining).

- In terms of hydrology, the Project area is dominated by Lake Cowal, which is an ephemeral lake fed by floodwaters and groundwater from Bland Creek to the south and overflow from the Lachlan River system in the north. The presence of Gilgai (small waterholes) in the plains adjacent to Lake Cowal to the west are also an important part of the hydrology when considering past Aboriginal occupation, as they provide a reliable resource when away from the main watercourses.

- The Project area contains a wide variety of flora and fauna that would have been used by Aboriginal people in the past for food, medicinal, totemic and/or cultural purposes. Much of this vegetation has been cleared during the historical period as a result of the extensive pastoral industry in this region, and the development of the CGO. Numerous animal and bird species are known to be common to Lake Cowal, especially when retaining water, and which would have been hunted in the past.

- The Project area has been subject to both natural and anthropogenic disturbance that will affect the survivability of cultural materials if present. These include agricultural, pastoral and vegetation clearance across majority of the Project area that has resulted in the disruption and removal of the upper soil profile and any associated cultural materials. Most notably has been the establishment of CGO in the early 2000s, and which has resulted in substantial earthworks across much of the Project area.

3.2 General

Understanding environmental context assists with predictions of archaeological potential, such as the likelihood of archaeological material being present in the landscape, its spatial distribution and its preservation. Landscape features were an important factor for the choice of camping, transitory and ceremonial areas used by Aboriginal people. Similarly, these landscape features and historical land-use play a role in the level of preservation and the integrity of archaeological sites.

A landscape consisting of suitable topography, hydrology, geology and soils has strong links with natural resources that would have been available to, and sought after by, Aboriginal people. Flora and fauna would have provided food, tools and ceremony (culturally modified trees); proximity to fresh water was necessary for life and growing crops, as well as gathering fish and eels. Landscape features, such as sandstone overhangs, were useful for shelter; stone artefacts were manufactured from raw stone material that was collected from quarry sites; and stone arrangements relied on the landscape.

3.3 Landscape overview

Lake Cowal is part of the Murray-Darling Basin, on the eastern edge of the Riverine plain and situated between West Wyalong and Condobolin in central New South Wales.

Bioregions are relatively large land areas characterised by broad, landscape-scale natural features and environmental processes that capture large-scale geophysical patterns at an ecosystem scale. Sub-regions delineate significant geomorphic patterns within a bioregion, and are based on finer differences in geology, vegetation and biophysical attributes (Bannerman & Hazelton 1990). The Project area is situated within the NSW South Western Slopes (NSS) Bioregion in the western margin of the Lower Slopes subregion. The NSS Bioregion is dominated by diverse hills and foothills that form the western fall of the Great Dividing Range. The area is situated within the major geological structure, the Lachlan Ford Belt that runs north-south through central NSW traversing the entire length of the state. The landscape is characterised by ephemeral lakes, swamps, broad alluvial plains and associated channel and lunettes (Mitchell 2002, 91). Lake Cowal is at an elevation around 200 m Australian Height Datum (AHD) with minimal local relief ranging from 10–15 m (EMM 2020).

The region's geology includes Quaternary alluvium, clays, sands and gravels from the Cowra and Lachlan formations and sedimentary and volcanic rocks, typical of the Ordovician period (~500 million years ago) (King 1999). The existing environment heavily influences the potential types of cultural material that may be present and survive in the Project area. For example, geological formations, notably rock outcrops, are essential for rockshelters and associated features (such as art), while exposures of outcropping sandstone observed in watercourses may also be suitable for sites such as grinding grooves. Underlying parent material of quartz, quartzite, volcanic rock and indurated sandstone are known to have been used for stone tool production in the past (Pardoe 2013, 34). In contrast, artefact sites are more commonly identified in open site contexts along watercourses and ephemeral drainage lines, either on the ground surface or buried within deep alluvium.

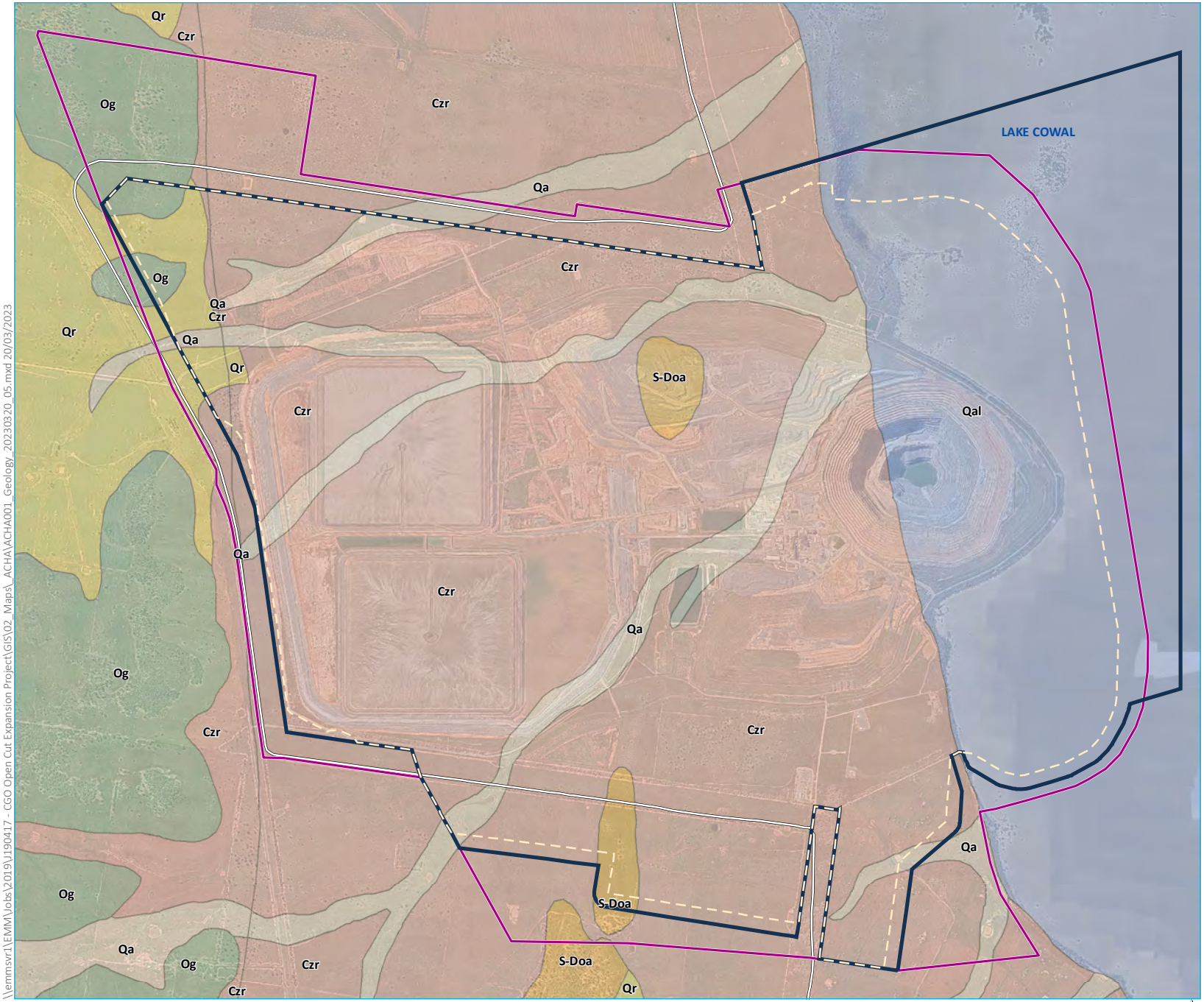
It should be noted, however, these watercourses (specifically Lake Cowal) are subject to significant inundation and scouring. The micro-environments on the western shore of Lake Cowal may suffer from erosion and water movement. As such, evidence of past occupation may be more likely to survive on elevated areas (e.g. terraces) above these watercourses, despite the likelihood that these lake beds and riverbanks are likely to have been heavily used in the past. Pardoe (2009a) determined the micro-environments which are present within the Project area, based on the extensive work undertaken since 1995 (Cane 1995) in identifying and sampling all landforms at Lake Cowal. These comprise back plains, Gilgai plains and a small part of the lake's edge. Culturally modified trees may be prevalent in areas of uncleared native vegetation however, are unlikely to be retained in areas that have been cleared and levelled. The terrain across the Project area has been heavily disturbed due to pastoral and cropping activities, alongside clearing for the currently operating mine.

3.3.1 Geology

The nature of the surrounding and local geology along with the availability and distribution of stone materials has a number of implications for Aboriginal land use and archaeological implications. Evidence of stone extraction and manufacture can be predicted to be concentrated in areas of stone availability. However, stone can be transported for manufacture and/or trading across the region. The geology of the Project area is present in Figure 3.1.

The geology of the Project area is primarily Quaternary aged mixed colluvial, alluvial and aeolian deposits, comprised of clastic sediments. Some areas within the Project area also contain unconsolidated micaceous silty clay, quartz lithic silt, fine to medium quartz-lithic sand with sporadic lenses of polymictic pebble to cobble gravel and sporadic palaeosol horizons. In the north-west and western boundary, Lancefieldian to Darriwilian aged sandstone from the Girilambone Group (deformed and metamorphosed, micaceous, quartzose and quartz-lithic sandstone, metamudstone chert with minor intercalation of polymictic conglomerate, siltstone, quartzite and mafic and intermediate volcanic rocks) and Quaternary to Pleistocene aged colluvium (undifferentiated colluvial and residual deposits) may also be present. Locally to the south and centre of the Project area Ludlow to Lochkovian aged conglomerate of the Ootha Group can be distinguished, with very thick bedded polymict pebble-boulder conglomerate fining to pebble lithic sandstone and laminated sandstone/siltstone. Finally, Lake Cowal's geology is Quaternary aged clay and lacustrine deposits, consisted of friable to plastic, finely laminated clay, silty clay, humic clay, grey paleosols that locally includes medium to fine sands.

Several rock types from the local area are considered by Pardoe (2013:34) as suitable for stone artefact manufacture, including: quartz, quartzite, volcanic rock (axes and flaked stone) and indurated sandstone. Notably, chert has been noted as present in uncommonly high densities in many of the assemblages close to the lake's edge and Gilgai; while quartz is more commonly found elsewhere. The chert is not common to the geology of the Project area, and is hypothesised to have come from the north, possibly as a result of trader or down-the-line exchange (North Limited 1998), and is discussed in more detail in Section 5.3.



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- Major road

Wyalong Geology 100K

Quaternary
- Undefined (Qa)
- Undefined (Qal)
- Undefined (Qr)

Tertiary
- Undefined (Czr)

Silurian/Devonian
- Manna Conglomerate (S-Doa)

Ordovician
- Girilambone Group (Og)

Source: EMM (2023); Evolution (2023); DRE (2022); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

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Geology

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 3.1

EMM
creating opportunities

3.3.2 Soil landscapes

The soils throughout a region reflect the influence of a range of factors including the parent geological material, topography, climate, organisms and length of formation time. Soil landscape classifications and their boundaries provide predefined areas that are classified by several geographic features, and which are informative for the archaeological investigation. They provide localised information including landform patterns, soils, geology, rock outcrop percentage, land use and vegetation. This information allows further categorisation of the landscape for the predictive model, additional to a topographic description. Soil landscape information builds on underlying geology and describes the depths of residual soils and colluvial soils and identifies areas that are characterised by erosion or skeletal soils and exposed bedrock versus those that may contain a deeper profile where cultural material may be buried.

The Project area soil landscapes are derived from the OEH Soil Landscapes of the Forbes 1:250 000 Sheet, and are characterised by water-inundated lakes and adjoining plains. Within the Project area eight soil landscapes are present, including Barmedman Creek, Boxalls, Euglo, Lake Cowal, Manna Mountain, Marsden, Reefton, and Wah Way (Figure 3.2, Table 3.1) (King 1999). These soil landscapes are grouped based on the dominant processes of landscape formation and erosion with the potential for traces of past Aboriginal occupation and preservation of stone artefacts and hearths affected by such (King 1999).

More broadly, the following characteristics are common for the various soil formation types present within the Project area, with regard to Aboriginal cultural heritage (Niche 2019: 30–37):

- Alluvial soil landscapes (e.g. Barmedman Creek and Wah Way) are favourable regarding previous evidence of Aboriginal use and occupation. These areas are typified as resource rich and containing stratified archaeological deposits. There is potential for surface and buried cultural materials, although likely ex-situ, due to the accumulative and transferral nature of colluvial soil landscapes. Due to less erosion than an alluvial soil landscape, stagnant alluvial soil landscapes (e.g. Euglo) would likely retain buried Aboriginal cultural material, if present.

- Swamp landscapes (e.g. Lake Cowal) would have been unfavourable to Aboriginal people camping in the past, and resulting in limited archaeological potential. Rather, they would have most likely been utilised for their resources, with the expectation of cultural materials to be adjacent to these areas.

- Past Aboriginal populations would have utilised Gilgai landscapes (e.g. Marsden) as a valuable resource, however the swell-shrinkage processes instigate cracking clay in turn destroying archaeological features, whilst sparing surface cultural materials and heat retainers. Archaeology and cultural materials in these landscapes would likely lack stratification and be relatively dispersed.

- The erosional soils (e.g. Reefton) suggests the possibility of previous Aboriginal occupation, such as camps and the associated slopes and their trees would have provided sufficient shelter from the elements. These would lack stratification and be relatively dispersed, and would commonly manifest as low density artefact scatters and isolated finds.

Use of the land surrounding the lake for livestock grazing has caused the soil to become heavily compacted, and has resulted in severe erosion, while the lake has been subject to both irrigated and dryland cropping; and when the lake bed is dry, some limited cropping occurs. As such, the upper soil profile, wherein much of the cultural material is likely present, has often been affected by past natural and anthropogenic activities (EMM 2020). However, in general, the Project area has been subject to high levels of erosion as a result of the extensive pastoralisation and de-vegetation of the region, along with impacts from the development of the gold mine (discussed in detail in Section 3.6). The loss of soil in the region consequent to the pastoral industry has produced very good exposure of lithic items, and often the bases of ground ovens, but has destroyed any stratigraphic integrity (Pardoe 2009: 33).

Table 3.1 Soil landscapes of the Project area

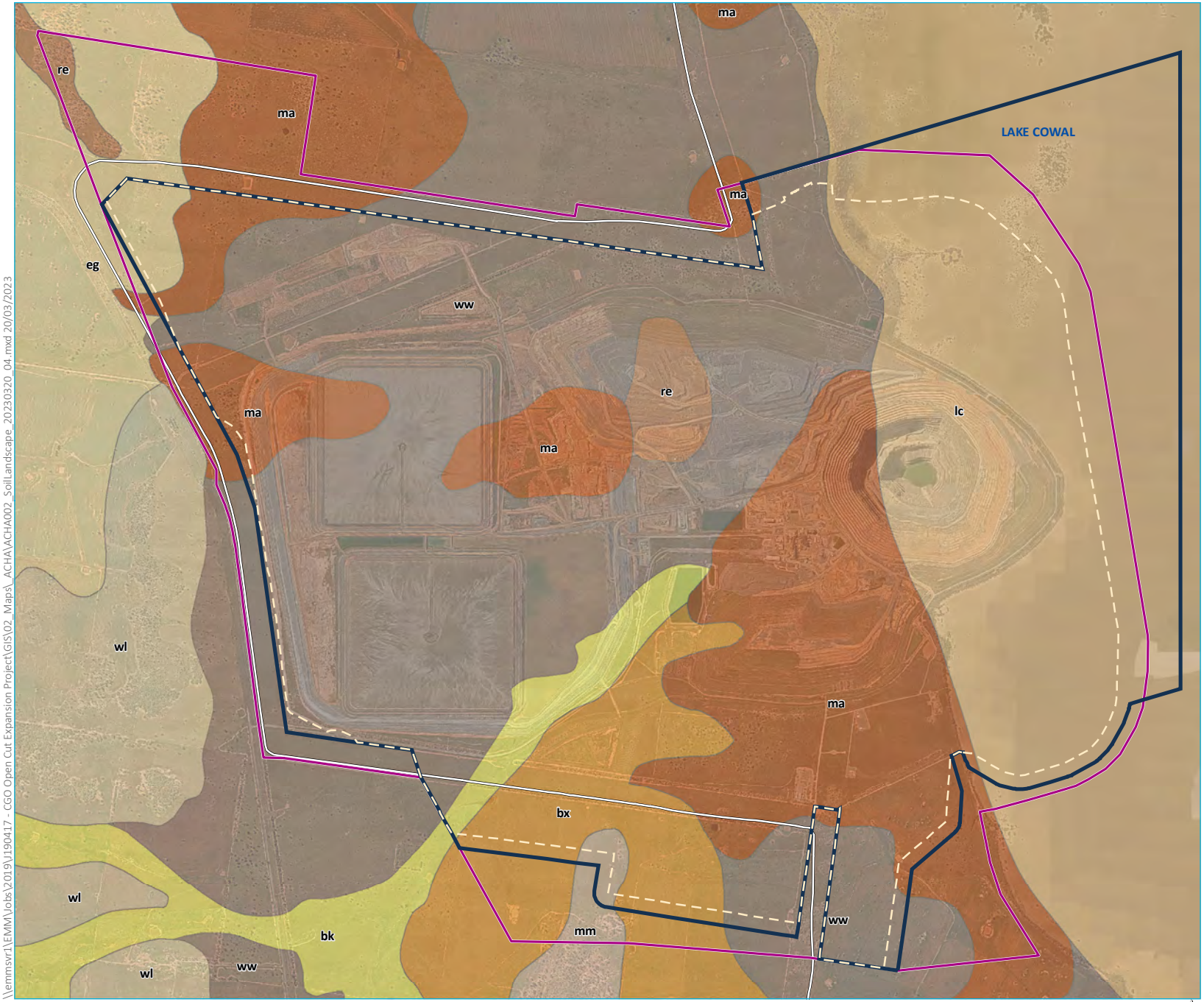
Soil landscape and type	Landform pattern and hydrology	Landform elements	Slope and relief	Geology	Soil summary	Implications for archaeology
Barmedman Creek (bk); alluvial	Drainage lines and adjoining floodplains and terraces. River channels are meandering with associated backswamps and occasional anabranches. Man made levees for irrigation occur in places.	Floodplains and terraces with level slopes.	Slopes, besides streambanks are level. Local relief is extremely low <5 m.	Quaternary alluvium	In backswamps, minor drainage lines and drainage depressions medium clay to 10–15 cm. On terraces and lower floodplains, brown clays of medium clay to 15 cm and red clays/brown earths intergrade of silty clay loams <5 cm thick are prevalent.	Low potential for cultural material due to heavy clays at <20 cm. Previous development and vegetation clearance for pasture reduces archaeological potential. There is possibility for surface artefacts on terraces.
Boxalls (bx); transferral	Gently undulating foot-slopes and associated low hills on Silurian colluviums. Unidirectional drainage lines prevalent.	Foot-slopes (undulating) and low hills.	Gently inclined slope gradients ranging from 2–8%, slope length up to 1.5 km. Local relief is low <30 m.	Silurian colluvium	On upper slopes single-grained sand A1 horizon gradually becoming A2 horizon of single-grained sand to approximately 60 cm. Mid-slopes consist of sandy loams, clay loams or sandy clay loams. Lower slopes and drainage lines consist typically of sandy loam A1 horizon abruptly into a sandy clay loam A2 horizon.	There is potential for both surface and buried archaeological deposits due to the accumulative nature of the soil landscape.
Euglo (eg); stagnant alluvial	Alluvial and colluvial plains.	Level plains	Slope gradient <1% with local relief confined to <5 m.	Alluvium and colluvium	Soils typically red brown earths with sandy clay loam.	Low potential for archaeological material due to extensive vegetation clearance, high soil erodibility and moderate to high wind erosion.

Table 3.1 Soil landscapes of the Project area

Soil landscape and type	Landform pattern and hydrology	Landform elements	Slope and relief	Geology	Soil summary	Implications for archaeology
Lake Cowal (lc); swamp	Level closed depressions forming extensive lakes. Lake Cowal is typically inundated from floodwaters from the Lachlan River System and Bland Creek. Small areas with Gilgai microrelief occur on lake margins.	Level closed depressions, extensive lakes.	Slope gradients are <1% and local relief is >5 m.	Quaternary alluvium comprising clays, sands and gravels of the Cowra and Lachlan formations.	Generally, consists of fine sandy clay or medium clay.	Low potential in areas of regular inundation with permanent waterlogging, high water tables, high localised erodibility and soils of low permeability.
Manna Mountain (mm); colluvial	Rolling to steep rugged hills forming north-south oriented ranges. Narrow and convex crests, with steep side-slopes.	Hills (rolling to steep), crests (narrow and convex), steep side-slopes with small cliffs on some upper-slopes.	Slope gradients are generally 25–50% with local relief 60–120 m.	Silurian Womboyne Conglomerate (~443–416 million years ago) consisting of conglomerates. sandstone, phyllites, quartzites and minor breccias. Minor Devonian sediments sometimes occur including the Trundle Beds.	Crests, upper slopes and lower slopes typically consist of sandy loams.	Some potential as an area of rock outcrop that is largely unused for agriculture/pastoral practices, however likelihood of sites being retained in situ in this context is low. Steep slopes, high run-on and rockfall hazard would make it unlikely for consistent Aboriginal occupation.
Marsden (ma); Gilgai	Level slopes, Gilgai with intervening mounds, shelves and depressions.	Level slopes, pronounced and melon hole Gilgai with intervening mounds, shelves and depressions.	Vertical distance between Gilgai depressions and mounds is occasionally 10–20 m. Gilgai depressions generally circular and measure between 3–10 m. Local relief is <9 m.	Quaternary alluvium comprising salts, silts, clays and gravels.	Soils typically comprise light clay to silty clay along Gilgai crests/puffs and depressions. These are deep to moderately deep poorly drained clays.	High potential for cultural material, considered an important and predictable resource area and relatively undisturbed. Cracking clays reduce the likelihood of archaeological sites to be stratified.

Table 3.1 Soil landscapes of the Project area

Soil landscape and type	Landform pattern and hydrology	Landform elements	Slope and relief	Geology	Soil summary	Implications for archaeology
Reefton (re); erosional	Gently undulating small crests and small ridges.	Gently undulating to undulating rises and ridges.	Slope gradient 3–10%. Local relief is <40 m.	Womboyne Conglomerate of Silurian age (~443–416 million years ago) including conglomerates, siltstones and sandstones. Colluvium on lower slopes.	Crests and side-slopes consist of gravelly sandy loam.	Limited potential for buried cultural materials as area is subject to water erosion. Grazing, cropping and pastoral activities are dominant across the landscape which can cause surface artefact scatters.
Wah Way (ww); alluvial	Level plains and floodplains. Includes backswamps, lower floodplains and less frequently inundated upper floodplains associated with Wah Way and Blanks Creeks. Isolated areas with developed Gilgai microrelief.	Level plains and floodplains.	Slope <1% with low local relief <5 m.	Quaternary alluvium.	Alluvial plains consist of silty clay loam to silty clay or medium clay.	Limited archaeological potential due to high erodibility and hard setting tendencies. However, erosion is likely to reveal any buried archaeological deposits on the surface.



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- Major road

Soil Landscape

- Barmedman Creek (bk)
- Boxalls (bx)
- Euglo (eg)
- Lake Cowal (lc)
- Manna Mtn (mm)
- Marsden (ma)
- Reefton (re)
- Wah Way (ww)
- Weelah (wl)

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Source: EMM (2023); Evolution (2023); DRE (2022); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

Soil landscapes

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 3.2

EMM
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i Pardoe's (2002) micro-environments

Pardoe (2002) was engaged by Barrick Australia Limited (Barrick) to prepare a research design and study plan to accompany two investigative AHIPs (Permit 1468 and 1681) for impacts to Aboriginal objects associated with CGO. The research design divided the study area into different zones of management based on their landforms, soils, potential erosion impact, recorded Aboriginal sites and archaeological potential (Plate 3.1). These landscape management zones have become instrumental in identifying landscape features and applying appropriate management measures, which were subsequently included in Barrick's 2003 IACHMP and subsequent archaeological assessments for the CGO.

Accordingly, this assessment has approached landform definitions according to the five zones of management outlined in Table 3.2.

Table 3.2 Pardoe's microenvironments (Pardoe 2002, 2009a)

Management zone	Landform and formation process	Archaeological potential
Lake bed zone	The lake bed primarily comprises cracking grey clays of 5 m depth. These clays build up slowly, hence their age increases with depth. Its surface, typically no more than 10 cm thick consists of intermittent drifts of washed and well-sorted beach sands. Drifts are relocated from waves and currents when the lake contains substantial water.	There is low potential for Aboriginal cultural material in this zone with the high likelihood of transportation from outside sites due to erosion processes and constant water movement. Due to large cracks within the clay during dry periods, there is a possibility for artefacts to fall through. Stone artefacts have been located almost exclusively on the surface. It is unlikely for any material to be *in situ* if found.
Beach zone	The western beach (beach) contains coarse, well-sorted light coloured sand and a mixture of organic material consisting of washed up flotsam and jetsam. These sands derived from deposited sand carried into the lake from waves and current activity, deposited as a shallow unit and found along the entire western shore. Along the east is Lake Cowal's lunette, a typical feature of ephemeral lakes within the region. The deposits are air borne from wind, with the sand light coloured and particle size smaller than those of the beach, containing a greater organic fraction.	There is low potential for Aboriginal cultural material in this zone with the high likelihood of transportation from outside sites due to erosion processes and water movement. Inundation of this zone is common. It is unlikely for any material to be *in situ* if found.
Slope zone	The slope has suffered detrimental effects from erosion, a B2 horizon of underlying clay with pisolith gravel along the surface now remains. A talus of slope-wash built up from mixed sediment of materials up slope, high water wave action and beach formation is prevalent along the flat where the slope becomes the beach.	Any cultural material found would have most likely been transported due to erosion and bioturbation from upslope sites. Due to the formation process, any dates of any material must be considered as unreliable.
Lake edge ridge zone	The lake edge ridge is part of the surrounding plains and defined by Pardoe for its archaeological value. It is situated on the dune landform overlooking the lake. Highly disturbed, the lake edge itself undergoes periods of extreme inundation and intense periods of drought.	While impacted from erosional processes and high levels of disturbance, several large, complex occupation sites have been identified in this zone. High potential for surface artefact, some subsurface potential is present where disturbance is low.

Table 3.2 Pardoe's microenvironments (Pardoe 2002, 2009a)

Management zone	Landform and formation process	Archaeological potential
Back/Gilgai plains zone	The back plains are nestled between the north-south trending ranges and form the largest environment within proximity of the lakes. The lake most likely built itself up simultaneously with these plains. The flat plains were initially utilised for stock and due to wind erosion in the 19th century 300 mm of topsoil was lost. Further agricultural use of the plains in the 20th century, particularly mechanised methods contributed to further topsoil loss. The plain became an area for stock/grazing leading to ground surface stabilisation with a lag surface of gravel. Low lying areas have retained a thicker layer of topsoil. Most significant of this formation is the Gilgai. These features were initially observed by the Wiradjuri, the term *gilgaay* meaning 'waterhole'. Gilgai's are described by Pardoe as a hollow in the ground surrounded by a raised rim (2009a). Prominent on plains of heavy clay soil with low relief terrain, Gilgai are characterised by these hollows, rims and mounds. The terrain in which they are formed is produced through alternating periods of expansion caused by rainfall and contraction during hot, dry weather wherein deep cracking occurs. Typically, Gilgai plains are covered by tree or large shrub canopy and surrounded by various herbs and grasses, several which take advantage of ephemeral inundation (Pardoe 2009a). Gilgai are prevalent within the Project area.	Past Aboriginal use of the back plain was largely transitory, and cultural material would largely be limited to isolated finds. There is generally low potential for Aboriginal cultural material in this zone, due to severe erosional processes in this locale. Any past Aboriginal activity in this zone was likely focused on the Gilgai, which would be useful additions to the resource base in the few weeks following rains. However, the lack of ground ovens and large sites, and a relatively sparse distribution of lithic items, is suggestive of the view that the use of Gilgai plains would have been transitory and limited to small groups or individuals. Cultural material would be expected in the form of low-density artefact scatters and isolated artefacts.

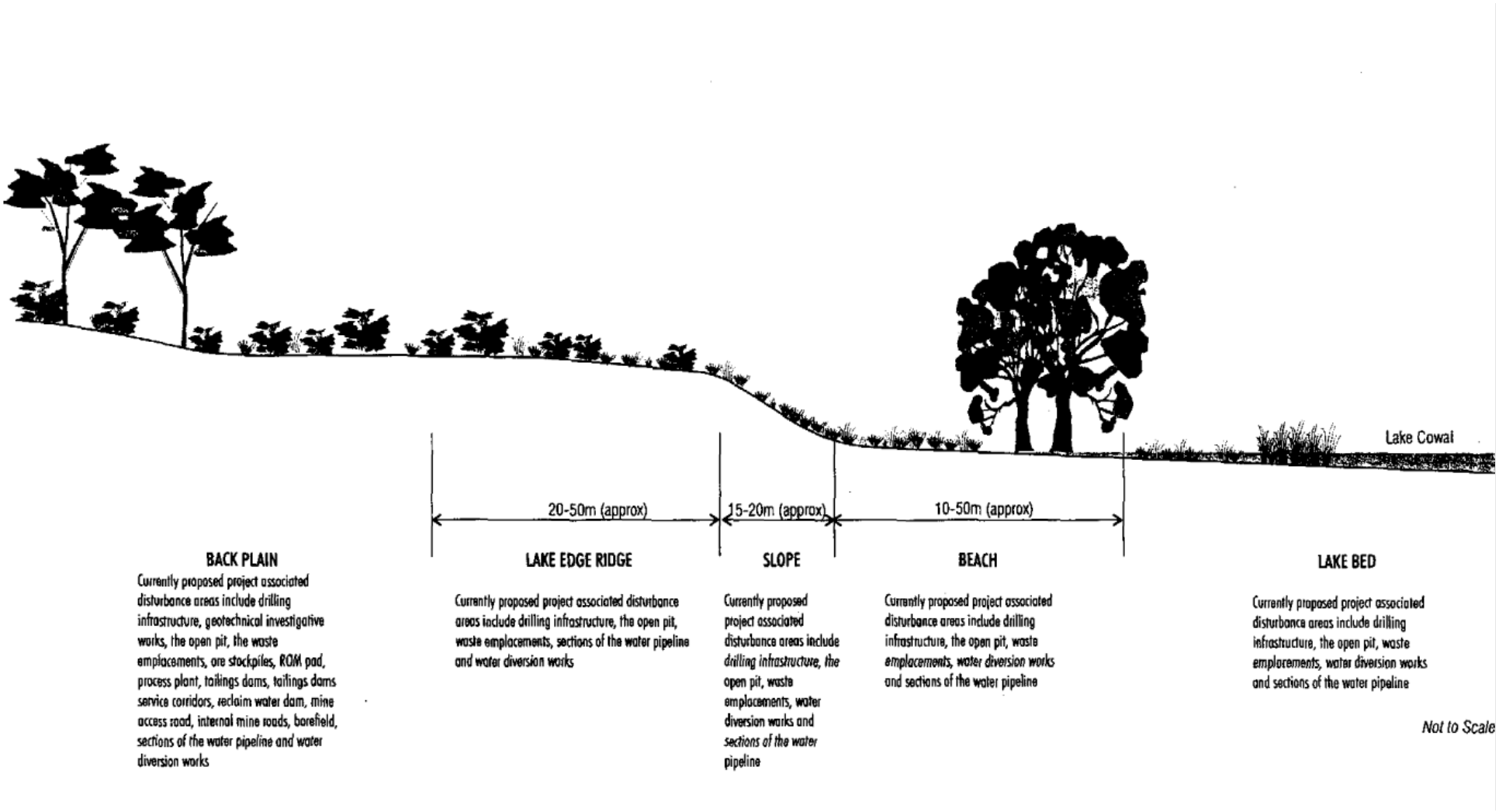
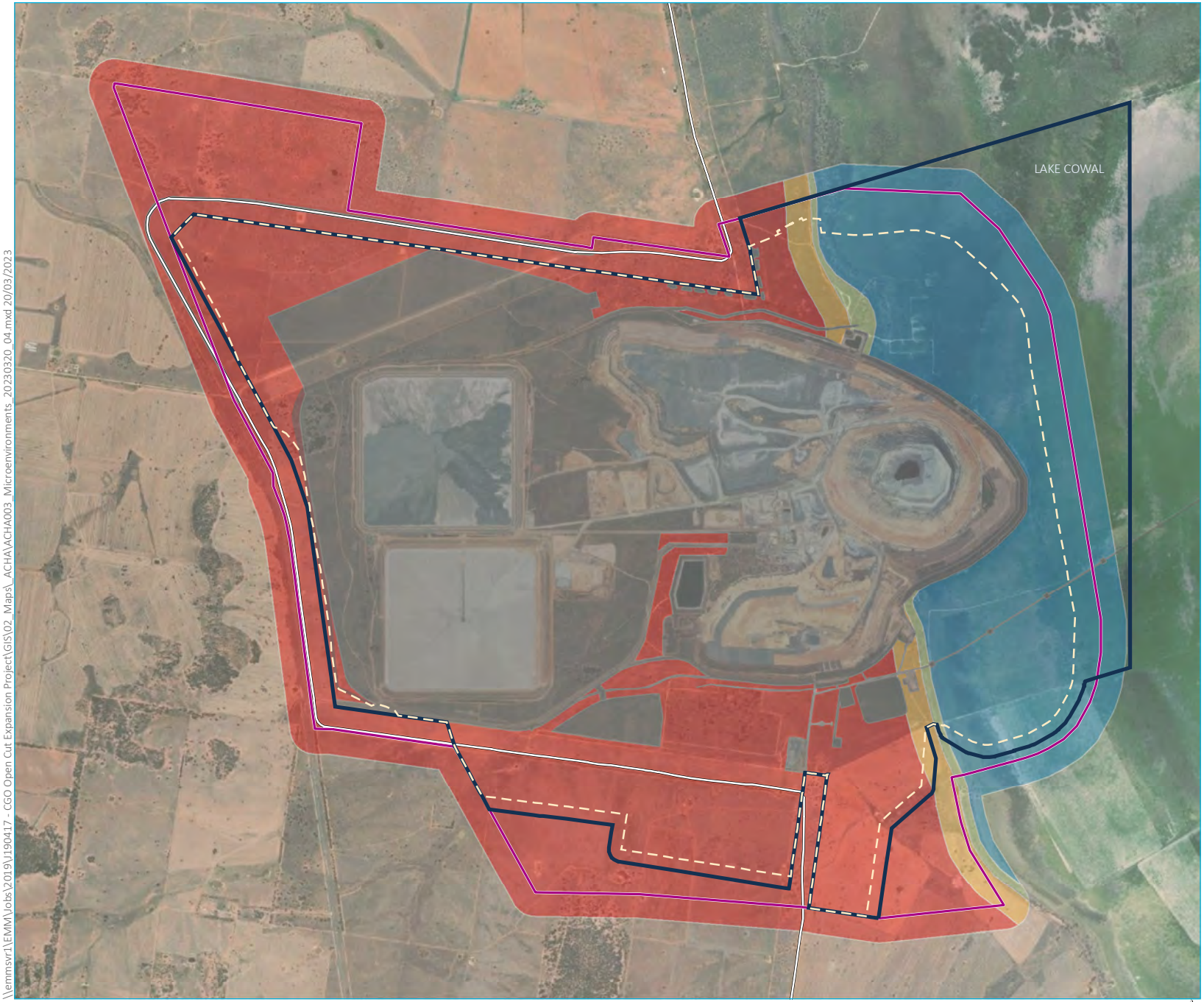


Plate 3.1 CGO Archaeological Management Zones – Typical Cross Section (ref. Barrick 2003, Appendix 5)



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road

Indicative archaeological management zone areas

- Lake bed
- Slope/beach
- Lake edge ridge
- Back plain

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Source: EMM (2023); Evolution (2023); OEH (2023); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

Pardoe (2002) microenvironments

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 3.3

EMM creating opportunities

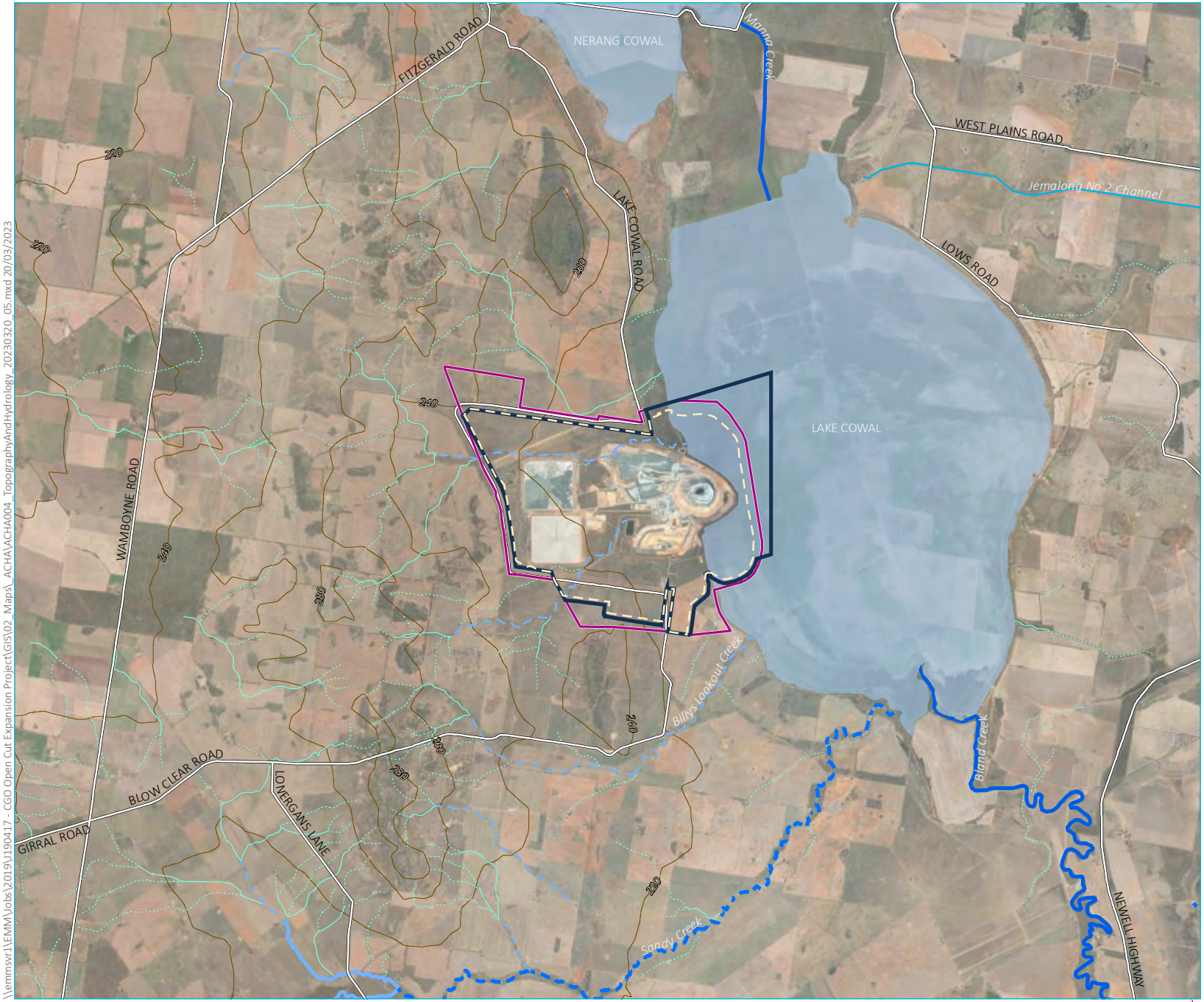
3.4 Hydrology

The availability of water (including for faunal and flora resources) is one of the most important factors influencing patterns of past Aboriginal land use. The Project area is located in the Lachlan River catchment within the broader Murray-Darling Basin. Former alignments of unnamed ephemeral tributaries and drainage lines (1st to 3rd Strahler stream order) to Lake Cowal and the lake itself are present (Woolrych 1890, p. 65). Notably, *Cowal* is a Wiradjuri word meaning 'large water'. This shallow, ephemeral lake is approximately 21 km long and 9 km wide, making it the largest natural inland lake in NSW. The presence of large, mature trees throughout the lake bed attests to its highly ephemeral nature, with the lake bed itself periodically utilised for agricultural production, including cultivation and grazing. There are several streams that feed into Lake Cowal on its western and southern perimeter; however, their channels typically terminate at the intersection with the lake shore.

Lake Cowal is fed by floodwaters and surface water from Bland Creek to the south and overflow from the Lachlan River system in the north. When the lake is full and no further inundation or additional inflows occur, it can take between 2.3 to 17 years for the lake to dry out (ATC Williams 2023). Fish and other freshwater species enter the lake through its connection to other major waterways, like the Lachlan River. When the lake is full, it is home to abundant fish, turtle and reptile populations, and is an important ecological feature for migratory birds including pink-eared ducks, swans, black-tailed native hens, ibis and magpie geese. Lake Cowal is an important wetland and breeding ground for many species. Much of the early archaeological investigations around Lake Cowal highlighted the importance of the lake as a seasonal hunting ground for Aboriginal people, due to the abundant resources associated with the lake.

The presence of Gilgai is also an important part of the hydrology when considering previous Aboriginal occupation, as they produce very favourable conditions when away from more reliable local water sources, such as Lake Cowal or Bland Creek, or when these more substantial features were dry. Gilgai were initially observed by the Wiradjuri, the term *gilgaay* meaning 'waterhole'. Gilgais are described by Pardoe (2009a) as a hollow in the ground surrounded by a raised rim. Prominent on plains of heavy clay soil with low relief terrain, Gilgai are characterised by these hollows, rims and mounds. The terrain is produced through alternating periods of expansion caused by rainfall and contraction during hot, dry weather wherein deep cracking occurs. The margins and back plains of Lake Cowal feature Gilgai depressions ranging in diameter and depth, which would collect and hold large amounts of water during rain or flood events (EMM 2020). At capacity, Lake Cowal would have been large enough to maintain sizable populations, whereas in dry conditions Gilgai formations would have been a vital source for transient groups travelling across the region (Cane 1994: 13).

The ephemeral creeks/drainage lines to the west and south of the Project area are potentially of significant antiquity, with water draining in these directions for millions of years. The lake has most likely changed course over the past millennia due to sediment build-up redirecting the watercourse. Substantial amounts of lithic artefactual material have been identified along these creek channels during previous site surveys (Cane 1994; Pardoe 2002). Pardoe (2009a) notes many such artefacts were most likely moved by water/current activity and affected by erosion in the previous 150 years. Billabongs are present along the channel, most likely in existence pre-European settlement however deepening due to subsequent erosion from pastoral activity (Pardoe 2009a) Cane (1994) notes that Bland Creek at the southern end of Lake Cowal is the most permanent water source in the immediate area, increasing its archaeological potential.



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- Major road
- Channel
- Contour (5 m interval)
- Lake Cowal

Strahler stream order

- 1st
- 2nd
- 3rd
- 4th
- 5th
- 7th

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Source: EMM (2023); Evolution (2023); DFSI (2017)

0 2.5 5 km

GDA 1994 MGA Zone 55

N

Topography and hydrology

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 3.4

EMM
creating opportunities

3.5 Flora and fauna

The plains landscape of the Project area has been subject to extensive land clearing. Open woodlands of belah, weeping myall, rosewood and white cypress pine would have dominated the study area, remnant and regrowth species are present today. Remnant belah woodlands are scattered around the mine itself, most commonly in association with undisturbed Gilgai. Medium densities of river red gums are clustered across the north-eastern section of the Project area, along Lake Cowal's edge. Variable understorey species included wallaby grass and saltbush on dry plains and lignum in frequently inundated margin areas and Lake Cowal itself.

There is a considerable body of literature relating to the Wiradjuri people's use and perception of plants and animals across New South Wales (Ash et al. 2003; Brouwer et al. 2005; Clarke 2003a, 2007a, 2012, 2023; Low 2003; Maiden 1889; MacPherson 1925, 1931, 1934, 1939; Packer et al. 2012; Stewart & Percival 1997) – see also Appendix D. Prior to European arrival, the landscape would have provided abundant resources for Aboriginal people. The plains around Lake Cowal and the aquatic environments of the lake, drainage lines and Gilgai would have provided abundant resources and made the area a sufficient place for year round occupation.

River red gum may have been used for making canoes or for ceremonial purposes. Across arid and semi-arid regions of Australia, including Wiradjuri Country, sugar lerp was often extracted from eucalypt leaves during dry periods. Nardoo seeds derived from the wetland fern, predominant around areas of Gilgai, were typically ground and used for flour and bread. The seeds of the kangaroo grass were also utilised for similar purposes. Other native plant and tree species include wilga, quandong, kurrajong and old man's weed. The quandong is an abundant species of fruit that would have been frequently collected according to former settler John Gale (1994):

> Its fruit was juicy and of a pleasant acidity. It was the custom of the blackfellows of those days, rather than take the trouble of climbing and gathering the fruit from the growing trees, to fell it with their tomahawks, and thus by the easier method enjoy the fruit of their destructive and improvident.

Important faunal species to the Wiradjuri would have included "kangaroos, wallabies, bandicoots, emus, turkeys, snakes and lizards" (Pardoe 2013: 36). Waterfowl including pelicans, white ibis and straw-necked ibis travel to Lake Cowal to nest, the area being seasonally rich, with birdlife common all year round (Pardoe 2013; Clarke 2023 [Appendix D]). For the local Wiradjuri people, such birdlife and those from the surrounding region would have provided major sources of game (Clarke 2023 [Appendix D]). The emu was a prized as a gamebird, but there were strict religious-based prohibitions concerning the eating of its flesh.

Crayfish and fish would have been a common food source. The bark of the kurrajong was often used for fishing nets (Clarke 2023 [Appendix D]). Snakes were considered as another abundant food source, pastoral stations near Lake Cowal were known for frequently finding these reptiles. McGuire (cit Pinkerton 1906) recorded:

> As soon as a snake is killed, his head is instantly chopped off, before he can get a chance to bite himself…The reptile is rolled up, skin and all, and covered up in the red hot coals to cook

Insects, particularly native bees were often tracked back to their hives for honey, wax and grubs. Grubs were chopped from tree trunks or from underground burrows, using a hooked stick. Moths were also eaten, typically raw with their wings removed (Pinkerton 1906; Clarke 2023).

It is likely that Aboriginal people in the Riverina of New South Wales, as with other parts of Australia, possessed a rich body of knowledge concerning local bush medicines. Clay was sometimes used to suffocate severe wounds, cobwebs and possum fur to stop bleeding and eucalypt leaves to help the healing process. Eucalypt leaves were oftentimes used for chills and pains (Clarke 2023).

Plants also served other uses, for examples eucalypts provided bark for huts and as burial shrouds, resin was mixed with ochre and the leaves were (and are) used for smoking purposes. They were also important for making tools and bull rush and fibres for weaving and nets.

Currently, the Project area is predominantly cleared of vegetation with sparse scattering of trees and small areas of woodland, alongside the lake and Gilgai. Most cultural materials identified through surface inspection are identified when they are visible on exposure created by erosion or ground surface disturbances (Dean-Jones and Mitchell 1993). The landscape is highly eroded, hence the detection of surface cultural materials is likely, however inundation and waterlogging of surrounding streams and lakes will significantly impact visibility.

3.6 Previous disturbance and land use

Previous land disturbance has a significant impact to the survivability of cultural materials if present. While there are natural processes that can disturb and/or destroy cultural material, more frequently it is increasing urbanisation over the last 200 years that has resulted in the most significant impacts. The history and land-use of the Project area is outlined in detail in the *Statement of Heritage Impact* (OzArk in prep) as part of the EIS, and summarised below. Historical aerials of the Project area (1958, 1967, 1973, 1983, 1989, 1993, 1997, 2002, and 2021) are presented in Appendix C.

Following European settlement of Lake Cowal during the 1820s, the landscape has been subjected to varying activities including extensive clearing, agricultural cultivation, pastoral grazing, road and track construction, trenching activities and mining (Pardoe 2013: 38).

Much of the region has been subject to ploughing, affecting the potential of possible Aboriginal cultural material and the integrity of sites and features. Ploughing increases the occurrence of erosion and can also result in the movement of cultural materials, thus causing artificial changes in artefact densities and distributions. Within the Project area, ploughing has generally been restricted to particular low-lying soils or soils with higher potential for intermittent flooding from ephemeral creeks – such as the beach and lake bed zones. Most lithic items would not be subject to damage from ploughing activities, however earth oven and earthen mound would be destroyed, as their depths typically range between 20–25 cm. Some earthen mounds may retain visibility even if ploughed. However, broad acre agricultural ploughing has increased in mechanisation, causing the destruction of many archaeological sites and their contexts within the region. More broadly, western New South Wales has lost much of its topsoil due to stock and ploughing activities.

Sheep were the major stock animal in the region and major contributor to the loss of topsoil across the region. Although pastoralism is a comparatively low impact activity, it does result in disturbances due to vegetation clearance and the trampling and compaction of grazed areas. These factors accelerate the natural processes of sheet and gully erosion, which in turn can cause the horizontal and lateral displacement of cultural materials. Furthermore, grazing by hoofed animals can affect the archaeological record due to the displacement and breakage of artefacts resulting from trampling (Yorston et al 1990). Widespread land clearance in the 19th and early 20th centuries disturbed the ground to considerable depths. Major impacts on Aboriginal cultural heritage were exacerbated by chain, chopping and fire tree clearing, alongside uprooting of trees, horse teams and motorised tractors. Historic aerial imagery from the 1970s (Appendix C) indicates remnants and regrowth of previous forests and woodlands scattered across uncleared road reserves and in the low ranges. Such road construction has occurred since the 19th century and includes several Travelling Stock routes (Figure 1.2).

The detrimental impact of rabbit number across Australia also severely affected the landscape within the Project area. In the late 19th century, almost all sandy rises were subject to infestation of rabbit warrens, notably the eastern lunette on the eastern side of Lake Cowal was susceptible. The soils of the western back plains were more resistant due to their hardness and rocky layers at shallow depths, but the lake's edge would have been adversely affected.

By far the greatest impact to the Project area is mining. Historical gold mining occurred in the region during the 19th and 20th centuries. Although highly localised, these activities would have had a significant impact on cultural materials and associated areas in the nearby hills. With specific reference to the Project area, open pit mining commenced in 2005 and underground mining in 2021 by CGO adjacent to the western edge of Lake Cowal. These activities have resulted in the deep impacts to a significant portion of the Project area, both as a result of the mining itself and the archaeological mitigations that have resulted in the recovery of cultural materials around the works. An overlay of the existing mine site (Figure 1.2–Figure 1.3) demonstrates that ~70% of the Project is within these areas of high disturbance.

KEY

EIS study area
Project area
Additional disturbance area
Existing and approved disturbance area
Major

Vegetation

PCT 17 - Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT 26 | Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- High
- Poor
- Planted
- DNG

PCT 53 | Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains

PCT 55 | Belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions
- Poor
- Planted
- DNG

PCT 82 | Western Grey Box - Poplar Box - White Cypress Pine tall woodland on red loams mainly of the eastern Cobar Peneplain Bioregion
- Poor
- Regenerating
- Planted
- DNG

PCT 185 | Dwyer's Red Gum - White Cypress Pine - Currawang shrubby woodland mainly in the NSW South Western Slopes Bioregion
- High
- DNG

PCT 244 | Poplar Box grassy woodland on alluvial clay-loam soils mainly in the temperate climate zone of central NSW
- Poor
- DNG

PCT 249 | River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW
- Regenerating
- DNG

Other
- Cleared
- Cropped
- Exotic Grassland

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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021)

0 1 2 km

GDA 1994 MGA Zone 55

N

Vegetation

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 3.5

EMM
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4 Ethnography and cultural mapping

4.1 Key findings

- Traditionally, the country in which the Project area is located was occupied by people known collectively as the Wiradjuri, who all spoke a related language and shared many cultural attributes, and their descendants are still based in central NSW today. The Wiradjuri linguistic and cultural group represents the largest Aboriginal territory in NSW. At the time of European settlement, Lake Cowal would have been part of one or more estates associated with clans as landowning groups within the 'Levels tribe' of the Wiradjuri, although there is no information available on their clan identity.

- The main mythologies of the Wiradjuri people during this time involved supreme beings, such as Baiame, Daramulan and Muni Burrebean, with totemic ancestors being of lesser importance. Numerous creation stories and spiritual sites are documented within the region. Notably along the banks of Lake Cowal and Bland Creek, and further including Booberoi Mountain, Manna Mountain and Womboyne Mountain, these are culturally sensitive ceremonial sites, with several being gender-specific.

- A review of historical records for the region shows an extensive interaction with Europeans over the last 200 years, including numerous incidences of frontier violence. Although recorded events occurred nearby, no incidents appear directly associated with Lake Cowal itself. Due to the negative impacts of European settlement, a breakdown of the clan system occurred in the late 19th century, wherein Aboriginal people in the Lachlan to Murrumbidgee Rivers region primarily lived in settlements and large pastoral properties, continuing to maintain their identity as Wiradjuri people.

- Cultural mapping was undertaken by a highly experienced anthropologist and key knowledge-holders for the Project area. Some six specific locations were identified in the general region as having traditional, historical and/or contemporary values to the local Aboriginal community. None of these sites are within the Project area, although are in general proximity of Lake Cowal. Most of these sites are visible from the edge of Lake Cowal and in contemporary Wiradjuri belief, all six sites were part of their cultural landscape at the time of first European settlement, with five of them relating to their ceremonial life. Two of these, Booberoi Hills and Manna Mountain, have significant cultural materials in the form of surface stone artefacts; and Marsden is used as a contemporary cultural training site for Wiradjuri people today. The ceremonial site on the southeast bank of Lake Cowal was identified for protection during an earlier phase of the mine's development, and Wamboyne Mountain immediately north, are the only two sites in relative close proximity of the Project area.

- Cultural flows were explored and indicated the significance of river and creek flows into Lake Cowal to being crucial for the local Wiradjuri community as they occupy Country dominated by watercourses. The Wiradjuri people desire to have their Country ecologically restored, after the severe damage to parts of the ecosystem through European mismanagement of water resources. They stated that the river must continue to flow for the benefit of the physical environment, the wellbeing of their community as well as for both their spiritual and physical health.

4.2 Documentary ethnography

4.2.1 Regional information

Information about the socio-cultural structure of Aboriginal society prior to European contact largely comes from ethno-historical accounts made by colonial settlers. These accounts and observations were often made after significant social disruption due to disease and displacement. As a result, this information is often contentious, particularly in relation to language group boundaries. Therefore, it is likely that language group boundaries were far more diffuse than the arbitrary demarcations drawn by colonial observers.

The Project area falls within the traditional country of the Wiradjuri linguistic and cultural group. In geographic terms, this group is the largest in NSW, extending from the Blue Mountains in the east to Hay in the west, and from Nyngan in the north to Albury in the south. Although detailed, current information is lacking, the Wiradjuri population at contact has been estimated at 3,000 (Read 1986). The name 'Wiradjuri' means 'people of the three rivers', named for the main rivers in Wiradjuri country: the Murrumbidgee (Murrumbidjeri), Lachlan (Kalari) and Macquarie-Wambuul rivers (NPWS 2003:121). The Project area is situated in an area described as being part of the 'heartland' of Wiradjuri country (Sacred Land Film Project, 2006).

As with groups elsewhere in NSW, documentary evidence suggests the Wiradjuri cultural-linguistic group comprised several smaller sub-groupings. Surveyor and early anthropologist Robert Hamilton Mathews (1841–1918) wrote that the Wiradjuri nation was a 'vast confederation' made up of several smaller groups each with 'recognised hunting grounds'. In turn, these economic groups comprised smaller extended family groups (or 'clans') who were caretakers of a certain area by virtue of birthright (Mathews 1906, pp. 941–192). Local waterways and catchment areas delineated the boundaries of these smaller kinship groups (Pearson 1984). Pearson's research also suggests that seasonality influenced social organisation, with people breaking into smaller groups during lean times. Conversely, feasts and ceremonial activities occurred in established meeting places between large groups of people during resource-rich periods. There is evidence to suggest that intra-group differences were sufficient that information relating to Wiradjuri country 'should not be taken to show much more than the areas where the Wiradjuri language was principally spoken' (Read 1988, p. 14). These patterns of social organisation mirror those recorded by early colonists in the Sydney region (e.g. see Attenbrow 2010, pp. 28–29).

4.2.2 Local beliefs and ceremonial practices

Information about the beliefs and ceremonial practices of the Wiradjuri people surrounding Lake Cowal come from histories shared by Uncle Linton Howarth and Aunty Marlene Collins (Wiradjuri Elders) and other descendants from the late 19th century and throughout the 20th century (Clarke 2023).

Some spirit beings had a mixture of human and animal traits, including the 'yowie', arguably derived from a northern New South Wales Yuwaalaraay word, *yuwi*, meaning a 'dream spirit'. According to Uncle Linton, Wiradjuri people talk about 'hairy men' or 'yowie' living in the forests, which they protect (Ramson 1988, p.761). Gugabul is the Murray Cod who 'made the rivers' and Maliyan the Wedge-tailed Eagle who 'taught about fire', both being considered 'powerful ancestors' in Wiradjuri Country. Myths about giant kangaroos relate to the extinct megafauna. Marlene identifies the willie wagtail as a 'messenger bird' that delivers unwanted messages about the deaths of relatives and friends (Clarke 2023).

Water spirits were prominent in Wiradjuri culture, compared with the 'bunyip' that was widely associated with wetlands and predominantly Lake Cowal, recognised in a 1920 newspaper excerpt from naturalist/explorer, Archibald Meston:

> The bunyip story, runs through all Australian history. Back in the convict period of New South Wales some remarkable and mysterious animal was reported in various deep lagoons, and in 1834 a strange animal like a seal was seen in Lake Cowal and Lake George (Holden & Holden 2001, p.84-99).

Ceremonial life involved myths and stories explaining right and wrong forms of behaviours. Religious ceremonies often involved sky gods (Clayton 1985). For the Wiradjuri, Baiame is an important male supreme ancestor, known for transforming two brothers, who had fought all day, into Ivy Rock, located far to the east between Dunedoo and Singleton. Daramulun and Muni Burrebean are two further significant Wiradjuri ancestors akin in status to Baiame. Significant ceremony included the Burbung ceremony, which was associated with male initiation. This ceremony is described in detail by Matthews (1896; 1901) with further detail in Howitt (1904). Aspects of Mathews' (1896) description provide insight into elements of the wider Wiradjuri demography. Mathews relates that the Burbung ceremony involved numerous members of various Wiradjuri tribes. Gathering for the ceremony commenced with the headmen from three tribes deciding to hold the ceremony. Five messengers were dispatched (carrying sacred emblems) to invite neighbouring tribes to participate in the ceremony; these messengers were dispatched in five different directions. The need to dispatch so many messengers suggests the size of the ceremony and the extensive nature of Wiradjuri territory:

> These messengers generally arrived at the camp to which they were dispatched a little before sundown, because at that time of the day all the men have generally returned from hunting, and are to be found in their own quarters (Mathews 1896: 303).

This indicates that tribes were possibly extended family units, each occupying a distinct area, as the messenger knew where to go to find the tribe:

> The next day, or it might be in a few days' time, the message was sent forward to the next tribe, or section of the tribe, either by the headman dispatching one of his own people bearing the sacred emblems, or by the same messenger who had brought the invitation to the camp. In this way the message was sent from tribe to tribe, or to sections of a tribe, until the farthest-off camp of natives was reached (Mathews 1896: 304).

The journey to the appointed place was undertaken by men, women and children in easy stages. Given the descriptions of tribes involved in the Burbung recorded by Mathews, the participating tribes travelled up to 200 km to attend the ceremony. Travelling this distance would have taken at least two weeks and shows that the Wiradjuri had sufficient knowledge of resources to move large numbers of people through their territory.

Mathews (1896: 296) reports that the ceremony commenced at the "end of May" and "the final ceremonies were not concluded till the beginning of July". Two months of ceremony during the late autumn and winter months indicate the ability to procure and provide food and sufficient water for several hundred people.

Art was important as a means of bringing spirit power or influence over everyday activities. Body painting and decoration were used in corroborees and battles (Clayton 1985). Ceremonies involved constructing large elaborate earthen features, decorated with earth carvings; and also constructing 'images' of Dharamoolan (Mathews 1901: 340) and Baiamai (Mathews 1896: 300) from mud, clay and sticks.

Wiradjuri people observed elaborate burial practices. A description of a burial from the Wellington area has been described by Hood (1843), cited in le Maistre (1993):

> I saw a native grave today. It was heaped up with earth over a deep pit; was of circular form, and covered with trees; a hollow space was scooped out are it, from whence the soil had been taken; and to the south were two semi-circles trodden in the earth, which with the figures cut on to adjoining trees are supposed by these poor people to keep off the debbil debbil, or evil spirit. I understand they will not pass a grave at night and never mention the name of a person after his decease.

This information is mirrored in accounts from Oxley (1820) and Mitchell (1839). They wrote that graves comprised a large, raised central tomb enclosed on top by a bark and timber hut, with tombs frequently surrounded by several raised earthen mounds or ridges. They also wrote that relatives of the deceased person would often keep vigil at the tomb for a period of time.

Today, Wiradjuri people speak of women's and men's sites, and their approximate location is known to most community members in order for them to observe cultural protocols in relation to access (Appendix D).

4.2.3 Tools, weapons and apparel

Wiradjuri clans would generally build small villages that acted as a home base for wider foraging, hunting and social activity that would take people into other areas. Small houses were constructed using sapling branches covered with tree bark.

Stone and wooden implements were commonly used by the Wiradjuri. Due to their material type, stone implements are still apparent in the landscape today, and include many items from ground edge axes, adze, blades, scrapers, grinding stones, hammer stones bull-roarer (*mudthega;* Mathews 1896: 298) and others made from sedimentary and volcanic rock. Mitchell, who undertook journeys across Central NSW in his role as Surveyor-General in the 1830s and 1840s, observed notches cut into tree trunks using stone axes:

> On my journeys in the interior I knew, by their being in a recent state, when I was approaching a tribe; or when they were not quite recent how long it was since the natives had been in such parts of the woods; whether they had any iron hatchets or used still those of stone only; etc The notches made in climbing trees are cut by means of a small stone hatchet and, as already observed, with each hand alternatively. By long practice a native can support himself with his toes on very small notches, not only in climbing but while he cuts other notches, necessary for his further ascent, with one hand, the other arm embracing the tree. The elasticity and lightness of the simple handle of the mogo or stone hatchet employed are well adapted to the weight of the head and assist the blow necessary to cut the thick bark with an edge of stone (Mitchell 1839: 199-200).

Wooden implements also were important and used daily, but have not survived within the archaeological record. Wooden implements described by historical accounts include "boomerangs, nullanullas, bundies, hielamans etc" (Mathews 1896: 301). Many raw stone materials were sourced locally from quarries, outcrops and cobbles found in alluvium. However, not all raw materials were available locally and trade routes opened up both north and south over the mountains to the coast (Clayton 1985). It has been stated that the Darling River (~450 km west of the Project area), on the western boundary of Wiradjuri country, was a meeting or exchange place for central and eastern groups (Clayton 1985).

The most common apparel recognised in the region is possum skin cloaks, recognised from known ceremonial practices and historical accounts of Wiradjuri campsites during the late 19th century.

4.2.4 Contact and post-Contact overview

Limited historical records exist regarding the European settlement of Lake Cowal. Wiradjuri involvement in early pastoral activities is suggested due to European settlers' use of Aboriginal placenames. The name Lake Cowal derives from the local Wiradjuri term for a "large water", with the junction of Bland Creek and Sandy Creek into Lake Cowal (occurring to the south east of the Project area) initially called "Terragalonga" (meaning "like two arms" "where they meet") (Woolrych 1890).

In 1923, former Lake Cowal farmer, S. Wilson, provided an account of the European settlement at Lake Cowal, writing:

> The date of the arrival of the earliest settler at Lake Cowal is unknown, but would probably be prior to 1830.
>
> James Marsden "took up" this station [Lake Cowal], also Billabong station, joining the village of Marsden, called after him, and which for over forty years was called Marsden's. Lake Cowal station was sold by Marsden to Clarence and Kennedy, and they sold it to Ricketson and Shinn about 1876, and the latter sold it to Samuel Wilson, of Lima Station, Benalla, in 1880, since which it has been held by our family.

> Caragabal station, surrounding Marsden, was taken up by Gibson about seventy years ago, and Fred Faithful Gibson held it till his death, and his still hold it. Morangerell [Morangarell] station, on the Bland [Creek], was taken up by Donald McGregor prior to 1850. He sent a load of hay to Forbes gold-rush [1860s], getting forty pounds per ton for it.
>
> Marsden established a dairy on the Bland Creek, and sent butter to the Forbes rush, getting up to three shillings per pound for it (Wilson 1923: 373).

Due to the detrimental effects of European colonisation upon the local Aboriginal community, the Lake Cowal region experienced a catastrophic collapse in the Aboriginal population during the late 19th century. At this time, local Wiradjuri people living between the Lachlan and Murrumbidgee Rivers, otherwise termed the 'Levels tribe', were known to have large camps near the Lake Cowal station homestead (Wilson 1923). The homestead is located to the south east of the Project area, near Lake Cowal's confluence with Sandy Creek.

The Wiradjuri are known for their involvement in the 'Frontier Wars' of the 1820s, a time of unsympathetic Government treatment toward and policy regarding the rights of Aboriginal people (Harrison 2004). The majority of this fighting occurred in the Bathurst district, about 190 km east of Lake Cowal, whilst the Project area remained and continued for several decades as a relatively isolated pastoral country. Stations to the south of Lake Cowal had huts built for protection against anticipated Aboriginal attacks. One historical account recalls a similar event, wherein a former settler John McGuire who worked on Carrawobuddy station in the 1840s had 'feared' an attack after being visited by three Aboriginal men on their way to camp at Lake Cowal (Pinkerton 1906: 9).

During this time, Aboriginal groups were known to meet in the vicinity of Lake Cowal for fighting as a means of resolving disputes, an account from a former settler, M.C. Butchart revealed:

> Many tribal fights took place on the Bland Creek where the Lachlan and Murrumbidgee [people] would meet and settle their quarrels. One settler of the early days at Morangorell [sic., Morangarell Station, on Bland River south of Lake Cowal] told me of these clashes. On one occasion after a set to he had occasion to visit his dairy, an underground one, and while there felt that there was someone else present. He realised that an [A]boriginal in full war paint was hiding in a corner. He asked no questions but left, considering that the dairy for the time being belonged to the dusky warrior. He admitted having got a start and retired with all alacrity (Grenfell Record & Lachlan District Advertiser 1912: 10).

The historical record of Lake Cowal provides only provides glimpses of frontier conflict between European settlers and the Wiradjuri people in the 1840s. The very public trial and hanging of several white pastoralists responsible of the Myall Creek Massacre (1838) marked the first instance where Europeans were punished for crimes against Aboriginal people to the full extent of British law. This event set a legal precedent against the killing of Aboriginal people, unfortunately massacres and killings continued, but often with increased secrecy, with many going unreported (Bloomfield 1981: 31; Quinlan and Eckerman 1983: 35). Following this event, killings of Aboriginal people were typically poorly or not reported as they were happening, hence local violence was likely more frequent. The most prominent Aboriginal killings in Lake Cowal occurred at Bland Creek, to the south east of the Project area, and remain a part of contemporary Wiradjuri oral history. A child is said to have survived, being rescued by a European named John Siggs, and according to local folklore he became known as William Joseph Punch.

4.3 Cultural mapping

4.3.1 Rationale and Methods

Cultural mapping is described more fully as cultural resource mapping or cultural landscape mapping, and it refers to an eclectic range of research techniques and scholarly tools that are employed to 'map' the tangible and intangible cultural assets of people within the local landscape. It involves the application of a wide variety of techniques and activities, from community-based participatory data collection and management to the use of sophisticated mapping based on Geographic Information Systems (GIS), in order to come to terms with cultural resources for communities and places. Proponents of cultural mapping as cultural inquiry have claimed that:

> From this perspective, cultural mapping is regarded as a systematic tool to involve communities in the identification and recording of local cultural assets, with the implication that this knowledge will then be used to inform collective strategies, planning processes, or other initiatives. These assets are both tangible, or quantitative (eg, physical spaces, cultural organizations, public forms of promotion and self-representation, public art, cultural industries, natural and cultural heritage, architecture, people, artifacts, and other material resources) and intangible, or qualitative (eg, values and norms, beliefs and philosophies, language, community narratives, histories and memories, relationships, rituals, traditions, identities, and shared sense of place). Together, these assets help define communities (and help communities define themselves) in terms of cultural identity, vitality, sense of place, and quality of life (Duxbury et al. 2015, 2).

To apply these concepts and further understand traditional and contemporary cultural values associated with the Project area, cultural mapping was undertaken by Dr Philip Clarke, a highly experienced anthropologist, with the participation of key knowledge holders and/or elders. The interviews and fieldwork for this activity was undertaken in December 2022.

A detailed report of the cultural mapping and Dr. Clarke's original field notes are included in Appendix D. The report includes a brief review of existing anthropological and ethnobotanical data for the region with which to compare provided oral histories; and the findings of a number of interviews with the key knowledge holders identifying sites, locations and values across the Project area and surrounds. The method undertaken in the current cultural mapping exercise was to record all places that the Aboriginal participants have declared to have some significance to them, and to determine whether there exists any sense of spatial boundaries. Through documenting the proposed sites an attempt would be made to determine the extent to which the stated importance is based on existing experience and knowledge of the Aboriginal informant, and to ascertain whether this is likely to be a shared opinion with other Aboriginal participants.

The culturally mapped sites within the study region may be broadly classified as cultural sites in line with contemporary Wiradjuri views they were in existence when Europeans first arrived in the region, or when their ancestors were still able to live in traditional foraging lifestyles. These sites involve ceremonial grounds, camping and tool-making places, carved trees and scarred trees.

4.3.2 Findings

The mapping of Lake Cowal from the point of view of contemporary Wiradjuri community members has highlighted the places that they consider to be of primary importance in preserving their heritage. Six main sites were identified as being of high significance and requiring long term protection (Table 4.1; Figure 4.1). The cultural places include a number of important ceremonial places, both traditional and contemporary; the historical places are represented local landforms with possible links to Aboriginal people of the early colonial period.

No sites identified during the study were located within the Project area, although most of these sites are visible from the edge of Lake Cowal. Contemporary Wiradjuri community members agree that all six of these sites were part of their cultural landscape during initial European settlement, and five of them relate to their ceremonial life, including Bora ceremonies and other rituals. Two of the sites (Booberoi Hills and Manna Mountain) also have significant Aboriginal heritage in the form of surface archaeological material. The ceremonial site on southeast bank of Lake Cowal was identified for protection during an earlier phase of the mine's development. Discussions in relation to visual impact were undertaken, with little concern expressed given the existing landscape present (i.e. the existing mine), nor the current inaccessibility of many of the sites. However, further interrogation of these issues and any opportunity to reduce visual impacts should be considered by the Project, and this forms a recommendation of the ACHA. The Project will not directly impact any of the connections between these sites.

Today, Wiradjuri people are living within a cultural landscape that is rich with tangible and intangible cultural heritage. Cultural flows indicate the significance of river and creek flows into Lake Cowal to being crucial for the local Wiradjuri community as they occupy Country dominated by watercourses. Leaving enough water to flow through the water courses serves to maintain or improve the cultural value of the whole river system. Anthropologist Gaynor Macdonald noted:

> Wiradjuri people told me theirs was 'the Country of the three rivers': the Macquarie[-Wambuul], Lachlan and Murrumbidgee; the major tributaries in the centre of the arc formed by the Barwon-Darling before it meets the Murray River. People on the Bogan were at pains to tell me that, really, there were four rivers. Scientists understand the Macquarie-Bogan as one catchment: presumably Wiradjuri ancestors also knew it as a single system" (Macdonald 2011, p.72).

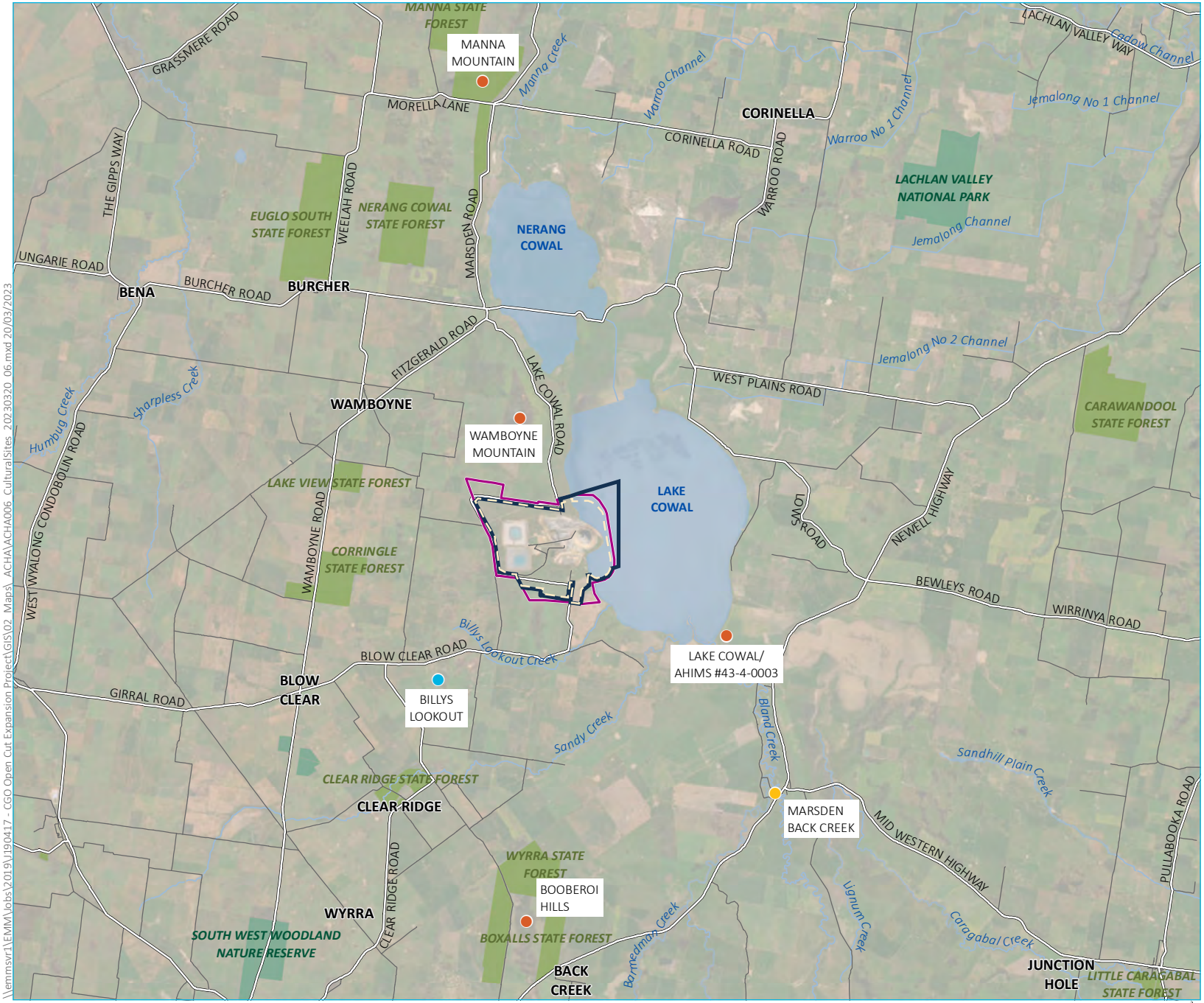
The Wiradjuri people desire to have their country ecologically restored, after the severe damage to parts of the ecosystem through European mismanagement of the water resources. They stated that the river must continue to flow for the benefit of the physical environment, the wellbeing of their community as well as for both their spiritual and physical health.

The cultural mapping provided the following key findings:

- Traditionally, the Project area was occupied by people known collectively as the Wiradjuri.
- At the time of European settlement, Lake Cowal would have been part of one or more estates associated with clans as landowning groups within the 'Levels tribe' of the Wiradjuri, although there is no information available on their clan identity.
- The main mythologies of the Wiradjuri people during this time involved supreme beings, such as Baiame, Daramulan and Muni Burrebean, with totemic ancestors being of lesser importance.
- Numerous creation stories and spiritual sites are documented within the region. Notably along the banks of Lake Cowal and Bland Creek, and further including Booberoi Mountain, Manna Mountain and Womboyne Mountain, these are culturally sensitive ceremonial sites, with several being gender-specific. All of these are visible to the Project area, and management of visual impacts may be required.
- The Wiradjuri people of central NSW were directly involved in frontier violence, and although recorded events occurred nearby, no incidents are directly associated with Lake Cowal itself.
- Due to the negative impacts of European settlement, a breakdown of the clan system occurred in the late 19th century, wherein Aboriginal people in the Lachlan to Murrumbidgee Rivers region primarily lived in settlements and large pastoral properties, continuing to maintain their identity as Wiradjuri people.
- The ethnographic and historical records are extensive, and while incomplete, it can reasonably be expected that any highly significant cultural heritage concerning the Project area at Lake Cowal would have been mentioned in them if it had existed. There are no cultural values recorded for the Project area in the early ethnography or discussions undertaken.

Table 4.1 Aboriginal sites and places identified through cultural mapping

Site name	Site ID	Description	Cultural values and reasoning	Site category	Impact
Billys Lookout	CGO-CS1	A large hill ~10 km southwest of Lake Cowal. It is surrounded by flat country and clearly visible from Lake Cowal and Marsden (southeast).	Historical, mainly due to its possible naming after a prominent Aboriginal man alive in the early colonial period and its use as a lookout place.	Historical	No direct or indirect impacts indicated
Booberoi Hills	CGO-CS2	Two large hills in the middle of a north-south ridge, largely vegetated and runs for ~13 km. The hills are surrounded by flat country and is located ~15 km southwest of Lake Cowal.	Cultural, a known ceremonial place, its name represents "women drumming" using possum skin cloaks. Archaeological investigations have revealed former camps at the bottom of the hills.	Cultural	No direct or indirect impacts indicated
Lake Cowal	CGO-CS3 AHIMS #43-4-0003	An identified site with a scarred tree, near the southeast bank of the lake (not within the Project area) and identified for protection by Evolution Mine in previous survey.	Cultural, a known ceremonial place, involving a tree and concerning women. Further information regarding the site is considered culturally sensitive.	Cultural	No direct or indirect impacts indicated
Manna Mountain	CGO-CS4	Large hill, covering 4 km^2 and prominent on the north side of Nerang Cowal. ~14 km northwest of Lake Cowal.	Cultural, a ceremonial place and Wiradjuri place for collecting manna from eucalypts. An archaeological reserve with grinding grooves, enlarged gnamma hole and stone tools.	Cultural	No direct or indirect impacts indicated
Marsden	CGO-CS5	Site along Bland Creek lined with river red gums and ~9 km southeast of Lake Cowal.	Cultural, a known ceremonial place. Historical as it has been used for Wiradjuri cultural training. Contemporary as it is continued to be used today for Wiradjuri cultural training. Information regarding this site is considered culturally sensitive.	Cultural, Historical and Contemporary	No direct or indirect impacts indicated
Wamboyne Mountain	CGO-CS6	Large hill, in the middle of a north-south ridgeline running approximately 4 km and surrounded by flat areas making it appear prominent. It is ~3 km southeast from Lake Cowal.	Cultural, a known ceremonial place with a lookout for 360 degrees.	Cultural	No direct or indirect impacts indicated



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Source: EMM (2023); Evolution (2023); DFSI (2017)

Cultural mapping results

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 4.1

EMM
creating opportunities

5 Archaeological context

5.1 Key findings

- While the Project area has been extensively studied for over 25 years, few archaeological investigations have been completed in the broader region. This is reflective of the extensive pastoral industry in the region, which has been subject to limited development.

- Based on the regional information and extensive work undertaken within the Project area, cultural materials are dominated by various stone artefact densities and lesser occurrences of hearths and culturally modified trees. Important pre-mining investigations by Cane and Pardoe in the late 1990 and early 2000s have shown that the edge of Lake Cowal and disparate Gilgai water-holes away from the lake have formed the focus of past Aboriginal activities. These are dominated by moderate to high density of surface stone artefacts made from both local raw materials and a more distantly sourced chert. Previous excavations have shown limited buried cultural materials, although in some drainage lines deposits up to a metre were encountered. Outside of these areas, cultural material is generally ephemeral and reflects a transient use of the landscape.

- Since the establishment of CGO, numerous archaeological investigations have occurred, with few parts of the Project area not previously inspected. These works were primarily undertaken by Niche and more recently EMM as part of ongoing archaeological mitigation works approved by existing Aboriginal heritage impact permits (AHIPs). This ongoing approach to cultural heritage management has resulted in the listing of numerous AHIMS site records in the Heritage NSW database, as each on-site activity results in 'new' finds; and has resulted in the progressive removal of discrete parts of the cultural deposit across substantive areas, thereby reducing their sensitivity for the purposes of the ACHA.

- Radiocarbon dates were obtained during the salvage excavation of several stratified sites within the lake's edge, which demonstrate that Lake Cowal was occupied after the establishment of the region's current hydrological systems, some ~6–8,000 years ago. This is supported by the prevalence of backed artefacts present in the artefact assemblage of Lake Cowal, a stone tool technology characteristic of the mid- to late Holocene.

- A review of Heritage NSW's AHIMS database identified 180[1] previously documented sites within a search area of ~80 km^2 centred on the Project area. A significant portion of these are found within the Project area as a result of nearly two decades of progressive archaeological mitigation. The most common site type in the region are artefactual sites (n=126, 70%), with isolated finds accounting for almost a third of previously registered sites (n=55, 31%), with lesser occurrences of rarer site types such as hearth sites (n=31, 17%) and culturally modified trees (n=23, 13%). Relatively few sites have been registered as featuring potential archaeological deposit (PAD) (n=12, 7%), likely reflective of skeletal and eroded soil profiles characteristic of arid environments. Generally, distribution of sites shows a strong correlation with proximity to water indicated by the frequency of sites in proximity to the lake and its western tributaries.

[1] This number has been adjusted to remove duplicates and mis-identified sites. For further discussion, see Section 5.4.

- Prior to this ACHA, some 79 sites have been previously identified within the additional disturbance area, and a further 24 within in the broader EIS study area. Of the 79 sites, 27 have been destroyed as a result of ongoing archaeological mitigation; one site has been partially destroyed; and, one site has been determined not to be valid. The remaining 50 sites within the additional disturbance area are 'valid', suggesting they are still extant, although, this does not account for their potential loss since recording as a result of natural and/or anthropogenic processes. These 50 sites include: 31 artefact sites; 15 hearth sites; three culturally modified trees; and one stone quarry site. Several of these sites are suspected to have been destroyed based on their locations within active mining activities, but the records for many are lacking.

- There are three existing AHIPs for the Project area: Consent 1467 and Permit 1468, issued 27 November 2002 (no expiry); Consent 1680 and Permit 1681, issued 28 July 2003 (no expiry); and AHIP C0004570, issued 27 June 2019 (duration of 14 years) (Figure 5.2; Table 5.4). These impact permits cover much of the CGO Project area, and 59% (n=107) of previously registered sites within the search area are within areas of previously authorised impacts. All sites within the existing and approved disturbance area have been encompassed by previous approvals.

5.2 Regional context

Many contemporary Aboriginal cultures note their custodianship of the landscape since time immemorial, from an archaeological perspective the first peopling of Australia by large groups of hunter-gatherers occurred ~50 ka (Bradshaw et al. 2019; O'Connell et al. 2018). The peopling of the continent was rapid, with sites such as Devil's Lair (WA), Warratyi (SA), and Lake Mungo (NSW) all occupied within a few thousand years of arrival (Bowler et al. 2003; Hamm et al. 2016; Turney et al. 2001). Genomic research has shown that following these initial explorations of the continent, regional populations or nomadic sedentism, was established by ~40 ka (Tobler et al. 2017). These small populations were highly mobile, but remained within a broad spatial geographic area, dictated in general by the nature of resources and water availability. In the case of some of the arid parts of the continent, mobility encompassed thousands of square kilometres (Gould 1977), while major riverine corridors such as the Murray River had near permanent settlements (Pardoe 1995).

In NSW, the earliest evidence of Aboriginal people are human remains recovered from the lunette in Lake Mungo and dating to ~42 ka (Bowler et al. 2003; O'Connell et al. 2018). The presence of red ochre covering the remains represents a society with significant cultural and symbolic complexity (Langley et al. 2011). Near the coastal edge, the earliest populations were found at Cranebrook Terrace, near Penrith. Here a handful of rudimentary stone tools were found in an alluvial unit, some 8 m below the current surface, which were dated to ~40–45 ka (Williams et al. 2017). However, it is not until ~35 ka, that regional populations appear to have become established in the Sydney Basin, and which appeared to consist of small bands of people focussed mainly along major river systems, including the Hawkesbury-Nepean, Parramatta, Georges and Hunter Rivers (Hughes et al. 2014; Williams et al. 2012; 2014). These rivers formed key ecological refuges that hunter-gatherer groups used to survive major climatic events such as the Last Glacial Maximum (21±3 ka) – a cool and arid climatic period. Well-established archaeological models suggest populations experienced a major reduction in size (by as much as 60%), and settlement contraction and abandonment across much of the continent during this time (Veth 1993; Williams et al. 2013). Although, recent research suggests that the story may be more complex than this (e.g. Tobler et al. 2017).

The terminal Pleistocene and early Holocene (~18–8 ka) was characterized by significant environmental change, notably the rapid inundation of much of the coastal shelf, resulting in the reduction of the continent by ~21% (~2 million km^2) (Williams et al. 2018), in tandem with improving climatic conditions – the Holocene climatic optimum (Williams et al. 2015a; 2015b). More broadly, these conditions resulted in increasing population growth, expansion of ranging territories, increasing sedentism (longer patch residence time) and the beginnings of low-level food production (e.g. aquaculture), and ultimately the initiation of social and cultural groupings observed in the late Holocene (Williams et al. 2015b). Within the Sydney Basin, a large number of sites are first initiated during this time, including Burrill Lake (~20 ka), Bass Point (~17 ka), and Loggers Shelter in Mangrove Creek (~11 ka) (Bowdler 1970; Lampert 1971; Attenbrow 2004; AMBS 2006, p.87). This is also the case in the greater Blue Mountains area, where dated rockshelter sites in the area suggest that Aboriginal occupation extended as far back as 14,000 years ago, and potentially as early as 22,000 years ago (Stockton 1973; Stockton & Holland 1974).

More broadly, at this time we see a much broader range of archaeological site types occurring, such as the Roonka Flat burial ground on the banks of the Murray River, within which some 147 individuals were interred through the Holocene (Pate et al. 1998), and the increasing use of marine resources. Many of the previous refuges were subject to abandonment or a re-structuring of land use (Dortch 1979; Fitzsimmons et al., 2019). These activities suggest the ability to undertake large-scale movements to mitigate environmental distress was becoming increasingly difficult and was addressed through diversification of hunter-gathering behaviours and, at least in part, technological advances and investment (Williams et al. 2015b).

The late Holocene saw significant population increase, with hunter-gatherers reaching their zenith of ~1.2 million at 0.5 ka, a tenfold increase on Pleistocene levels (Williams, 2013). Data suggests that the highest populations during this time were in the southeast of Australia. Williams et al. (2015b) suggest that this increase was likely a result of intensification of earlier technological advancements, including hafting-technology, plant and seed processing, and localised landscape management (using fire), allowing climatic downturns to be successfully weathered. These included strong arid El Nino Southern Oscillation (ENSO) conditions between 4–2 ka, and increasingly turbulent climatic conditions during the Medieval Climatic Anomaly (1.3–1 ka) (generally wetter) and Little Ice Age (0.3–0.5 ka) (generally drier) (Williams et al. 2010; 2015a). A result of these denser populations was decreasing freedom of movement and the formation of strong classificatory kinship systems, complex cultural and symbolic landscapes based on geographic totemism (the 'Dreaming'), distinctive graphic art systems, land rights in the form of ritual property, and formalized exchange networks (Williams et al. 2015a).

Apart from archaeological assessments associated with the Project area (Section 5.3), very few other archaeological investigations have been conducted in the region, indicative of the long established agricultural and farming practises of the region. One notable study undertaken by Dan Witter (2004) conducted a broad, large-scale study of Aboriginal archaeology in western NSW, including the Lake Cowal area. Witter (2004) classified the Lake Cowal area as lying within the Southwestern Slopes bioregion which extends south from Dunedoo, through central NSW to northeast Victoria, and terminates on the western fringes of the Great Dividing Range. The bioregion is primarily situated on Wiradjuri Country, encompassing the lower slopes of the Great Dividing Range, which Witter (2004) describes physiographically as 'a transitional zone between the high plateaus of the Dividing Range and the vast plains to the west… [and includes] a pocket of riverine plains around Condobolin' (Niche 2018: 25; Witter 2004: 137).

Witter's (2004) study confirmed that open campsites characterised by surface stone artefact scatters are the most common site type in the region and though they occur on all landforms, they are most prevalent in stream valleys and crests. Other site types such as heat retainer ovens (hearths) and ground implements such as axes, are present in the region though relatively uncommon, as are suitable outcrops of raw materials used for stone toolmaking (Niche 2018: 35). Quartz was identified as a very common raw material used for making stone tools. Historically, the region has been subjected to extensive agricultural development with farming practices impacting both surface and potential subsurface artefactual sites. Witter (2004) notes that this, in conjunction with unfavourable landscape preservation conditions reduces the potential for identifying Pleistocene-age sites (>10,000 years old) in the region.

Witter's regional model is valuable for understanding the general archaeological landscape of Central West NSW; however, he notes that unique, localised variations in landscape features and environmental conditions can result in a diversity of site types and frequencies, while remaining consistent with the broader archaeological landscape of the region (Niche 2018: 25; Witter 2004: 134). Such is the case with Lake Cowal, noting it is a significant landscape feature. Numerous archaeological investigations been conducted as part of the environmental assessment process for the development of the CGO, and the resulting accumulation of information has demonstrated that while the local archaeological context is broadly consistent with the regional model, Lake Cowal has distinctly identifiable locales where specific activities were being undertaken west of the lake, such as routine domestic activities (cooking, tool preparation and maintenance), hunting and woodworking activities, and potential warfare and ritualistic activities.

5.3 Local context

An extensive number of archaeological assessments have been undertaken within the study area over the last 30 years; and, have almost exclusively been in relation to environmental assessments for the development, modification and expansion of the CGO as required under legislation. A timeline of activities undertaken since the mine's inception, and the various outputs associated with those assessments, are summarised in Table 5.1, Figure 5.1–Figure 5.3. These are further discussed in Appendix E.1 and summarised below.

Initial investigations were undertaken prior to the approval of CGO in the late 1980s and 1990s. These formed part of the assessment and planning process for the implementation of the mine and were primarily undertaken by Scott Cane, Rob Paton, and Colin Pardoe. The latter remaining a key researcher of the site for the subsequent 20 years. These studies provided initial data and modelling for the site, which indicated (Paton 1989, Cane 1995, 1996, Cane and Nicholson 1997):

- There were less cultural materials in the vicinity of Lake Cowal than might be expected from the environmental context and ethnographic information available for the lake. Where evident, the settlement patterns were reflective of some locations used for artefact manufacture, base camps and hunting. Occupation was most prevalent in the early spring when the lake was full, and the population of migratory and breeding birds was greatest. People and raw materials, particularly chert, likely moved into the area from the north on a seasonal basis.

- Sites near the shores of Lake Cowal display an abundance of backed blades, when compared to other locales in the Project area, and a relative absence of other typological pieces associated with food processing (e.g. modified flakes, scrapers, adze slugs and seed grinding implements). This was interpreted as reflective of hunting activities along the lake shore, driven by the exploitation of the significant bird habitats and breeding zones in this area. The relative absence of a diverse toolset (i.e. artefacts to support seed processing and consumption, or the construction, use and maintenance of woodworking tools) suggested that long term occupation of the lake was not the main function of the locale. Conversely, the findings suggest that site occupation patterns are more reflective of short-term visits, largely associated with hunting, when the environmental conditions of the lake were optimal.

- The sites on the back plains to the west of Lake Cowal's shore was comparatively sparse, and the artefact assemblages were characterised by higher proportions of quartz. Sites tend to be small and low density, centring on Gilgai (small waterholes) and are reflective of ephemeral, nomadic use of the landscape. Sites to the north of the lake, between Nerang Cowal and Lake Cowal, are located on raised ground, due to its location on the floodplain.

- Carved trees, which are associated with burial and ceremonial sites, have been recorded within the vicinity of Lake Cowal. Two were recorded in the early 20th century to the north and south of the lake and were removed at the time of their recording. One carved tree was documented as marking the burial of a chief, possibly on Bogies Island to the north of Lake Cowal, indicating both the cultural significance of the area as well as the potential for burials along the lake shores where deep sand deposits occur.

- Several historical accounts describe vast groups of Wiradjuri people camping at Lake Cowal, noting there was 'substantial evidence' of Wiradjuri camping around the lake, including the presence of numerous middens where the Lake Cowal Station Homestead – south of Lake Cowal – was eventually constructed (White 1923).

- Two sites identified during this period are highlighted as particular relevant to this assessment:

    - LC1 (#43-3-0021) was identified by Cane (1995), was considered of high value site with relatively high artefact densities (1 artefact/2–3m^2) within the locale. The prevalence of artefacts typically associated with hunting activities (i.e. adze flakes, burins, cores, and backed blades) and notable lack of other tool typologies associated with routine domestic activities, lead to interpreting the site as associated with men's activities. Three hearths were also identified within this locale. Excavation of this site by Pardoe in 2009 revealed the soil was not *in situ* and that it had been completely disturbed by historic agricultural practices from the pastoral era. The findings from the excavations supported Cane's earlier interpretation of the site (Pardoe 2009b, p. 5). A sample of a heat retainer from an eroded oven returned radiocarbon dates of ~2,845 years old.

    - LC2 (#43-3-0022), also identified by Cane (1995), was interpreted as a typical 'base camp' with flaked materials scattered on either side of a stream leading into the lake. The artefact densities were higher in this locality (4–5 artefacts/1 m^2) comprising flakes, flake pieces, cores, modified flakes, backed blades, blades, hand axes, hammerstones, adze flakes and ground implements. Approximately 60% of the assemblage was black chert. The site was subject to surface collection in accordance with the consents and permits held by the CGO by Pardoe, although no record of any excavations is evident.

Archaeological investigations continued following approval of the CGO in the early 2000s (Figure 5.2; Appendix E.1 and Appendix E.2). Of note was works by Pardoe in 2002 and 2009 where he developed a series of micro-environments that defined expected cultural materials across the locale. These are outlined in Section 3.3, but in brief identified five zones: lake bed, beach, slope, lake edge ridge, and back plain. He found that the most significant cultural materials were typically found on the ridge over-looking the lake, and localised at Gilgai water-holes within the back plain, while the other zones typically had sparse evidence of past activity. These micro-environments became integrated into a 2003 management plan, and which then defined archaeological management and mitigation since that time. This plan has dictated a range of archaeological excavations, artefact collection and cultural monitoring across the micro-environments prior to any ground disturbance.

As part of these initial mitigation and subsequent activities, Pardoe (2009) documented some 5,518 artefacts and produced some of the only absolute dating of the cultural sites in the region, and which shows a range of dates between ~180–6,000 years ago for the period of past visitation. His analysis suggested that raw materials for tools was sourced and manufactured locally and potentially traded to neighbouring groups. Contrary to earlier interpretations, seed grinding proved to be an important part of the local economy.

The most recent formal assessment of the Project area occurred in 2018 as part of a modification (#14). These investigations focussed on ML 1535 (Figure 1.1) and largely reinforced the previous findings and work of Pardoe and others nearly 20 years earlier. Specifically, they found 65 previously undocumented sites, which consisted of 44 stone artefact sites (totalling 227 stone artefacts), many which were associated with heat retainers and hearths, and one culturally modified tree. Of note, was the identification of *Lake Cowal 2017-023* (#39-4-0313), which consisted of a high-density artefact scatter comprising 23 artefacts within an undisturbed portion of the lake edge ridge and the potential to contain subsurface deposits. The site location was not fully described in the assessment (it has since been identified on the ML 1535 boundary south of the open pit), however its high scientific significance and research potential resulted in the recommendation for salvage of the site in the event that future impacts are proposed. Several sites were identified as having subsurface potential where sites with high artefact densities were situated within areas featuring limited prior disturbance. The outcomes of the ACHA was to develop a management plan, which was undertaken, but never finalised or implemented for the site.

Since 2003 and expanding following approval of Modification 14 and AHIP C0004570 for the MLA 561 (immediately to the north-west of ML 1535), archaeological investigations and mitigation activities continued within the Project area. Niche and EMM Consulting were engaged between 2019–2021 to conduct various archaeological activities, including Aboriginal heritage due diligence assessments within the Project area, and mitigations activities – both surface collections and salvage excavations. Based on information that has managed to be collated over this 20 years period, some 208.25 ha of the Project area (including a portion of the proposed additional disturbance area for this ACHA) has been assessed and mitigated (Figure 5.3). Of note from these works were the following findings:

- Aboriginal heritage due diligence assessments, including at East Girral ~13 km north-west of Lake Cowal, which resulted in the total identification of 56 previously undocumented Aboriginal sites. The dominant site types were stone artefact sites comprising isolated finds and low-density scatters, though 14 culturally modified trees were identified on the lake's edge and beach microenvironments north and south of the study area.

- The identification of a notable site, LCF_CGO_2020_ST1 (#43-4-0162), located on the lake edge ridge, comprising a culturally modified tree with a cache of ~40 stone tools and ground implements gathered at the base of the trunk. The tool typologies included quandong grindstones – a specialised implement defined by Pardoe and only found in this general region - axes, axe blanks, grindstones, grinding dishes, topstones, hammerstones, manuports (river cobbles), and large cores comprised of various raw materials such as sandstone, basalt, and volcanics. It was later confirmed the previous landowner collected the artefacts from his field to avoid damaging them with his farming equipment and placed them at the bottom of the tree.

- Surface collection activities resulted in the collection of ~650 surface stone artefacts across 208.25 ha within the western portion of ML 1535 (the IWL area) and a portion of the ML1791 north of the existing IWL area. The artefacts were stored within the temporary on-site Keeping Place pending further analysis of the assemblage. During the surveys, four previously undocumented culturally modified trees - three were opportunistically identified on the eastern shores of Lake Cowal. One tree IWL South-ST1 (#43-3-0140) was located within the impact footprint and following expert assessment of the tree to be of cultural origin, it was carefully removed and stored in the temporary on-site Keeping Place.

- The salvage excavation activities occurred within the north-western corner of the IWL where three hearths with artefact sites were identified and a considerable number (>300) of surface artefacts were collected. The sites included Lake Cowal 2017-036 (#39-4-0300), Lake Cowal 2017-032 (#39-4-0303) and Lake Cowal 2017-031 (#39-4-0304). The results of the investigations confirmed that only site Lake Cowal 2017-037 (#39-4-0298) was of anthropogenic origin, with the excavation revealing a ~40 cm diameter broadly circular 'dish-shape' containing abundant charcoal, and while not definitive, a small number of potential quartz artefacts. In addition, hearth sites Lake Cowal 2017-050 (#39-4-0285), Lake Cowal 2017-037 (#39-4-0298), and Lake Cowal 2017-055 (#39-4-0271) were investigated, however, while their locations were positively identified, no hearth aspects including any potential hearth features were identified at the corresponding locations or in the general vicinities.

- A test excavation program indicated that the back plain and Gilgai archaeological landscapes are generally constrained to the surface, with limited evidence of either a soil profile or cultural materials within it. This suggested that the current efforts of the surface mitigation activities are sufficient to characterise the archaeological landscape as well as recover as much cultural material as possible prior to future mining developments.

The manner and methods of these ongoing archaeological mitigation works has resulted in complexity around the recording of cultural materials across the Project area. Specifically, these activities resulted in numerous brief on-site activities that typically included surface inspection and recovery of cultural materials followed by shallow mechanical machine scrapes. Since this work was sporadic, it has resulted in a large number of Aboriginal objects and sites being submitted to the Heritage NSW AHIMS database, with each find having to be reported separately rather than systematically or holistically across the site. As outlined in Section 5.4, a large number of AHIMS sites have been documented within the Project area, many of them as a result of this ongoing mitigation activity.

While the Project area has been subject to extensive investigations for over 30 years, the initial findings of Cane and Paton outlined above, and especially the micro-environments proposed by Pardoe remain robust. Subsequent findings appear to largely reinforce these archaeological patterning, and to date only substantive cultural materials have been found along the lake's edge ridge or its immediate environs. A significant number of sites have been documented all over the Project area, but these are almost universally low densities of cultural materials or isolated finds, indicative of ephemeral use of the back plain behind Lake Cowal. There remain only a small number of sites that suggest denser or more extensive use of the region, notably #43-3-0021 and #43-3-0022, both found as part of the initial investigations and both destroyed as part of the implementation of the CGO.

Table 5.1 Previous investigations and approvals timeline

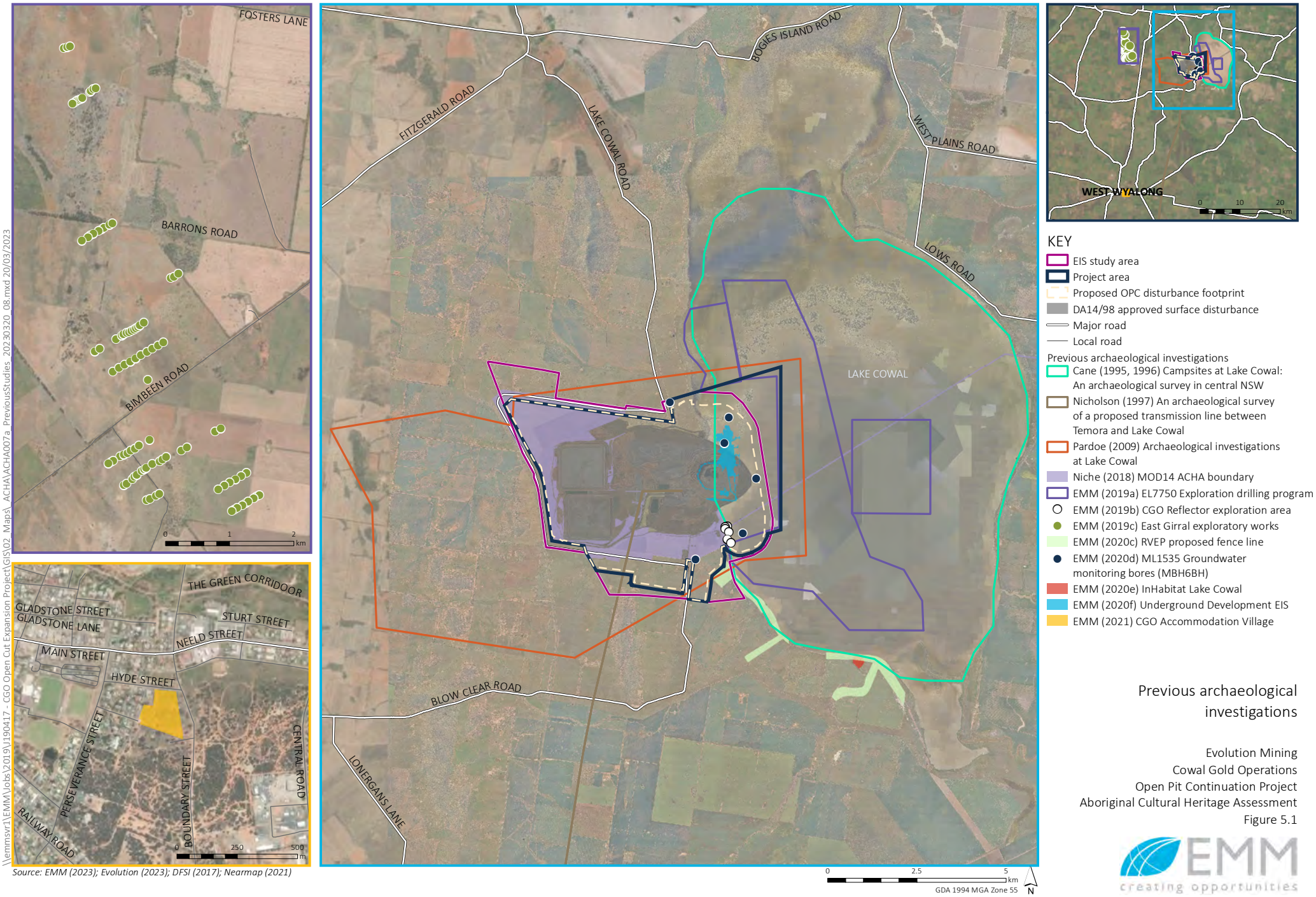
Year	Notes	Report
1989	Following the discovery of gold at the lake in 1988 by North Limited, preliminary archaeological investigations were conducted at Lake Cowal and in the vicinity of the Project area.	Paton 1989
1995	Following approval of Project feasibility studies, detailed archaeological surveys were undertaken along the lake shore and Project area.	Cane 1995
1995	Ongoing development planning resulted in subsequent archaeological surveys of a potential access road, water pipeline, and transmission line.	Huys and Johnston 1995
1996	Additional archaeological investigations were conducted in the western portion of the Project area and surrounds.	Cane 1996

Table 5.1 Previous investigations and approvals timeline

Year	Notes	Report
1996	North Limited's EIS and Development Application that commenced in 1995 is lodged in 1996 and a Commission of Inquiry occurs in 1996 and EIS is rejected on environmental grounds. Reassessment of the project's environmental impacts lead to further archaeological investigations.	N/A
1997	Subsequent archaeological investigations are conducted, comprising archaeological survey of the new tailings storages, part of the original pipeline, a small road realignment, and new electricity transmission line extending to the south of the lake.	Nicholson 1997
1998-1999	The EIS is lodged in 1998 and subsequently approved in 1999 under Development Application (DA 14/98) for the CGO, including the Bland Creek Paleochannel Borefield water supply line. Consent under Section 90 of the NPW Act was included as an approval requirement, which required that an Indigenous Archaeology and Cultural Heritage Management Plan (IACHMP) be prepared to address Aboriginal cultural heritage issues. No surface development works were to occur until an AHIP application was lodged and approved by the then Office of Environment and Heritage (OEH).	Culture and Heritage 1998 North Limited 1998
2002	Barrick Gold acquires CGO.	N/A
	Recommencement of exploration activities resulted in numerous additional surveys. Areas surveyed included the ML 1535 Area, area of the water pipeline from ML 1535 to the borefield, relocated Travelling Stock Reserve (TSR) around ML 1535 and the road upgrade area.	Kamminga 2002 Pardoe 2002
2002	Permit 1361 is issued in May 2002, which authorised archaeological works but not the destruction of Aboriginal objects. This was superseded by Section 87, Consent 1467/Permit 1468. Permit authorised the survey and collection of Aboriginal objects from within Lots 23, 24, and the Game Reserve (on the eastern side of the ML 1535 area), including the excavation of a 250 mm x 250 mm x 250 mm test pit at every proposed drill hole site and recovery of any identified Aboriginal objects. This was later superseded by Consent 1467/Permit 1468. Appendix E.2 provides a copy of these approvals.	N/A
2002	Pardoe prepares a Research Design and Study Plan describing the archaeological works proposed for the former CGO area which was appended to the applications for Permit 1468 and Permit 1681, DA requirement 3.3(a)iv.	Pardoe 2002
2002	Consent 1467/Permit 1468 is granted in November 2002 to Barrick's resident archaeologists Pardoe and Kamminga, applies to whole of the mining lease area, plus water pipeline route and borefield. Authorises archaeological investigation (Permit 1468) and the destruction of Aboriginal objects (Consent 1467). Operates in conjunction with the Research Design and Study Plan. Appendix E.2 provides a copy of these approvals.	N/A
2003	Barrick Gold enter an agreement with the then registered Native Title claim group for the Project Area (N6002/02), who represent the Wiradjuri Condobolin people (15 April 2003) to satisfy DA requirement 3.3(a)iii.	N/A
2003	Consent 1680/Permit 1681 is granted July 2003 to Pardoe and Kamminga, applies to Relocated TSR and access road upgrade from Wamboyne Road to mining lease area. Authorises archaeological works but not the destruction of Aboriginal objects (Consent 1680). Read in conjunction with the Research Design and Study Plan.	N/A
2003	Survey and collection program carried out in May/June 2003 and August 2003 pursuant to Permit 1468 in mining lease area and pursuant to Permit 1681 in August 2003 within relocated TSR area. Collected objects were kept in temporary keeping place within Project compound.	N/A

Table 5.1 Previous investigations and approvals timeline

Year	Notes	Report
2003	The IACHMP is approved in October 2003 to identify future salvage, excavation, and monitoring of archaeological sites within the CGO prior to and during development of the mine to address Aboriginal cultural heritage issues (as required under the 1999 Development Consent).	Barrick 2003
2005	Various due diligence assessment style investigations and salvage activities are conducted from 2005-2018, under Consent 1467/Permit 1468 and Consent 1680/Permit 1681.	Pardoe 2009a, 2009b Niche 2018b, 2018c, 2019c, 2019d, 2019e
2009	Pardoe conducts extensive archaeological investigations (survey and test excavation) at the CGO ahead of the MOD 14 application, fulfilling requirements under Permit 1468.	Pardoe 2009a, 2009b
2009	Pardoe prepares an Aboriginal Cultural Heritage Assessment for some discrete areas within the ML 1535 area and extending into the (not yet applied for or approved ML1791 area).	N/A
2013	Pardoe prepares an Aboriginal Cultural Heritage Assessment for some discrete areas within the ML 1535 area and extending into the (not yet applied for or approved ML1791 area).	Pardoe 2013
2015	Evolution Mining acquires CGO.	N/A
2015	Pardoe undertakes inventory of artefacts in CGO Keeping Place.	Pardoe 2015
2018	Niche conduct archaeological surveys from Aug-Sept 2017 in preparation for the MOD 14 ACHA and IACHMP. Sixty-five Aboriginal archaeological sites were identified in the subject area, comprised of stone artefact sites, ovens, heat retainers, and a scarred tree.	Niche 2018a, 2019a
2019	An updated IACHMP is drafted in February 2019, but not finalised.	Niche 2019b
2019	AHIP C0004570 (Permit ID 4376) is granted on 27 June 2019 (14 year duration), in relation to GCO MOD 14	Niche 2019a
2019–2022	Various due diligence assessment style investigations and post-approval excavation and surface collection activities in line with Consent 1467/Permit 1468, Consent 1680/Permit 1681, and AHIP C0004570.	EMM 2019a, 2019b, 2019c, 2020a, 2020b, 2020c, 2020d, 2021f
2020	EMM prepares an Aboriginal Cultural Heritage Assessment for Cowal Gold Operations Underground.	EMM 2020e
2021	EMM prepares Aboriginal heritage due diligence assessment for Cowal Gold Operations Accommodation Village	EMM 2021
2022–2023	EMM undertakes Aboriginal Cultural Heritage Assessment for the Cowal Gold Mine Open Cut Expansion EIS, including survey and test excavation from 2022 – early 2023.	This report



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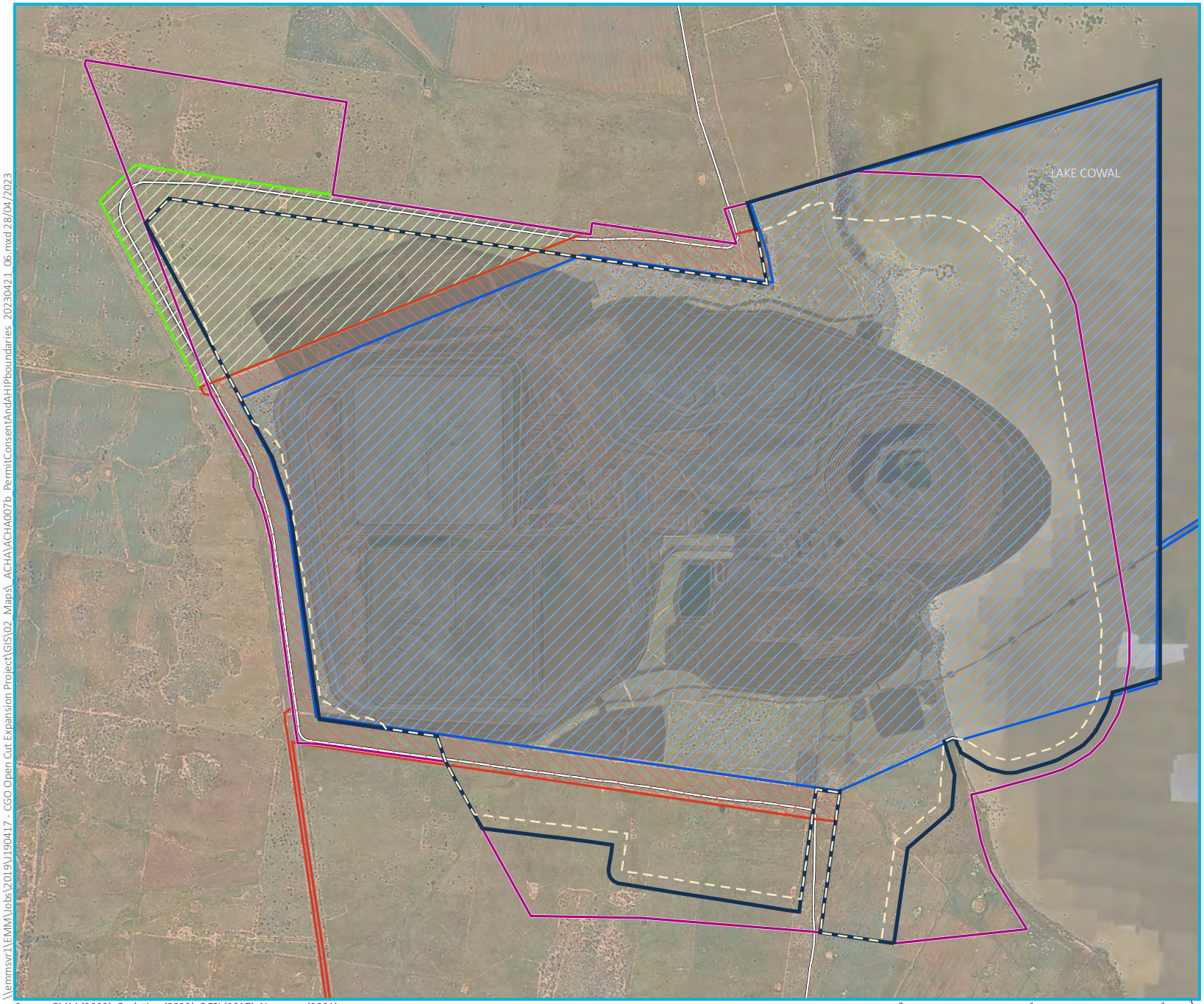
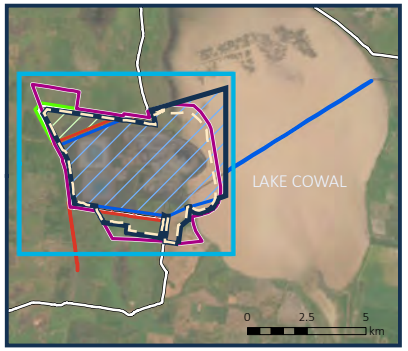
Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021)

Previous archaeological investigations

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 5.1

EMM
creating opportunities





KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road

Permit/consent and AHIP boundaries

- Existing consent 1467/Permit 1468*
- Existing consent 1680/Permit 1681*
- AHIP C0004570

Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021)

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GDA 1994 MGA Zone 55

N

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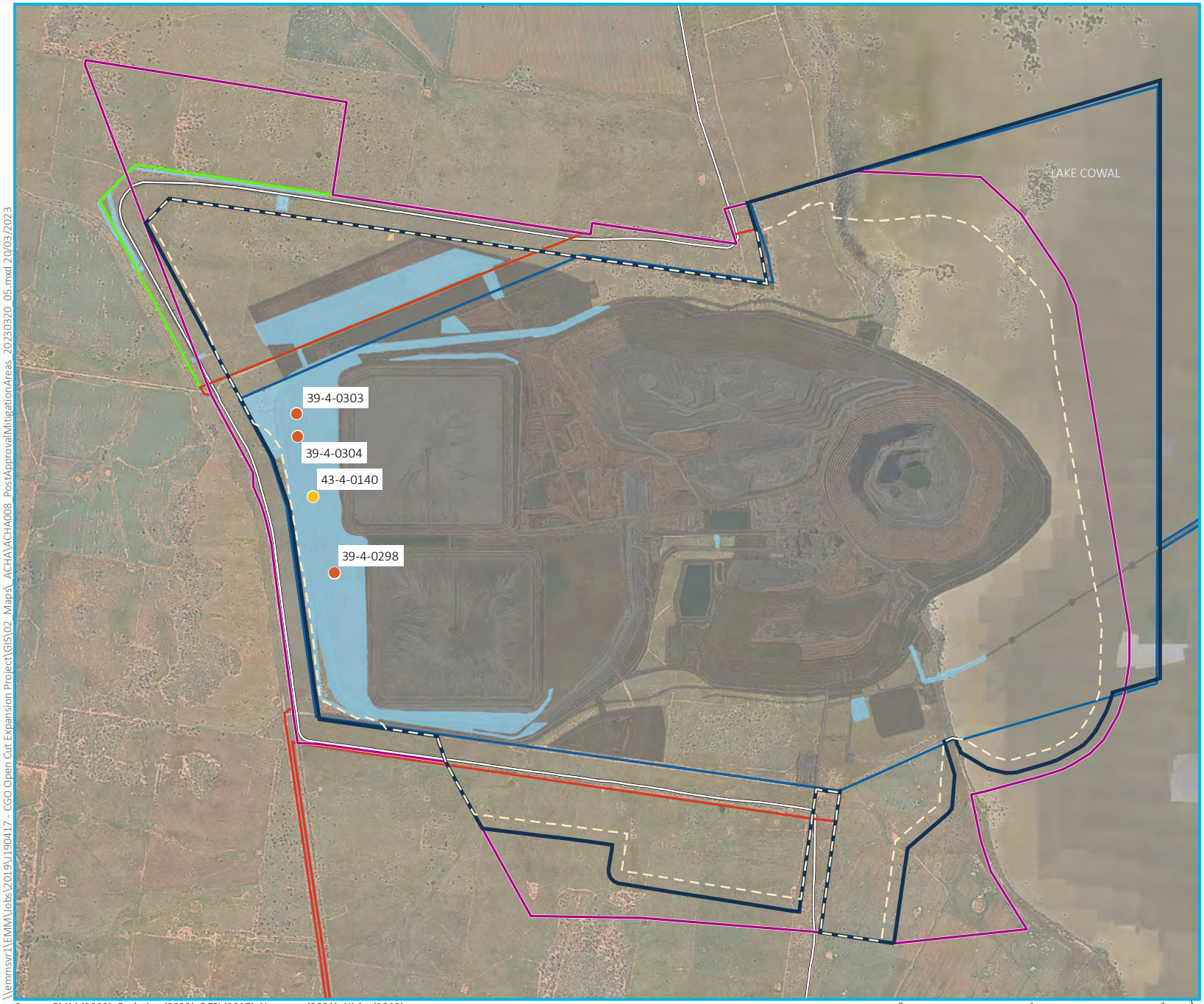
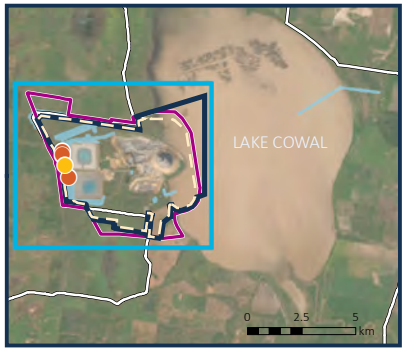
Permit/consent and AHIP boundaries relevant to the project

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 5.2

EMM
creating opportunities





KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road

Permit/consent and AHIP boundaries

- Existing consent 1467/Permit 1468*
- Existing consent 1680/Permit 1681*
- AHIP C0004570

Post-approval mitigation areas

- Hearth excavation
- Scar tree removal
- EMM clearance area

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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021); Niche (2018)

0 1 2 km

GDA 1994 MGA Zone 55

N

Post-approval mitigation areas

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 5.3

EMM
creating opportunities

5.4 AHIMS data

5.4.1 Existing environment

The Aboriginal Heritage Information Management System (AHIMS) database is managed by Heritage NSW and includes a location and description of Aboriginal objects and sites recorded through academic research and cultural heritage management (see Appendix E.3 for further explanation of Aboriginal site features). Due to the extensive cultural heritage management studies undertaken over the last 30 years at the CGO, and the resulting high volume of sites recorded in the area, EMM conducted a series of searches of the AHIMS database to cover the Project area on 13 October 2022 (IDs 721158, 721164, and 721178; Appendix E.4 and Appendix E.5). The combined searches covered ~80 km^2 centred on the Project area. The search identified any Aboriginal sites or places registered within the Project area and aids predictions for the frequency and distribution of Aboriginal site types in the broader landscape. A copy of all AHIMS searches is provided in Appendix E.4.

The AHIMS searches identified 182 Aboriginal sites and/or Aboriginal Places (Table 5.2; Figure 5.4). Of these, one site (AHIMS #43-4-0123) is a duplicate, and one site (#39-4-0324) was determined to be 'not a site' during an earlier phase of analysis. These sites have been discarded from the further analysis, resulting in a total of 180 sites within the search parameters.

A relatively restricted number of site types are represented, and include artefact scatters and isolated finds, culturally modified trees, hearths, and a single stone quarry. The most common site type in the region are artefactual sites (n=125, 69%). Of these, isolated artefacts (n=55, 31%) represent the majority of recorded sites in the search area, followed by low density artefact scatters (1-30 artefacts; n=46, 26%), medium density artefact scatters (30-90 artefacts; n=9, 5%), and a small number of high density artefact scatters (90+ artefacts; n=3, 2%); although some artefact sites remain undefined (n=12, 7%). Sites are not frequently associated with subsurface potential, with few sites having been registered as featuring potential archaeological deposits (PADs) (n=12, 7%), and this is reflective of the skeletal soil profiles characteristic of the Project area. Of note were the two high density artefact scatters, #43-3-0021 and #43-3-0022, which were located on the lake's edge landform by Pardoe in 2002, and which have been subsequently destroyed by the mining activities. Field investigations as part of this ACHA may, however, have identified portions of #43-3-022 may have been left unaffected by these previous activities.

A number of increasingly rare site types are also documented in somewhat relative abundance in the region compared with other parts of NSW, including hearths (n=31, 17%), culturally modified trees (n=23, 13%), and a stone quarry (n=1, <1%). The high percentage of hearth sites may be reflective of the resource rich zone, with previous studies suggesting the back plains and Gilgai plains were frequented often for long-term occupation in the area. It is also reflective of the environmental context of the Project area, which exposes rather than buries this site type; a palimpsest impacted by high levels of erosion due to agricultural use and resource mining. It must, however, be noted that hearths can be mistaken for natural burnt features (often burnt tree boles), and this number may be an over-representation. As an example, recent work by EMM undertook excavation of three hearths as part of the archaeological mitigation program (Section 5.3), and concluded that only one was considered to have an anthropogenic origin. There are several other anecdotal cases during the archaeological program, which failed to relocate these sites and suggest they may have been one of several possibly natural processes occurring in the landscape. In the case of culturally modified trees, this relatively high number is notable as the Project area has largely been cleared of remnant vegetation in most areas, implying the pre-clearing figure may be much higher.

It should be noted that there are likely some inconsistences and duplication of the sites within the Project area, some of which have only been corrected opportunistically for this ACHA. This is in part due to the extensive archaeological fieldwork undertaken for the establishment, maintenance and modification of the GCO gold mine, and consequently many of the locations having been subject to multiple investigations over time. This has resulted in some duplication of sites and some sites recorded individually, when they are likely more reflective of a broader site complex. In addition, due to high levels of previous disturbance within the Project area, coupled with a highly erodible landscape, it is likely many of the sites have been either destroyed by authorised impacts and not updated in the AHIMS database; or have simply eroded away from the landscape over time through natural processes. For an example both AHIMS #43-4-0034 (valid) and #43-4-0035 (valid) are located not only at the same location as AHIMS #43-4-0031 (destroyed) and #43-4-0032 (destroyed), but all four sites are located within one of the existing tailing dams.

The spatial distribution of the AHIMS data is heavily skewed by the investigations of the Project area. It is clear that the edges of Lake Cowal were an important resource and used extensively in the past, however, few studies have occurred away from the Lake to robustly interrogate this pattern. Certainly, the higher density artefact sites, indicative of more extensive occupation, are constrained to the lake's edge, with isolated finds being more commonly found in the back-plain to the west. Culturally modified trees also appear abundant along the lake's edge, but this similarly reflects some of the only remnant vegetation remaining in the region.

5.4.2 AHIPs and archaeological mitigation

There are three authorised impact permits that are applicable to the Project area: Consent 1467/Permit 1468, issued 27 November 2002 (no expiry); Consent 1680/Permit 1681, issued 28 July 2003 (no expiry); and, AHIP C0004570, issued 27 June 2019 (duration of 14 years) (Figure 5.2; Table 5.4). These impact permits cover much of the Project area, and 59% (n=107) of previously registered sites are within areas of previously authorised impacts. All sites within the additional disturbance area have been encompassed by previous approvals.

Of the 180 sites within the search area, 78 (43%) sites are located within the additional disturbance area (Table 5.3) and 24 (13%) are within the broader Project area. Of the sites within the additional disturbance area, only 50 (28%) remain 'valid' (extant within the landscape) with 27 (15%) destroyed as a result of authorised impacts and one (<1%) has been partially destroyed (e.g. Table 5.4). Some 31 (17%) of sites within the Project area have been destroyed as a result of authorised impacts, and one (<1%) additional site has been partially destroyed. This includes a number of artefact sites (n=24, 13%), including five isolated finds (3%), six hearth sites (3%) and one culturally modified tree (<1%). This includes the loss of two of the three high density artefact sites (AHIMS #43-3-0021 and #43-3-0022) and four of the nine medium density artefact sites (AHIMS #43-4-0007, #43-4-0022, #43-4-0024, and #43-4-0025) found within the database.

Of the 50 valid sites within the additional disturbance footprint, there are 16 (9%) isolated finds, 13 (7%) low density artefact scatters, and two (1%) medium density artefact scatters; 15 (8%) hearth sites, four of these with associated low density artefact scatters; three (2%) culturally modified trees, one associated with an unspecified number of artefacts; and one (<1%) stone quarry site with an unspecified number of artefacts. A review of previous archaeological records does not mention the quarry site and no site card is available, and as such it is considered possible that this is an erroneous recording.

Destroyed sites have been included in Section 5.4.1 to understand the previous cultural landscape of the Project area. It is important to note previous impacts, in order to evaluate the cumulative impact of development within the Project area and the impact on intergenerational loss and equity (discussed in detail in Section 9.4).

Table 5.2 Summary of AHIMS sites within the search area

Site type	Frequency (n/% of grand total)	AHIMS site status (n/% of site type total)		
		Valid	Partially destroyed	Destroyed
Artefact site	**125/69%**	**100/55%**	**1/<1%**	**24/13%**
Unspecified artefact site	*11/6%*	*10/6%*	-	*1/<1%*
Unspecified artefact site with PAD	*1/<1%*	*1/<1%*	-	-
Isolated find	*54/30%*	*49/27%*	-	*5/3%*
Isolated find with PAD	*1/<1%*	*1/<1%*	-	-
Low density artefact scatter	*38/21%*	*25/14%*	*1/<1%*	*12/7%*
Low density artefact scatter with PAD	*8/4%*	*8/4%*	-	-
Medium density artefact scatter	*7/4%*	*3/2%*	-	*4/2%*
Medium density artefact scatter with PAD	*2/1%*	*2/1%*	-	-
High density artefact scatter	*3/2%*	*1/<1%*	-	*2/1%*
Culturally modified tree	**23/13%**	**22/12%**	**-**	**1/<1%**
Culturally modified tree (carved or scarred)	*20/11%*	*19/11%*	-	*1/<1%*
Culturally modified tree (carved or scarred) with unspecified artefact site	*3/2%*	*3/2%*	-	-
Hearth	**31/17%**	**25/14%**		**6/3%**
Hearth site	*22/12%*	*20/11%*	-	*2/1%*
Hearth site with unspecified artefact site	*1/<1%*	*1/<1%*	-	-
Hearth site with isolated find	*1/<1%*	-	-	*1/<1%*
Hearth site with low density artefact scatter	*6/3%*	*4/2%*	-	*2/1%*
Hearth site with medium density artefact scatter	*1/<1%*	-	-	*1/<1%*
Stone quarry	**1/<1%**	**1/<1%**	**-**	**-**
Grand total/% of grand total	**180/100%**	**148/82%**	**1/<1%**	**31/17%**

Table 5.3 Summary of AHIMS sites within the proposed disturbance footprint

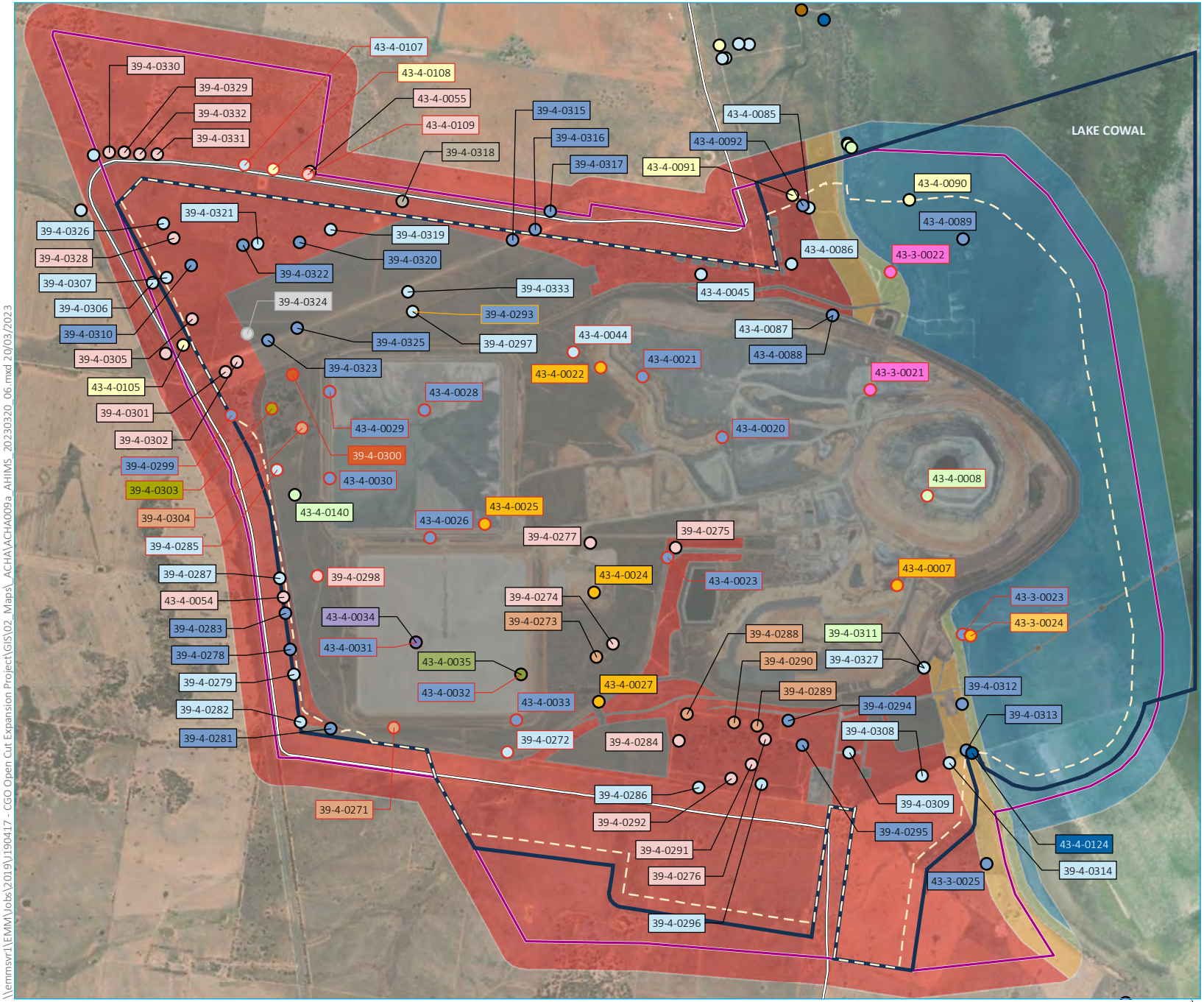
Site type	Frequency (n/% of Grand Total)	AHIMS site status (n/% of Site Type Total)		
		Valid	Partially destroyed	Destroyed
Artefact site	**53/29%**	**31/17%**	**1 /<1%**	**21/12%**
Isolated find	*19/11%*	*16/9%*	-	*3/2%*
Low density artefact scatter	*26/14%*	*13/7%*	*1/<1%*	*12/7%*
Medium density artefact scatter	*6/3%*	*2/1%*	-	*4/2%*
High density artefact scatter	*2/1%*	-	-	*2/1%*
Culturally modified tree	**4/2%**	**3/2%**	**-**	**1/<1%**
Culturally modified tree (carved or scarred)	*3/2%*	*2/1%*	-	*1/<1%*
Culturally modified tree (carved or scarred) with unspecified artefact site	*1/<1%*	*1/<1%*	-	-
Hearth	**20/11%**	**15/8%**	**-**	**5/3%**
Hearth site	*12/7%*	*11/6%*	-	*1/<1%*
Hearth site with isolated find	*1/<1%*	-	-	*1/<1%*
Hearth site with low density artefact scatter	*6/3%*	*4/2%*	-	*2/1%*
Hearth site with medium density artefact scatter	*1/<1%*	-	-	*1/<1%*
Stone quarry	**1/<1%**	**1/<1%**	**-**	**-**
Grand total/% of grand total	**78/43%**	**50/28%**	**1/<1%**	**27/15%**

Table 5.4 Previous permits and consents issued within the AHIMS search area.

Permit and/or consent	Project area	Outside Project area	Additional disturbance area	Grand total
AHIP C0004570	12	2	17	26
Consent 1467/Permit 1468 boundary	10	5	62	77
Consent 1680/Permit 1681 boundary	-	-	4	4
No permit	2	71	-	73
Grand total	**24**	**78**	**78**	**180**

Table 5.5 Previously identified AHIMS sites recovered during EMM's post-approval salvage activities between 2019–2023

AHIMS number	Site name	Site type
39-4-0271	Lake Cowal 2017-055	Hearth, artefacts
39-4-0272	Lake Cowal 2017-056	Hearth, low density artefact scatter
39-4-0285	Lake Cowal 2017-050	Isolated find
39-4-0293	Lake Cowal 2017-039	Low density artefact scatter
39-4-0297	Lake Cowal 2017-038	Isolated find
39-4-0298	Lake Cowal 2017-037	Hearth
39-4-0299	Lake Cowal 2017-035	Low density artefact scatter
39-4-0300	Lake Cowal 2017-036	Hearth, medium density artefact scatter
39-4-0303	Lake Cowal 2017-032	Hearth, isolated find
39-4-0304	Lake Cowal 2017-031	Hearth, low density artefact scatter
39-4-0324	Lake Cowal 2017-012	Hearth (determined to be not a site)
43-4-0106	Thornton Plains Grinding Stone	Isolated find
43-4-0107	Thornton Gilgai Isolated Artefact	Isolated artefact
43-4-0108	Thornton Gilgai Scatter 25Sep19	Unspecified artefact site
43-4-0109	Thornton Gilgai Hearth 25Sep19	Hearth
43-4-0140	IWL South-ST1	Culturally modified tree



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road

Indicative archaeological management zone areas

- Lake bed
- Slope/beach
- Lake edge ridge
- Back plain

AHIMS site type

- High density artefact scatter
- Medium density artefact scatter
- Medium density artefact scatter, PAD
- Low density artefact scatter
- Low density artefact scatter, PAD
- Isolated find
- Isolated find, PAD
- Culturally modified tree
- Culturally modified tree, unspecified artefact site
- Hearth
- Hearth, low density artefact scatter
- Hearth, medium density artefact scatter
- Hearth, isolated find
- Hearth, unspecified artefact site
- Stone quarry, artefact(s)
- Unspecified artefact site
- Unspecified artefact site, PAD
- Not a site

AHIMS site status

- Valid
- Destroyed
- Partially destroyed
- Not a site

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Source: EMM (2023); Evolution (2023); OEH (2023); DFSI (2017)

0 1 2 km

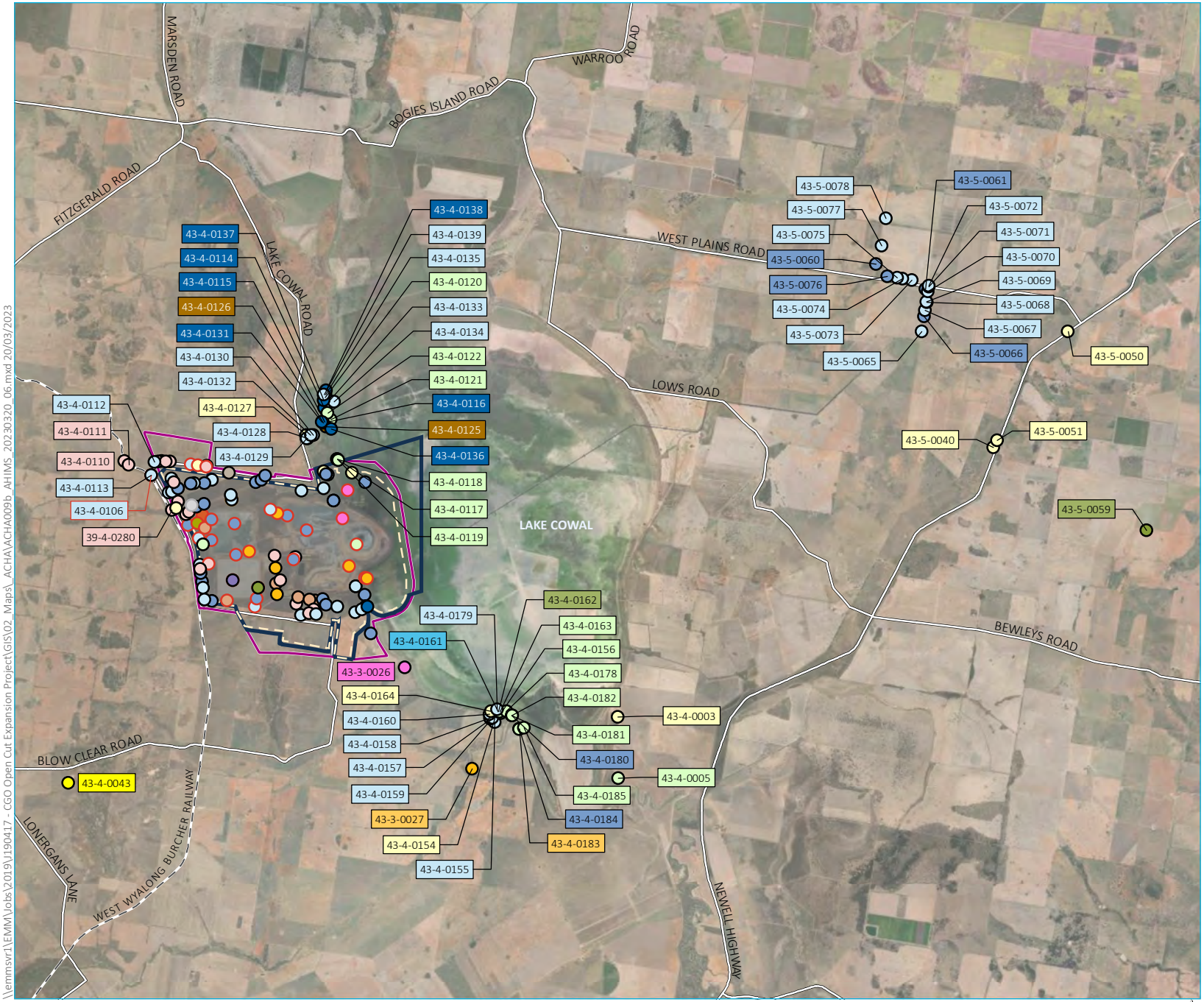
GDA 1994 MGA Zone 55

N

AHIMS search results inside EIS study area

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 5.4a

EMM creating opportunities



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Rail line
- Major road

AHIMS site status

- Valid
- Destroyed
- Partially destroyed
- Not a site

AHIMS site type

- High density artefact scatter
- Medium density artefact scatter
- Medium density artefact scatter, PAD
- Low density artefact scatter
- Low density artefact scatter, PAD
- Isolated find
- Isolated find, PAD
- Culturally modified tree
- Culturally modified tree, unspecified artefact site
- Hearth
- Hearth, low density artefact scatter
- Hearth, medium density artefact scatter
- Hearth, isolated find
- Hearth, unspecified artefact site
- Stone quarry, artefact(s)
- Unspecified artefact site
- Unspecified artefact site, PAD
- Not a site

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Source: EMM (2023); Evolution (2023); OEH (2023); DFSI (2017)

0 2.5 5 km

GDA 1994 MGA Zone 55

N

AHIMS search results outside EIS study area

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 5.4b

EMM creating opportunities

5.5 Predictive model

Aboriginal occupation of the Project area and surrounds has been well-documented, in large part due to the extensive archaeological assessments undertaken in association with environmental assessments for the development, modification and expansion of the CGO as required under legislation.

On the basis of the archaeological sites registered in the region, a review of previous archaeological studies and the environmental context, the following conclusions can be drawn regarding the potential presence and location of Aboriginal sites within the additional disturbance area:

- Isolated finds and open artefact scatters are the most common site types within the region and can occur across most landforms, even in disturbed contexts. Isolated finds may be indicative of random loss or deliberate discard of a single artefact, the remnant of a now dispersed and disturbed artefact scatter, or an otherwise obscured or subsurface artefact scatter. Open artefact sites are concentrated towards the edge of Lake Cowal and/or centred on Gilgai in the back plain to the west. The most common site type is likely to be surface stone artefactual material reflective of past visitation and/or occupation. Available data suggests that such sites frequently contain few Aboriginal objects (<30) and are predominantly reflective of transitory movement or short term camping by small parties. It would be expected that most artefact sites located would date to the mid- to late Holocene (i.e. less than 8,000 years), the age attributed to the A-Horizon artefact bearing deposits. Pleistocene sites have not been previously recorded in the Project area to date, and previous work suggests the environmental context and previous disturbance across the site is not favourable to the retention of these sites, especially in situ.

- Hearths are frequently encountered in this region based on the AHIMS data. These features reflect a past foci of activity and are generally documented in the back plain zone. This spatial distribution is likely in part a result of the survivability and visibility of these features in a peneplain landscape that periodically has excellent visibility, but their presence in other zones around Lake Cowal may be expected. It must be noted however that recent investigations of several hearths by EMM as part of approved archaeological mitigations found several to be natural features (e.g. burnt tree boles/roots), and as such they may be over-represented in the existing archaeological record.

- Culturally modified trees, including scarred and carved trees, may occur where native vegetation has been preserved. The additional disturbance area has largely been cleared; however there remains small clusters of trees and individual trees distributed across the landscape and a number of culturally modified trees have been previously recorded. Closer inspection would clarify if there are mature native trees with potential or younger regrowth or exotic trees that have no potential. Extensive vegetation clearance within the additional disturbance area reduces the likelihood of this site type, however there are 23 AHIMS records for culturally modified trees within the Project area and immediate surrounds. Culturally modified trees typically served utilitarian purposes, and as such are often associated with waterways and other natural resources associated with short and long term occupation. Conversely, carved trees may occur in association with burials, ceremonial sites or as indicators of ‘dreaming’ tracks and pathways. As such, they may occur only where native vegetation has been preserved, but their location within the landscape is difficult to predict without the aid of cultural knowledge.

- Grinding grooves and quarry/stone procurement sites have the potential to occur should suitable rock outcroppings be available. No grinding grooves have been previously recorded within the Project area and surrounds, and the geology and topography of the area is typically considered unsuitable for this site type. One stone quarry site (AHIMS #43-4-0034) has been previously registered within the Project area; however circumstantial evidence suggests this site registration may be erroneous.

- Middens of bone, charcoal, stone and freshwater shells may occur along extensive and reliable river systems. As an ephemeral lake, Lake Cowal is not considered a reliable water source; however, fish another freshwater resources are known to enter via the Lachlan River in times of flood. However, none are recorded in the regional landscape, and are extremely unlikely to occur within the Project area.

- Burials can occur anywhere in the landscape but are notably more likely on watercourses or under rock ledges; their identification in the landscape is rare, and none have been previously recorded in proximity to the Project area. However, there are references to burials at both the north and south end of Lake Cowal, and there is a lunette along the eastern bank – a landform in which burials are known to be found more broadly. Generally, they would be identified by mounds of earth, carved trees or stone markers. Evidence of burials is generally rare because human bodies are susceptible to the acidic Australian environments and other taphonomic processes. Where sub-surface burial is not performed, human bodies can have limited preservation in the archaeological record. Such sites and their component parts are also more susceptible to the impacts of low-level development (such as farming) than other sites.

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6 Field investigation

6.1 Key findings

- On-site validation consisted of field surveys and test excavations undertaken by EMM archaeologists and subcontractors and representatives of two of the registered Aboriginal parties. The field investigations focussed initially on the initial study area for the Project, with test excavations targeted to key locales within the additional disturbance area. The field survey encompassed a 2 week period in August 2022, while the test excavations consisted of a three-week program between October 2022 and January 2023. The field activities completed ultimately totalled over 24 days of investigation on-site.

- The field survey encompassed some 269 km (or some 468 ha) of linear pedestrian transects across the Project area and included 230 individual points of observation and documentation. Visibility and coverage were relatively poor (~1.94%) due to dense vegetation. Despite this, some nine Aboriginal objects, sites and/or places were documented, and two previously documented site relocated. These were primarily found within the lake's edge micro-environment, and included: nine artefact scatters, one isolated find, and one potential hearth - the latter being identified by Aboriginal participants. Three of these sites were considered to have high value, including a remnant of a formerly destroyed artefact scatter, #43-3-0022, and two sites recovering >30 artefacts, #39-4-0313 and CGO AS5 – the latter also having some contemporary importance identified by the Aboriginal participants.

- Test excavations consisted of one hundred and ten 0.25 m^2 manually dug test pits in a systematic grid focussing on the additional disturbance area, and prioritising the lake's edge micro-environment, and parts of the back plain that had been subject to limited past investigation. Overall, some 298 artefacts were recovered primarily between 10–20 cm below surface, with 288 of these found at a single location (within five test pits) located in the north-east of the additional disturbance area, and considered to reflect a remnant of #43-3-0022, a significant site documented in the 1990s. The assemblage was dominated by chert, included numerous formal tools (including Bondi points, geometric microliths, and scrapers) indicative of use in the last 5,000 or so years, exhibited raw material curation suggestive of travel and/or trade from the north, and reflected multiple different hunting and food processing activities across the ~4 ha site. With this exception, the assemblage reflects only an ephemeral or transient use of much of the additional disturbance area, with average densities of 0.4/m^2.

- The findings of the field investigation align closely with the previous investigations outlined in Section 5.3. These all demonstrate that the most significant cultural deposits appear to primarily be found on the lake's edge micro-environment in close proximity to Lake Cowal. Further, the findings here re-affirm the significance of #43-3-0022 compared with the cultural assemblage encountered elsewhere across the Project area.

6.2 Archaeological survey

6.2.1 Approach and methods

EMM conducted an archaeological field survey of the initial study area for the Project with the assistance of Aboriginal participants over 8 days during a two-week period (8 August to 18 August 2022). The survey was directed by Megan Sheppard Brennand and Cameron Neal (EMM archaeologists) with Aboriginal community representation provided through the participation of field officers from West Wyalong LALC and WCC.

The survey involved pedestrian, linear transects in the study area targeting areas proposed for impacts where no previous surveys had been undertaken. The additional disturbance area for the Project was reduced by the applicant following the field survey, however survey results from areas no longer proposed for impacts are included in this report to contribute to a more in-depth understanding of the local archaeology.

The primary aims of the survey were to:

- identify Aboriginal archaeological sites and/or places with the assistance of Aboriginal participants
- characterise the landscape to aid predictions of archaeological potential and sensitivity
- identify sites or areas that would require further investigation if planned for development as part of the Project
- identify sites or areas to be avoided by development, where possible
- identify areas with minor or negligible Aboriginal cultural heritage values that hold no constraint for development.

The archaeological survey and data collection methods followed Section 2.2 of the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). The study area was divided into discrete transects and aligned with discrete landforms where feasible. Each survey participant was spaced approximately 20–30 m apart for each transect, ultimately allowing survey of areas ~80–150 m in width. This method was considered to be suitable for a largely flat landscape characterised by grassed paddocks with low visibility, whereby suitable ground exposures were easy to identify and targeted. Due to poor visibility across the entire EIS study area the assessment calculations assume that each participant could identify and inspect exposures within 5–10 m either side of them. Notwithstanding, this calculation does not account for more obtrusive site types such as grinding grooves and scar trees which are observable from a much greater distance.

The survey team targeted ground exposures along transects, where cultural material was possible to be identified throughout the flat landscape. It must, however, be noted that archaeological surveys are inherently limited by ground surface visibility conditions and therefore any survey, despite the intensity of survey effort and spacing of survey transects, is considered to only *sample* the archaeological landscape. The archaeological survey did not aim to cover the entire ground surface within the study area, but rather to characterise the archaeological landscape.

The effectiveness of the survey is determined through recording and analysing survey coverage data. It is evaluated for its effectiveness in identifying the distribution of Aboriginal objects across the landscape, taking into account the potential for archaeological deposits. The percentage of the ground surface exposed in each landform and the visible ground surface within exposures (as ground exposures are often obscured by vegetation, gravels, etc) influences the survey results. For example, an archaeologically sensitive landform surface that is highly exposed by erosion is likely to reveal Aboriginal objects, whereas a similar landform that is thickly grassed will obscure surface artefacts if they are present. Overall, calculation of effective survey coverage is used to estimate not only how much area was physically surveyed, but also how favourable the survey conditions were for the identification of Aboriginal sites.

Site recording was completed in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). Site locations and their details were recorded with digital tablets using site recording forms created by EMM on the Survey123 application for ArcGIS (Esri© software). The digital tablets had a location accuracy of up to ±3 m which is similar to hand-held non-differential GPS units (~5 m). The Survey123 forms allowed for a site's location, details and representative photographs to be linked together, which avoided potential post-fieldwork issues around data integrity.

Survey transects were recorded as tracks on GPS units and detailed information about each transect recorded on a separate Survey123 form created by EMM. The Survey123 form allowed for survey transects starting points, details and representative photographs to be recorded. The course of survey transects were recorded as tracks on hand-held non-differential GPS units which were linked to the Survey123 forms.

6.2.2 Results

Overall, the field survey encompassed 29 transects, extending ~269 km in length and encompassing 428 ha of observations across the study area (Table 6.1; Plate 6.1–Plate 6.6; Figure 6.1; Appendix F.1 and Appendix F.2). The transects were on average ~900 m in length, ranging between 300 m up to 1.8 km. Some 230 discrete observations were taken across the EIS study area (Figure 6.1; Appendix F.2). Overall, exposure was extremely poor ($\bar{x}$ = <10%) due to dense vegetation coverage, with an average visibility of ~10 %, and average effective coverage of ~0.75% (Table 6.1). A summary of each transect is provided in Appendix F.1 and a full photographic catalogue is provided in Appendix F.2. The survey targeted the study area, and did not include areas previously investigated for DA14/98 and/or MOD 14 (refer Figure 5.1).

Topographically, the study area is dominated by flat floodplains adjacent to Lake Cowal, with some gentle to moderate slopes present in the north-west and to the south. The lack of major rivers or creeks within the study area has resulted in a relatively homogeneous terrain, with Gilgai formations present on flat areas in the north-western, southern and south-western parts of the study area. Gilgai were observed in all surveyed areas, and were full, if not overflowing in some locations, due to unprecedented rains at the time of survey. The lake beach and lake edge ridge micro-environments run adjacent and parallel to the western shore of Lake Cowal. Due to the recent wet weather, the water level of Lake Cowal was high, and several previously recorded sites on the 'former' lake edge or beach zones (e.g. AHIMS #43-4-0090 and #43-4-0089) were submerged at the time of survey.

The observed soil profiles are more extensively described by the test excavations (Section 6.3), however as predicted in Section 3.3.2, were all generally shallow where observed across the study area. Due to the flat topography of the study area more broadly and the dense vegetation across all areas survey, there were few locales observed where soils were visible, outside access tracks. Predicted soil depth was also difficult to assess, with few visible exposures observed; the flat topography lends itself more to water settling on the surface, rather than rill erosion (which can result in visible soil profiles). No geological outcropping was observed in any areas surveyed, however it is possible observations were limited by extremely dense grass cover. In general, while all areas typically reflected skeletal soils typical of the region, soil profiles in the lake edge ridge to the east of the Project area have retained more intact soil profiles than those in the lake beach and back plain zones, which have been largely denuded and/or eroded through water movement. Where observed, soils in the lake edge ridge zone tended to be comprised of sandy clay loam material. Soils along the lake beach were typically sandy with some organic matter inclusions, and soils in the back plain were shallow and comprised sandy clay loam or light clay.

Vegetation in the study area was generally homogeneous, with dense native grasses across all landforms and the study area more generally been largely cleared of trees and other native vegetation to make way for farming and grazing. The occasional stand of trees was observed in the back plains, which was more intensively cleared than the area closer to the lake's edge, and often younger growth and likely not of great antiquity. Conversely, the lake's edge typically featured semi-continuous stands of old-growth eucalypts, casuarinas and other native trees (many of which were partially submerged due to recent heavy rain events). Native trees and grasses also feature along the lake edge-ridge. Similarly, less vegetation clearance had been undertaken on the slopes present in the southern part of the study area with large stands of open eucalypts and various native shrubs and grasses present.

Notably, at the time of survey, the catchment within which the study area sits at times experienced unprecedented rain events. This resulted in a number of access constraints across the study area, and many of the locales surveyed were waterlogged at the time. Gilgai prevalent across the surveyed areas were full and wet conditions had promoted the growth of dense native grasses across much of the locale.

Some 11 Aboriginal objects and/or sites were encountered during the field survey. These included nine previously undocumented sites, and two that were noted in previous investigations. These are outlined further in Section 6.2.3.

Table 6.1 Summary of the field survey, showing landforms inspected, visibility and coverage, and number of Aboriginal sites identified

Landform	Landform area (m^2)	Area effectively surveyed (m^2)	% of landform effectively surveyed	Number of sites
Back plain	4,150,723	39,222	0.94	9
Lake edge ridge	132,881	1,329	1	2
Total	**4,283,604**	**40,550**	**1.94**	**11**
Average		*20,275*	*0.97*	*5.50*

Notes: The lake bed, beach and slope zone micro-environments were submerged at time of the field survey, and hence are not included in this table.

Plate 6.1 Back plain in the north east of the study area, view facing north. Note the thick grass cover which obscure Gilgai formations

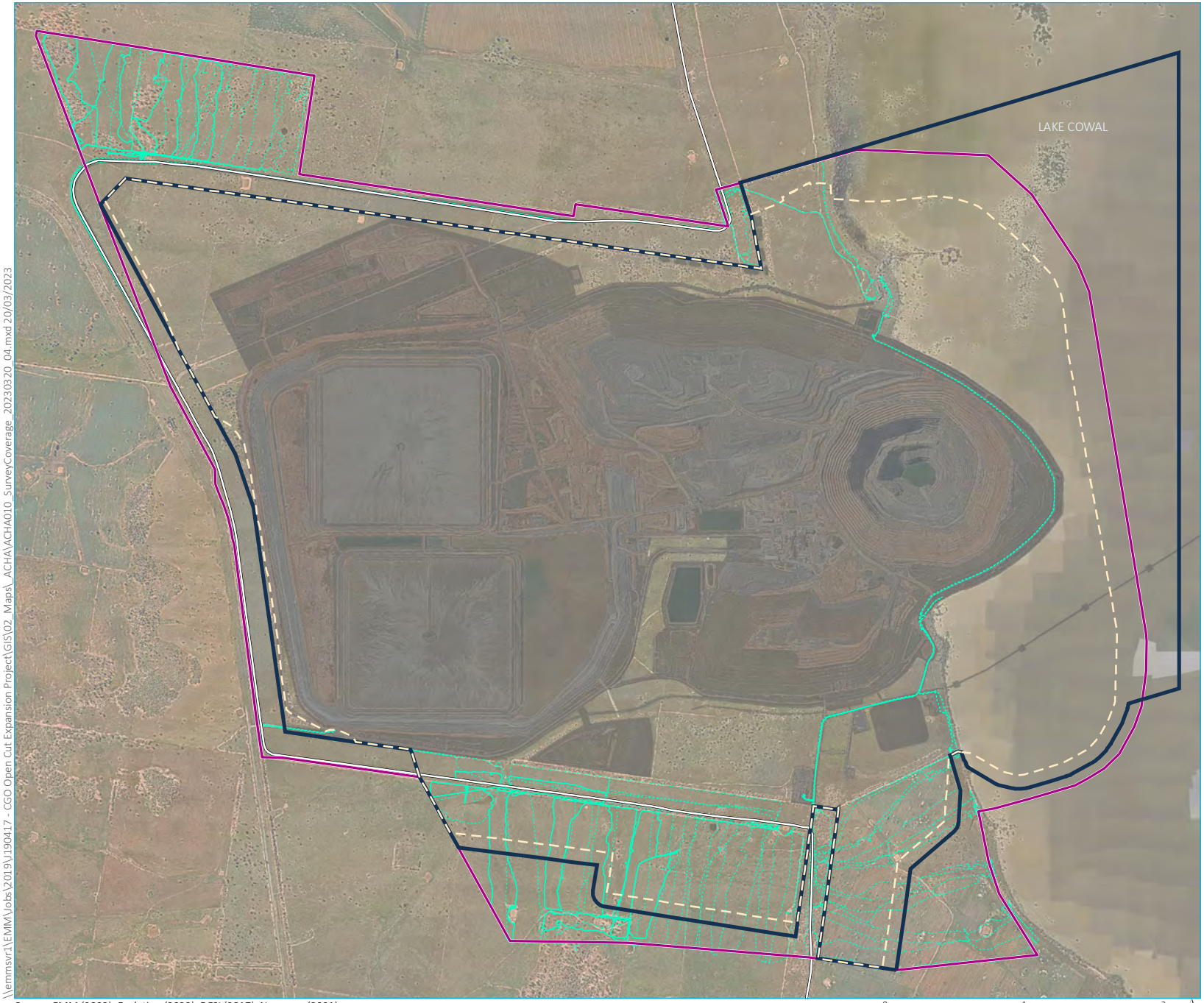
Plate 6.2 The lake edge ridge landform in the north east of the study area, view facing north. Note the high water level, obscuring much of the beach, slope and lake bed micro-environments

Plate 6.3 Back plains in the north west of the study area, view facing south towards the mine

Plate 6.4 Example of an exposure on the back plain in the north west of the study area, view facing north (CGO AS4)

Plate 6.5 Lake beach under water in the south east of the study area, view facing south

Plate 6.6 Edge of the lake edge ridge landform in the south east of the study area, view facing north. Back plains in the background, while the lake is to the right of the image



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road
- Survey tracks

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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021)

0 1 2 km

GDA 1994 MGA Zone 55

N

Survey coverage

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 6.1

EMM
creating opportunities

6.2.3 Aboriginal sites identified

The field investigation identified nine previously unidentified Aboriginal objects and/or sites (Table 6.2; Figure 6.2; Appendix F.2) and re-identified two previously documented sites (AHIMS #39-4-0313 and #43-3-0022). The majority of sites were identified on the back plain micro-environment (n=9, 82%), which reflected that largest portion of the study area, with the remainder of sites identified in the lake edge ridge (n=2, 18%). The sites included nine artefact scatters, one isolated find, and one potential hearth - the latter being identified by Aboriginal participants.

The low number of sites identified in the lake edge ridge (n=2) is considered to be a result of low visibility and low exposure, rather than infrequent occupation by past Aboriginal people. The lake's edge ridge landform formed a very small portion of the survey effort (3% of the total area surveyed), however produced two of the three high value sites and areas of subsurface potential.

Of the artefact scatters identified, three are considered to be of relatively high value: AHIMS #39-4-0313, #43-3-0022 and CGO AS5. This high value was based on the density of the cultural materials and research potential that could result from further investigation of these sites. While CGO AS5 recorded the highest number of artefacts recorded at a single site during this survey, the artefact density when the site is considered as a whole is low (~1 artefact/263 m^2), but did exhibit contemporary values for the Aboriginal participants. The single hearth site (CGO H1) is recommended for further specialist investigation (Chapter 10) since it does not exhibit distinct archaeological characteristics (such as associated stone artefact material) typical for this type of site, but as outlined in Section 5.3, such sites can often have natural origins.

Due to poor visibility across the surveyed areas, the sites identified during fieldwork are more likely a reflection of visibility and exposure patterns encountered across the study area. For example, ground surface exposures were generally located in the back plain, in areas suitable for farming practices, where unsurfaced vehicle and livestock routes had been established, improving visibility in this locale. Similarly, high water levels around the lake shore, which was several metres higher than recent years, have likely impacted and relocated artefacts in this zone, due to wave action and sheetwash. However, the findings are broadly in line with previous investigations within the study area, where the lake edge remains an important focal point of past Aboriginal activities, while the back plain reflects more ephemeral or transient use.

Table 6.2 Aboriginal sites identified during the field survey

Site name	Site type	Landform	Easting	Northing	Description	Site status
39-4-0313	Artefact scatter	Lake edge ridge	537960	6276008	This site was originally identified in 2018, and consisted of 23 artefacts; however, the site location was not fully described (Niche 2019). Some archaeological potential was identified at the time, as the site was recommended for salvage in the event of future impact. At the time of survey, this site was identified as ~37 artefacts identified on a vehicle access track, near a fence-line. Raw materials identified primarily comprise chert. The artefacts were identified in a relatively small area (20 m x 8 m), and sheet wash erosion due to recent heavy rain has markedly improved visibility in this locale. The sandy deposit suggests some level of subsurface potential in this locale, although erosional processes are clearly impacting the exposure of the site over time.	Valid
43-3-0022	Artefact scatter	Lake edge ridge	537312	6279255	This site was original identified in the late 1990s, during the initial archaeological assessments for the mine (Crane 1995). At the time of recording, the site was considered a high value site with relatively high densities (4–5 artefacts/1 m^2) of archaeological material identified in this locale. Due to the varied archaeological material identified here, this site was interpreted as a typical 'base camp' with flaked materials scattered on either side of a stream leading into the lake. Pardoe's work in the early 2000s salvaged a sample of this site, and although the findings of this excavation are somewhat unclear, notably the site density significantly increased to 105 artefacts/m^2 (Pardoe 2009: 17). This site appears to have significantly degraded over time, largely due to natural erosional processes, and observations were impaired by extremely poor visibility outside established access tracks. In total, 30 artefacts were identified on access tracks within an area approximately 200 m x 70 m. Raw materials identified in this locale include chert, mudstone and suspected volcanic material, likely basalt. Similarly, to 39-4-0313, sheet wash from recent heavy rain has impacted this site, improving visibility but likely impacting the exposure of the site over time. The sandy deposit suggests some level of subsurface potential in this locale, though, as noted, erosional processes are degrading the subsurface potential of the site. At some point in the past, this site has been re-classified in the AHIMS database as 'destroyed'. This may have occurred as part of Pardoe's work in 2009. However, given the proximity of the new finds to the original recording of the site, it is considered that parts of #43-2-0022 still remain.	Valid

Table 6.2 Aboriginal sites identified during the field survey

Site name	Site type	Landform	Easting	Northing	Description	Site status
CGO AS1	Artefact scatter	Back plain	534772	6275881	Ten artefacts identified on a vehicle access track, near a fence line. Similar to the sites above, these artefacts have likely been exposed through sheet wash erosion due to recent heavy rain. The site is at least 50 m long, and artefacts are scattered along the length. Raw material types include chert and quartzite. The site is 140 m south-west of #39-4-0272, so may be an extension of this site – however #39-4-0272 is noted as destroyed and may have been collected as part of previous mitigation works in this area. Site #39-4-0272 was originally recorded as an isolated artefact and possible hearth; no hearth feature was identified during this assessment at this locale. No subsurface potential was identified in this locale.	Valid
CGO AS2	Artefact scatter	Back plain	536450	6279568	A low density artefact scatter, comprising 17 artefacts, identified between an erosion exposure and a vehicle access track. The area within which artefacts were identified was approximately 20 m x 250 m, however visibility was extremely poor outside areas of erosion or disturbance (i.e. the access track). Raw material identified were primarily chert, though one orange mudstone flake was also identified. No subsurface potential was identified in this locale.	Valid
CGO AS3	Artefact scatter	Back plain	533186	6280314	Five artefacts identified within an area of patchy exposure approximately 60 m x 10 m. One artefact was identified as a potential grindstone. Visibility was extremely poor outside areas of erosion. No subsurface potential was identified in this locale. The artefacts identified were primarily chert, and the grindstone was a sedimentary stone, likely sandstone.	Valid
CGO AS4	Artefact scatter	Back plain	533231	6280813	Four chert artefacts, including one core, identified on a ground surface exposure surrounding a tree and on a nearby vehicle access track. The artefacts were identified in an area approximately 170 m x 60 m, however visibility was extremely poor outside areas of erosion or disturbance (i.e. the access track and fence-line). No subsurface potential was identified in this locale.	Valid
CGO AS5	Artefact scatter	Back plain	532627	6280869	Forty-one artefacts within an area of patchy exposure approximately 180 x 60 m. The majority of artefacts (n=39) were identified on a vehicle access track near the northern boundary; however, due to extremely poor visibility between exposures, it was difficult to identify any additional artefacts, if present. Linton Coe (WWC) said the presence of wilga (*Geijera parviflora*) and beefwood (*Grevillea striata*) in the locale is important as they were used to smoke babies. The additional artefacts in the area were identified on a nearby cattle track and within a tree ring exposure.	Valid

Table 6.2 Aboriginal sites identified during the field survey

Site name	Site type	Landform	Easting	Northing	Description	Site status
CGO H1	Hearth	Back plain	532360	6280814	Potential hearth identified by RAP participants on vehicle access track. Linton Coe (WWC) noted presence of cultural plants nearby and highlighted the landform as sensitive (~700 m from the crest of a nearby low hill). The site consisted of scattered charcoal and burnt clay within an approximate 5 x 5 m area. No artefacts were identified in association with the site. Like many of the other sites, visibility has improved in this area due to sheet wash from recent heavy rain.	Tentative
CGO AS6	Artefact scatter	Back plain	532328	6280616	A discrete patch of sheet wash exposure, within which two chert flakes were identified. The artefacts were identified with a small 2 x 2 m area.	Valid
CGO IF1	Isolated find	Back plain	532346	6280441	A single pale chert flake on identified on a tree ring exposure under a wilga bush (*Geijera parviflora*). The site is within a 1 x 1 m zone.	Valid
CGO AS7	Artefact scatter	Back plain	533864	6276031	A very low density scatter identified along a vehicle access track. Seven artefacts were identified in an area approximately 730 x 5 m. As one of the primary access tracks on the CGO, this road has been graded over the years, and it is unlikely these artefacts are *in situ* and subsurface potential here is considered low.	Valid

Plate 6.7 AHIMS 39-4-0313, a large artefact scatter identified on a vehicle access track, view south

Plate 6.8 Sample of artefacts identified at AHIMS 39-4-0313

Plate 6.9 AHIMS 43-3-0022, a large artefact scatter identified on a vehicle access track, view south east

Plate 6.10 Sample of artefacts identified at AHIMS 43-3-0022

Plate 6.11 Example of sheet erosion on the vehicle access tracks (CGO AS1), view facing west

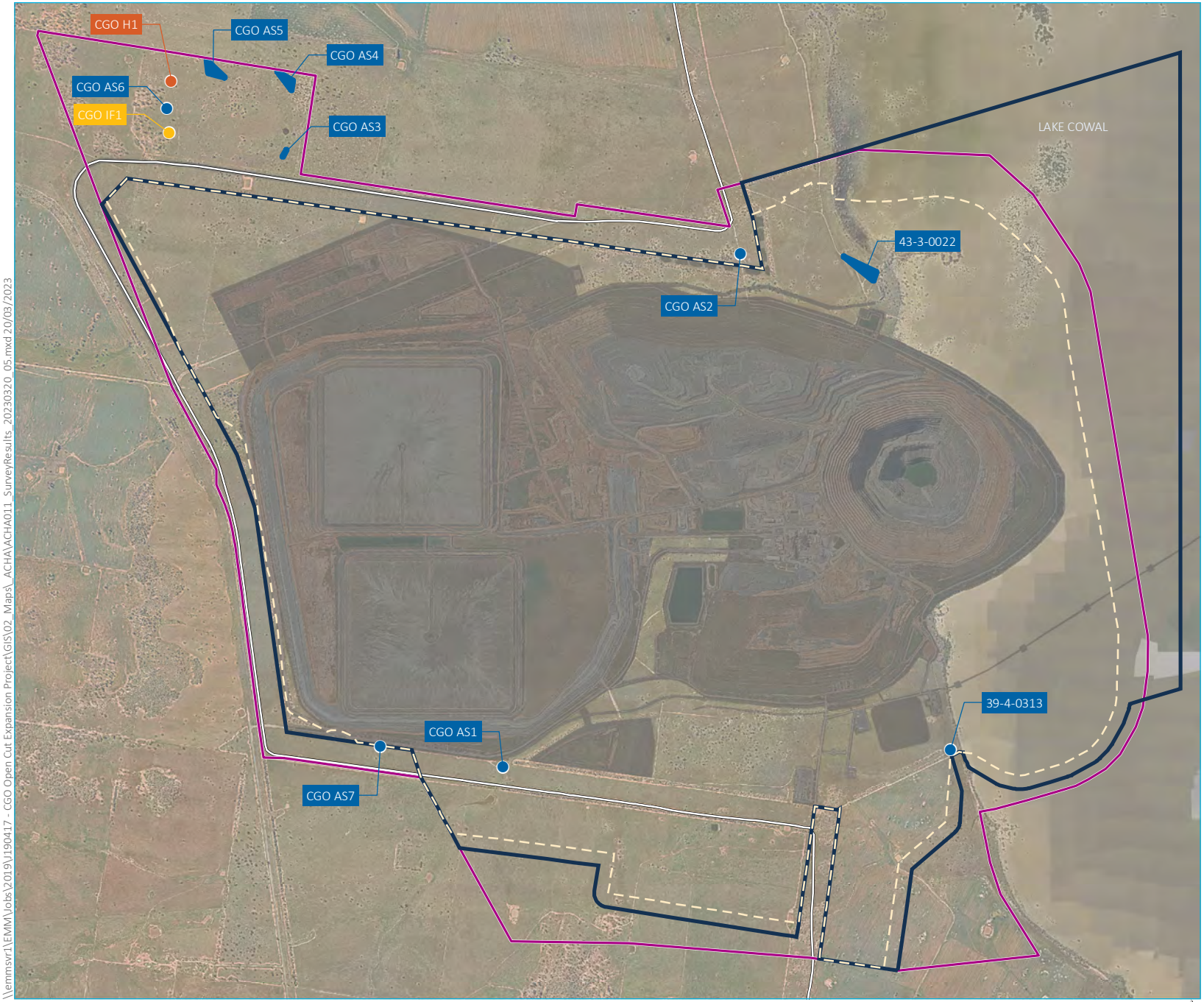
Plate 6.12 Potential sandstone grindstone at CGO AS3

Plate 6.13 Example of tree ring exposure at CGO IF1, view facing south

Plate 6.14 Potential hearth remains at CGO H1

Plate 6.15 Typical example of a mudstone artefact identified at CGO AS1

Plate 6.16 Chert artefacts identified at CGO AS2



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road

Aboriginal sites identified by survey

- Hearth
- Isolated find
- Artefact scatter
- Artefact scatter area

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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021)

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GDA 1994 MGA Zone 55

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Aboriginal sites identified by survey

Evolution Mining
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Figure 6.2

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6.3 Test excavations

6.3.1 Approach and methods

EMM, with the assistance of OzArk Environment and Heritage (OzArk), conducted an archaeological test excavation of the additional disturbance area, with the assistance of RAPs, over two periods in October 2022 and in January 2023. These works were undertaken in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010) and consisted of small manually dug test pits in transects within the additional disturbance area along the lake's edge and back plain micro-environments. The excavation was undertaken in two parts due to inclement weather; the first tranche was undertaken between 10-13 October 2022 (originally planned for 10–21 October) and was directed by Cameron Neal (EMM archaeologist), with the archaeological team consisting of Amber Morgan, James McGuinness and Paulo Gonzalez. The second tranche was undertaken from 9–20 January 2022 by OzArk on behalf of EMM, and was directed by Harrison Rochford (OzArk archaeologist). Aboriginal community representation was provided through the participation of field officers from West Wyalong LALC and WCC.

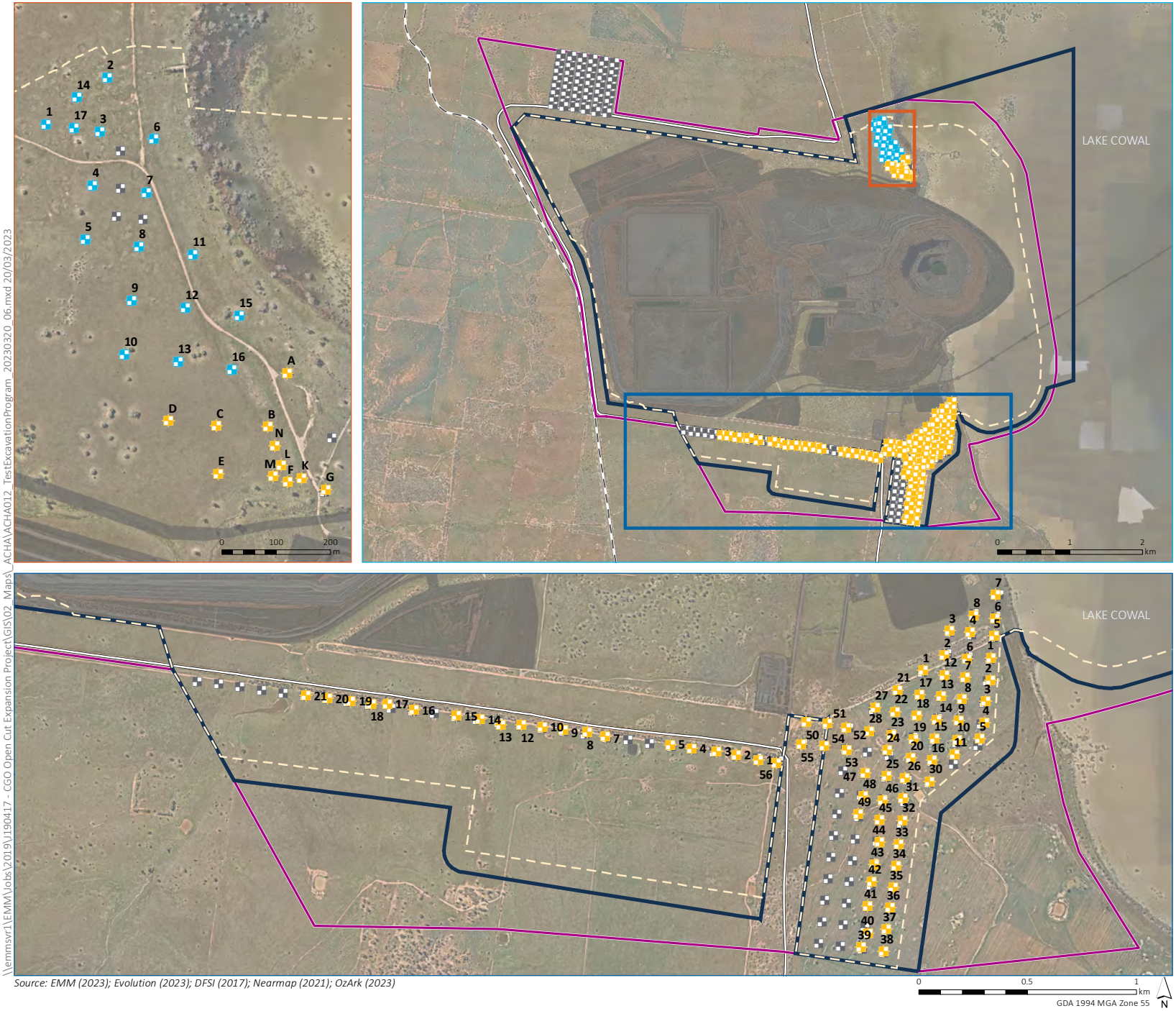
The primary aims of the excavations were to:

- Identify, map and characterise the nature, age, extent, integrity and significance of the Aboriginal cultural material within the additional disturbance area.
- Collect data to answer the following research questions:
    - What are the environmental characteristics associated with the distribution of Aboriginal cultural heritage within the additional disturbance area?
    - Can the formative processes of the stratigraphic profile provide information on the nature and/or survivability of the archaeological resources?
    - What are the cultural, social and public values associated with the Aboriginal archaeological resource within the additional disturbance area?
    - How should the Aboriginal sites in the region be conserved and managed in future?
- Better assess the significance and historical meaning of the cultural materials that exist within the Project area so that future archaeological investigation can advance our understanding of past Aboriginal cultural behaviour and environmental adaptation.
- Direct future heritage activities and mitigation measures (if required) for the Project.

To achieve these aims, a systematic grid of test pits was proposed to extend across the additional disturbance area. Given the large size of the site, the excavations were proposed to in-fill gaps in previous investigations of the site (Chapter 5), and therefore focussed on areas in the north-east, north-west and southern parts of the additional disturbance area. Following ongoing Project refinements, including further refinement of the additional disturbance area and removal of development activities from the north-west portion of the study area, and the inclement weather resulting in water-logging, the excavation program was modified. Ultimately, the program focussed on areas in the vicinity of the lake's edge miro-environment and the back plain where direct impacts are proposed. Ultimately, the excavations consisted of a series of regularly spaced transects (typically 30–60 m), and opportunistically placed test pits on the same grid these two micro-environments (Figure 6.3).

Archaeological test excavations were implemented in accordance with Requirements 16 and 17 of the *Code of Practice for the Investigation of Aboriginal Objects in NSW* (DECCW 2010). In summary, the following methods were adopted for the excavation:

- all test excavation pits were spatially located using a differential GPS device
- manual excavation of 0.25 m^2 test pits in a systematic grid across areas of archaeological interest within the impact footprint
- test pits were expanded where dense concentrations of artefacts were recovered, in order to identify the extent of high density deposits
- all excavation used hand tools, such as shovels, mattocks and trowels
- excavation of the first unit was in 5 cm spits, with subsequent excavation in 10 cm spits
- manual excavation continued to either: i) the base of the cultural deposits; ii) to the depth of the underlying geology; or iii) to the maximum depth possible via hand excavation (~1–1.5 m)
- wet sieving of all manually excavated material through a 5 mm sieve
- soil profiles were recorded in accordance with the Code of Practice, including scaled drawings, photographs, and written descriptions
- soil samples were collected for description, sedimentological and chronological analysis where such analysis was considered likely to contribute significant information.



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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021); OzArk (2023)

Test excavation program

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Figure 6.3

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6.3.2 Results

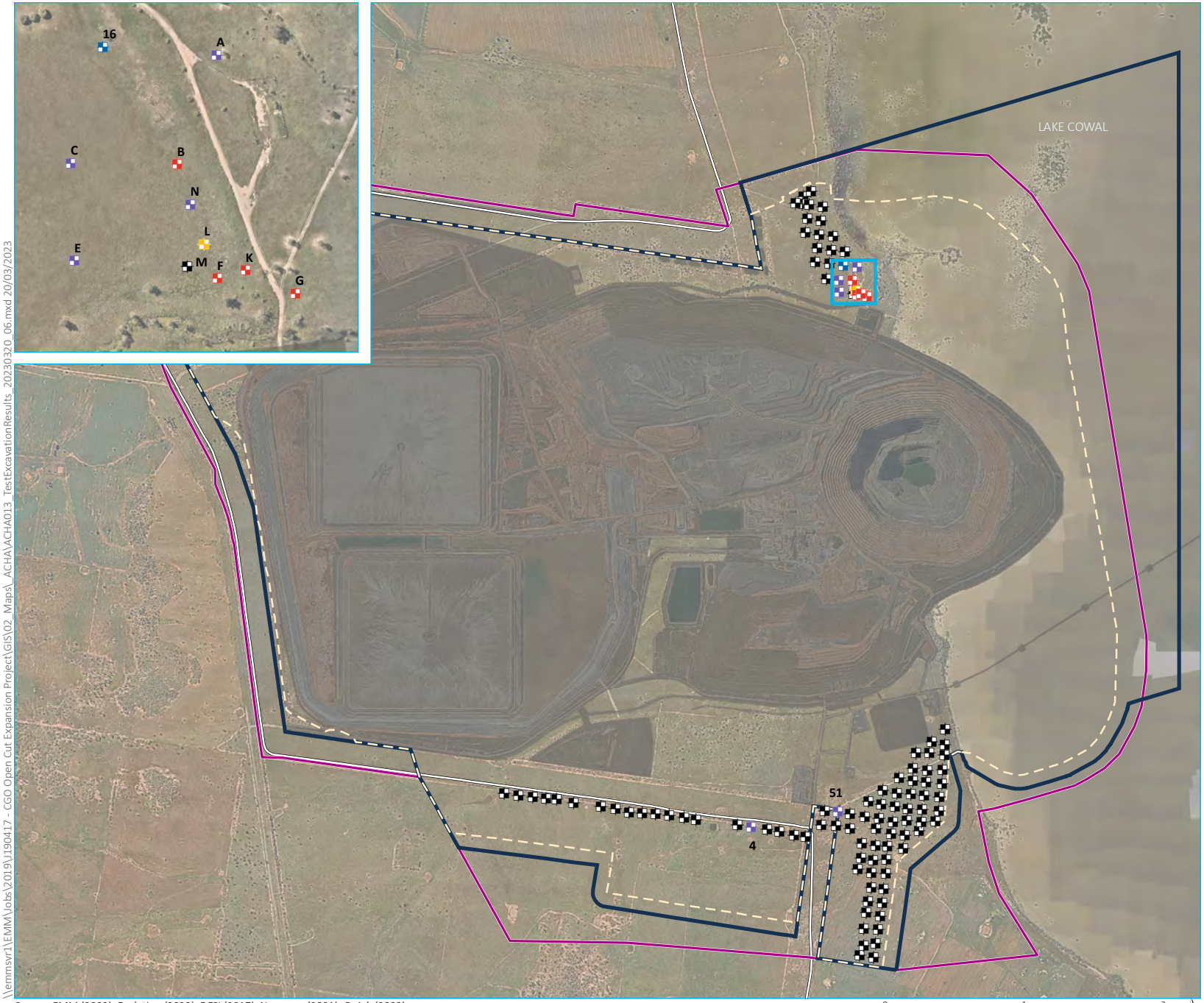
This section provides a summary of the excavations and subsequent analysis (Figure 6.4; Figure 6.5), with further detail provided in Appendix F. This includes a summary of excavated test pits (Appendix F.3), a full photographic catalogue of the excavated test pits (Appendix F.4), and detailed lithic catalogue and analysis (Appendix F.5). A summary of the stratigraphy, chronology, sedimentology and artefact information from the excavations is provided below.

Overall, some 110 test pits measuring 0.25 m² to in size were excavated across the lake edge and back plain (Figure 6.4; Figure 6.5; Appendix F.3). Of these, test pits B, F and G were expanded to 1 m² (i.e. four contiguous 0.25 m² pits) due to high artefact densities recovered in the initial 0.25m² test pit. Test pits averaged depths of ~14 cm, with only eight test pits exceeding 20 cm and the deepest excavation being 55 cm below ground surface. Test pits located in the lake edge ridge zone averaged depths of ~20 cm, whereas test pits located in the back plain micro-environment averaged depths of only 12 cm. These values re-iterate the generally shallow duplex soils common across this region. A total of 154 spits were excavated, from which 1.75 m³ of sediment was recovered and wet-sieved. Spatially, these test pits were predominantly on the back plains (n=75, 68%), with the remainder located on the lake's edge ridge (n=35, 32%).

Only 13 of the 110 test pits (13%) contained artefacts (Figure 6.4), with a total of 298 Aboriginal objects recovered (Appendix F.5 and Appendix F.6). When extrapolating 0.25 m2 test pits to 1 m2, which is more commonly how artefact densities are discussed in the archaeological literature, an extrapolated average density of 5.1/m^2 was found across the proposed additional disturbance area (Figure 6.5). This value can generally be considered to reflect a background scatter indicative of the baseline levels for the past ephemeral use of lake edge and back plain over the last 5 ka or so years. This value is slightly elevated by a handful of test pits with higher amounts of cultural material. Five test pits (5%), TPs B, F, G, K, and L, were found to contain >30 artefacts/m^2, a density that is considered to reflect specific activity zones or past foci of activity in contrast to the broader background scatter.

On average, the test pits were located ~860 m away from the lake's edge, i.e. the primary hydrological feature of the Project area, and reflect the majority of the proposed development activities some way from Lake Cowal. Artefact bearing test pits within the lake edge ridge zone were on average ~199 m from the lake's edge, while artefact bearing pits in the back plain were on average 1.3 km from the lake's edge. All test pits that recovered >1 artefacts were found adjacent to the lake's edge, within the lake edge ridge micro-environment. Only two artefact bearing test pits (2%) were located in the back plain (TP51 and TP4), and both contained a single artefact each. All five test pits containing >30 artefacts are within proximity to previously recorded site AHIMS #43-3-0022, generally within ~180 m of the recorded point, and are considered an extension of this original recording by Cane in the 1990s (Section 5.3). Notably, TP K recovered the highest density of artefacts (n=47, extrapolated value of 224/m^2), followed by TP L (n=26, extrapolated value of 104/m^2), TP F (n=93, 93/m^2), TP G (n=53, 53/m^2), and TP B (n=48, 48/ m^2).

Cultural material was recovered up to 50 cm below ground surface, but was mostly found in the upper ~10–20 cm of the soil profile (n=239, 80% of the total assemblage). Analysis of the cultural assemblage suggests that it dates to mid to late Holocene (i.e. <5,000 years ago), and align with the previous models developed for the site (Chapter 5). That is, areas closer to the lake edge – in particular, around #43-3-0022 – was used for longer and more extensive occupation, with a probable focus on hunting wildlife in the Lake and preparing foodstuffs (e.g. seed processing), while the back plain show a background discard/loss and transient movement across the landscape. Of note, the characteristics of test pit F suggests this area formed a working area for the manufacture of weaponry. A finding that was made by Pardoe (2013:9) in his classification of the site as a men's site – not a gender-specific site, rather a site primarily used by men for hunting preparation. Pardoe found ~3.5% of the assemblage consisted of backed artefacts used in spears. In comparison, 5% of the assemblage recovered in the north east portion of the excavated areas contained backed artefacts, with a significant subset of these coming from TP F.



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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021); OzArk (2023)

Test excavation results

Evolution Mining
Cowal Gold Operations
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Aboriginal Cultural Heritage Assessment
Figure 6.4

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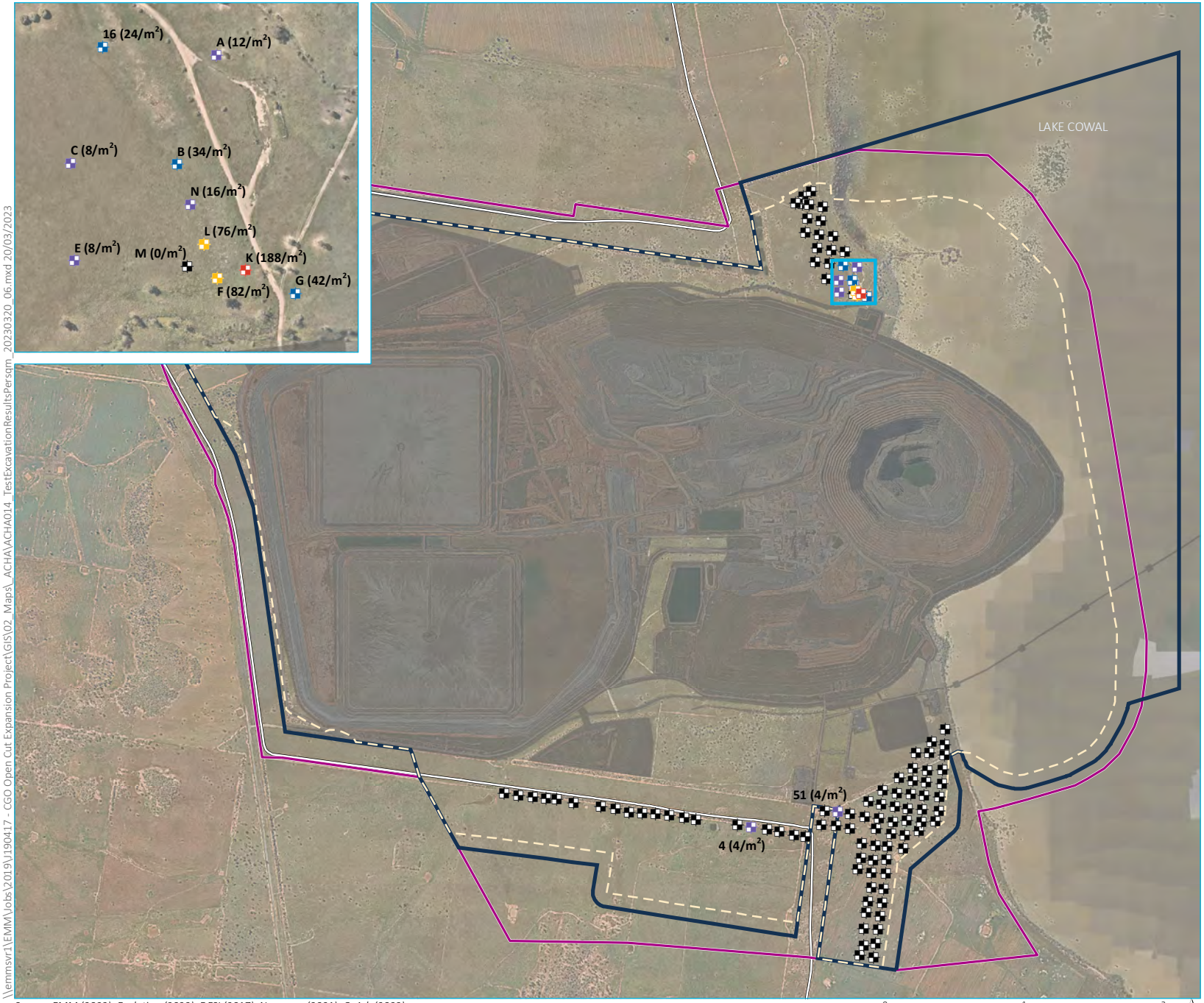

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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021); OzArk (2023)

Extrapolated artefact densities

Evolution Mining
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Aboriginal Cultural Heritage Assessment
Figure 6.5

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i Stratigraphy

The stratigraphy across the 110 test pits was generally consistent and can be described as one of two different types dependant on whether they were situated within the lake's edge (Plate 6.17) or back-plains (Plate 6.18) micro-environments. These included:

- Back plain – friable brown sandy clay or sandy clay loam with frequent roots, rootlets and pisolith gravels – A1 horizon. The soil unit was typically very shallow (>10 cm) and overlaid an indurated brown heavy clay, B2 unit (Plate 6.19).

- Lake's edge – friable dark brown sandy clay loam with frequent rootlets – generally 20 cm but sometimes up to ~55 cm – A1 horizon. This unit overlaid an indurated brown heavy clay B2 horizon, which was frequently found to be water-logged (Plate 6.20 and Plate 6.21).

The soil profiles are both characteristic of peneplain environments and the broader soil landscapes documented in the region (Section 3.3). They are both primarily residual in formation, and reflect the pedogenesis of the under-lying clay substrate to form a shallow A1 horizon or topsoil. The slightly deeper unit along the lake's edge probably reflects both a more established vegetation to grow (and resulting in high bio-productivity), and potential alluvial influxes from the lake during flood.

However, no deep soil profiles as documented by Pardoe prior to the establishment of CGO were observed. It suggests with few localised exceptions, the cultural landscape for the Project area is primarily found on the surface. While subsurface cultural materials are documented, they remain generally shallow and unstratified, and will often be observed through erosion of the upper soil profile by natural and anthropogenic processes.

Plate 6.17 An example of test pits on the lake's edge micro-environment. TP H, looking northeast towards Lake Cowal

Plate 6.18 Example of the back plain micro-enviroment landscape. TP 45, looking east

Plate 6.19 Example of the typical soils within the back plain zone (TP53)

Plate 6.20 Example of soils typical at the lake's edge. TP F, facing north

Plate 6.21 Example of soils typical at the lake's edge. TP B, facing north

ii Lithics

Analysis of the stone artefacts recovered by the test excavations was undertaken by Dr Trudy Doelman, University of Sydney, and the full report is presented in Appendix F.5 and lithic catalogue is presented in Appendix F.6. A summary is provided below.

Overall, 298 lithics were recovered during archaeological excavations, representing an extrapolated average artefact density of 4.5 lithics/m^2. This average is inflated by cultural material recovered from a small number (n=11) of test pits associated with a previously recorded site (#43-3-0022). A total of 11 test pits were excavated in this general area, recovering 288 of the 298 artefacts, and representing 97% of the total excavated assemblage; and a higher average extrapolated artefact density of ~52/m^2 for this area. [2] When these test pits are excluded from the data, the results correlate with other regional studies, and suggest artefact densities of 0.4/m^2 (or ~1/2.5 m^2) are more observed. Overall, these values reflect a general low-density background of cultural material across the additional disturbance area with discrete foci of occupation and activity only near #43-3-0022 (discussed further below).

Overall, the broader assemblage is dominated by chert (n=194, 65%), with smaller amounts of milky quartz (n=39, 13%), silcrete (n=30, 10%), quartzite (n=27, 9%), silicified wood (n=5, 2%), and chalcedony (n=1, <1%), hornfels (n=1, <1%), and rhyolite (n=1, <1%). Interestingly, the artefacts derived of the three main raw materials – chert, milky quartz and silcrete – rarely retain cortex, indicating intensive use of these in artefact production on site. This finding also suggests the source(s) of these raw materials were not readily accessible, as the stone was intensively reduced and worked to maximise output; and may indicate long distance transport, down-the-line exchange or trade.

The highest concentrations of artefacts were found at 10–20 cm (n=239, 80%), and no evidence of distinct size sorting occurred in the excavated assemblage. It must be noted, however, that the majority of the excavations did not extend more than ~12 cm, and which may account for this finding. The high concentration suggests that the majority of artefacts were found in surface contexts, particularly in the southeast and southwest of the additional disturbance area. Notably, the formation of a patina on some artefacts – notable in all excavated areas – may indicate that, not only that these artefacts were exposed on the surface at some point in the past, but potentially exposed on the surface for a considerable amount of time before burial. This finding would align with the interpretation of these areas as a palimpsest, with more stratified potential in the lake's edge zone.

Compositionally, the assemblage was comprised of 131 (44%) complete flakes, 106 (36%) broken flakes, 35 (12%) tools (complete and broken), and various other core fragments, complete splits, etc. Very few cores were recovered (n=2, 0.7%), and those that were recovered were small in size, further indicating reinforcing raw material scarcity in the locale.

Chronologically, the composition of the assemblage is all suggestive of a late Holocene (<5 ka) age. Artefact types recovered in the assemblage, such as blades, burin-blade cores and backed artefacts, are primarily found during this timeframe, with their increasing proliferation in the most recent period.

[2] As outlined previously, while most artefact bearing test pits were expanded to 1 m^2 to accurately determine artefact densities in square metres, in a small number of instances, this was not achievable due to timing constraints. As such, the raw artefact values presented in Appendix F.5, where needed, are multiplied by four to present 'extrapolated' values.

Five test pits (5%) return extrapolated values of >30/m^2, all in the vicinity of #43-3-0022. TP K recovered the highest density of artefacts (n=47, extrapolated values of 224/m^2), followed by TP L (n=26, extrapolated values of 104/m^2), TP F (n=93, 93/m^2), TP G (n=53, 53/m^2), and TP B (n=48, 48/ m^2). The artefacts recovered from this area are typified by a higher artefact density (~52/m^2) coupled with a higher frequency of cores and tools. A high diversity of tool types and raw material types were also identified. While chert dominates the assemblage here (n=194, 64%), other raw material types occur in a relatively high frequencies (e.g. silcrete [n=28, 9%]). The tools here, at times, were intensively used indicating not only longer occupation periods, but suggests increased distances that the raw material had travelled. Evidence of processing tools (e.g. scrapers and notched tools) was also identified, which are typical of extended occupation sites. Evidence for blade manufacture and backed artefact production was found, including systematic cores and backed artefacts (Plate 6.22–Plate 6.24). Of note, the characteristics of artefacts from TP F (e.g. backed artefacts and blades/elongated flakes) show evidence of 'gearing-up' in the manufacture and maintenance of hunting weaponry and suggests this area formed a working area; 13% of all backed artefacts recovered, were recovered from this locale. In contrast, TPs K and L (30 m east, and 40 m north of TP F, respectively) had a variety of raw material types including more milky quartz and silcrete artefacts, fewer elongated flakes/blades and no backed artefacts. The tools in this location are either scrapers or have use wear damage, associated with processing activities more typical of food, wood and animal skin processing activities. Overall, the richness and diversity of an assemblage in this area is usually associated with a longer time at a given place (Shott 1997).

Overall, the findings from this excavation align with previous investigations of the Project area (Section 5.3). That is, areas closer to the lake edge – in particular, around #43-3-0022 – reveal a range of raw materials and activities indicative of repeat and/or longer use in the past. In contrast, the back plain micro-environment – with the possible exception of Gilgai – exhibit little intense use, with the assemblage indicative of transient or ephemeral use in the past.

Plate 6.22 **Examples of Bondi points in the assemblage, recovered from TP F (id=27; id=28), TP16 (id=239), TP F (id=99), TP G (id=46), and TP B (id=131, broken during manufacture) (left to right, scale = 1 cm)**

Plate 6.23 Examples of geometric microliths in the assemblage, recovered from TP F (id=35; id=100) (left to right, scale = 1 cm)

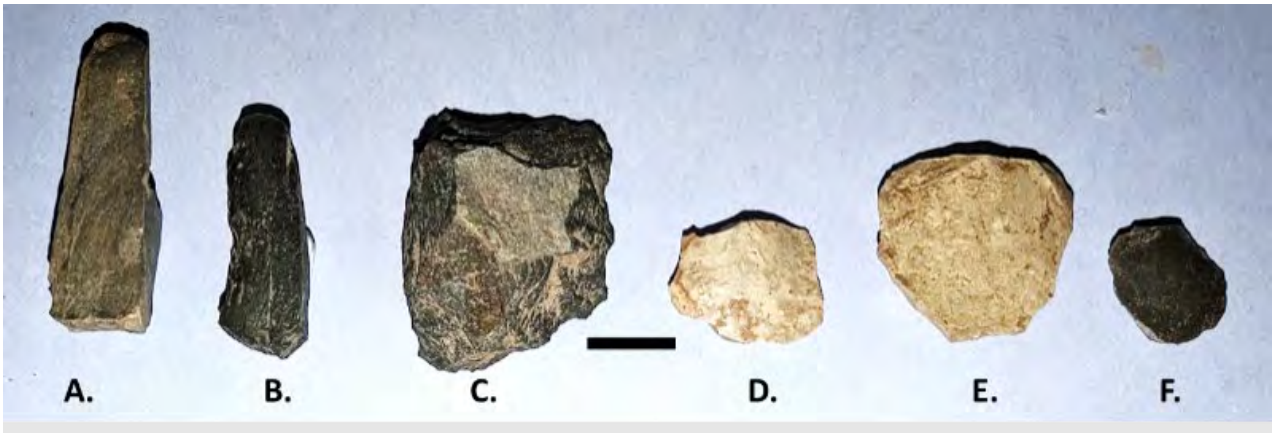


Plate 6.24 Examples of scrapers in the assemblage from TP B (id=139), TP G (id=144; id=253), TP N (id=203), TP L (id=166) and TP G (id=252) (left to right, scale 1 cm)

7 The archaeological resource

7.1 Key findings

- The study area has been subject to over 30 previous archaeological investigations since the 1990s. This has provided substantive foundational information on the nature and distribution of cultural materials across the study area. These have demonstrated that the focus of past activity was on the lake's edge and localised around Gilgai water-holes further inland. Despite over 70 discrete Aboriginal objects and/or sites being documented within the study area, four have been repeatedly referenced as being significant. Of these, three are within the study area, one of which has been previously destroyed by mining activities, and one of which has been reported as destroyed, but which field investigations has demonstrated as extant.

- The assessment undertook cultural mapping, archaeological field survey and test excavations to explore and document the Aboriginal objects, sites and places within the study area, and to align them within the regional context. Overall, the findings largely conformed with the regional model, and reveal high density cultural materials along the lake fringe, with more disparate evidence of visitation and use elsewhere. Additionally, the assessment placed an emphasis on incorporating intangible and cultural values to supplement the observed archaeological record.

- These various site validation activities undertaken over a six-month period, resulted in the duplication and overlap of results presented in Sections 4.3.2, 5.4, 6.2.3 and 6.3.2. When combining and ratifying these findings, there are some 28 documented sites amongst the continuous background distribution of surface and shallowly buried artefacts across the study area. These can be broken down as:

    - One area of past foci and activity (#43-3-0022) characterised by high densities of surface and sub-surface artefacts ($\bar{x}$ = ~52/m^2) and which reflect extensive and/or repeated visitation and occupation by people over the last 5 ka. Based on field observations and the excavation program, this site was considered some ~4 ha (200 x 200 m) in size. At least part of this site has been previously mitigated in the early 2000s, and at some point been described as 'destroyed' on the AHIMS database, but excavations have validated the presence of cultural materials.

    - Two area of moderate stone artefact densities that have been identified by other investigations (#39-4-0313) and/or the Aboriginal participants (CGO AS5).

    - Twenty-two hearths found across the study area, which reflect a single period of past Aboriginal activity - CGO H1; #39-4-0305; #39-4-0318; #39-4-0328; #39-4-0329; #39-4-0330; #39-4-0331; #39-4-0332; #39-4-0274; #39-4-0275; #39-4-0276; #39-4-0277; #39-4-0284; #39-4-0291; #39-4-0292; #39-4-0301; #39-4-0302; #39-4-0273; #39-4-0288; #39-4-0289; #39-4-0290; and #43-4-0055.

    - Two culturally modified trees (#39-4-0311 and #43-4-0035) identified as part of previous investigations of the Project area.

- A stone artefact background scatter that is predicted to occur across the study area and extending beyond its limits within which low artefact densities of ~0.4–5/m^2 may be expected (CGO BS1). This includes a large number of the previously recorded isolated and low density stone artefact sites currently documented across the Project area, including CGO AS1-4, AS6-AS7, and IF1, #39-4-0286, #39-4-0293, #39-4-0294, #39-4-0295, #39-4-0296, #39-4-0297, #39-4-0307, #39-4-0308, #39-4-0309, #39-4-0310, #39-4-0312, #39-4-0313, #39-4-0314, #39-4-0315, #39-4-0319, #39-4-0320, #39-4-0321, #39-4-0322, #39-4-0323, #39-4-0325, #39-4-0326, #39-4-0327, #39-4-0333, #43-4-0024, #43-4-0027, #43-4-0034, #43-4-0035, #43-4-0045, #43-4-0085, #43-4-0086, #43-4-0087, #43-4-0088, #43-4-0089, and #43-4-0092.

- A zone of ~100 m encompassing the lake's edge micro-environment within which higher densities of stone artefacts and/or other areas of past foci may be expected to be present.

7.2 Results and synthesis

7.2.1 Previous investigations

Past studies and previously documented Aboriginal cultural heritage within the surrounding region have been limited. However, there has been an extensive history (~30 years) of archaeological investigation within the study area, and these studies have provided a robust archaeological model of the western edge of Lake Cowal. Specifically, they have demonstrated that the archaeological record Lake Cowal is dominated by stone artefactual sites, with lesser occurrences of hearth features and culturally modified trees. With rare exception, the stone artefact sites have been primarily isolated finds or of low density (<20), and indicative of a repeated, but ephemeral use of the lake's edge. This is perhaps unsurprising given the lake is an ephemeral water body that only fills as a result of periodic flooding in the Lachlan River to the north, and as such provided abundant but temporary resources over the last several thousand years.

These past investigations have developed an archaeological model linked to five environmental zones found across the study area. These included the lake bed, beach and slope zones, all of which are within the lake, and heavily affected by the changing conditions of the lake – and were all submerged at the time of the ACHA investigations. The lake's edge ridge is a slightly elevated narrow band, typically <100 m in width, that fringes and overlooks the lake, and upon which the densest cultural material has been encountered. The majority of the study area is situated in the westernmost zone, the back plain – a peneplain landscape – that was of only ephemerally used in the past, but within which disparate Gilgai (water holes) are present and form localised areas of past resource exploitation and occupation. While developed as part of the some of the earliest investigations of the site, this model has proved remarkably robust, and as outlined below has been re-affirmed by the latest investigations of this ACHA.

The ongoing, but intermittent investigations of the study area, primarily as a result of archaeological mitigation required from the 2003 approval and continuing to present day has resulted in a substantial amount of cultural material being documented; and often collected and mitigated shortly after. Indirectly this piecemeal approach has also resulted in a large number of AHIMS data points being applied with each field campaign resulting in new sites being documented. As outlined in Section 5.4, some 107 sites have been documented within the study area, with 70 in the additional disturbance area (of which 27 have already been mitigated). However, despite over the 30 years of investigation, only four Aboriginal sites have been repeatedly proposed as important and/or significant. These include LC1 (#43-3-0021) and LC2 (#43-3-0022) found as part of the initial works by Cane, Paton and Pardoe and found and consisting of high density stone artefact scatters on the lake's edge ridge. Detailed analysis of these sites suggest that they represented evidence of repeated and/or prolonged occupation, multiple different activities including hunting and food processing, and dating to the late Holocene <5,000 years ago. Both these sites have been destroyed through the development of CGO. More recently, Lake Cowal 2017-023 (#39-4-0313), another high density artefact scatter (comprising 23 artefacts) within an undisturbed portion of the lake edge ridge has also been identified, and which has the potential for subsurface cultural materials.

Finally, a culturally modified tree - LCF_CGO_2020_ST1 (#43-4-0162) – that appeared to have a cache of stone artefacts at its base, but which anecdotal evidence may have formed in part through more recent landowner's activities. This site is some distance south of the study area. Further afield, a range of other scientifically and culturally important sites have been documented, including burials, middens and ceremonial places (see below), although none are documented in the study area. The hearths and culturally modified trees also represent cultural materials that typically have high research and/or cultural value, and for which there are several examples documented across the study area.

The nature of the environment means that the cultural materials encountered are all typically found on the surface, and to a far lesser extent shallowly buried. With the exception of a small number of excavations by Pardoe in the main creek drainage lines – and which are no longer surviving – that recovered deeper deposits, the soil profiles within the study area are typically <40 cm, and often <10 cm. This is evident by salvage excavations at site LC1 (#43-3-0021) within lake's edge micro-environment that revealed only a truncated B2 horizon upon which cultural materials where recovered, and in some instances shallowly buried by recently deposited aeolian unit (Pardoe 2009b: 3). As such, while the field investigations for the ACHA were constrained by visibility, previous investigations have encompassed much of the study area, during periods of drier and visually better conditions, and as such significant new cultural discoveries are considered improbable for the study area.

It must be highlighted that the Project area has been subject to extensive disturbance from the mining activities. This included the initial establishment of the CGO mine, and the subsequent 20 years of archaeological mitigation for various mining related activities. This is evident in the AHIMS database, which indicates at least 30 sites have been previously destroyed, and this is almost certainly an under-estimate given several currently 'valid' sites are clearly within areas of heavy mining activity. Even in recent years, ongoing archaeological mitigation works have investigated and collected cultural material from some 208 ha of the Project area. Prior to this, records are sparse, and would suggest this too would be an under-estimate of the amount of the site that has been subject to archaeological recovery.

7.2.2 The ACHA findings

Despite the previous investigations in the past, an extensive program of ground-truthing was undertaken as part of this assessment, including cultural mapping, archaeological field survey of the study area and test excavations of the additional disturbance area. The aim of these works was to both validate the regional and local models specific to Lake Cowal, and identify any previously undocumented cultural sites, places and/or material.

The cultural mapping undertaken with key knowledge-holders identified six sites and places that held cultural importance to the Aboriginal community (Table 4.1; Figure 4.1). None of these sites are within the Project area, although most are in general proximity of Lake Cowal. The majority of these sites are visible from the edge of Lake Cowal and in contemporary Wiradjuri belief, all six sites were part of their cultural landscape at the time of first European contact, with five of them relating to ceremonial activities. Of note was CGO-CS3 and CGO-CS6, representing a ceremonial site on the southeast bank of Lake Cowal and Wamboyne Mountain to the north of the Project area, respectively. Both are within sight of and relatively close the Project area, but initial discussions with the Aboriginal participants did not indicate that the proposed changes to the view-lines from the Project would result in an indirect impact, nor block any existing connection between these two (or other) identified cultural places.

The field survey identified and/or re-identified 11 previously undocumented Aboriginal sites, places and/or objects across the study area. Two of these sites (#43-3-0022 and #39-4-0313) had been documented during previous archaeological assessments. It should be highlighted that while #43-3-0022 has been previously documented as destroyed, cultural materials were found in the exact location of the original recording, and it is considered to reflect a portion of the site that was not disturbed, mitigated or destroyed in the past. The other sites identified during the field survey were dominated by low to medium density surface stone artefacts (n=9, 82%); one isolated find (n=1, 9%); and one potential hearth site (n=1, 9%). Of note, was CGO AS5, which consisted of a low-moderate density artefact scatter, but included flora and fauna considered of importance to the contemporary Aboriginal participants. With this possible exception (found in the back plain), these findings align closely with the established archaeological model, with only substantive cultural material noted on the lake's edge micro-environment.

The archaeological test excavations were undertaken to explore the subsurface potential for cultural material. These investigations focused on the additional disturbance area, and encompassed portions of the back plain and lake's edge ridge micro-environments. With the exception of one locale, #43-3-0022, the excavations revealed that cultural materials were found in low densities, <5/m^2 (when extrapolated), across the additional disturbance area; and this is reduced to 0.4/m^2 when removing the artefact collected at #43-3-0022. A total of 11 test pits were excavated at #43-3-0022, and recovered some 288 artefacts, with single test pit retaining over 94; and resulting in overall extrapolated artefact densities of ~52/m^2 for the site. The assemblage included a diverse range of tools and raw materials, indicative of extended and/or repeated visitation to the area for both hunting and broader food processing activities over the last 5,000 or so years. Of note, the characteristics of artefacts from TP F that demonstrated a working area for the manufacture and maintenance of hunting weaponry.

Overall, when removing those sites that have been destroyed by development activities, and combining and ratifying the information above, the study area can be considered to encompass the following Aboriginal sites, places and/or objects (Figure 7.1):

- One area of past foci and activity (#43-3-0022) characterised by high densities of surface and sub-surface artefacts ($\bar{x}$ = ~52/m^2) and which reflect extensive and/or repeated visitation and occupation by people over the last 5 ka. Based on field observations and the excavation program, this site was considered some ~4 ha (200 x 200 m) in size. At least part of this site has been previously mitigated in the early 2000s, and at some point been described as 'destroyed' on the AHIMS database, but excavations have validated the presence of cultural materials.

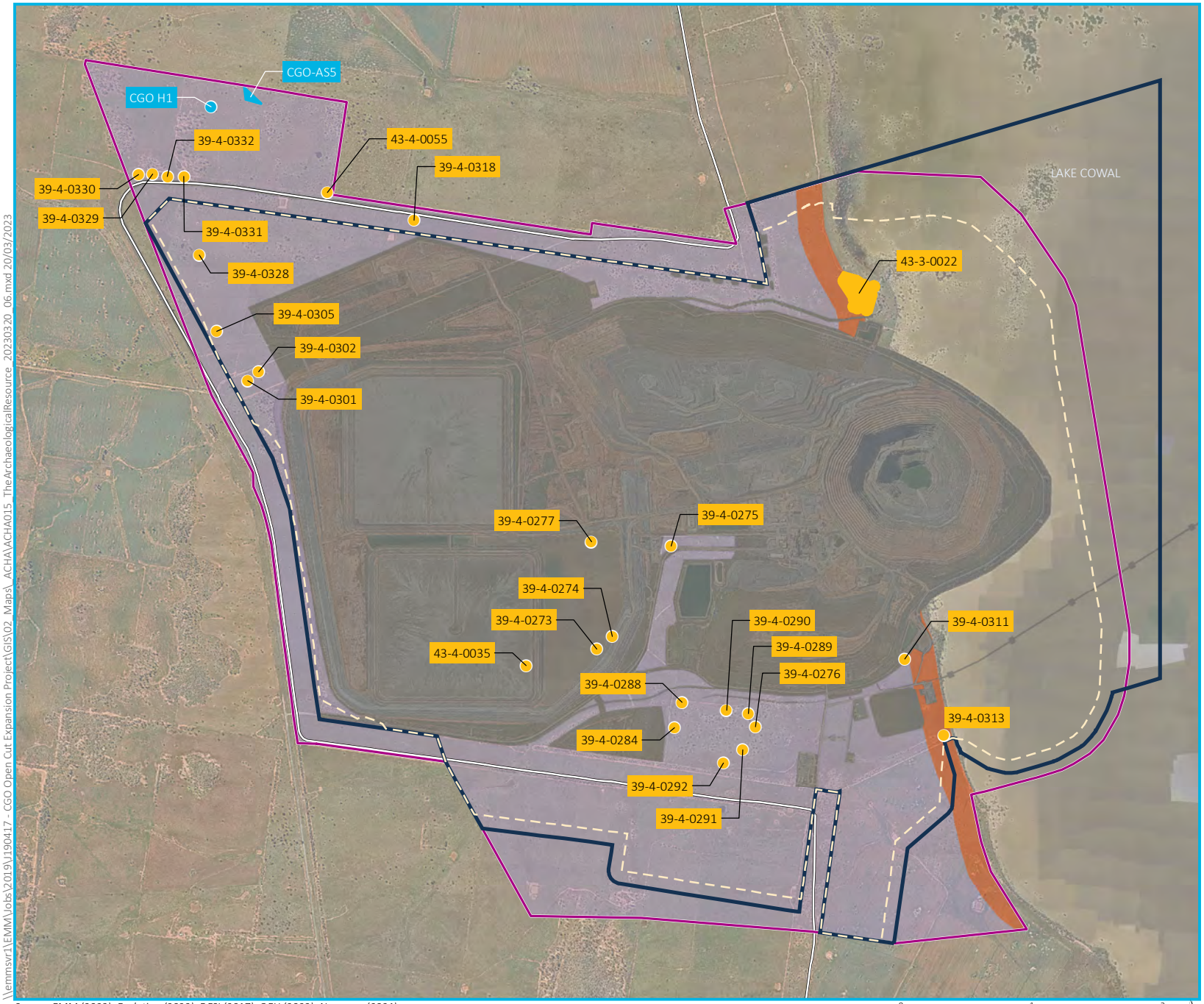
- Two area of moderate stone artefact densities that have been identified by other investigations (#39-4-0313) and/or the Aboriginal participants (CGO AS5). The former was reidentified as part of the fieldwork for this assessment, with more artefacts identified during this phase of work than during the original recording. The latter had limited cultural materials, but included other resources identified as of contemporary value by the Aboriginal participants.

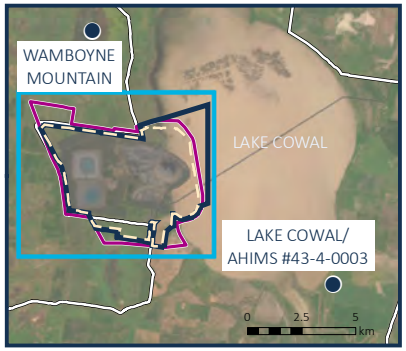
- Twenty-two hearths found across the study area, which reflect a single period of past Aboriginal activity – CGO H1; #39-4-0305; #39-4-0318; #39-4-0328; #39-4-0329; #39-4-0330; #39-4-0331; #39-4-0332; #39-4-0274; #39-4-0275; #39-4-0276; #39-4-0277; #39-4-0284; #39-4-0291; #39-4-0292; #39-4-0301; #39-4-0302; #39-4-0273; #39-4-0288; #39-4-0289; #39-4-0290; and #43-4-0055. These sites typically have a high research potential, since they can provide information on timing of their use and what resources have been cooked. Numerous academic studies have used the systematic investigation of hearths in semi-arid environments to provide important past regional use (e.g. Fanning 1999). However, it must be noted that the limited archaeological excavation of these features at the study area to date, have shown several of them to be formed through natural processes (e.g. burnt tree boles and/or roots), and as such some of these may not be of anthropogenic origin. Further, many of them are in close proximity to the active mining operations, and it is considered that some may have already been lost or destroyed.

- Two culturally modified trees (#39-4-0311 and #43-4-0035) identified as part of previous investigations of the study area. Notably, while an additional culturally modified tree (#43-4-0140) remains valid within the AHIMS system, and is recorded within the proposed additional disturbance footprint, documentation shows this site was salvaged during recent clearance activities in the Project area (Appendix E.1; Table 5.5); it is therefore assumed destroyed and not included here.

- A stone artefact background scatter that is predicted to occur across the study area and extending beyond its limits within which low artefact densities of ~0.4–5/m^2 may be expected (CGO BS1). This includes a large number of the previously recorded isolated and low density stone artefact sites currently documented across the study area, including CGO AS1-4, AS6-AS7, and IF1, AHIMS #39-4-0286, #39-4-0293, #39-4-0294, #39-4-0295, #39-4-0296, #39-4-0297, #39-4-0307, #39-4-0308, #39-4-0309, #39-4-0310, #39-4-0312, #39-4-0313, #39-4-0314, #39-4-0315, #39-4-0319, #39-4-0320, #39-4-0321, #39-4-0322, #39-4-0323, #39-4-0325, #39-4-0326, #39-4-0327, #39-4-0333, #43-4-0024, #43-4-0027, #43-4-0034, #43-4-0035, #43-4-0045, #43-4-0085, #43-4-0086, #43-4-0087, #43-4-0088, #43-4-0089, and #43-4-0092. These sites are typically of low significance and reflect the long-term, transient use of the entire landscape by Aboriginal people in the past.

- A zone of ~100 m encompassing the Lake's edge micro-environment within which higher densities of stone artefacts and/or other areas of past foci may be expected to be present.





KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road
- Ceremonial cultural site
- Lake edge zone (CGO LEZ)
- Background scatter (CGO BS1)

Surveyed Aboriginal site

- Point
- Polygon

Previously registered AHIMS site

- Point
- Polygon

\\emmsvr1\EMM\Jobs\2019\I190417 - CGO Open Cut Expansion Project\GIS\02_Maps_ACHA\ACHA015_TheArchaeologicalResource_20230320_06.mxd 20/03/2023

Source: EMM (2023); Evolution (2023); DFSI (2017); OEH (2023); Nearmap (2021)

0 1 2 km

GDA 1994 MGA Zone 55

N

The archaeological resource

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 7.1

EMM creating opportunities

8 Significance assessment

8.1 General

All Aboriginal objects in NSW are protected under the *National Parks and Wildlife Act 1974*. It is recognised that the destruction of sites may be necessary to allow other activities or developments to occur if they cannot be avoided. For the consent authority to make informed decisions on such matters, an important element of cultural heritage management is determining the significance of cultural heritage places to understand what may be lost and how best it can be mitigated.

Cultural significance is outlined in Article 1.2 of the *Burra Charter* – the best practise document for managing cultural heritage – as 'aesthetic, historic, scientific, social or spiritual value for past, present or future generations' (Australia ICOMOS 2013). These values are reiterated in the NSW guidelines, which determines that cultural significance of a place can be assessed by identifying the values that are present across the subject area and assessing what is important and why (OEH 2011). In assessing the scientific significance of sites, aspects such as rarity and representativeness and the integrity must be considered. Generally speaking, a site or object that is rare will have a heightened significance, although a site that is suitable of conservation as 'representative' of its type will also be significant. Conversely an extremely rare site may no longer be significant if its integrity has been sufficiently compromised.

The criteria adopted for this report are defined in Table 8.1. The management implications of these sites' significance are discussed in subsequent sections.

Table 8.1 A summary of criteria used to assess the cultural significance (OEH 2011, 8–10)

Criterion	Definition
Social value – Does the place have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons?	Social (or cultural) value refers to the spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them. Social or cultural value can only be identified through consultation with Aboriginal people.
Historic value – Is the place important to the cultural or natural history of the local area and/or region and/or state?	Historic value refers to the association of a place with a historically important person, event, phase or activity. Historic places do not always have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). They may have 'shared' historic values with other (non-Aboriginal) communities.
Scientific (archaeological) value – Does the place have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state?	Scientific (archaeological) value refers to the importance of a landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information. Information about scientific values is gathered through archaeological investigation undertaken in this report.
Aesthetic value – Is the place important in demonstrating aesthetic characteristics in the local, regional, and/or State environment?	Aesthetic value refers to the sensory, scenic, architectural and creative aspects of the place. It is often linked with social value, and can consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use. This value is only relevant to archaeological sites on only rare occasions, such as rock shelters that contain art, or culturally modified trees in prominent positions, etc.

8.2 Statement of significance

This assessment identified 28 discrete Aboriginal sites and places within the study area (Table 8.2; Figure 7.1), overlaying a background artefact scatter (CGO BS1) that extends across the site. The background scatter consists of a large number of previously recorded isolated and low density stone artefacts (Table 8.2). Further, the assessment re-affirmed the lake's edge micro-environment as an important focus of past activity. These results align well with the extensive history of previous assessment and investigation of the study area, which have demonstrated a richer archaeological record closer to the edge of Lake Cowal, with cultural materials reducing in both density and complexity when moving further from this zone.

For the purposes of significance assessment, all sites and places have been assigned a classification, even where they are only identified as of tentative identification to allow the ACHA to be completed. It must be highlighted, however, that validation of these sites – some of which are ranked as moderate or high (i.e. regional) importance – may require their significance to be re-classified in the future. A range of recommendations to further clarify the classification of these sites is proposed in Chapter 10 to resolve this uncertainty where required.

When considering the scientific significance, a number of the sites and zones can be considered to have moderate (local) or high (regional) significance with the ability to provide information on the past activities of the area (research potential). These sites can be divided into two categories: hearth sites, and a high-density artefact scatter, #43-3-0022. AHIMS #43-3-0022 has been repeatedly referenced over 30 years of investigation of the site as being significant, but has been subject to limited investigation or mitigation to date. Archaeological excavations undertaken as part of the ACHA have shown this site, adjacent the lake's edge, had high densities of cultural materials with evidence of different activities, down-the-line exchange and/or trade, and potential multiple phases of visitation. It is considered that a range of further research questions exploring both the inter- and intra-site relationships of this site within the local and regional context could be explored should further investigation be undertaken; and as such the site is considered to have high research potential. In the case of hearths, all 22 sites have been highlighted for further validation, as the limited archaeological excavation of these features at the study area to date, have shown several of them to be formed through natural processes (e.g. burnt tree boles and/or roots), and as such some of these may not be of anthropogenic origin. However, should they prove of cultural origin, they would provide an important insight into what resources were being utilised and cooked, and timing of their use – which would provide critical data for a region that lacks a robust chronology of past activities. Further, there are established academic studies that have demonstrated the local and regional information that can be determined from a focus on excavation and dating of hearth features (e.g. Fanning, 1999).

A number of the sites can also be considered to have some rarity and/or representativeness, which forms a part of the significance criterion. While the high-density artefact scatter identified are relatively common at a regional level, there are few documented in the study area, and certainly rarely with the number of artefacts recovered from some of the test pits (e.g. TP F). As such, these can be considered to have a local rarity. Given the general absence of formalised studies in the region, they can also be considered to provide a good representative sample of these types of sites until more research can be undertaken. The potential culturally modified trees, albeit tentatively identified at this stage, are also rare in the regional landscape, and are certainly rare in the study area which has been mostly cleared of vegetation (Chapters 5 and 6).

The remaining identified sites, including the broader background artefact scatter, are considered to have limited, if any research potential (Table 8.2). While important in demonstrating the longevity and continued use of the region by Aboriginal people in the past, it is considered that little further information can be obtained from additional investigation of these sites, places and objects.

No objects, sites or places within the study area have been specifically identified as associated with historical significance (Table 8.2). Likewise, while all the sites have some level of aesthetic significance, but few consider it an intrinsic part of their significance. #43-3-0022 and areas adjacent the lake's edge were likely selected by people in the past, at least in part, due to their aesthetic appeal adjacent to Lake Cowal.

While all the sites form part of a cultural landscape encompassing the region, several of the sites have been identified throughout the ACHA process as particularly important to the local Aboriginal community. These include the cultural places – none of which are within the study area – and areas adjacent the lake's edge, which provided tangible connections to the past occupation and utilisation of the locale.

Table 8.2 provides a summary of the significance values for each Aboriginal object and/or site identified.

Table 8.2 Significance of Aboriginal objects and/or sites identified

Site	AHIMS #	Site type	Brief description	Site status	Significance				
					Scientific	Aesthetic	Historical	Cultural	Overall
Lake Cowal 2017-023	39-4-0313	Medium density artefact scatter	Thirty-seven artefacts identified on a vehicle access track.	Valid	Low	Low	-	Moderate	Moderate
LC2	43-3-0022	High density artefact scatter	An area of past foci containing substantive surface and subsurface artefacts (up to 52/m^2) and reflecting reflect long term and/or repeat visitation and occupation by people over at least the last 5 ka.	Partially destroyed	High	Moderate	-	High	High
CGO-AS5	TBC	Medium density artefact scatter	Forty-one artefacts within an area of patchy exposure, including an access track.	Valid	Low	-	-	Moderate	Moderate
Lake Cowal 2017-047	39-4-0288	Hearth, low density artefact scatter	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-046	39-4-0289	Hearth, low density artefact scatter	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-045	39-4-0290	Hearth, low density artefact scatter	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-030	39-4-0305	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-006	39-4-0318	Hearth, unspecified artefact site	A potential hearth site with artefact(s) recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-019	39-4-0328	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-015	39-4-0329	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate

Table 8.2 Significance of Aboriginal objects and/or sites identified

Site	AHIMS #	Site type	Brief description	Site status	Significance				
					Scientific	Aesthetic	Historical	Cultural	Overall
Lake Cowal 2017-016	39-4-0330	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-017	39-4-0331	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-018	39-4-0332	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-057	39-4-0273	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-058	39-4-0274	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-059	39-4-0275	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-060	39-4-0276	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-061	39-4-0277	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-048	39-4-0284	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-044	39-4-0291	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-043	39-4-0292	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-034	39-4-0301	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate

Table 8.2 Significance of Aboriginal objects and/or sites identified

Site	AHIMS #	Site type	Brief description	Site status	Significance				
					Scientific	Aesthetic	Historical	Cultural	Overall
Lake Cowal 2017-033	39-4-0302	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-068	43-4-0055	Hearth	A potential hearth site recorded during previous investigations.	Tentative	Moderate	-	-	Moderate	Moderate
CGO H1	TBC	Hearth	A potential hearth site identified by Aboriginal participants on a vehicle access track.	Tentative	Moderate	-	-	Moderate	Moderate
Lake Cowal 2017-021	39-4-0311	Culturally modified tree	A potential culturally modified tree recorded by in 2017.	Tentative	Moderate	-	-	Moderate	Moderate
L-C-3	43-4-0035	Culturally modified tree, unspecified artefact site	A potential culturally modified tree recorded by Pardoe in 2009. Presumed destroyed due to recorded location in tailings dam; however, this has not been reflected in the AHIMS database.	Tentative	Moderate	-	-	Moderate	Moderate
CGO LEZ	TBC	Heritage focus area – cultural deposit	An area of past foci on the lake's edge incorporating the lake's edge ridge management zone. Several sites have been identified in this zone including #39-4-0313 and #43-4-0022.	Valid	Moderate	Moderate	-	High	High

Table 8.2 Significance of Aboriginal objects and/or sites identified

Site	AHIMS #	Site type	Brief description	Site status	Significance				
					Scientific	Aesthetic	Historical	Cultural	Overall
CGO BS1	see note 6	Low density artefact scatter	A stone artefact background scatter across the back plain zone within which artefact densities of ~0.4–5/m^2 may be expected and reflecting long-term, transient use of the region for at least 5 ka.	Valid	Low	-	-	Low	Low

Notes:
1. Values are only assigned where the site fulfils that specific criterion.
2. In the case of the cultural criterion, it is ranked in relation to whether the site is important to one individual (low), a mixed view from the Aboriginal participants (moderate) or broad-scale support from all stakeholders (high). Further details are presented in Section 5.3 and Appendix D.
3. Cultural sites rankings are based on the cultural mapping report presented in Appendix D. While all sites identified were of value to the Aboriginal participants, some were clearly of more significance than others. Greater significance was also given to those that had broader regional analogues.
4. Sites requiring further investigation and/or validation, are ranked based on the assumption the site proves valid. However, their significance should be revisited when further analysis and classification of them occurs. These values are presented in red to demonstrate their tentative status.
5. The overall significance is comparable with the highest ranking achieved in any of the four main criteria.
6. CGO BS1 incorporates CGO AS1-4, AS6-AS7, IF1, and the following AHIMS sites: #39-4-0286, #39-4-0293, #39-4-0294, #39-4-0295, #39-4-0296, #39-4-0297, #39-4-0307, #39-4-0308, #39-4-0309, #39-4-0310, #39-4-0312, #39-4-0313, #39-4-0314, #39-4-0315, #39-4-0319, #39-4-0320, #39-4-0321, #39-4-0322, #39-4-0323, #39-4-0325, #39-4-0326, #39-4-0327, #39-4-0333, #43-4-0024, #43-4-0027, #43-4-0034, #43-4-0035, #43-4-0045, #43-4-0085, #43-4-0086, #43-4-0087, #43-4-0088, #43-4-0089, and #43-4-0092.

9 Impact assessment

9.1 Key findings

- The Project would consist of the expansion and continuation of open pit mining operations at CGO, and includes the Stage 1 cutback of the E42 pit, the development of three new satellite open pits to the north and south of the existing open pit, the northern expansion of the IWL, expansion of the LPB and existing southern and northern waste rock emplacements and a number of ancillary activities including soil stockpiling. The proposed additional disturbance area would result in the impact of some 1,031 ha.

- Of the 28 identified sites, 19 would be would be subject to direct impacts that would result in the complete loss of value (#39-4-0313, #43-3-0022, #39-4-0288, #39-4-0289, #39-4-0290, #39-4-0305, #39-4-0328, #39-4-0273, #39-4-0274, #39-4-0275, #39-4-0276, #39-4-0277, #39-4-0284, #39-4-0291, #39-4-0292, #39-4-0301, #39-4-0302, #39-4-0311, and #43-4-0035). In addition, the Project would directly impact some ~34 ha (55%) of areas of high archaeological sensitivity near the edge of Lake Cowal (CGO LEZ). A low-density stone artefact background scatter (CGO BS1) is considered present across most of the additional disturbance area and would also be adversely affected. No sites identified through the cultural values investigation would be affected.

- While the Project would result in intergenerational/cumulative loss to cultural materials, it is considered that there would be some cultural heritage benefits. These include the long-term curation of substantive cultural material that may be submitted to future academic research and study, a greater understanding of the past and contemporary values in the region, new 'created' Aboriginal spaces and opportunities for heritage interpretation and public outreach.

9.2 Project impacts

As outlined in Chapter 1, the Project is seeking approval for the continuation, through expansion, of the existing CGO operation at Lake Cowal. This includes the development of three new satellite open pits to the north and south of the existing open pit, the northern expansion of the IWL, expansion of the LPB and existing southern and northern waste rock emplacements and a number of ancillary activities including soil stockpiling (Section 1.2). Many of these activities would be occurring in areas previously approved for mining via DA14/98 (~1,714 ha). However, the Project is seeking approval for a proposed disturbance footprint of ~1,031 ha in areas adjacent to the active mine.

While some design details remain in development, construction and progressive mine development activities would generally require the removal of vegetation within the additional disturbance footprint and result in impacts to the upper soil profile. Activities such as new open pits would require extensive earthworks extending deep into bedrock, and thereby will result in the total removal of the upper soil profile, within which cultural material was typically documented. The ancillary activities would require less disturbance, but even stockpiling can have adverse effects on the under-lying ground surface due to increased vehicle movement and compression, etc. This is particularly applicable to the Project area, which has demonstrated shallow and highly eroded soils, where the cultural materials are often found on the surface or shallowly buried. All of these activities would require removal of trees and other surface debris (e.g. loose stones, etc) prior to establishment. Based on this, it is considered that any activities in the additional disturbance footprint would result in complete harm/impact to any identified Aboriginal objects or sites within it.

9.3 Aboriginal heritage impact

Generally, two types of potential impact are considered, direct and indirect. Direct impacts relate to the construction activities and their removal, truncation and/or disturbance of the ground surface. This would include the removal of vegetation, removal or modification of geological outcropping and the removal or disturbance of the upper soil profile. Indirect impacts are the result of both construction and post-construction activities that may result in environmental changes that would affect cultural material within, or near the Project activities. General examples of indirect impact may include the changing view-lines to a site where visibility to/from it is part of its values, or an increase in dust being blown into a rock shelter and negatively affecting art motifs should they be present.

All cultural material identified within the study area was either identified on the current land surface and/or buried within the upper ~0.1–0.5 m of the soil profile. As outlined in Section 10.2, several of the Project activities would result in direct impacts to these sites and deposits where situated within the additional disturbance area (Table 9.1).

Specifically, of the 28 identified sites within the EIS study area, 19 would be would be subject to direct impacts that would result in the complete loss of value (#39-4-0313, #43-3-0022, #39-4-0288, #39-4-0289, #39-4-0290, #39-4-0305, #39-4-0328, #39-4-0273, #39-4-0274, #39-4-0275, #39-4-0276, #39-4-0277, #39-4-0284, #39-4-0291, #39-4-0292, #39-4-0301, #39-4-0302, #39-4-0311, and #43-4-0035). These consists of 14 potential hearths, two culturally modified trees, and two significant stone artefact sites. However, many of these sites only have a tentative classification at this stage, and some are within areas of ancillary activities where minor design changes may result in their conservation. Importantly of the six sites avoided, CGO AS5 that was considered of cultural value by the Aboriginal participants will remain unaffected, as well as several potential hearths.

In addition, the assessment identified significant surface and buried cultural material identified on the lake's edge zone (CGO LEZ). Of the ~62 ha that comprises this feature, some 34 ha (55%) would be directly affected primarily by the establishment of three new open pits and ancillary activities associated with these (namely, E46 and GR pits to the north, and E41 pit to the south). Notably within this zone, #43-3-0022 will be directly affected by the establishment of, and ancillary activities associated with, the new open pit E46. Similarly, to the south, #39-4-0313 will be directly affected by the establishment of, and ancillary activities associated with, the establishment of the southern extent of the expanded LPB. Proposed impacts to both discrete sites will result in complete loss of value of these sites, and redesign does not seem feasibly given their close proximity to the existing mine and location within the additional disturbance areas.

As demonstrated in Chapter 8, the Project area is considered to encompass a low-density stone artefact background scatter of ~0.4–5 artefacts/m^2 (CGO BS1). Stone artefacts were either found as isolated objects and/or low-density artefact scatters as part of the field survey and/or as part of the test excavations. These findings reflect the background discard/loss and transient movement across the landscape over several millennia but are considered to have limited archaeological significance. It would be expected that this background scatter would be impacted by several proposed Project activities, to the order of some 620 ha (54%) of this site being lost.

None of the identified cultural sites would be adversely affected by the Project. None are within the Project area, and those nearby would not result in any indirect impacts based on discussions with Aboriginal participants. In relation to cultural flows, surface and hydrological data developed for the EIS and presented separately indicate only negligible changes. Lake level data suggests an overall change of <2 cm, while flow velocities that may result in erosion or progradation of the shore-line appear to slow by ~0.03 m/second (ATC Williams 2023). These velocities are considered unlikely to result in any physical change to the lake's shoreline.

9.4 Intergenerational loss/equity

Ecologically sustainable development, or intergeneration equity, is the principle whereby the current generation should maintain the health, diversity and longevity of the environment for the benefit of future society. For Aboriginal heritage management, intergenerational equity can be considered primarily in terms of the cumulative impacts to Aboriginal objects, sites and/or places in a region. If few Aboriginal objects and places remain in a region (e.g. due to development impacts), there are fewer opportunities for future generations of Aboriginal people and the broader community to enjoy the cultural benefits. Information about the integrity, rarity and representativeness of the Aboriginal objects, sites and places that may be impacted, and how they inform the past visitation and occupation of land by Aboriginal people, are relevant to the consideration of intergenerational equity and the understanding of the cumulative impacts of a project. While not directly related to the ACHA process, such (future) impacts are also a critical issue for consideration under the *Native Title Act 1993* (see Appendix A for brief discussion).

Historically, the CGO operation has resulted in the loss and impact to a number of Aboriginal objects and sites. This has occurred systematically over the last 20 years as the operation has developed and expanded. However, with one exception, LC 1 (#43-3-0022), most consisted of isolated or low density stone artefacts often in disturbed contexts. It must also be noted that an extensive program of archaeological recovery and mitigation has occurred over the last 20 years to offset these impacts and ensure the retention of the cultural materials, and ongoing engagement and support of the local Aboriginal community.

Overall, the Project would potentially result in the destruction of 19 identified Aboriginal sites, objects and/or places, as well as various amounts of buried stone or artefactual material (Section 9.3). These consists of 14 potential hearths, two culturally modified trees, and two significant stone artefact sites. Notably, it is likely that one of the culturally modified trees has previously been destroyed. Many of these sites have been assigned a tentative identified status, namely hearths and culturally modified trees, and further investigation is required to validate them. In the case of significant buried stone artefactual material, #43-2-0022 and #43-3-0313 would be lost, as well as portion of the zone of heritage interest near the edge of Lake Cowal will be partially affected. This amounts to some ~34 ha (55%) of known areas of past foci/occupation and considered of moderate scientific and high cultural value. While #43-2-0022 has been previously subject to archaeological mitigation and indicated as destroyed on the AHIMS database, additional investigations as part of this ACHA has demonstrated cultural deposits remain within the locale.

In contrast, several key sites and places will be avoided or only minimally affected by the Project. These include CGO AS 5, identified as of cultural value by the Aboriginal participants, and all of the locales identified through the cultural value mapping. Proportions of the lake's edge ridge landform – which extends along the lake's edge outside the Project area – would also be unaffected. While two sites of cultural value, CGO CS3 and CGO CS6 are within sight of the mine, the proposed continuation would result in negligible visual change to the existing view-lines; and discussions with the Aboriginal participants did not indicate any concerns with visual changes being proposed during the investigations.

While the Project will result in loss of cultural materials, it must however be acknowledged that increasingly, engagement on this topic is seeking to move beyond the material culture to a more holistic consideration of heritage. Holtorf (2015:412) states:

> The acts of changing, destroying or replacing a heritage object in the landscape can all be seen as forms of interpreting, using and transforming this heritage…..The core values of heritage are increasingly deemed to reside in the meanings and values humans invest in heritage objects, not in their physical substance.

And (Holtorf 2015:408):

> …maintenance of the status quo of cultural heritage is widely perceived as being superior to any loss or possible substitution of that cultural heritage. But is it really justified in the interest of present or future generations to prioritise the conservation of existing cultural heritage over the prospect of gaining new cultural heritage [or knowledge of, and engagement with, that cultural heritage]?

Holtorf is not alone in his views, with DeSilvey and Harrison (2020:3-5) similarly stating:

> These kinds of statements about the future appear to normalise and lend moral weight to the mission of conservation practice, whilst detracting from a consideration of how the salvage paradigm in heritage is fundamentally premised on a system which is equally implicated in the sacrifice and loss of certain less valued cultural and natural formations alongside the preservation or conservation of more valued ones…
>
> Increasingly, heritage scholars are adopting integrated approaches to examine the politics of loss in both cultural and natural heritage contexts. A recent study of the effects of sea level rise on Kiribati, a low-lying island nation in the Pacific Ocean, for example, engages with questions about the extent to which an indigenous, largely oral culture can be 'preserved' outside its 'natural' and dynamic setting.
>
> …point to both the inevitability and the creative potential of loss and change. Such observations seem inescapable for heritage in light of the current recognition of the Anthropocene… it is clear that the more sophisticated ways of understanding, anticipating and engaging forms of heritage loss outlined here point not only to challenging new ways of 'doing' and practising natural and cultural heritage preservation, conservation and management but also map out important new lines of enquiry for heritage studies in the future.

When considering the potential impacts from this perspective, the current and proposed impacts of the Project and associated material culture loss, can be considered to have some benefits. In the first instance, the decades of investigations of the Project area, almost exclusively in relation to the development of the CGO over time, have significantly improved our archaeological and scientific understanding of a previously poorly understood region. Information on the past peopling and their activities within the Project area have now come to light, as well as an improved understanding of contemporary sites and values. Such information will only be added to and further refined through future stages of the Project (see Chapter 10).

Further this Project also provides the Aboriginal community with additional engagement and on-Country activities, such as salvage excavations, opportunities to undertake heritage interpretation, development of narratives and visual representation of Aboriginal values, stories and places for the Project area – something that is currently lacking from the Bland Shire LGA. This would improve understanding and public outreach of cultural heritage to the broader community into the future. The Aboriginal participants have also expressed a desire to remain involved in the Project and continue to access the broader Project area (notably Lake Cowal) and visit/maintain the identified Aboriginal sites and places into the future. As such, the Project can enable and support an ongoing connection to Country for the local Aboriginal community, which has previously not been readily available in the past. Assuming these opportunities are realised, the Project provides an important continuation and re-imagining of cultural heritage of the region for future generations.

Table 9.1 Summary of potential impacts to Aboriginal objects and/or sites.

Site	AHIMS #	Site type	Status	Significance	Type of harm	Location and/or activity causing harm	Degree of harm	Consequence of harm	Notes
Lake Cowal 2017-023	39-4-0313	Medium density artefact scatter	Valid	Moderate	Direct	Southern extent of expanded LPB and UCDS (south)	Whole	Complete loss of value	
LC2	43-3-0022	High density artefact scatter	Partially destroyed	High	Direct	E46 pit and subsequent E46 WRE	Whole	Complete loss of value	
CGO-AS5	TBC	Medium density artefact scatter	Valid	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
Lake Cowal 2017-047	39-4-0288	Hearth, low density artefact scatter	Tentative	Moderate	Direct	Southern WRE	Whole	Complete loss of value	
Lake Cowal 2017-046	39-4-0289	Hearth, low density artefact scatter	Tentative	Moderate	Direct	Southern WRE	Whole	Complete loss of value	
Lake Cowal 2017-045	39-4-0290	Hearth, low density artefact scatter	Tentative	Moderate	Direct	Southern WRE	Whole	Complete loss of value	
Lake Cowal 2017-030	39-4-0305	Hearth	Tentative	Moderate	Direct	UCDS (north) and soil stockpiles	Whole	Complete loss of value	
Lake Cowal 2017-006	39-4-0318	Hearth, unspecified artefact site	Tentative	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
Lake Cowal 2017-019	39-4-0328	Hearth	Tentative	Moderate	Direct	Soil stockpile	Whole	Complete loss of value	

Table 9.1 Summary of potential impacts to Aboriginal objects and/or sites.

Site	AHIMS #	Site type	Status	Significance	Type of harm	Location and/or activity causing harm	Degree of harm	Consequence of harm	Notes
Lake Cowal 2017-015	39-4-0329	Hearth	Tentative	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
Lake Cowal 2017-016	39-4-0330	Hearth	Tentative	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
Lake Cowal 2017-017	39-4-0331	Hearth	Tentative	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
Lake Cowal 2017-018	39-4-0332	Hearth	Tentative	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
Lake Cowal 2017-057	39-4-0273	Hearth	Tentative	Moderate	Direct	Northern IWL	Whole	Complete loss of value	
Lake Cowal 2017-058	39-4-0274	Hearth	Tentative	Moderate	Direct	Northern IWL	Whole	Complete loss of value	
Lake Cowal 2017-059	39-4-0275	Hearth	Tentative	Moderate	Direct	Stockpiles	Whole	Complete loss of value	
Lake Cowal 2017-060	39-4-0276	Hearth	Tentative	Moderate	Direct	Southern WRE	Whole	Complete loss of value	
Lake Cowal 2017-061	39-4-0277	Hearth	Tentative	Moderate	Direct	Northern IWL	Whole	Complete loss of value	

Table 9.1 Summary of potential impacts to Aboriginal objects and/or sites.

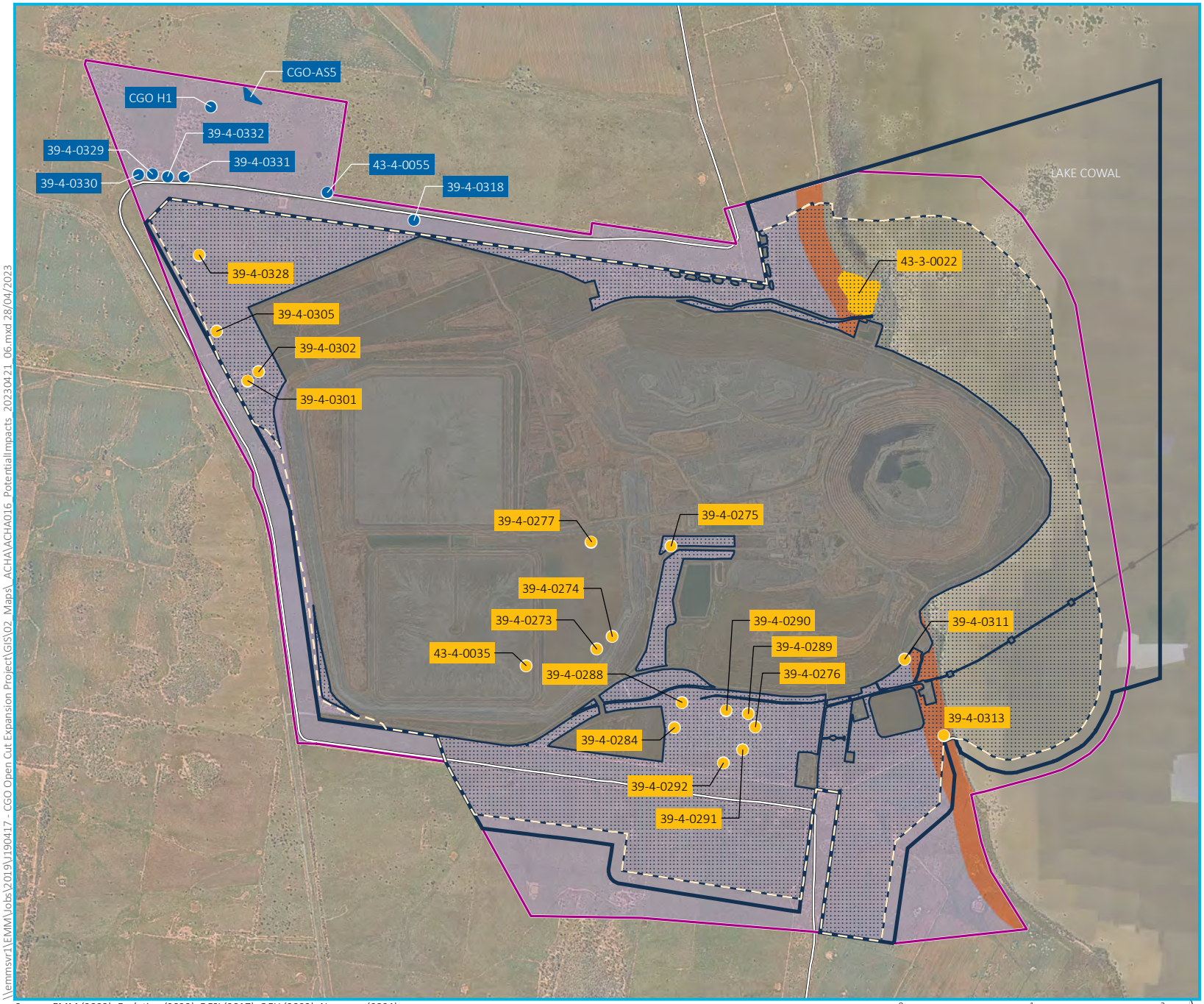
Site	AHIMS #	Site type	Status	Significance	Type of harm	Location and/or activity causing harm	Degree of harm	Consequence of harm	Notes
Lake Cowal 2017-048	39-4-0284	Hearth	Tentative	Moderate	Direct	Waste Rock Dump - Southern	Whole	Complete loss of value	
Lake Cowal 2017-044	39-4-0291	Hearth	Tentative	Moderate	Direct	Waste Rock Dump - Southern	Whole	Complete loss of value	
Lake Cowal 2017-043	39-4-0292	Hearth	Tentative	Moderate	Direct	Waste Rock Dump - Southern	Whole	Complete loss of value	
Lake Cowal 2017-034	39-4-0301	Hearth	Tentative	Moderate	Direct	Northern IWL	Whole	Complete loss of value	
Lake Cowal 2017-033	39-4-0302	Hearth	Tentative	Moderate	Direct	Northern IWL	Whole	Complete loss of value	
Lake Cowal 2017-068	43-4-0055	Hearth	Tentative	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
CGO H1	TBC	Hearth	Tentative	Moderate	-	-	-	-	This site is situated within the EIS study area but outside the proposed disturbance area.
Lake Cowal 2017-021	39-4-0311	Culturally modified tree	Tentative	Moderate	Direct	Pit E41	Whole	Complete loss of value	
L-C-3	43-4-0035	Culturally modified tree, unspecified artefact site	Tentative	Moderate	Direct	IWL - Stage7	Whole	Complete loss of value	This site is located within an existing tailings dam, and is likely already destroyed.

Table 9.1 Summary of potential impacts to Aboriginal objects and/or sites.

Site	AHIMS #	Site type	Status	Significance	Type of harm	Location and/or activity causing harm	Degree of harm	Consequence of harm	Notes
CGO LEZ	TBC	Heritage focus area – cultural deposit	Valid	High	Direct	All activities to east	Partial	Partial loss of value	Some 34 ha (55%) of the site would be directly impacted by development activities.
CGO BS1	see note 2	Low density artefact scatter	Valid	Low	Direct	All activities to north, south and west	Partial	Partial loss	This site is considered to extend across the Project area and extend beyond it. Overall, the Project disturbance area, the Project would impact some 620 ha (54%) of this site.

Notes: 1. The type, degree and consequence of harm definitions are based on DECCW's *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW*.

2. CGO BS1 incorporates CGO AS1-4, AS6-AS7, IF1, and the following AHIMS sites: #39-4-0286, #39-4-0293, #39-4-0294, #39-4-0295, #39-4-0296, #39-4-0297, #39-4-0307, #39-4-0308, #39-4-0309, #39-4-0310, #39-4-0312, #39-4-0313, #39-4-0314, #39-4-0315, #39-4-0319, #39-4-0320, #39-4-0321, #39-4-0322, #39-4-0323, #39-4-0325, #39-4-0326, #39-4-0327, #39-4-0333, #43-4-0024, #43-4-0027, #43-4-0034, #43-4-0035, #43-4-0045, #43-4-0085, #43-4-0086, #43-4-0087, #43-4-0088, #43-4-0089, and #43-4-0092.



KEY

- EIS study area
- Project area
- Proposed OPC disturbance footprint
- DA14/98 approved surface disturbance
- Major road
- Lake edge zone (CGO LEZ)
- Background scatter (CGO BS1)
- Direct impact area

Potentially impacted Aboriginal sites

- Point
- Polygon

Aboriginal sites outside the proposed disturbance footprint

- Point
- Polygon

\\emmsvr1\EMM\Jobs\2019\I190417 - CGO Open Cut Expansion Project\GIS\02_Maps_ACHA\ACHA016_PotentialImpacts_20230421_06.mxd 28/04/2023

Source: EMM (2023); Evolution (2023); DFSI (2017); OEH (2023); Nearmap (2021)

0 1 2 km

GDA 1994 MGA Zone 55

N

Potential project impacts to Aboriginal heritage

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Aboriginal Cultural Heritage Assessment
Figure 9.1

EMM creating opportunities

10 Management strategy and recommendations

10.1 Key findings

- The ACHA concludes that 28 Aboriginal objects and/or sites are within the study area, along with a complex landscape of buried stone artefactual material (Chapter 8). Of the identified sites, up to 19 would be directly affected by the Project, being within the additional disturbance area. Some 34 ha (55%) of identified areas of high artefact densities would also be directly affected, in addition to 620 ha (54%) of the low-density stone artefact background scatter that is considered present across the entire Project area.

- A series of investigative actions are proposed to validate the identification of several of the sites that cannot be robustly identified as cultural heritage without specialist input and/or further archaeological research (Section 10.2). General discussion on the methods and approaches to some of the mitigation measures is also undertaken (e.g. the scale and scope of future archaeological excavations).

- Recommendations are proposed for inclusion in the Project approval to offset the resulting cumulative impact to cultural materials and to guide post-approval requirements for Aboriginal heritage (Section 10.3). These include the need to relinquish existing permits, and ensure any outstanding conditions are met; the development of an Aboriginal Cultural Heritage Management Plan (ACHMP) to provide a framework for such activities, as well as direction on its content including additional archaeological investigation and recovery of significant cultural materials; the development of an Interpretation Strategy and Plan to provide acknowledgement and other visual/educational opportunities for the Aboriginal and broader local community.

10.2 Management strategy

10.2.1 Summary of findings and impacts

The assessment outlined in the preceding sections, including Aboriginal consultation with three Wiradjuri traditional owner groups, included cultural mapping, field survey and test excavations. Each of these activities identified various areas and locales of archaeological and/or cultural value.

Ultimately, on ratifying this data, some 28 Aboriginal objects and/or potential sites were identified within or near the Project area, as well as a complex pattern of surface and buried stone artefactual material notably along the edge of Lake Cowal. The identified sites include a ~4 ha areas of past foci, #43-3-0022, that has been repeatedly referenced in the last 20 years of investigation, a more recently identified high density stone artefact scatter, #43-3-0313, a substantive number of potential hearths, and a single culturally modified tree. As well as these identified sites, a substantial number of stone artefacts both on the surface and buried, typically shallowly within the upper 0.2 m of the soil profile were documented. These were divided into two main zones:

- A zone of ~100 m encompassing the Lake's edge micro-environment (CGO LEZ) within which higher densities of stone artefacts and/or other areas of past foci may be expected to be present Within this zone, a number of discrete sites have been identified, with the most significant of these being #42-3-0022, within which ≥52 artefacts/m^2 may be expected.

- The remainder of the Project area where a background scatter of artefacts ~0.4–5/m^2 would be expected and considered to reflect the transient use of the region for ≤5 ka. During the field survey, a number of isolated objects and/or low density artefact scatters were documented separately (Section 6.2.3), but these were ultimately integrated into CGO BS1.

Of the identified sites, up to 19 would be directly affected by the Project, including the significant site, #43-3-0022. Some 34 ha of identified areas of high archaeological sensitivity would also be directly affected. Given these findings and the potential impacts – both Project-specific and cumulative – additional Aboriginal heritage requirements and mitigation activities are proposed for subsequent stages of the Project and these are incorporated into the recommendations below.

10.2.2 Further investigations to be undertaken

Several of the sites have, however, been identified only tentatively, lacking archaeological information that would allow their classification as an Aboriginal object or site. These are primarily hearths, which previous excavations on the site (Section 5.3) have demonstrated can be formed by natural processes, such as burning of a tree limb or root system. To a lesser extent, the culturally modified tree also require further validation, since scarring can also occur via natural processes, such as lightning strike or limb tear. Given the uncertainty in relation to these sites, it is recommended that additional specialist investigations are undertaken prior to the Project commencement to clarify their status, and ultimately the management of these sites. Such analysis would involve a brief, compact site mobilisation (~1 week) and should include, but not be limited to:

- Culturally modified trees – these trees should be subject to inspection by an arboriculturist to provide further advice. Typically, an arboriculturist would provide advice on the age of the tree – having to be at least 130 years old to intersect with known traditional tree scarring practises – and identify whether natural mechanisms may explain the scar in question. Where a natural explanation can be identified, the site can be discounted as an Aboriginal site and would no longer form a potential constraint to the Project. Where the arboriculturist cannot provide a natural explanation, it provides increasing evidence that the site is of cultural origin and should be treated as an Aboriginal site with suitable management and mitigation measures.

- Hearths – determining hearths can be problematic, and natural processes (e.g. burnt tree boles and/or roots) can often be mistaken for anthropogenic burning. The primary method to interrogate these sites would include further excavation of these features, where a half section would be first excavated, sampled, and recorded in detail, before subsequent excavation of the whole feature where further salvage is required. During the excavation, there would be a focus on collecting samples for laboratory analysis to determine anthropogenic or natural origin (e.g. the presence of animal lipids and/or stone artefactual material). Similarly to the above, where a natural explanation can be identified, the site can be discounted as an Aboriginal site and would no longer form a potential constraint to the Project.

10.2.3 Post-approval requirements

In NSW, Aboriginal objects are provided with statutory protection by the *National Parks and Wildlife Act 1974*. In general, where a proposed activity will result in harm to an Aboriginal object, an application must be made, and an Aboriginal Heritage Impact Permit (AHIP) must be granted before any harm may occur. If granted, the AHIP will contain conditions intended to manage and mitigate the identified impact and allowing harm to proceed. As the Project is an SSD project, an AHIP is not required. The identified harm and any mitigation measures will instead be assessed through the EIS and, if consent to harm is granted, included within the Project's conditions of approval. The conditions of approval of a SSD project generally incorporate Aboriginal heritage management requirements based on advice from Heritage NSW, and the recommendations of this assessment (Section 10.3).

For the purposes of this Project, recommendations below include the need to liaise with Heritage NSW and relinquish the existing AHIPs extending across the Project area (Figure 5.2), and which would result in a conflict with any new approval obtained. Three AHIPs (or equivalent) currently exist: Consent 1467/Permit 1468, issued 27 November 2002 (no expiry); Consent 1680/Permit 1681, issued 28 July 2003 (no expiry); and AHIP C0004570, issued 27 June 2019. These AHIPs have ongoing conditions and requirements in relation to ongoing field investigations, reporting and management and curation of cultural materials. These outstanding/ongoing conditions should be reviewed, and where relevant incorporated into the proposed Aboriginal cultural heritage management plan (ACHMP) outlined below. Similarly, where relevant, the ACHMP should incorporate existing agreements between Evolution and the Wiradjuri Condobolin Corporation (WCC) as part of Native Title requirements undertaken in the early 2000s (related to NC02/03, N6002/02). These include capacity building and community support, as well as ongoing consultation, involvement and co-design of cultural heritage management activities at the site.

In addition, recommendations below include the further validation of the tentative site listings (Table 8.2), and the development of an ACHMP to provide the post-approval management framework for all future Aboriginal heritage requirements for the Project. The recommendations also outline the further specific mitigation measures to be included in the ACHMP that should be implemented prior to and through the Project life. These include measures to further explore the subsurface potential of the lake's edge zone (CGO LEZ) through an excavation sampling program; investigate and salvage (conservation *ex situ*) areas of high research potential (#43-3-0022 and #39-4-0313); archival recording of all identified sites subject to impact, any other recovery and/or collection procedures; completing any post-excavation analyses and reporting, and lodging the various documentation with appropriate public repositories.

Any additional excavations will require the full support of the Aboriginal participants in the Project. These should focus on #43-3-0022, #43-3-0313 and the lake's edge micro-environment – all of which are interconnected and frequently overlap. While the specific methodologies and quantum of these excavations would be developed as part of the ACHMP in consultation with the Project team and Aboriginal participants, a number of guiding principles should be adopted, including:

- Investigative phase – the excavations undertaken as part of the ACHA were disparate and widely spaced to maximise investigation of the additional disturbance area. As such, an additional stage of investigative test pits across the areas of high artefact density is needed to identify places within its curtilage that contain the most significant parts of the deposit. Such works should use a high-resolution systematic grid of test pits spaced 10-20 m across targeted sections of the disturbance footprint. Excavations should be undertaken manually in discrete test pits (1 m^2), use 10 cm spits for recovery, sieve all sediment through a 5 mm mesh, recover suitable palaeo environmental and chronological sampling, and undertake appropriate recording.

- Salvage phase – once the test pits containing the highest significance are identified, archaeological salvage excavation (conservation *ex situ*) of the area/s should be undertaken. Depending on the number of high value locales and the nature of the impacts, salvage excavation may focus on some or all of these test pits. In accordance with current best practice, all salvage works should consist of initially 25 m^2 of contiguous open area excavation centred on the test pit/s of interest and expanding up to 100 m^2 where suitable thresholds are met (e.g. continuing high density of artefact numbers, unique characteristics, etc). Excavations should be undertaken manually in discrete test pits (0.25–1 m^2), use 5 cm spits for recovery, sieve all sediment through a 3 mm mesh, recover suitable palaeo environmental and chronological sampling, and undertake appropriate recording.

- Post-excavation analysis and reporting – a suitable program of analysis of the recovered samples and assemblage should be undertaken and reported upon to provide 'preservation by record'. Analysis should include processing of chronological samples (e.g. optically stimulated luminescence, radiocarbon), palaeo environmental samples (e.g. particle size, geochemistry, pollen analysis, etc), and stone tool analysis. The potentially long construction timeframes of this Project significantly increase the risk of cultural materials being lost or misplaced, and as such, as part of the post-excavation analysis of any works, the short- and long-term curation of any cultural materials needs to be suitably discussed and documented.

In the case of the background artefact scatter, no further mitigation measures are recommended. It has been demonstrated that ~0.4–5 artefacts/m^2 would be expected across the Project area, which reflects the ephemeral use of the region by Aboriginal people for several millennia. Given nearly 20 years of collection, recovery and storage of these types of cultural deposits, it is considered that further investigation of these areas would not alter the significance or understanding of these cultural deposits.

In addition to the tangible cultural materials within the Project footprint, a wide range of intangible and cultural values were identified which the RAPs frequently had more interest and concern about. To address and further explore these values, it is recommended that an interpretation strategy, interpretation plan, and their implementation be developed to explore, develop and present Aboriginal heritage values of the site. Given the inaccessibility at the Project area, the documents should explore off-site public outreach opportunities at nearby townships such as West Wyalong or Condobolin. These documents should focus on three main areas of Aboriginal heritage:

1. the ethnographic and historical record, which includes post-Contact and contemporary associations with the site and immediate environs

2. consultation and input from the RAPs

3. information obtained from the archaeological excavations and findings undertaken for the Project on the cultural and environmental landscape within which past Aboriginal people interacted with in the past.

The cultural values mapping study also highlighted the importance of cultural flows within and near Lake Cowal. Surface and flood water data developed for the Project indicates that changes to Lake Cowal as a result of the development activities would be negligible (ATC Williams 2023), and unlikely to be perceptible to the naked eye. While there may some short term issues in relation to aquatic ecology during construction, this is predicted to be temporary. Given this, no mitigation measures to further explore or address cultural flows are currently proposed.

10.3 Recommendations

Where feasible, Evolution should consider modifying the Project design and disturbance footprint to avoid identified Aboriginal objects and/or sites identified and areas of significant buried cultural material (or where they have a high likelihood of being present) within the additional disturbance area.

Where altering the design is not feasible, the following recommendations should be integrated into the management for the Project:

- Following Project approval, existing Consent 1467/Permit 1468, Consent 1680/Permit 1681 and AHIP C0004570 should be relinquished to avoid conflict with the approval. Prior to relinquishment, a review of the permits should be undertaken to ensure any ongoing and/or outstanding conditions and requirements are incorporated into the Aboriginal Cultural Heritage Management Plan proposed for the Project.

- Prior to construction ground disturbance, an Aboriginal Cultural Heritage Management Plan must be developed by a heritage specialist in consultation with the Registered Aboriginal Parties (RAPs) to provide the post-approval framework for managing archaeological mitigation and Aboriginal heritage within the Project area. The Aboriginal Cultural Heritage Management Plan should include the following issues:

    - Where relevant, inclusion of existing requirements and obligations developed under established agreement between Evolution and the Wiradjuri Condobolin Corporation as part of earlier Native Title legislative requirements.

    - Processes, timing, communication methods and Project involvement (e.g. on-site activities) for maintaining Aboriginal community consultation and participation through the remainder of the Project. This should include a grievance mechanism that is readily available and designed for use by the local Aboriginal community.

    - If not previously completed, discuss and identify any areas of design optimisation with the RAPs to avoid or further minimise harm to identified Aboriginal sites, objects and place.

    - If not previously completed and where necessary, provide descriptions and methods for undertaking further investigation and assessment of the sites currently assigned a tentative classification (#39-4-0288, #39-4-0289, #39-4-0290, #39-4-0305, #39-4-0318, #39-4-0328, #39-4-0329, #39-4-0330, #39-4-0331, #39-4-0332, #39-4-0273, #39-4-0274, #39-4-0275, #39-4-0276, #39-4-0277, #39-4-0284, #39-4-0291, #39-4-0292, #39-4-0301, #39-4-0302, #43-4-0055, #39-4-0311, 43-4-0035, and CGO H1) to gain a comprehensive understanding of these sites for subsequent management through construction of the Project.

    - Detail descriptions and methods of any additional investigative and/or mitigative archaeological actions that may be required prior to construction works commencing or during the Project. These should include, but not limited to, archival recording of all identified Aboriginal objects, sites and places; suitable recovery or relocation, documentation and analysis of any archaeological sites proposed for direct impacts (Table 9.1); and management of any archaeological excavation of areas of significant buried cultural material (namely, CGO LEZ, #43-3-0022, and #39-4-0313) and where direct impacts are proposed. Further details of these activities are presented in Section 10.2. For these activities, details of location/s, methods, personnel, and timing should be included.

    - Description and methods of actions to minimise any inadvertent impacts to identified Aboriginal objects and/or sites and areas of archaeological sensitivity outside of the additional disturbance area. This should include, but not be limited to, cultural inductions for all personnel and subcontractors outlining their location and significance, fencing and clear marking of heritage sites and zones of interest in close proximity to proposed works, appropriate screening for sensitive and gender-specific areas, and any additional requirements identified by the Aboriginal community. A suitable regime of monitoring these activities should also be outlined, including locations, methods, personnel and timing.

    - Description and methods for undertaking further Aboriginal cultural heritage assessment, investigation and mitigation of any areas of the disturbance footprint that have changed following completion of the ACHA and/or during the final design and construction phases of the Project.

    - Description and methods of post-excavation analysis and reporting of the archaeological investigations and activities implemented as part of the ACHMP. For excavations, these should include suitable collection and processing of stone artefacts, and chronological, soil, and environmental samples.

- Procedures for managing the unexpected discovery of Aboriginal objects, sites and/or human remains during the Project.
- Procedures for the curation and long-term management of cultural materials recovered or relocated as part of the works outlined in the ACHMP and any preceding stages associated with the Project.
- Processes for reviewing, monitoring, and updating the ACHMP as the Project progresses.
- Alignment of the above with existing commitments to WCC under the Native Title Agreement between Evolution and WCC.

- A heritage-interpretation strategy must be developed by a heritage specialist to identify the interpretive values of the Project area, and specifically Aboriginal heritage values across the additional disturbance area, and to provide direction for potential interpretive opportunities for the Project and/or off-site (e.g. at West Wyalong and/or Condobolin). This strategy should be made available for consultation and feedback with the RAPs. Following consultation and feedback on the strategy, a heritage interpretation plan would refine the strategy with content (visual and textual) and design details in order to allow the implementation stage. The interpretation strategy and interpretation plan must include consideration of three main components identified though the ACHA process:
  - Input and feedback from the RAPs, which to date include a number of cultural, historical and social history places from both traditional and contemporary connection of the Lake Cowal area with the Aboriginal community; and a range of flora and fauna that have totemic, medicinal and/or economic association with the Aboriginal community.
  - The historical record of the study and its immediate environs, which has documented associations with Aboriginal people.
  - The past cultural and environmental landscape informed by current archaeological investigations and analysis of the ACHA, and any future activities that may result from the Project (e.g. archaeological salvage of key locales).
- The Construction Environment Management Plan (CEMP), or equivalent, should reinforce how the cultural landscape is considered throughout the Project and detail the rehabilitation of the disturbance footprint. Rehabilitation of areas where infrastructure is not remaining after construction of the Project should be undertaken to determine suitable ecological communities and other factors in returning the cultural landscape as close to its current state as feasible.
- Consultation should be maintained with the RAPs during the finalisation of the assessment process and throughout the Project.
- A copy of the ACHA should be lodged with AHIMS and provided to each of the RAPs.
- AHIMS Site Recording Forms for the newly identified Aboriginal objects and/or sites within the Project area and areas of archaeological sensitivity should be submitted to the AHIMS database once their validation has been completed. In addition, to ensure official documentation is up to date, a suitable audit of the existing AHIMS site registrations within the Project area should be undertaken by a suitable heritage professional, and would include ratification of Evolution's internal clearance data with existing AHIMS sites.
- Where the heritage consultant changes through the Project, suitable hand over should be undertaken to minimise loss or mistranslation of the intent of the information, findings and future steps in heritage management occur.

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Abbreviations

Abbreviation	Definition
AHD	Australian Height Datum
ACHA/ACHAR	Aboriginal cultural heritage assessment report
AHIMS	Aboriginal Heritage Information Management System
ACHMP	Aboriginal Cultural Heritage Management Plan
BP	Years before present
c.	circa
CGO	Cowal Gold Operation
cm	centimetres
DEC	Department of Environment and Conservation, now Heritage NSW
DECCW	Department of Environment Climate Change and Water, now Heritage NSW
DPC	Department of Premier and Cabinet
DPE	Department of Planning and Environment, now DPIE
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EMM	EMM Consulting Pty Ltd
EP&A Act	*Environmental Planning and Assessment Act 1979*
ESD	Ecologically sustainable development
FGS	Fine grained siliceous
g	grams
GIS	geographical information system
GPS	global positioning system
ha	hectare
ICOMOS	International Council on Monuments and Sites
IMTC	Indurated mudstone/tuff/chert
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
m	metres
m^2	square metres
mm	millimetres

Abbreviation	Definition
n	Number
NSW	New South Wales
OEH	Office of Environment and Heritage, now Heritage NSW
PAD	Potential archaeological deposit
RAP	Registered Aboriginal Party
SEARs	Secretary's Environmental Assessment Requirements
t	Tonne
TP	Test pit
WCC	Wiradjuri Condobolin Corporation

Glossary

Many of these definitions have been taken from the *Code of Practice for archaeological investigation of Aboriginal objects in NSW* (DECCW 2010).

Aboriginal object: A physical manifestation of past Aboriginal activity. The legal term is defined in the *National Parks and Wildlife Act 1974* Section 5 as: any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Typical examples include stone artefacts, grinding grooves, Aboriginal rock shelters which by definition include physical evidence of occupation, midden shell, hearths, stone arrangements and other landscape features which derive from past Aboriginal activity.

Archaeological survey: A method of data collection for Aboriginal heritage assessment. It involved a survey team walking over the land in a systematic way, recording information. Activities are not invasive or destructive.

Aboriginal culturally modified tree: A tree of sufficient age to have been mature at the time of traditional Aboriginal hunter-gatherer life and therefore generally of more than 220 years ago with evidence of bark or cambium wood removal for the purpose of implement manufacture, footholds, bark sheet removal for shelter, or extraction of animals or other food. Care must be taken to distinguish Aboriginal scars from the much more common natural causes of branch tear, insect attack, animal impact, lightning strike and dieback. Culturally modified tree recognition guidelines exist to distinguish these features. Naturally scarred trees are often misidentified as Aboriginal culturally modified trees.

Aboriginal site: The location where a person in the present day can observe one or more Aboriginal objects. The boundaries of a site are limited to the extent of the observed evidence. In the context of this report a 'site' does not include the assumed extent of unobserved Aboriginal objects (such as archaeological deposit). Different archaeologists can have varying definitions of a 'site' and may use the term to reflect the assumed extent of past Aboriginal activity beyond visible Aboriginal objects. Such use of the term risks defining all of Australia as a single 'site'.

Aboriginal stone artefact: A stone object with morphological features derived from past Aboriginal activity such as intentional fracture, abrasion or impact. Artefacts are distinguished by morphology and context. Typically flaked stone artefacts are distinguished from naturally broken stone by recognition of clear marginal fracture initiation (typically herzian/conchoidal or wedging initiation) on highly siliceous stone types which can often be exotic to the area. Care must be taken to distinguish modern broken stone in machine impacted contexts and therefore context must be carefully considered as well as morphology.

Aggradation: a term used in geology for the increase in land elevation, typically in a river system, due to the deposition of sediment.

AHIMS: Aboriginal Heritage Information Management System — a computer software system employed by the Office of Environment and Heritage to manage many aspects of Aboriginal site recording and permitting. AHIMS includes an Aboriginal sites database which can be accessed via an internet portal.

Archaeological deposit: Aboriginal objects occurring in one or more soil strata. The most common form of archaeological deposit relates to the presence of a single conflated layer of Aboriginal stone artefacts worked into the topsoil through **bioturbation**.

Backed artefact: A thin flake or blade-flake that has been shaped by secondary flaking (**retouch**) along one lateral margin. The retouched margin is typically steep and bipolar to form a blunt 'back' in the manner of a modern scalpel blade. Distinctive symmetrical and asymmetrical forms are typically found called geometric **microliths** and Bondi points respectively. A thick symmetrical form, called an Elouera, is typically the size of a mandarin segment.

Bioturbation: Is the reworking of soils and sediments by animals or plants. Its effects include changing texture of sediments (diagenetic), bioirrigation and displacement of microorganisms and non-living particles.

Bipolar flaking: Where the stone to be worked is rested on an anvil or other stone before being hit by the hammerstone. This results in the presence of negative flake scars on both ends of the core.

Bondi point: See backed artefact definition.

Brown podosols: Topsoils have loamy textures. A2 horizons are common, there is a clear boundary onto the B horizon. They have a sandy clay to heavy clay texture (typically occur on upper and mid-slopes).

Chocolate Soils: Soils that are typically formed in a basaltic parent material where slope or bedrock strata influence drainage. Surface horizons comprise loam, clay loam or silty clay loam. There is a gradual boundary to a brown or brownish black B horizon. There is no A2 horizons.

Conchoidal: A term used in relation to fracture surfaces on Aboriginal stone artefacts - bulb-like in the manner of a bulbous protrusion on a bivalve shell.

Elouera: See backed artefact definition.

Eraillure scar: The small flake scar on the dorsal side of a flake next to the platform. It is the result of rebounding force during percussion flaking.

Exposure: estimates the area with a likelihood of revealing buried artefacts or deposits, not just an observation of the amount of bare ground.

Geometric microlith: See backed artefact definition.

Grinding grooves: Grinding grooves typically derive from the sharpening of stone hatchet heads on sandstone rock. Grooves appear as elliptical depressions of around 25 cm length with smooth bases. Although mostly occurring in association with water to wash the abraded stone dust away from the groove, such sites have been recorded away from water. Narrow grooves or broad abraded areas may occur less commonly and may be derived from spear sharpening or other grinding activities.

Haematite: a pigment featured in ochre used for tinting with a permanent colour.

Holocene: A period of time generally 10,000 years, which marks the end of the last ice age, to the present.

Igneous: relating to or involving volcanic or plutonic processes.

Indurated mudstone/tuff (IMT): the fine textured, very hard, yellowish, orange, reddish-brown or grey rocks from which stone artefacts are made.

Isotropic: Having a physical property that has the same value when measured in different directions. In relation to stone used for stone tools a fracture path is not hindered by layer boundaries or other favoured plane of cleavage.

Keeping place: A room or facility with the express and exclusive purpose of storing Aboriginal cultural heritage materials with accompanying documentation in a secure and accessible manner which protects their cultural heritage values.

Knapping: This term is used in reference to stone tool production. Specifically, it relates to the production and shaping of a block of stone (e.g. a cobble) into a stone tool. The process is called knapping, while the individual undertaking the task is often called a knapper. A knapping floor or event often referenced in the literature relates to an archaeological deposit, usually of high densities of stone artefacts, where researcher's believe this process has occurred in a given locale.

Krasnozems: Mainly loams, clay loams and silty clay loams with a clear or gradual boundary to a dark reddish brown B horizon. Clays are typically light to medium and occasionally heavy.

Lithosols: Soils that have little or no profile development. They occur on steep slopes and are usually shallow and are left mainly as uncleared native bushland.

Microlith: Very small fragments of flakes retouched into geometric shapes and usually present on tools like barbed spears, arrows and sickles.

Midden: A collection of shells and associated economic remains resulting from Aboriginal food gathering and processing activity. Middens comprise shellfish remains of consistent size in a rich dark earth matrix commonly associated with stone artefacts, fish bone and animal bone although shells are commonly the most obtrusive element.

Open stone artefact site/stone artefact site: An unenclosed area where Aboriginal stone artefacts occur – typically exposed from a topsoil archaeological deposit by erosion. Typically the term is used to refer to two or more artefacts although this is an arbitrary distinction. A general 'rule of thumb' boundary definition employed by archaeologists is that artefacts or features more than 50 m apart are regarded as separate sites, however there is no theoretical imperative dictating such as rule. (The 50 m separation rule is used for the most part in EMM's work).

Pirri point: A leaf-shaped stone implement with unifacial retouch extending from the lateral margins to a central keel running the length of the dorsal surface.

Pleistocene: A period of time 2.6 million years ago to 10,000 years ago. Reference to 'Pleistocene sites' generally means reference to sites older than 10,000 years.

Podosols: Soils with accumulations of organic matter, iron and aluminium. They are usually sand textured to depth. Yellow and red podosols are generally acid neutral. Yellow podosols have coarse to medium textured A horizons.

Point cluster: A group of GPS points used to identify the locations of individual artefacts in the field.

Potential Archaeological Deposit (PAD): An area where there is an inferred presence of Aboriginal objects in the soil based on the environmental context which is typically associated with discovery of Aboriginal objects in analogous areas. This is not strictly a 'site' type, although AHIMS records it as such for the purpose of associating Aboriginal heritage Impact Permits with geographical areas.

Red podosols: Podosols with a pronounced texture contrast and clear to abrupt boundaries between A and B horizons. A2 is often massive and gravelly.

Retouch: The modification of the edges of a flake or tool by the removal of a series of small flakes.

Siliceous Sands: Sands that are usually found on coarse-grained sandstones and in sandstone colluvium. They are often sandstone outcrops present in the landscape. The topsoil has a loamy sand to light sandy clay.

Scarp: a steep slope characterised by outcropping bedrock. In this report, scarp refers to a combination of landform elements including scarp foot slopes, scarps, and cliff lines where outcropping sandstone is present in the landscape 10% and above.

Spit/s: This term reflects an arbitrary unit of depth that archaeologists excavate when lacking evidence of a stratigraphy within the soil profile. Commonly, archaeologists remove vertical intervals of 5, 10 or 20cm, each representing a spit, down the soil profile. Through this process, archaeologists can determine the depth at which archaeological materials are found, even in soil profiles with no clear divisions or boundaries.

Spur: The lateral crests of land that descend from the summit of hills or ridges. Spurs typically extend, with decreasing elevation, closer to streams and valley floors than the main crest of a hill.

Taphonomic: The events and processes, such as burial in sediment, leading to the degradation, decomposition or preservation of objects.

Thumbnail scraper: A thumbnail sized thin flake with steep unidirectional retouch or use-wear around a convex working edge.

Transect: A sample unit which is walking line or corridor across the project area.

Upsidence: phenomena of uplift in the ground surface that can occur when underground mining approaches and undermines river valleys. It can result in cracking and buckling of river beds and rock bars and localised loss of water flow.

Visibility: The amount of bare ground on exposures which might reveal artefacts or other archaeological materials.

Yellow earths: predominantly sandy-textured soils with earthy porous fabric, weak profile differentiation and gradual or diffuse boundaries except for the darker A1 horizon.

Yellow podosols: Podosols which typically occur on the upper slopes of steep landscapes and on the mid to lower slopes of others. The A2 soil horizon is present in most profiles and the boundary change to the B horizon is generally clear. The B horizon is typically sandy clay to heavy clay.

Appendix A
Legislative context

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A.1 Commonwealth

A.1.1 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* preserves and protect areas (especially sacred or intangible sites) and places of particular significance to Aboriginal people from damage or destruction. Steps necessary for the protection of a threatened place are outlined in a gazetted Ministerial Declaration (Sections 9 and 10); and which can result in a cessation of any development activity.

In addition, the Act also protects objects by Declaration, notably Aboriginal skeletal remains (Section 12). This can be applied at a State level where a State is unwilling or unable to provide such protection.

A.1.2 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* provides for protection of natural and cultural heritage places. The Act establishes a National Heritage List (NHL) and a Commonwealth Heritage List (CHL) upon which places of natural or cultural significance can be listed. Sites at a national level and can be in public or private ownership. The CHL is limited to places owned by the Commonwealth, and most frequently encompass Department of Defence sites. Sites and places listed on the NHL are considered to be of State and local heritage value, even if they are not listed or documented as such at a State level.

The values of sites and places on the NHL/CHL are protected under the EPBC Act. The Act requires that the Minister administering the Act assess any action which has, will have, or is likely to have, a significant impact on the heritage values. Where relevant, a referral is made to the relevant Commonwealth Department, and either approval, approval with controls, or rejection of the proposed action is determined.

A.1.3 Native Title Act 1993

The *Native Title Act 1993* provides recognition and protection for native title. The Act establishes the managing body, National Native Title Tribunal, who administers native title claims to rights and interests over lands and waters by Aboriginal people. It also administers the future act processes that allow proponents to identify and manage potential native title issues for a given activity on a site where a claim has yet to be made or finalised.

In addition, the Act provides for Indigenous Land Use Agreements (ILUA), which is an agreement between a native title group and others about the use and management of land and waters. ILUAs were introduced as a result of amendments to the Act in 1998. They allow people to negotiate flexible and bipartisan agreements to suit their particular circumstances often circumventing lengthy timeframes associated with the native title process. An ILUA can be negotiated over areas where native title has, or has not yet, been determined. They can be part of a broader determination or settled separately.

A.2 State

A.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the over-arching Act that dictates the nature of assessment and management of the environment during a development project, and within which heritage forms a component. requires that environmental and heritage impacts are considered by consent authorities prior to granting development approvals.

The Act has two main approval pathways within which heritage needs to be considered. Generally for smaller scale (either financially or spatially), Parts 4 (Division 4.1) and 5 (Division 5.1) of the Act are implemented. Part 4 requires that a proponent submits a Development Application (DA) to local council for a given development, and within this document a consideration of Aboriginal and historical heritage is required. The specific nature of the assessment is usually determined at a pre-DA meeting with the council, and in relation to the relevant heritage Acts. Where Aboriginal heritage is identified as an issue, the DA may become Integrated Development, whereby the State government is also required to review and provide comments on the DA prior to its issue. Part 5 of the Act is a similar process, but only relates to approvals developed and issued by State government departments. Each State government department has their own internal approach to considering environmental issues, but ultimately must develop a Review of Environmental Factors (REF), which is comparable to a DA, and which requires consideration and management of heritage. Similarly where heritage is identified as an issue, liaison with relevant State consent authorities and approvals under other Acts may still be required.

The other approval pathway relates to State Significant Development and/or Infrastructure (Parts 4.7 and 5.2, respectively). These processes require an Environmental Impact Statement (EIS) to be developed for a project and assessed currently by the Department of Planning, Industry and Environment. Importantly, the SSD and SSI processes turns off a number of pieces of other legislation, including parts of the *National Parks and Wildlife Act 1974*. In the case of Aboriginal heritage, both the assessment and approval for harm are dictated by the Secretary's Environmental Assessment Requirements (SEARs) outlining the contents and scope of the EIS, and the Project Approval that dictates controls on how a development should proceed.

A.2.2 National Parks and Wildlife Act 1974

The National Parks and Wildlife Act 1974 (NPW Act) provides protection for Aboriginal objects and places across NSW:

- An Aboriginal object is defined as: *Any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.*

- An Aboriginal place is: Any place declared to be an Aboriginal place under Section 84. This is a very specific piece of legislation that provides process and management of Aboriginal sites of cultural, but not necessarily scientific, values. They are commonly, but not always associated with intangible values.

- Any place declared to be an Aboriginal place by the Minister for the Environment, under Section 84 of the Act.

It is an offence to disturb Aboriginal objects or places without an Aboriginal Heritage Impact Permit (AHIP), which is outlined in Section 90 of the Act. Currently, such permits can be sought from the Chief Executive of the NSW Department of Premier and Cabinet (DPC), with the recent relocation of the Office of Environment and Heritage.

To obtain an AHIP, certain assessment and documentation (outlined in this report) must be provided to DPC for their consideration. Once satisfied, they may endorse an AHIP to harm cultural heritage either conditionally or unconditionally. They can also refuse an application as outlined in Section 90C of the Act, and which can be appealed in accordance with Section 90L.

A.2.3 Aboriginal Land Rights Act 1983

The *Aboriginal Land Rights Act 1983* provides process and protocols for the transfer of vacant Crown land ownership to a Local Aboriginal Land Council, where the land is not for an essential purpose or for residential land. These lands are then managed and maintained by the Local Aboriginal Land Council.

For the purposes of this report, the Act is primarily important to inform relevant Aboriginal communities for consultation; and where Crown land forms part of the development area may require additional liaison with the LALC as a potential, or existing, landowner.

Appendix B
Aboriginal community consultation

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B.1 Consultation log and communications record

Aboriginal Consultation Requirements for Proponents* (DECCW 2010)

ABORIGINAL COMMUNICATIONS LOG

Project Name: Cowal Gold Operations Open Cut Continuation Project | **Project #: J190417**

DATE	OUTGOING / INCOMING	ORGANISATION	INTERNAL CONTACT	EXTERNAL CONTACT	CONTACT TYPE	COMMENTS
4-Mar-22	Outgoing	Heritage NSW	Alan Williams	Nicole Davis	Email	Distributed request for information
4-Mar-22	Outgoing	NSW NTS Corp	Alan Williams		Email	Distributed request for information
4-Mar-22	Outgoing	Bland Shire Council	Alan Williams		Email	Distributed request for information
4-Mar-22	Outgoing	Riverina Local Land Services	Alan Williams		Email	Distributed request for information
4-Mar-22	Outgoing	Native Title Tribunal	Alan Williams		Email	Distributed request for information
4-Mar-22	Outgoing	West Wyalong LALC	Alan Williams		Email	Distributed request for information
7-Mar-22	Outgoing	Wiradjuri Condobolin Corporation	Alan Williams	Ally Coe	Email	Provided a courtesy e-mail advising that the consultation process is underway.
7-Mar-22	Outgoing	Native Title Tribunal	Alan Williams		Email	Distributed request for information
7-Mar-22	Outgoing	The Office of the Registrar, Aboriginal Land Rights Act 1983	Alan Williams		Email	Distributed request for information
8-Mar-22	Incoming	Native Title Tribunal	Alan Williams		Email	Returned the search indicating no active or finalised claims within the crown and mining easments encompassing the site.
9-Mar-22	Incoming	Heritage NSW	Alan Williams	Barry Gunther	Email	Provided a list of three organisations requiring consultation for the project.
9-Mar-22	Incoming	Riverina Local Land Services	Alan Williams	Fin Martin	Email	Provided a list of two organisations requiring consultation for the project.
17-Mar-22	Outgoing	West Wyalong LALC	Alan Williams		Email	Distributed a letter seeking their interest in being involved in the project.
17-Mar-22	Outgoing	Wiradjuri Condobolin Corporation Ltd	Alan Williams		Email	Distributed a letter seeking their interest in being involved in the project.
17-Mar-22	Outgoing	Mooka Traditional Owners Council	Alan Williams		Post	Distributed a letter seeking their interest in being involved in the project.
17-Mar-22	Outgoing	Wiradjuri Council of Elders	Alan Williams		Email	Distributed a letter seeking their interest in being involved in the project.
18-Mar-22	Outgoing	West Wyalong Advocate	-		Newpaper	Publication of a notifcation seeking interest in the project
30-Mar-22	Outgoing	West Wyalong LALC, Wiradjuri Condobolin Corporation, Wiradjuri Council of Elders, Mooka Aboriginal Corporation	Alan Williams		Email/Post	Provided a reminder of the notification period shortly expiring
31-Mar-22	Incoming	Wiradjuri Condobolin Corporation Ltd	Ally Coe	Alan Williams	Email	Registered an interest in the project
31-Mar-22	Incoming	West Wyalong LALC	Linton Howarth	Alan Williams	Email	Registered an interest in the project
5-Apr-22	Incoming	Wiradjuri Council of Elders	David Acherson	Alan Williams	Email	Registered an interest in the project
14-Apr-22	Outgoing	Heritage NSW	Alan Williams	Nicole Davis	Email	Advised of the registred Aboriginal parties in the project
14-Apr-22	Outgoing	West Wyalong LALC	Alan Williams	Linton Howarth	Email	Advised of the registred Aboriginal parties in the project
21-Apr-22	Outgoing	All RAPs	Alan Williams		Email	Distributed project information and assessment methodology and sought to arrange a meeting in early May
5-May-22	Outgoing	All RAPs	Alan Williams		Phone/email	Contacted the RAPs to organise a face-to-face meeting later in May to discuss the project. WCC and Wiradjuri Elders confirmed avaialbility, messages were left with West Wyalong LALC
19-May-22	Outgoing	All RAPs	Alan Williams, Simon Coates	Richie and Eugene Coe, Linton Howarth, David Acheson	Meeting	Undertook an Aboriginal focus group meeting to discuss the project and proposed assessment methods. Details minutes are provided elsewhere in the ACHA.
23-May-22	Outgoing	All RAPs	Alan Williams		Email	Distributed minutes of the recent meeting for review, input and approval
27-Jul-22	Outgoing	All RAPs	Alan Williams		Email	Provided information on upcoming fieldwork activities.
3-Aug-22	Outgoing	All RAPs	Alan Williams		Email	Confirmed fieldwork for the coming weeks
3-Aug-22	Outgoing	All RAPs	Alan Williams		Email	Provided information on the upcoming cultural values mapping, and sought inputs in terms of community members to liaise with, etc.
8-19 August 2022	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	Cameron Neal, Megan Sheppard Brennand		Field Survey	Undertook field survey investigations of the study area.
15-Sep-22	Outgoing	All RAPs	Alan Williams		Email	Provide a brief update on the coming activities and tasks associated with the ACHA in the coming weeks.
28-Sep-22	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	Cameron Neal	Richie Coe, Linton Howarth	Phone	Rang to confirm availability to participate in test excavations from 10-21 October.
28-Sep-22	Outgoing	Heritage NSW	Cameron Neal		Email	Notified Heritage NSW of upcoming test excavations and provided methodology documents to date.
29-Sep-22	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	Cameron Neal	Richie Coe, Linton Howarth		Provided a brief update on test excavation methodology, including planned test pit location and mapped extent of micro-environment zones.
4-Oct-22	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	Cameron Neal	Richie Coe, Linton Howarth	Phone	Enquired with Richie and Linton whether their respective organisations were able to provide extra site officers during the test excavations. WWLALC was not able to do so due to existing fieldwork or other commitments elsewhere. Richie Coe advised he would follow up on the potential availability of Jared and/or Eugene Coe.
4-Oct-22	Outgoing	West Wyalong LALC	Cameron Neal	Linton Howarth	Email	Re-sent site induction documents, proposed test pit locations and methodology.
6-Oct-22	Outgoing	West Wyalong LALC	Cameron Neal	Linton Howarth	Phone	Discussed Evolution Mine induction requirements with Linton.
13-Oct-22	Outgoing	West Wyalong LALC	Cameron Neal	Linton Howarth	Email, phone	Re-sent site access form and proposed test pit locations, and provided further clarification on Evolution induction requirements.
13-Oct-22	Outgoing	Wiradjuri Condobolin Corporation	Cameron Neal	Richie Coe	Phone	Rang to confirm availability of Jared and/or Eugene Coe for participation in test excavations. Richie advised neither were available due to previous commitments with other work at CGO.
10-13 October 2022	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	Cameron Neal		Fieldwork	Undertook test excavations, but significantly hampered by weather and ultimately postponed.
21-Oct-22	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	Cameron Neal	Richie Coe, Linton Howarth	In person, phone	Discussed with Richie in person and rang Linton to advise that fieldwork had been postponed due to inclement weather.

21-Oct-22	Outgoing	All RAPs	Alan Williams		Phone	Rang all RAPs to discuss the upcoming cultural values mapping and seeing availability and people that we should talk to as part of the study.
29-Oct-22	Outgoing	All RAPs	Alan Williams		Phone	Rang all RAPs to discuss the upcoming cultural values mapping and seeing availability and people that we should talk to as part of the study.
1-Nov-22	Outgoing	All RAPs	Alan Williams		Email	Provided Phil's details and advised he was coming next week to undertake the cultural values mapping
5-9 Dec 22	Outgoing	West Wyalong LALC, Wiradjuri Condobolin Corporation	Alan Williams		Fieldwork	Cultural values mapping undertaken by Phil Clarke and multiple representatices of the local Aboriginal community
12-Dec-22	Outgoing	West Wyalong LALC	Cameron Neal	Linton Howarth	Email/Phone	Discussed the upcoming test excavation in early January, and WWLALC participation
14-Dec-22	Outgoing	Wiradjuri Condobolin Corporation	Cameron Neal	Ally Coe	Email/Phone	Discussed the upcoming test excavation in early January, and WWLALC participation
5-Jan-23	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	Alan Williams		SMS	Re-confirmed the excavations were still planned for next week, and to contact AW if any issues with attendance.
9-Jan-23	Outgoing	West Wyalong LALC	Alan Williams	Linton Howarth	Email/Phone	Contactedd WWLALC following non-attendance at the test excavations. LH indicated the he would struggle to attend the first week, but would be present for much of the second week, and was ok for the work to proceed in their absence
9-Jan-23	Outgoing	Wiradjuri Condobolin Corporation	Alan Williams	Ally Coe, Kristy	Email/Phone	Contacted WCC following non-attendance at the test excavations. Kristy advised that she would follow up with Richard Coe who was proposed for participation, and get back to AW.
9-20 January 2023	Outgoing	West Wyalong LALC; Wiradjuri Condoblin Corporation	OzArk	-	Fieldwork	Undertook a second phase of archaeological test excavation across the Project area.
17-Feb-23	Outgoing	Wiradjuri Condobolin Corporation	Taylar Reid	Richie Coe	Phone	Contacted WCC requesting availability for Mon 26 Feb to escort and monitor TR/AW on-site to collect OSL samples from test excavation pits.

B.2 List of identified Aboriginal stakeholders in the region

- Wiradjuri Condobolin Corporation
- Mooka Traditional Owners Council
- Wiradjuri Council of Elders
- West Wyalong Local Aboriginal Land Council.

B.3 Stage 1 – Notification and registration

Cameron Neal

From: Alan Williams
Sent: Friday, 4 March 2022 3:22 PM
To: OEH HD Heritage Mailbox; council@blandshire.nsw.gov.au; admin.riverina@lls.nsw.gov.au; information@ntscorp.com.au; ww.lalc@bigpond.com
Cc: Andrew Woidt; Taylar Reid; Pierre Miquel; Simon Coates; Sam Ezzy; Nicole.Davis@environment.nsw.gov.au
Subject: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - information request
Attachments: J190417_CGO_OPC_AR_V1.0.pdf

Dear Sir/Madam,

EMM Consulting Pty Limited has been engaged by Evolution Mining (Cowal) Pty Limited (Evolution) to undertake an Aboriginal cultural heritage assessment (ACHA) for the proposed Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project. Evolution is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the project, which will involve the development of additional open-cut pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. Please see attached letter for further information.

In accordance with Heritage NSW guidelines, we are contacting your organisation to request information of any known Aboriginal individuals and/or organisations within your operational area that may be interested to be consulted on the project. Could you please provide me with this information at your earliest convenience?

Happy to discuss,

Best wishes
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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M 0438 104 740
D 02 9493 9584
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Level 3, 175 Scott Street
Newcastle NSW 2300

T 02 4907 4800
E info@emmconsulting.com.au

www.emmconsulting.com.au

21 February 2022

Re: Cowal Gold Operations Open Pit Continuation Project: Aboriginal cultural heritage assessment - request for Aboriginal stakeholder information

EMM Consulting Pty Limited (EMM) has been commissioned by Evolution Mining (Cowal) Pty Limited (Evolution) to undertake an Aboriginal cultural heritage assessment (ACHA) for the proposed Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project (the Project). Evolution is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the Project, which will involve the development of additional open-cut pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. If approved, the Project will extend the total life of the mine to 2042. CGO and the proposed Project are located approximately 38 kilometres north-east of West Wyalong NSW within the Bland Shire Local Government Area (LGA) (Figure 1.1 and Figure 1.2).

It is expected that assessment requirements will seek the development of an ACHA to inform the Aboriginal cultural heritage across the Project and any potential impacts; and to support an Environmental Impact Statement (EIS) for the Project under Division 4.7 of the NSW *Environmental Planning and Assessment Act 1979*.

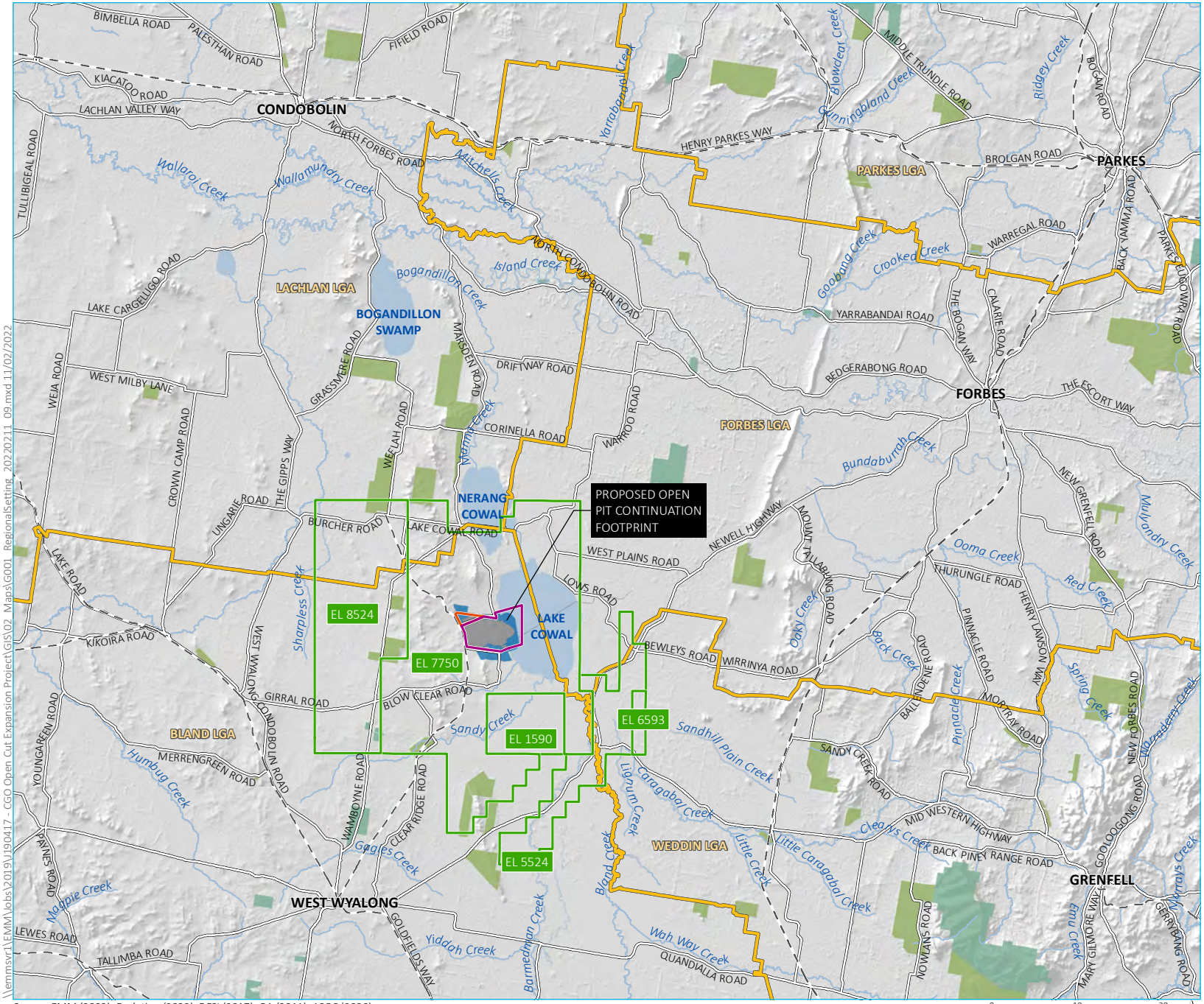
The proponent is Evolution Mining (Cowal) Pty Limited, and the Project contact is Simon Coates (Superintendent – Environment, CGO); Lake Cowal NSW 2671; phone: 0437 371 886; e-mail: Simon.Coates@evolutionmining.com.

In accordance with Heritage NSW's *Aboriginal cultural heritage consultation requirements for proponents 2010*, I am writing to you to seek information on relevant Aboriginal individuals and/or communities that you are aware of in the region, and who may hold cultural knowledge and/or information about Aboriginal objects and sites in the vicinity. Could you please provide me with this information as soon as possible at the contact details above, or my e-mail: treid@emmconsulting.com.au.

If you have any questions or enquiries, please do not hesitate to contact me.

Yours sincerely,

Taylar Reid
Archaeologist
treid@emmconsulting.com.au



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Source: EMM (2022); Evolution (2022); DFSI (2017); GA (2011); ASGC (2006)

Regional context

Evolution Mining
Cowal Gold Operations
Open pit continuation project
Figure 1.1

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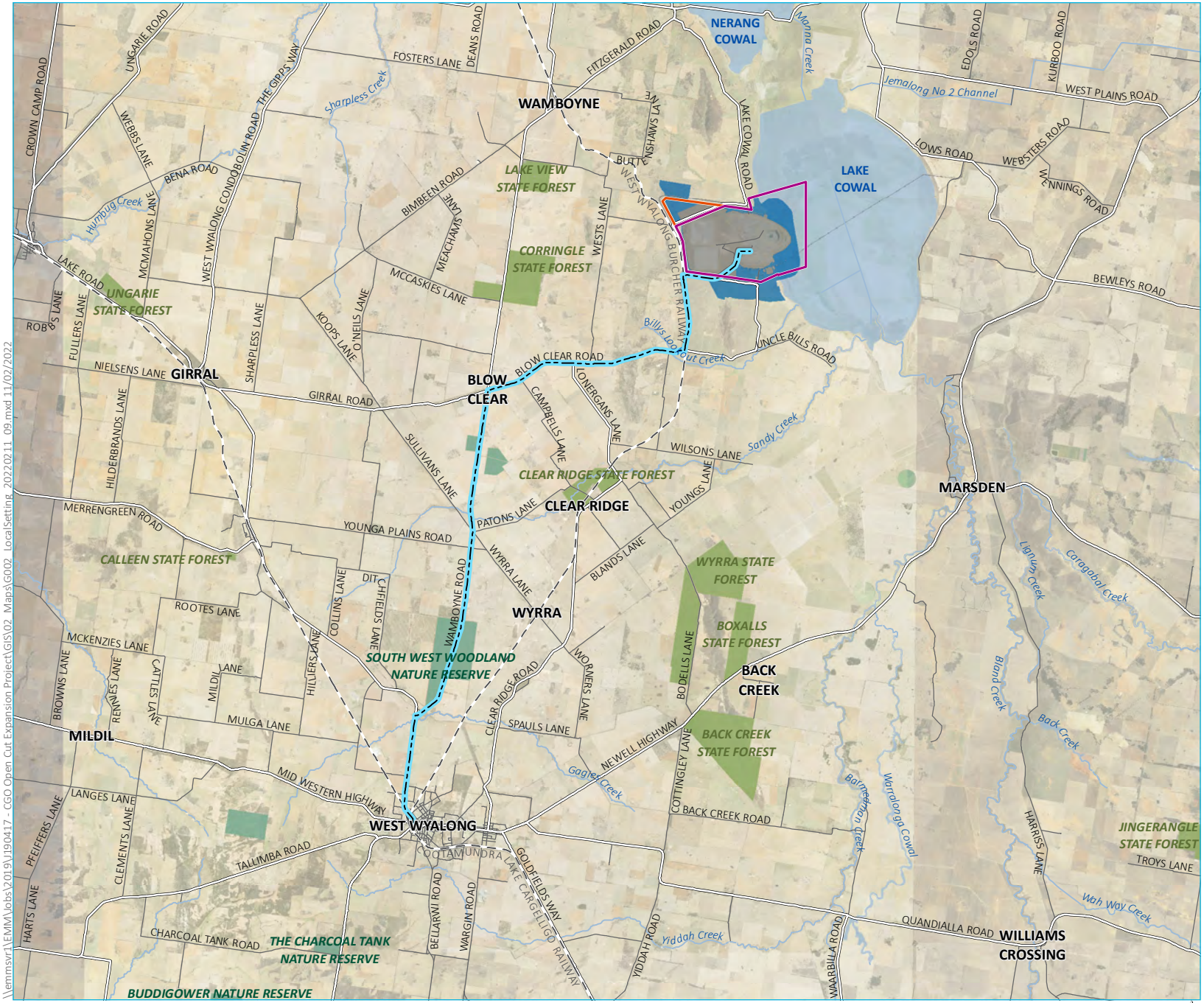
NERANG COWAL
WAMBOYNE
LAKE COWAL
LAKE VIEW STATE FOREST
CORRINGLE STATE FOREST
LINGARIE STATE FOREST
GIRRAL
BLOW CLEAR
CLEAR RIDGE STATE FOREST
CLEAR RIDGE
MARSDEN
WYRRA STATE FOREST
WYRRA
BOXALLS STATE FOREST
BACK CREEK
BACK CREEK STATE FOREST
CALLEEN STATE FOREST
SOUTH WEST WOODLAND NATURE RESERVE
MILDIL
WEST WYALONG
JINGERANGLE STATE FOREST
WILLIAMS CROSSING
THE CHARCOAL TANK NATURE RESERVE
BUDDIGOWER NATURE RESERVE
COOTAMUNDRA LAKE CARGELLIGO RAILWAY
WEST WYALONG BURCHER RAILWAY
NEWELL HIGHWAY
MID WESTERN HIGHWAY
BLOW CLEAR ROAD
GIRRAL ROAD
YOUNGA PLAINS ROAD
MERRENGREEN ROAD
BENA ROAD
TALLIMBA ROAD
CHARCOAL TANK ROAD
QUANDIALLA ROAD
BACK CREEK ROAD
WEST PLAINS ROAD
FOSTERS LANE
FITZGERALD ROAD
LAKE COWAL ROAD
BIMBEEN ROAD
MCCASKIES LANE
WILSONS LANE
PATONS LANE
MULGA LANE
SPAULS LANE
LANGES LANE
ROOTES LANE
MCKENZIES LANE
BEWLEYS ROAD
UNCLE BILLS ROAD
WEBSTERS ROAD
LOWS ROAD
WANNINGS ROAD
Jemalong No 2 Channel
Manna Creek
Sharpless Creek
Humbug Creek
Billys Lookout Creek
Sandy Creek
Lignum Creek
Caragabal Creek
Back Creek
Barmedman Creek
Warralonga Cowal
Yiddah Creek
Wah Way Creek
Gagiel Creek
Source: EMM (2022); Evolution (2022); DFSI (2017)
0
5
10
km
GDA 1994 MGA Zone 55
N
KEY
Proposed disturbance footprint
DA14/98 approved surface disturbance
Mining lease (ML1535)
Mining lease (ML1791)
West Wyalong preferred transport route
Rail line
Major road
Minor road
Named watercourse
Named waterbody
NPWS reserve
State forest
Local context
Evolution Mining
Cowal Gold Operations
Open pit continuation project
Figure 1.2
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\\emmsvr1\EMM\Jobs\2019\J190417 - CGO Open Cut Expansion Project\GIS\02 Maps\G002 LocalSetting 20220211 09.mxd 11/02/2022

Cameron Neal

From: Alan Williams
Sent: Monday, 7 March 2022 3:39 PM
To: Office of Registrar
Cc: Megan Mebberson
Subject: Cowal Gold Operations - Aboriginal organisation search request
Attachments: J190417_Lands right attachment.docx; J190417_Land claim search.pdf

Dear Megan and team,

In accordance with Heritage NSW guidelines, we request a search of the attached Lot and DPs to identify Aboriginal organisations and/or individuals relevant to the project area for the purposes of consultation; and to identify any claims under the NSW Land Rights Act we should be aware of.

Happy to discuss further,

Best wishes
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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REQUEST FOR SEARCH OF LAND CLAIM REGISTER

OFFICE OF THE REGISTRAR
ABORIGINAL LAND RIGHTS ACT 1983 (NSW)

Level 3, 2-10 Wentworth Street
Parramatta, 2124
02 8633 1266

PO Box 5068
Parramatta, 2124

Please send the completed form via e-mail to : Adminofficer@oralra.nsw.gov.au

Please print all details clearly using block letters

Full name of person requesting search: *(name for correspondence)*

Alan Williams

Name of company: EMM Consulting

Postal address: 20 Chandos St
St Leonards NSW 2065

E –mail address:

Office phone number: 9493 9500 Mobile phone: 0438 104 740

Land identifiers: (lot, DP, reserve number – not Crown plan number or vol fol id): See attached

Parish name: Corringle

County name: Gipps

To assist the office in assigning priorities, please answer the following:

1) Purpose for which information is required:

To identify Aboriginal stakeholders as part of an Aboriginal Cultural Heritage Assessment for a proposed development of the site. Searching the register is a requirement of the process.

2) If urgent consideration is required, reason for urgency:

Signature, position and date:

Associate Director
4 March 2022

Please note:

1: The register covers only Crown land.
2: All information is required, including a name for correspondence before the search will be completed.
3: The person to whom correspondence is addressed must sign the form.
4: Searches are completed within 10 working days and returned by e –mail
5: Please be aware, it may take longer than 10 working days to respond to search requests that contain more than 10 parcels or identifiers

Lot	DP	Parish name	County name	LGA
23	753097	Corringle	Gipps	Bland
24	753097	Corringle	Gipps	Bland
25	753097	Corringle	Gipps	Bland
37	39733	Corringle	Gipps	Bland
45	753083	Corringle	Gipps	Bland
7001	1029713	Corringle	Gipps	Bland
36	39733	Corringle	Gipps	Bland
2	1060709	Corringle	Gipps	Bland
7	753083	Corringle	Gipps	Bland
103	1059150	Corringle	Gipps	Bland
64	753083	Corringle	Gipps	Bland
2	549106	Corringle	Gipps	Bland
2	1060907	Corringle	Gipps	Bland
1	1060709	Corringle	Gipps	Bland
38	39733	Corringle	Gipps	Bland
1	1060907	Corringle	Gipps	Bland
2	530299	Corringle	Gipps	Bland
22	753083	Corringle	Gipps	Bland
100	1059150	Corringle	Gipps	Bland
101	1059150	Corringle	Gipps	Bland
102	1059150	Corringle	Gipps	Bland
104	1059150	Corringle	Gipps	Bland
105	1059150	Corringle	Gipps	Bland
106	1059150	Corringle	Gipps	Bland
107	1059150	Corringle	Gipps	Bland
7303	1143731	Corringle	Gipps	Bland
7323	1157291	Corringle	Gipps	Bland
1156	1172077	Corringle	Gipps	Bland

Cameron Neal

From: Alan Williams
Sent: Monday, 7 March 2022 3:35 PM
To: GeospatialSearch@NNTT.Gov.Au
Subject: Cowal Gold Operations, Lake Cowal - Native Title Search Request
Attachments: 1 J190417_Geospatial search_mining.docx; 1 J190417_Geospatial search_non-freehold .docx

Dear Sir/Madam,

In accordance with Heritage NSW consultation requirements, please find attached two search requests for mining tenements and non-freehold land associated with a proposed project in the vicinity of Lake Cowal, north of West Wyalong NSW.

We acknowledge that NNTT is seeking to remove itself from the Heritage NSW process, but unfortunately as this stage the guidelines remain unchanged and we are still required to undertake the search.

Happy to discuss

Best wishes
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

EMM
creating opportunities

T 02 9493 9500
M 0438 104 740
D 02 9493 9584
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SYDNEY | Ground floor, 20 Chandos Street, St Leonards NSW 2065

I work flexibly. I'm sending you this message now because it's a good time for me, but do not expect you to read, respond or actio

National Native Title Tribunal

Request for Spatial Search of Tribunal Registers

1: Your details

Your name:	*Alan Williams*		
Your company:	*EMM Consulting Pty Ltd*		
E-mail address:	*awilliams@emmconsulting.com.au*	Phone:	*02 9493 9584*
Your reference:	*J200919*	Your state:	*New South Wales*
☒	*I have read and acknowledge the terms and conditions on the next page.*		

2: Areas to be searched

Jurisdiction to be searched:	*New South Wales*	Tenure to be searched:	*Mining tenement*

Parcel or tenement identifiers (add up to 20 separate identifiers). **Please see over for parcel identifiers.**

Parcel 1:	*Lot 3 DP593814*	Parcel 2:	*Lot 1 DP580284*
Parcel 3:	*Click or tap here to enter text.*	Parcel 4:	*Click or tap here to enter text.*
Parcel 5:	*Click or tap here to enter text.*	Parcel 6:	*Click or tap here to enter text.*
Parcel 7:	*Click or tap here to enter text.*	Parcel 8:	*Click or tap here to enter text.*
Parcel 9:	*Click or tap here to enter text.*	Parcel 10:	*Click or tap here to enter text.*
Parcel 11:	*Click or tap here to enter text.*	Parcel 12:	*Click or tap here to enter text.*
Parcel 13:	*Click or tap here to enter text.*	Parcel 14:	*Click or tap here to enter text.*
Parcel 15:	*Click or tap here to enter text.*	Parcel 16:	*Click or tap here to enter text.*
Parcel 17:	*Click or tap here to enter text.*	Parcel 18:	*Click or tap here to enter text.*
Parcel 19:	*Click or tap here to enter text.*	Parcel 20:	*Click or tap here to enter text.*

If your search area is not a parcel or mining or petroleum tenement, you can enter other tenure or administrative regions here (e.g. local government area, townsite or county). Please provide as much detail as you can.

- *Gilgunnia (Lot 3 DP593814) Approximately 63km south-west of Nymagee (Cobar Shire).*
- *Milne (Lot 1 DP580284) Approximately 35km south-west of Condobolin (Lachlan Shire).*

E-mail the completed form to GeospatialSearch@NNTT.gov.au

Parcel Identifiers

In most jurisdictions please identify parcels using lot on plan, or lot/section/plan as appropriate. The NNTT is generally not able to identify parcels using land title information. Where possible, the NNTT uses the terminology and formatting of unique identifiers used in each state to uniquely identify a land parcel. More details are below:

1. **Lot on plan**. Use for Western Australia and Queensland.
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3. **LAISKEY**. Use for the Northern Territory. The laiskey is a unique identifier for each parcel comprised of the location code, LTO code (derived from the survey plan) where applicable and the parcel number.
4. **Parcel ID** – Use for South Australia. Concatenation of Parcel Type, Parcel, Plan Type and Plan.
5. **SPI** (Standard Parcel Identifier) – Use for Victoria.

Terms and Conditions

1. Specify only one jurisdiction (e.g. Queensland) and one type of tenure (e.g. mining tenement) per form. You can add up to 20 separate tenements or parcels per search request. For more than 20 parcels or tenements please submit additional search requests or contact GeospatialSearch@NNTT.gov.au to discuss your requirements.

   Note: if your area of interest cannot be clearly identified from the search form, or is not held in NNTT datasets, we may instead provide search results for a surrounding local government area, or other suitable regional area.

2. Freehold land.

   Under the Native Title Act 1993 (Cth), the valid grant of a freehold estate (other than certain types of Aboriginal and Torres Strait Islander land) on or before 23 December 1996 is known as a 'previous exclusive possession act'. This means that native title has been extinguished over the area. Native title claimants are not allowed to include land and waters covered by previous exclusive possession acts in their applications; therefore they would normally exclude freehold areas. A native title application may, however, be made over freehold land on the basis that freehold was invalidly granted, but the chances of this happening are very low.

3. Cultural Heritage in NSW.

   The National Native Title Tribunal has undertaken steps to remove itself from the formal list of sources for information about indigenous groups in development areas. The existence or otherwise of native title is quite separate to any matters relating to Aboriginal cultural heritage. Information on native title claims, native title determinations and Indigenous Land Use Agreements is available on the Tribunal's website.

4. Spatial searches rely on data obtained from the relevant custodian. Whilst efforts are taken to update such datasets on a regular basis, the collection and interpretation of such datasets may be influenced by a number of factors that can impact of the completeness and accuracy of your search results.

Disclaimer

While the National Native Title Tribunal (NNTT) and the Native Title Registrar (Registrar) have exercised due care in ensuring the accuracy of the information provided, it is provided for general information only and on the understanding that neither the NNTT, the Registrar nor the Commonwealth of Australia is providing professional advice. Appropriate professional advice relevant to your circumstances should be sought rather than relying on the information provided. In addition, you must exercise your own judgment and carefully evaluate the information provided for accuracy, currency, completeness and relevance for the purpose for which it is to be used.

The information provided is often supplied by, or based on, data and information from external sources, therefore the NNTT and Registrar cannot guarantee that the information is accurate or up-to-date.

The NNTT and Registrar expressly disclaim any liability arising from the use of this information.

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National Native Title Tribunal

Request for Spatial Search of Tribunal Registers

1: Your details

Your name:	*Alan Williams*		
Your company:	*EMM Consulting Pty Ltd*		
E-mail address:	*awilliams@emmconsulting.com.au*	Phone:	*02 9493 9584*
Your reference:	*J190417*	Your state:	*New South Wales*
☒	*I have read and acknowledge the terms and conditions on the next page.*		

2: Areas to be searched

Jurisdiction to be searched:	*New South Wales*	Tenure to be searched:	*Mining tenement*

Parcel or tenement identifiers (add up to 20 separate identifiers). **Please see over for parcel identifiers.**

Parcel 1:	*ML1535*	Parcel 2:	*Click or tap here to enter text.*
Parcel 3:	*ML1791*	Parcel 4:	*Click or tap here to enter text.*
Parcel 5:	*EL7750*	Parcel 6:	*Click or tap here to enter text.*
Parcel 7:	*Click or tap here to enter text.*	Parcel 8:	*Click or tap here to enter text.*
Parcel 9:	*Click or tap here to enter text.*	Parcel 10:	*Click or tap here to enter text.*
Parcel 11:	*Click or tap here to enter text.*	Parcel 12:	*Click or tap here to enter text.*
Parcel 13:	*Click or tap here to enter text.*	Parcel 14:	*Click or tap here to enter text.*
Parcel 15:	*Click or tap here to enter text.*	Parcel 16:	*Click or tap here to enter text.*
Parcel 17:	*Click or tap here to enter text.*	Parcel 18:	*Click or tap here to enter text.*
Parcel 19:	*Click or tap here to enter text.*	Parcel 20:	*Click or tap here to enter text.*

If your search area is not a parcel or mining or petroleum tenement, you can enter other tenure or administrative regions here (e.g. local government area, townsite or county). Please provide as much detail as you can.

I also include a list of Lot and DPs associated with the project separately.

E-mail the completed form to GeospatialSearch@NNTT.gov.au

Parcel Identifiers

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National Native Title Tribunal

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Your name:	*Alan Williams*		
Your company:	*EMM Consulting Pty Ltd*		
E-mail address:	*awilliams@emmconsulting.com.au*	Phone:	*02 9493 9584*
Your reference:	*J190417*	Your state:	*New South Wales*
☒	*I have read and acknowledge the terms and conditions on the next page.*		

2: Areas to be searched

Jurisdiction to be searched:	*New South Wales*	Tenure to be searched:	*Non freehold parcel*

Parcel or tenement identifiers (add up to 20 separate identifiers). **Please see over for parcel identifiers.**

Parcel 1:	*Lot 100 DP 1059150*	Parcel 2:	*Lot 23 DP 753097*
Parcel 3:	*Lot 37 DP 39733*	Parcel 4:	*Lot 7323 DP 1157291*
Parcel 5:	*Click or tap here to enter text.*	Parcel 6:	*Click or tap here to enter text.*
Parcel 7:	*Click or tap here to enter text.*	Parcel 8:	*Click or tap here to enter text.*
Parcel 9:	*Click or tap here to enter text.*	Parcel 10:	*Click or tap here to enter text.*
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Cameron Neal

From: Alan Williams
Sent: Monday, 7 March 2022 3:17 PM
To: ally@wiradjuricc.com
Cc: Pierre Miquel; Simon Coates; Renee Pettit; Taylar Reid; Sam Ezzy
Subject: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment
Attachments: J190417_CGO_OPC_AR_V1.0.pdf

Dear Ally,

I understand that Mark Hartig (Evolution Mining (Cowal) Pty Ltd) has recently touched base in relation to the proposed expansion of the Cowal Gold Operations at Lake Cowal. As you may be aware, EMM is assisting Evolution in the development of the Environmental Impact Statement for this proposed expansion, and which will include the investigation of Aboriginal heritage across the site.

To address NSW government requirements for the EIS, we are having to implement the Aboriginal consultation process in accordance with Heritage NSW guidelines. This requires us to initially seek information from various government bodies in relation to Aboriginal stakeholders and/or individuals known to work in cultural heritage management in the region. This is then followed by a notification process where we contact those individuals and/or organisations about the project.

As WCC has already been identified as one of the key stakeholders for this project, I just wanted to let you know that we have just initiated the first phase of this process. Specifically, sending the attached letter to Heritage NSW, local council, NTSCorp, West Wyalong LALC and various other government bodies late Friday afternoon. Once we receive responses from these requests, we'll initiate the notification process, likely in a couple of weeks.

I am happy to have a chat about this or other aspects of the consultation process we're going to need to follow in the coming weeks. And I'll touch base when we get the notification going regardless.

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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M 0438 104 740
D 02 9493 9584
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Cameron Neal

From: Barry Gunther <Barry.Gunther@environment.nsw.gov.au>
Sent: Wednesday, 9 March 2022 2:17 PM
To: Alan Williams
Subject: Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project – Bland LGA.
Attachments: J190417_CGO_OPC_AR_V1.0.pdf; Attachment A - DPC RAP list for Bland local government area.docx; RAP list request Lot 1 DP616110 and Cowal Gold Operations Open Pit Continuation Project.docx

Hi Alan,

Please find attached the DPC RAP list for the proposed Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project – Bland LGA.

regards

Barry Gunther, Aboriginal Heritage Planner Officer
Heritage NSW, Community Engagement, Department of Premier and Cabinet
Level 6, 10 Valentine Ave, Parramatta | Locked Bag 5020 Parramatta 2124
T: 02 9995 6830 | barry.gunther @environment.nsw.gov.au

Please lodge all Applications to Heritagemailbox@environment.nsw.gov.au

Website Facebook Instagram LinkedIn

The Heritage Management System is live from 31 May. More information is available here

I acknowledge and respect the traditional custodians and ancestors of the lands I work across.

Heritage NSW and coronavirus (COVID-19)
Heritage NSW has taken steps to protect the safety, health and wellbeing of our staff, communities and customers. Whilst our offices remain open, we have put in place flexible working arrangements for our teams across NSW and continue to adapt our working arrangements as necessary. Face-to-face meetings and field work/site visits with our customers are subject to rules on gatherings and social distancing measures. We thank you for your patience and understanding at this time.

LIST OF ABORIGINAL STAKEHOLDERS FOR THE DEPARTMENT of PREMIER and CABINET (DPC) SOUTHERN REGION HELD BY DPC FOR THE PURPOSES OF THE OEH *ABORIGINAL CULTURAL HERITAGE CONSULTATION REQUIREMENTS FOR PROPONENTS 2010*

These lists are provided to proponents in accordance with section 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements* for *Proponents 2010* (the "Consultation Requirements") which commenced on 12 April 2010.

The consultation process involves getting the views of, and information from, Aboriginal people and reporting on these. It is not to be confused with other field assessment processes involved in preparing a proposal and an application. Consultation does not include the employment of Aboriginal people to assist in field assessment and/or site monitoring. Aboriginal people may provide services to proponents through a contractual arrangement however, this is separate from consultation. The proponent is not obliged to employ those Aboriginal people registered for consultation. Consultation as per these requirements will continue irrespective of potential or actual employment opportunities for Aboriginal people.

A copy of the Consultation Requirements can be found on the OEH website at:
http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf.

Under the Consultation Requirements; a proponent is required to provide Aboriginal people who may hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places as relevant to the proposed project area, with an opportunity to be involved in consultation. Section 3.3.1 of the Consultation Requirements states that Aboriginal people who can provide this information are, based on Aboriginal lore and custom, the traditional owners or custodians of the land that is the subject of the proposed project.

The Consultation Requirements also state that:

> *Traditional owners or custodians with appropriate cultural heritage knowledge to inform decision making who seek to register their interest as an Aboriginal party are those people who:*
> - *continue to maintain a deep respect for their ancestral belief system, traditional lore and custom*
> - *recognise their responsibilities and obligations to protect and conserve their culture and heritage and care for their traditional lands or Country*
> - *have the trust of their community, knowledge and understanding of their culture, and permission to speak about it.*

Please note: the placement of an organisation's name on any OEH Aboriginal stakeholder list for the Consultation Requirements does not override a proponent's requirement to also advertise in the local newspaper and to seek from other sources the names of any other Aboriginal people who may hold cultural knowledge as required under clause 60 of the National Parks and Wildlife Regulation 2019.

How to use this list

1. **Contact the organisations/individuals who have indicated an interest in the relevant LGA/s and invite them to register an interest in your project**

Do not reproduce the attached list in publicly available reports and other documents. Your report should only contain the names of the organisations and individuals who you have invited to register an interest in your project and those who have registered as stakeholders for your project.

Last updated 23 February 2022

Bland Local Government Area

Organisation/ Individual	Contact Name	Email Address/ Fax / Phone	Postal Address	Additional information
Wiradjuri Condobolin Corporation Ltd	Percy Knight (CEO)	Phone: 02 6895 4664 percyknightwcc@bigpond.com	PO Box 194 CONDOBOLIN NSW 2877	
Mooka Traditional Owners Council		No contact details available		
Wiradjuri Council of Elders	David Acheson (Secretary)	wiradjurielderscouncil@gmail.com Mobile: 0429007129		

Premier & Cabinet

Our reference: Doc22/170380

Dr Alan Williams
National Technical Leader, Aboriginal heritage
EMM Consulting
Ground floor, 20 Chandos Street St
Leonards NSW 2065

9/03/2022

Dear Alan,

WRITTEN NOTIFICATION OF PROPOSAL AS REQUIRED UNDER DECCW ABORIGINAL CULTURAL HERITAGE CONSULTATION REQUIREMENTS FOR PROPONENTS 2010

Subject: Cowal Gold Operations Open Pit Continuation Project.

Thank you for your correspondence dated 4 March 2022 to Heritage NSW (Department of Premier and Cabinet) regarding the above project.

Attached is a list of known Aboriginal parties for the proposed development at Bland local Government Area that Heritage NSW considers likely to have an interest in the activity.

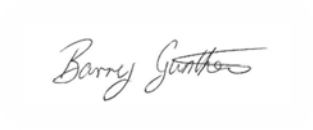
Please note this list is not necessarily an exhaustive list of all interested Aboriginal parties.

Receipt of this list does not remove the requirement of a proponent/ consultant to advertise in local print media and contact other bodies seeking interested Aboriginal parties, in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (April 2010).

Under Section 4.1.6. of the Consultation Requirements, you must also provide a copy of the names of each Aboriginal person who registered an interest to the relevant Heritage NSW office and Local Aboriginal Land Council (LALC) within 28 days from the closing date for registering an interest.

Please note that the contact details in the list provided by Heritage NSW may be out of date as it relies on Aboriginal parties advising Heritage NSW when their details need changing. If individuals/companies undertaking consultation are aware that any groups contact details are out of date, or letters are returned unopened, please contact either the relevant stakeholder group (if you know their more current details) and/or Heritage NSW. AHIP applicants should make a note of any group they are unable to contact as part of their consultation record.
If you have any questions about this advice, please email:
heritagemailbox@environment.nsw.gov.au or contact (02) 9873 8500.

Yours sincerely



Barry Gunther
Aboriginal Heritage Planner
Aboriginal Heritage Regulation Branch – South Heritage NSW

Attachment A: Registered Aboriginal Interests DPC RAP List for the **Bland** Local Government Area

Cameron Neal

From: Sandra Best <sandra.best@lls.nsw.gov.au>
Sent: Wednesday, 9 March 2022 4:00 PM
To: Alan Williams
Cc: Fin Martin; Greg Packer
Subject: RE: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - information request
Attachments: RLLS Response to EMM Creating Opportunities ACHA - West Wyalong_Young.pdf

Dear Alan,
Please see attached response relating to your ACHA enquiry for Cowal Gold Operations Open Pit Continuation Project.

If you require further information, please contact Greg Packer (Snr Land Services Officer, Aboriginal Communities) on email gregory.packer@lls.nsw.gov.au or phone 0427 262 470.

Regards,
On behalf of,
Fin Martin | **Acting General Manager**
Riverina Local Land Services
93a Main St | Young NSW 2594 | PO Box 46
E: fin.martin@lls.nsw.gov.au | M: 0418 402 572 | W: 02 6381 4706
W: www.lls.nsw.gov.au

Sandra Best
Executive Assistant | Riverina Local Land Services
E: sandra.best@lls.nsw.gov.au
M: 0460 643 497 | **T:** 269601338
A: PO Box 1087 Griffith NSW 2680 | 200 Murray Rd Hanwood NSW 2680

NSW GOVERNMENT Local Land Services

Please rate our service
We are committed to providing excellent customer service and welcome your feedback for continuous improvement here: rateitnow.com/riverinallsregion

From: Alan Williams <awilliams@emmconsulting.com.au>
Sent: Friday, 4 March 2022 3:22 PM
To: OEH HD Heritage Mailbox <HERITAGEMailbox@environment.nsw.gov.au>; OLG - Bland Shire Council <council@blandshire.nsw.gov.au>; LLS Admin Riverina Mailbox <admin.riverina@lls.nsw.gov.au>; information@ntscorp.com.au; ww.lalc@bigpond.com
Cc: Andrew Woidt <awoidt@emmconsulting.com.au>; Taylar Reid <treid@emmconsulting.com.au>; Pierre Miquel <Pierre.Miquel@evolutionmining.com>; Simon Coates <Simon.Coates@evolutionmining.com>; Sam Ezzy <sezzy@emmconsulting.com.au>; Nicole Davis <Nicole.Davis@environment.nsw.gov.au>

Subject: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - information request

Dear Sir/Madam,

EMM Consulting Pty Limited has been engaged by Evolution Mining (Cowal) Pty Limited (Evolution) to undertake an Aboriginal cultural heritage assessment (ACHA) for the proposed Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project. Evolution is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the project, which will involve the development of additional open-cut pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. Please see attached letter for further information.

In accordance with Heritage NSW guidelines, we are contacting your organisation to request information of any known Aboriginal individuals and/or organisations within your operational area that may be interested to be consulted on the project. Could you please provide me with this information at your earliest convenience?

Happy to discuss,

Best wishes
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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M 0438 104 740
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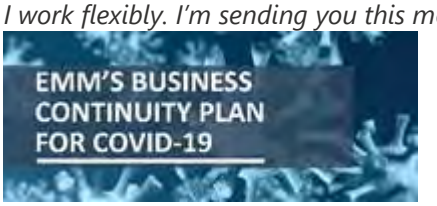

Riverina Local Land Services
Building 24, Darnell-Smith Drive
PO Box 513
Wagga Wagga NSW 2650
Tel: 02 6923 6300
www.lls.nsw.gov.au/riverina

CM9 Ref: DOC22/26708

9 March 2022

EMM Creating Opportunities
PO Box 21
ST LEONARDS NSW 1590
info@emmconsulting.com.au

Dear Alan,

Cowal Gold Operations Open Pit Continuation Project: Aboriginal cultural heritage assessment - request for Aboriginal stakeholder information

I refer to your correspondence of 4 March 2022 seeking recommendations for Aboriginal consultation in regard to the Cowal Gold Operations Open Pit Continuation Project, Aboriginal Cultural Heritage Assessment, notification. I recommend that you contact the West Wyalong and Young, Local Aboriginal Lands Council to see if they would be willing to be a member of the proposed Aboriginal community consultation group. Contact details are as follows:

CEO Linton Howarth
West Wyalong LALC
76-78 Main St
WEST WYALONG NSW 2671
T: 02 69723493
E: ww.lalc@bigpond.com

CEO Norma Freeman
Young LALC
247 Boorowa St NSW 2594
T: 0263825669
E: younglalc@gmail.com

If you have any questions or would like to discuss this further with Local Land Services staff, please contact Greg Packer (Snr Land Services Officer, Aboriginal Communities) on email gregory.packer@lls.nsw.gov.au or phone 0427 262 470.

Yours sincerely,

Fin Martin
Acting General Manager

Cameron Neal

From: Geospatial Search Requests <GeospatialSearch@NNTT.gov.au>
Sent: Tuesday, 8 March 2022 12:51 PM
To: Alan Williams
Subject: RE: SR22/318 - Cowal Gold Operations, Lake Cowal - Native Title Search Request - SR22/318 [SEC=OFFICIAL]

OFFICIAL

Native title search – *NSW Parcels & Tenements – Multiple*
Your ref: *J190417* - **Our ref:** *SR22/318*

Dear Alan Williams **,**

Thank you for your search request received on 08 March 2022 in relation to the above area, please find your results below.

Search Results
The results provided are based on the information you supplied and are derived from a search of the following Tribunal databases:

- Schedule of Native Title Determination Applications
- Register of Native Title Claims
- Native Title Determinations
- Indigenous Land Use Agreements (Registered and notified)

Feature ID	Tenure	As At	Feature Area SqKm	Overlapping Native Title Feature			
				NNTT File Number	Name	Category	% Selected Feature
EL7750 (2011)	Mining	2/03/2022	590.0228	No overlap			0.00%

ML1535 (2003)	Mining	2/03/2022	26.2817	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
				No overlap			0.00%
ML1791 (2019)	Mining	2/03/2022	2.4742	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
				No overlap			0.00%

Feature ID	Tenure	As At	Feature Area SqKm	Overlapping Native Title Feature			
100//DP1059150	CROWN	11/10/2021	1.9242	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
				No overlap			0.00%
23//DP753097	FREEHOLD	11/10/2021	4.9581	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
				No overlap			0.00%
37//DP39733	CROWN	11/10/2021	0.2061	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
				No overlap			0.00%
7323//DP1157291	CROWN	11/10/2021	2.2028	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
				No overlap			0.00%

For more information about the Tribunal's registers or to search the registers yourself and obtain copies of relevant register extracts, please visit our website.

Information on native title claims and freehold land can also be found on the Tribunal's website here: Native title claims and freehold land .

Please note: There may be a delay between a native title determination application being lodged in the Federal Court and its transfer to the Tribunal. As a result, some native title determination applications recently filed with the Federal Court may not appear on the Tribunal's databases.

The search results are based on analysis against external boundaries of applications only. Native title applications commonly contain exclusions clauses which remove areas from within the external boundary. To determine whether the areas described are in fact subject to claim, you need to refer to the "Area covered by claim" section of the relevant Register Extract or Schedule Extract and any maps attached.

Search results and the existence of native title

Please note that the enclosed information from the Register of Native Title Claims and/or the Schedule of Applications is **not** confirmation of the existence of native title in this area. This cannot be confirmed until the Federal Court makes a determination that native title does or does not exist in relation to the area. Such determinations are registered on the National Native Title Register.

The Tribunal accepts no liability for reliance placed on enclosed information
The enclosed information has been provided in good faith. Use of this information is at your sole risk. The National Native Title Tribunal makes no representation, either express or implied, as to the accuracy or suitability of the information enclosed for any particular purpose and accepts no liability for use of the information or reliance placed on it.

Cultural Heritage Searches in NSW
The National Native Title Tribunal (the Tribunal) has undertaken steps to remove itself from the formal list of sources for information about indigenous groups in development areas. The existence or otherwise of native title is quite separate to any matters relating to Aboriginal cultural heritage. Information on native title claims, native title determinations and Indigenous Land Use Agreements is available on the Tribunal's website.

Interested parties are invited to use Native Title Vision (NTV) the Tribunal's online mapping system to discover native title matters in their area of interest. Access to NTV is available at http://www.nntt.gov.au/assistance/Geospatial/Pages/NTV.aspx
Training and self-help documents are available on the NTV web page under "Training and help documents". For additional assistance or general advice on NTV please contact GeospatialSearch@NNTT.gov.au

Additional information can be extracted from the Registers available at http://www.nntt.gov.au/searchRegApps/Pages/default.aspx

If you have any further queries, please do not hesitate to contact us via GeospatialSearch@NNTT.gov.au

Regards,

Geospatial Searches
National Native Title Tribunal | Perth
Email: GeospatialSearch@nntt.gov.au | **www.nntt.gov.au**

From: Alan Williams <awilliams@emmconsulting.com.au>
Sent: Monday, 7 March 2022 12:35 PM
To: Geospatial Search Requests <GeospatialSearch@NNTT.gov.au>
Subject: SR22/318 - Cowal Gold Operations, Lake Cowal - Native Title Search Request

Dear Sir/Madam,

In accordance with Heritage NSW consultation requirements, please find attached two search requests for mining tenements and non-freehold land associated with a proposed project in the vicinity of Lake Cowal, north of West Wyalong NSW.

We acknowledge that NNTT is seeking to remove itself from the Heritage NSW process, but unfortunately as this stage the guidelines remain unchanged and we are still required to undertake the search.

Happy to discuss

Best wishes
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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T 02 9493 9500
M 0438 104 740
D 02 9493 9584
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SYDNEY | Ground floor, 20 Chandos Street, St Leonards NSW 2065

I work flexibly. I'm sending you this message now because it's a good time for me, but do not expect you to read, respond or action it outside your regular hours

16 March 2022

Level 3, 175 Scott Street
Newcastle NSW 2300

T 02 4907 4800
E info@emmconsulting.com.au

www.emmconsulting.com.au

Re: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification of project

Dear Sir/Madam,

Evolution Mining (Cowal) Pty Limited (Evolution) operates the Cowal Gold Operations (CGO) located approximately 38 km north-east of West Wyalong NSW within the Bland Shire Local Government Area (LGA) (Figure 1.1 and Figure 1.2). Evolution is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the CGO Open Pit Continuation (OPC) Project (the Project), which will involve the development of additional open pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. EMM Consulting Pty Limited (EMM) is undertaking an Aboriginal cultural heritage assessment (ACHA) to identify the potential presence of Aboriginal cultural heritage values, and to support Evolution in their efforts to avoid and minimise impacts to Aboriginal cultural heritage as a result of the proposed construction and operation of the Project.

The proponent is Evolution Mining (Cowal) Pty Limited, and the Project contact is Simon Coates (Superintendent – Environment, CGO); Lake Cowal NSW 2671; phone: 0437 371 886; e-mail: Simon.Coates@evolutionmining.com.

This Project is being undertaken in accordance with Heritage NSW's *Aboriginal cultural heritage consultation requirements for proponents 2010*. As per the first stage of the NSW State government consultation guidelines, I am writing to notify you of the Project and seeking you and/or your organisation's interest in being registered for subsequent consultation and involvement. We are interested in Aboriginal individuals and/or organisations who may hold relevant cultural knowledge for determining the Aboriginal cultural heritage of the area, and who wish to be involved in the Project.

The purpose of consultation is to assist the proponent to:

1. Assess the Aboriginal cultural heritage values of the area.

2. Assist NSW Government in the assessment of Aboriginal cultural heritage reports prepared for this Project.

3. Support any future applications or approvals for the Project sought under the NSW *Environmental Planning and Assessment Act 1979* and/or the NSW *National Parks and Wildlife Act 1974*.

If you wish to register your interest as an Aboriginal party your registration must be in writing (letter or email). This information must be received by EMM (see contact details below) by close of business on **1 April 2022**.

> Alan Williams, EMM Consulting Pty Limited; 20 Chandos Street, St Leonards, NSW 2065; phone: 0438 104 740; e-mail: awilliams@emmconsulting.com.au

In your response, please provide the following information:

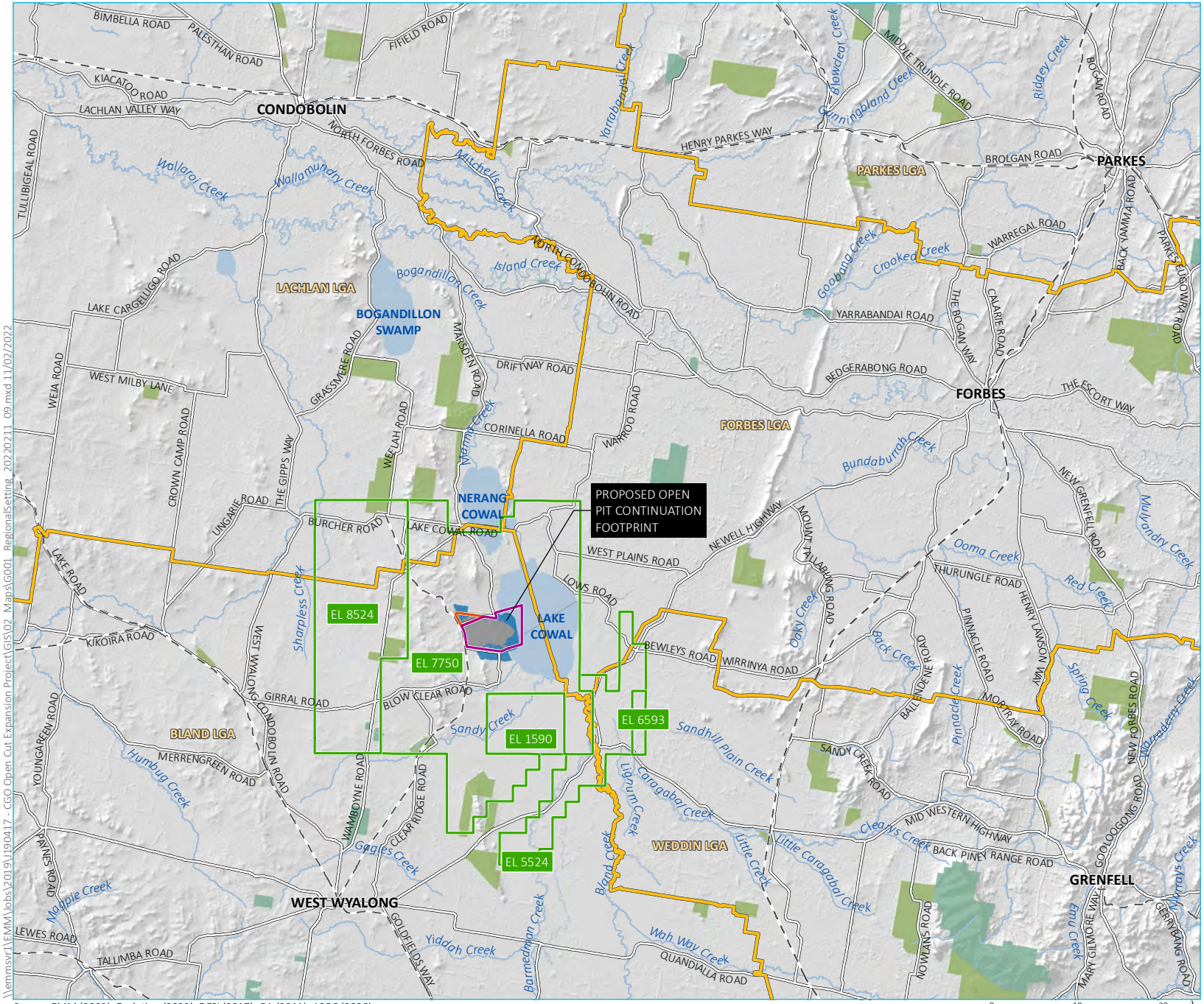
- clear identification of the individual and/or organisation registering an interest. Please ensure all contact details and personnel are provided, including relevant phone, address and e-mail (if available);
- preferred communication method (eg e-mail) during the consultation of this Project, along with your organisation's nominated contact person and their phone, address and e-mail contact details (if available);
- the level of Project involvement you or your organisation wishes, including attendance at meetings, fieldwork participation and/or simply reviewing documentation;
- identification of any procedures, protocols or requirements for the use and reproduction of any cultural information or materials you or your organisation provides EMM Heritage as part of this Project; and
- identification of any Aboriginal objects, sites and/or areas of cultural value that you are aware of in, or near, the Project area.

As required by the consultation guidelines, details of people registering as Aboriginal Parties will be forwarded to Heritage NSW and the relevant Local Aboriginal Land Council unless you specify otherwise in your response.

If you have any questions or enquiries, please don't hesitate to contact us.

Yours sincerely,

Dr Alan Williams
Associate Director
awilliams@emmconsulting.com.au



\\emmsvr1\EMM\Jobs\2019\J190417 - CGO Open Cut Expansion Project\GIS\02 Maps\G001 RegionalSetting 20220211 09.mxd 11/02/2022

Source: EMM (2022); Evolution (2022); DFSI (2017); GA (2011); ASGC (2006)

Regional context

Evolution Mining
Cowal Gold Operations
Open pit continuation project
Figure 1.1

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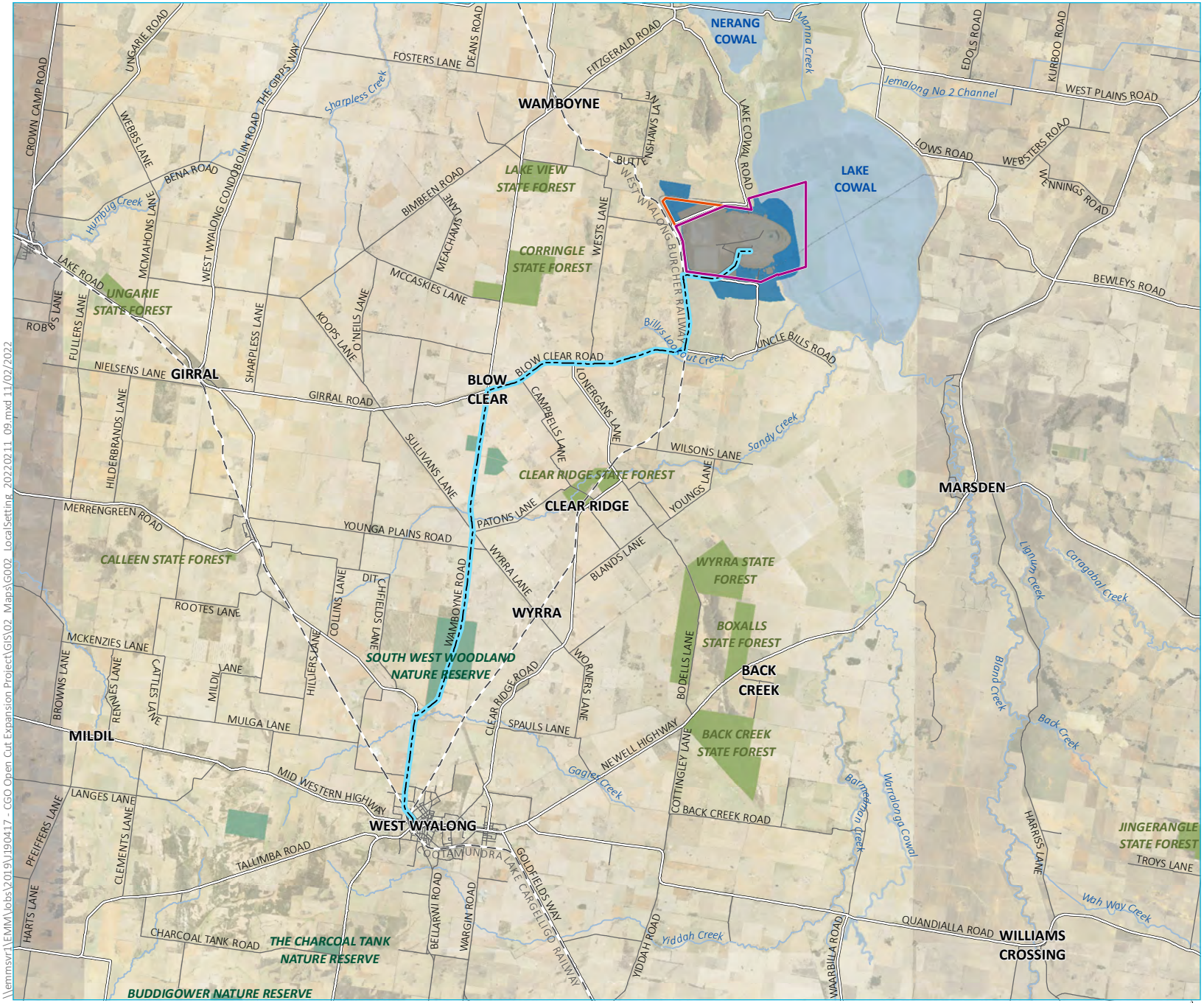
NERANG COWAL
WAMBOYNE
LAKE COWAL
LAKE VIEW STATE FOREST
CORRINGLE STATE FOREST
LINGARIE STATE FOREST
GIRRAL
BLOW CLEAR
CLEAR RIDGE STATE FOREST
CLEAR RIDGE
MARSDEN
WYRRA STATE FOREST
WYRRA
BOXALLS STATE FOREST
BACK CREEK
BACK CREEK STATE FOREST
CALLEEN STATE FOREST
SOUTH WEST WOODLAND NATURE RESERVE
MILDIL
WEST WYALONG
JINGERANGLE STATE FOREST
WILLIAMS CROSSING
THE CHARCOAL TANK NATURE RESERVE
BUDDIGOWER NATURE RESERVE
COOTAMUNDRA LAKE CARGELLIGO RAILWAY
WEST WYALONG BURCHER RAILWAY
NEWELL HIGHWAY
MID WESTERN HIGHWAY
BLOW CLEAR ROAD
GIRRAL ROAD
YOUNGA PLAINS ROAD
MERRENGREEN ROAD
BENA ROAD
TALLIMBA ROAD
CHARCOAL TANK ROAD
QUANDIALLA ROAD
BACK CREEK ROAD
WEST PLAINS ROAD
FOSTERS LANE
FITZGERALD ROAD
LAKE COWAL ROAD
BIMBEEN ROAD
MCCASKIES LANE
WILSONS LANE
PATONS LANE
MULGA LANE
SPAULS LANE
LANGES LANE
ROOTES LANE
MCKENZIES LANE
BEWLEYS ROAD
UNCLE BILLS ROAD
WEBSTERS ROAD
LOWS ROAD
WANNINGS ROAD
Jemalong No 2 Channel
Manna Creek
Sharpless Creek
Humbug Creek
Billys Lookout Creek
Sandy Creek
Lignum Creek
Caragabal Creek
Back Creek
Barmedman Creek
Warralonga Cowal
Yiddah Creek
Wah Way Creek
Gagiel Creek
Source: EMM (2022); Evolution (2022); DFSI (2017)
0
5
10
km
GDA 1994 MGA Zone 55
N
KEY
Proposed disturbance footprint
DA14/98 approved surface disturbance
Mining lease (ML1535)
Mining lease (ML1791)
West Wyalong preferred transport route
Rail line
Major road
Minor road
Named watercourse
Named waterbody
NPWS reserve
State forest
Local context
Evolution Mining
Cowal Gold Operations
Open pit continuation project
Figure 1.2
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\\emmsvr1\EMM\Jobs\2019\J190417 - CGO Open Cut Expansion Project\GIS\02 Maps\G002 LocalSetting 20220211 09.mxd 11/02/2022

Cameron Neal

From: Alan Williams
Sent: Thursday, 17 March 2022 10:56 AM
To: wiradjurielderscouncil@gmail.com
Cc: Taylar Reid; Pierre Miquel; Simon Coates; Sam Ezzy; Andrew Woidt
Subject: RE: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification
Attachments: J190417_CGO_OPC_Invite_V1.0.pdf

Dear David,

EMM Consulting Pty Limited has been engaged by Evolution Mining (Cowal) Pty Limited (Evolution) to undertake an Aboriginal cultural heritage assessment (ACHA) for the proposed Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project. Evolution is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the project, which will involve the development of additional open pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. Please see attached letter for further information.

Following a search of government agencies for Aboriginal organisations relevant to the project area, your organisation was identified. As such, in accordance with Heritage NSW guidelines, we are contacting your organisation to identify your interest in being consulted on this project and to assist us in the development of the ACHA. Could you please get back to me if interested by the 1 April 2022. Once the notification period has expired, we'll organise more detailed meetings and briefings on the project with yourself and other key stakeholders.

I also just highlight that as per the guidelines, an invitation to register will also appear in the *West Wyalong Advocate* tomorrow.

Happy to discuss

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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M 0438 104 740
D 02 9493 9584
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SYDNEY | Ground floor, 20 Chandos Street, St Leonards NSW 2065

Cameron Neal

From: Wiradjuri Elders <wiradjurielderscouncil@gmail.com>
Sent: Tuesday, 5 April 2022 1:38 PM
To: Alan Williams
Subject: Re: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification
Attachments: image002.png

Alan, th Council of Elders is interested

On Thu, 17 Mar. 2022, 10:56 am Alan Williams, <awilliams@emmconsulting.com.au> wrote:

> Dear David,
>
> EMM Consulting Pty Limited has been engaged by Evolution Mining (Cowal) Pty Limited (Evolution) to undertake an Aboriginal cultural heritage assessment (ACHA) for the proposed Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project. Evolution is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the project, which will involve the development of additional open pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. Please see attached letter for further information.
>
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>
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>
> Happy to discuss
>
> Thanks
>
> Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director

National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

T 02 9493 9500

M 0438 104 740

D 02 9493 9584

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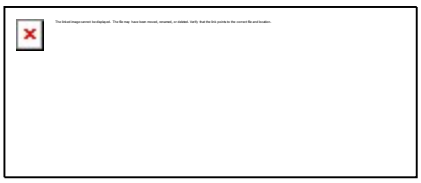

Cameron Neal

From: Alan Williams
Sent: Thursday, 17 March 2022 10:54 AM
To: ally@wiradjuricc.com
Cc: Taylar Reid; Pierre Miquel; Simon Coates; Sam Ezzy; Andrew Woidt
Subject: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification
Attachments: J190417_CGO_OPC_Invite_V1.0.pdf

Dear Ally,

As you may be aware, EMM Consulting Pty Limited has been engaged by Evolution Mining (Cowal) Pty Limited (Evolution) to undertake an Aboriginal cultural heritage assessment (ACHA) for the proposed Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project. Evolution is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the project, which will involve the development of additional open pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. Please see attached letter for further information.

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Happy to discuss

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

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M 0438 104 740
D 02 9493 9584
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Cameron Neal

From: Ally | Wiradjuri Condobolin Corporation <ally@wiradjuricc.com>
Sent: Thursday, 31 March 2022 8:52 AM
To: Alan Williams
Subject: RE: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification

Apologies Alan
Very keen to be involved and will look forward to further contact
Regards
Ally Coe

Sent from Mail for Windows

From: Alan Williams
Sent: Wednesday, 30 March 2022 2:47 PM
To: Ally | Wiradjuri Condobolin Corporation
Subject: FW: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification

Hi Ally,

Just following up on my e-mail below, since the notification period is nearing expiry and I don't believe we have heard from the WCC to date.

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director | National Technical Leader, Aboriginal Heritage
T 02 9493 9584
M 0438 104 740
www.emmconsulting.com.au

I work flexibly. I'm sending you this message now because it's a good time for me, but do not expect you to read, respond or action it outside your regular hours

From: Alan Williams <awilliams@emmconsulting.com.au>
Sent: Thursday, 17 March 2022 10:54 AM
To: ally@wiradjuricc.com
Cc: Taylar Reid <treid@emmconsulting.com.au>; Pierre Miquel <Pierre.Miquel@evolutionmining.com>; Simon Coates <Simon.Coates@evolutionmining.com>; Sam Ezzy <sezzy@emmconsulting.com.au>; Andrew Woidt <awoidt@emmconsulting.com.au>
Subject: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification

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Happy to discuss

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

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M 0438 104 740
D 02 9493 9584
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Cameron Neal

From: Alan Williams
Sent: Thursday, 17 March 2022 10:51 AM
To: ww.lalc@bigpond.com
Cc: Taylar Reid; Pierre Miquel; Simon Coates; Sam Ezzy; Andrew Woidt
Subject: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification
Attachments: J190417_CGO_OPC_Invite_V1.0.pdf

Dear Linton,

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D 02 9493 9584
Connect with us

SYDNEY | Ground floor, 20 Chandos Street, St Leonards NSW 2065

Cameron Neal

From: West Wyalong LALC <ww.lalc@bigpond.com>
Sent: Thursday, 31 March 2022 9:22 AM
To: Alan Williams
Subject: RE: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification

Dear Alan,
West Wyalong Local Aboriginal Land Council has an interest and would like to be consulted with and involved in the development of the ACHA.
Regards,

linton

Linton Howarth
Chief Executive Officer
West Wyalong LALC

76-78 Main St West Wyalong
NSW 2671
Ph 0269723493

From: Alan Williams <awilliams@emmconsulting.com.au>
Sent: Wednesday, 30 March 2022 2:47 PM
To: ww.lalc@bigpond.com
Subject: FW: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification

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Just following up on my e-mail below, since the notification period is nearing expiry and I don't believe we have heard from the LALC to date.

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director | National Technical Leader, Aboriginal Heritage
T 02 9493 9584
M 0438 104 740
www.emmconsulting.com.au

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To: ww.lalc@bigpond.com
Cc: Taylar Reid <treid@emmconsulting.com.au>; Pierre Miquel <Pierre.Miquel@evolutionmining.com>; Simon Coates <Simon.Coates@evolutionmining.com>; Sam Ezzy <sezzy@emmconsulting.com.au>; Andrew Woidt <awoidt@emmconsulting.com.au>
Subject: Cowal Gold Operations Open Pit Continuation Project - Aboriginal cultural heritage assessment - notification

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Happy to discuss

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

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D 02 9493 9584
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SYDNEY | Ground floor, 20 Chandos Street, St Leonards NSW 2065

I work flexibly. I'm sending you this message now because it's a good time for me, but do not expect you to read, respond or actio

THANK YOU

Thank You

We would like to sincerely thank those who have, and continue to, support us since the loss of our dearest son and little brother, Keelan.
Your support and generosity has been overwhelming and we are extremely grateful.

Trent, Carlie, Kade and Kelsie

Return Thanks

The family of the late Monica Glennon would like to extend their appreciation to those who sent heartfelt messages and phone calls, cards, food and attended her final farewell.
Thank you to Dr William, Dr Wail, Dr Huda and Dr Dinesh, the West Wyalong Hospital staff and Ambulance Paramedics who have all attended to Monica over the past years.
Thank you to the RFBI Waratah Village for the care given to Monica during her stay, we are so lucky to have all of these services.
Finally, a big thank you to the West Wyalong Community for looking out for Monica.
Please accept this as our pesonal thanks

The Glennon and Gannon family

IN MEMORIAM

Michael Jazza WORNER
5/7/1949 - 12/3/2016

You Never Said Goodbye
(Author unknown)

You never said I'm leaving
You never said goodbye.
You were gone before we knew it,
And only God knew why.

A million times we needed you,
A million times we cried.
If love alone could have saved you
You never would have died.

In life we loved you dearly,
In death we love you still.
In our hearts you hold a place,
That no one could ever fill.

It broke our hearts to lose you,
But you didn't go alone.
For part of us went with you,
The day God took you home.

Never forgotten
Love Rod, Sally, Sharni and Cody

IN MEMORIAM

NEIL STUART SCOTT
13.7.1957 - 19.3.2017

You left without a goodbye,
You gave so much, you helped so many.
Sadly missed by your wife Naomi,
Sons Kirk, Luke, Joe & families

Rest in Eternity

Keelan Thomas GLASGOW
23.10.2008 - 20.03.2021

You are missed and loved more than words can ever say,
You are and will always be a part of us.

Love always Mum, Dad, Kade & Kelsie

CHURCH NOTICES

COMMUNITY CHURCH wwcc.net.au
West Wyalong (opposite Bernardi's): Sundays at 10.30am.
Ungarie (44 Muriel, St): Sundays at 9am. Cameron Webber (Pastor), 6972 2079

GATEWAY INDEPENDENT BAPTIST CHURCH
Non Pentecostal, Pastor John van der Spek. Email spekies58@gmail.com or phone 0404 074 140.

LUTHERAN CHURCH
Preaching service Sunday, March 20 at 11am. Pastor Darren Kupke. Phone 6977 4757 or 0458 774 757

ST MARY'S CATHOLIC CHURCH
Weekday Masses 8am (except Saturday). Sunday Masses: Lake Cargelligo 6pm Saturday; Ungarie 8am Sunday; West Wyalong 9.30am Sunday. Phone 6972 3655. Parish website: http://cg.org/wyalong/Home,aspx

LAKE FAITH CHURCH
Pastor Paul Stead, 8 Golden Street, West Wyalong. Phone 0429 600 579

PRESBYTERIAN CHURCH
Sunday meetings, 10.30am at 14 Shire Street. Andrew Cooper, Home Missionary 6972 2143

ST BARNABAS ANGLICAN CHURCH - West Wyalong
Morning Prayer service each Sunday @ 9.30am
For further information contact one of our wardens: Frank Magrath on 6972 3079, Marie Seckold on 6972 4172 or Geoff West on 0427 753 427.

PUBLIC NOTICE

Invitation for Registrations of Interest – Aboriginal Cultural Heritage Assessment – CGO Open Pit Continuation Project, Bland Shire LGA

Evolution Mining (Cowal) Pty Ltd (Evolution) currently operates Cowal Gold Operations (CGO) (Lake Cowal NSW 2671) and is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the CGO Open Pit Continuation (OPC) Project, which will involve the development of additional open pits to enhance opportunities associated with the underground mine currently under development. CGO is located ~38 km north-east of West Wyalong NSW within the Bland Shire Local Government Area (LGA).

Aboriginal organisations or Aboriginal persons who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or Aboriginal places in the area of the proposed Project are invited to register an interest in a process of community consultation with the proponent.

The purpose of community consultation with Aboriginal people is to assist in: assessing the Aboriginal cultural heritage values of the area; complying with conditions of a development application under Part 4 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act); assist regulators in the assessment of Aboriginal heritage reports prepared for this Project; the preparation of an Aboriginal Heritage Impact Permit (AHIP). application; and any future applications under Part 4, Part 5, Part 4 Division 4.7 or Part 5.2 of the EP&A Act.

Registrations of interest must be submitted to the below contact details on or before April 1, 2022.

EMM Consulting Pty Ltd
Attn: Alan Williams
20 Chandos Street, St Leonards, NSW 2065
Phone: 02 9493 9500
Email: awilliams@emmconsulting.com.au

DEATH/FUNERAL NOTICE

Funeral Notice

RONALD COOPER

08.04.1939 - 13.03.2022

Ronald Robert Cooper, passed away suddenly on Sunday, March 13, 2022. Late of Brown Street, West Wyalong. Dearly loved husband of Marjorie (deceased). Loving father and father-in-law of Gillian & Stewart McKenzie, Fiona & Stephen Buchanan, Sallyanne & Andrew Smith and Courtney & Michael Miles. Much loved and devoted Pop of Jessica, Carly, Emma, Holly, Grace, Eloise, Amelia, Cooper and Freddy and great-grandchildren Spencer, Audrey, Jameson, Mateo, Nicolas, Lucas, Parker and Hudson. Aged 82 years.

Relatives and friends are respectfully informed that a Service of Thanksgiving celebrating Ron's life will be held in St Mary's Catholic Church, West Wyalong on **Thursday, March 24, 2022** commencing at **11am** followed by interment in Wyalong Lawn Cemetery.

BLAND DISTRICT FUNERAL SERVICE
STEPHEN & MARIE COOKE
ACCREDITED MEMBER OF FDA OF NSW
169 MAIN STREET, WEST WYALONG 2671
0428 848 543 / 0418 437 635

'Little Randwick in the West' ready for racing

The Tullibigeal Family Picnic Race Day is on Saturday, March 26 and is sure to be another fantastic day of racing and entertainment.

Committee members have been busy organising and preparing for what promises to be a quality form race meet.

The day features a six-race program with on-course betting and more than $27,000 up for grabs in prize money.

There is also over $2000 in prize money up for grabs in the 'Fashions on the Field' competition and 'Golden Gumboot Foot Race'.

Tullibigeal plans on welcoming visitors from far and wide.

To ensure all members of the family enjoy the race day there will be a jumping castle, laser tag, sand art and face painting to keep the kids entertained so get along and also enjoy a delicious barbecue, variety of food vans and full bar facilities.

The committee has acknowledged its major sponsors - Dunk Insurance, Frampton Flat Feedlot, O'Connors, Andersons Chartered Accountants, Chamen IGA, Deano's Diggers, Ron Tyack Memorial, Elders Lake Cargelligo, Lachlan Agencies, Richard Worner Transport, Riverina Livestock Agents, Wheatley Earthmoving, Wimmera Stock and Grain, Alan Rands Electrical, Kevin Miller Whitty Lennon and Co, Oilsplus, C Tyack Shed, Pioneer Water Tanks and West Wyalong Vet Clinic.

It is thanks to the support of these businesses the race meet is such a successful and popular event on the NSW racing calendar.

There is camping available on site or at the nearby Tullibigeal Pioneer Park camping area or buses are travelling from West Wyalong and Lake Cargelligo.

Gates open at 12 noon, final drinks at 7.30pm.

You can purchase tickets online at www.123tix.

See advertisement on Page 5.

PICTURED above are some of the West Wyalong Under-12 junior cricketers following their last game of the season and below is the West Wyalong/Cowra Under-14s representative team who have also now completed their season.

Cameron Neal

From: Alan Williams
Sent: Thursday, 14 April 2022 9:08 PM
To: OEH HD Heritage Mailbox; ww.lalc@bigpond.com
Cc: Nicole.Davis@environment.nsw.gov.au; Ryan Desic
Subject: Cowal Gold Operations Open Pit Continuation Project - ACH - completion of notification process
Attachments: J190417_CGO_OPC_Invite_V1.0.pdf; Aboriginal Heritage Ad - West Wyalong Advocate.JPG

Dear Nic and Linton,

EMM Consulting Pty Ltd is undertaking an Aboriginal cultural heritage assessment (ACHA) for Evolution Mining's proposed Cowal Gold Operations Open Pit Continuation (OPC) Project at Lake Cowal. As part of the ACHA, we have recently completed a notification process to identify interested Aboriginal individuals and/or organisations wishing to be consulted on the project. In accordance with the consultation guidelines, please find attached an example of the notification documents distributed for your information, and a list of those that registered an interest below:

- West Wyalong Local Aboriginal Land Council.
- Wiradjuri Condobolin Corporation.
- Wiradjuri Council of Elders.

If you have further questions or enquiries, please don't hesitate to contact me.

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

EMM
creating opportunities

T 02 9493 9500
M 0438 104 740
D 02 9493 9584
Connect with us

SYDNEY | Ground floor, 20 Chandos Street, St Leonards NSW 2065

I work flexibly. I'm sending you this message now because it's a good time for me, but do not expect you to read, respond or actio

B.4 Stages 2 and 3 – presentation of information and gathering cultural information

Level 3, 175 Scott Street
Newcastle NSW 2300

T 02 4907 4800
E info@emmconsulting.com.au

www.emmconsulting.com.au

21 April 2022

Re: Cowal Gold Operations Open Pit Continuation Project - Aboriginal consultation letter - proposed project information and methods for assessment and gathering cultural information

Dear Sir/Madam,

1 Introduction

Thank you for nominating your interest as registered Aboriginal party (RAP) for the Cowal Gold Operations (CGO) Open Pit Continuation Project (OPC) Project (the Project). The proponent, Evolution Mining (Cowal) Pty Limited (Evolution), is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the Project, which will involve the development of additional open pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. If approved, the Project will extend the total life of the mine by two years to 2042. CGO and the proposed Project are approximately 38 km north-east of West Wyalong NSW within the Bland Shire Local Government Area (LGA) (Figure 1.1 to Figure 1.3).

The Project is identified as State Significant Development (SSD) under the provisions of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). A SSD Project application requires approval from the NSW Minister for Planning or the Independent Planning Commission (IPC) and must be accompanied by an environmental impact statement (EIS). The assessment of Aboriginal cultural heritage will be one of several investigations included in the EIS. However, it should be noted that SSD Projects do not require separate approvals under the *National Parks and Wildlife Act 1974* (eg Aboriginal heritage impact permits, also known as AHIPs), rather any subsequent requirements for heritage are managed in accordance with the conditions of approval, provided by the Minister.

EMM Consulting Pty Limited (EMM) has been engaged by the proponent Evolution to prepare the Aboriginal cultural heritage assessment (ACHA) for the Project in support of the EIS.

The aims of this letter are to:

- provide an overview of the Project and how it will be assessed;
- provide background on the Project and previously identified Aboriginal cultural heritage values;
- establish the purpose and aims of the Aboriginal consultation process;
- seek information about any Aboriginal cultural heritage values associated with the Project and how they may affect, inform or refine the Project and/or assessment methods;
- establish opportunities for RAPs to provide cultural information related to the Project area through the consultation process and cultural mapping investigations;

- identify any culturally appropriate protocols that registered parties wish to be adopted during the information gathering process (eg protocols during field survey, or handling of culturally sensitive information); and
- present a draft of the intended assessment methods for your review and comment.

We welcome your feedback at your earliest convenience and will be consulting with RAPs for the duration of the ACHA, currently proposed to extend into late-2022. However, for the purposes of this initial stage, and in accordance with the Heritage NSW guidelines, we request any written response on the information and process contained in this letter by **19 May 2022** prior to the commencement of heritage field investigations.

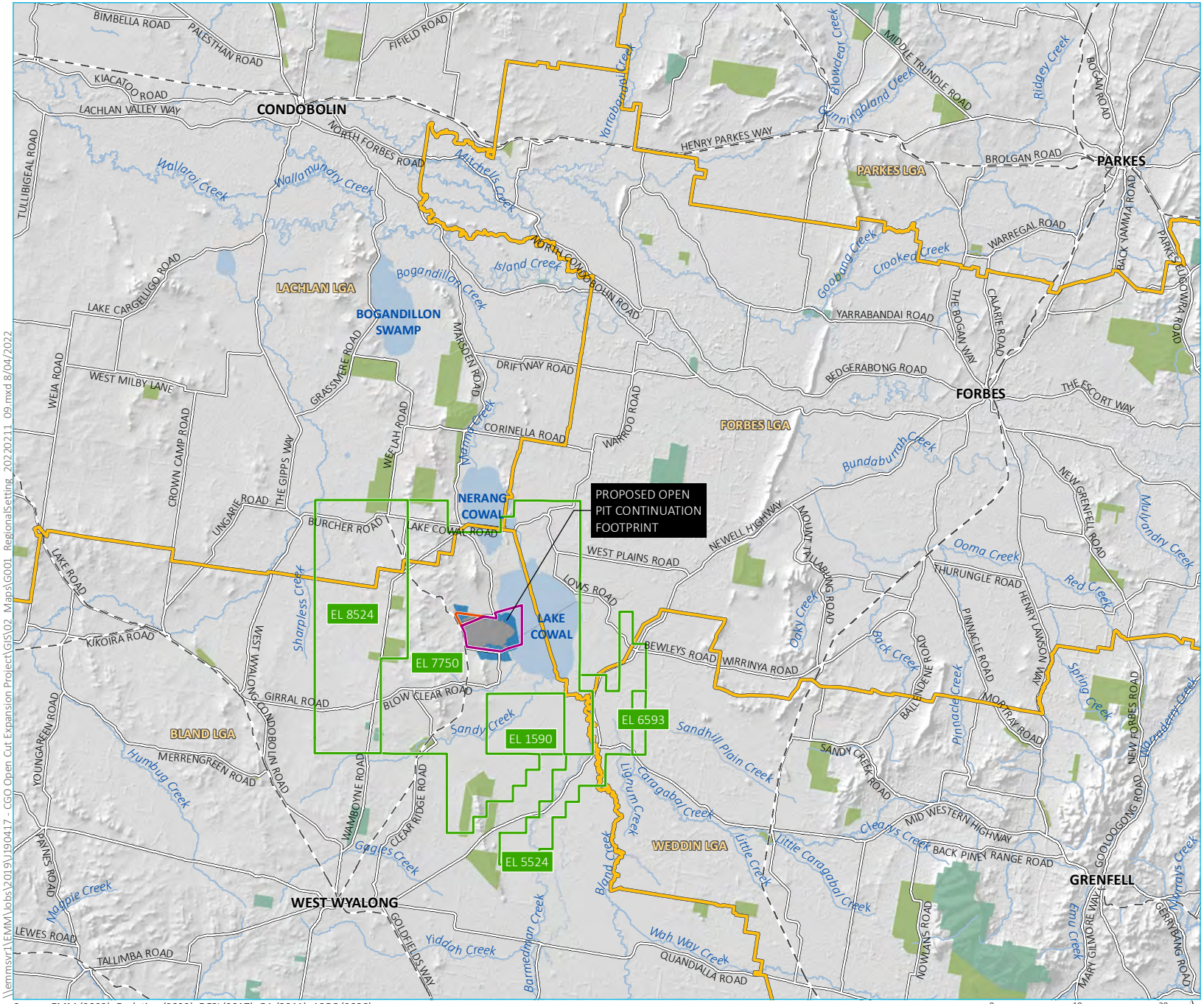
Evolution and EMM propose to hold an Aboriginal focus group meeting with RAPs during this first 28 day review period to expand on the information provided in this letter, gather any RAP feedback about the Project and assessment methods, and to gather any cultural information that knowledge holders wish to share at this stage. We will be in contact shortly with further details about the meeting.

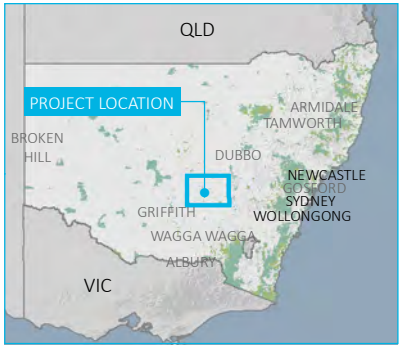
For reference, the proponent is Evolution Mining (Cowal) Pty Limited, and the Project contact is Simon Coates (Superintendent – Environment, CGO); Lake Cowal NSW 2671; phone: 0437 371 886; e-mail: Simon.Coates@evolutionmining.com.

Notwithstanding the above, EMM is working on the proponent's behalf, and all queries should be directed through EMM. Feedback can be provided to myself or Archaeologist Taylar Reid on E: treid@emmconsulting.com.au or M: 0428 280 542.

Yours sincerely,

Dr Alan Williams FSA FRSA MAACAI
Associate Director
awilliams@emmconsulting.com.au





KEY

- Proposed disturbance footprint*
- DA14/98 approved surface disturbance
- Mining lease (ML1535)
- Mining lease (ML1791)
- Exploration licence (EL)
- Rail line
- Main road
- Named watercourse
- Named waterbody
- Local government area
- NPWS reserve
- State forest

*Proposed disturbance footprint is indicative and is subject to ongoing design and investigations.

Source: EMM (2022); Evolution (2022); DFSI (2017); GA (2011); ASGC (2006)

Regional context

Evolution Mining
Cowal Gold Operations
Open pit continuation project
Aboriginal consultation letter
Figure 1.1

EMM creating opportunities

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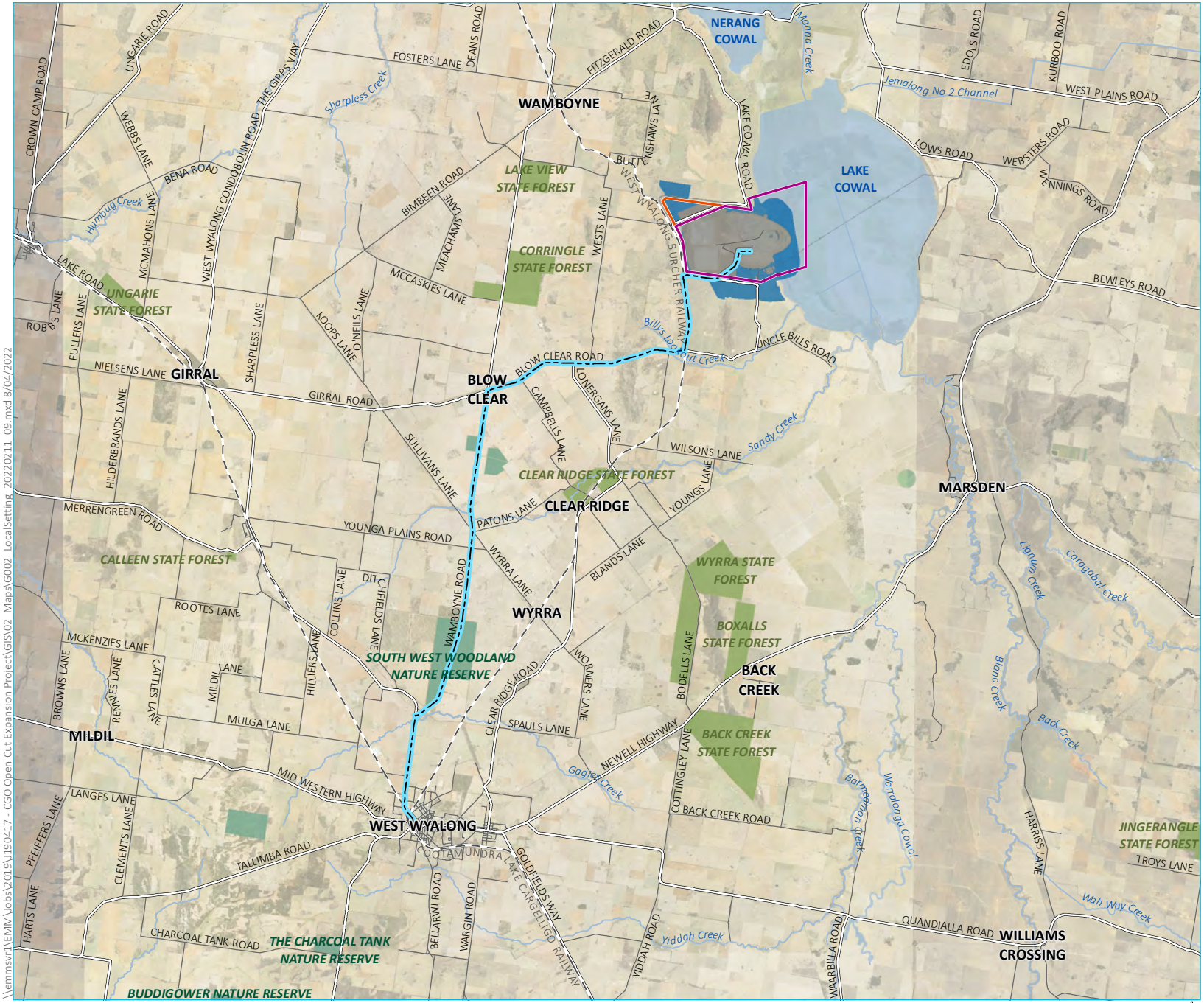

KEY

- Proposed disturbance footprint*
- DA14/98 approved surface disturbance
- Mining lease (ML1535)
- Mining lease (ML1791)
- West Wyalong preferred transport route
- Rail line
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

*Proposed disturbance footprint is indicative and is subject to ongoing design and investigations.

Source: EMM (2022); Evolution (2022); DFSI (2017)

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Local context

Evolution Mining
Cowal Gold Operations
Open pit continuation project
Aboriginal consultation letter
Figure 1.2

EMM
creating opportunities

KEY

- EIS study area
- DA14/98 approved surface disturbance
- Mining lease (ML1535)
- Mining lease (ML1791)
- Approved UG mine design footprint
- Approved UG project infrastructure
- Saline groundwater supply bore
- Water supply pipeline
- Electricity transmission line
- Rail line
- Lake Cowal Road

Conceptual project infrastructure

- Drainage
- Electricity transmission line re-alignment
- Water supply pipeline re-alignment
- Open cut pit footprint
- Waste rock emplacement (WRE)
- Lake protection bund (LPB)
- Magazine
- Water containment dam

Integrated waste landform (IWL)

- Upstream raise IWL option
- Northern expansion IWL option

Stockpiles

- Topsoil
- Subsoil
- Clay

*Proposed disturbance footprint is indicative and is subject to ongoing design and investigations.

Source: EMM (2022); Evolution (2022); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

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Conceptual CGO open pit continuation project infrastructure

Evolution Mining
Cowal Gold Operations
Open pit continuation project
Aboriginal consultation letter
Figure 1.3

EMM creating opportunities

2 Project information

2.1 Overview

Evolution is the owner and operator of CGO located approximately 38 km north-east of West Wyalong, NSW. The CGO mine site (the site) is located immediately adjacent to Lake Cowal, an ephemeral waterbody.

CGO is an existing open pit and underground mining operation. The open pit mining operations commenced in 2005. Underground mining operations were approved on 30 September 2021 and are Projected to commence in 2023. Operations at CGO are regulated by two Ministerial development consents, for 'surface' operations (ie open pit mining and associated infrastructure) and 'underground' operations.

Evolution operates within Mining Lease (ML) 1535 and ML 1791. The current surface and underground mining infrastructure are wholly contained within ML 1535. ML 1791 accommodates part of the IWL and soil stockpiles. Together, ML 1535 and ML 1791 host all facilities of the CGO and occupy a total area of approximately 2,873 hectares (ha). The CGO site also hosts a range of ancillary infrastructure to support mining operations. This includes an ore processing plant, the integrated waste landform (IWL), waste rock emplacements (WREs), ore stockpiles, workshops, offices, reagent storage and explosives magazine.

Evolution seeks to extend open pit mining operations at CGO as part of the Project. This will involve further extension of the existing E42 Pit and the open pit mining of three new and adjacent orebodies, known as the 'E46', 'GR' and 'E41' pits. Preliminary estimates show that 1.7Moz of additional gold is expected to be produced from ~255Mt of waste mining and ~65.2 Mt of ore mining over the term of the project. There will be no change to existing processing rate of 9.8 Mt of ore per annum.

The Project primarily seeks to continue the open-cut pit mine life by approximately 10 years to 2036 and total mine life by approximately two years to 2042.

2.2 Key Project elements

Table 2.1 outlines the key Project elements associated with the Project and should be read in conjunction with Figure 1.3.

Both underground and open pit mining are proposed to operate in parallel and share use of existing surface infrastructure. Evolution also intends to regulate all site operations under one new development consent as part of the Project's SSD application process. This will have the benefit of efficient and transparent management of compliance obligations for government, community and Evolution It will also ensure current mining operations are regulated in accordance with contemporary environmental and social standards.

Table 2.1 Project key components

Project component	Description
Key Project elements	• development of three new open pits which may result in the pits merging with the existing E42 open pit to form one or two final pits at mine closure; • development of a conventional cutback (Stage I) of the existing E42 Pit to the east and south; • expansion of the IWL by using a northern expansion to accommodate tailings from the new open pits; • redevelopment of the lake protection bund (LPB) system to provide continued separation and mutual protection between Lake Cowal and the mine; • expansion of the footprint of the existing WRE areas to the north, south and vertically to accommodate additional waste rock; • additional topsoil and subsoil stockpiles to accommodate materials from pre-stripping of expansion areas, with materials to be reused during progressive mine rehabilitation; • realignment of a portion of the existing water supply pipeline; • development of new on-site access and haul roads to service the operations; • development of new water storage dams and relocation of some components of the surface water drainage system; • relocation of some existing infrastructure currently located in the footprint of additional proposed satellite pits (eg water storage dams); and • upgrades to the open pit mining fleet, as required.
Components of the CGO site that will remain unchanged (including but not limited to).	• cyanide leaching circuit; • cyanide destruction method; • approved cyanide concentration limits in the aqueous component of the tailings slurry; • water supply sources; • approved daily or annual extraction limits of the Bland Creek Paleochannel Borefield (BCPB); • site access road; • power source • exploration activities; and • rosters and hours of operation.

3 Registered Aboriginal parties

The *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010) has been followed to identify RAPs. Following the notification process undertaken between 16 March to 1 April 2022, the following three Aboriginal parties have registered their interest in being consulted for the Project:

- Wiradjuri Condobolin Corporation;
- Wiradjuri Elders Council; and
- West Wyalong Local Aboriginal Land Council.

The roles, functions and responsibilities of all stakeholders involved in the consultation process are outlined in Table 3.1**.** The information and feedback relevant to this Project assessment we are currently requesting from RAPs is detailed in Section 7 of this letter**.**

Table 3.1 Roles and responsibilities

RAPs	Provide cultural perspectives, views, knowledge and advice to EMM.
	Indicate areas of cultural significance.
	Provide Aboriginal sites representatives for archaeological fieldwork (if desired and suitably qualified and insured).
	Have an awareness and understanding of the commercial environment and constraints in which the proponent operates.
	Demonstrate awareness and understanding of the opportunities to provide input into the ACHA and management recommendations.
	Identify, raise, and discuss cultural concerns, perspectives and assessment requirements (if any).
EMM (on behalf of Evolution)	Undertake the ACHA, including coordinating and directing the fieldwork.
	Facilitate the Aboriginal consultation process.
	Consider the cultural perspectives, views, knowledge and advice of the RAPs in assessing cultural significance and developing management measures.
	Provide clear management measures that comply with relevant legislation, guidelines and significance.
All stakeholders	Mutual respect (each person has the right to have a say and be heard)
	Communicate in a professional manner.

4 Overview of existing studies and heritage management

Many Aboriginal heritage assessments have been undertaken in the Lake Cowal area in the past 30 years, including surveys, salvage excavation and surface artefact collections. Most investigations have been compliance-based, completed for mining and ongoing modification approvals for the CGO, which operates within ML 1535 adjacent to and partially within Lake Cowal.

Initial archaeological investigations of Lake Cowal were conducted by Paton in 1989 who sought to develop a predictive model of the likely type and distribution of Aboriginal sites in comparison to other lake regions in Wiradjuri country. He was followed by Scott Cane who conducted archaeological surveys in 1994 as part of a feasibility study for development of the lake shore for mining infrastructure (Cane 1994). This study identified 10 Aboriginal sites on the western and southern margins of the lake. Site types included one scarred tree and nine open artefact scatters, some of which contained over 100 artefacts and others which

represented very low-density assemblages (Cane 1994). Cane identified regionally unique stone artefacts recorded in many of these sites, with one area dominated by quartz artefacts and another area that contained many micro blade/backed artefacts.

Lake Cowal features markedly higher numbers of backed blades in comparison to other parts of the region, with backed artefacts representing 12% of the assemblage at Lake Cowal in contrast to 1% of the assemblages along the Lachlan River, suggesting the subsistence practices of the inhabitants of Lake Cowal focused on hunting (Cane 1994, p. 46). Backed artefact typologies are typically associated with the Late Holocene period, and the presence of this type of industry has been used to date occupation of the area to 4,000–1,500 years ago (Cane 1994, p. 49).

Following the archaeological assessments completed to date by Paton (1989) and Cane (1994), Dr Colin Pardoe was engaged to prepare a research design and study plan (2002) to accompany two Section 90 AHIP permits for impacts to Aboriginal objects associated with mining development. The research design divided the Project area into different zones of management based on their landforms, soils, potential erosion impact, and their archaeological potential. The five landforms and an interpretative summary of their archaeological potential are provided in Table 4.1. Pardoe's subsequent assessments (2009a, 2009b, 2013) largely conformed to the findings of the research design and study plan.

Table 4.1 Summary of archaeological management zones

Management zone landforms	Summary of archaeology
Lakebed zone	This landform is considered to be of low archaeological potential and only one stone artefact has been registered on this landform to date AHIMS 43-4-0089. Pardoe predicted that it would have largely been unsuitable for prolonged occupation due to regular inundation and that if Aboriginal objects were identified within this zone, they would likely have been transported via lake water movement.
Beach zone	Pardoe predicted that alluvial fans within this management zone would be of higher archaeological sensitivity for subsurface deposits. Furthermore, Aboriginal scarred trees have been identified in this zone where mature native trees remain.
Slope zone	This landform is considered to be of low archaeological potential and no Aboriginal sites have previously been registered on this landform. Pardoe predicted that Aboriginal objects within this landform would likely have been transported by erosion and bioturbation from sites upslope of this zone (being the lake edge ridge).
Lake edge ridge zone	This landform is considered to have high archaeological potential for surface and subsurface archaeological deposits. This area is likely to represent the foci of Aboriginal occupation and activity associated with Lake Cowal with potential to feature an array of site types including stone artefact sites, hearths, grinding stones, heat retainers and Aboriginal modified trees (carved or scarred).
Back plain zone	This landform has widespread archaeological material in varying densities, from background scatter to concentrated scatters. Concentrations of artefacts are likely to relate to Aboriginal occupation associated with the ephemeral water sources of the gilgai depressions. This zone is characterised by a 'continuous background scatter of artefacts', and there is a distinct difference between the sites recorded on the margins of the lake, which consist primarily of backed-blade artefacts.

Subsequent to the approval of the Cowal Gold Project in 1999, the key assessment and management document that has guided CGO Aboriginal cultural heritage management is an Indigenous Archaeology and Cultural Heritage Management Plan (IACHMP) (Barrick 2003) which was approved in 2003 by the then Department of Planning. The IACHMP is guided by a Research Design and Study Plan prepared by Dr Colin Pardoe which was incorporated into AHIP permits 1468 and 1681 (Barrick 2003, Appendix 5).

The IACHMP prescribes several activities such as monitoring, collection of surface artefacts, excavations, additional assessment of potential scar trees, relocation of scarred trees, covering sites with geotextile and then placing soil over the sites and analysis of the results of these activities. The types of stone artefacts that

were recovered from the salvage program to date include flaked stone, ground-edge axes, grinding stones, axe-sharpening stones, hammer stones and percussion stones. Quartz and silicified volcanic rock were the primary raw materials. Only one tree was confirmed to be a culturally modified tree.

There were 10 radiocarbon dates retained from the cultural remains at Lake Cowal, which put occupation in the area dating from around 8,000–6,000 years ago, demonstrating many thousands of years of Wiradjuri occupation at this site (Barrick 2003).

In 2018, Niche completed an ACHA for Modification 14 CGO. This included consultation with some 29 Aboriginal organisations, including those registered in the current Project. The ACHA included survey of areas within ML 1535 and to the north-west involving Lots 101 and 102 DP 1059150 (ML 1791). The survey largely took place on back plain zones but also lake edge, slope and beach zones. The lake was inundated at the time, so survey coverage of the lake bed zone was not possible. A total of 65 Aboriginal sites were identified as a result of survey and test excavation. Site types included stone artefact sites, ovens, heat retainers, and one scarred tree along the edge of the lake (Niche 2018a, p.2).

5 Draft assessment methodology

5.1 Assessment requirements

The purpose of the ACHA is to identify, assess and manage the Aboriginal heritage values related to the Project area, specifically those that are at risk of being impacted. The assessment will be developed in response to Secretary's Environmental Assessment Requirements (SEARs), which will outline the investigative requirements for Aboriginal heritage. Although SEARs are yet to be issued, they are likely to include the following scope:

- assessment of the impact to Aboriginal cultural heritage items (archaeological and cultural) in accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010a); and

- provision of evidence of consultation with Aboriginal communities in determining and assessing impacts, developing options and selecting options and mitigation measures (including the final proposed measures), having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010b).

With the above in mind, the ACHA will be developed in broad accordance with the following guidelines:

- *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011);

- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (Code of Practice) (DECCW, 2010); and,

- *Aboriginal Consultation Requirements for Proponents 2010* (DECCW 2010).

5.2 Methodology overview

The ACHA will involve the following key components:

- consultation with RAPs to identify socio-cultural values of the Project area and places of special significance that should be considered;

- a search of the Aboriginal Heritage Information Management System (AHIMS) register for records of previously registered Aboriginal sites;

- a review of past Aboriginal heritage reports covering the Project area;
- environmental landscape analysis to identify past Aboriginal resources and suitable occupation areas;
- synthesis of background research to develop a predictive model of Aboriginal site location;
- field investigation to validate the findings of the desktop and identify any previously undocumented cultural material. This would include surface inspection and may extend to test excavations of areas of archaeological interest (refer Section 5.3.2);
- a cultural mapping assessment undertaken by an experienced anthropologist in consultation with RAPs (and other cultural knowledge holders if applicable) (refer Section 5.4)
- an assessment of significance for Aboriginal cultural heritage values in the Project area with input from the registered Aboriginal stakeholders;
- an impact assessment of how the Project will affect Aboriginal cultural heritage values; and
- development of management recommendations based on the results of the assessment and input from RAPs during the consultation process and particularly from the draft ACHA review period.

5.3 Field investigation

5.3.1 Field survey

EMM propose to conduct an archaeological field survey of the proposed Project disturbance footprint with the support of RAP representatives. It is anticipated that the survey will take up to three weeks (15 days), but the timeframe may be refined based on developments in Project design and layout.

The primary aims of the survey will be to:

- identify Aboriginal sites or potential Aboriginal places with the assistance of Aboriginal knowledge holders;
- characterise the landscape to aid predictions of surface and sub-surface archaeological potential;
- identify areas that should be avoided by Project construction where possible; and
- identify areas with minor or no heritage constraints that are suitable for development.

Survey of the Project area would be undertaken to identify any extant Aboriginal objects or sites. Surface investigation will consist of the survey team evenly spaced walking transects across the proposed Project disturbance footprint (refer Figure 1.2 and Figure 1.3). The DA14/98 approved surface disturbance footprint (refer Figure 1.2 and Figure 1.3) is subject to existing approvals and management under the IACHMP (Barrick 2003) and will not be subject to additional investigation as part of this ACHA.

The Project disturbance footprint will be divided into landform units for survey. These landform units will follow the archaeological management zones described in Table 4.1, for which the Project disturbance footprint includes a sample of each archaeological management zone. The intensity of survey (ie spacing of survey members) in each landform unit will be guided by the archaeological sensitivity and level of ground exposures in each landform unit. Of note, the lake edge ridge and beach zones will be a primary focus because they feature the highest archaeological potential.

The survey will be undertaken using the following general methodology:

- pedestrian survey;
- survey and recording according to landform element units and/or other changes in landscape characteristics.
- recording of beginning and end points of transects or the boundaries of survey units, and the spacing between survey personnel;
- recording of landform, soil information, land surface, vegetation conditions, visibility and exposure, and survey coverage;
- recording of any identified Aboriginal sites identified according to Requirements 6-8, and recording of any identified Aboriginal objects in accordance with Requirements 18-24 of the Code of Practice; and
- if any Aboriginal objects and/or sites are identified in the course of the survey, site cards will be completed and submitted to the AHIMS registrar.

All Aboriginal objects and/or landforms of interest would be mapped and documented using hand-held GPS, photographs, written description and sketches if relevant.

5.3.2 Test excavation

The Project disturbance footprint will intersect with landforms predicted to contain sub-surface cultural material, most of which is associated with the edge of Lake Cowal. Archaeological test excavation is an investigative method that would help characterise the archaeological resource of the area so that Project impacts can be adequately assessed, and appropriate management measures developed for the identified Aboriginal heritage values.

It is proposed that a program of test excavation will be undertaken by EMM in conjunction with RAP representatives within the proposed Project disturbance footprint. The final test excavation locations will be refined after the archaeological survey is completed and suitable areas are ground-truthed for their archaeological predictions. The overall effort of test pitting will be weighted towards landforms with the highest predicted archaeological potential which are listed below hierarchical order (highest to lowest potential):

- Lake edge ridge zone and beach zone;
- Lake slope zone;
- Back plain zone; and
- Lake bed zone.

Figure 5.1 provides indicative boundaries for these landform zones where archaeological excavation would be selected within. EMM will aim to update RAPs with further refined areas of proposed excavation prior to the excavation fieldwork proceeding. The timing duration of the excavation program would be determined after the survey program.

The test excavation program would be completed in accordance with the Code of Practice and would include the following methods:

- all test excavation pits would be spatially located in a systematic grid (with 10–50 m spacing) using a differential GPS device, which would also provide elevation data;

- manual excavation of 0.25 m² (50 cm by 50 cm) test pits in a systematic grid across areas of archaeological interest within the proposed disturbance footprint. The spatial resolution of the grid would be dependent on on-ground conditions, but would likely have test pits between 10–50 m apart at each test location;

- all excavation would use hand tools. Excavation of the first unit at each test location would be in 5 cm levels of excavation (known as spits), with subsequent excavation allowed in 10 cm spits or according to stratigraphy (whichever is smallest) depending on the results of the first unit. Manual excavation would continue to either: i) the base of the cultural deposits; ii) to the depth of the underlying geology; or iii) to the maximum depth possible via hand excavation (likely ~ 80 cm);

- 0.25 m² test pits may be expanded into larger test pits of up to 3 m² if warranted to further explore subsurface conditions such as artefact concentrations, better resolution of stratigraphic sequences or to achieve excavation depths not feasible from 0.25 m² test pits.

- sieving of all manually excavated material through a 5 mm sieve;

- reduced levels of the top and bottom of the test pit would be documented using a dumpy level against a known elevation. Other levels may be taken as required;

- soil profiles would be recorded in accordance with the Code of Practice, including scaled drawings, photographs, and written descriptions;

- soil samples may be collected for description, sedimentological and chronological analysis where such analysis is considered likely to contribute significant information; and

- excavation procedures and protocols may be modified at the discretion of the EMM Excavation Director, in consultation with RAPs and Evolution as the conditions in the field and nature of the excavations develop. This includes the movement of test pits to avoid existing built structures, buried services and disturbances not identified during the desktop phase.

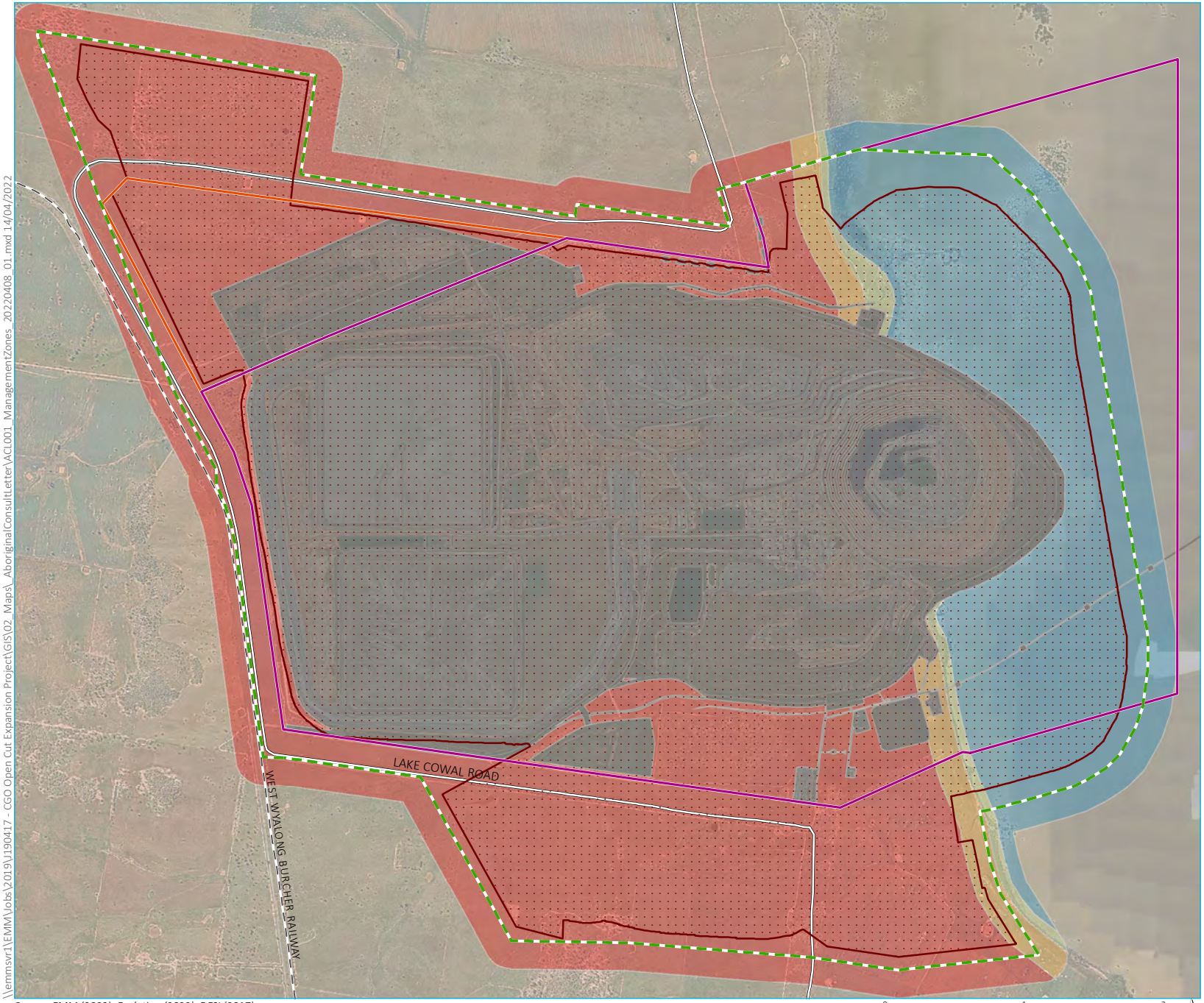
5.4 Cultural values mapping report

The ACHA will include a cultural mapping component led by experienced anthropologist Dr Phillip Clarke. Cultural mapping will support the ACHA by capturing the intangible Aboriginal cultural heritage values of Lake Cowal and identifying areas of cultural significance relevant to the Project. Its findings will assist in assessing whether areas of intangible cultural significance will be impacted by the Project. The cultural mapping will include:

- a review of existing anthropological and ethno-botanical literature in the region to provide context and allow verification of oral history;

- undertaking an on-site investigation by Dr Phillip Clarke with key Aboriginal stakeholders (identified by RAPs/local Aboriginal community) to capture oral history and areas/features of traditional/contemporary value;

- development of a report that presents the findings of the tasks above, and provides a map of cultural values and any flora and fauna requiring further consideration. This report would form an appendix to the Aboriginal cultural heritage assessment.



KEY

- EIS study area
- Proposed disturbance footprint*
- DA14/98 approved surface disturbance
- Mining lease (ML1535)
- Mining lease (ML1791)
- Rail line
- Lake Cowal Road

Indicative archaeological management zone areas

- Lake bed
- Slope/beach
- Lake edge ridge
- Back plain

*Proposed disturbance footprint is indicative and is subject to ongoing design and investigations.

Source: EMM (2022); Evolution (2022); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

\\emmsvr1\EMM\Jobs\2019\J190417 - CGO Open Cut Expansion Project\GIS\02_Maps_AboriginalConsultLetter\ACL001_ManagementZones_20220408_01.mxd 14/04/2022

Indicative archaeological management zone areas

Evolution Mining
Cowal Gold Operations
Open pit continuation project
Aboriginal consultation letter
Figure 5.1

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6 Indicative timing and RAP feedback opportunities

The following provides the key ACHA milestones and opportunities for RAP feedback and input. Notwithstanding, EMM welcomes cultural information and assessment methods feedback from RAPs throughout the course of the ACHA.

Table 6.1 Indicative timing

Timing	Activity	Notes
Mid-April to mid-May 2022	Distribution of this document to RAPs for review and comment.	28-day review period for RAPs to submit feedback about the proposed ACHA scope and methods.
Late April/early May 2022	Aboriginal focus group meeting with RAPs, Evolution and EMM to discuss the Project information and ACHA methods set out in this document.	This is anticipated to occur during the 28-day document review period so that RAPs can gain further clarity about the Project and ACHA methods prior to the end of review period.
June–August 2022	Archaeological survey. Archaeological test excavation.	There will be a minimum two-week period between archaeological survey and test excavation programs to allow adequate provision of notice and further detail of proposed text excavations to RAPs and Heritage NSW.
June–July 2022	Cultural mapping.	The timing of this assessment including fieldwork and interviews with RAPs will be refined once identification and availability of knowledge holders is determined.
September 2022	Provision of draft ACHA to RAPs for review and comment.	28-day review period for RAPs to submit feedback about the ACHA.
September/October 2022	Aboriginal focus group meeting with RAPs, Evolution and EMM to discuss the findings of the ACHA, potential Aboriginal heritage impacts and proposed mitigation and management strategies.	This is anticipated to occur during the 28-day document review period so that RAPs can discuss issues and provide input in-person to the content and outcomes of the ACHA.

7 What we need from you

Aboriginal heritage incorporates a wide range of values such as stories, traditions and cultural practices. EMM welcomes advice from the Aboriginal community about cultural values (which might include archaeological sites or other types of values) relevant to the Project area and its surrounds. EMM is relying on the Aboriginal community for advice on non-archaeological and intangible Aboriginal values for the Project area. We are happy to discuss any information which you are willing to share and will respect confidentiality where requested. Relevant information will be passed onto Dr Phillip Clarke for further exploration to be included in the cultural mapping report which is where intangible values will be directly addressed.

EMM would appreciate your feedback on the above methodology proposed for the investigation and assessment of the Project area. In responding, please also consider the following questions:

- Are there any other knowledge-holders or traditional owner groups we should be contacting to obtain cultural information on this area?
- Are there any protocols in relation to community interaction and/or cultural heritage that you would like adopted during the Project?

- Are you aware of any Aboriginal objects, places, sites or stories of cultural significance and/or importance that you are aware of within the Project area? If so, please advise us how you wish them to be dealt with during the Project.

- Are you aware of any past or current fishing and hunting activities within the Project area? Do you have any views on how these should be managed into the future?

- Is the information you are providing sensitive, gender specific, etc? If so, how would you like the information you provide to EMM to be managed? Noting that some documentation for the ACHA process will be required.

- Do you require any further information prior to EMM proceeding with the ACHA?

In your response, can you please also clearly identify who you would like EMM to talk to within your organisation, and provide contact details for these individuals. Please also ensure your preferred method of communication (eg telephone call, e-mail, letter, etc) is highlighted for subsequent stages of the Project.

8 Closing

We look forward to receiving any response your organisation wishes to make about the proposed method by **19 May 2022**. Your response will be documented and considered in the assessment. Most importantly, your cultural information is also welcome within this timeframe; but it can also be submitted up until the completion of the draft ACHA and there will be opportunities to provide this during the planned cultural mapping exercise.

References

Barrick Gold of Australia Limited (Barrick) 2003, *Cowal Gold Operation Indigenous Archaeology and Cultural Heritage Management Plan*.

Cane, SB 1994, *Camp sites at Lake Cowal: an archaeological survey in central NSW. Culture and Heritage, SA*. Report to NSR, Environmental Consultants.

DECCW 2010a, *Aboriginal Consultation Requirements for Proponents*, Department of Environment, Climate Change and Water.

DECCW 2010b, *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW*, Department of Environment, Climate Change and Water.

OEH 2011, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, NSW Office of Environment and Heritage.

Paton, R 1989 *Preliminary archaeological inspection of Lake Cowal Mining Exploration Lease.* Report to NSR Environmental Consultants, Melbourne.

Pardoe, C

2002, *Research Design and Study Plan*. Report prepared for Barrick Gold of Australia Limited.

2003, *Indigenous Archaeology and Cultural Heritage Management Plan*. Report prepared for Barrick Gold of Australia Limited.

2009a, *Archaeological Investigations at Lake Cowal*. Report prepared for Barrick Gold of Australia Limited.

2009b, *Archaeological Excavations at Lake Cowal*. Report prepared for Evolution Mining.

2013, *Cowal Gold Mine Extension Modification Aboriginal Cultural Heritage Assessment*. Report prepared for Evolution Mining.

Cameron Neal

From: Alan Williams
Sent: Thursday, 21 April 2022 2:42 PM
To: Wiradjuri Elders
Cc: Taylar Reid; Ryan Desic
Subject: CGO Open Pit Continuation Project - ACH - project information
Attachments: J190417_CGO_AH_ProjectInfo&Methods_v1-3.pdf

Dear David,

Thank you for your registration of interest in EMM's Aboriginal cultural heritage assessment (ACHA) of CGO's Open Pit Continuation Project at Lake Cowal.

In accordance with Heritage NSW guidelines, please find attached further information on the proposed project, some archaeological background of the site, and how we propose to investigate and assess the project to inform the ACHA. We also pose a number of questions for your consideration. In relation to this document, can you please provide any comments, inputs, thoughts by 19 May 2022 either via phone, email, etc.

In addition, I'd like to catch up and have a meeting to chat about this document, the broader project and what the next couple of months may look like. I was wondering what your availability was like in the week of the 9-13 May to organise something in the West Wyalong/Condobolin area? Let me know a good date and place, and I'll set something up, probably myself (or Ryan), and CGO.

Happy to discuss

Thanks
A

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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M 0438 104 740
D 02 9493 9584
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Cameron Neal

From: Alan Williams
Sent: Thursday, 21 April 2022 2:39 PM
To: ally@wiradjuricc.com
Cc: Taylar Reid; Ryan Desic
Subject: CGO Open Pit Continuation Project - ACH - project information
Attachments: J190417_CGO_AH_ProjectInfo&Methods_v1-3.pdf

Dear Ally,

Thank you for your registration of interest in EMM's Aboriginal cultural heritage assessment (ACHA) of CGO's Open Pit Continuation Project at Lake Cowal.

In accordance with Heritage NSW guidelines, please find attached further information on the proposed project, some archaeological background of the site, and how we propose to investigate and assess the project to inform the ACHA. We also pose a number of questions for your consideration. In relation to this document, can you please provide any comments, inputs, thoughts by 19 May 2022 either via phone, email, etc.

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Happy to discuss

Thanks
A

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

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Cameron Neal

From: Alan Williams
Sent: Thursday, 21 April 2022 2:41 PM
To: ww.lalc@bigpond.com
Cc: Ryan Desic; Taylar Reid
Subject: CGO Open Pit Continuation Project - ACH - project information
Attachments: J190417_CGO_AH_ProjectInfo&Methods_v1-3.pdf

Dear Linton,

Thank you for your registration of interest in EMM's Aboriginal cultural heritage assessment (ACHA) of CGO's Open Pit Continuation Project at Lake Cowal.

In accordance with Heritage NSW guidelines, please find attached further information on the proposed project, some archaeological background of the site, and how we propose to investigate and assess the project to inform the ACHA. We also pose a number of questions for your consideration. In relation to this document, can you please provide any comments, inputs, thoughts by 19 May 2022 either via phone, email, etc.

In addition, I'd like to catch up and have a meeting to chat about this document, the broader project and what the next couple of months may look like. I was wondering what your availability was like in the week of the 9-13 May to organise something in the West Wyalong/Condobolin area? Let me know a good date and place, and I'll set something up, probably myself (or Ryan), and CGO.

Happy to discuss

Thanks
A

Dr Alan Williams FSA FRSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

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28 September 2022

Re: Cowal Gold Operations Open Pit Continuation Project - Methodology Update

Dear Sir/Madam,

1 Introduction

Thank you for your continued involvement with the Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project. The proponent, Evolution Mining (Cowal) Pty Limited (Evolution), is considering its next phase of operations, to secure its future in the region beyond the next decade. To do this, Evolution are planning to seek development consent for the Project, which will involve the development of additional open pits and associated infrastructure to enhance opportunities associated with the underground mine currently under development. If approved, the Project will extend the total life of the mine by two years to 2042.

Following on from the last methodology/project information letter, this document is a brief update to provide you with the locations of the test excavation being undertaken between 10-21 October 2022.

2 Methodology update

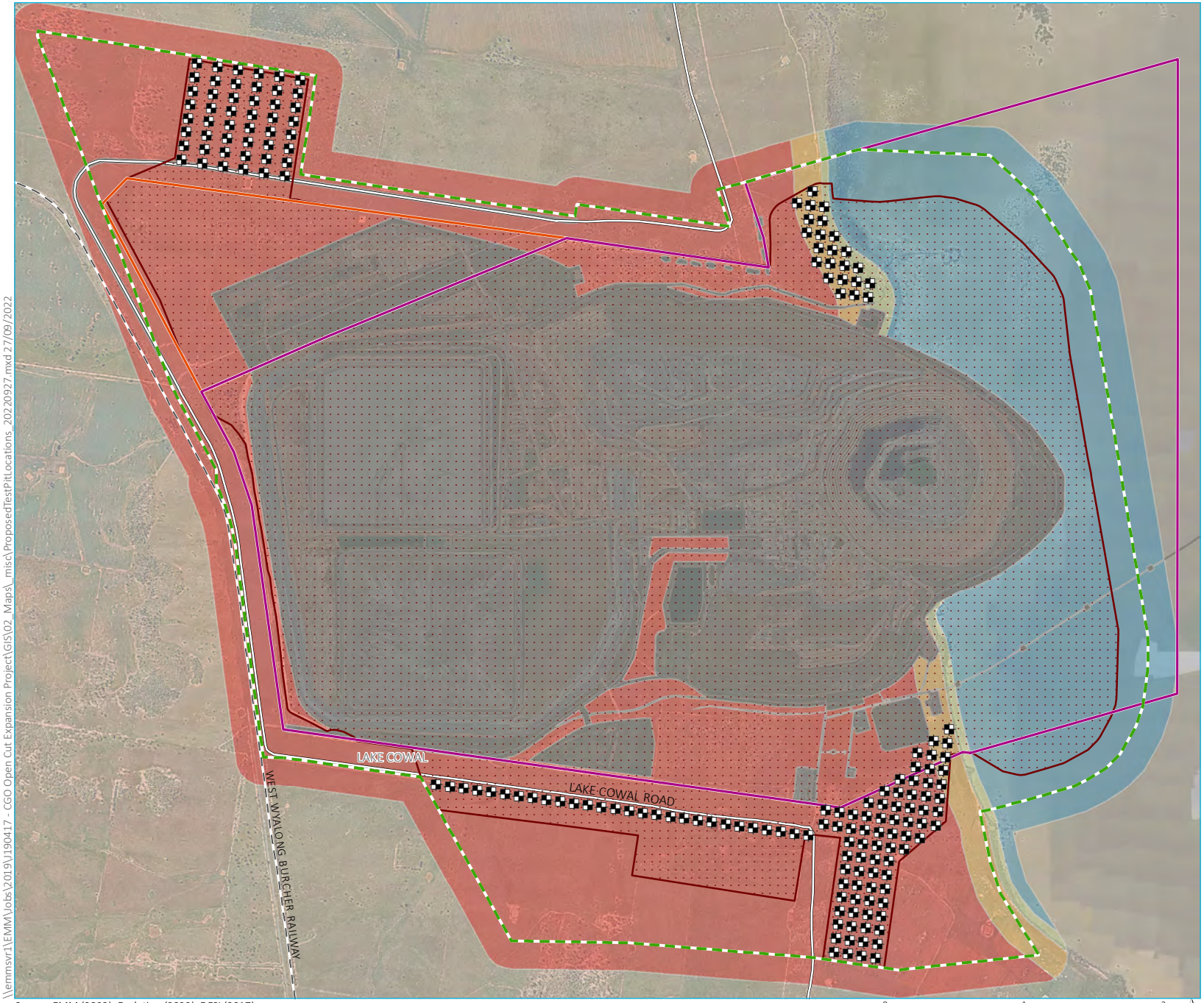
We have developed a targeted test excavation strategy that will investigate all archaeological management zones (except the 'Lake bed' zone, which is currently underwater) in a timeframe suitable for the delivery of the project Environmental Impact Statement (EIS). The test pit locations are shown on Figure 1. A total of 177 test pits are mapped, although this will be revised down to a target maximum of 150 pits following the assessment of on-ground conditions (eg it is expected that several pits will be in gilgai water, on access roads etc). The location of all test pits has been chosen based on archaeological managements zones as well as the outcomes of the recent archaeological survey (August 2022) that identified several new sites despite very low ground surface visibility.

The exact locations of the test pits may be changed at the discretion of the EMM Excavation Director (Cameron Neal) in consultation with RAPs and excavation team, as the field conditions and nature of the excavations develop.

If you have any questions or would like to discuss any of the above, please do not hesitate to contact myself or Alan Williams. We are happy to receive feedback on the proposed methodology or other aspects of the project at any point during the project.

Yours sincerely

Cameron Neal
Archaeologist
cneal@emmconsulting.com.au



KEY

- Proposed test pits (177 total)
- EIS study area
- Proposed disturbance footprint
- DA14/98 approved surface disturbance
- Mining lease (ML1535)
- Mining lease (ML1791)
- Rail line
- Lake Cowal Road

Indicative archaeological management zone areas

- Lake bed
- Slope/beach
- Lake edge ridge
- Back plain

\\emmsvr1\EMM\Jobs\2019\I190417 - CGO Open Cut Expansion Project\GIS\02_Maps_misc\ProposedTestPitLocations_20220927.mxd 27/09/2022

Source: EMM (2022); Evolution (2022); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

Proposed test pit locations

Evolution Mining
Cowal Gold Operations
Open pit continuation project

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Cameron Neal

From: Cameron Neal
Sent: Thursday, 29 September 2022 1:07 PM
To: ww.lalc@bigpond.com; ally@wiradjuricc.com; Wiradjuri Elders
Subject: CGO Open Pit Continuation - AH Test Excavation - Methodology Update
Attachments: J190417_CG_AH_MethodologyUpdate_September2022.pdf

Hi Guys,

Following on from the last methodology document, please find attached a brief update which will provide you with the locations of the test excavations (commencing 10 October).

Please give me a shout if you'd like to discuss anything!

Cheers
Cam

Cameron Neal
Archaeologist
Bushfire, Ecology, Heritage and Spatial Solutions

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Cameron Neal

From: Cameron Neal
Sent: Monday, 26 September 2022 7:20 PM
To: ww.lalc@bigpond.com; ally@wiradjuricc.com; Wiradjuri Elders
Subject: FW: J190417 CGO OPC Project - site access request form
Attachments: Site Access Online approval form guide.docx

Hi Guys,

With test excavations coming up soon at Lake Cowal, please see below for site access requirements. A lot of it will be a repeat from the survey so hopefully won't take too long.

A note for the guys who attended the recent survey with Meg and I: you will need to provide a medical (completed any time in the last 12 months) stating you're fit for work etc. If you don't have one, please arrange one as soon as you can or let me know and I can help out.

Any questions, let me know.

Cheers
Cam

Cameron Neal
Archaeologist
Bushfire, Ecology, Heritage and Spatial Solutions

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From: Lia Zwolinski <lzwolinski@emmconsulting.com.au>
Sent: Wednesday, 31 August 2022 4:47 PM
To: Cameron Neal <cneal@emmconsulting.com.au>
Subject: J190417 CGO OPC Project - site access request form

Please see below details for the site access request form. It looks like a bit of work but is simple once you work through it. Could you please follow through step 1 and 2 as soon as possible.

1. Police check

A national police check is required to be completed and uploaded with the site access request form below, so please order this firstly asap (NB: **police checks completed in the past 6 months are acceptable**). The biodiversity team has

previously used this website: https://www.nationalcrimecheck.com.au/consumer/start_form. Evolution has advised that if we do not receive a police check in time, we can upload a stat dec noting (I already have a template drafted):

- that a police check has been completed and not yet received
- that you have no convicted criminal history to the best of your knowledge
- the police check will be provided to Evolution when received

As advised by BST, please pay for police check on your personal card, and then charge it back to the Project under your relevant work stage.

2. Site access request form

Once the police check is received, we are required to submit the site access request form here: https://evnforms.azurewebsites.net/

Other things to note:

- I have attached an example of a completed form
- **The Department Manager Name is Shaune Finn (refer to example form)**
- **Please choose 'other' for the 'reason for visit' drop down menu. This is the only option that has a text box.**
- **You must provide a few sentences on why your work is essential in the 'request details' text box e.g. *'This fieldwork is a critical path item required to support the flora and fauna assessment for the CGO OPC Project EIS. It will involve the survey of threatened plant species which can be only be completed within a certain time period of the year'.* Please provide a few sentences on what/why the fieldwork is. Evolution has rejected our forms recently as this text box was not completed.**
- You need to answer 'yes' to the prompt asking 'Are you performing work on site?'

3. Online general induction

Once you have completed the site access request form (above), a link to the general induction will eventually be emailed to you once approved.

4. SWMS

Evolution requires review and approval of your SWMS prior to fieldwork commencing.

5. EMM covid paperwork

You are required to complete the Covid Questionnaire within 7 days of the fieldwork (Appendix A of *COVID-19 Fieldwork Protocols* available on EMMconnex and attached) and save it to the project folder: T:\Jobs\2019\J190417 - CGO Open Cut Expansion Project\WHS\EMM COVID Docs\Signed questionnaires

6. Covid testing

You will be required to complete:

- RAT 48 hours prior to fieldwork testing (Evolution requirement – photo of negative RAT sent to Evolution on 0408 349 643 or Cowal_COVID19@evolutionmining.com)
- daily RAT test during fieldwork (EMM requirement)

Kind regards,

Lia

Lia Zwolinski
Environmental Scientist
EMM creating opportunities
T 02 9493 9500
M 0423 362 556
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Cameron Neal

From: Cameron Neal
Sent: Tuesday, 4 October 2022 4:45 PM
To: wyalonglalc@gmail.com
Subject: FW: J190417 CGO OPC Project - site access request form
Attachments: Site Access Online approval form guide.docx; ProposedTestPitLocations_20220927.pdf; J190417_CGO_AH_ProjectInfo&Methods_v1-3.pdf; J190417_CG_AH_MethodologyUpdate_September2022.pdf

Hi Linton,

Below are instructions to complete the Evolution induction. We've already done the safety inductions but you'll still need to do a site access form. Any documents (including the police check) you used for the survey work can be re-used for this one.

Also as I mentioned on the phone, Evolution require a medical for anyone attending site for 10 days or more within a three month period. Given the time we spent on survey in August this applies to us. If you've done a medical within the last 12 months you can just attach that. If not, let me know and we can sort something out.

Attached are the methodology and test pit location documents. As mentioned in the methodology, we had to develop a highly targeted excavation strategy – we've mapped 177 pits but we're aiming for a target maximum of 150 – there will likely be pits in water, on access roads etc, and these will be scrubbed as we go.

Feel free to give me a ring if you need to discuss anything!

Cheers
Cam

Cameron Neal
Archaeologist
Bushfire, Ecology, Heritage and Spatial Solutions

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From: Lia Zwolinski <lzwolinski@emmconsulting.com.au>
Sent: Wednesday, 31 August 2022 4:47 PM
To: Cameron Neal <cneal@emmconsulting.com.au>
Subject: J190417 CGO OPC Project - site access request form

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- that a police check has been completed and not yet received
- that you have no convicted criminal history to the best of your knowledge
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As advised by BST, please pay for police check on your personal card, and then charge it back to the Project under your relevant work stage.

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You will be required to complete:

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- daily RAT test during fieldwork (EMM requirement)

Kind regards,

Lia

Lia Zwolinski
Environmental Scientist

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Cameron Neal

From: Cameron Neal
Sent: Thursday, 13 October 2022 4:30 PM
To: wyalonglalc@gmail.com
Subject: CGO Test Ex Update
Attachments: J190417 CGO OPC Project - site access request form; ProposedTestPitLocations_20220927.pdf

Hi Linton,

As discussed over the phone just now, Evolution have advised that a medical is not required when undertaking works outside the mine lease. Ideally I would like to begin excavations along the lake edge, which is inside the mining lease and then move to other areas outside the lease (see the map attached for reference).

If you're unavailable Mon-Weds next week that actually lines up pretty well. I've attached the instructions for submitting your site access request as well, if you can get that underway that's great otherwise Evolution is happy to sign you in as a visitor for the days you're excavating off the mining lease.

We'll see how we're progressing early next week and hopefully you're able to slot into the field team straight away.

Another thing I wanted to mention, if you have another site officer available for any days over the 2 weeks we have a spare spot to fill. Let me know.

Cheers
Cam

Cameron Neal
Archaeologist
Bushfire, Ecology, Heritage and Spatial Solutions

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Cameron Neal

From: Cameron Neal
Sent: Wednesday, 14 December 2022 3:56 PM
To: wyalonglalc@gmail.com
Cc: Morgan Wilcox; Alan Williams; Lia Zwolinski
Subject: CGO Test Excavations 9-20 Jan

Hi Linton,

Thanks for your time on the phone.

As I mentioned, we're looking to restart excavations at Lake Cowal on 9 January 2023, and they will run for two weeks until 20 Jan. OzArk will be running things for us on site.

When you get a moment could you please confirm whether you or another WWLALC site officer are available at any point between 9-20 Jan?

Feel free to give me or Al a buzz if you have any questions.

Cheers
Cam

Cameron Neal
Archaeologist
Bushfire, Ecology, Heritage and Spatial Solutions

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Our offices will be closed from Monday 26 December 2022 and will reopen on Tuesday 3 January 2023.

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B.5 Stage 4 – Aboriginal feedback of the draft ACHA

- Ally Coe (Wiradjuri Condobolin Corporation) and David Acheson (Wiradjuri Council of Elders) expressed their support for the ACHA. They did not suggest any changes.
- Linton Howarth (West Wyalong LALC) stated he was happy with the ACHA, its findings and recommendations. Linton wished to highlight that he is not Wiradjuri and does not want to be misunderstood as speaking on behalf of Wiradjuri people.
- Linton also provided the following feedback on the cultural values report (included in Appendix D):
    - Suggests "Yadhanda" as alternative spelling to "yathenda" [Page 3].
    - Oral histories of the area suggest other massacres may have occurred after the 1820's. One non-Aboriginal person still alive in the area said previously that his parent had a tobacco pouch made from the breast of an Aboriginal woman and identified the general area where the killing occurred. This timeframe suggests a much later date than 1820 [Page 18, footnote 24].
    - Place name for Manna Mt could also be attributed to the Wiradjuri word "Manhar" meaning wide (Wiradjuri dictionary). Manna Mt is a wide, long ridge like mountain when compared with the nearby Wamboyne Mt which is a steeply pointed, conical shaped mountain [Page 21].
    - Suggests that etymological origin of "Cowal" can be found in the Wiradjuri word "Gawuwal", meaning "lake".
    - Oral history suggests that a red ochre mine in Lake Cargelligo (150 km north-west of Lake Cowal) has been utilised for an extended period of time [Page 63].

B.6 Additional consultation

Cameron Neal

From: Alan Williams
Sent: Monday, 23 May 2022 9:55 AM
To: ally@wiradjuricc.com; ww.lalc@bigpond.com; Wiradjuri Elders; Simon Coates
Cc: Pierre Miquel; Rob Morris; Janet Krick
Subject: CGO Continuation Project - AFG Meeting (May 2022) - Meeting Minutes

Hi All,

Thank you for your participation in our recent gathering at Condobolin. Please find attach a summary of our discussions and key points for review.

Thanks
Al

AFG meeting (Wiradjuri Study Centre, Condobolin, 18 May 2022): Alan Williams (EMM), Simon Coates (Evolution Mining), Linton Howarth (West Wyalong LALC), Richie and Eugene Coe (Wiradjuri Condobolin Corporation), David Acheson (Wiradjuri Council of Elders).

Key points and actions:

- AW provided information on the following:
    - Provided a description of the proposed continuation project, including the main areas of potential ground disturbance, the EIS process, and the general timing of activity.
    - Provided a description of the proposed Aboriginal cultural heritage assessment (ACHA) process, including the main on-site activities of field survey, test excavation and cultural values mapping. Outlined the potential timing of some of these activities.
    - Briefly ran through the information in the methodology document that had been previously provided (and which included elements of the above items).
- Discussions and outcomes included:
    - All participants appeared satisfied with the level of information on the project and proposed assessment to be undertaken to inform the ACHA process.
    - There was strong interest in the cultural values mapping approach proposed, with significant concerns over cultural flows. While initially in discussions over the impacts of the Wyangala Dam project (unrelated to this project) would have, extensive discussions on an improved understanding of the cultural flows for Lake Cowal and how the project may interact with them was recommended as a focus of the study, which was introduced as a more terrestrial based investigation. AW advised that water would now form a component of this study and would put the participants in touch with Dr Phil Clarke who would be undertaking the study shortly.
    - There was discussion on how any additional, and especially out of Country, Aboriginal parties would be managed should they eventuate following the completion of the Heritage NSW notification process. There was concern based on other nearby projects that such parties may seek to register, and undermine the process. AW outlined a range of possible scenarios on how this may be managed. One suggestion made by AW based on other projects included where the registered Aboriginal parties would have the say over the inclusion/exclusion of other late parties, however LH with support of others indicated this would not be a preferred option, since it could result in hostilities within the Aboriginal community. AW advised he would document this view, and would provide Evolution with some options for consideration before a firm commitment is provided to the

participants on how this issue would be managed. However, it was stated that Evolution would not be actively seeking to additional participants, with the three present organisations having been closely involved with Evolution and the site for nearly 20 years; and would be considered key stakeholders going forward.

- There was some discussion on what the eventual approval might mean for the existing AHIPs and other documentation currently used on site for managing Aboriginal heritage. AW outlined that a new management plan would likely be developed following any project approval and this provided an opportunity to both integrate existing approaches that were liked, but also re-explore activities that have been ineffective. This prompted some thoughts on where the current cultural assemblage stored on site as a result of existing AHIPs could be re-housed, with discussions around the Lake Cowal Conservation Centre as a possible venue to support their cultural tourism.
- The Lake Cowal Conservation Centre personnel were recommended for consultation on the project. SC advised this was happening.
- A brief discussion was undertaken of the carved tree currently housed at the West Wyalong LALC offices, and that it was removed from a burial on Lake Cowal in the late 19th/early 20th century. The exact location was not known, with documentary information suggesting its south of the lake, but this would be further explored as part of the assessment.

Please let me know if I have omitted or forgotten anything, happy to correct were inaccurate.

Happy to discuss.

Thanks
A

Dr Alan Williams FSA MAACAI
Associate Director
National Technical Leader, Aboriginal Heritage

Bushfire, Ecology, Heritage and Spatial Solutions

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Cameron Neal

From: Alan Williams
Sent: Thursday, 15 September 2022 4:02 PM
To: ally@wiradjuricc.com; ww.lalc@bigpond.com; Wiradjuri Elders
Cc: Cameron Neal
Subject: CGO Continuation Project - ACHA update

Hi All,

I just wanted to provide a quick update on the Aboriginal cultural heritage assessment for the Cowal Gold Operations continuation project following the completion of the field survey a couple of weeks ago.

Currently, we are beginning to organise for the test excavations focussed on the lake's edge to be implemented on 10 October 2022 for a period of two weeks. Cameron Neal will be running these. We will be in touch to organise sites officers to participate in the coming weeks.

We have also asked our anthropologist to begin the cultural values mapping study and get in touch with you all. I don't have a timeframe for this, but expect it would similarly be in October sometime.

Please give me a call if you wish to chat about anything, otherwise I'll keep in touch as these activities become organised.

Thanks
Al

Dr Alan Williams FSA FRSA MAACAI
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Appendix C
Historical aerials

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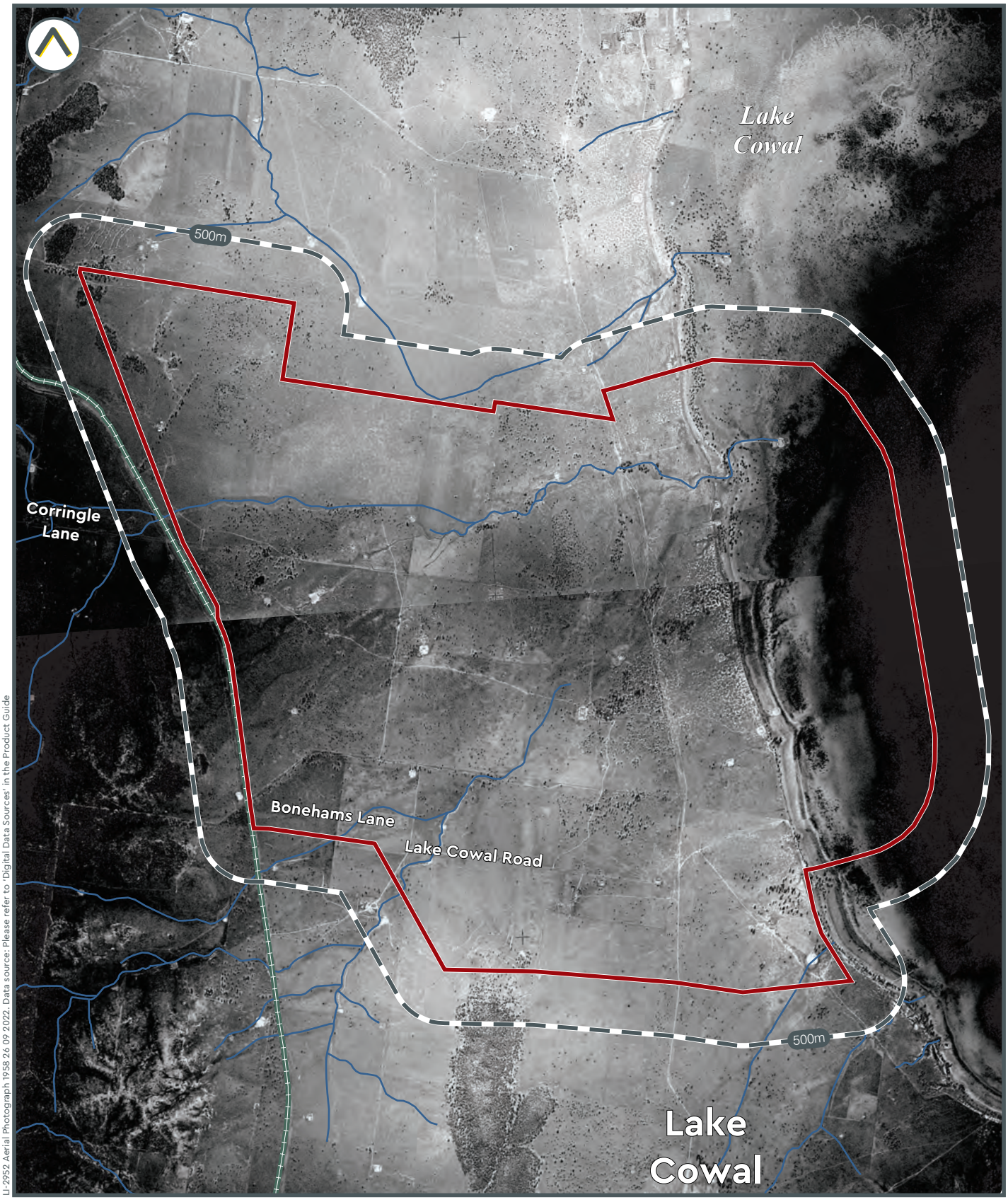
Appendix B

HISTORIC IMAGERY

Evolution Mining/Barrick Gold Mine
Lake Cowal, NSW

Historic Aerial Photograph - 1958



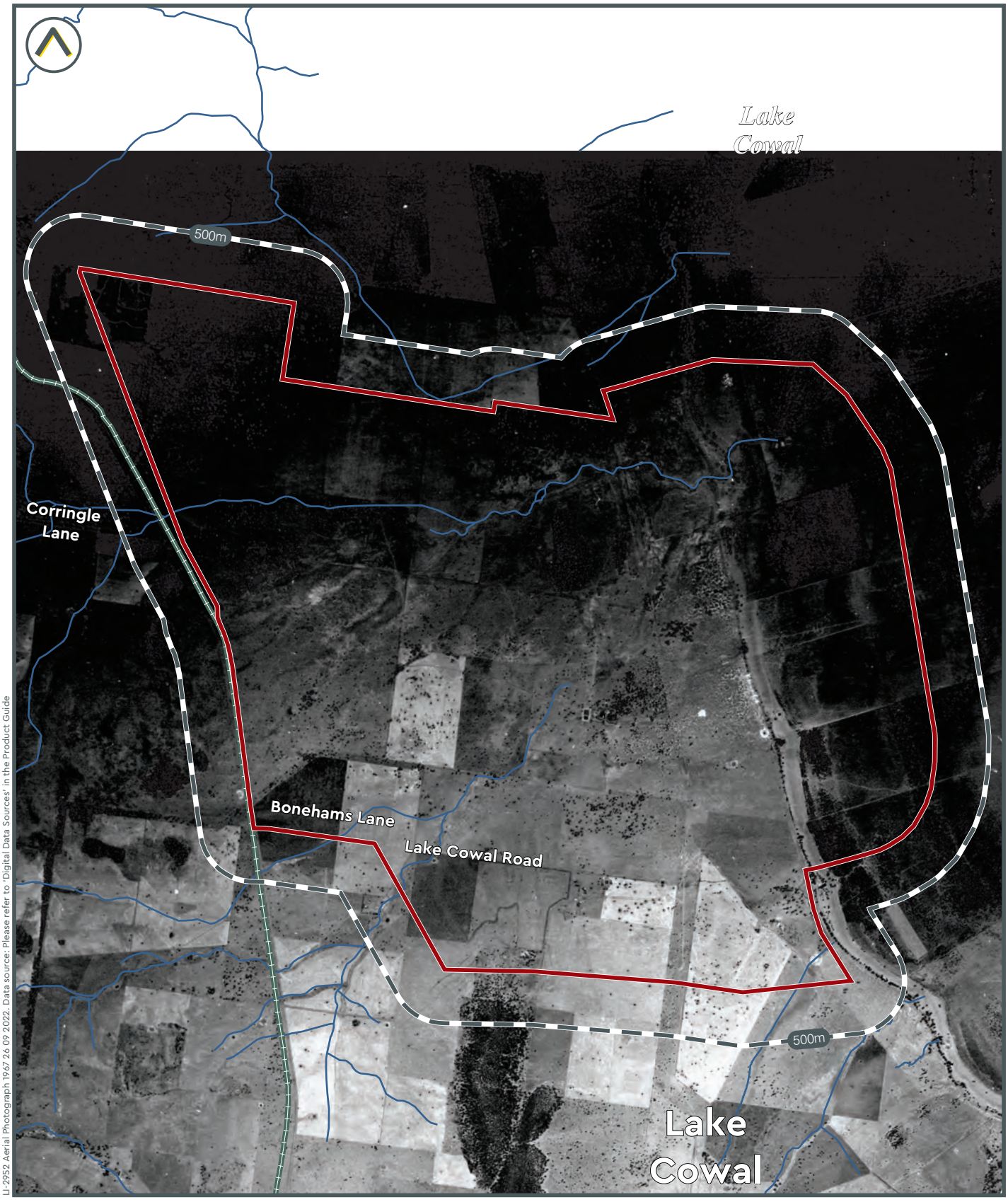
LI-2952 Aerial Photograph 1958 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 1967



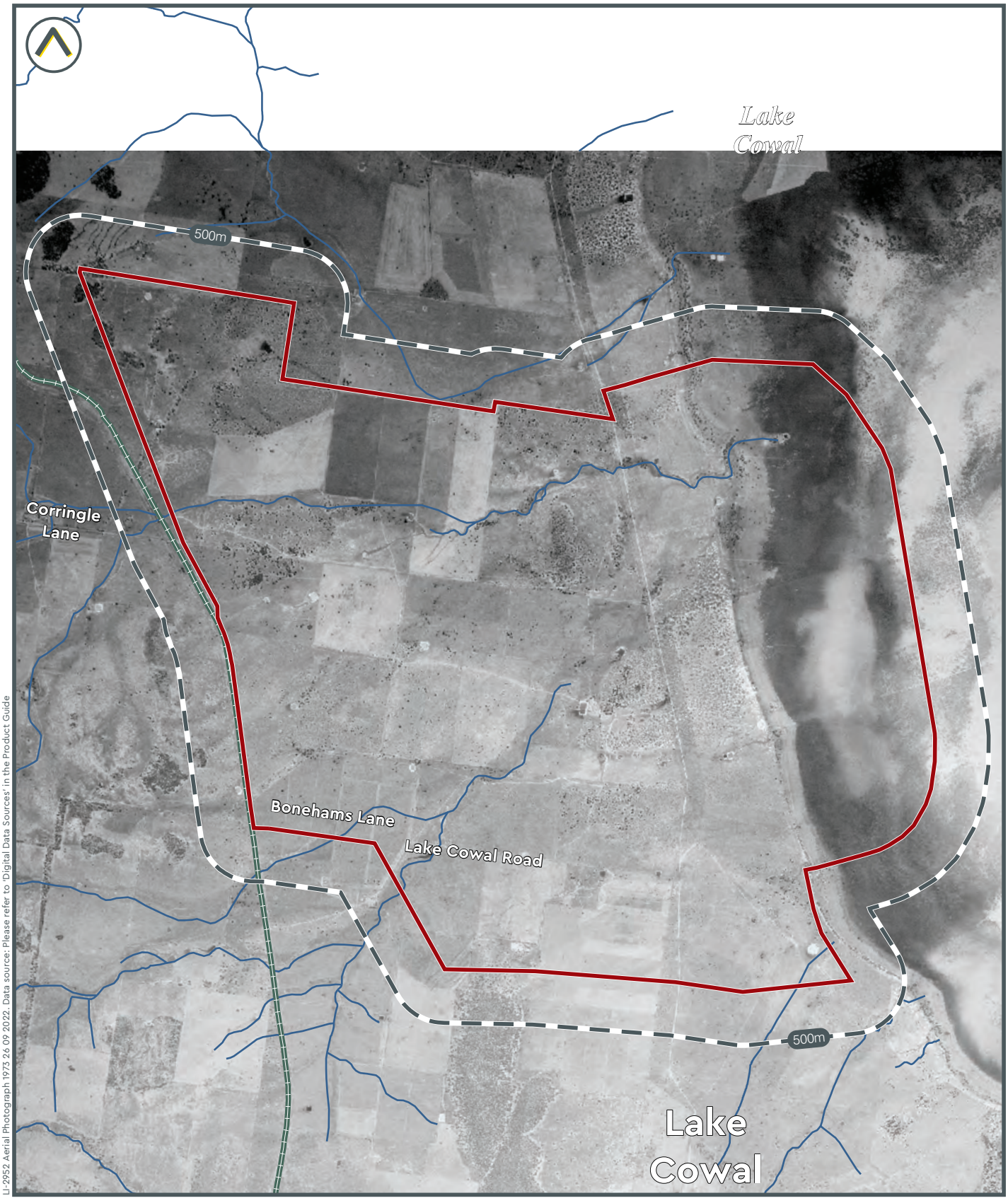
LI-2952 Aerial Photograph 1967 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 1973



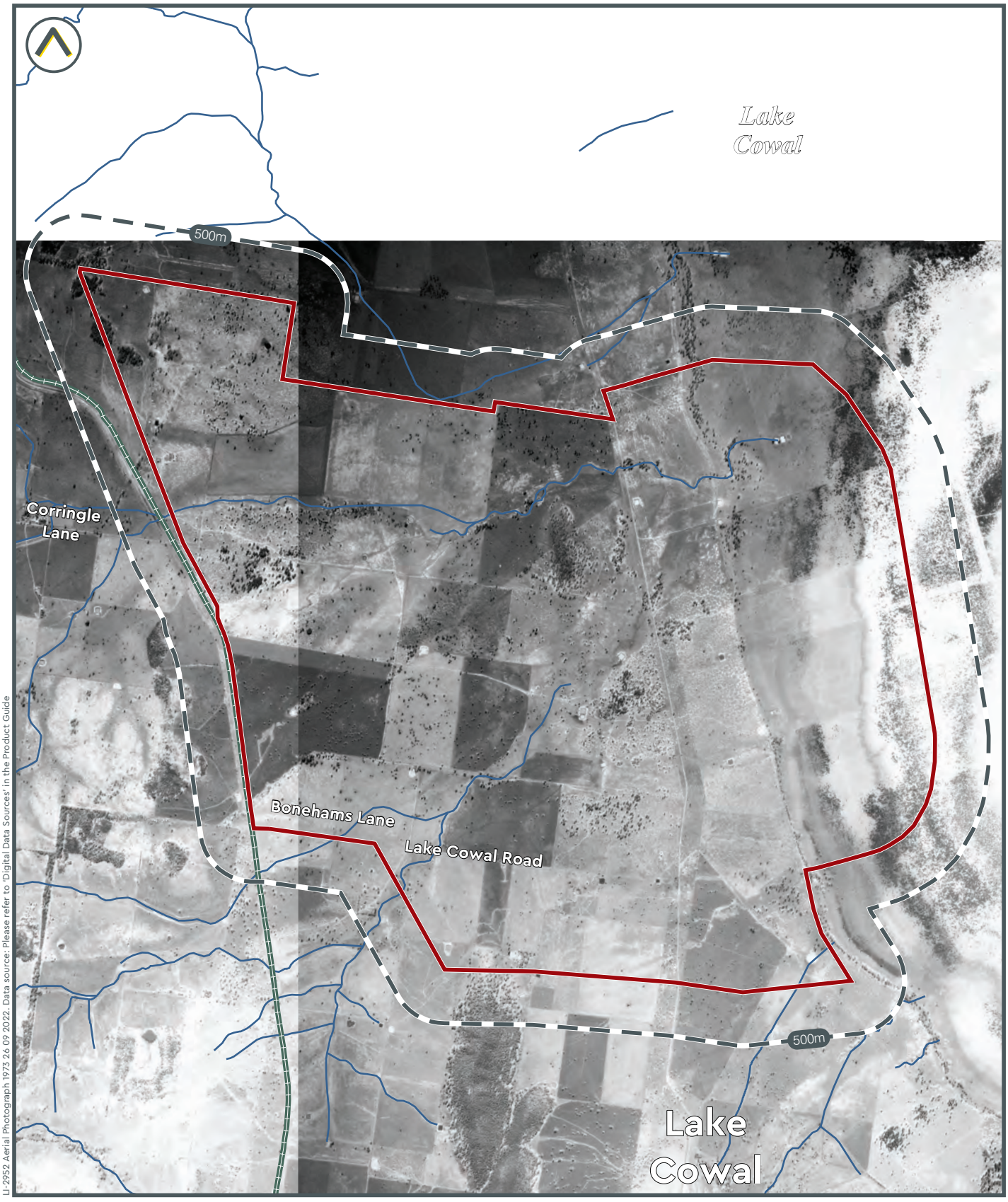
LI-2952 Aerial Photograph 1973 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 1983



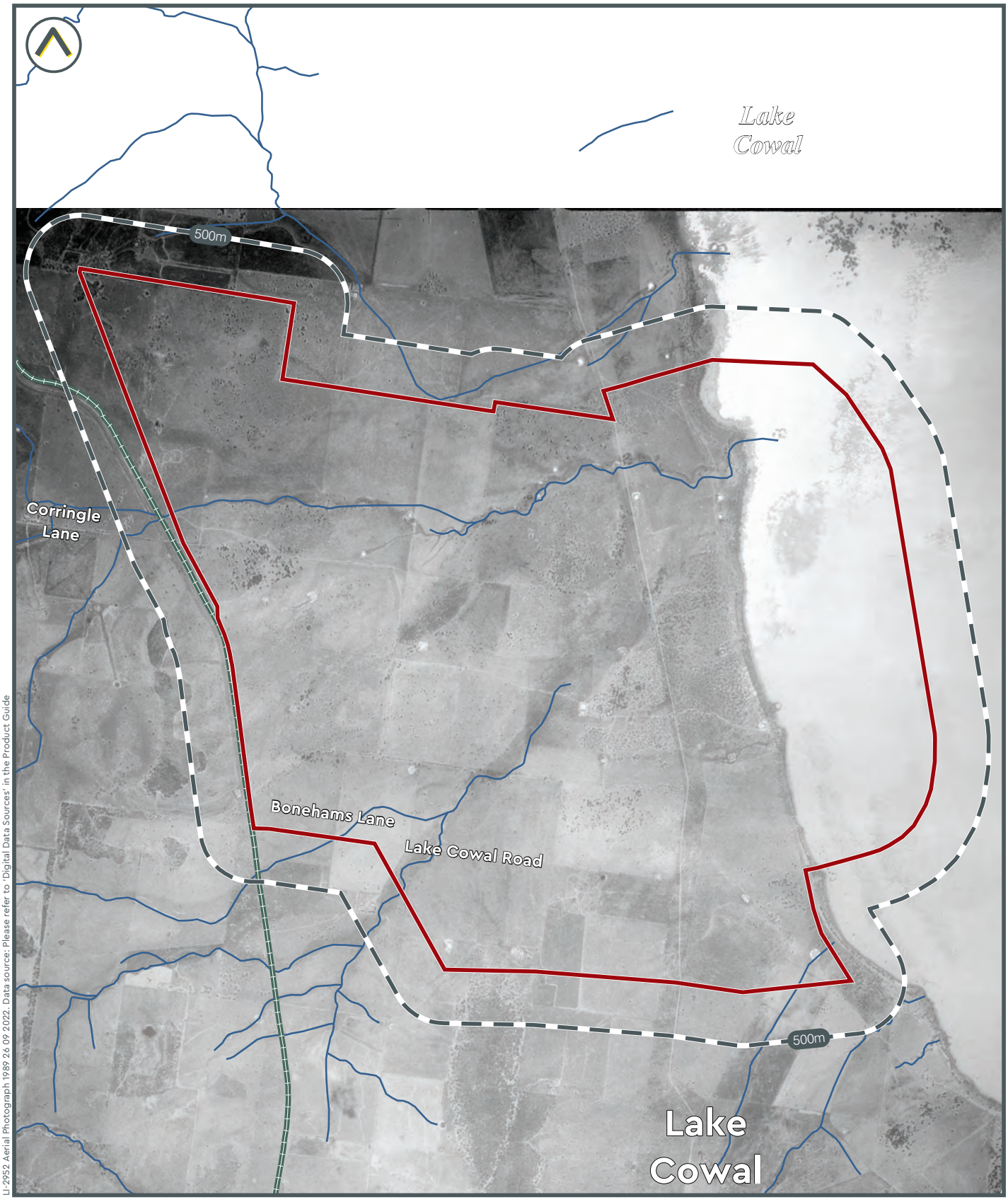
LI-2952 Aerial Photograph 1973 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 1989



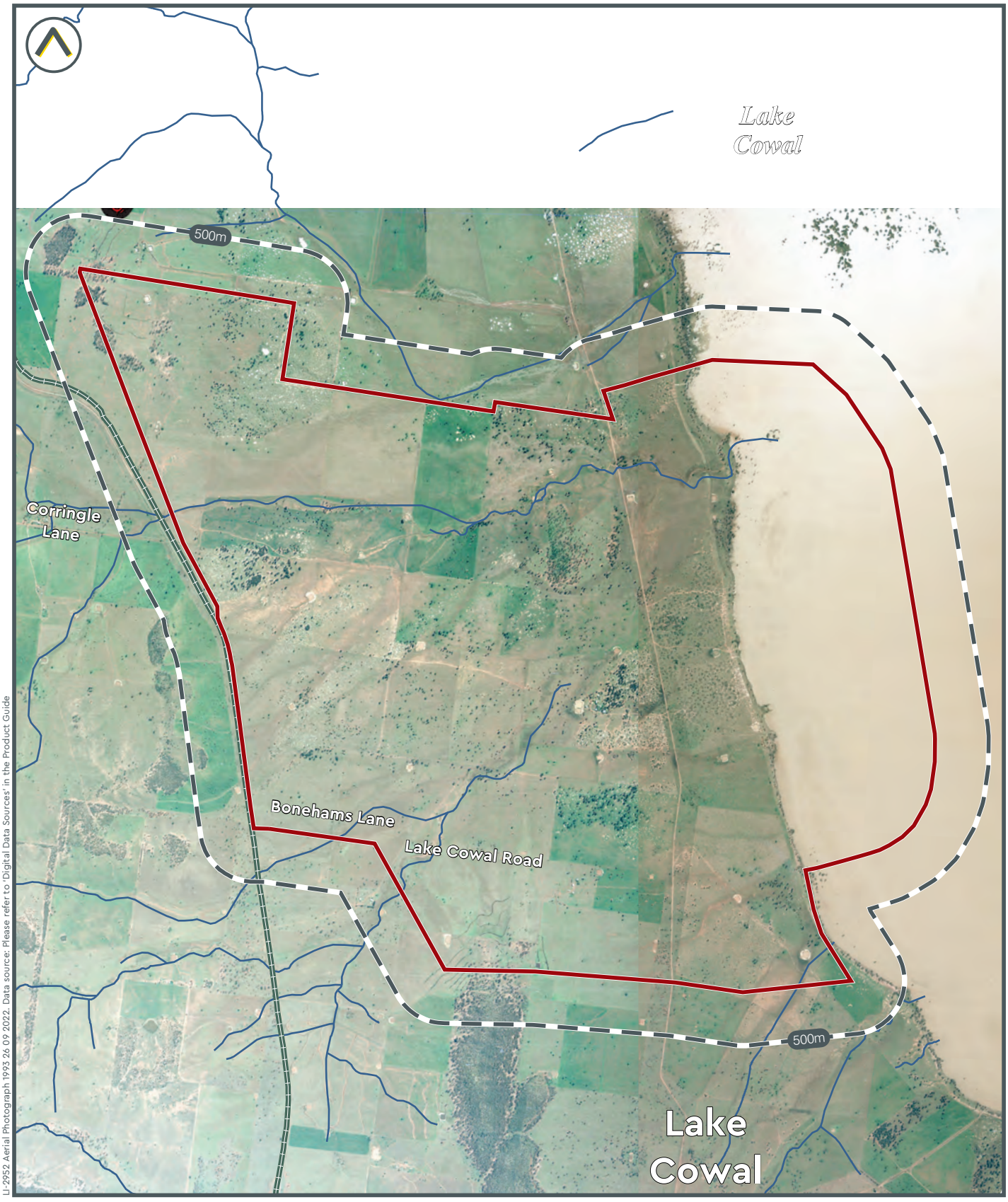
LI-2952 Aerial Photograph 1989 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 1993



LI-2952 Aerial Photograph 1993 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 1997

LI-2952 Aerial Photograph 1997 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 2002

LI-2952 Aerial Photograph 2021 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Historic Aerial Photograph - 2021

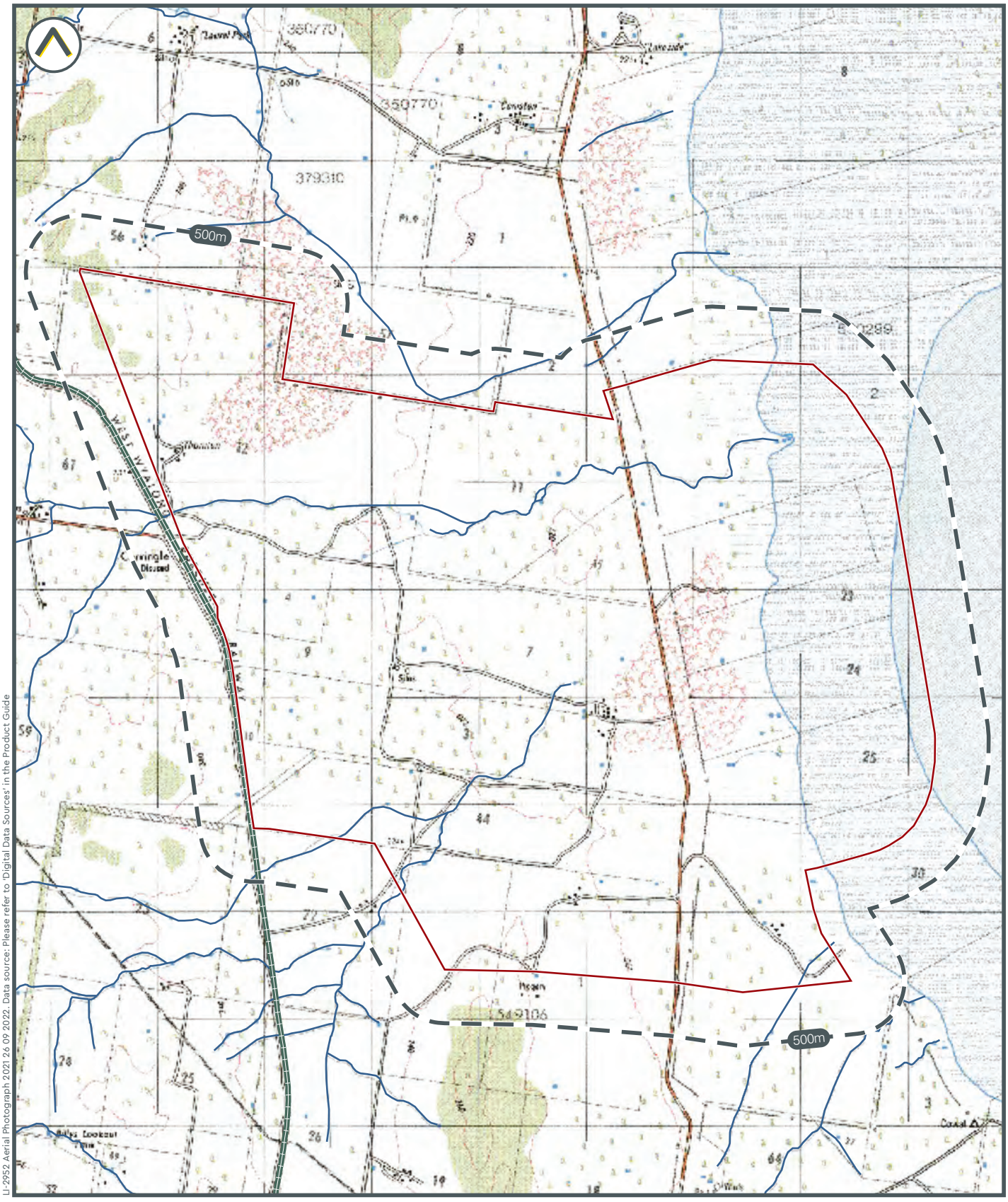
LI-2952 Aerial Photograph 2021 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

1969-1991 1:50,000 Topographic Map (Wamboyne 8330-N)



LI-2952 Aerial Photograph 2021 26 09 2022. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 2km

Land Insight

Land Insight