

Hera Project, via Nymagee



Heritage Assessment

Prepared by

**OzArk Environmental & Heritage Management
Pty Ltd**

September 2011

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Hera Project, via Nymagee

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EXECUTIVE SUMMARY

RW Corkery & Co Pty Limited, on behalf of YTC Resources Limited, engaged OzArk EHM to conduct an Aboriginal and historic heritage assessment within three discrete areas where there are proposed impacts from the development of the Hera Project. This OzArk (2010) survey supplements an assessment previously conducted by Appleton in 2004 who surveyed the northern section of the Project Site including the prominent landform, The Peak. This report presents the results of the assessments conducted by Appleton (2004) and that conducted by OzArk. It identifies heritage opportunities and constraints within the Project Site.

In 2004 Appleton was accompanied by a representative from the Condobolin Local Aboriginal Land Council (LALC) and a representative from the Wiradjuri Condobolin Culture and Heritage Company Pty Ltd. In 2010 OzArk was accompanied on the survey by two representatives from the Condobolin LALC and one from the Cobar LALC. Their positive input into the survey and their cultural knowledge of the region is acknowledged. Given, the Project Site is within the Cobar LALC area but immediately adjacent to the boundary with the Condobolin LALC, involvement of representatives from both LALCs was considered appropriate in 2010.

The OzArk assessment undertaken in June 2010 within the Project Site targeted four discrete areas comprising the proposed locations of (i) the Surface Facilities Area, (ii) the Tailings Storage Facility, (iii) the existing Back Tank West and Back Tank East, and (iv) and the existing Pete's Tank shown in **Figure 3**. All sections of the OzArk Survey Areas were able to be accessed, although recent rains had allowed groundcovers to expand. Overall ground surface visibility was high within the Project Site both in the 2004 Appleton and 2010 OzArk assessments, and there was generally, little hindrance due to stone protrusions occurring naturally. Both these assessments had good survey coverage within their respective Survey Areas.

No Aboriginal sites or objects were recorded as a result of the 2004 Appleton or 2010 OzArk surveys. It is assessed that there is a low probability of there being any undetected archaeological deposits within the Project Site based on the results of both the 2004 Appleton and 2010 OzArk surveys, previous surveys in the region and the landform occupied by the Project Site.

No items of historic heritage significance were recorded within the OzArk Survey Area. However, several examples of timber-getters toe-holds in trees were recorded in the OzArk Survey Areas. Based on the evidence that OzArk has been able to obtain, these toe-holds may have been made in the early 20th century by Chinese workers who supplied mine stays to the nearby Nymagee Copper Mine. However, there is no way of accurately determining the date of the toe-holds or the ethnicity of the people who made them. Based on the evidence available, OzArk has assessed these toe-holds as holding little historic significance.

It is recommended that, as much as is practically possible, the trees bearing the toe-holds should not be felled and those located beyond the OzArk Survey Area should be protected from future impacts. Beyond this recommendation and based on the results of this survey, there is no constraint to the proposed works on the grounds of cultural heritage or historic heritage within the Study Areas as defined here.

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1. INTRODUCTION

1.1 BRIEF DESCRIPTION OF THE PROJECT

OzArk EHM was engaged by RW Corkery & Co Pty Limited on behalf of YTC Resources Limited to conduct an Aboriginal and historic heritage assessment at three locations within an area that will be impacted upon by the proposed Hera Project to extract gold and base metals near the township of Nymagee in Western NSW (see **Figure 1**). The Hera Project would be located within the “The Peak” property (Lot 664, DP 761702). For the purposes of this document, the Project Site encompasses all areas of proposed Project-related disturbance; the Project Site boundary is shown in **Figure 2**.

The survey associated with the Aboriginal and historic heritage concentrated on four areas within the Project Site: the site of the proposed Tailings Storage Facility, the Surface Facilities Area and one proposed expanded freshwater dam (Pete’s Tank) and the construction of a new storage dam (Back Tank East) shown in **Figure 2**. Other areas that would be impacted upon by the Project were previously surveyed in 2004 by Appleton (2004, hereafter ‘Appleton’. Appleton’s report is included as **Appendix 4**). The results of this survey by OzArk (2010, hereafter ‘OzArk’) and Appleton have been combined to produce an Aboriginal and historic heritage assessment that would be representative of the Project Site.

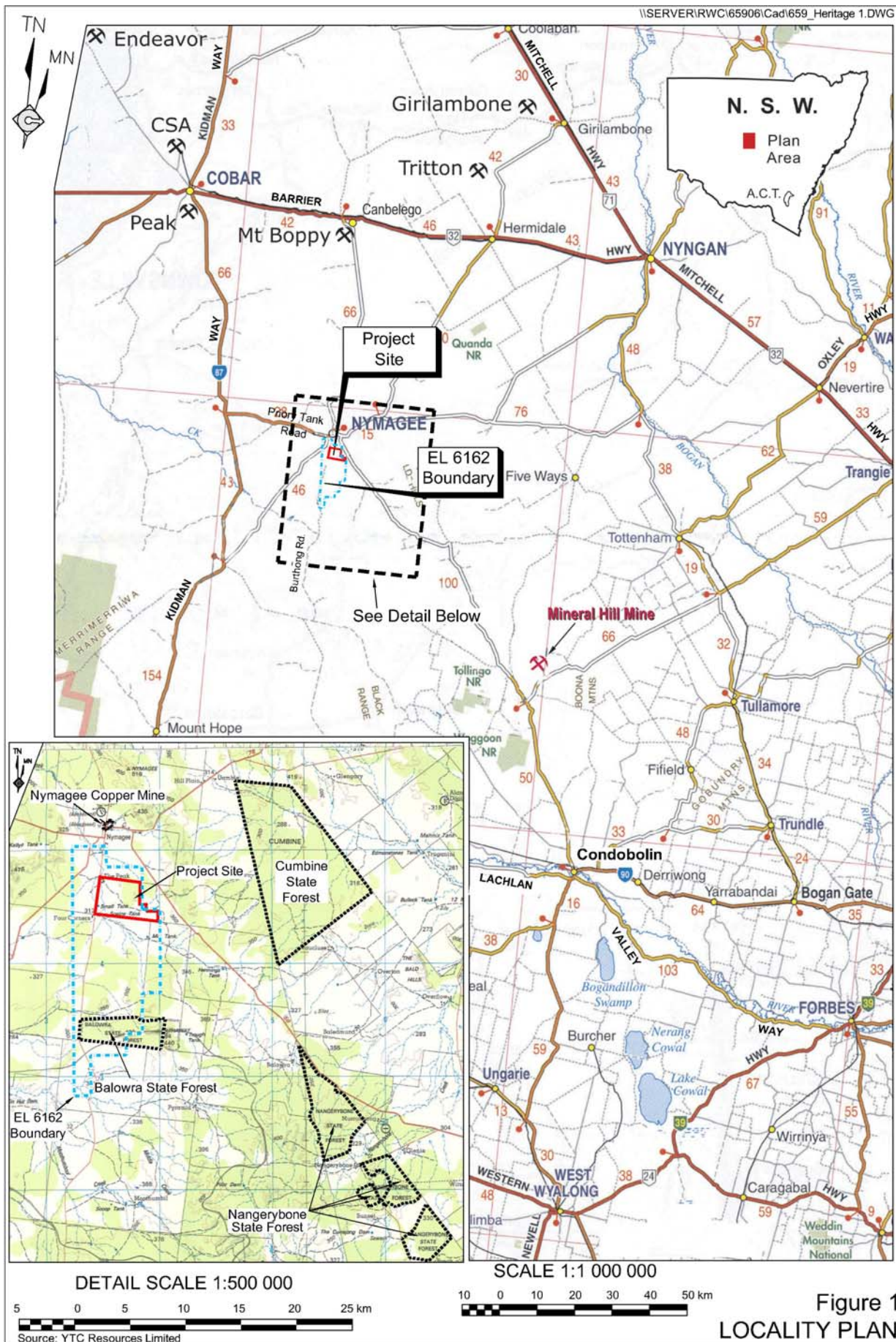
The Appleton and OzArk assessments consisted of two components: a desktop review to formulate a predictive model for the relevant site locations within the Project Site and a pedestrian survey of the nominated areas to test the strength of the predictive model. The combined survey areas from Appleton and OzArk are shown in **Figure 2**.

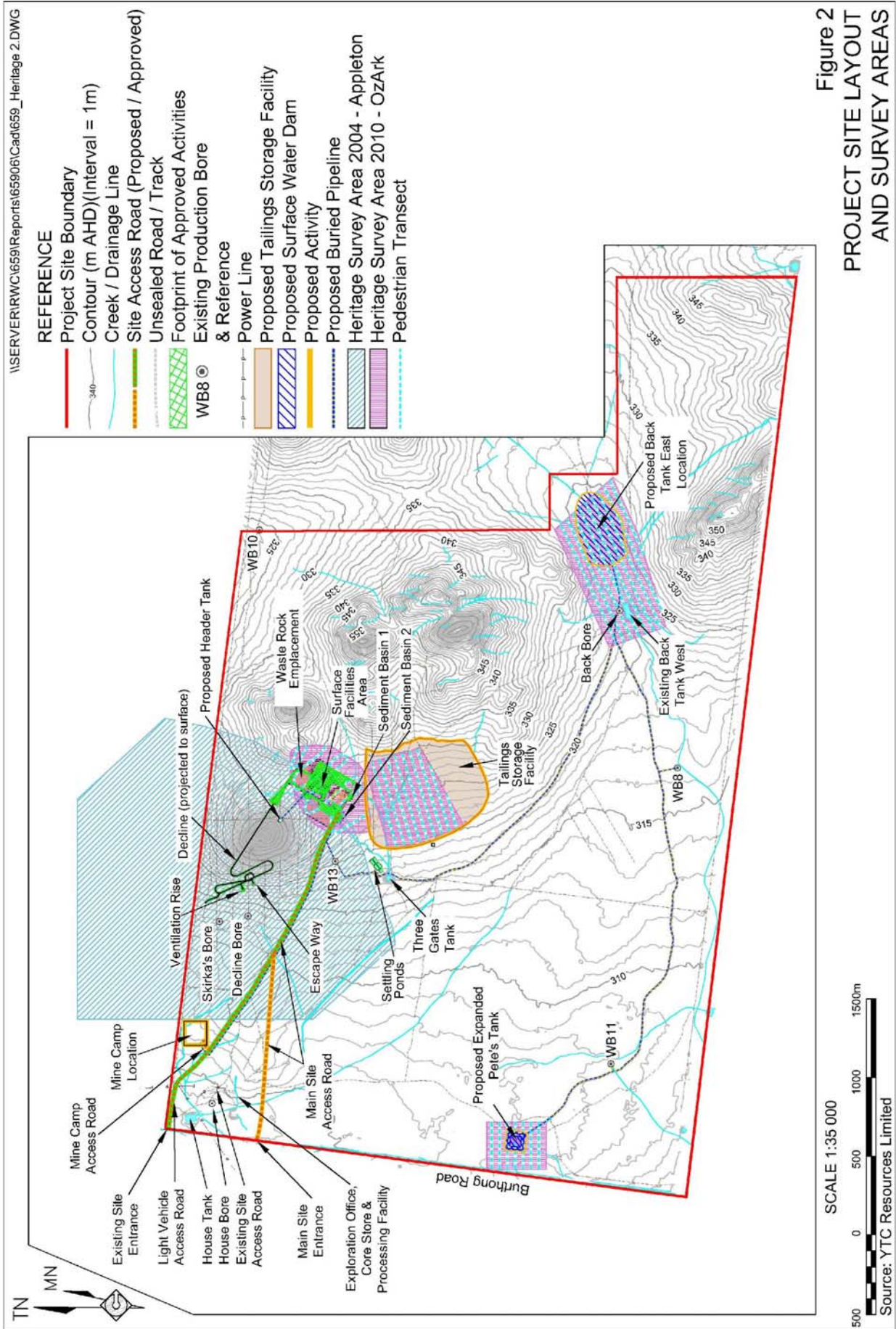
The OzArk investigation included the following aspects.

- A search of all relevant registers of information for Aboriginal and historic heritage namely:
 - the NSW Office of the Environment and Heritage (OEH; within the NSW Department of Premier and Cabinet) Aboriginal Heritage Information Management System (AHIMS);
 - the NSW Heritage Office State Heritage Register and Inventory;
 - the Australian Heritage Database;
 - the Register of the National Estate, *Environment Protection and Biodiversity Conservation Act 1999* online data-base (2010); and
 - the Cobar Local Government Area Local Environmental Plan 2001.

Results of these searches are listed in **Table 1**.

- A review of relevant current legislation including:
 - the *New South Wales Heritage Act 1977* (HA 1977);
 - *New South Wales National Parks & Wildlife Act 1974* (NPW Act 1974);





- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999);
- *Environmental Planning and Assessment Act 1979* (EP&A Act 1979); and
- *Environmental Planning and Assessment Amendment Act 2008*.
- A review of available relevant literature including previous consulting reports, academic theses / articles and available works on the history and ethnography of the Condobolin / Cobar region;
- Consultation with the registered stakeholders as per the Interim Community Consultation Requirements (ICCRs), which included the Cobar LALC and the Condobolin LALC and other relevant State government departments as required.

1.2 LOCATION

The Project Site is located approximately 4km south of Nymagee and approximately 100km southeast of the mining town of Cobar in Western NSW (see **Figure 1**).

1.3 DATE OF HERITAGE ASSESSMENT

The survey for the Appleton heritage assessment was conducted on 18 March 2004 and the OzArk assessment on 27 and 28 April 2010.

1.4 ABORIGINAL COMMUNITY INVOLVEMENT

The Project Site is located within the Cobar Local Aboriginal Land Council (Cobar LALC) area, however, it is also adjacent to the boundary with the Condobolin Local Aboriginal Land Council (Condobolin LALC) area.

The Appleton assessment involved Mr Peter Knight representing the Condobolin LALC and was assisted by Mr Noel Powell, representing the Wiradjuri Condobolin Culture and Heritage Company Pty Ltd.

The OzArk assessment process was undertaken in accordance with *Interim Community Consultation Requirements (ICCRs)*. It is important to note the Appleton assessment pre-dated the ICCRs. Given that OEH (then DECCW) published the Aboriginal Cultural Heritage Consultation Requirements (ACHCRs) after the survey work has been conducted in April 2010 and the advertising and expressions of interest had closed, the ACHCRs were not followed. They were however followed for all consultations after April 2010. The assessment process was continued in accordance with the ICCRs (DEC 2005).

Advertisements for stakeholder expressions of interest for the OzArk assessment were placed in the Condobolin Argus and Condobolin Weekly on the 10 March 2010 (**Appendix 1**). Letters were also sent to the Condobolin and Cobar LALCs, OEH (then DECCW), Cobar Shire Council, NTSCORP and the Register of Aboriginal Owners.

A search of the National Native Title Tribunal website (last updated 10 February 2011) revealed that there are currently no native title claims over the Project Site.

A second round of letters were then sent to additional groups identified as a consequence of the first round of advertising and agency contact. As a result of these processes, the following organisations / individuals formally registered interest by the close of Stage 1 of the ICCR process:

- Condobolin LALC;
- Cobar LALC;
- Mount Grenfell Site Board of Management (MGSBOM);
- Murrin Bridge LALC; and
- Elaine Ohlsen (individual).

As the Project Site falls within the western extremity of the Cobar LALC's boundary, both the Condobolin LALC and Cobar LALC expressed an interest in the survey. Both organisations were informed and provided details of the Appleton assessment for background context.

ICCR Stage 2 letters describing the proposed heritage assessment methodology were sent to all stakeholders with a request for any specific cultural information (should any be available), as well as inviting comment / input on the methodology proposed. No comments on the methodology were received by any of the registered stakeholders. Two positions were made available for Aboriginal community representatives to participate in the heritage assessment fieldwork. Condobolin and Cobar LALCs were chosen from the pool of registered stakeholders. Bradley Bell and Rebecca Shepherd represented the Condobolin LALC and Norm Ohlsen represented the Cobar LALC. It is noteworthy that the Condobolin LALC provided an additional site officer on their own behalf. Their input into assessing the cultural significance of any Aboriginal sites that may have been recorded during the survey is hereby acknowledged. The OzArk survey team also benefited from the Aboriginal representatives' knowledge from working with other heritage survey teams in the district.

Discussions were held on-site regarding the findings of the Appleton and OzArk field surveys and the topics covered included survey methodology, cultural significance, management options and recommendations.

Letters of correspondence from the both the Cobar LALC and Condobolin LALC regarding the survey and its results can be found in **Appendix 2**. A record of all consultation with all stakeholders was kept during the course of the Project and is presented in **Appendix 1**. All groups who had expressed interest in being part of the consultation process have been kept informed of the results and invited to comment on draft documents prepared for the Project.

To this end a copy of the draft report was issued to registered stakeholders on 9 June 2011 and feedback was invited within the recommended twenty one (21) day time frame. It was noted in the accompanying letter that no response was considered to mean stakeholders were satisfied with the document and, as no Aboriginal sites or objects were recorded during the assessment, supported the general management recommendations.

The nominated three week time period extended to the 5 July 2011, by which date no verbal or written comment was received. In addition, no comments have been received in the intervening period between 5 July 2011 and finalisation of this report in September 2011.

1.5 DESKTOP DATABASE SEARCHES UNDERTAKEN

A desktop search was conducted on the following databases to identify any potential issues (Table 1).

Table 1
Desktop-database Search Results.

Name of database searched	Date of search	Type of search	Comment
Australian Heritage Database http://www.environment.gov.au/heritage/ahdb/	10/5/10	Cobar LGA.	There are 13 listed 'Indigenous Places' without location information. No places listed on the search are believed to be within the Project Site. Aboriginal Registered Stakeholders did not highlight any issues within the Project Site.
NSW Heritage Office State Heritage Register and State Heritage Inventory http://www.heritage.nsw.gov.au/	10/5/10	Cobar LGA.	No places on the search are within the Project Site.
National Native Title Claims Search http://www.nntt.gov.au/Applications-And-Determinations/Search-Applications/Pages/Search.aspx	(accurate to February 2011)	NSW	No Native Title Claims cover the Project Site.
Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) Protected Matters (EPBC Act) Database http://www.environment.gov.au/erin/ert/epbc/index.html	10/5/10	Cobar LGA.	None of the Aboriginal places on the RNE occur near the Project Site.
OEH AHIMS	15/4/10	(10 x 10) km grid centred on the Project Site boundary.	0 sites have been recorded within the search area.
Local Environment Plan	10/5/10	Cobar LEP 2001	None of the Aboriginal places noted occur near the Project Site.

1.6 GOVERNMENT DEPARTMENT REQUIREMENTS

OEH has inherited from the former Department of the Environment, Climate Change and Water (DECCW) the guidelines for assessing Aboriginal cultural heritage. **Table 2** lists the main requirements outlined by OEH and makes a concordance with the appropriate section in this report (where applicable) that these requirements are addressed.

1.7 OZARK EHM INVOLVEMENT

The assessment was undertaken by Ben Churcher (Senior Archaeologist) and Kim Tuovinen (Archaeologist) of OzArk EHM. Ben Churcher wrote the report and it was edited by Dr Jodie Benton (Director) and Mr Phillip Cameron (Project Manager of the same company).

Table 2
Heritage Summary of Director-General's Requirements and other Government Departments in the Environmental Assessment

Government Agency	Paraphrased Requirement	Relevant Section(s)
GENERAL		
DoP	Heritage – both Aboriginal and non-Aboriginal.	See Sections 5 and 6.
ABORIGINAL CULTURAL HERITAGE		
DECCW 3/11/10 (now OEH)	The EA should address and document the information requirements set out in the draft <i>Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (2005)</i> involving surveys and consultation with the Aboriginal community. Note that DECCW has recently released the document “ <i>Aboriginal cultural heritage consultation requirements for proponents, 2010</i> ” which should be used for the consultation process rather than the interim guidelines referred to in the draft 2005 document. (In addition, the document “Code of Practice for Archaeological Investigation of Aboriginal objects in NSW” has been recently released and should be used for undertaking the archaeological investigation).	See 1.4
	Identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area and assess the nature and extent of the likely impacts on this heritage for all proposed mining related activities. This assessment should consider the cumulative impacts of the proposal and do so in a regional context by assessing the cumulative impact on cultural heritage of proposed and approved developments throughout the region.	See 4.5
	Describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on Aboriginal cultural heritage values. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.	See 4.9
	The onus is on the proponent to ensure that it meets all of its obligations with respect to the Aboriginal cultural heritage provisions of the <i>National Parks & Wildlife Act (1974)</i> . It must be noted that it is only the required authorisations under s87 and/or 90 in relation to the movement, damage and or destruction of objects that are no longer required un Section 75U of the Part 3a provisions of the EPA Act and all other provisions of the <i>National Parks & Wildlife Act (1974)</i> remain.	See Section 6
	Where it is determined that impacts are unavoidable and excavation and/or salvage and/or destruction of Aboriginal objects is proposed, detailed methodologies for the conduct of these activities should be provided. These methodologies should conform to archaeological best practice and include strategies for the effective reporting of all actions, results and required amendments to the AHIMS Site Register to DECCW.	N/A
	Where transfer of Aboriginal objects to local community members is proposed in any salvaged methodology, the EA should demonstrate both a commitment to and a process for meeting statutory obligation to seek a Care and Control Per unit s85A of the NPW Act 1974 for such transfer.	N/A
	Where new sites are located during the assessment process and/or at any time during project construction, in accordance with s91 of the NPW Act, DECCW requires that it be notified. This notification is expected to be in the form of the completion of the Aboriginal Heritage Site Cards, available on the Department's website. The EA should include all details of any new sites recorded during the assessment process and include a procedure for the formal identification, recording and notification of any new sites located during any mine related activities, and for the life of the mine.	N/A
	The EA must clearly demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations.	See 1.4

2. PROJECT DESCRIPTION

As identified in Section 1.7 of the *Environmental Assessment*, a number of components of the Hera Project have been previously approved. These include the following (**Figure 2**).

- Construction and use of infrastructure required for an underground mine including a box cut, portal and decline, magazine and ventilation rises.

- Construction and use an integrated ore stockpile area and temporary Waste Rock Emplacement.
- Installation and use of one or more diesel generators within the power station and the associated Fuel Storage and Recycling Area.
- Construction and use of site offices, ablutions facilities, vehicle parking, workshop, laydown area and associated infrastructure.
- Establishment of on-site communications facilities.
- Construction and use of water management structures.
- Construction and use of an access road (referred to in this document as the Light Vehicle Access Road). For the purposes of this application, the Light Vehicle Access Road would be used by light vehicles only.

The Project would include the following activities which would require approval (**Figure 2**).

- Extraction of waste rock and ore material, using underground sublevel open-stope mining methods at the maximum rate of material would be approximately 350 000t per year for approximately 5.5 years.
- Construction and use of a Surface Facilities Area that would incorporate a range of approved infrastructure, including expanded site offices for the Proponent and Contractors, ablutions facilities, vehicle parking, power station, fuel storage, refuelling area, workshop and laydown areas.
- Construction and use of a Processing Plant within the Surface Facilities Area comprising crushing and grinding, gravity separation, flotation, leach and gold recovery circuits and ancillary infrastructure to produce approximately 33 000oz of gold, 74 000oz of silver, 10 000t of lead and 10 000t of zinc per year.
- Construction and use of a temporary Waste Rock Emplacement, incorporating an acid rock drainage encapsulation area and an associated Leachate Management Pond.
- Construction and use of a Tailings Storage Facility with the associated Seepage Collection Pond.
- Construction of a Mine Camp and Mine Camp Access Road for mine personnel.
- Construction and use of a surface water harvesting system, including expansion of Pete's Tank and construction of Back Tank East and associated water reticulation system.
- Construction and use of the Main Site Access Road and the associated intersection to allow site access from Burthong Road by light and heavy vehicles.
- Transportation of concentrate from the Project Site to the Proponent's customers via public roads surrounding the Project Site.
- Construction and use of ancillary infrastructure, including soil stockpiles, core storage yards, internal roads and tracks, and sediment and erosion management structures not already approved.
- Construction and rehabilitation of a final landform that would be geotechnically stable and suitable for an end land use of agriculture or nature conservation.

3. SURVEYS

3.1 SURVEY AREAS

In 2004 the northern sections of the Project Site, that includes the Surface Facilities Area, was surveyed by John Appleton (**Figure 2**). The OzArk 2010 component of the assessment specifically concentrated on four areas (**Figure 2**) that had not been previously surveyed by Appleton:

- The area denoted as 'Tailings Storage Facility';
- The area denoted as 'Expanded Pete's Tank';
- The area denoted as 'Back Tank West and Proposed Back Tank East'; and
- The area denoted as 'Surface Facilities Area' and the 'Temporary Waste Rock Emplacement Area' outside of the Appleton survey area.

The 2004 Appleton target survey area is described by the following AMG coordinates (AGD66 datum). The field survey was undertaken on 18 March 2004.

- 6448100N 435400E: 6448100N 436800E: 6446800N 438000E: 6445400N 438000E: 6445400N 436500E: 6446600N 435400E.
- The area of intensive pedestrian survey is smaller than the area shown in **Figure 2**.

The 2010 OzArk assessment undertook pedestrian transects as shown in **Figure 2**. **Table 3** records the GPS coordinates of the survey transects from the 2010 OzArk assessment.

3.2 PROPOSED ACTIVITIES

No specific proposed works beyond that shown as the OzArk survey areas in **Figure 2** were available at the time of survey. For the purposes of the heritage assessment, it was assumed that there would be a high level of disturbance within the areas denoted as the OzArk survey area.

3.3 HERITAGE ASSESSMENT METHODOLOGY

For the 2004 investigation, Appleton decided that his survey area was large and his team would focus on The Peak, the scalded areas to the south of The Peak and the general area on which the then drilling programme was centred. The survey commenced at The Peak with the summit, cliff line and slopes being inspected thoroughly, both for artefacts, paintings and engravings. The survey continued from a line west-east across the base of the peak-slopes to the north of the peak through to the (then) southern boundary. The three investigators generally walked three abreast and approximately 40m apart, from north-east to south-west and back, targeting any erosion features within the 120–150m wide transect. Four such transects were surveyed thus covering the southern half of the survey area in which drilling was proposed to take place.

Table 3
GPS coordinates for the OzArk 2010 survey (GDA Zone 55).

GPS	EASTING	NORTHING	REMARKS
FDANE	0434860	6445680	Pete's Tank NE
FDANW	0434560	6445680	Pete's Tank NW
FDASE	0434860	6445300	Pete's Tank SE
FDASW	0434559	6445300	Pete's Tank SW
FDBNE	0438630	6445250	Back Tank NE
FDBNW	0437880	6444900	Back Tank NW
FDBS	0438610	6444720	Back Tank S
FDBSE	0438960	6444880	Back Tank SE
FDBSW	0438010	6444540	Back Tank SW
HEJUNC	0436243	6446866	Track Junction
HERAHQ	0435017	6447481	Hera House
TDSANE	0437140	6446460	Tailings Storage Facility NE
TDSANW	0436591	6446300	Tailings Storage Facility NW
TDSASE	0437240	6446100	Tailings Storage Facility SE
TDSASW	0436740	6445820	Tailings Storage Facility SW
Z1EAST	0438820	6445060	Back Tank East Boundary
Z1WP1	0438207	6444998	Back Tank Waypoint
ROMPN	0437230	6446700	ROM Pad North
ROMPS	0437180	6446640	ROM Pad South
Z2DNE	0434762	6445525	Zone 2 / Pete's Tank / NE corner
Z2DNW	0434724	6445532	Zone 2 / Pete's Tank / NW corner
Z2DSE	0434762	6445472	Zone 2 / Pete's Tank / SE corner
Z2DSW	0434716	6445465	Zone 2 / Pete's Tank / SW corner
Z2EH20	0434779	6445569	Zone 2 / Pete's Tank / Eastern Boundary / High concentration of groundwater
Z2S	0434750	6445284	Zone 2 / Pete's Tank / Southern Boundary / halfway point
Z2WST	0434570	6445498	Zone 2 / Pete's Tank / Western Boundary / halfway point
Z3E	0437175	6446333	Zone 3 / Pete's Tank / Eastern Boundary / halfway point
Z3N	0436938	6446319	Zone 3 / Pete's Tank / Northern Boundary / halfway point
Z3PIT1	0436827	6446338	Cleared pad around Test Pit 1, Zone 3, Tailings Storage Facility area
Z3PIT2	0436942	6446299	Cleared pad around Test Pit 2, Zone 3, Tailings Storage Facility area
Z3PIT3	0437000	6446402	Cleared pad around Test Pit 3, Zone 3, Tailings Storage Facility area
Z3PIT4	0437196	6446261	Test Pit 4, Zone 3, Tailings Storage Facility area
Z3PIT5	0437246	6446106	Cleared pad around Test Pit 5, Zone 3, Tailings Storage Facility area
Z3PIT6	0436985	6445900	Cleared pad around Test Pit 6, Zone 3, Tailings Storage Facility area
Z3PIT7	0436771	6445816	Cleared pad around Test Pit 7, Zone 3, Tailings Storage Facility area
Z3PIT8	0436892	6446084	Cleared pad around Test Pit 8, Zone 3, Tailings Storage Facility area
Z3S	0437017	6445910	Zone 3 / Tailings Storage Facility area / Southern Boundary halfway point
Z3W	0436628	6446079	ZONE 3 / Tailings Storage Facility area / Western Boundary halfway point

The OzArk survey area was walked by five surveyors keeping at least 5m apart (**Appendix 3, Plate 1**). The perimeter of each block (i.e. around the area denoted as Pete's Tank in **Figure 2**) was first surveyed, before internal transects were designed. Each of the larger areas for the proposed Tailings Storage Facility and the proposed expanded Back Tank location had four internal transects surveyed, as well as the perimeter transect.

3.4 HERITAGE SURVEY CONSTRAINTS

For the 2004 Appleton assessment, the survey was made on foot, in dry conditions under a clear sky, in light ideal for observing any artefactual material present and observable. As noted above, not all of Appleton's survey area within the Project Site was assessed on foot; rather targeted assessment of representative landforms was undertaken. However, the southern portions of the 2004 study area were more intensively assessed and this southern area corresponds to the area of greatest impact within the present Project boundary.

The weather for the OzArk survey in 2010 was mild and fine, although heavy rain had preceded the survey work. Similarly, the OzArk survey areas comprised targeted areas that were identified, at the time, for ground surface disturbance within the Project Site.

Collectively, both the 2004 Appleton and 2010 OzArk had no constraints in accessing the survey areas within the Project Site even if regenerating Cypress pine made access difficult at times (**Appendix 3, Plate 2**). Generally speaking, the ground surface visibility was high as there were many naturally bare patches. However, in places, new growth during the OzArk assessment covered the ground bringing ground surface visibility down to zero (**Appendix 3, Plate 3**).

Background noise to the detection of Aboriginal artefacts was low as across most of the Project Site where there was little natural stone on the surface and, if Aboriginal objects had been present, they would have been highly visible against the red clay soils. In one area at the location of the proposed Surface Facilities Area, natural quartz littered the ground surface (**Appendix 3, Plate 4**) making the detection of Aboriginal objects more difficult.

Overall, there were no heritage survey constraints that prevented the efficient deployment of the survey methodology as set out above.

It is noted that subsequent to the 2010 survey, the area of the Tailings Storage Facility was expanded. As a result, a section of this proposed disturbance was not assessed.

3.5 TOPOGRAPHY OF THE PROJECT SITE

The Project Site occurs in low ridge country classified as being of the Yackerboon Land System. Typically the unit comprises of ridge crests and slopes of Silurian and Siluro-Devonian siltstone and sandstone with areas of quartzite outcrop, and surface residual, and colluvial gravel band quartz. The soils are typically Red Earths and some Lithosols, with loam to clay loam, overlying siltstone and sandstone (Appleton, 2004).

The majority of the Project Site area is located on the alluvial plains below the one prominent feature in the landscape, The Peak. Typically these lower areas are flat with clay soils. In places, very infrequently, there are sandstone reefs exposed.

As the land rises towards The Peak in the north (to a maximum altitude of 360m), the land becomes more rocky with more sandstone reefs exposed and areas with large concentrations of quartz. Only the additional areas of the Surface facilities Area and the Temporary Waste Rock Emplacement Area fall into this topographic category, while the Tailings Storage Facility and Pete's Tank and Back Tank are located on the flat, alluvium plains.

3.6 HYDROLOGY OF THE PROJECT SITE

No discernable watercourses cross the Project Site and the only surface water would have been available following rain events. Recent rains had demonstrated that instead of being channelled into drainage lines, the whole landscape was awash with flood waters up to a depth of 30 cm (**Appendix 3, Plate 5**).

This indicated that Aboriginal occupation in the Project Site would have been sporadic at best as it would have only been possible during good seasons when more water was available.

3.7 VEGETATION OF THE PROJECT SITE

The vegetation has been totally changed from its natural regime by farming and other land-use practices. While the remnants of large Red and Bimble Box trees remind us that this region would have once supported an open woodland/grassland with trees of some size (**Appendix 3, Plate 6**), the area is now characterised by denuded soils and dense Cypress Pine regrowth (**Appendix 3, Plate 2**).

As the original composition of vegetation has been dramatically altered, this would diminish the opportunity of recording certain site types, such as modified tress, as well as denying us the opportunity to critically examine the resource base that would have been available prior to European settlement.

3.8 CLIMATE OF THE PROJECT SITE

The region experiences low average rainfall (around 400mm) and can experience very hot weather in the summer and cool to cold evenings in the winter.

This environment would have made accessibility to water sources a major concern for any pre-European inhabitants and this would have always ensured that the majority of Aboriginal occupation would be concentrated near waterways containing permanent water.

3.9 EXISTING LEVELS OF DISTURBANCE

The Project Site has been heavily disturbed. The range of disturbances comprises the following.

- Flooding (**Appendix 3, Plate 5**). Floods, such as the one depicted here, would remove top soil exposing buried Aboriginal objects and would move artefacts from their original context. Flooding of this type has removed most of the top soil and this reduces the possibility of locating sub-surface archaeological deposits within the Project Site;

- Historic vegetation clearing targeting older trees (**Appendix 3, Plate 6**) has possibly removed certain site type such as modified trees from the Project Site. It is thought that the area was once an open grassy woodland but after European occupation (more specifically in the past 60 years) the timber has become more dense.
- The Project Site has been subjected to repeated episodes of mineral exploration including the construction of roads and drill pads (**Appendix 3, Plate 7**). This disturbance has removed vegetation and has impacted the ground surface; possibly displacing Aboriginal artefacts had they been present.
- Farm infrastructure such as water dams exists within the Project Site (**Appendix 3, Plate 8**). These excavations may well have impacted Aboriginal sites had they been present.
- Numerous roads have been constructed across the Project Site (**Appendix 3, Plate 9**). These roads are either farm tracks or more recent exploration tracks. In all cases, the ground surface has been affected and there is a small chance that Aboriginal sites, if they were present, may have been impacted.

4. ABORIGINAL HERITAGE

4.1 ETHNO-HISTORIC SOURCES OF PAST ABORIGINAL CULTURE

According to Tindale's map of tribal boundaries (1974) the Nymagee area falls within the limits of Wongaibon. The Wongaibon occupied the headwaters of Bogan River, on Tigers Camp and Boggy Cowal creeks. At Narromine, Nyngan, Girilambone, Cobar, and Gilgunnia; south to Trundle, the Wiradjuri territory only visited the Lachlan River and Little Billabong Creek during very dry times; at Trida; west to Ivanhoe and near Neckarboo Range (SA Museum, Tindale, Dr Norman Barnett [AA338] online archive).

A local account by Mr Tom Peckham, Traditional Owner of the Dandaloo area, as told to him by an elderly peer many years ago, revealed that Wongaibon was a kind of Aboriginal place where people outcast / banished from their communities came to live (Wiradjuri, Kamilaroi, Ngiyampaa etc). He noted that the outcasts were not allowed to leave the area but families could come and visit. He also noted that unfortunately not much more information regarding the subject is known.

There appears to be little geographic basis for the divisions shown in Tindale's map and the use and meaning of the term 'tribe' and the designation of lines on a map as 'tribal boundaries' is a controversial issue (Bowdler 1983:22). There is no doubt that there were distinctive groups which can be defined by their linguistic traits, but the designation of lines on a map as boundaries, although useful, must also be accepted as problematic.

Episodes of early contact between Aboriginal and European cultures from the nearby Lachlan Valley (approximately 100km south) were documented by the explorers Oxley and Cunningham in May 1817. Oxley (1817) writes:

About a mile from this place we fell in with a small tribe of natives, consisting of eight men; their women we did not see. They did not appear any way alarmed at the sight of us, but came boldly up: they were covered with cloaks made from opossum skins; their faces daubed with a red and yellow pigment, with neatly worked nets bound round their hair: the front tooth in the upper row was wanting in them all: they were unarmed, having nothing with them but their stone hatchets. It appeared from their conduct that they had either seen or heard of white people before, and were anxious to depart, accompanying the motion of going with a wave of their hand (cited in Whitehead 2003:105).

Cunningham (1817) reported:

Calling to one another we were answered by strange voices, which left us in no doubt of natives being near us. It was a great point we should all join in again, which at length we did, after some time had passed over several miles on a cross-course, the labour of which might have been saved. Our people came up with seven or eight of the natives, who were clothed in mantles of skin reddened with a pigment from the river. There appeared not the most distant symptoms of hostility among them! They evidently had seen a horse before, and could pronounce some words in English, such as bread, and they had every appearance of having been with those at the Lachlan depot, from which we are now 54 miles west. From the columns of smoke ascending from the trees to which these harmless beings were advancing there is no doubts of their encampment being these situated, and it might be inferred that their gins or wives were there, from their evident objection to our people attempting to accompany them to their fires. The delay and loss of time occasioned by the above adventure had allowed our boatmen to work themselves through all the numerous windings of the river and overtake us (cited in Whitehead 2003:105).

Prior to actual infiltration of European settlers into the area, their effects on the Aboriginal community were already being felt. Two epidemics of small pox are said to have swept across large areas of Australia between 1790 and 1830, decimating the Aboriginal population who had no immunity. It is said to have travelled along the watercourses from east to west, going through neighbouring Wiradjuri country and into South Australia. It was interpreted as the powerful magic of distant tribes who had unleashed the terrifying power of the Rainbow Serpent. In the Wiradjuri region, these times remained vivid for many generations and old people recalled the strange sickness that “followed down the rivers...Burying bodies was no longer attempted and the atmosphere became tainted from decomposing bodies” (Beveridge 1883:35 as quoted in Kabaila 1996:10).

The Sydney Morning Herald of Friday 16 October 1896 (page 7) carried a notice on the new township of Bobadah (about 30km southeast of the Project Site) being laid out:

By request of a number of persons at Overflow, and on account of the increase of population, I marked off a street on a good eligible site, west of the mineral lease portion 1 and portion 2, and named this new township Bobadah, an aboriginal (sic) name. The blacks in former ages held large camping festivals in the vicinity, as can be seen by the remaining traces, such as chips from tomahawks or instruments of war in large quantities...

Bobadah, like Nymagee, is not located on a reliable waterway, but was situated to take advantage of the nearby mineral deposits. As this excerpt states, the way of life for the Aboriginals in the district was already from a 'former age' in 1896, however, evidence of their existence was plentiful, even away from major waterways.

We can assume that the same conditions applied to Nymagee prior to the construction of the Nymagee mine in the 1870s.

After the onset of European occupation, traditional, Aboriginal life quickly ceased to exist in its traditional form. Disease had preceded occupation, decimating the population and then, in the following decades, battles with the European settlers further reduced numbers.

4.2 REGIONAL ARCHAEOLOGICAL CONTEXT

In general, western NSW has been the focus of a limited degree of archaeological research, primarily concerning the archaeology of the ephemeral lakes and their associated Pleistocene lunettes and with regard to the art sites of the region. A previous archaeological study on the mining lease at the Hera Deposit site (Appleton 2004) is the most relevant research work available.

Also relevant to a scientific understanding of the archaeology of the general region are archaeological surveys and excavations undertaken near Lake Cargelligo (for example OzArk 2008a): Forbes and Dubbo provide baseline data for placing Aboriginal sites with the regional landscape context (Koettig 1985).

Of the development driven studies in the region, Paton and Hughes (1984) focussed on two areas along the Lachlan River between Condobolin and Hillston. The results of this study noted that site densities were highest along the Lachlan River and extremely high artefact frequencies occurred close to the river (up to one artefact per square metre), decreasing rapidly with distance from the river. These results led the authors to the conclusion that Aboriginal people primarily focussed their activity along the resource-rich Lachlan River and the nearby wetlands and lakes. Occupation of the surrounding areas where water was scarce and the land less fertile would have been sporadic.

The finding of higher site frequency with greater proximity to permanent water is re-confirmed in almost all studies undertaken in the more marginal parts of NSW, i.e. Silcox (1986) in the West Wyalong region; Brayshaw (1993) north of Parkes; Paton (1989) and Cane (1994) in the Lake Cowal area; Koettig (1985) in the environs of Dubbo and Pearson (1991) to the east of Dubbo.

Two of these studies (Paton and Hughes 1984 and Silcox 1986) recorded quartz as the predominant raw material used in the manufacture of stone tools, with chert being second in frequency. Brayshaw (1993), however, recorded chert as predominant over quartz, as did Cane (1994).

A linear impact survey (Huys and Johnston 1995) was undertaken in the area between Lake Cowal and Forbes. A transmission line installation, as part of a larger infrastructure project surrounding the proposed North Limited open cut mine on Lake Cowal, was expected to run north east from Lake Cowal to the southern floodplain of the Lachlan River at Thurumbalgee Lagoon (Huys and Johnston 1995: Map 2). Six artefact scatters were recorded north of Lake Cowal, only two of which were located in the northern reaches of the proposed easement. These were both small, only two artefacts per site, and interpreted as providing support for their prediction of low to very low artefact density sites occurring in the this portion of their study area (Huys and Johnston 1995:22).

Appleton 2004 conducted surveys for Triako Resources at Hera, The Outflow project at Bobadah (approximately 30 km southeast) and at "Fountain Dale" north of Mineral Hill (approx. 100 km southeast). His results from Hera will be discussed below in Section 4.3. At Bobadah, Appleton recorded seven artefact scatters, all outside the area of immediate potential impact. Coupled with historical records of Aboriginals at Bobadah (Section 4.1), Appleton's results tend to indicate a concentration of settlement around this area. At "Fountain Dale" Appleton recorded 13 sites: 11 isolated artefacts and two scatters of two artefacts each. The low site complexity recorded by Appleton at Mineral Hill contrasts with a nearby survey by OzArk in 2008 (below).

OzArk 2008b conducted a heritage survey at the location for the expansion of the Parkers Hill open cut mine at Mineral Hill (approximately 100km southeast of the current Project Site). In the OzArk 2008 study area water resources were available and the assessment recorded 14 Aboriginal sites consisting of five open sites and nine modified (scarred) trees. The open sites ranged in size and complexity from low density sites with 4 to 10 artefacts recorded, to larger complexes such as MH2-OS4 and MH2-OS5 displayed characteristics of being large sites with some complexity. The modified trees were all recorded adjacent to ephemeral unnamed drainage features.

4.3 LOCAL ARCHAEOLOGICAL CONTEXT

A search of a (10 x 10) km area centred on the Project Site on the OEH AHIMS database revealed no previously recorded sites within the search area.

This should not, however, be seen as a true reflection of past Aboriginal settlement patterns but should rather be seen as indicative of the small amount of archaeological research that has taken place in the past. The lack of previously recorded sites in the immediate area would be likely more associated with the relative remoteness of the Project Site and the few development driven projects, with archaeological components, that have taken place there.

Appleton 2004 surveyed areas immediately north of the OzArk Study Area including The Peak: a prominent hill (approximately 360m AHD) within the Project Site. Appleton recorded no Aboriginal objects or sites and concluded that there was little probability for there to be further artefacts in his study area. Appleton suggests that The Peak may have played a role in past Aboriginal religious or ceremonial practices but evidence is lacking as to what significance, if any, The Peak held with past Aboriginal inhabitants.

4.4 PREDICTIVE MODEL FOR SITE LOCATION

Predictive modelling aims to establish a theoretical model for site location / distribution within a given area. This model provides a comparative situation against which the results of the investigation can be assessed, taking into account the effects of post formation processes, such as visibility, land use etc.

Proximity to a permanent water supply is generally considered the primary factor determining the location of Aboriginal camp sites.

For example in the better studied Sydney region, stream ordering has been used to predict the potential for site occurrence, and further to indicate the possible nature of these sites in terms of their complexity. Results of an integrated series of studies including a serious excavation component (McDonald 1997), suggests a high correlation between the permanence of a water source and the permanence and / or complexity of the areas Aboriginal occupation. This was further reflected in the lithic assemblages from sites close to permanent water, which suggested that a greater range of activities were represented (e.g. tool use, manufacture and maintenance, food processing and quarrying). Sites near ephemeral water sources had evidence for one-off occupation (e.g. isolated knapping floors or tool discard), and creek junctions were also proven to be foci for site activity.

While the environment at Nymagee is vastly different from that located at Sydney, the same environmental imperatives has resulted, in western NSW, in larger and more complex sites being located near permanent water.

While the linkage of settlement and water has been demonstrated across most environments in NSW, it should not be assumed that no sites exist away from permanent water. For example, Appleton 2004 reports that environments at Bobadah, similar to that found at Nymagee, contained Aboriginal sites although the area, like Nymagee, is poor in water resources.

Based on the assessment results of Appleton (2004), the results of the AHIMS database search and a desktop study of the Project Site, it was assessed that there was a low probability of locating Aboriginal objects or sites within the Project Site.

Using the concept of stream ordering, previous research within the general area (Section 4.2) and the knowledge gained from a review of the local context in Section 4.3, the following general predictions can be made regarding the nature of sites and their location in the Project Site:

- Away from permanent water, open sites are likely to be smaller, less complex and more likely to be the result of one-off occupation episodes
 - The Lachlan River runs approximately 100km south of the Project Site while the Project Site contains no discernable drainage features. It is therefore predicted that should open sites be recorded, they are likely to be of low density and complexity.

- Isolated finds may occur anywhere
 - Isolated finds are a relatively common occurrence in the wider area, particularly near resource extraction areas such as quarries. The probability of isolated finds that are the result of post-formation processes, i.e. disturbance, is high in deflated landscapes such as those of the Project Site. It is therefore predicted that there is a likelihood of recording isolated finds in environments such as the Project Site.
- Modified Trees
 - Although rare, these site types are relatively frequent within the wider area, often associated with water courses. However, given the history of early tree clearing and ring-barking (Section 3.9) and the lack of drainage features (Section 3.6) it would be unlikely that many mature trees of an age to possess a cultural scar would remain.
- Quarries may occur where appropriate raw materials outcrop in the landscape
 - Quartz quarries are possible as reefs of outcropping quartz are an occasional occurrence in the Project Site, particularly in the region of the proposed Surface Facilities Area.
- Natural mythological or cultural/ceremonial sites may be found anywhere
 - The survey team was accompanied by Aboriginal representatives of the Condobolin/Cobar area to assist in the identification of any known mythological/cultural sites occurring within near the Project Site. Those Aboriginal knowledge holders who did not attend the fieldwork resulted in a copy of this report being provided to them for comment.

4.5 SURVEY RESULTS

4.5.1 Aboriginal Sites Recorded

No Aboriginal sites or objects were recorded as a result of the 2004 Appleton or the 2010 OzArk assessments of the Project Site. Further, it is assessed that there was and remains a low potential for the existence of further, undetected, Aboriginal sites or objects within the Project Site. This assessment is based on the results of the 2004 and 2010 surveys, a determination of the landform occupied by the Project Site and an assessment of the likely impact to any previously existing sites by European disturbances, not the least being timber felling and topsoil erosion through clearing, stocking and flood events.

4.5.2 Aboriginal Community Input

Aboriginal representatives from the Condobolin LALC and Wiradjuri Condobolin Culture and Heritage Company Pty Ltd for the 2004 Appleton survey and in 2010 the Cobar LALC and Condobolin LALC accompanied the OzArk survey team in the field. Their input into the survey methodology and local knowledge of past Aboriginal occupation and land use was valuable. No areas inspected during the survey were known by the accompanying representatives to hold cultural significance in either survey period.

4.6 DISCUSSION

The predictive model presented in Section 4.4 indicated that there was a low probability of recording Aboriginal objects or sites within the Project Site due to the landform characteristics of the Project Site, specifically that there are no discernable drainage systems within the Project Site.

This was confirmed by the survey that recorded no sites and little potential for further, undetected sites.

A number of factors have influenced the possibility of locating Aboriginal sites within the Project Site. Extensive tree clearing (of old growth timber) in the past has removed certain site types such as modified trees (had they existed) and past land use patterns and frequent widespread flooding, has denuded the topsoil thereby displacing or removing cultural material.

The lack of permanent water within the Project Site, the lack of potential Aboriginal quarry locations (apart from at the location of the proposed Waste Rock Emplacement Area where quartz suitable for knapping was noted without, however, any evidence that this area was actually used as a quarry; **Appendix 3, Plate 4**) and disturbances to the Project Site have resulted in an altered landscape and the probable disruption or destruction of what would have probably been, at best, low density Aboriginal sites.

As noted in Section 3.4, not all of the area of the proposed Tailings Storage Area was assessed by the 2010 survey as the area of proposed impact was expanded subsequent to the survey. It is felt, however, that Tailings Storage Area, as shown in **Figure 2**, has been adequately assessed this entire area consists of the same landform: a large proportion of which was assessed during 2010. This landform displayed a high degree of disturbance and a low potential for the presence of archaeological deposits. The additional, un-assessed area of the Tailings Storage Area was seen (and driven through) during the 2010 survey, and although not assessed in detail, it is likely to hold the same low heritage potential as the assessed portion of the same landform.

Following his 2004 survey, Appleton concluded that, with reference to his study area, that “the absence of artefacts in the area which was surveyed at a time when there was excellent archaeological visibility is interpreted as being indicative that there is no research potential in the survey area.”

4.7 ASSESSMENT OF HERITAGE SIGNIFICANCE

No Aboriginal sites or objects were recorded in the 2004 Appleton or 2010 OzArk assessments, therefore no further assessments of heritage significance were undertaken.

4.8 LIKELY IMPACTS ON ABORIGINAL HERITAGE FROM THE PROJECT

No Aboriginal sites or objects were recorded as part of the 2004 Appleton or 2010 OzArk assessments and no area within the Project Site has been assessed as holding archaeological potential. As such, there will be no impact to cultural heritage arising from the Project.

4.9 MANAGEMENT OPTIONS

As no Aboriginal sites or objects were recorded as part of the Appleton or OzArk assessments, there are no specific management recommendations concerning the management of Aboriginal heritage sites.

As noted above, however, some sections of the Tailings Storage Facility as seen in **Figure 2** have not yet been surveyed as the size of this facility was expanded subsequent to the in-field heritage assessment. As noted above, the area not surveyed consists of an identical landform to that what was assessed in 2010 and it is assessed that there is a low probability of locating further Aboriginal sites in this area that has not been assessed. However, to remove uncertainty, this area of the Tailings Storage Facility that has not yet been surveyed should be assessed by a qualified archaeologist prior to any ground disturbing works.

The following general management recommendations should be adhered to:

- Land-disturbing activities should be confined within the areas set out in **Figure 2**. Should the project design alter and land outside of the areas previously surveyed be impacted, then a suitably qualified archaeologist should be engaged to assess the archaeological potential of those areas.
- Should Aboriginal sites or objects be found during ground-clearing construction works, then work in the vicinity should immediately cease and advice from OEH be sought on how to best proceed (Cobar National Parks office; Phone: 02 6836 2692).

4.10 RELEVANT LEGISLATION

Baseline principles for the conservation of heritage places and relics can be found in the Burra Charter¹ (ICOMOS *Burra Charter* (Australia ICOMOS 1999), which recognises that there are places worth keeping because they can enrich our lives on many levels. The significance of such places may be embodied in fabric (physical material), environmental setting, contents, use or its meaning to people, and should be assessed through methodical data collection. Since its adoption in 1979, The Burra Charter has become the standard best practice in the conservation of heritage places in Australia, and heritage organisations and local government authorities have incorporated the inherent principles and logic into guidelines and other conservation planning documents. The Burra Charter generally advocates a cautious approach to changing places of heritage significance. This conservative notion embodies the basic premise behind legislation designed to protect our heritage, which operates primarily at a State level.

A number of Acts of parliament provide for the protection of Aboriginal heritage at various levels of government². The three most important statutes in New South Wales are:

- *Environmental Planning and Assessment Act 1979* (EP&A Act), as amended;

¹ The Burra Charter defines the basic principles and procedures to be followed in the conservation of all kinds of places such as monuments, buildings, Aboriginal sites, roads, archaeological sites, whole districts or even regions. It was first adopted in 1979, based on the Australian ICOMOS (International Council on Monuments and Sites) review (1977) of the 1966 Venice Charter (Australian ICOMOS Inc. 1998).

² NSW Heritage Office 1998: *Living with Aboriginal Culture*, p. 3

- *National Parks and Wildlife Act 1974* (NPW Act);
- *Heritage Act 1977* (HA Act).

While at Commonwealth level, the following statutes are relevant:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) amended by the *Environment and Heritage Legislation Amendment Act* (no. 1) 2003, the *Australian Heritage Act 2003* (AHC Act) and the *Australian Heritage Council (Consequential and Transitional Provisions) Act 2003* (AHC (CT) Act).

4.10.1 State legislation

The *Environmental Planning and Assessment Act 1979* requires environmental impacts, including cultural heritage, are considered at a land-use planning and decision making level.

Under the EP&A Act, Aboriginal heritage is protected in three different ways:

1. Through planning instruments such as *Local Environmental Plans* (LEPs). Such plans outline permissible land use as well as identifying potential constraints. Section 112 (1) of the EP&A Act delineates that no approval for either prescribed developments or developments likely significantly affect the environment, may be granted without prior appropriate environmental impact assessment.
2. Section 90 of the EP&A Act (Part 4, Division 5) lists impacts to the environmental resource, including cultural heritage, which must be considered before development approval is granted.
3. All State Government agencies acting as determining authorities on environmental issues must consider a range of community and cultural factors, including Aboriginal heritage, in their decision-making process. The factors to be considered in such assessments are set out in the EP&A Regulations (2000), Part 3, Division 6.

The *National Parks and Wildlife Act 1974* (as amended; particularly sections 83-91A) provides statutory protection for all Aboriginal objects and places, regardless of significance, land tenure or whether they have been previously recorded in the OEH AHIMS. Areas may be gazetted as Aboriginal 'places' when the Minister is satisfied that sufficient evidence exists to demonstrate that the area is or was of special significance to Aboriginal people.

Under Section 90 of this Act it is an offence to knowingly damage, deface or cause or permit the destruction of an Aboriginal object or place without the prior written consent of the Director-General of OEH. Prosecution for such offences may include the imposition of financial penalties and/or imprisonment. Reporting the discovery of previously unknown Aboriginal objects to the Director-General of OEH within a reasonable time of discovery is also obligatory under Section 91 of the Act.

The *Heritage Act 1977* (amended 1999) protects the State's natural and cultural heritage and contains measures to protect archaeological remains. Generally, Aboriginal sites are protected by the NPW Act, but if certain sites are deemed as having great significance, they can be

further protected by a heritage order, issued by the Minister, on the advice of the Heritage Council.

4.10.2 Commonwealth Legislation

The *Environment Protection and Biodiversity Conservation Act 1999* protects the environment, particularly matters of National Environmental Significance. It streamlines national environmental assessment and approvals process, protects Australian biodiversity and integrates management of important natural and cultural places. Under the EPBC Act, definitions of the “environment” include the following:

- 1 Ecosystems and their constituent parts, including people and their communities;
- 2 Natural and physical resources;
- 3 The qualities and characteristics of locations, places and areas;
- 4 Heritage values of places; and
- 5 The social, economic and cultural aspects of a thing mentioned in the above points.

The EPBC Act provides that any action assessed as likely to have a significant effect on listed matters of national environmental significance is to be known as a *controlled action*, and may only proceed with the Minister of the Environment’s approval.

5. HISTORIC HERITAGE

5.1 INTRODUCTION

Field assessment was undertaken only within areas inspected by OzArk in 2010. Appleton’s 2004 assessment did not include a historic heritage component.

Historically, the Project Site has been influenced by development of the nearby Nymagee copper mine and the Project Site’s subsequent use as a sheep farm.

5.2 EUROPEAN SETTLEMENT IN THE REGION

The earliest prospecting activity in the area is poorly documented, but was probably in the Cobar belt in the 1860s. Settlement was being extended along the Barwon River in the 1840s, while by the 1850s the Darling River frontages were also occupied, and there was speculation as to what the ranges back from the river might hold.

The first mineral exploration in the region was to the north of Cobar, and was by prospecting parties financed by Bourke businessmen, prior to the discovery of copper and the establishment of Cobar town. Uneconomical gold traces were early discovered near Gongolgon and there is also noted to have been an early gold search in the Billagoe ranges, probably in 1866.

However, the entire hinterland between the Barwon and the Darling saw little permanent settlement prior to 1870s, so that prospectors were at that time unable to easily traverse it. They may not have ventured as far south as Cobar and the earliest results from the Billagoe ranges are uncertain.

Commencing about 1869, a rapid spread of settlement began, which was accompanied by well, bore and tank sinking. From that point the record is clearer, and it was in that phase of activity that the first signs of mineralisation were noted at Cobar and Girilambone. Persons engaged in the development of watering places travelled widely, and were the first to happen on copper staining at both Cobar and Girilambone. Copper staining at Cobar (Great Cobar site) attracted the attention of two travellers in 1869. One of the same men, Thomas Hartman, from his experience at Cobar, later recognised the outcrop of the Girilambone copper deposit in 1875.

At Cobar, both copper (1869-1870) and gold (1871) were discovered in close succession, although the development of gold extraction did not commence till well after copper recovery was underway. The lack of any rich residual or alluvial concentrations of coarse gold at Cobar explains this temporary oversight.

Following the establishment of the Great Cobar mine there is a continuous record of exploration and mining within the area.

The town of Nymagee was originally built as a support town for a copper mine and at its peak supported a population of over 2,200 people, half of those being Chinese migrants.

The mine at Nymagee had its own wood-fired smelter that required a large amount of wood to be obtained from the surrounding country. It also required a large amount of water that was supplied from a government dam; but drought caused the mine to temporarily close in 1899 due to the lack of water (*Sydney Morning Herald* 10 May 1899, page 10).

As the stage of working the mine became more complex with deeper underground mining coupled with lower grade ores, a cross-roads had been reached in Nymagee well prior to 1920. A gradual decline of profitability, commencing generally about 1913, was felt at Cobar, Nymagee, Canbelego and other centres.

With the anticipated worldwide return to lower copper prices in 1919-1920, the Cobar mines were forced to close one after another in short succession. In early 1919 copper fell by over 40% in value and demand. When the Nymagee mine closed in 1917, most of the town's residents moved out. It currently has approximately 103 permanent residents.

Nymagee is also home to "Clancy of the Overflow" a poem written by the famous bush poet Banjo Patterson. The sheep station, "The Overflow" featured in the poem is situated about 32 kilometres south east of Nymagee.

5.3 LOCAL CONTEXT

No known heritage studies have been carried out previously in close proximity to the Project Site although larger centres such as Cobar have been subject to heritage assessments and local historical research. As seen in Section 1.5, a desktop search centred on the Project Site

revealed that no previously recorded historical items or buildings have been listed near the Project Site.

5.4 SURVEY METHODOLOGY

Survey for historical items was carried out at the same time as the Aboriginal heritage assessment and followed the same methodology as set out in Section 3.3.

5.5 SURVEY RESULTS

No items of historic heritage significance were recorded during the survey.

Two groups of items were noted by the surveyors, but were assessed as holding no historical heritage significance (Section 5.6.2):

- A rubbish dump consisting of one car wreck and some bottles probably dating to the mid-twentieth century (**Appendix 3, Plate 10**); and
- Toe-holds in trees used by timber getters (**Appendix 3, Plates 11–12**).

5.5.1 Rubbish Dump

Located at GDA Zone 55 438487E, 6444985N (eastern region of proposed location of the Back Tank).

The rubbish dump consists of a rusted car body and around a dozen unbroken glass bottles. It is located on denuded soils and there is little likelihood of further sub-surface items or deposits. From the evidence available, the rubbish dump appears to date from mid twentieth century and there are no other signs of structures etc. associated with the rubbish dump. It is therefore assumed to be a farm's rubbish dump that was probably created in one or two episodes and was never very extensive.

5.5.2 Toe-holds

In the eastern section of proposed location of Back Tank East and extending beyond the eastern boundary of the OzArk survey area, a number of toe-holds were noticed in dead trees. All of the trees showed evidence of ring-barking and while some had regenerated from below the ring-bark cut, others were dead, standing timber.

The number of toe-holds varied from one to three or more and all had been created by making a quick cut in the side of the tree which would have only been large enough for a toe-hold rather than a cut to support planking or other structures (**Appendix 3, Plate 11**). Most of the toe-holds were shallow and roughly cut and it was not clear if a steel axe had been used. However, in other trees, such as Tree 2, a steel axe had clearly been used.

At first, the survey team thought they had recorded toe-holds made by post-contact Aboriginals seeking food resources such as possum or honey. This was suggested by the fact that the toe-

holds appeared to suit a smaller bare foot, rather than a larger booted foot and by the fact that the trees appeared to be of a suitable age (i.e. possibly over 100 years old).

However, it was soon realised that all of the trees that held toe-holds had also had their upper branches lopped (**Appendix 3, Plate 12**). The lopped branches were always well off the ground and always at the point where the main trunk branched into two major limbs. In some cases the cut was 5 to 6m off the ground.

It was therefore realised that the toe-holds must have been associated with timber-getters. Who these timber-getters may have been is suggested in the following section. The location and characteristics of the trees bearing toe-holds is shown in **Table 4**. Trees bearing toe-holds were marked in the field by yellow ribbon being tied around the tree trunk.

Table 4
Toe-hold trees: Location and Observations.

Tree number	GDA Zone 55 Easting	GDA Zone 55 Northing	Observations
Tree 1	438872	6445152	Dead and ring-barked Red Box. Circumference 2.5m. Three toe-holds 5–10cm deep. 1 st toehold 2m above ground, then 50cm, then 60cm.
Tree 2	438782	6445205	Dead and ring-barked Red Box. Circumference 1.9m. Two toe-holds 5–10cm deep. Clear steel axe marks. 1 st toehold 1.03m above ground, then 45cm.
Tree 3	438890	6445202	Dead and ring-barked Red Box. Regeneration around dead centre. Circumference 1.4m. Two toe-holds 5–7 cm deep on east face. Three toe-holds on west. 1 st toehold 1.4m above ground, then 50cm.
Tree 4	438955	64452612	Dead and ring-barked Red Box. Circumference 1.95m. Three toe-holds 4–8cm deep. 1 st toehold 0.64m above ground, then 53cm, then 63cm.
Tree 5	438828	6445032	Dead and ring-barked Red Box. Regeneration around dead centre. Circumference 1.75m. Two shallow toe-holds 5cm deep. 45cm between toe-holds.
Tree 6	438813	6445013	Dead and ring-barked Red Box. Regeneration around dead centre. Circumference 1.81m. Two toe-holds 3–5cm deep. 1 st toehold 1.7m above ground, then 200cm.
Tree 7	438756	6445002	Dead and ring-barked Red Box. Regeneration around dead centre. Circumference 1.43m. One toe-hold 4cm deep. Toehold 1.75m above ground.
Tree 8	438706	6444977	Dead and ring-barked Red Box. Circumference 1.53m. One toe-hold 6cm deep. Toehold 1.8m above ground.

5.6 DISCUSSION

Given the relatively small size of the OzArk Survey Areas, in a region where rural properties are large, it is not surprising that the survey did not record more historic items.

The toe-holds were intriguing and the survey team had to determine if they had been made by post-contact Aboriginals which would give them cultural significance to the local Aboriginal groups.

As stated in Section 5.4, the size of the toe-holds suggested they were made by small, bare feet rather than a larger cut the surveyors assumed a European would make if they were to climb a tree.

The survey team therefore tried to determine if the toe-holds were Aboriginal in origin by discussing the issue with members of the drilling program that were also within the Project Site during the time of the survey. Some of these men had worked in the area all their lives and, due to their interest in mining, knew a lot about the history of the nearby Nymagee Copper Mine.

From these discussions, the smelter at the Nymagee mine was wood-fired and most of the timber over a wide area was chopped down to supply the smelter. As the Project Site is only about 10 km from Nymagee, it is likely that it fell within the zone that supplied timber to the smelter.

Further, the outside-mine work, such as timber getting, was carried out by Chinese workers who were barred from working in the mine due to their ethnicity.

This still did not explain why only the top branches were removed as one would assume that the whole trees would be removed to fuel the smelter. Further discussion on this subject suggested that Red Box timber, in which the toe-holds were made, was sought after as mine supports and stays.

It was therefore plausible that the toe-holds were made by Chinese workers, possibly by the bare feet or in slipper-like shoes rather than boots. The lopping of high branches was suggestive that the timber-getters were specifically supplying the mine with timber supports and that it was easier to lop the right-sized branches that were also free of hollows and termite damage.

It should be stressed that there is no evidence of the age of the toe-holds or the ethnicity of the people who cut them. In discussions with the Aboriginal representatives accompanying the survey, it was determined that the toe-holds date from the late nineteenth/early twentieth century and were probably made by Chinese timber getters. The Aboriginal representatives were happy with this theory and agreed that the sites did not represent Aboriginal places.

5.6.1 Assessment of significance – general principals

Significance assessment of Historic sites is conducted in accordance with *Heritage Act 1977* requirements and is guided by the Heritage Council of NSW manual *Assessing Heritage Significance* (Heritage Council of NSW 2001).

The significance assessment process is a three-stage process:

- Step 1: Investigate significance;
- Step 2: Assess significance; and
- Step 3: Manage significance.

Significance assessments are carried out on the basis that decisions about the future of heritage items must be informed by an understanding of these items' heritage values. Four categories of heritage value are recognised in the Australian ICOMOS *Burra Charter* (Australia ICOMOS 1999):

- Historic significance;
- Aesthetic significance;

- Scientific significance; and
- Social significance.

Under the Heritage Council of NSW guidelines (2001), these values have been adjusted to conform to seven criteria for assessment for inclusion on the State Heritage Register (SHR):

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

In many cases, items or places will be significant under only one or two of these criteria.

Items are categorised as having a local or State level of significance. The level of significance is assessed in accordance with the geographical extent of the item's value. An item of State significance is one that is important to the people of NSW whilst an item of local significance is one that is principally important to the people of a specific Local Government Area (LGA).

In addition to a level of significance, items are assessed as having one of the following grades of significance (Heritage Office of NSW 2001):

- **Exceptional:** an item whose elements are rare or outstanding and contribute directly to its heritage value;
- **High:** an item that retains a high level of original fabric and where the significance is not reduced by alterations;
- **Moderate:** an item whose elements are not themselves of heritage value but which contribute to the overall significance of the item; contains alterations and modifications;
- **Little:** an item that is difficult to interpret and whose altered/modified elements detract from significance; or
- **Intrusive:** an item whose elements damage its heritage value.

Should an item be graded as having a **Little** or **Intrusive** grade, it does not fulfil the criteria for state or local listing. Thus, an item may be said to hold High State significance if it satisfies one or more of the above criteria, is important to the people of NSW as a whole and retains most of its original fabric.

5.6.2 Assessment of significance of historic items

5.6.2.1 Rubbish Dump

The rubbish dump is assessed as holding little heritage significance as it contains a small number of moveable objects that would not add value to the heritage or research potential of the region. Archaeologically, the objects are in a disturbed context and are not associated with any larger heritage complex.

5.6.2.2 Toe-Holds

The assessment of the heritage significance of the recorded toe-holds is tabulated in **Table 5** below.

5.7 RELEVANT LEGISLATION

A brief review of the role of the Burra Charter in providing a baseline for heritage protection was provided in Section 4.10.

Table 5
Heritage assessment of recorded toe-holds.

State Heritage Register Criteria	Assessment of applicability
Historical SHR Criterion (a)	It is unknown when the toe-holds were made and it is therefore impossible to assign them an historical association.
Association SHR Criterion (b)	There is no known direct association with any prominent person. There is a possible association with rural Chinese workers but this is purely conjectural.
Aesthetic/technical SHR Criterion (c)	None.
Social SHR Criterion (d)	The toe-holds hold no significance to the people of the area today.
Research SHR Criterion (e)	Photographs in this report of the toe-holds are available for research purposes. It is unlikely the physical form of the toe-holds will enable further research to take place.
Rarity SHR Criterion (f)	No rare or unusual features were observed.
Representativeness SHR Criterion (g)	The precise number of similar toe-holds in the general area is not known.
Integrity/intactness	Low to medium level of intactness. The toe-holds are contained in dead timber that is decaying and subject to termite damage.
Conclusion	The toe-holds are assessed as holding little heritage significance for the following reasons: 1 The items do not meet any of the criteria for inclusion on the State Heritage Register at either a local or state level of significance; 2 The nature of the items are such that their retention will not increase our knowledge about the history or culture of the region; 3 The toe-holds are in dead timber that already shows signs of decay and termite attack. It would therefore be difficult to conserve the items; 4 The items are located on private property and are difficult for the general public to access; 5 The toe-holds are difficult for the general public to appreciate as they are small and have no associated features that would aid interpretation; and 6 Some of the best examples of the toe-holds are located outside the proposed impacts within the Project Site and will therefore not suffer impact if the recommendations in Section 6 are followed.

5.7.1 State Legislation

As noted in section 4.10.1, the EP&A Act requires that environmental impacts are considered prior to land development. This includes impacts on Aboriginal and non-Aboriginal cultural heritage items and places. The EP&A Act also requires that Local Governments prepare *Local Environmental Plans* (LEP) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required. There are no items within the Project Site listed within the Schedule of Heritage Items in the Cobar (Cobar LEP).

The *NSW Heritage Act 1977* (amended 1999) is the primary piece of legislation affording protection to all historic heritage in NSW. The aim of the EP&A Act is to conserve the 'environmental heritage' of the state which includes items such as buildings, works, relics moveable object or precinct significant for its historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value. A 'Place' is defined as an area of land, with or without improvements and a 'Relic' is defined as any deposit, object or material evidence which relates to the settlement of the area that comprises New South Wales, not being an Aboriginal settlement.

Approval must be obtained from the NSW Heritage Council when making changes to a heritage place listed on the State Heritage Register (Section 60 Permit), or when excavating any land in NSW where there is a possibility that archaeological relics may be disturbed (Section 140 Permit).

In addition, Section 170 of the Act requires that culturally significant items or places managed or owned by government agencies be listed on the departmental Conservation and Heritage Registers – the State Heritage Register (SHR). NSW Heritage Council approval is required for any works proposed to a place or item on the SHR, or covered by an Interim Heritage Order (IHO). The State Heritage Register is a list of places of particular importance to the people of New South Wales, made under the *Heritage Act 1977*. Heritage Council approval is required for works proposed to an item on the State Heritage Register or covered by an Interim Heritage Order (IHO).

The *Heritage Act 1977* (Section 4) currently defines "relic" to mean any deposit, artefact, object or material evidence that:

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

Sections 138-146C of the EP&A Act prohibit the excavation of a relic, except in accordance with a gazetted exception or an excavation permit issued by the Heritage Council of New South Wales. There are no heritage items within the Project Site listed on the NSW State Heritage Register.

The National Trust of Australia (NSW) is a community based conservation organisation. The Trust maintains a Register of heritage items and places. Although the Register has no legal foundation or statutory power, it is recognised as an authoritative statement on the significance to the community of particular items, and is held in high esteem by the public.

The NT lists items or places which have heritage or cultural value to the community and as such the NT encourages and promotes the public appreciation, knowledge, and enjoyment of heritage items for future and present generations. There are no items within the Project Site listed with the NSW National Trust.

5.8 COMMONWEALTH LEGISLATION

The EPBC Act provides a national framework for the protection of matters of national environmental significance and the conservation of Australia's biodiversity. Under the EPBC Act, "environment" includes the heritage values of places. No items within the Project Site are listed on the Register of the National Estate, the National Heritage List or the Commonwealth Heritage List.

6. RECOMMENDATIONS

6.1 ABORIGINAL HERITAGE

The following recommendations are made on the basis of the following.

- Legal requirements under the terms of the *National Parks and Wildlife Act 1974* (as amended) whereby it is illegal to damage, deface or destroy an Aboriginal relic/object without the prior written consent of the Director, OEH.
- The findings of the 2004 and 2010 investigations undertaken within the Project Site where no Aboriginal sites or objects were recorded.
- The interests of the Condobolin and Cobar Local Aboriginal Land Councils and other Aboriginal community members and groups and the broader community.

Recommendations concerning Aboriginal heritage are as follows.

- The area of the Tailings Storage Facility that has not yet been assessed should be assessed by a qualified archaeologist prior to any ground disturbing works to ensure that Aboriginal heritage will not be impacted in this unassessed area.
- Areas of proposed disturbance that have not been surveyed as part of this assessment should be checked for Aboriginal objects or sites prior to land disturbing activities being undertaken.
- Should any previously unidentified 'objects' or other Aboriginal sites be uncovered during the course of construction, work in that area should cease and OEH (Cobar National Parks office; Phone: 02 6836 2692) and the Condobolin and Cobar Local Aboriginal Land Councils be contacted to discuss how to proceed.
- One copy of this report should be sent to:

Condobolin LALC
c/- Ms R Shepherd
18 William Street (PO Box 114)
Condobolin NSW 2877

Cobar LALC
c/- Ms R Clements
PO Box 410
Cobar NSW 2835

- Two copies of this report (one CD and one hard copy) should be sent to:

Office of Environment and Heritage
PO Box 1967
HURSTVILLE, NSW, 2221

Following the 2004 Appleton survey, the following recommendations were made in reference to the 2004 study area:

- The Condobolin LALC has recommended that no further archaeological investigation of the site is necessary. Archaeological Surveys and Reports Pty Ltd (ASR) agrees with the recommendations.
- In addition Triako (former owners of the mine lease) are advised of the following provisions:
 - All developers, contractors, subcontractors and their employees are bound by the provisions of the National Parks and Wildlife Act 1974 as amended, which was in part designed to mitigate impact to the Aboriginal archaeological record.
- Under the provisions of the National Parks and Wildlife Act 1974, all earthmoving contractors and operators should be instructed that in the event of any bone or stone artefacts, or discrete distributions of shell, being unearthed during earthmoving, work should cease immediately in the area of the find, and the Condobolin Local Aboriginal Land Council, and officers of the National Parks and Wildlife Service, informed of the discovery. Work should not recommence in the area of the find, until those officials have inspected the material and permission has been given to proceed. Those failing to report a discovery and those responsible for the damage or destruction occasioned by unauthorised removal or alteration to a site or to archaeological material may be prosecuted under the National Parks and Wildlife Act 1974, as amended.
- In the event that a relic or item is discovered during earthworks details of the discovery should be communicated to: The Archaeologist, Western Region, and to The Chairperson, Condobolin Local Aboriginal Land Council.

6.2 HISTORIC HERITAGE

The following recommendations are made on the basis of:

- Legal requirements under the terms of the *Heritage Act 1977* (as amended) whereby it is illegal to damage, deface or destroy a historic item that hold local or State heritage significance; and
- The findings of the current investigations undertaken within the OzArk Survey Areas where no items of historic significance were recorded.

Recommendations concerning historic heritage are as follows.

- Areas of proposed disturbance that have not been surveyed as part of this assessment should be checked for Aboriginal objects or sites prior to land disturbing activities being undertaken.

- The trees listed in **Table 4** should not be felled. If some are impacted by the water from the Back Tank, the trees should be allowed to naturally decay.
- Care should be taken to avoid impact to trees located beyond the eastern boundary of the OzArk Survey Areas in the vicinity of Back Tank East. While these items would not be impacted by the Project, their location should be noted and the trees avoided during the process of mine construction and operation. Ideally, the trees would be marked in the field with a sign to alert people to their existence.

7. REFERENCES

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APPENDICES

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Appendix 1	Aboriginal Community Correspondence
Appendix 2	Aboriginal Community Consultation Log
Appendix 3	Plates
Appendix 4	Appleton 2004

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Appendix 1

Aboriginal Community Consultation

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Oz Ark Environmental & Heritage Management P/L
P.O. Box 2069
Dubbo N.S.W. 2830

RE: Cultural and Heritage Evaluation
Hera Project

My name is Elaine Ohlsen and I wish to be consulted over this project.

I am a Ngiyampaa descendant and a registered Aboriginal Owner of the Cobar and Mt. Grenfell Aboriginal Historic Site areas.

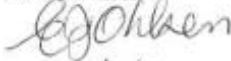
I represented my people by engaging in consultation with government and ministerial departments from 1993 to 2004 on the Aboriginal Ownership Legislation and held the position of Board Member on the Board of Management of Mt. Grenfell Historic Site for the first four years after the official Hand-Back to Ngiyampaa people.

I've been an active member of the Cobar Local Aboriginal Land Council since 1980^s and currently has a position as a Board Member for the Land Council, so my interest is Culture and Heritage and the environmental aspects of the project.

I can be contacted on mobile ph. 0488690287 or Email elaineohlsen@hotmail.com
My postal address is 6 Lamrock Street Cobar 2835

Thank you

Elaine Ohlsen



14/4/2010

Condobolin Local Aboriginal Land Council

ABN: 72 410 266 331.
Email: condolalc@westserv.net.au

18 William Street
PO Box 114
CONDOLIN NSW 2877
Phone No 6895 3639
FAX No 6895 3729

12 May 2010
Attn: Cheryl Burke
OZARK Environmental & Heritage Mgt P/L
PO Box 2069
Dubbo, NSW, 2830.

Re: Hera Culture & Heritage Survey @ Nymagee.
27/28th April 2010

Dear Cheryl,

Thank you for the opportunity for involvement with the above culture & heritage survey at Nymagee.

The Condobolin Local Aboriginal Land Council was represented by myself and senior sites officer, Bradley Bell, both of us being present and involved with the work on site.

After a thorough examination of the proposed mine area, no artifacts or sites were observed or located, and we would anticipate that there are resultantly no ongoing culture & heritage management issues within the surveyed area.

This does not discount that there could potentially be sites &/or artifacts located in other areas, as this region/area forms part of the Traditional Country of the Ngayaampa Peoples of Central NSW.

It is considered important that if any artifacts or sites are located in the future, mine employees stop all work and immediately report their find. This process may be made simpler perhaps if all staff are provided with information and instruction in the recognition of artifacts/sites and information about the proper cultural procedures and protocols to follow.

The Condobolin Local Aboriginal Land Council would be pleased to assist with this information/induction procedure in the future, and we would also be available to act as 'consultants' about any such culture and heritage matters should they arise.

We look forward to receiving your final report.

Yours Faithfully



Rebecca Shepherd
CEO Condobolin Local Aboriginal Land Council

Aboriginal Sites Survey

BACKGROUND

1. Title of Survey:

PROPOSED HERA PROJECT

2. This report was produced for (proponent's name):

OZ ARK

3. Report prepared by (please include full name address and contact details):

NORMAN OULSEN 6 HOGAN PLACE CORRAA

4. Date survey was carried out:

27TH - 28TH APRIL 2010

5. Are you representing an Aboriginal community organisation?



Yes



No

6. Name and address of the Aboriginal community organisation:

COBAR LOCAL ABORIGINAL LAND COUNCIL
RAILWAY MARADE SOUTH

7. Location of study area:

(description eg. closest town/road, attach a map if available)

5KM SOUTH OF NYMAGGE

8. Reason why the study is being done:

FOR A PROPOSED MINE SITE

9. The following people/organisations have been consulted:
(eg. Elders, LALC, Traditional Owners, NPS)

COBAR AND CONDORBIN LAND COUNCILS

10. The following are sites that I believe may occur in the study area:
(to be filled out before the survey is done)

~~ARTIFACTS AND COARSE TOBACCO~~

Aboriginal Sites Survey

- | | | |
|--|--|--|
| ☒ Scarred Trees | ☒ Camp Sites | ☒ Grinding Grooves |
| ☒ Art/Ceremonial | ☒ Isolated Artefacts | ☒ Carved Trees |
| ☒ Burials | ☒ Hearths | ☒ Stone Arrangements |

Other:

SURVEY PROPER

11. Names of other people carrying out the survey:

ROSEAL & GEAR CONDO LALC, SEN & KIM OF OZARK

12. This survey was conducted by the following method:

(please identify areas on an attached map)

- ☐ From a vehicle ☒ On foot ☐ Other.....

SITE DESCRIPTION

13. General visibility:

(vegetation domination/land topography etc)

- ☐ Very Poor ☒ Poor ☐ Good ☐ Very Good

14. Name of Property:

THE PEAK (NYMAGEE)

15. Property Owners Name:

HERA

16. Area to be surveyed (ha.):

AS SHOWN ON MAP

17. Vegetation:

- ☒ Black Box ☒ Gum ☐ Ironbark ☒ Pine

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Page: 2

Aboriginal Sites Survey

- ☐ Coolabah ☒ Grassland ☐ Chenopod scrub ☐ Leopardwood
☐ ☐ ☐ ☐

RESULTS

18. The following number of sites have been identified during this survey:

- ☐ Scarred Trees ☐ Camp Sites ☐ Grinding Grooves
☐ Art/Ceremonial ☐ Isolated Artifacts ☐ Carved Trees
☐ Burials ☐ Hearths ☐ Stone Arrangements

Other:

NOTHING FOUND

19. Recommendations:

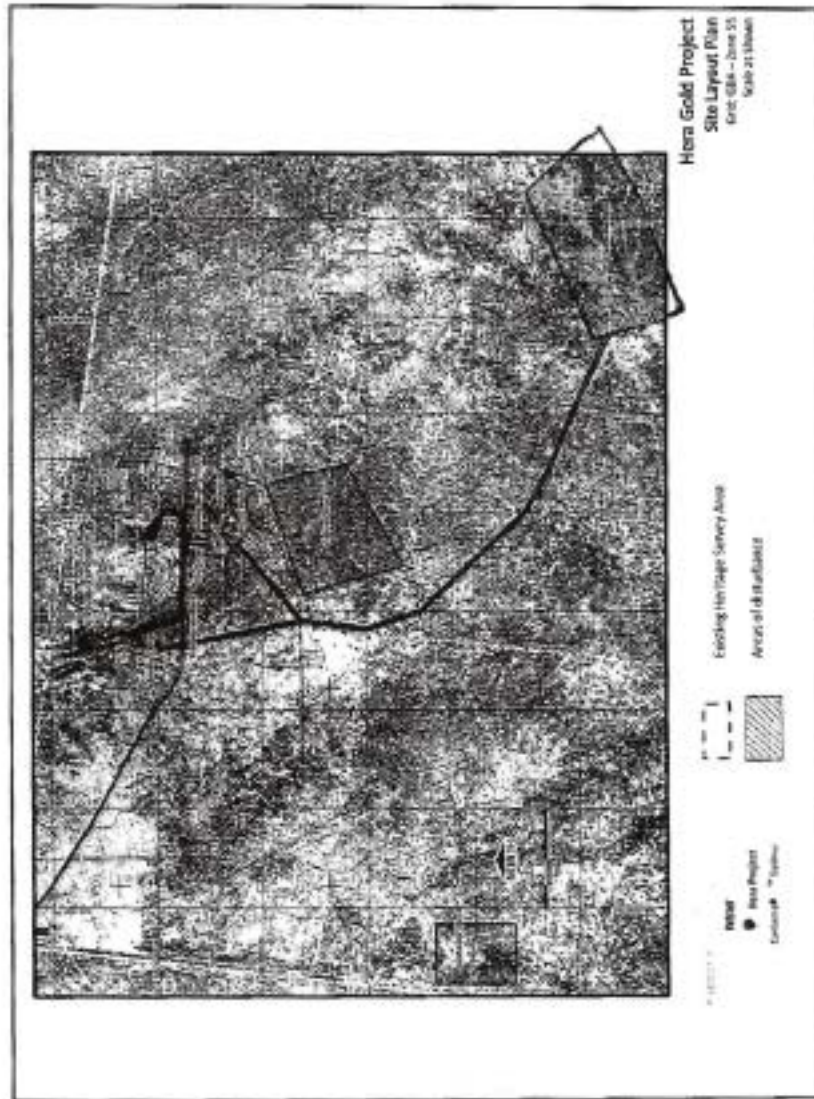
All Aboriginal sites in NSW are protected by law. It is an offence to damage, deface or destroy any site without first obtaining the written permission of the Director General of the NSW National Parks Service.

I make the following recommendations in relation to the Aboriginal Sites (if any) located during this survey.

- ☒ That the sites located be avoided
☒ That all staff working in the area of the site/s be informed of its location, to ensure the site/s are not damaged.
☒ That if any further archaeological material is found during any further development and or activity then work should stop immediately and the National Parks Service and the Local Aboriginal Land Council be notified.
☒ That any licence and or approval given to the developer not interfere with the preservation of any sites located.
☒ That any activity and or development not occur outside of the area surveyed.
☒ That the Local Aboriginal Land Council be consulted before any licence and or approval is given in relation to this survey.

Other:

Figure 1. Study Area(s) shown within black hatched areas.



15/05/2018 08:34

61-2-68361292

COBARR LAND COUNCIL

15/05/2018 08:34

Aboriginal Sites Survey

20. The above survey was carried out to identify visible cultural material present within the boundaries of the survey area, as outlined on the attached map. I have attached to this report the following:

- ☐ Site forms from any sites located
- ☒ Map of the study area, showing site locations (if any) and area surveyed
- ☐ Photos of sites found
- ☐ General photos of the landscape
- ☐ Printout from the National Parks Service Sites Register

Other:

NOTHING FOUND

If any further information in relation to this survey is required please contact the author of this report at the previously given address.

YOURS IN UNITY

NORMAN OHLSEN
Print full name

Norman Ohlsen
Signature

18.15.12.2010
Date



9th June 2011

Members – Mt Grenfell Historic
Site Board of Management
c/- Mr R Kennedy
6 Moonya Drive
Wodonga VIC 3690

Dear Richard

**Re: Draft Aboriginal Heritage Assessment report for the proposed
Hera Project, Nymagee, NSW.**

Thank you for your registration of interest to form part of the stakeholder group to be consulted concerning potential Indigenous heritage issues for the above project. Please find enclosed a copy of the DRAFT report.

To ensure any comments you wish to make are incorporated into the final document, we ask that you review this report and provide us with your comments within the required *three week period*. Any comments the Mt Grenfell Historic Site BOM have will then be incorporated into the finalised document.

If you could submit your reply by close of business **Tuesday 5th July 2011**, it would be appreciated. Should our office not be contacted within this two week time frame, we will presume that you are happy with the contents of the report as it stands.

Please do not hesitate to get in touch should you have any questions regarding the enclosed information.

Kind regards

Cheryl Burke
Office Administrator

OZARK ENVIRONMENTAL & HERITAGE MANAGEMENT P/L – 145 Wingewarra Street / PO Box 2069 Dubbo NSW 2830
Tel: 6882 0118; Mob: 0403 763 504 / 0423 198 898
E-mail: jodie@ozarkehm.com.au ; phil@ozarkehm.com.au ; cheryl@ozarkehm.com.au
Web: www.ozarkehm.com.au

Appendix 2

Aboriginal Community Consultation Log

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Advertisement placed in Cobar Weekly and Condobolin Argus 24 March 2010.



CLASSIFIEDS

Email: advertising@condobolinargus.com.au Web: www.condobolinargus.com.au

Ph: 6895 2833
Fax: 6895 2844
Deadline: Tuesday 10.00am

GENERAL NOTICES

BEGINNER'S KARATE

Yellow Belt down: 5pm-5.45pm
Kata Revision: 5.45-6pm
Above Yellow Belt: 6pm-6.15pm
Contact Condobolin RSL Club for more information on 6895 2113.

CONDOBOLIN COMMUNITY CENTRE MARKETS

Sunday, 11th April, 2010

Friends of Condobolin District Retirement Village

STREET STALL

Friday, 26th March, 2010
Starts 9.00am
Donation of saleable goods greatly appreciated.

HEARING TESTS!

Solving hearing problems.
Condobolin/Lake Cargelligo: 8/4/10
Professional service, latest technologies, results guaranteed, free home visits arranged. Christian Meyer Hearing
1300-66-03-03.

GARAGE SALE

THE DROUBALGIE GARAGE SALE

Forbes Scout Hall on Camp Street
Easter Saturday 3 April, 8.30am - 6.00pm
Fantastic clothes, furniture, antique lace, shells, antique baby clothes, CDs etc etc
Contact: droubalgie@gmail.com

WANTED

WORK WANTED

Yeomans Deep Ripping,
Chisel Ploughing & Sowing.
Contact Geoff Morrison 0428 639 047.

WORK WANTED

Mature lady looking for cleaning and ironing work in Condobolin.
Phone 6895 3872.

STOLEN

FROM CONDOBOLIN POOL

On Monday night the Pool was broken into and the Swimming Club's Toshiba Laptop was stolen along with a number of items belonging to Mark & Kathy Thorpe including a bright pink iPod.
Any information would be appreciated.
Please contact the Condobolin Police on 6895 2577 or the Pool on 6895 2475.

MEETINGS

CONDO HIGH SCHOOL P&C

High School Common Room
Thursday, 25th March
Trialling new time 5.30pm
Come & support your children
Thank you to farmers who donated unwanted/leftover wool for the P&C.
Anyone wishing to donate wool can leave at Moses & Son.

CLAIM THE DATE

GALA CHARITY DINNER

Saturday, 22nd May, 2010
Condobolin SRA Ground
7pm start

EXPRESSIONS OF INTEREST

OzArk Environmental & Heritage Management P/L is seeking Expressions of Interest from relevant Aboriginal groups or individuals interested in being consulted about the cultural heritage evaluation for the proposed Hera Project in Central Western NSW, 5 km south of Nymagee.
Should you wish to be consulted over this project, please register your interest in writing to
OzArk EHM
PO Box 2069
DUBBO NSW 2830
or by phoning OzArk between 9.00am and 5.00pm week days on (02) 6882 0118.
Written submissions should include: detail about you or who your group represents; the basis of cultural interest in the subject area and experience and capability in the assessment of cultural heritage. All submissions should be received no later than Thursday 8th April 2010.

OzArk Environmental & Heritage Management P/L is seeking Expressions of Interest from relevant Aboriginal groups or individuals interested in being consulted regarding the cultural heritage evaluation for the proposed extension of Mineral Hill Mine, NW of Condobolin, NSW. Should you wish to be consulted over this project please register your interest in writing to:
OzArk EHM
PO Box 2069
Dubbo, NSW, 2830
Written submissions should include: detail on whom you or your group represents; the basis of cultural interest in the subject area and experience / capability in the assessment of cultural heritage. Alternatively, interested parties can phone OzArk between 9.00am and 5.00pm week days, on (02) 6882 0118 to register their interest. All submissions should be received no later than Thursday 8th April 2010.

AGM

YAWARRA ABORIGINAL CORPORATION AGM

Thursday, 25th March, 2010 at 6.00pm
15 Molong Street, Condobolin.
All members are urged to attend.
Light refreshments supplied.

AGM MEETING NOTICE

The 2010 Central West Farming Systems Annual General Meeting will be held at the Condobolin Research Station on Tuesday, 20th April, 2010 at 1.00pm.
A sit down lunch will be provided at 12.00pm.
Please RSVP to CWFS on (02) 6895 1025 by 14 April for catering purposes.

CHURCH NOTICES

ALL SAINTS ANGLICAN CHURCH

Sunday 9am Holy Communion. All welcome.
Parish Phone No: 6895 2028

CONDOLIN UNITING CHURCH

Holy Communion Sunday, 28th March, 2010 at 10am.
Celebrant: Peter Downie.

CONDOLIN CRC FAMILY CHURCH

10.30am Morning Service and Sunday School.
Everyone welcome.

CONDOLIN PRESBYTERIAN CHURCH

Sunday Service 9.30am. Trash and Treasure 9am-4pm every 2nd Saturday. Next date: 3rd April.
For more info on activities phone 6897 5233.

ST JOSEPH'S CATHOLIC CHURCH

Palm Sunday - 6pm Saturday & 9am Sunday

DEATH NOTICE

JOAN NEWMAN

It is with deep regret we announce the passing of Joan Newman, late of 193 Bathurst Street, Condobolin, daughter of Rosie and the late Thomas, loved sister to her family.
The funeral service was held at All Saints Anglican Church, Condobolin, 10am on Friday, 19th March, 2010 and with interment in the Anglican Portion of the Condobolin Cemetery.
B&W Deeves, Funeral Directors of Condobolin and District.
Phone 6895 2201 all hours.

POSITIONS VACANT

Passion for Sales? Customer Focused? Career Driven?

Answered YES to all of the above?

Part Time Customer Service Representative

This sales and service role at Condobolin would suit a motivated and confident individual. You must have the determination and enthusiasm to make an outstanding impression on customers through excelling in customer service.
A key priority of this role is to balance sales referral opportunities and evolving product knowledge with transactional responsibilities.

What we can offer you?

- Outstanding Employee benefits including discounts on banking products
- Strong career pathway and guidance
- Competitive Salary with bonus potential + super
- Additional rewards for just doing your job

Still sound good? Apply now to www.commbank.com.au/careers Ref: 911253.

CommonwealthBank

Lachlan Shire Council

Telephone: Administration 6895 4444 Facsimile: Administration 6895 3478
Email: council@lachlan.nsw.gov.au Website: www.lachlan.nsw.gov.au
PO Box 216, Condobolin NSW 2877 George Cowan, General Manager

Lachlan Shire Council invests heavily in our dedicated staff. Will you be one of them?

Current Vacancies

POSITION	CLOSING
• Library Assistant- Totttenham (permanent part-time 6hrs/week)	Friday, 26 March, 2010
• Child Care Worker (25 hours permanent part-time)	Wednesday, 31 March, 2010
• Plant Operator Level 2- Totttenham (permanent full-time)	Wednesday 31 March, 2010
• Tourism Officer	Wednesday, 31 March, 2010

Information pertaining to employment practices and positions vacant may be directed to Human Resources. Persons identifying as Aboriginal or Torres Strait Islander are encouraged to apply. A minimum probation period of 3 months applies to all permanent Council positions.
TO APPLY: obtain the selection criteria and 'How to apply for positions' document from Council's website www.lachlan.nsw.gov.au in order to address all the essential and desirable criteria. Applications addressed to the General Manager will be accepted by Human Resources up to 4:30pm on the closing date.
Short listed applicants must be prepared to undergo a pre-employment placement assessment. Applicant's recommended for appointment to certain positions will be required to undertake a police clearance. Lachlan Shire Council is an Equal Opportunity Employer who provides a smoke-free work environment.

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The Condobolin Argus, Wednesday, March 24th, 2010

OUT EVERY WEDNESDAY

OzArk Environmental & Heritage Management Pty Ltd

HERA PROJECT - COMMUNITY CONSULTATION				
Date	Organisation /	Contact Name	Comment	OzArk staff/ method
22.03.10	Cobar Weekly	Classifieds - Kristen 'classifieds@cobarweekly.com.au'	Placed advert to appear in Cobar Weekly 24/3/10 - EOI Closure date Thursday 8 April	email - CB
22.03.10	Condobolin Argus	Classifieds 'advertising@condobolinargus.com.au'	Placed advert to appear in Condobolin Argus Wednesday 24/3/10 EOI Closure date Thursday 8 April	email - CB
23.03.10	Office of The Registrar, ALRA	Courtney Field 11-13 Mansfield Street Glebe NSW 2037	Mailed Stage 1 letter. EOI date 7 April 2010	post - CB
23.03.10	NTSCORP	Admin/Notification Team PO box 2105 Strawberry Hills 2012	Mailed Stage 1 letter. EOI date 7 April 2010	post - CB
23.03.10	DECCW	Paul Houston PO Box 2111 Dubbo 2830	Mailed Stage 1 letter. EOI date 7 April 2010	post - CB
23.03.10	Cobar Shire Council	GM / Mr R Smith PO box 223 Cobar 2835	Mailed Stage 1 letter. EOI date 7 April 2010	post - CB
23.03.10	Condobolin LALC	C/- Rebecca Shepherd 18 William St (PO box 114) Condobolin 2877	Emailed copy of Stage 1 letter, request confirmation and reply if CLALC would like to register interest. Mailed hard copy. EOI date 7 April 2010	email / post - CB
24.3.10	Condobolin LALC	C/- Rebecca Shepherd 68953639 18 William St (PO box 114) Condobolin 2877	Rang to ensure that OzArk had received their EOI for this job. Will send follow up letter indicating how they meet the EOI criteria. However she briefly documented the groups experience over the phone. The CLALC represent all Aboriginal people in the district not just minor / special interest groups. They have obtained formal experience by undertaking TAFE courses to become suitably qualified. If selected they propose to place both a male and female officer in the field to ensure that all site types can be recorded. Wanted to ensure that local people were involved in the project.	Phone / HK
07.04.10	Cobar LALC	Rena Clements (CEO) c/- Cobar LALC PO Box 410 Cobar 2835 ph:	Rena phoned in response to the advert in the paper and wishes to register interest in the project on behalf of the CLALC. She has also recommended we liaise with the people listed below as they wish to be part of the registered stakeholder group.	phone - CB
07.04.10	Mount Grenfell Board of Management	Richard Kennedy c/- Cobar LALC PO Box 410 Cobar 2835 ph: 0409 208 203	As per advise by CLALC	phone - CB

HERA PROJECT - COMMUNITY CONSULTATION				
Date	Organisation /	Contact Name	Comment	OzArk staff/ method
07.04.10	Elaine Ohlsen / Traditional Owner	Elaina Ohlsen c/- Cobar LALC PO Box 410 Cobar 2835 ph: 0488 690 287	As per advise by CLALC	phone - CB
08.04.10	DECCW	Paul Houston	Received email letter from DECCW recommending we contact the following organisations *Cobar LALC * Aboriginal Reference Group Western CMA * Mount Grenfell Historic Site Board of Management *Condobolin LALC *Murrin Bridge LALC *Nyngan LALC	email - CB
09.04.10	Aboriginal Reference Group	c/- Chairperson Aboriginal Reference Group Western CMA Po Box 307 Cobar 2835	Mailed Stage 1 letter, EOI date closure 27 April 2010	mail - CB
09.04.10	Murrin Bridge LALC	C/- A Ohlsen MBLALC Po Box 157 Lake Cargelligo 2672	Emailed Stage 1 letter, sent hard copy EOI date closure 27 April 2010	mail - CB
09.04.10	Nyngan LALC	C/- Chairperson NLALC Po box 43 Nyngan 2825	Mailed Stage 1 letter, EOI date closure 27 April 2010	mail - CB
12.04.10	Elane Ohlsen	0488 690 287	Received written response from Elaine registering interest in the project.	email - CB
13.04.10	Condobolin LALC	Rebecca Shepherd	Received phone call from Rebecca Shepherd relating to another project however she did note that in relation to FW for that project and this Hera one that it was protocol for their LALC to send both a male and female site officer due to the sensitivity of certain sites and men not necessarily recognising women's sites. Although I indicated that it was the Proponent that budgeted for these positions Rebecca took this on board but mentioned she would phone the mines direct, their budget should allow for a reasonable number of site officer places for the fieldwork	phone - CB
14.04.10	Murrin Bridge LALC	Annette Ohlsen	Received email from MBLALC expressing interest in the project.	email - CB
14.04.10	Condobolin LALC	C/- Rebecca Shepherd 18 William St (PO box 114) Condobolin 2877	Mailed Stage 2 methodology letter, response due within 21 days (by 7 May) and also invited CLALC site officer to participate in survey 27/28 April 2010. Requested confirmation and workers compensation certificate of currency	mail - CB
14.04.10	Cobar LALC	Rena Clements (CEO) c/- Cobar LALC PO Box 410 Cobar 2835	Mailed Stage 2 methodology letter, response due within 21 days (by 7 May) and also invited Cobar LALC site officer to participate in survey 27/28 April 2010. Requested confirmation and workers compensation certificate of currency	mail - CB

HERA PROJECT - COMMUNITY CONSULTATION				
Date	Organisation /	Contact Name	Comment	OzArk staff/ method
14.04.10	Elaine Ohlsen / Traditional Owner	Elaina Ohlsen 6 Lamrock Street Cobar 2835	Mailed Stage 2 methodology letter, response due within 21 days (by 7 May) advised Cobar LALC & Condo LALC site officer are to participate in survey 27/28 April 2010.	mail - CB
14.04.10	Murrin Bridge LALC	C/- A Ohlsen MBLALC Po Box 157 Lake Cargelligo 2672	Mailed Stage 2 methodology letter, response due within 21 days (by 7 May) advised Cobar LALC & Condo LALC site officer are to participate in survey 27/28 April 2010.	mail - CB
22.04.10	Cobar LALC	Rena Clements (CEO) ph: 6836 1144	Spoke to Rena in relation to the FW, she has not had an opportunity to look at the letter, they have had a couple of trainees start and they have put it away? Rena will endeavour to locate it and contact me. I advised I would follow it up is she did not get back to me as the FW is next week and we are not in the office on Monday (Anzac Day PH).	cb - phone
22.04.10	Condobolin LALC	Rebecca Shepherd ph: 6895 3639	Phoned office however Rebecca was in a meeting, left a message with Leanne and asked that she ask Rebecca to phone me, and that I would email her to do same	CB - phone
23.04.10	Condobolin LALC	Leanne	Leanne phoned responding to my email and asked for the details of the fieldwork next week. Advised I would fax through a summary sheet with the details and also re-sent the letter with this fax that had previously been mailed out. Fax: 6895 3729. Rebecca phoned to confirm receipt and also said they never received the letter in the first instance. Due to the importance of the project they will be sending two site officers, one to receive no remuneration, they will also provide a vehicle as I explained that we were constrained by the amount of people who would fit in the one vehicle OzArk have. Advised that team is to meet at the Nymagee Hotel at 9am.	CB - fax/phone
23.04.10	Cobar LALC	Rena Clements	Spoke to Rena and she confirmed they had a site officer available. Advised new meeting point and faxed through information.	CB - phone
Fieldwork				
27.04.10 28.04.10	Cobar LALC Condobolin LALC		Survey over two days with OzArk - Ben Churcher & Kim Tuovinen	
12.05.10	Cobar LALC	Rena Clements (CEO) fax: 68361292	Faxed request for letter relating to the survey	
17.05.10	Condobolin LALC	Rebecca Shepherd	Received letter relating to the survey	
17.05.10	Cobar LALC	Rena Clements (CEO) ph: 6836 1144	Spoke to Rena re: fax and letter about survey, they have had a couple of meetings with the site officer and will send the report through in the next day.	

HERA PROJECT - COMMUNITY CONSULTATION				
Date	Organisation /	Contact Name	Comment	OzArk staff/ method
17.05.11	Condobolin LALC	Rebecca Shepherd	Received email from CLALC about another project, however Rebecca queried when the draft Hera report would be available. Advised that it had not actually been approved for release, sent a pdf version via email in any instance.	CB - phone
09.06.11	Condobolin LALC	Rebecca Shepherd e: 'condolalc@westserv.net.au'	Mailed pdf version of draft report inviting comment, closure date for feedback is Tuesday 5th July 2011.	CB -email
09.06.11	Cobar LALC	Rena Clements (CEO) c/- Cobar LALC PO Box 410 Cobar 2835 ph:	Mailed hard copy of draft report inviting comment, closure date for feedback is Tuesday 5th July 2011.	CB-mail
09.06.11	Murrin Bridge LALC	C/- Chairperson / CEO Po Box 157 (39 Foster Street) Lake Cargelligo 2672	Mailed hard copy of draft report inviting comment, closure date for feedback is Tuesday 5th July 2011.	CB-mail
09.06.11	Mt Grenfeel Historic Site BOM	C/ - Mr R Kennedy 6 Moonya Drive Wodonga VIC 3690	Mailed hard copy of draft report inviting comment, closure date for feedback is Tuesday 5th July 2011.	CB-mail
09.06.11	Elaine Ohlsen / Traditional Owner	Elaina Ohlsen 6 Lamrock Street Cobar 2835	Mailed hard copy of draft report inviting comment, closure date for feedback is Tuesday 5th July 2011.	CB-mail

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Appendix 3

Plates

(No. of pages including blank pages = 10)

(Note: A colour copy of this Appendix is available on the Project CD)

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Plate 1: Pedestrian survey in the OzArk Survey Area.



Plate 2: Cypress Pine regrowth was common across the OzArk Survey Area.



Plate 3: A few areas within the OzArk Survey Area had low ground surface visibility due to recent growth.



Plate 4: Quartz outcrop in the vicinity of the proposed Magazine. This was one of the few areas within the OzArk Survey Area where surface stone predominated.



Plate 5: Example of recent flood debris piled against trees. Floods of this strength and depth



would have a severe impact to the integrity of surface artefacts.

Plate 6: Tree trunk of the original vegetation of Box Woodland/grassland in the foreground. Cypress Pine regrowth can be seen in the background.



Plate 7: Example of exploration disturbance within the OzArk Survey Area.



Plate 8: An existing freshwater dam, Back Tank.



Plate 9: Roads, both former farm tracks and more-recent exploration tracks, criss-cross the



OzArk Survey Area.

Plate 10: A few moveable historic relics were encountered during the survey. Preliminary examination indicated this rubbish dump to be of a mid-twentieth century date.

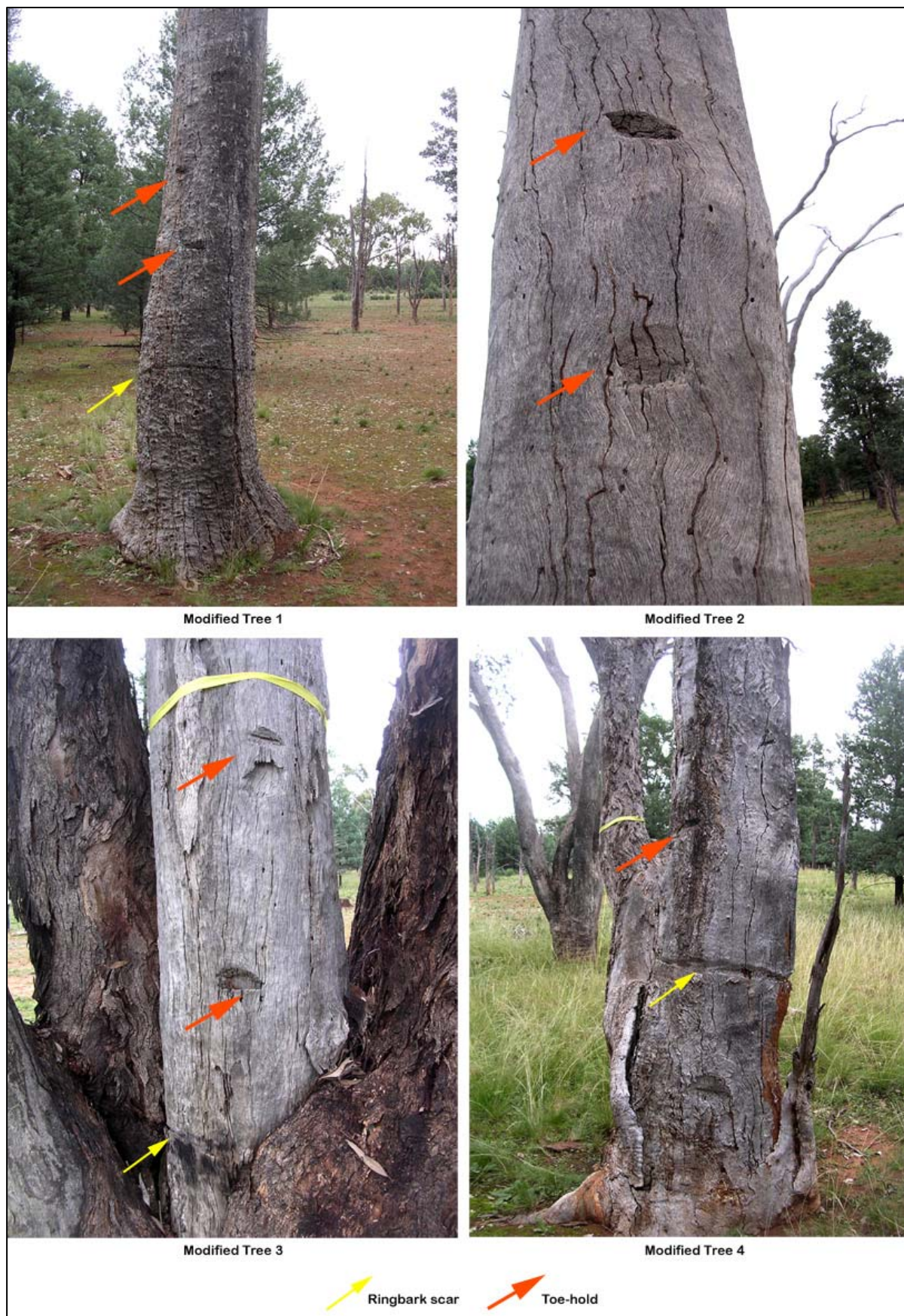


Plate 11: Examples of the historic toe-holds recorded during the survey.



Plate 12: Example of the logged branches of a tree bearing toe-holds.

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Appendix 4

Appleton (2004)

Extract Relating to Hera Deposit

**(Note: Only text, figures and appendices relating to the Hera Deposit
are Included in this copy)**

(No. of pages including blank pages = 44)

(Note: A copy of this Appendix is available on the Project CD)

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**The Archaeological Investigation for Sites of
Indigenous Cultural Significance on
Gold Mining Prospects at**

- 'Hera', South of Nymagee
- Overflow Prospect', at Bobadah
- "Fountain Dale", Northwest of Mineral Hill

Central West NSW

March 2004

John Appleton
ARCHAEOLOGICAL SURVEYS & REPORTS PTY LTD

for

TRIAKO RESOURCES LIMITED

Proponents:

Triako Resources Limited
PO Box 1048
North Sydney 2059
02 9925 0110

Copies of this report to:

Archaeologist

NPWS Western Region
PO Box 1007
Dubbo 2030
02 6883 2262

The Chairperson
C/o Mr D. Carter - Coordinator
Condobolin Local Aboriginal Land Council
Condobolin 2877
02 6895 4400

Wiradjuri Condobolin Culture & Heritage Company Pty Ltd
PO Box 194
Condobolin 2877
0409 772 119

All inquiries in regard to this report should be addressed to:

John Appleton
Archaeological Surveys & Reports Pty Ltd
16 Curtis Street
Armidale 2350
Tel. 02 6772 6512 Fax. 02 6772 4567
Mobile: 0428 651 789
Email. japples@northnet.com.au

EXECUTIVE SUMMARY

This investigation was performed for Triako Resources Limited (Triako), which is currently undertaking an exploration programme in three locations between Condobolin and Cobar, Central, New South Wales - at Hera, south of Nymagee; at the Outflow Prospect at Bobadah; and at "Fountain Dale" north of Mineral Hill.

The scope of the work was for Archaeological Surveys & Reports Pty Ltd to conduct an archaeological investigation of the study areas with the assistance of a representative of the Condobolin Local Aboriginal Land Council, and in consultation with Wiradjuri Condobolin Culture & Heritage Company Pty Ltd, identify any Aboriginal sites and relics that might be present. The results of the investigation were to be presented in a report, which was to include an assessment of the significance of any cultural relics or places identified, an appraisal of the options and opportunities arising from the discoveries, and clear recommendations for the management of those cultural resources.

Thirteen sites (11 isolated artefacts and two scatters of 2 artefacts in each) were recorded at "Fountain Dale", distributed over an area of 30,000 sqm. No further investigation is required.

Seven artefact scatters were recorded at the Overflow Prospect, Bobadah. Although the sites occur outside the area presently being drill-tested any extension to the test area will require further archaeological investigation. In addition, the remains of the defunct Overflow Mine are of potential heritage significance and it will be necessary for a heritage assessment to be undertaken before any exploratory work or mining can proceed in areas associated with the Overflow Mine.

No sites were recorded at the Hera site and no further archaeological investigation is necessary.

The following recommendations are made as a result of the investigation:

i) Fountain Dale

The Condobolin LALC has recommended that all artefacts are to remain where they are unless they are likely to be impacted upon, but in the event that it is necessary to remove them, that arrangements should be made for them to be kept in a suitable keeping place. Consent to Destroy from NPWS will be necessary for the removal of any artefacts. In addition, initial removal of surface deposits should be monitored by a representative of Condobolin LALC. ASR agrees with the recommendations. Monitoring would only be necessary during the removal of the upper 25 cm of surface deposits.

ii) Hera

The Condobolin LALC has recommended that no further archaeological investigation of the site is necessary. ASR agrees with the recommendations.

iii) Overflow Prospect, Bobadah

ASR recommends that Triako determines the footprint of the mine impacts, from both direct and peripheral activities, and that if the footprint extends beyond the area surveyed for this

investigation that further archaeological investigation of the site should be undertaken. In addition, if the proposed mine extends into the area associated with the Overflow Mine it will also be necessary for Triako to commission a heritage assessment of the mine. In the event that both should be necessary the investigation for Aboriginal sites and the heritage assessment of the Overflow Mine could be undertaken at the same time by a suitably qualified archaeologist, with the assistance of Condobolin LALC

In addition Triako are advised of the following provisions: All developers, contractors, subcontractors and their employees are bound by the provisions of the National Parks and Wildlife Act 1974 as amended, which was in part designed to mitigate impact to the Indigenous archaeological record.

Under the provisions of the National Parks and Wildlife Act 1974, all earthmoving contractors and operators should be instructed that in the event of any bone or stone artefacts, or discrete distributions of shell, being unearthed during earthmoving, work should cease immediately in the area of the find, and the Condobolin Local Aboriginal Land Council, and officers of the National Parks and Wildlife Service, informed of the discovery. Work should not recommence in the area of the find, until those officials have inspected the material and permission has been given to proceed. Those failing to report a discovery and those responsible for the damage or destruction occasioned by unauthorised removal or alteration to a site or to archaeological material may be prosecuted under the National Parks and Wildlife Act 1974, as amended.

In the event that a relic or item is discovered during earthworks details of the discovery should be communicated to: The Archaeologist, Western Region, and to The Chairperson, Condobolin Local Aboriginal Land Council (addresses at the front of this report).

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1. INTRODUCTION

1.1 Background to the investigation

This investigation was performed for Triako Resources Limited (Triako), which is currently undertaking an exploration programme in three locations between Condobolin and Cobar, Central, New South Wales.

The scope of the work was for Archaeological Surveys & Reports Pty Ltd (ASR) to conduct an archaeological investigation of the study areas with the assistance of a representative of the Condobolin Local Aboriginal Land Council, and to identify any Aboriginal sites and relics that might be present. The results of the investigation were to be presented in a report, which was to include an assessment of the significance of any cultural relics or places identified, an appraisal of the options and opportunities arising from the discoveries, and clear recommendations for the management of those cultural resources.

Triako require the results of the three investigations to be reported under one cover, but for practical purposes, namely that the three locations occur some distance apart, and on different land and soil units, and therefore are subject to different Predictive Models for Aboriginal site location, the report is written in three parts.

1.2 Potential impact of mining

The three gold prospecting localities, together with the Mineral Hill Mine presently being operated by Triako, occur along a belt of Late Silurian and Silurian-Devonian mineralised sandstone, siltstone and shale deposits in the Cobar and Mineral Hill Synclinal Zones. Refer to the map appendix i.

Currently preliminary drill-testing is taking place at all three locations using truck-mounted drilling platforms and so the impact to date has been minimal. However, should the results of drill-testing indicate that gold deposits are viable mining development would cause significant impacts to any surficial archaeological material.

As the prospecting is only in its preliminary stages there are as yet no concept plans for the mine sites, and so there are no currently projected 'footprints of impact'. The impacts could be extensive or minimal depending upon the size of the extraction operations, but regardless of the size of the extraction area, other significant alteration to surface deposits will result from the installation of processing plant, power installations, water, sewerage and waste installations, administration and amenities buildings, roads, mullock heaps, overburden or waste dumps, bunds, drainage channels, fencing etc. And so for the purposes of the archaeological investigation it is assumed that there is a potential for the entire survey area at each location to be subject to either direct or peripheral impacts from mining and associated activities.

As a consequence of this survey it is extremely unlikely that the same areas will ever be surveyed again, thus from an archaeological perspective, this was the only opportunity to observe and record any sites that might be present, and to propose a strategy for the management of any known or potential archaeological and/or cultural material in the future development of the areas.

2. ABORIGINAL CONSULTATION

Prior to the investigation ASR contacted Mr Dave Carter, Coordinator, Condobolin Local Aboriginal Land Council (LALC), to arrange for a Sites Officer to assist Appleton (ASR) in the fieldwork. As a consequence Peter Knight, Chairperson, Condobolin LALC assisted Appleton (ASR) in the investigation, which was performed on 18th March 2004. Peter is an experienced fieldworker, and has previously assisted ASR in other investigations in the Fifield and Condobolin areas.

Also assisting with the investigation was Mr Noel Powell, representing the Wiradjuri Condobolin Culture and Heritage Company Pty Ltd (WCCHC).

Both prior to and during the survey Peter, Noel and Appleton discussed the potential for particular site types to be present, and the particular environments in which they might occur. The survey strategy was reviewed regularly, and the results discussed at the completion of each 'section'. At the conclusion of the survey the results were discussed at length. Subsequently ASR received written statements from Condobolin LALC and WCCHC as to their recommendations for the future management of the sites recorded during the investigation. Copies of the recommendations are included in the appendices.

3. "HERA"

3.1 Site Location

The irregularly shaped area of approximately 4.9 sq km occurs approximately 4 km due south of Nymagee and 80 km south-southeast of Cobar, central west New South Wales.

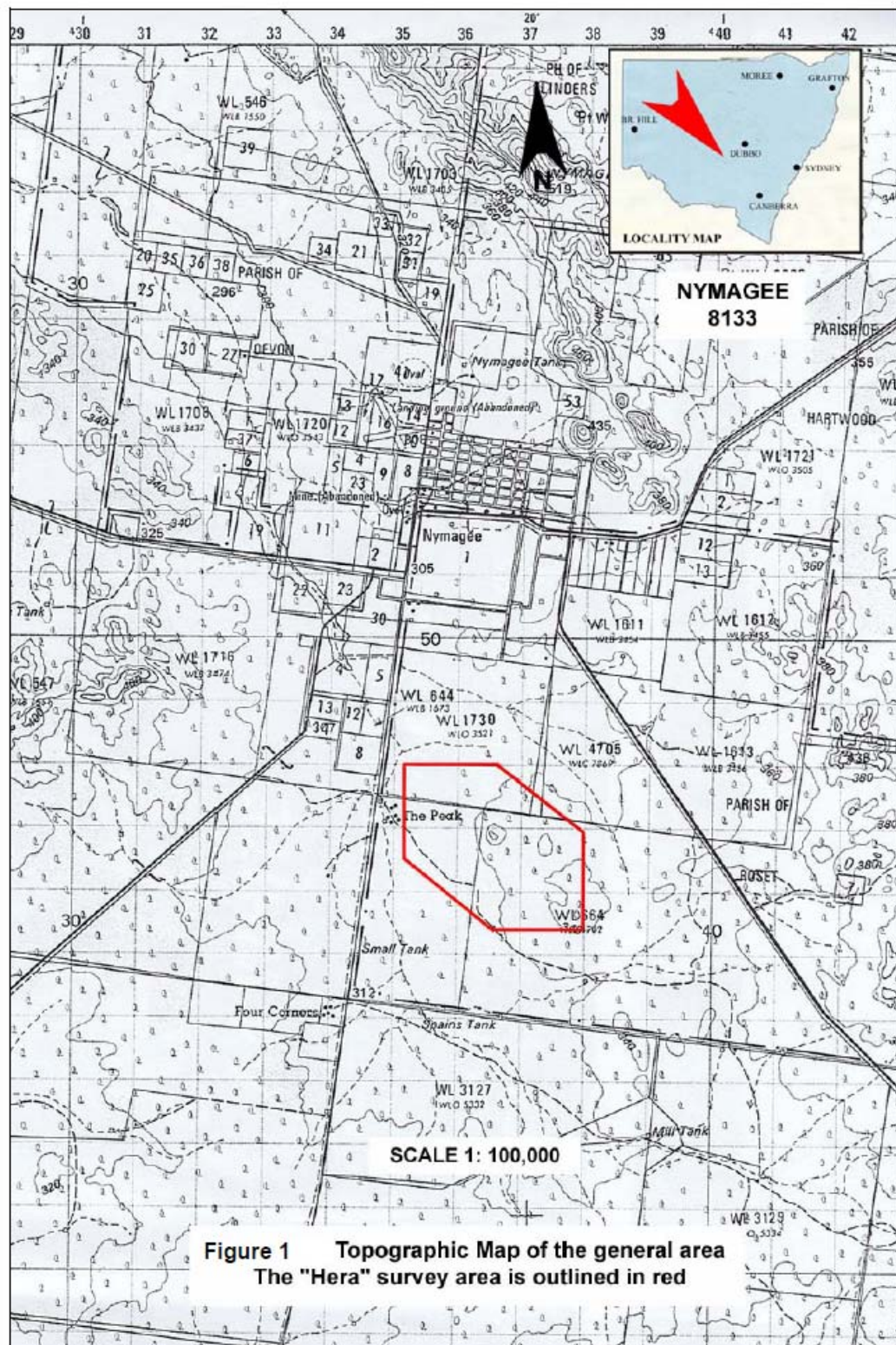
The survey area is described by the following AMG coordinates (AGD66 datum)

6448100N 435400E: 6448100N 436800E: 6446800N 438000E: 6445400N 438000E:
6445400N 436500E: 6446600N 435400E (Triako 23-2-2004).

Figure 1 is a topographic map of the general region showing the survey area.

3.2 The Environmental Context

Any discussion of the likely presence of Aboriginal cultural remains or of the basis why such remains might be discovered must be within the context of the environment and the resources that would have been available to any Aboriginal occupants of the area.



3.2.1 The general geology and topography

The study area occurs in low ridge country classified as being of the Yackerboon Land System. Typically the unit comprises of ridge crests and slopes of Silurian and Siluro-Devonian siltstone and sandstone with areas of quartzite outcrop, and surface residual, and colluvial gravel band quartz. The soils are typically red earths and some lithosols, with loam to clay loam, overlying siltstone and sandstone (SCS 1991) – a more detailed description is given in appendix ii.

Elevations in the survey area generally fall within the mid 320-350 m AHD range, rising to 380 m AHD on the summit of the central peak.

Typically, erosion occurs as minor to moderate watersheeting. As the photographic record shows it was more in the moderate to severe range at the time of the survey

3.2.2 Vegetation

Vegetation on Yackerboon Land Systems typically comprise of scattered to dense white cypress pine, red box, bumble box and grey box; scattered budda, warrior bush and western golden wattle. Groundcovers include eastern cottonbush, variable speargrass, and other grasses and forbs (SCS 1991).

3.2.3 Water resources

The survey area encircles a steep-sided peak, surrounded by an apron of slopes, which give way to a gently undulating plain. There were no visible drainage lines or depressions either in or visible from the survey area. The nearest drainage lines of any significance are Crowi Creek 17 km to the south, and Pangee Creek 30 km to the east.

3.2.4 Stone resources

As described in section 4.2.2 there are residual deposits of quartz, however, the quartz is generally sub-angular, and weathered and unsuitable for knapping into tools. While the peak is composed of quartzite it is poorly silicified and similarly unsuitable as knapping material. If any artefacts are present in the survey area they were probably manufactured from material brought in from elsewhere.

3.2.5 Previous impacts.

As the photographic record shows substantial areas of the survey area support open woodland, however there is little understorey. Whether this is as a consequence of stock grazing, or whether it has been caused by extended periods of drought is unclear, but there is generally no understorey or groundcover.

The only significant impact to the survey area has been from stock grazing. The larger portion of the survey area remains uncleared and supports an open woodland or scrub, the exception being the large paddock at the southern end which appears to have been cleared for pasture improvement.

An abandoned mining shaft and whim on the summit on the ridge are evidence of small-scale mining but there has been little impact other than the shaft, a small cleared area around the shaft, and a mullock heap on the eastern side of the ridge.

Elsewhere several tracks have been cut through the scrub, but there is little evidence of significance disturbance of surface deposits.

3.3 The Archaeological Record

No previous surveys have been performed in the region and therefore no record of any sites within the general area.

3.4 Models for Site Location

3.4.1 Site types and their location

See section 3.4.1

3.4.2 A predictive model for the Project Site

Based on all of the above the following model for site distribution was proposed for the Project Site, in which there would be no shelving sandstone outcrops, and no reliable water source, but in which there are residual deposits of quartz and possibly usable siltstone, and natural woodland.

- Isolated artefacts may be present and visible in erosion features
- Low-density artefact scatters may be present and visible in erosion features, but it is unlikely that any debitage will be visible
- There is a potential for trees more than 150 years old to exhibit scarred surfaces
- There is a potential for any trees more than 150 years old to exhibit carved surfaces
- There may be stone quarries
- There may be overhangs that contain art sites
- There will be no engravings, or grinding grooves
- There will be no shell middens
- There will be no visible evidence of burials
- There will be no surviving Bora rings
- There will be no surviving stone arrangements
- There are no known cultural associations with the area

3.5 The Survey

3.5.1 The survey strategy

Prior to the investigation it was decided that as the survey area was large the survey would focus on the peak, the vast scalded areas to the south of the peak, and the general area on which the drilling programme was centred. The survey commenced at the peak, the summit, cliffline and slopes being inspected thoroughly, both for artefacts, paintings and engravings. The survey continued from a line west-east across the base of the peak-slopes to the north of

the peak through to the southern boundary. The three investigators generally walked three abreast and approximately 40 m apart, from north-east to south-west and back, targeting any erosion features within the 120-150 m wide transect. Four such transects were surveyed thus covering the southern half of the survey area in which drilling was taking place.

3.5.2 Details of the survey

The survey was undertaken by ASR, assisted by Peter Knight representing the Condobolin LALC, and assisted by Mr Noel Powell, representing the Wiradjuri Condobolin Culture and Heritage Company Pty Ltd. The survey was made on foot, in dry conditions under a clear sky, in light ideal for observing any artefactual material present and observable. All of the areas shown shaded in red in Figure 2 were surveyed on foot.

3.5.3 Site recording

All relevant observations as to the topography, vegetation cover, and conditions, were recorded in a field-log, and photographs taken with an Olympus Camedia C-3030 Zoom Digital Camera, to record the character of the survey area, and to witness survey conditions.

3.5.4 Effectiveness of the survey technique

As the photographic record shows the archaeological visibility was excellent and the survey therefore highly effective.

The survey technique was the most appropriate one to use in the circumstances, and the results are believed to be generally representative of the archaeological record in the survey area, in which it was predicted there would be very little artefactual material, primarily because of the absence of a suitable knapping material.

3.5.5 Effective coverage

The table on the following page, is divided into units delimited by observed topographical features, environments, and/or land use, briefly described in terms of 'horizontal' or map area, soil, and archaeological visibility, and the percentage of the area actually surveyed.

Figure 2 shows the effective survey coverage based on the assumption that most artefactual material if exposed and visible can be observed for up to 5 metres to either side of the path of the observer. Clearly this would vary significantly between a path walked through dense vegetation, and a path across a claypan, and is given as a guide only. Peripheral archaeological visibility in the survey area varied from 5 m to either side on the slopes of the peak, to 10 m to either side on the flat.

The photographs on the following pages show several aspects of the survey area.

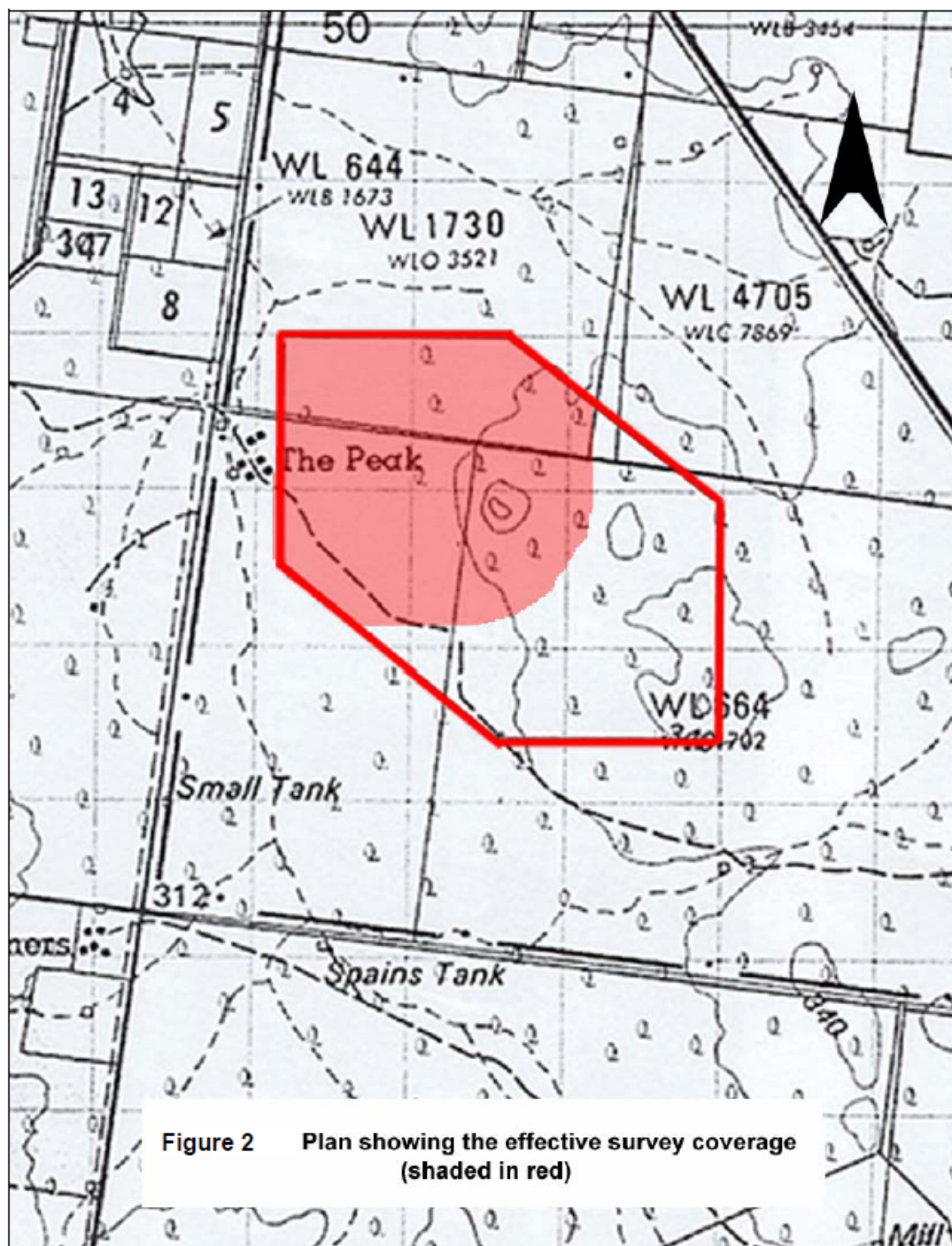




Figure 3 – Looking northwards towards the peak.



Figure 4 – The peak viewed from the west



Figure 5 – The northern slopes of the peak.



Figure 6 – Overhanging cliff-face on the western side of the peak.



Figure 7 – Old mine shaft and whim on the summit of the peak



Figure 8 – Looking westwards from the foot of the peak.



Figure 9 – Slopes to the south of the peak.



Figure 10 – The edge of the plain in the western section



Figure 11 – White cypress woodland in the western section.



Figure 12 – Looking eastwards along the northern boundary of the survey area.



Figure 13 – North/south fenceline in the western section



Figure 14 – Scalded paddocks in the western section.

3.6 The Results

No artefacts of Indigenous origin were observed in the survey area.

3.7 Discussion

The prediction was that there might be isolated and low-density artefact scatters, however nothing was found. Archaeological visibility was excellent so the absence of sites can be assumed to be representative of the general absence of sites in the area.

It was clear from the survey that not only was there an absence of surface water, and stone suitable for knapping, but that the predominance of white cypress meant that there were very few potential food resources in the area. Perhaps the only reason why Aboriginal people would have visited the area was for ceremonial or religious activities in which the peak played a pivotal role, or merely to use the peak as a lookout over the surrounding area from which other people's fires or animals for food might be seen. In either instance it is unlikely that artefacts would be discarded in country in which the absence of suitable knapping material meant that artefacts and material were items to retain, maintain and value rather than discard.

In summary, the fact that no artefacts were recorded is seen as being representative of the absence of artefacts in the area.

3.8 Significance Assessment

The NPWS policy to safeguard all sites, Aboriginal places, and archaeological material of significance wherever possible requires that some means of assessing the significance of the sites is necessary. This is not only for the purpose of determining whether the proposed development can proceed as proposed, but also to provide Cultural Resource Managers with the information for future management of the area.

3.8.1 Cultural significance

The Aboriginal or cultural significance of Aboriginal relics and sites can only be assessed by the Aboriginal community, and in particular, the Elders. It is the responsibility of the archaeologist to ensure that the Elders, or elected representatives of the Aboriginal community are advised of the survey results, and are consulted as to their knowledge and opinion of the significance of the area, and to transcribe and present those expressions in report form.

The recommendations of the Condobolin LALC are that no further investigation of the site is necessary.

3.8.2 Research potential

The absence of artefacts in the area which was surveyed at a time when there was excellent archaeological visibility is interpreted as being indicative that there is no research potential in the survey area.

3.9 Recommendations

The Condobolin LALC has recommended that no further archaeological investigation of the site is necessary. ASR agrees with the recommendations.

In addition Triako are advised of the following provisions: All developers, contractors, subcontractors and their employees are bound by the provisions of the National Parks and Wildlife Act 1974 as amended, which was in part designed to mitigate impact to the Indigenous archaeological record.

Under the provisions of the National Parks and Wildlife Act 1974, all earthmoving contractors and operators should be instructed that in the event of any bone or stone artefacts, or discrete distributions of shell, being unearthed during earthmoving, work should cease immediately in the area of the find, and the Condobolin Local Aboriginal Land Council, and officers of the National Parks and Wildlife Service, informed of the discovery. Work should not recommence in the area of the find, until those officials have inspected the material and permission has been given to proceed. Those failing to report a discovery and those responsible for the damage or destruction occasioned by unauthorised removal or alteration to a site or to archaeological material may be prosecuted under the National Parks and Wildlife Act 1974, as amended.

In the event that a relic or item is discovered during earthworks details of the discovery should be communicated to: The Archaeologist, Western Region, and to The Chairperson, Condobolin Local Aboriginal Land Council (addresses at the front of this report).

GENERAL GLOSSARY: The definitions that follow are for terms used in this and other reports written by the author, and do not necessarily apply to their use in different contexts.

ADZE : A modified flake with at least one steeply-retouched working edge. While all adzes are generally considered to be wood-working tools it is probable that some also served as cores and others as scrapers. Adzes with a uniform butt were frequently hafted to make a chisel-like tool, but the intended use of the adze determined the size of the adze and whether it was hafted (Flenniken and White, 1985).

AHD: Australian Height Datum

ARCHAEOLOGICAL DEPOSIT :

Sediments which contain evidence of past Aboriginal use of the place, such as artefacts, hearths, burials etc.

ARTEFACT : Any object that has attributes as a consequence of human activity (Dunnell, 1971). In this report 'artefacts' has been used generally to describe pieces of stone that have been modified to produce flakes, flaked pieces, cores, hammerstones, or axes.

BACKED BLADE :

A stone tool manufactured from a flake on which one margin has been modified by the removal of small flakes to blunt the edge or margin opposite the cutting edge.

BORA GROUND :

A ceremonial site comprising of one or two connected circles composed of compacted or mounded earth, or defined by an arrangement of stones, of 2 to 30m diameter, generally used in male initiation rites.

CAMPSITE : A place at which the density of artefacts and the variety of material indicates that people 'frequently' used the place as a stopping or resting place. Such places are also likely to contain or be close to water resources, food resources, or stone material resources. In this report a campsite is used to describe artefact scatters that are associated with hearths or fireplaces, as distinct from scatters that are not associated with hearths or fireplaces, which are described as Open Scatters.

CHALCEDONY :

A form of silica (partially translucent), which occurs as linings in cavities in rocks. When banded it is known as AGATE (Department of Mines, 1973). Chalcedony is uniformly coloured and agate has curved bands or zones of varying colour (Cook & Kirk, 1991).

CHERT : Another name for sedimentary chalcedony. It occurs most frequently in limestones, or in marine sedimentary rock, or as pebbles in sedimentary rock. In its depositional context it is often concentrated in bedding planes. Chert found in deep-water limestones is formed from radiolaria and diatoms (siliceous planktonic micro-organisms) (Cook & Kirk, 1991).

Chert is a form of amorphous or extremely fine-grained silica, partially hydrous, found in concretions and beds. It is classified as a chemical sedimentary rock although it may be precipitated both organically and inorganically (Department of Mineral Resources, n.d.).

CONGLOMERATE :

Naturally cemented gravel. Conglomerate is a coarse-grained clastic sedimentary rock composed of generally rounded fragments of other rock types larger than 2 mm in diameter, set in a fine-grained matrix of sand, silt, or any of the common natural cementing materials (Department of Mineral Resources, n.d.).

CORE : A piece of stone from which flakes have been removed, that cannot otherwise be described as a retouched or modified artefact.

CORTEX : The naturally altered surface of stone – eg. the water-worn surface of river pebbles.

DEBITAGE : The small waste material observed in knapping floors. Generally, waste material is described as all those fragments having a maximum dimension of less than 10mm

FLAKE : A fragment of stone exhibiting features indicating that it has been deliberately removed from a core piece. These features are evident as:

- i) Platform: Plane or point at which a blow was delivered to remove the flake.
 - ii) Bulb of Percussion: Convex surface that occurs on the face or ventral surface of a flake, radiating from the point of impact, produced as a consequence of the force pattern.
 - iii) Eriallure: see below.
- Other terms:
- i) Dorsal: The back or outer face of a flake as it would have been prior to removal from a core. Frequently either ridged or exhibiting negative flake scars when removed in secondary flaking, with a natural weathered cortex when removed in primary flaking.
 - ii) Ventral: The 'chest' or inner face of a flake as it would have been prior to removal from the core. The surface upon which the Bulb of Percussion occurs.
 - iii) Platform Preparation: The removal of flakes from a surface to produce a level platform. May be evidenced by retouch scars to the platform.
 - iv) Retouch: The removal of small flakes from an edge or margin of an artefact to modify its shape or sharpen its edge.
 - v) Proximal: The end of a flake closest to the striking platform.
 - vi) Distal: The end of a flake furthest from the striking platform.
 - vii) Margin: The edge of an artefact.
 - viii) Eriallure: A small circular to elliptical negative flake scar occurring on the surface of the bulb of percussion on flakes of very fine-grained or highly silicified material. It occurs 'naturally' as a consequence of internal forces generated at the time of flake removal.
 - ix) Split Cone: Occurs when the flake splits down its axis frequently removing part of the striking platform. Generally believed to be produced by faulty knapping technique, but is also probably a consequence of flawed material.
 - x) Transverse Snap: Occurs when a flake snaps across its axis. Generally believed to be caused by post-depositional impacts such as human or stock treadage, or vehicular traffic.

FLAKED PIECE :

A fragment of stone exhibiting flake scars indicating that it is an artefact, but not displaying diagnostic features, such as a Bulb of Percussion, Striking Platform, or an Eriallure.

GREYWACKE :

A type of sandstone, grey or greenish-grey in colour, tough and well indurated and typically poorly sorted (Clark & Cook, 1986).

A generally poorly sorted, dark sandstone containing feldspar and sand-sized rock fragments of metamorphic or volcanic rocks (Department of Mineral Resources, n.d.).

Usually a dark and coarse-grained rock compared to mudstones and siltstones that are much finer-grained and better sorted.

HOLOCENE PERIOD :

The period from 10,000 years ago to the present.

IGNEOUS ROCK :

Rock formed by the cooling and solidification of magma on or below the earth's surface (Geography Dictionary, 1985).

In situ : In its original place – as deposited.

ISOLATED ARTEFACT :

A solitary stone artefact, at least 50m from its nearest neighbour. This is based on NPWS policy that two artefacts within 50m of each other constitute a site.

KNAPPING FLOOR:

A discrete scatter of artefacts in which at least two artefacts are recognisably of the same material, and derive from the same piece of stone. Also described as a stone tool manufacturing site or floor.

LOCATION : The place at which an artefact is found, or a place identified as having either archaeological or Aboriginal significance.

MEASUREMENT :

- I) Flake:
 - i) Length: Measured along the percussion axis at right angles to the platform.
 - ii) Width: The greatest width measured at right angles to the percussion axis.
 - iii) Thickness: The greatest thickness measured at right angles to the percussion axis.
- II) Flaked piece:
 - i) Length: The longest dimension
 - ii) Width: The greatest width measured perpendicular to the length.
 - iii) Thickness: The greatest thickness measured perpendicular to the length.
- III) Core:
 - i) Length: The longest dimension.
 - ii) Width: The greatest width measured perpendicular to the length.
 - iii) Thickness: The greatest thickness measured perpendicular to the length.

MIDDEN : A refuse heap or stratum of food remains, such as mollusc shells, and other occupational debris (Dortch, 1984 – see also Meehan, 1982).

MUDSTONE : A fine-grained detrital rock, usually quite massive and well consolidated. May be black through grey to off-white, browns, reds and dark blues/greens. Frequently found in association with sandstones (Cook & Kirk, 1991).

Identification is often aided by colour variations in layering. A source for stone material tool manufacturing material found as river pebbles in creek beds, and artefacts often display a water-worn cortex.

NEGATIVE FLAKE SCAR :

A concave surface resulting from the removal of a flake, occurring on the surface of the rock from which a flake has been removed.

PLEISTOCENE PERIOD :

The period from about 10,000 years ago to 2 million years ago.

POTENTIAL ARCHAEOLOGICAL DEPOSIT (PAD) :

Synonymous with Potentially Archaeologically Sensitive : Having the potential to contain archaeological material although none is visible.

QUARTZITE :

Quartzites are formed by the regional or contact metamorphism of quartz arenites, siltstones, and flints (cherts). They are composed essentially of quartz, and usually have a fine-grained granoblastic (grains are roughly the same size) texture. Generally massive, but may sometimes show sedimentary structures (Cook & Kirk, 1991).

ROTATION :

The removal of flakes from a core by blows directed at different angles, to different platforms. May be evident on the dorsal surface of a flake as negative flake scars, which do not follow the same direction as the percussion axis of the flake. This may be confused with scars produced during core preparation.

SCAT : The solid waste material produced by an animal – dung, droppings, manure (Triggs, 1985).

SCATTER : Two or more artefacts occurring within 50 metres. Scatter may also be used in the context of 'background scatter', meaning the general distribution of artefacts across the landscape that cannot be recognised as discrete concentrations.

SILCRETE : A near surface or surface siliceous induration (Desen & Peterson, 1992).

A conglomerate consisting of surficial sand and gravel cemented into a hard mass by silica.

A siliceous duricrust (Bates & Jackson, 1980).

Crusts may form as a result of low, infrequent rainfall, on reasonably flat surfaces. These are known as duricrusts – those cemented by silica are known as silcretes (Clark & Cook, 1986), sometimes referred to locally as 'billy' (Gentilli, 1968), or 'grey billy'.

Silcrete on the northern tablelands of NSW forms at the surface contact between sediments of the Sandon Beds and the Armidale Beds with overlying basalt, where groundwater (more rich in silica than surficial water) interacts with surficial water and precipitates new quartz as the matrix to the sediments (N.D.J. Cook, Dept. of Geophysics, UNE, pers. Comm.).

In softer formations of quartz sands, groundwater has apparently been responsible for the formation of concretionary layers of silcrete. Under altered climatic conditions, the less competent beds erode away leaving concretions. Since they are often the size of old-fashioned woosacks and are greyish and white, they are popularly known as gray billy (slang for billy goat) (Fairbridge, 1968).

SITE : A discrete area or concentration of artefactual material, place of past Aboriginal activity, or place of significance to Aboriginal people.

SOIL SCIENCE TERMS (taken from Banks, 1995, and others as referenced).

BEDROCK : Outcrop of *in situ* rock material below the soil profile.

BENCH : A strip of relatively level earth or rock breaking the continuity of a slope.

BLOWOUT : A closed depression formed in the land surface by wind eroding sands and depositing them on adjacent land.

CLAYPAN : A depression caused by the aeolian deflation of sediments, or by the presence of a prior lake.

DUNE : A ridge built up by wind action composed of sands, silts, or sand-sized aggregates of clay.

FLOODPLAIN : A large flat area, adjacent to a watercourse, characterised by frequent active erosion and aggradation by channelled and overbank stream flow.

GIBBER : A level surface covered by a thick deposit of gravel or broken siliceous pebbles, occurring in the more arid parts of the continent, thought to have been formed from the break-up of a siliceous (silcrete) surface crust, and termed gibber plains (Whittow, 1984) – see also silcrete.

GILGAI : Surface microrelief associated with soils containing shrink-swell clays. Gilgai consists of mounds and depressions, or irregularly distributed small mounds and subcircular depressions varying in size and spacing. Vertical interval usually <0.3m; horizontal interval usually 3-10m, and surface almost level.

Sometimes called 'crab-hole' soils.

GULLY : An open incised channel in the landscape generally greater than 30cm deep and characterised by moderately to very gently inclined floors and steep walls.

HUMMOCK : A small raised feature above the general ground surface.

LANDFORM ELEMENTS :

Crest : Landform element standing above all points in the adjacent terrain.

Flat : Neither a crest or a depression <3% slope.

Upper slope : Adjacent to and below a crest or flat but not a depression.

Midslope : Not adjacent to a crest, a flat or a depression.

Lower slope : Adjacent to and above a flat or a depression but not a crest.

LITHOSOLS : Shallow soils showing minimal profile development and dominated by the presence of weathering rock and rock fragments.

RILL : A small channel cut by concentrated runoff through which water flows during and immediately after rain.

RUNOFF : That portion of precipitation not immediately absorbed into or detained upon the soil and which thus becomes surface flow.

SCARP/CLIFF : A steep slope terminating a plateau or any level upland surface.

SCRUB : vegetation structure consisting of shrubs 2-8m tall.

SHEET EROSION : The removal of the upper layers of soil by raindrop splash and/or runoff.

SOIL PROFILE :

"A HORIZON" : The top layer of mineral soil. This may consist of two parts:

A₁ HORIZON: Surface soil and generally referred to as the topsoil.

A₂ HORIZON: similar in texture, but paler in colour, poorer in structure, and less fertile.

"B HORIZON" : The layer below the A Horizon. This consists of 2 parts:

B₁ HORIZON: A transitional horizon dominated by properties characteristic of the underlying B₂ horizon.

B₂ HORIZON: typically contains concentrations of silicate clay and/or iron, and/or aluminium and/or translocated organic material.

"C HORIZON" : The parent rock. Recognised by its lack of pedological development, and by the presence of remnants of geologic organization.

"R HORIZON" : Hard rock that is continuous (Charman & Murphy, 1993; 350-1).

SPUR : A ridge which projects downwards from the crest of a mountain as a water-parting (Whittow, 1984).

SUBSOIL : Sub-surface material comprising the B and C Horizons of soil with distinct profiles; often having brighter colours and higher clay contrasts.

SURFACE CONDITION :

Gravelly : Over 60% of the surface consists of gravel (2-69mm).

Hardsetting : Soil is compact and hard.

Loose : Soil that is not cohesive.

Friable : Easily crumbled or cultivated.

Self-mulching : A loose surface mulch of very small peds forms when the soil dries out.

SWALE : A linear level-floored open depression excavated by wind or formed by the build-up of two adjacent ridges.

SWAMP : Watertable at or above the ground surface for most of the year.

TERRACE : A flat or gently inclined surface bounded by a steeper ascending slope on its inner margin and a steeper descending slope on its outer margin (Whittow, 1984).

TOPSOIL : A part of the soil profile, typically the A₁ horizon, containing material that is usually darker, more fertile and better structured than the underlying layers.

UNDERSTOREY : A layer of vegetation below the main canopy layer.

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APPENDICES

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Appendix i – Cobar & Mineral Hill Synclinorial Zones

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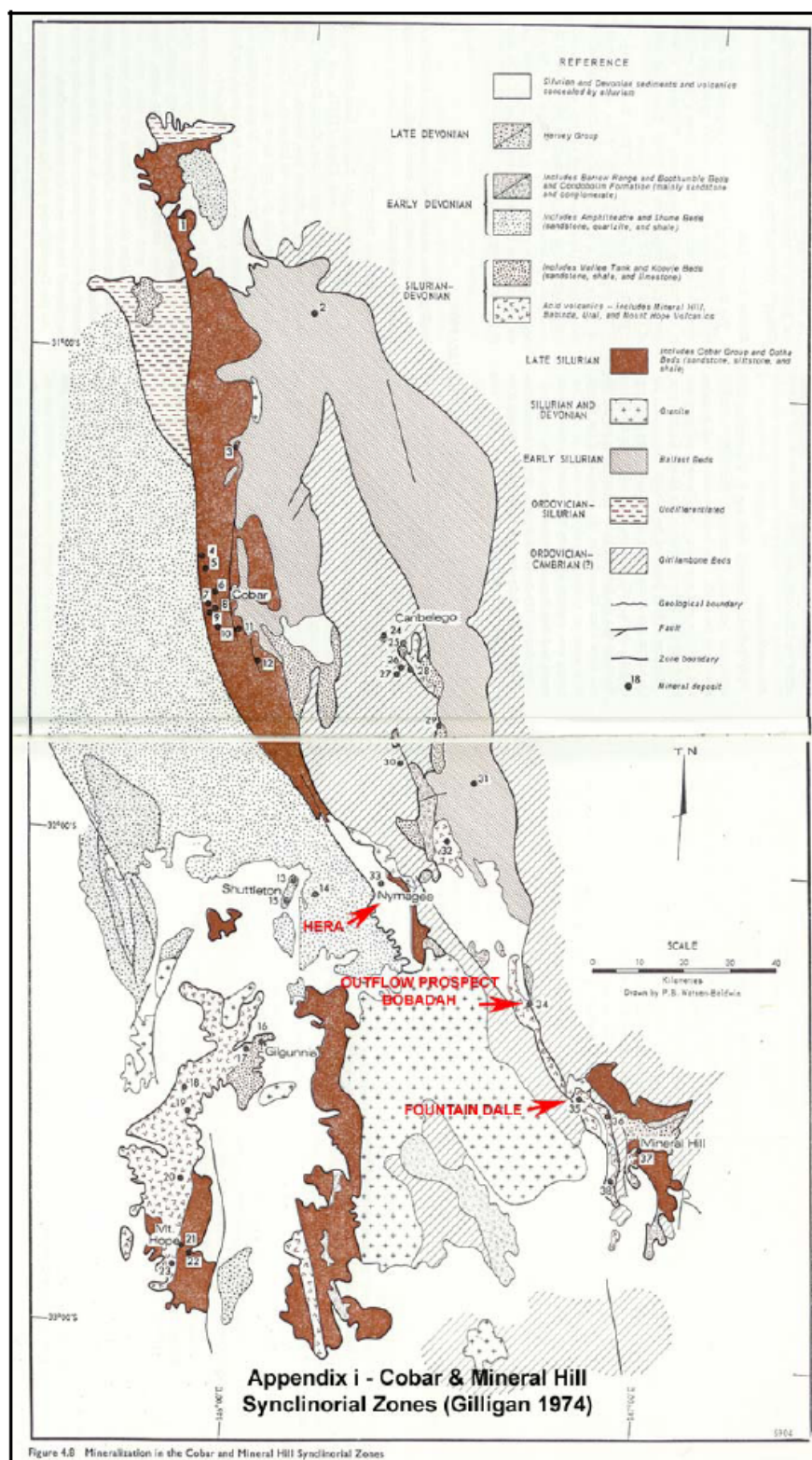


Figure 4.8 Mineralization in the Cobar and Mineral Hill Synclinal Zones

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Appendix ii – Site types

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Site types associated with Indigenous activities and culture

The definitions that follow are for terms used in this report, and do not necessarily apply to their use in different contexts.

Art sites are defined as places where any medium has been applied to a rock surface either as symbols, characters, drawings, paintings, or any other rendition, recognisable as not being a natural discolouration or feature. They also include markings to a rock surface, either by engraving, abrading, or pecking, and which cannot be identified as being a natural feature.

Bora rings are circles of 2-30 metres diameter of compressed earth (from repeated treading or dancing), or stone arrangements, at which men performed initiation ceremonies, and are the most frequently recorded ceremonial sites. Sometimes they occur as two rings joined by a central track in a barbel configuration. They usually occur on level or low-lying country, which is usually the first topographical unit to be cultivated, or utilised for highways and roads, but they may also occur as circular stone arrangements on elevated rock platforms and hilltops. If they are or were present then they are usually either already known and have been recorded, or they have long since been destroyed.

Carved trees are readily recognised by even the untrained observer. The carving is incised either into the outer bark, or more commonly, into the living wood after removal of a section of the bark. The designs frequently consist of 'diamond cross-cuts', but may also consist of stylised animal motifs. Previously unrecorded carved trees are still discovered in relatively remote or inaccessible areas. Carved trees frequently occur near burial sites and/or Bora rings, but in some regions they may have been tribal boundary markers.

Fish traps may occur either in rivers or on seashores. They are recognisable as unnaturally formed stone arrangements that were constructed to trap fish (or eels or turtles) carried into the enclosure in deep water, and which are left stranded within the enclosure as the water level drops. The fish were then caught by nets, hand, or by spear.

Grinding grooves are usually observed on the surfaces of large sedimentary boulders or exposed shelves and outcrops of sedimentary rock along creek banks and beds, or near water. They have been produced by Aborigines using the rock surface to shape and sharpen the edges of stone to produce ground-edged axes, or to sharpen wooden spears (the latter tend to be narrow and deep). Water was used to lubricate the surface of the rock. The grooves frequently occur as linear abraded depressions in the rock, and may each be between 10 and 50 centimetres long, up to 15 centimetres wide, and 2 to 5 centimetres deep. Some sedimentary rock surfaces may exhibit shallow ground depressions of roughly round or elliptical shape, and these are more likely to be associated with seed grinding, root crushing, or other food preparation.

Middens may be identified variously as beach, lagoon, lacustrine, or estuarine, and are most likely to be observed at or above the water line where erosion, topsoil removal, or mining has exposed the shell. The size of the midden can vary enormously, with the smallest comprising a 'one off', "dinner-time camp" (Meehan, 1982), with as few as two or three shells, or a shallow lens of only a few centimetres. The largest middens may extend for many kilometres and may comprise of a number of lenses and layers of shell and ash up to several metres deep. These large middens may be evidence of continuous exploitation of the resource over many thousands of years. Middens of fresh water mussel shell may be found in eroding creek banks or in eroding terraces, particularly near both existing and defunct water holes.

Isolated shell or fragments may occur on any surface and in any situation. A single shell may have been discarded by a bird, but the presence of use-wear would indicate Aboriginal use of the shell as a tool, which was discarded after use. Such occurrence is likely to be where there is no immediate source of stone material suitable for tool manufacture.

Natural Mythological sites are places of significance to Aborigines, either because they are described in mythological stories or songlines, or because they were used in religious ceremonies. They may occur anywhere and while some are more predictable than others – as for example, permanent water holes, waterfalls, rock promontories, etc., others may have no particularly remarkable features. Seldom is there any recognisable artefactual evidence or anything to distinguish it from similar features in the vicinity. These sites must of necessity be identified by Aboriginal people with an association with the place.

Open sites, campsites, knapping floors, scatters, and isolated artefacts, are most likely to occur on eroded and exposed creek banks, particularly where slope wash or stock trails has removed the humic layer, or on eroded ridges and spurs, particularly near the junctions in watercourses. Open sites are most likely to be present in greatest numbers near a source of either raw stone material, or potential food resources, or in a natural corridor between two differentially preferred environmental zones, or at the contact between two environmental zones containing different resources.

Artefacts in open scatters are likely to be manufactured from the dominant raw material available; i.e. Greywacke on greywacke-sourced soils, quartz on granite-sourced soils, silcrete and chert on relict sedimentary soils.

Artefact assemblages in open scatters are likely to consist predominantly of discard material, i.e., cores, flakes, flaked pieces, and debitage.

Artefacts exhibiting retouch scars and backing are most likely to occur in sites where secondary activity took place peripheral to the central camp site, although this is a generality and can only be observed where there is sufficient surface visibility to identify peripheral sites. Fragments of flakes with retouch or backing may occur on knapping floors indicating breakage occurring during manufacture, or maintenance areas in which damaged tools have been replaced and discarded.

Isolated artefacts are likely to be most frequently observed where the groundcover obscures all but the larger artefacts, such as cores, and large flakes, or where there is little contrast between the texture of artefactual material and the surface upon which it lies. Artefacts of materials contrasting with the matrix may be visible regardless of size; eg. quartz artefacts may be far more visible than much larger basalt artefacts against a background of dark humic terrace soils.

PADs or Potential Archaeological Deposits are deposits, usually in shelters (but they may also be identified where there are intact deposits in open areas), which although not containing any visible archaeological material, are considered likely to contain archaeological material below the surface. These 'sites' are not recorded as sites on the Aboriginal Site Register, but are identified as places that require subsurface testing to establish whether a site exists or not.

Rock shelters with art or occupation deposits, are most likely to occur where the character of the parent rock is sufficiently massive or consolidated for it to retain a structure that weathers differentially to form shelters and overhangs.

Scarred trees are perhaps the most difficult site type to determine as having been caused by deliberate removal of the bark by humans and not as a consequence of natural events; such as abrasion from falling trees or branches, natural branch attrition, fire damage, or contact from vehicles or stock. They may occur in places wherever there are tree species that produce bark suitable for tool and implement manufacture. While some scars are clearly the consequence of deliberate bark removal by Aborigines (either evidenced by stone axe marks, or identified by Knowledge Holders), some scars were made by settlers, and stockmen, and surveyors who frequently blazed trails and property boundaries by scarring the trees, and by timber men who removed a strip of bark to test the suitability of a tree for logging.

Other site types such as hearths, burials, etc., are less easily predicted, although burials are frequently associated with carved trees, and Bora rings, and hearths with campsites, shelters, and shell middens.

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2nd Feb 2006

Attn: Kim Ferguson

Re: Archaeological investigation:
"The Peak" Exploration (Hera Deposit)

Dear Kim

As requested I have reviewed my report:

The archaeological investigation for sites of Indigenous cultural significance on gold mining prospects at 'Hera', south of Nymagee, 'Overflow Prospect', at Bobadah, "Fountain Dale". North-west of Mineral Hill, Central West NSW. Dated March 2004, for Triako Resources Limited.

- with particular attention to the 'Hera' site.

The mine impact area as described in the "Hera Deposit Site Conceptual Layout Plan" dated 27/1/2006, Ref. TR081HR, falls within the boundaries of the area surveyed in the 2004 investigation.

My assessment is that no further investigation is necessary and that the contents of the report are valid and do not require any further description, discussion or amendment.

However, you should be aware that the report was dated March 2004, and so from a DEC point of view, is only valid until March 2007, after which DEC may require a new investigation.

Yours faithfully

A handwritten signature in black ink, consisting of a stylized 'J' or 'L' shape followed by a horizontal line.