



WHITEHAVEN COAL

ABN: 69 107 169 102

Werris Creek Coal Pty Limited

CULTURAL HERITAGE ASSESSMENT

for

Werris Creek Coal Mine Life of Mine Project

Prepared by

Landscape

**Specialist Consultant Studies Compendium
Volume 2, Part 6**

December 2010

This page has intentionally been left blank



WHITEHAVEN COAL

ABN: 69 107 169 102

Werris Creek Coal Pty Limited

CULTURAL HERITAGE ASSESSMENT

for

Werris Creek Coal Mine Life of Mine Project

Prepared for:

R.W. Corkery & Co. Pty Limited
1st Floor, 12 Dangar Road
PO Box 239
BROOKLYN NSW 2083

Tel: (02) 9985 8511
Fax: (02) 9985 8208
Email: brooklyn@rwcorkery.com

On behalf of:

Werris Creek Coal Pty Limited
ABN: 69 107 169 103
PO Box 600
GUNNEDAH NSW 2380

Tel: (02) 6768 7071
Fax: (02) 6768 7072
Email: bcullen@whitehavencoal.com.au

Prepared by:

Landskape
PO Box 246
MERBEIN VIC 3505

Tel: 0408 006 690
Fax: (03) 5025 2549
Email: landskape@telstra.com

December 2010

Landskape

This Copyright is included for the protection of this document

COPYRIGHT

© Landskape, 2010
and
© Werris Creek Coal Pty Limited, 2010

All intellectual property and copyright reserved.

Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, 1968, no part of this report may be reproduced, transmitted, stored in a retrieval system or adapted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without written permission. Enquiries should be addressed to Landskape.

CONTENTS

	Page
EXECUTIVE SUMMARY	6-9
1. INTRODUCTION	6-13
1.1 PROJECT DESCRIPTION	6-13
1.1.1 Objectives	6-13
1.1.2 Overview of the LOM Project	6-15
1.2 CULTURAL HERITAGE LEGISLATIVE CONTEXT	6-17
1.3 OBJECTIVES OF STUDY	6-17
2. ABORIGINAL SOCIAL AND CULTURAL INFORMATION	6-18
2.1 INTRODUCTION	6-18
2.2 ABORIGINAL COMMUNITY PARTICIPATION	6-18
2.2.1 Identification of Aboriginal Community Groups and Individuals	6-19
2.2.2 Preliminary Aboriginal Involvement	6-20
2.2.3 Aboriginal Involvement Prior to the Field Assessment	6-20
2.2.4 Aboriginal Involvement during the Field Assessment	6-20
2.2.5 Aboriginal Involvement Following the Field Assessment	6-21
2.3 ABORIGINAL SOCIAL AND CULTURAL INFORMATION ABOUT THE LOM PROJECT SITE	6-21
3. LANDSCAPE CONTEXT	6-22
3.1 INTRODUCTION	6-22
3.2 LANDFORMS AND VEGETATION	6-22
3.3 SETTING OF THE PROJECT SITE	6-23
3.3.1 Setting of the Proposed LOM Project Open Cut Extension	6-23
3.3.2 Setting of the Proposed LOM Project Out-of-Pit Overburden Emplacement	6-23
3.3.3 Setting of the Proposed LOM Project Acoustic and Visual Amenity Bund Wall	6-23
3.3.4 Setting of the Proposed LOM Project Rail Turn-around Loop Area	6-23
3.3.5 Setting of the Proposed LOM Project Relocated and Expanded Infrastructure Areas	6-23
3.3.6 Setting of the Proposed LOM Project Northern Site Access Road	6-27
3.3.7 Setting of the Proposed LOM Project Coal Conveyor	6-27
4. CULTURAL HERITAGE CONTEXT	6-27
4.1 ABORIGINAL CULTURAL HERITAGE CONTEXT	6-27
4.1.1 Ethno-Historical Context	6-27
4.1.2 Prehistoric Context	6-28
4.1.3 Types of Aboriginal Cultural Heritage Sites in the Region	6-29
4.1.3.1 Stone Artefact Scatters	6-29
4.1.3.2 Axe-grinding Grooves	6-29
4.1.3.3 Modified Trees	6-29
4.1.3.4 Hearths	6-29
4.1.3.5 Rockshelter Sites	6-30
4.1.3.6 Rock Art Sites	6-30
4.1.3.7 Quarry Sites	6-30
4.1.3.8 Freshwater Shell Middens	6-30
4.1.3.9 Earth Mounds	6-30
4.1.3.10 Stone Arrangements, Ceremonial Rings and Ceremony and Dreaming Sites	6-30
4.1.3.11 Burials	6-31

CONTENTS

	Page
4.1.4 Previous Aboriginal Cultural Heritage Investigations	6-31
4.1.4.1 Previously Recorded Aboriginal Cultural Heritage Sites in the LOM Project Site.....	6-32
4.2 HISTORICAL CULTURAL HERITAGE CONTEXT	6-34
4.2.1 Historical Context.....	6-34
4.2.2 Previous Historical Cultural Heritage Investigations	6-38
4.2.3 Types of Historical Cultural Heritage Sites in the Region	6-38
4.2.3.1 Pastoral Sites	6-39
4.2.3.2 Urban Sites	6-39
4.2.3.3 Industrial Sites	6-39
4.2.3.4 Transport Sites.....	6-39
4.2.4 Historical Cultural Heritage Sites in the Project Site	6-39
5. CULTURAL HERITAGE FIELD INVESTIGATION	6-40
5.1 CULTURAL HERITAGE SITE PREDICTIVE MODEL	6-40
5.2 FIELD METHODOLOGY	6-41
5.2.1 Logistics	6-41
5.2.2 Survey Methods.....	6-41
5.2.3 Access to Survey Areas and Weather Conditions	6-44
5.3 SURVEY COVERAGE DATA	6-44
5.3.1 Conditions of Visibility.....	6-44
5.3.2 Coverage analysis	6-46
5.4 SURVEY RESULTS	6-46
5.4.1 Aboriginal Cultural Heritage Sites.....	6-46
5.4.2 Historical Cultural Heritage Sites	6-47
5.4.2.1 Former Werris Creek Colliery Underground Workings.....	6-48
5.4.2.2 Former Werris Creek Colliery Above-Ground Ruins	6-48
5.4.2.3 Former Werris Creek Colliery Deputy Mine Manager's Residence	6-52
5.4.2.4 Former Werris Creek Colliery Coal Loading Ramp	6-52
6. CULTURAL HERITAGE VALUES	6-55
6.1 ABORIGINAL CULTURAL HERITAGE VALUES	6-55
6.1.1 Aboriginal Cultural Landscape.....	6-55
6.1.1.1 Summary of the Archaeological Record.....	6-55
6.1.1.2 Aboriginal Settlement Patterns.....	6-56
6.1.1.3 Aboriginal Subsistence Strategies	6-56
6.1.1.4 Synthesis	6-57
6.2 HISTORICAL CULTURAL HERITAGE VALUES.....	6-57
6.2.1 Historical Cultural Heritage Significance.....	6-57
6.2.1.1 Criterion (a) [Historical Significance]	6-57
6.2.1.2 Criterion (b) [Historical Association Significance].....	6-57
6.2.1.3 Criterion (c) [Aesthetic Significance]	6-58
6.2.1.4 Criterion (d) [Social Significance]	6-58
6.2.1.5 Criterion (e) [Research Potential].....	6-59
6.2.1.6 Criteria (f) and (g) [Rarity and Representativeness].....	6-59
7. POTENTIAL IMPACTS OF THE LOM PROJECT ON CULTURAL HERITAGE.....	6-59
7.1 POTENTIAL DIRECT IMPACTS	6-59
7.2 POTENTIAL INDIRECT IMPACTS.....	6-60
7.3 CULTURAL HERITAGE POTENTIALLY IMPACTED BY THE WERRIS CREEK COAL MINE LOM PROJECT	6-60
7.4 FLEXIBILITY OF THE WERRIS CREEK COAL MINE LOM PROJECT DESIGN	6-60

CONTENTS

	Page
8. MANAGEMENT STRATEGIES FOR CULTURAL HERITAGE	6-61
8.1 GENERAL RECOMMENDATIONS	6-61
8.1.1 Updated Archaeology and Cultural Heritage Management Plan.....	6-61
8.1.2 Role of the Local Aboriginal Community	6-61
8.2 MANAGEMENT OF CULTURAL HERITAGE WITHIN THE LOM PROJECT DISTURBANCE AREAS	6-61
8.3 SUMMARY RECOMMENDATIONS	6-62
9. REFERENCES	6-63
APPENDICES	
Appendix 1 Letters of Notification	6-69
Appendix 2 Public Notice.....	6-83
Appendix 3 Formal Responses from Aboriginal Stakeholders to Notification	6-87
Appendix 4 Proposed Methodology for Aboriginal Cultural Heritage Assessment.....	6-99
Appendix 5 Formal Responses from Aboriginal Stakeholders to Draft Methodology.....	6-105
Appendix 6 Formal Responses from Aboriginal Stakeholders to Draft Report	6-109
Appendix 7 Image documentation of the Old Colliery Deputy Mine Manager's Residence	6-113
FIGURES	
Figure 1 Werris Creek Coal Mine Local Setting	6-14
Figure 2 Project Site Layout.....	6-16
Figure 3 Southwestern slopes of "Old Colliery" Hill, proposed for extension of the Open cut Area	6-24
Figure 4 Existing gravel quarry on "Old Colliery" Hill.....	6-24
Figure 5 Northeastern slopes of "Old Colliery" Hill, proposed for Acoustic and Amenity Bund	6-25
Figure 6 Alluvial plain, proposed for Rail Turn-around Loop	6-25
Figure 7 Western foot-slopes of "Old Colliery" Hill, proposed for Site Administration Area.....	6-26
Figure 8 Alluvial plain, proposed for expansion to the Product Coal Storage Area.....	6-26
Figure 9 Previously identified Aboriginal cultural heritage site and previous archaeological survey coverage of the LOM Project Site.	6-33
Figure 10 Head of cable shaft at the Werris Creek Colliery in 1925 (Ware, 1976).....	6-35
Figure 11 The Colliery Shunter with three coal wagons on 3 August 1964 (NSW Rail Transport Museum, 1986).....	6-36
Figure 12 The Colliery Shunter crossing the Werris Creek Quirindi Road on 3 August 1964 (NSW Rail Transport Museum, 1986).....	6-37
Figure 13 Survey team members inspecting the proposed location of the Rail Turn-around Loop.....	6-42
Figure 14 Survey team members inspecting the proposed locations of the extended Open Cut.....	6-42
Figure 15 Archaeological survey coverage of the Project Site and locations of cultural and historical heritage sites	6-43
Figure 16 Moderate levels of ground surface visibility on the foot slopes of "Old Colliery" Hill	6-45
Figure 17 Moderate levels of ground surface visibility on the slopes of "Old Colliery" Hill	6-45
Figure 18 Coal scraper loader at the Werris Creek Colliery circa 1951 (Parry Shire Council, 1990)	6-49
Figure 19 Coal scraper loader circa 1951 with I.H. Thomas at right (Parry Shire Council, 1990)	6-49

CONTENTS

	Page
Figure 20 Concrete boiler chimneystack at the Werris Creek Colliery in <i>circa</i> 1970s (McEvilly <i>et al.</i> , 2004)	6-50
Figure 21 Boiler chimneystack in 2004 (ASR, 2004)	6-50
Figure 22 Concrete rubble and steel framework from the demolished boiler chimneystack.	6-51
Figure 23 Iron rail and timber sleeper from the Werris Creek Colliery light rail.	6-51
Figure 24 Former Deputy Mine Manager's Residence for the Werris Creek Colliery.....	6-53
Figure 25 Garden at the Former Deputy Mine Manager's Residence taken in the 1960s (photograph courtesy Elizabeth Thomas)	6-53
Figure 26 Dora (left) and Elizabeth Thomas at the Former Deputy Mine Manager's Residence in the early 1950s (photograph courtesy Elizabeth Thomas).....	6-54
Figure 27 Boot and hand impressions of Deputy Mine Manager's children in concrete slab floor	6-54
Figure 28 Werris Creek Colliery coal loading chute	6-55

TABLES

Table 1 Previously Identified Aboriginal cultural heritage site within the LOM Project Site.....	6-34
Table 2 Historical cultural heritage site near the LOM Project Site.....	6-39
Table 3 Visibility conditions at the Project Site	6-44
Table 4 Effective Coverage of the Project Site	6-46
Table 5 Summary data of historical cultural heritage sites in the LOM Project Site.....	6-47
Table 6 Assessment of significance of the historical cultural heritage sites.....	6-58

CONVERSIONS***Measures***

In this study imperial units for common measurements are used until 1970 when the present metric system was introduced.

1 foot	=	0.305 m
1 chain	=	20.11 m
1 mile	=	1.61 km
1 acre	=	0.405 ha
1 gallon	=	4.545 l
1 ton	=	1.016 t

Monetary Values

Before 1966, Australian currency was expressed in pounds, shillings and pence (£ s d). The following form is used: £2 13s 6d.

This page has intentionally been left blank

EXECUTIVE SUMMARY

Werris Creek Coal Pty Limited intends to extend life of its Werris Creek Coal Mine within Mining Lease (ML) 1563 and Exploration Licence Areas (ELA) 5993 and 7422. This would be achieved by extending mining operations to the north of the currently approved mine footprint to the extent of the “life of mine” resource in the area (hereafter, the *Life of Mine (LOM) Project*). The LOM Project Site is located to the south of Werris Creek with the open cut mine to extend to within approximately 2.6 km south of Werris Creek. The LOM Project Site is located approximately 11 km north-northwest of Quirindi in central northern New South Wales.

The Werris Creek Coal Mine was originally granted development consent on 18 February 2005 (DA 172-7-2004) and the mining lease (ML1563) was approved on 23 March 2005. On 6 October 2009, the Minister for Planning issued the most recent of five modifications to the development consent, enabling a small extension to the open cut operations.

The potential impacts on Aboriginal and historical cultural heritage associated with the development of the original and most recent extension to the Werris Creek Coal Mine were assessed in the *Environmental Impact Statement (EIS) for the Proposed Werris Creek Coal Mine* and *Statement of Environmental Effects (SEE) for the Proposed Modification to the Werris Creek Coal Mine*, which included cultural heritage assessments prepared by Archaeological Surveys and Reports Pty Limited (ASR) (2004, 2009a, 2009b).

Improved market conditions since the original Werris Creek Coal Mine was approved have made mining of higher strip ratio coal economically viable. As a result, Werris Creek Coal Pty Limited is seeking project approval to extend the approved open cut boundary approximately 1500 m further north within and beyond ML1563. The additional land disturbance associated with the open cut extension would be approximately 141 ha. An increase to the area of Out-of-Pit Overburden Emplacement, construction of a Northern Site Access Road, Rail Turn-around Loop, ROM Coal Conveyor and an Acoustic and Visual Amenity Bund Wall, relocation of the Site Administration and Facilities Area, Coal Processing Area, Precursor Storage Area and Explosives Magazine and enlargement of the Product Coal Storage Area also form part of the LOM Project.

The Proponent, Werris Creek Coal Pty Limited, commissioned Landscape to undertake a cultural heritage assessment of the LOM Project. This report presents an assessment of the cultural heritage related issues for the LOM Project in accordance with the general requirements of the NSW Department of Environment, Climate Change and Water's (DECCW's) *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* and is consistent with the NSW Heritage Office's *NSW Heritage Manual and Assessing Heritage Significance*.

The specific objectives of the cultural heritage assessment were to:

- consult the local Aboriginal community to identify any concerns they may have (consultation with the Aboriginal community followed NSW Department of Environment, Climate Change and Water's [DECCW] *Draft Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation* [DEC, 2005] and considered the *Interim Community Consultation Requirements for Applicants* [DEC, 2004], *Draft Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* [DECC, 2009] and *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* [DECCW, 2010]);

- conduct a desktop assessment to delineate areas of known and predicted cultural heritage within the LOM Project Site;
- undertake a stratified archaeological survey of known and predicted cultural heritage identified in the desktop assessment with representatives of the local Aboriginal community;
- record any cultural heritage sites within the Project Site and assess their significance;
- identify the nature and extent of potential impacts of the LOM Project on cultural heritage; and
- devise options in consultation with the community to avoid or mitigate potential impacts of the development on cultural heritage places and items.

One Aboriginal cultural heritage site (the Narrawolga Axe-Grinding Grooves; AHIMS site number 29-2-0005) has previously been identified and re-located from the currently approved mining area (in 2008). The present survey did not encounter any additional items or places of Aboriginal cultural heritage significance in the Project Site.

Historical cultural heritage sites associated with the former Werris Creek Colliery underground coal mine, dating to the 1920s to 1960s, within the Project Site include the former Werris Creek Colliery Underground Workings, Above-ground Ruins, Deputy Mine Manager's Residence and Coal Loading Ramp. These historical features are all located within the disturbance footprint of the LOM Project. They are not of high historical significance, even at a local level, and additional historical heritage assessment or preservation of the sites is not warranted.

The survey shows that, whilst the LOM Project may potentially impact upon cultural heritage sites, the nature of the potential impacts remain largely unchanged from those identified in the EIS and SEE and the general mitigation measures proposed in the EIS and SEE can be implemented to minimise these potential impacts.

Based on the results of this cultural heritage investigation and consultation with representatives of the local Aboriginal community the following recommendations are made.

- The LOM Project progress without additional historical heritage assessment or preservation of historical cultural heritage sites associated with the former Werris Creek Colliery, which are not of high historical significance.
- The Narrawolga Axe-Grinding Grooves (AHIMS site number 29-2-0005) be re-instated to a position as close as is possible to their original location following restoration and rehabilitation of the final landform.
- Werris Creek Coal Pty Limited should continue to involve the registered Aboriginal stakeholders and any other relevant Aboriginal community groups or members in matters pertaining to possible cultural heritage issues associated with the LOM Project.
- The general mitigation strategies detailed in the *Archaeology and Cultural Heritage Management Plan* should continue to be implemented. The Archaeology and Cultural Heritage Management Plan should be updated to reflect the proposed management of the historical cultural heritage sites within the Project Site. The updated Archaeology and Cultural Heritage Management Plan should remain active for the life of the Werris Creek Coal Mine.

- In the unlikely event that human skeletal remains are encountered during the course of the development associated with the LOM Project, all work in that area must cease. Remains must not be handled or otherwise disturbed except to prevent further disturbance. If the remains are thought to be less than 100 years old the Police or the State Coroner's Office (tel: 02 9552 4066) must be notified. If there is reason to suspect that the skeletal remains are more than 100 years old and Aboriginal, the Proponent should contact DECCW's Environmental Line (tel: 131 555) for advice. In the unlikely event that an Aboriginal burial is encountered, strategies for its management would need to be devised with the involvement of the local Aboriginal community.

This page has intentionally been left blank

1. INTRODUCTION

Werris Creek Coal Pty Limited intends to extend the life of its Werris Creek Coal Mine by up to 20 years to recover the remaining *in situ* coal resource of the Werris Creek coal deposit, located within Mining Lease 1563 and Exploration Licence Areas 5993 and 7422 (hereafter, the *Life of Mine [LOM] Project*). The combined area of the existing Werris Creek Coal Mine and proposed open cut extension (and associated additional infrastructure) is referred to hereafter as the *Project Site*. At its closest point the proposed open cut extension would be approximately 2.6 km south of Werris Creek and 11 km north-northwest of Quirindi in central northern New South Wales (**Figure 1**).

The Proponent, Werris Creek Coal Pty Limited, has commissioned Landskape to undertake a cultural heritage assessment of the Project Site. Dr Matt Cupper, a qualified archaeologist and geoscientist with eleven years experience as a cultural heritage advisor, was Project Archaeologist.

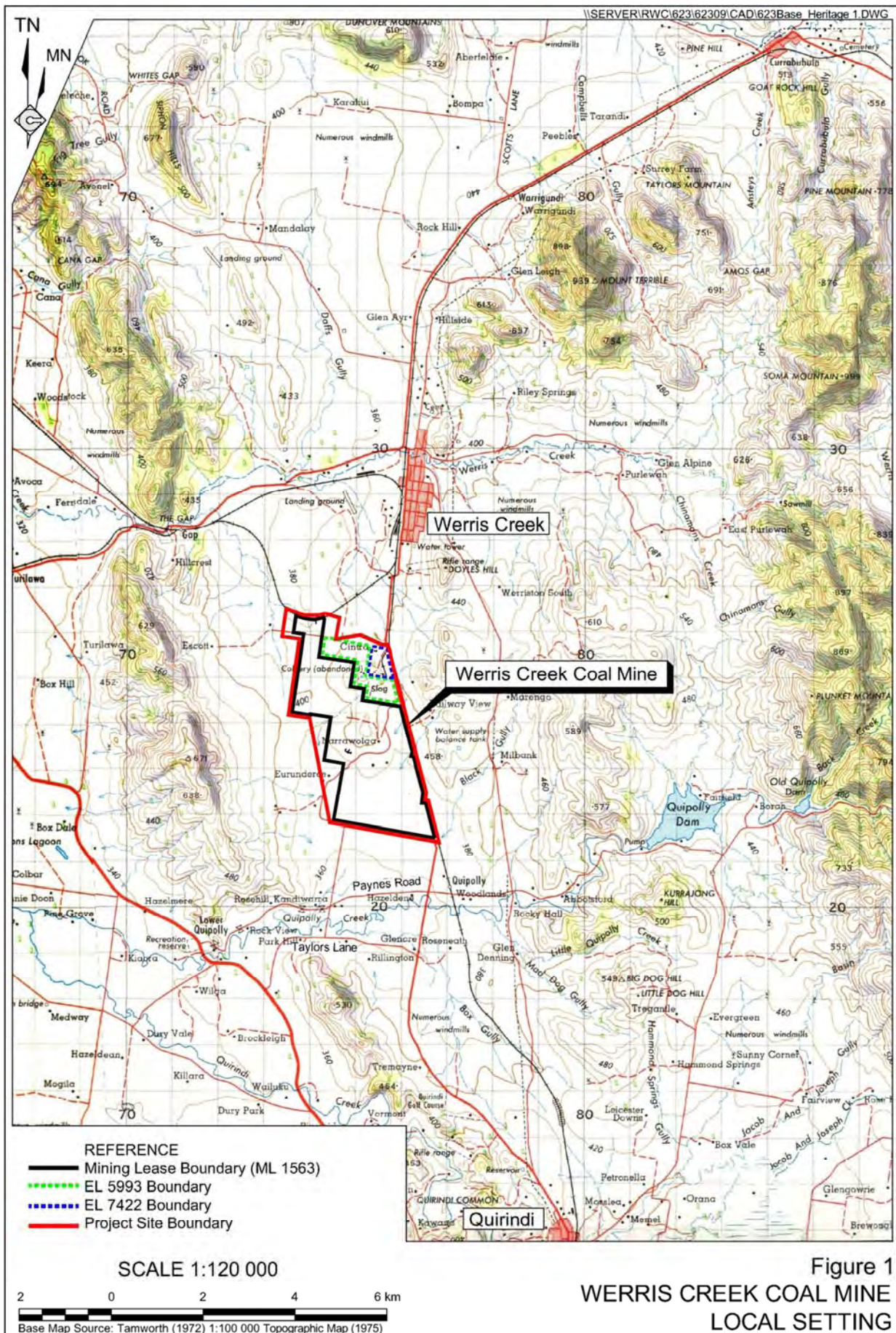
This report presents an assessment of the cultural heritage related issues for the LOM Project in accordance with the general requirements of the NSW Department of Environment, Climate Change and Water's (DECCW) *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (NSW Department of Environment and Conservation [DEC], 2005) and is consistent with the NSW Heritage Branch's *NSW Heritage Manual* (NSW Heritage Office, 1996) and *Assessing Heritage Significance* (NSW Heritage Office, 2001).

1.1 PROJECT DESCRIPTION

1.1.1 Objectives

The Proponent's objectives for the LOM Project are to:

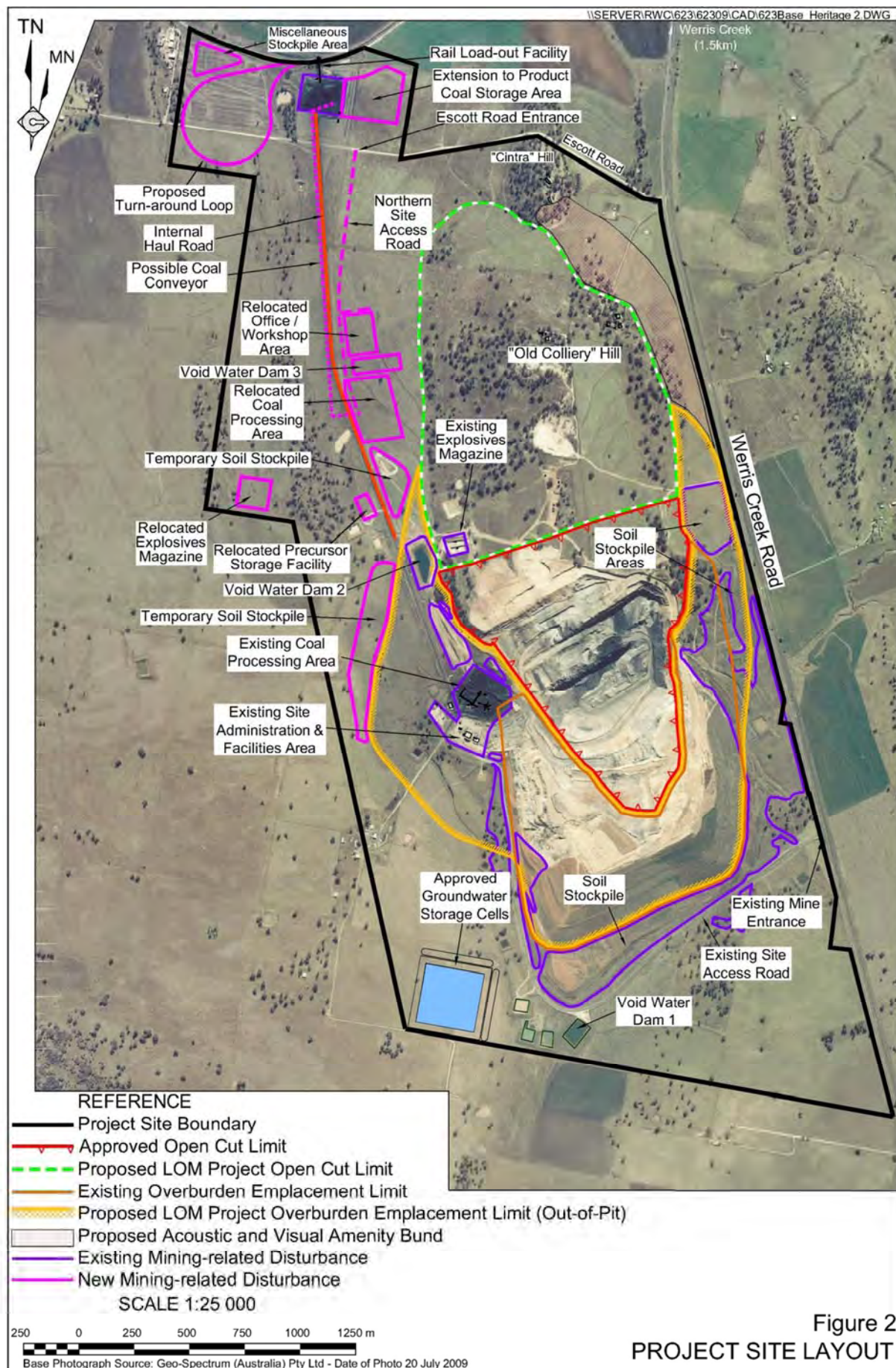
- i) maximise resource recovery and efficiency of mining operations, through the extension of the open cut area in order to recover all available coal resources of the Werris Creek coal measures;
- ii) maintain the stimulus to the local economies of Werris Creek, Quirindi and their surrounding districts through employment opportunities and the supply of services required for the operation of the coalmine;
- iii) create a final landform that is safe, stable and is amenable to a combination of agricultural and native flora/fauna conservation activities;
- iv) modify the existing Biodiversity Offset Strategy for the Werris Creek Coal Mine to compensate for additional disturbance to ecological communities resulting from the LOM Project;
- v) undertake all activities in an environmentally responsible manner, employing a level of control and safeguards that would ensure compliance with appropriate criteria/goals or reasonable community expectations at all times; and
- vi) achieve the above objectives in a cost-effective manner and thereby ensure the ongoing viability of the Werris Creek Coal Mine.



1.1.2 Overview of the LOM Project

The LOM Project would provide for a northerly extension of the Werris Creek Coal Mine, increasing the projected mine life by 20 years, and involve the following activities (the locations of which are shown on **Figure 2**).

- Northerly extension of the approved open cut. The proposed extent of the open cut represents mining of the entire Werris Creek outlier deposit of the Greta Coal Measures.
- Extension of the out-of-pit overburden emplacement. The additional volume of overburden removed from the open cut would be placed over the current footprint of the Coal Processing Area and Site Administration and Facilities Area (out-of-pit overburden emplacement) and extend north over the completed sections of the open cut (In-Pit Emplacement). In order to attenuate noise impacts and screen the operation visually from Werris Creek, the out-of-pit overburden emplacement would extend around the eastern and northeastern perimeter of the open cut. This extension of the out-of-pit overburden emplacement is referred to throughout as the Acoustic and Visual Amenity Bund.
- Relocation of coal processing infrastructure (Coal Processing Area). The primary reason for relocating the Coal Processing Area would be to minimise the haul distance between the open cut and the coal-processing infrastructure. A relocation of the Coal Processing Area would also be required to allow for a westerly extension of the out-of-pit overburden emplacement (to increase storage capacity). The relocated Coal Processing Area would have an increased ROM coal stockpile (ROM Coal Pad) capacity of 200,000 t.
- Increase in coal production up to 2.5 Mtpa of thermal and Pulverised Coal Injection (PCI) coal for the domestic and international markets. To improve operational flexibility, an increase in the approved hours of operation to 24 hours, 7 day per week is also sort.
- An increase in the road transport of coal to domestic markets to 100,000tpa (from 50,000tpa) to meet the needs of local customers for low ash coal.
- Increased storage capacity of the Product Coal Stockpile Area. By extending the pad to the east, the capacity of this stockpile area would be increased to approximately 250,000 t.
- Relocation of the administration and workshop areas (Site Administration and Facilities Area). These would be relocated to enable the capacity of the western out of pit overburden emplacement to be increased.
- Construction of a new entrance to the Project Site off Escott Road. The new "Escott Road Entrance" would provide for more direct access to the relocated coal processing infrastructure, offices and facilities. The use of Escott Road as the primary access point to the Project Site would require the existing Escott Road and the intersection with Werris Creek Road to be upgraded.



- Construction of a second feed point to the Rail Load-out Facility to allow for product separation and reduced inter-product contamination.
- Construction of a Rail Turn-around Loop, which would take off from the Werris Creek Rail Siding to the immediate west of the Rail Load-out Facility.
- Construction of a conveyor to transport coal from the Coal Processing Area to the Product Coal Stockpile Area. This activity would be subject to a further economic feasibility study following approval of the LOM Project.
- Continued dewatering the underground workings of the former Werris Creek Colliery (approved under DA 172-7-2004) to enable open cut mining through part of these workings.
- Construction of a new Void Water Dam for the storage of water which accumulates in the open cut.

While the rehabilitation objectives and methods would remain consistent within those currently implemented at the Werris Creek Coal Mine, the proposed sequence of rehabilitation, and designated land use on the final landform would be modified slightly from that approved by DA 172-7-2004. In addition, the proposed extension of the open cut area and out-of-pit overburden emplacement would increase the area of native vegetation to be cleared. In order to offset this clearing, a modified biodiversity offset strategy has been proposed.

1.2 CULTURAL HERITAGE LEGISLATIVE CONTEXT

Approval for the LOM Project is being sought under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This Act recognizes the need to protect the cultural and natural heritage of NSW and provides for planning before development to determine the likely impact of an activity on the environment. Part 3A of the EP&A Act provides an approval process that is particularly adapted for major projects.

Approvals and legislation that do not apply to Approved Part 3A Projects:

Section 75U of the EP&A Act outlines the authorisations that do not apply to approved Part 3A projects, including those relevant to cultural heritage, viz.:

- division 8 of Part 6, Part 4 and section 139 of the *Heritage Act 1977*; and,
- sections 87 and 90 of the *National Parks and Wildlife Act 1974*.

1.3 OBJECTIVES OF STUDY

The specific objectives of the cultural heritage assessment were to:

- consult the local Aboriginal community to ensure all survey and assessment was undertaken to the satisfaction at the local community and to identify any concerns they may have (consultation with the Aboriginal community followed NSW Department of Environment, Climate Change and Water's [DECCW] *Draft Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation* [DEC, 2005] and considered the *Interim Community Consultation Requirements for Applicants* [DEC, 2004], *Draft Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* [DECC, 2009] and *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* [DECCW, 2010]);

- conduct a desktop assessment to delineate areas of known and predicted cultural heritage within the Project Site;
- undertake a stratified archaeological survey of known and predicted cultural heritage identified in the desktop assessment with representatives of the local Aboriginal community;
- record any cultural heritage sites within the Project Site and assess their significance;
- identify the nature and extent of potential impacts of the LOM Project on cultural heritage; and,
- devise options, in consultation with the community, to avoid or mitigate potential impacts of the development on cultural heritage places and items.

Preparation of this report involved collation of relevant archival, archaeological, historical and environmental information and the use of aerial photographs and topographic and geomorphic maps to identify areas likely to contain cultural heritage sites. Archaeological field investigation of the Project Site was undertaken from 9 to 10 June 2010 by Project Archaeologist Matt Cupper with the assistance of the following Aboriginal community representatives: Gordon Nean (Nungaroo Local Aboriginal Land Council [LALC]), Neville Sampson (Tamworth LALC) and Heather Porter and Victor Porter (Gomeri Tribal Nation Secretariat).

2. ABORIGINAL SOCIAL AND CULTURAL INFORMATION

2.1 INTRODUCTION

In accordance with the DECCW's *Draft Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC, 2005) and in consideration of the *Interim Community Consultation Requirements for Applicants* (DEC, 2004), *Draft Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* (DECC, 2009) and *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* (DECCW, 2010)¹, this assessment has involved the appropriate representatives of the local Aboriginal community and considered their cultural values and concerns. The following sections describe involvement by the Aboriginal community and demonstrate that the input of the affected Aboriginal community has been considered when determining and assessing impacts, developing options, and making final recommendations relevant to Aboriginal cultural heritage outcomes of the LOM Project.

2.2 ABORIGINAL COMMUNITY PARTICIPATION

Aboriginal community consultation for the Aboriginal cultural heritage assessment was conducted:

- before the field assessment to assess preliminary community views and organise a field survey team;

¹ The *Interim Community Consultation Requirements for Applicants* (DEC, 2004) were replaced by the *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* (DECCW, 2010) on 12 April 2010, after the Aboriginal community consultation process for the LOM Project was initiated on 11 March 2010.

- during the field survey with the Aboriginal team members; and,
- after the field survey to discuss the findings and recommendations for Aboriginal cultural heritage management.

2.2.1 Identification of Aboriginal Community Groups and Individuals

Relevant stakeholders from the Aboriginal community were identified using a process consistent with the *Interim Community Consultation Requirements for Applicants* (DEC, 2004) and also considering the *Draft Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* (DECC, 2009) and *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* (DECCW, 2010), as follows.

- Written letters of notification were sent to the Nungaroo LALC, Registrar of the NSW *Aboriginal Land Rights Act* 1983, NTS Corp Limited, DECCW, National Native Title Tribunal, Namoi Catchment Management Authority and Liverpool Plains Shire Council (11 March 2010) requesting advice as to local Aboriginal stakeholders (**Appendix 1**).
- Public advertisements were placed in local/regional newsprint media including the *Namoi Valley Independent* and *Northern Daily Leader* (15 March 2010) inviting interested persons/parties to register an interest in the LOM Project (**Appendix 2**).
- Previous involvement in assessments of cultural heritage significance for the Werris Creek Coal Mine (e.g. ASR, 2004; 2008) was considered.

There were nine responses to the written letters of notification and public notices (**Appendix 3**), as follows.

- Corie Taylor registering his interest in the LOM Project by telephone on 15 March 2010.
- Lisa Shipley registering her interest in the LOM Project by e-mail on 19 March 2010.
- Tamworth LALC registering their interest in the LOM Project by e-mail on 22 March 2010.
- Gomeroi Tribal Nation Secretariat registering their interest in the LOM Project by e-mail on 25 March 2010.
- Nungaroo LALC registering their interest in the LOM Project by telephone on 27 May 2010.
- NTS Corp Limited advising that the Gomeroi Tribal Nation Secretariat were appropriate Aboriginal stakeholders to be involved in the LOM Project by e-mail on 25 March 2010.
- Office of the Registrar of the NSW *Aboriginal Land Rights Act* 1983 stating that the development area does not appear to have Registered Aboriginal Owners by letter dated 22 March 2010.
- National Native Title Tribunal stating that the development area does not have native title holders or applicants by letter dated 15 March 2010.
- Liverpool Plains Shire Council advising that the Quirindi Aboriginal Corporation, Walhallow Aboriginal Corporation and Nungaroo LALC were Aboriginal organizations in the Liverpool Plains Shire by letter on 12 March 2010.

The location of the Werris Creek Coal Mine and the nature of the works associated with the LOM Project were explained to the registered Aboriginal stakeholders. Requirements for a cultural heritage assessment were discussed and the registered Aboriginal stakeholders were presented with a proposed methodology for the cultural and archaeological assessment. Input from the registered Aboriginal stakeholders about this study programme for assessing potential impacts on cultural heritage places and items was sought. Representatives of the registered Aboriginal stakeholders participated in the social and cultural study and archaeological field survey and contributed to devising management protocols to avoid or mitigate disturbance to cultural heritage sites.

2.2.2 Preliminary Aboriginal Involvement

Werris Creek Coal Pty Limited has engaged in regular liaison with members of the local Aboriginal community. This was initiated from a whole-of-Project perspective by Werris Creek Coal Pty Limited in 2004 and has been on-going since that time. This has included then Project Archaeologist John Appleton (of ASR) completing an archaeological assessment of the original layout of the Werris Creek Coal Mine with representatives of Nungaroo LALC Shane Allen and Peter Allen in 2004 (ASR, 2004). Representatives of Nungaroo LALC have been involved in an on-going process of monitoring mining activities at the Werris Creek Coal Mine since 2005, including re-location of the Aboriginal cultural heritage site 29-2-0005 (Narrawolga Axe-Grinding Grooves) (ASR, 2008).

2.2.3 Aboriginal Involvement Prior to the Field Assessment

Prior to the field assessment, Project Archaeologist Matt Cupper and Werris Creek Coal Pty Limited Environmental Officer Andrew Wright held telephone discussions with Shane Allen (CEO, Nungaroo LALC), Gordon Nean (Heritage Officer, Nungaroo LALC), Fiona Snape (CEO, Tamworth LALC), Neville Sampson (Heritage Officer, Tamworth LALC), Tori Edwards (Coordinator, Gomeroi Tribal Nation Secretariat), Victor Porter (Representative, Gomeroi Tribal Nation Secretariat), Corie Taylor and Lisa Shipley to explain the proposed works associated with the LOM Project and the planned cultural heritage assessment.

Measures to avoid or mitigate any impacts on cultural heritage places or items were discussed with the registered Aboriginal stakeholders. They were presented with written copies of a proposed methodology for the cultural and archaeological assessment (**Appendix 4**). Opinions of the registered Aboriginal stakeholders about the LOM Project and its potential impacts on cultural heritage were sought and any concerns or queries were addressed (**Appendix 5**).

The registered Aboriginal stakeholders were presented with information regarding the LOM Project. The purpose of the presentation was to provide a detailed presentation of the LOM Project to assist the registered Aboriginal parties to provide relevant information about the cultural significance of Aboriginal cultural heritage items and/or places and the potential for impacts from the project.

2.2.4 Aboriginal Involvement during the Field Assessment

On the recommendation of the registered Aboriginal stakeholders, the following four representatives from the registered Aboriginal stakeholders participated in the field survey conducted from 9 to 10 June 2010:

- Gordon Nean (Heritage Officer, Nungaroo LALC);

- Neville Sampson (Heritage Officer, Tamworth LALC);
- Victor Porter (Representative, Gomeroi Tribal Nation Secretariat); and,
- Heather Porter (Representative, Gomeroi Tribal Nation Secretariat).

Discussions were held with the representatives of the Aboriginal stakeholders to ascertain their views about the LOM Project and its potential impact on Aboriginal cultural heritage items, places and values.

2.2.5 Aboriginal Involvement Following the Field Assessment

Draft copies of this cultural heritage assessment report were provided for comment to Nungaroo LALC, Tamworth LALC, Gomeroi Tribal Nation Secretariat, Corie Taylor and Lisa Shipley on 13 July 2010, consistent with the *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents* (DECCW, 2010). There were three responses to the draft report. Nungaroo LALC and Tamworth LALC advised (by telephone on 31 August 2010 and 13 August 2010, respectively) that they required no changes to the draft report. Gomeroi Tribal Nation Secretariat also required no changes to the draft report, recommending (in writing on 29 July 2010) that Aboriginal traditional owners should continue to be involved in the LOM Project (**Appendix 6**).

2.3 ABORIGINAL SOCIAL AND CULTURAL INFORMATION ABOUT THE LOM PROJECT SITE

Aboriginal people of the North West Slopes are concerned about any development that might impact upon Aboriginal heritage and other values on land that is traditionally theirs. All land has high cultural significance for individual Aboriginal people and for the Aboriginal community collectively. It should also be noted that any development upon, or disturbance of land is contrary to principal Aboriginal beliefs regarding land, its values and its inherent cultural significance.

Several of the Aboriginal community representatives had previously visited the Project Site. Peter Allen and Shane Allen, representatives of the Nungaroo LALC, had participated in the original archaeological assessment of the Werris Creek Coal Mine (ASR, 2004). Neville Sampson, representative of the Tamworth LALC had previously visited “Cintra” Hill (see **Figure 1**) at the northern end of the Project Site. Victor Porter, representative of the Gomeroi Nation Tribal Secretariat, had previously worked on the “Narrawolga” property, which had encompassed the southern area of the Project Site when it had operated as a sheep station.

Heather Porter, representative of the Gomeroi Nation Tribal Secretariat, identified the Project Site as a place that Aboriginal people had occupied in the past. Physical evidence of this past land use was provided by axe-grinding grooves (AHIMS site number 29-2-0005) in a sandstone outcrop towards the southeastern corner of the Project Site. These were re-located from the original disturbance area of the Werris Creek Coal Mine in 2008 and are currently being stored on an adjacent property to the Project Site. The Aboriginal community representatives inspected the axe-grinding grooves during the current study and concurred that they be re-instated to a position as close as possible to their original location following restoration and rehabilitation of the Final Landform.

Neville Sampson, representative of the Tamworth LALC, identified Kurrajong (*Brachychiton populneus*) trees within the Project Site as resource plants that past Aboriginal people could have exploited, but did not object to these trees being removed during development of the LOM Project.

3. LANDSCAPE CONTEXT

3.1 INTRODUCTION

The Project Site is located in a gently undulating terrain between the lowlands of the Liverpool Plains and uplands of the Liverpool Range in the North West Slopes region of central northern NSW (**Figure 1**). The climate is dry subhumid, receiving approximately 675 mm of rainfall per annum (Bureau of Meteorology, 2010).

Geologically, the Project Site is located in the Werrie Basin, which is constrained in the west by the Mooki Thrust and Early Carboniferous (355-320 million year old) Currabubula Formation conglomerates and tuffaceous limestones to the east (Pratt, 1996; Department of Mineral Resources [DMR], 2002). A shallow sea occupied the basin during the Late Carboniferous and Early Permian geological epochs (320 to 280 million years ago). It subsequently filled with sediments from rivers, lakes and extensive peat swamps. The Greta Coal Measures targeted by the Werris Creek Coal Mine comprise pebble and granular conglomerates, sandstones, mudstones and coal, which had their genesis in a fluvial to deltaic environment (Carey, 1937; Pratt, 1996; DMR, 2002).

3.2 LANDFORMS AND VEGETATION

The Project Site comprises low hills and ridges of Early Permian sedimentary and volcanic bedrock, which gently slope down to Quaternary (less than a few million years old) alluvial plains in the north and south. Elevations range from 445 m AHD on the summit of “Old Colliery” Hill (see **Figure 2**) down to 380 m AHD at the Rail Load-out Facility. The summits of the two major hills are conglomerates and sandstones of the Willow Tree Formation (analogous to the Greta Coal Measures; Pratt, 1996; DMR, 2002). The lower slopes have weathered to colluvium and low-lying areas are alluvial channel and overbank deposits of silty clay. The soils of the hills, ridges and slopes are mostly sandy or stony, with tilted sandstone beds outcropping along the eastern and western flanks of “Old Colliery” Hill and remnant ridges of Werrie Basalt to the west. Soils on the alluvial terraces are silty clays.

Most of the Project Site has been previously cleared for pastoralism and agricultural cropping, with a vegetation cover of native and introduced pasture grasses. Box-Gum woodland (including White Box [*Eucalyptus albens*], Yellow Box [*E. melliodora*], Blakely’s Red Gum [*E. blakelyi*]) of varying condition remains on the summits and slopes of the hills and along the stony ridges. These areas also contain Tumbledown Red Gum (*E. dealbata*), White Cypress Pine (*Callitris glaucophylla*), Kurrajong, Brigalow (*Acacia harpophylla*) and Rough-barked Apple (*Angophora floribunda*).

Overall, the environment of the Project Site has been extensively modified by past European land use practices. The alluvial plains and hill slopes had been cleared for agricultural cropping and sheep and cattle grazing following European settlement in the second half of the nineteenth century. Even the crests of the hills and ridges, where the soils were too shallow to plough and crop, have been substantially impacted by sheep and cattle grazing. The greatest impact in these areas has been the extensive removal of the original vegetation, soil and subsoil stripping and substantial earthworks during the development of gravel quarries, the former Werris Creek Colliery and the existing Werris Creek Coal Mine.

3.3 SETTING OF THE PROJECT SITE

3.3.1 Setting of the Proposed LOM Project Open Cut Extension

The proposed extension to the open cut area would occupy 141 ha in the centre of the Project Site. This would mainly encompass the summit and slopes of “Old Colliery” Hill between 445 to 400 m AHD. The conglomeratic bedrock of this area has weathered to gravels and cobbles of siltstone with little soil cover. The summit of “Old Colliery” Hill supports Box Gum woodland with isolated stands of predominantly White Box with minor associations of White Cypress Pine, Kurrajong and Brigalow (**Figure 3**). The slopes have been cleared for agriculture, with terraces and earthen contour banks constructed. Large parts of this area have also been impacted by previous earthworks associated gravel quarrying, the former Werris Creek Colliery and the existing Werris Creek Coal Mine (**Figure 4**).

3.3.2 Setting of the Proposed LOM Project Out-of-Pit Overburden Emplacement

The proposed extension to the Out-of-Pit Overburden Emplacement would progressively follow the development of the open cut to the north and add an extra 49 ha to the currently approved overburden emplacement. The area to be impacted by the extension of the overburden emplacement comprises of colluvial foot-slopes of the hills. It has been previously cleared and is now heavily modified, occupied by existing mine infrastructure and an overburden emplacement.

3.3.3 Setting of the Proposed LOM Project Acoustic and Visual Amenity Bund Wall

The proposed Acoustic and Visual Amenity Bund Wall would encompass an area of 22 ha in the northwest of the Project Site. The area proposed to be impacted by the Acoustic and Visual Bund Wall comprises of colluvial foot-slope landforms of “Old Colliery” Hill and “Cintra” Hill. Vegetation in this area has largely been cleared for agriculture, with some remnant White Box trees at higher elevations (**Figure 5**).

3.3.4 Setting of the Proposed LOM Project Rail Turn-around Loop Area

The proposed Rail Turn-around Loop would be 1610 m long and located on the foot-slopes of the weathered basalt ridge to the northwest of ML1563. This area has been cleared for agricultural cropping (**Figure 6**).

3.3.5 Setting of the Proposed LOM Project Relocated and Expanded Infrastructure Areas

The relocated infrastructure areas (Site Administration and Facilities Area [2.6 ha], Coal Processing Area [5.7 ha], Precursor Storage Area [0.6 ha], Product Coal Storage Area [8.7 ha] and Explosives Magazine [1.0 ha]) would be constructed on colluvial foot-slopes to the west and northwest of ML1563. The original woodland in these areas has been previously cleared for agriculture (**Figures 7, 8**).



Figure 3 Southwestern slopes of “Old Colliery” Hill, proposed for extension of the Open cut Area



Figure 4 Existing gravel quarry on “Old Colliery” Hill



Figure 5 Northeastern slopes of “Old Colliery” Hill, proposed for Acoustic and Visual Amenity Bund



Figure 6 Alluvial plain, proposed for Rail Turn-around Loop



Figure 7 Western foot-slopes of “Old Colliery” Hill, proposed for Site Administration and Facilities Area



Figure 8 Alluvial plain, proposed for expansion to the Product Coal Storage Area

3.3.6 Setting of the Proposed LOM Project Northern Site Access Road

A proposed new 780m long access road for the movement of all mine-related traffic between Escott Road and the Coal Processing and Site Administration and Facilities Areas would be constructed on the cleared and cultivated areas to the northwest of ML1563.

3.3.7 Setting of the Proposed LOM Project Coal Conveyor

Following the establishment of the relocated Coal Processing Area, the Proponent may opt to construct a 1.6km long overland conveyor between the Coal Processing Area and Product Coal Stockpile Area. If constructed, the conveyor would be a freestanding structure above ground level on the cleared land to the northwest of ML1563.

4. CULTURAL HERITAGE CONTEXT

4.1 ABORIGINAL CULTURAL HERITAGE CONTEXT

4.1.1 Ethno-Historical Context

Aboriginal people of the Kamilaroi (or *Gamilaraay*) language group occupied the North West Slopes at the time of first contact with Europeans (Mitchell, 1839; Fison and Howitt, 1867; Parker, 1905; Tindale, 1974; Howitt, 1996). This language group comprised people who spoke the sub-dialects *Yuwaalaraay*, *Yuwaaliyaay* (Euahlayi), *Gamilaraay*, *Gawambaraay*, *Wirayaraay* (Wiriwiri) and *Walaraay* (Austin *et al.*, 1980; O'Rourke, 1995, 1997). These tribes shared similar language and kinship systems, notably the division of members into exogamous moieties (two-part social classification) known as *Gubadhin* (Kupathin) and *Dhilbay* (Dilbi) (Frazer, 1994; O'Rourke, 1997).

At the time of first contact with European observers the Kamilaroi were hunter-fisher-gatherers and appear to have had a semi-sedentary lifestyle. Surveyor-General of NSW, Major Thomas Livingstone Mitchell (1839) described the deserted bark shelters of a 'numerous encampment' of Aborigines beside a billabong of the Namoi River near present-day Boggabri some 100 km northwest of the Project Site. On the Gwydir River, 200 km northwest of the Project Site near where Moree is now located, he noted an abandoned village of circular huts with conical roofs made from reeds, grass and boughs. Similarly, colonial botanist Allan Cunningham recorded 14 huts with bark floors and conical roofs on Cocks Creek, approximately 80 km northwest of the Project Site (O'Rourke, 1997).

O'Rourke (1997) estimates that there were at least 60 Kamilaroi clans, with perhaps 160 adult men, women, adolescents and children in each, suggesting a total regional population in central northern NSW of around 10,000 people. Each clan probably resided most of the year at a small number of established, favourable locations within their estate.

The Kamilaroi caught fish including eels, freshwater crayfish, yabbies, tortoises and freshwater mussels in the rivers, creeks and wetlands in the region (Mitchell, 1839; Parker, 1905; O'Rourke, 1997). Watercraft were manufactured from large slabs of bark cut from river red gum trees. Fish were caught using fishing lines and nets made from reed fibre.

Nets were used to catch waterbirds, whose eggs were also collected. Some of the other animals that Aboriginal people of the North West Slopes hunted include kangaroos, wallabies, koalas, possums, emus, echidnas, lizards, snakes and frogs (Mitchell, 1839; Fison and Howitt, 1867; Parker, 1905; O'Rourke, 1997). Plant foods included grass seeds, wild orange, emu apple, melons, tubers, yams and roots (Mitchell, 1839; Parker, 1905; Gott, 1983; O'Rourke, 1997).

Aspects of the initial interaction between Europeans and the Kamilaroi led to violent conflict. Aborigines were shot, poisoned and displaced from their land by pastoral settlers and, in retaliation, cattle, sheep, stockmen and shepherds were speared. Historical sources record a rapid decline in Kamilaroi numbers, caused by dispossession of land and the consequent destruction of habitat and social networks (Mitchell, 1839; Parker, 1905; O'Rourke, 1997). Diseases including smallpox and malnutrition also took their toll (Mitchell, 1839; O'Rourke, 1997).

Within a decade of the first contact many of the Kamilaroi were living adjacent to pastoral homesteads, often working as shepherds or stockmen or engaged in other labouring activities (O'Rourke, 1997). Traditional social networks collapsed. The last Kamilaroi bora ceremony is recorded to have occurred in 1905 on the Namoi River at Wee Waa, approximately 180 km northwest of the Project Site (O'Rourke, 1997). Other social structures, such as marriage laws, were also abandoned.

In 1895 an Aboriginal ('mission') Reserve (AR 28828) was gazetted on a 150-acre allotment of land adjacent to the Mooki River at Caroona, approximately 20 km west of the Project Site. This was expanded to 230 acres in January 1899 (AR 30777). Aboriginal people lived in a number of cottages spread across the reserve and survived by growing crops and grazing dairy cattle and sheep for meat. The Caroona Aboriginal Reserve was revoked in 1962 but the residents were permitted to remain under permissive occupancy until 1973 when the land was transferred to the Aboriginal Lands Trust under the *Aboriginal Act* 1973.

Many of the contemporary Aboriginal people of the North West Slopes live in regional centres such as Tamworth, which has a population of around 3700 Aboriginal people, or some 7 % of the total population (Australian Bureau of Statistics, 2006).

4.1.2 Prehistoric Context

Accounts of Aboriginal land use of the North West Slopes during the nineteenth century provide an insight into possible settlement patterns in the prehistoric period. O'Rourke (1995; 1997), using these historical ethnographies, invoked a subsistence model for the region based on the relationship between occupation of the riverine corridors and drier 'backcountry'. Large populations of people congregated at the rivers during the drier months. In cooler or wetter months, mobile bands dispersed over the plains and adjacent foothills exploiting ephemeral resources (O'Rourke, 1997).

The material record of this occupation is preserved in the archaeological sites of the North West Slopes, most of which probably date to the period since the last Ice Age (after around 18,000 years ago) (Purcell, 2000; 2002). All that remains at many of these sites are flakes of stone debris from the making and resharpening of stone tools. These were made both at Aboriginal open habitation areas (campsites) or special activity areas such as axe-grinding groove sites.

As well as being the sites of manufacture and maintenance of stone implements, open habitation areas usually contain evidence of domestic and other activities such as cooking and food preparation. Campfires or oven hearths are common, marked by charcoal and heat retaining stones or hearthstones. Organic remains consist of marsupial, rodent, bird, lizard, snake and fish bones, eggshell and freshwater mussel shell. Modified trees show where bark may have been removed by Aboriginal people to manufacture canoes, shelters and dishes.

4.1.3 Types of Aboriginal Cultural Heritage Sites in the Region

Based on the results and analytical conclusions of previous archaeological surveys in similar landscape contexts on the North West Slopes, it is possible to predict the types and topographic contexts of Aboriginal cultural heritage sites in the Werris Creek area. The occurrence and survival of archaeological sites is, however, dependent on many factors including micro-topography and the degree of land surface disturbance.

The types of Aboriginal cultural heritage site previously recorded on the North West Slopes are described in Sections 4.1.3.1 to 4.1.3.11.

4.1.3.1 Stone Artefact Scatters

Scatters of stone artefacts exposed at the ground surface are one of the most commonly occurring types of archaeological site in the region. The remains of fire hearths may also be associated with the artefacts. In rare instances, sites that were used over a long period of time may accumulate sediments and become stratified. That is, there may be several layers of occupation buried one on top of another.

Stone artefact scatters are almost invariably located near permanent or semi-permanent water sources. Local topography is also important in that open campsites tend to occur on level, well-drained ground elevated above the local water source. On the North West Slopes they are commonly located on river terraces and along creek-lines and also around the margins of lakes and swamps.

4.1.3.2 Axe-grinding Grooves

These result from Aboriginal people having rubbed the edges of stone axe-heads repeatedly against a soft abrasive rock in order to shape or sharpen them. Grinding grooves are normally located adjacent to creeks where suitable stone for grinding may be present. In most instances, sandstone outcrops provided the most suitable surface for grinding.

4.1.3.3 Modified Trees

Slabs of bark were cut from trees by Aboriginal people and used for a variety of purposes including roofing shelters and constructing canoes, shields and containers. Scars also resulted from the cutting of toeholds for climbing trees to obtain honey or to capture animals such as possums. Some trees were carved, whereby Aboriginal people cut designs through the bark onto the wood beneath. Ethnohistoric records indicate that some carved trees were associated with burials whilst others may have been sacred or totemic sites.

On the North West Slopes, River Red Gums and Box are the most commonly scarred species. Carvings are often on Cypress Pine. The classification of scarred trees as natural, European or Aboriginal is often problematic. However, if the scar is Aboriginal the tree must now be more than ~150 years old.

4.1.3.4 Hearths

Hearths consist of lumps of burnt clay or stone cobble hearthstones. Sometimes ash and charcoal are preserved. Other materials found in hearths include animal bone, freshwater mussel shell, emu eggshell and stone artefacts. Hearths probably represent the remains of cooking ovens, similar to those described in ethnographic accounts by Major Thomas Mitchell (1839). These were lined with baked clay nodules and stone cobbles, possibly to retain heat. Hearths may be isolated or occur in clusters and may be associated with open campsites or middens. They are sometimes located on floodplain terraces of the North West Slopes.

4.1.3.5 Rockshelter Sites

Caves or shelters in cliff lines and beneath boulder overhangs were often used by Aboriginal people as campsites. Because of the confined area in these shelters and because of repeated Aboriginal occupation of such sites, the occupation deposits that they contain are often richer than open campsites and are usually stratified.

Rockshelters will only be found where suitable geological formations are present. They may occur as sandstone overhangs, shelters beneath granite tors or as limestone caves.

4.1.3.6 Rock Art Sites

Rock art consists of paintings, drawings and/or engravings on rock surfaces. In most instances in the wider region, rock art is related to the distribution of rockshelters but it may also be found on freestanding rocks.

4.1.3.7 Quarry Sites

These are locations where Aboriginal people obtained raw material for their stone tools or ochre for their art and decoration. Materials commonly used for making flaked stone tools include chert, silcrete, quartz and quartzite. These materials were obtained from exposed sedimentary formations or picked up as loose rock on the surface. Stone quarries may also be associated with volcanic rock outcrops, which provided the raw material for ground stone tools such as stone axes.

4.1.3.8 Freshwater Shell Middens

Shell middens are deposits of shell and other food remains accumulated by Aboriginal people as food refuse. In inland NSW these middens typically comprise shells of the freshwater lacustrine mussel *Velesunio ambiguus* or the freshwater riverine mussel *Alathyria jacksoni*. Freshwater middens are most frequently found as thin layers or small patches of shell and often contain stone or bone artefacts and evidence of cooking. Such sites are relatively common along the watercourses of the North West Slopes and their associated lakes and other wetlands.

4.1.3.9 Earth Mounds

Earth mounds may have been used by Aboriginal people as cooking ovens or as campsites. Originally they appear to have ranged from 3 to 35 m in diameter and from 0.5 to 2 m in height. Today, however, they may be difficult to recognize because of the effects of ploughing, grazing and burrowing rabbits. Earth oven material, stone artefacts, food refuse and the remains of hut foundations have been exposed in excavated earth mounds.

4.1.3.10 Stone Arrangements, Ceremonial Rings and Ceremony and Dreaming Sites

Stone arrangements range from cairns or piles of rock to more elaborate arrangements such as stone circles or standing slabs of rock held upright by stones around the base. Some stone arrangements were used in ceremonial activities whilst others may represent sacred or totemic sites. Other features associated with the spiritual aspects of Aboriginal life are those now called 'ceremony and dreaming' sites. These can be either stone arrangements or natural features such as rock outcrops, waterholes or mountains, which may be associated with initiation ceremonies or the activities of ancestral creators.

4.1.3.11 Burials

Aboriginal burial grounds may consist of a single interment or a suite of burials. In the drier parts of the Murray-Darling Basin skeletal material is regularly found eroding from sand deposits (Bonhomme 1990, Hope 1993) but in the higher North West Slopes burial sites are rarely found because conditions for the preservation of bone are poor. Knowledge of Aboriginal burial grounds is best sought from local Aboriginal communities.

4.1.4 Previous Aboriginal Cultural Heritage Investigations

An understanding of the Aboriginal archaeology of the North West Slopes has begun to emerge based on a number of previous studies, including some in and near the Project Site. Studies by Balme (1986) and Purcell (2000, 2002) are among the most wide-ranging and provide a summary of the regional archaeological record. In short, surface scatters of flaked stone artefacts are the most common site type. These stone assemblages are dominated by flakes and flaked pieces mostly struck from quartz, chert, silcrete, quartzite and fine-grained sedimentary rocks (Balme, 1986; Purcell, 2000, 2002). Eucalypt trees with scars possibly made by Aboriginal people are also well represented on the North West Slopes. Other site types include axe-head grinding grooves, stone quarries, earthen features including mounds and hearths, stone arrangements and ceremonial rings. The highest density of sites on the North West Slopes is along the Namoi, Mooki and Peel Rivers (Purcell, 2000, 2002). Purcell (2000, 2002) found that Aboriginal occupation of the North West Slopes was focussed within floodplain terrace landforms. Sites were an average distance of about 400 m from watercourses (Purcell, 2000, 2002).

The Werris Creek area has been the focus of a number of systematic archaeological studies in recent years. Of relevance to this study are those by archaeologists Jo McDonald (1998), Patrick Gaynor (2002), John Appleton (ASR, 2004) and archaeologists from environmental consultancy Umwelt (2010). These field studies document the distribution of Aboriginal archaeological sites on the alluvial plains and bedrock hills either side of the Mooki River and make predictions about site distribution based on observations of the landforms of the LOM Project Site.

McDonald (1998) archaeologically investigated the route of a proposed natural gas pipeline between Tamworth and Dubbo, which traversed an area of Werris Creek north of the LOM Project Site. She found that sites were generally associated with more permanent watercourses, including the Mooki River, with most sites within 50 m of a stream course (McDonald, 1998).

Gaynor (2002) completed an archaeological survey of the Doona State Forest and a travelling stock route near Caroona, approximately 20 km west of the LOM Project Site. He identified 21 modified trees and two sites with axe-grinding grooves (Gaynor, 2002).

Archaeologists from environmental consultancy Umwelt (2010) have conducted a number of cultural heritage assessments around Caroona for a proposed BHP Billiton coal mine. They identified three modified trees, two stone artefact scatters and four isolated finds of stone artefacts and twelve locations with axe-grinding grooves. Two of the scarred trees were on the floodplain of the Mooki River and the other was located near Quirindi Creek (Umwelt, 2010). The stone artefact scatters, comprising a small number (14 and 7) of artefacts, were also on the floodplain of the Mooki River, as were most of the isolated occurrences of stone artefacts. Artefacts are primarily flakes of a range of lithologies including chert and rhyolite. The axe-grinding grooves were on sandstone outcrops in the ranges of the Doona State Forest and Nicholas Ridge (Umwelt, 2010).

The most recent archaeological investigations pertinent to the LOM Project Site is Appleton's (ASR, 2004) assessment of the original layout for the Werris Creek Coal Mine. Appleton estimated that he archaeologically surveyed approximately 679 ha within ML1563, including most of the proposed disturbance areas of the Werris Creek Coal Mine proposal (ASR, 2004; **Figure 9**). He re-identified an axe-grinding groove site (Aboriginal Heritage Information Management System [AHIMS] site number 29-2-0005) south of "Old Colliery" Hill. This site, which had originally been recorded in 1964, comprised at least 25 axe-grinding grooves on a number of sandstone outcrops encompassing an area of approximately 90 m x 35 m.

Previously Recorded Aboriginal Cultural Heritage Sites in the LOM Project Site

According to the DECCW AHIMS site database, three Aboriginal archaeological sites have previously been recorded within approximately 5 km of the Project Site. These include stone artefact scatters at The Gap and Escott, respectively some 3 km northwest and 1.5 km west of the Project Site. The cultural heritage assessment for the EIS conducted by ASR (2004) also re-identified one site within ML1563. This was an axe-grinding groove site, AHIMS site number 29-2-0005 (Narrawolga Axe-Grinding Grooves) (**Table 1** and **Figure 9**). It comprised at least 25 grooves on several sandstone slabs and encompassed an area of approximately 90 m x 35 m south of "Old Colliery" Hill.

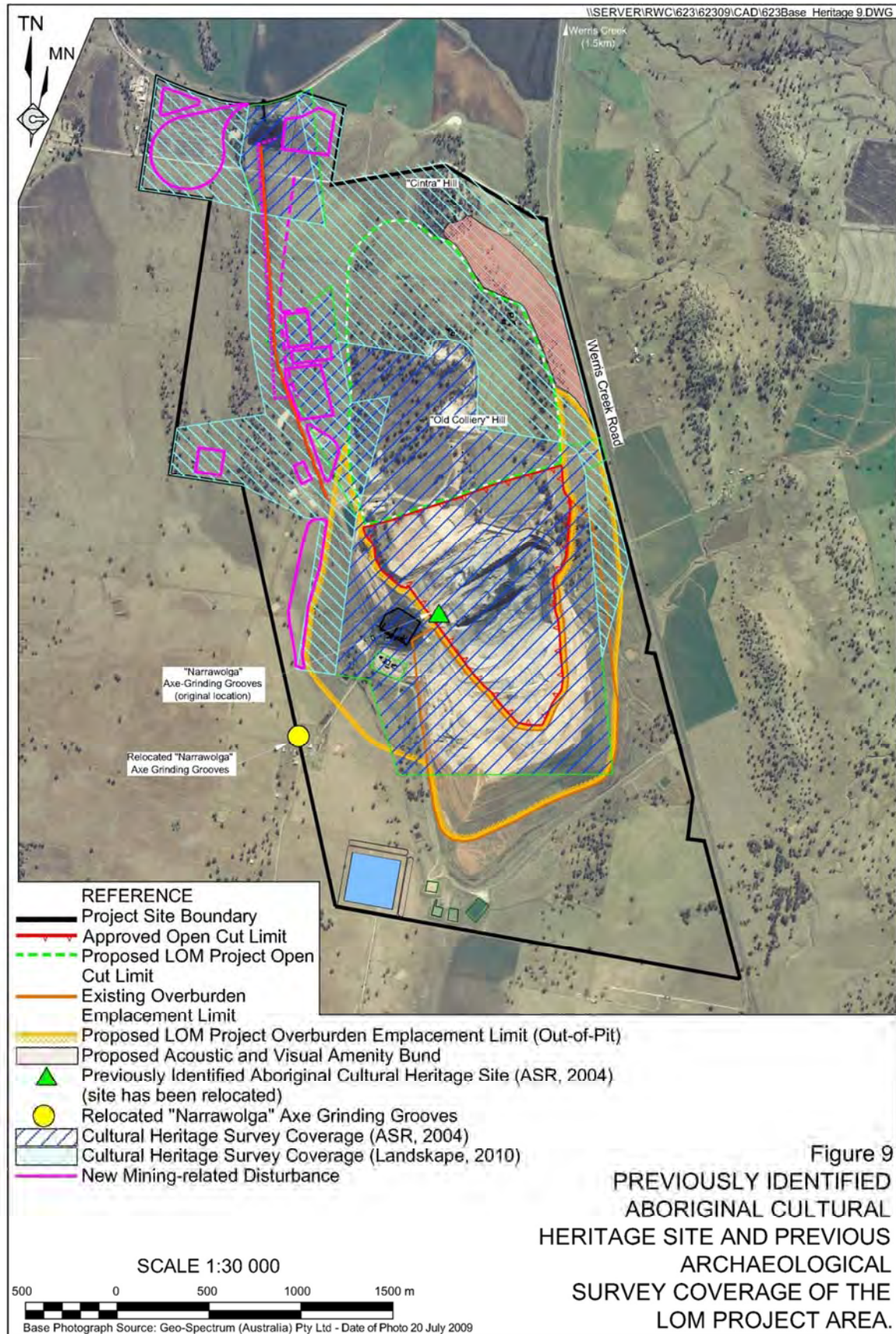


Figure 9
PREVIOUSLY IDENTIFIED
ABORIGINAL CULTURAL
HERITAGE SITE AND PREVIOUS
ARCHAEOLOGICAL
SURVEY COVERAGE OF THE
LOM PROJECT AREA.

An Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the *National Parks and Wildlife Act 1974* was issued to Werris Creek Coal Pty Limited to remove the axe-grinding groove site (AHIMS site number 29-2-0005) because it was within an area to be impacted by the currently approved open cut area (ASR, 2008). The sandstone surfaces bearing the axe-grinding grooves were re-located from the site under the supervision of archaeologist Appleton and representatives of the Nungaroo LALC. They are presently stored on an adjacent property and will be re-instated to a position as close as is possible to their original location following restoration and rehabilitation of the final landform.

Table 1
Previously Identified Aboriginal cultural heritage site within the LOM Project Site.

AHIMS Site Number	Name	Type	Location GDA94 mE (Zone 56)	Location GDA94 mN (Zone 56)
29-2-0005	Narrawolga Axe-Grinding Grooves	Axe-grinding grooves	275235	6523675

4.2 HISTORICAL CULTURAL HERITAGE CONTEXT

4.2.1 Historical Context

The first European to visit the North West Slopes was explorer and Surveyor-General of NSW Lieutenant John Joseph William Molesworth Oxley during his 1818 expedition of the Macquarie River (Durrant, 1994; Johnson, 2001). The Liverpool Range was the northern boundary of Governor Darling's designated Location, beyond which it was illegal to transgress. Colonial Botanist Allan Cunningham found a route over the Liverpool Range in 1823, with his Pandora's Pass allowing pastoralists to press beyond the Limits of Location and settle the Liverpool Plains (Mahaffey, 1980; 1982; Durrant, 1994).

By the late 1820s a number of cattlemen including Benjamin Singleton had established squatting runs on the North West Slopes (Mahaffey, 1980; 1982; Durrant, 1994). John Single and John McDonald drove sheep and cattle over the Liverpool Range in 1829, becoming the first settlers in the Weia Weia (Werris) Creek valley. McDonald took up the northern side of the creek, naming it Weia Weia (Werries) Creek Station, with Single's Summer Hill Station to the south encompassing the Project Site (Mahaffey, 1982). When Surveyor-General Major Thomas Livingstone Mitchell passed through the region in December 1831 he stayed at George and Andrew Loders' Cuerindi (Quirindi) station 20 km south of the Project Site (Mitchell, 1839; Mahaffey, 1980; 1982; Hobden, 1979; 1981; Durrant, 1994). Mitchell (1839) saw cattle north of Quirindi, presumably belonging to Single, and crossed Werris Creek at the place now occupied by Werris Creek township.

In 1836 Governor Bourke legalized squatting, allocating grazing rights for an annual £10 licence fee and Single was granted the Summer Hill depasturage lease in 1837 (Mahaffey, 1982). Single's pastoral run encompassing the Project Site was estimated to be 10,000 acres in size and to support 3000 cattle according to the Government Gazette of 1848 (NSW Government, 1848). Mitchell's (1839) route had been adopted as the preferred thoroughfare through the region and became known as the Great Northern Road. A permanent waterhole on Werris Creek was a popular roadside stop for pastoralists and others traversing the road, so that Single established an inn there (Ware, 1976; Mahaffey, 1982).

When the railway line from Sydney was constructed over the Liverpool Range in 1876, the Great Northern Road was selected for its route across the plains (Ware, 1976). The Great Northern Line was installed adjacent to the Project Site in 1877 when the railway was extended from Murrurundi to Tamworth. Werris Creek was chosen as the rail junction for the northwest and western branch lines (Ware, 1976). The town of Werris Creek was established at this time to accommodate the 500 rail workers constructing the line, the first settlement in NSW developed exclusively to service the railways (Ware, 1976).

The railway began operating in 1878 and Werris Creek's importance grew as junction changing point and maintenance centre (Ware, 1976). A substantial brick station was erected in 1880, which was enlarged in 1925. With the completion of the northwest and western lines, a large number of rail workers were housed in Werris Creek to staff and service the trains that regularly passed through the region and the town's population peaked at 2500 (Ware, 1976).

In 1924, Preston Iron Coal and Coke Mining Company Limited drilled for coal within Lot 115 Parish of Grenfell on the eastern slopes of "Old Colliery" Hill within the Project Site (Andrew and Currey, nd). Two coal seams were encountered and mining engineer and surveyor Henry Jenkin Thomas, part owner of Preston, was granted authority to sink four exploratory shafts on a 614-acre parcel in 1925. Tunnelling started later that year, the 28-31° inclining shaft striking coal within a few feet (Andrew and Currey, nd). On 5 November 1925, Tamworth's 'Northern Daily Leader' newspaper reported: *'In the mine one mile south of Werris Creek good coal has been passed through but not in sufficient quantities to be of commercial value. Prospecting is continuing by means of a tunnel'* (cited in Ware, 1976) (**Figure 10**).



Figure 10 Head of cable shaft at the Werris Creek Colliery in 1925 (Ware, 1976)

On 7 December 1925 Preston was granted a mining lease over an area of 108 acres and by the end of that year the tunnel had been extended to a depth of 180 feet, where the coal seam was 7 foot thick (Andrew and Currey, nd). On 5 February 1926, the 'Northern Daily Leader' (cited in Ware, 1976) noted: '*The shaft or drive is now down between 300-400 feet and they are in a good seam ten feet thick*'. Coal was extracted from the Tunnel (lower) Seam and the Black (upper) Seam (Pratt, 1996). The Department of Mines Annual Report for 1925 lists the colliery as working with two men underground (Andrew and Currey, nd). Operations were overseen by Deputy Mine Manager Thomas Pokoney (Ware, 1976; I.H. Thomas *pers. comm.*, 17 June 2010).

On 6 July 1926, the mining lease was expanded to 667 acres and by 1928 the Department of Mines Annual Report lists thirteen men working at the mine; six underground and seven on the surface (Andrew and Currey, nd). The coal had a high calorific value with low ash and was especially suited to powering locomotive engines (I.H. Thomas *pers. comm.*, 17 June 2010). The mine was also ideally situated near the rail hub of Werris Creek. Initially the mined coal was transported to Werris Creek using a 6-ton Garrett steam truck via the Werris Creek Quirindi Road, but in 1929 work began on a branch line from the colliery to the adjacent State railway (I.H. Thomas *pers. comm.*, 17 June 2010). The Werris Creek Colliery Rail Branch, spanning a distance of some 41 chains, came into operation on 15 November 1929 (Andrew and Currey, nd). Transporting coal by rail allowed production to increase to about 20,000 tons per annum.

Coal was extracted using the 'bord and pillar' method of mining (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010). In the late 1920s, '30s and early '40s, the coalface was blown using explosive charges inserted into hand-drilled holes. Miners would then use shovels to load the broken coal into wooden skips that held approximately 1 ton. Each miner typically loaded 40 tons of coal per shift. Horses would tow the skips along a light, narrow gauge rail to the base of the shaft, where they would be hauled to the surface in groups of six skips (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010).

The surface of the colliery comprised an elevated platform of rubble surrounding the shaft (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010). There was a single winch driven by a steam engine. The water tube boilers used to generate the steam were fired by coal from the mine. Each skip had to be weighed at the surface because the miners were engaged under contract (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010).

The skips were then allowed to run down a rail under gravity to a skip tumbler and screen. The small coal passed through the screen into a coal box elevated above the railway branch line, from where it could be dropped into rail wagons of 10-ton capacity. The large coal flowed over the screen and down a chute into rail wagons (Andrew and Currey, nd; J.M. Gatgens *pers. comm.* 10 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010).

The small coal was used by the Tamworth Electrical Power station and the large coal by the NSW Government Railway Department (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010). A locomotive known as the Colliery Shunter hauled the wagons (**Figures 11, 12**). Although it was capable of towing 30 wagons, such capacities were restricted by the short run-around and empty wagon loops at the colliery.



Figure 11 The Colliery Shunter with three coal wagons on 3 August 1964 (NSW Rail Transport Museum, 1986)



Figure 12 The Colliery Shunter crossing the Werris Creek Quirindi Road on 3 August 1964 (NSW Rail Transport Museum, 1986)

Mining operations were partly mechanized in 1949 when electric-driven scraper loaders were introduced underground to load skips (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010). Four replacement boilers were installed inside a new boiler house with a concrete chimney in the late 1940s (Parry Shire Council, 1990; J.M. Gatgens *pers. comm.* 10 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). The colliery was connected to the regional electricity grid, replacing the original steam-driven DC generator. Compressed air drills replaced the original hand-boring equipment.

The fortunes of the former Werris Creek Colliery were tied to the relative importance of the railways. Completion of the North Coast Railway Line in 1930 saw some of the inland rail traffic diverted. However, during World War II (1939-1945), military rail transport, for example to the Tamworth RAAF base, increased the demand for coal (D.J. Koops *pers. comm.*, 7 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). Similarly, an expansion of agricultural cropping in the area following the 1957 subdivision of Werris Creek pastoral station led to establishment of a wheat storage terminal at Werris Creek and the town became a major base for grain transportation. The colliery consistently produced over 20,000 tons of coal annually until the early 1950s (Andrew and Currey, nd).

The amount of rail maintenance and marshalling at Werris Creek declined over the second half of the twentieth century. However, it was the gradual replacement of steam locomotives by diesel-powered engines from the 1950s that sealed the fate of the former Werris Creek Colliery (Andrew and Currey, nd; Pratt, 1996). During the 1960s annual coal production at the mine dropped to about 11,000 tons (Andrew and Currey, nd). There were few steam locomotives operating in NSW by the late 1960s, although they were not entirely phased out until 1973. It was at this time that operations at the colliery were wound-up, with much of the mine infrastructure removed and sold for its scrap metal content (J.M. Gatgens *pers. comm.* 10 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). Andrew and Currey (nd) estimate that over 1 million tons of coal was recovered over the life of the former Werris Creek Colliery, with 330,000 tons mined between 1941 and 1963 (Pratt, 1996).

The coal resource was re-assessed in the early twenty-first century. An exploration licence covering an area of 531 ha was granted to Creek Resources Pty Limited in September 2002. Drilling commenced in 2003 and open cut mining was approved for the Werris Creek Coal Mine in February 2005. Werris Creek Coal Mine is mined using truck and excavator currently approved to produce up to 2.0 million tonnes per annum as raw coal for the export market. The coal is transported directly by rail from Werris Creek to the Port of Newcastle. Around 80 people are presently employed at the mine.

4.2.2 Previous Historical Cultural Heritage Investigations

There has been little historical archaeological investigation of the Werris Creek area. Halliday (2005) assessed the historical cultural heritage of the Liverpool Shire. During this survey he identified the boiler chimneystack of the former Werris Creek Colliery within the Project Site as being of high local significance. He recommended that it be added to the Liverpool Shire Heritage Inventory. Appleton (ASR, 2004) surveyed the area for the original layout of the Werris Creek Coal Mine. The only feature of possible historical interest he encountered was an abandoned coal loading chute and ramp associated with the former Werris Creek Colliery (ASR, 2004).

4.2.3 Types of Historical Cultural Heritage Sites in the Region

The types of historical heritage sites that occur on the North West Slopes are described in Sections 4.2.3.1 to 4.2.3.4.

4.2.3.1 Pastoral Sites

Historical heritage sites in the farming regions of the North West Slopes mostly relate to the arrival of European graziers and associated industries from the second half of the nineteenth century. Old homesteads and associated structures such as work sheds, shearing sheds and labourer's quarters are examples of historical heritage sites that may be encountered. Less conspicuous sites include survey markers, particularly those blazed on Eucalypt and Cypress Pine trees, which are also of historical interest.

4.2.3.2 Urban Sites

Towns on the North West Slopes contain historically significant commercial, public and residential buildings from the nineteenth and early twentieth centuries. Examples include municipal halls, churches, libraries, schools and courthouses. Parks, gardens and cemeteries including the monuments, grave markers and other structures they contain also have historical significance.

4.2.3.3 Industrial Sites

Historical industrial features are not abundant in the region, but include abandoned mining sites and sawmills. Such sites may contain old sheds and abandoned machinery including steam engines and boilers.

4.2.3.4 Transport Sites

Small bridges made from River Red Gum timber or stone cobbles may occur in the region. Railway sites comprise stations and sidings, rail track, stabling yards and water towers and hydrants. Historical mileage markers and navigation markers may also be encountered.

4.2.4 Historical Cultural Heritage Sites in the Project Site

The NSW State Heritage Inventory contains items listed by the Heritage Council under the Heritage Act. The Parry Local Environmental Plan (LEP) also lists historical heritage sites within the Parry Shire, precursor to the current Liverpool Plains Shire, the local government area in which the Project Site is located (Parry Shire, 1987).

The historical heritage site closest to the Project Site previously registered on the NSW Heritage database is Werris Creek Railway Station and Yard (State Heritage Register Database Number 5012287) (**Table 2**). This structure is located on the Great Northern Railway in Single Street, Werris Creek, approximately 3 km north of the Project Site (NSW Heritage Branch, 2010). The Werris Creek Railway Precinct is also listed on the Parry LEP (LEP Database Number 4806177).

Table 2
Historical cultural heritage site near the LOM Project Site

Heritage Inventory Number	Description	Location GDA94 mE (Zone 56)	Location GDA94 mN (Zone 56)	Distance from LOM Project Site
5012287	Werris Creek Railway Station and Yard	276113	6529220	3 km north

5. CULTURAL HERITAGE FIELD INVESTIGATION

In accordance with the *Standards for Archaeological Practice in Aboriginal Heritage Management* (NPWS, 1997) and the *NSW Heritage Manual* (NSW Heritage Office, 1996), an archaeological design and survey methodology was prepared as a key component of the cultural heritage field assessment. Details of the archaeological design and survey methodology are presented in the following sections.

5.1 CULTURAL HERITAGE SITE PREDICTIVE MODEL

Previous archaeological studies indicate that the most frequently recorded Aboriginal cultural heritage places on the North West Slopes are open occupation areas represented by scatters of stone artefacts and culturally modified trees (NSW AHIMS site database). Burials, earthen features including mounds and hearths and stone features including stone quarries, ceremonial rings, axe-grinding grooves, rockshelters and rock art sites are also represented in the archaeological record.

The potential for encountering Aboriginal cultural heritage in the Project Site is substantially mitigated by the high degree of previous disturbance. For example, the extent of tree clearance from past agricultural land use reduces the probability of encountering scarred and carved trees. Similarly, modification of the original land surface during past agricultural land use, quarrying and mining could have destroyed earthen features such as mounds and stone features such as arrangements and ceremonial rings, had they previously existed in this area. Stone artefacts, alternatively, are more likely to survive in the soil.

Based on past observations of archaeological site types and their distribution and landscape setting, the following predictive model of Aboriginal cultural heritage site locations for the activity can be proposed.

- **Trees scarred or carved by Aboriginal people** may occur wherever mature Eucalypt and Cypress Pine trees grow. However, given the extent of vegetation clearance the probability of encountering culturally modified trees is not particularly high.
- **Stone artefact scatters and isolated finds** of stone artefacts are possible over the entire Project Site, but their density is likely to be low. This is because stone artefact scatters are typically found on well-drained, level ground within 200 m of water sources, but creeks and wetlands are absent from the Project Site.
- **Burial sites** are unlikely, given that the region's acidic soils are not suited to preserving bone and other organic material.
- **Freshwater shell middens** will similarly not occur because they are rarely found more than 100 m from permanent water sources.
- **Earthen features** including **mounds, ovens and hearths, stone arrangements and ceremonial rings** are normally restricted to level ground, the former usually adjacent to water sources. They are unlikely to be encountered because previous land disturbance such as earthworks associated with quarrying and mining activities, grading roads and fencelines and ploughed cultivation during agricultural cropping is likely to have destroyed earthen and stone features, had these site types originally occurred in the Project Site.

- Some sites dependent upon the presence of rock formations such as **rockshelters** and **rock art sites** are also improbable because the sedimentary bedrock in the low hills and ridges of the Project Site does not contain caves or overhangs. It is also not suited to **quarrying**, but Aboriginal people may have collected pebbles and cobbles from colluvial and alluvial deposits for stone artefact knapping. However, **axe-grinding grooves** are possible on sandstone surfaces, so such outcrops in the Project Site were targeted for particular attention during the survey.

While predictive studies such as this can be expected to identify areas in which sites associated with economic or subsistence activities may be present, notably open habitation areas, other sites may fall outside such a predictive framework. For example, places associated with spiritual aspects of traditional Aboriginal society such as ceremony and dreaming sites are often located at topographically distinct or unique features, which cannot be identified from an examination of maps or other records. For this reason it was essential that local Aboriginal communities be consulted so that sites of significance to them can be identified.

Any historical heritage sites in the Project Site were anticipated to most likely relate to early pastoral activities of the last half of the nineteenth century or the first half of the twentieth century and coal mining activities associated with the former Werris Creek Colliery (of 1920s to 1960s). Site types that have the potential to occur include ruins of mine structures, discarded mining and farming machinery and blazed survey marks.

5.2 FIELD METHODOLOGY

5.2.1 Logistics

Fieldwork was undertaken from 9 to 10 June 2010 by Project Archaeologist Matt Cupper with the assistance of the following Aboriginal community representatives: Gordon Nean (Nungaroo Local Aboriginal Land Council [LALC]), Neville Sampson (Tamworth LALC) and Heather Porter and Victor Porter (Gomerioi Tribal Nation Secretariat).

These Aboriginal community representatives were involved on a rotational basis, such that each day the fieldwork team comprised the Project Archaeologist and one to three Aboriginal community representatives.

Werris Creek Coal Pty Limited Environmental Officer Andrew Wright was also present during the investigation to facilitate the field survey and explain the LOM Project components to the Aboriginal community representatives.

5.2.2 Survey Methods

The entire area of the proposed disturbance footprint of the LOM Project were inspected on foot by the Project Archaeologist and Aboriginal community representatives (**Figures 13, 14, 15**). The field team examined the ground surface for any archaeological traces such as stone artefacts, axe-grinding grooves, hearths, hearthstones, shells, bones and mounds. All mature trees in the areas of proposed disturbance were inspected for scarring or carving by Aboriginal people.

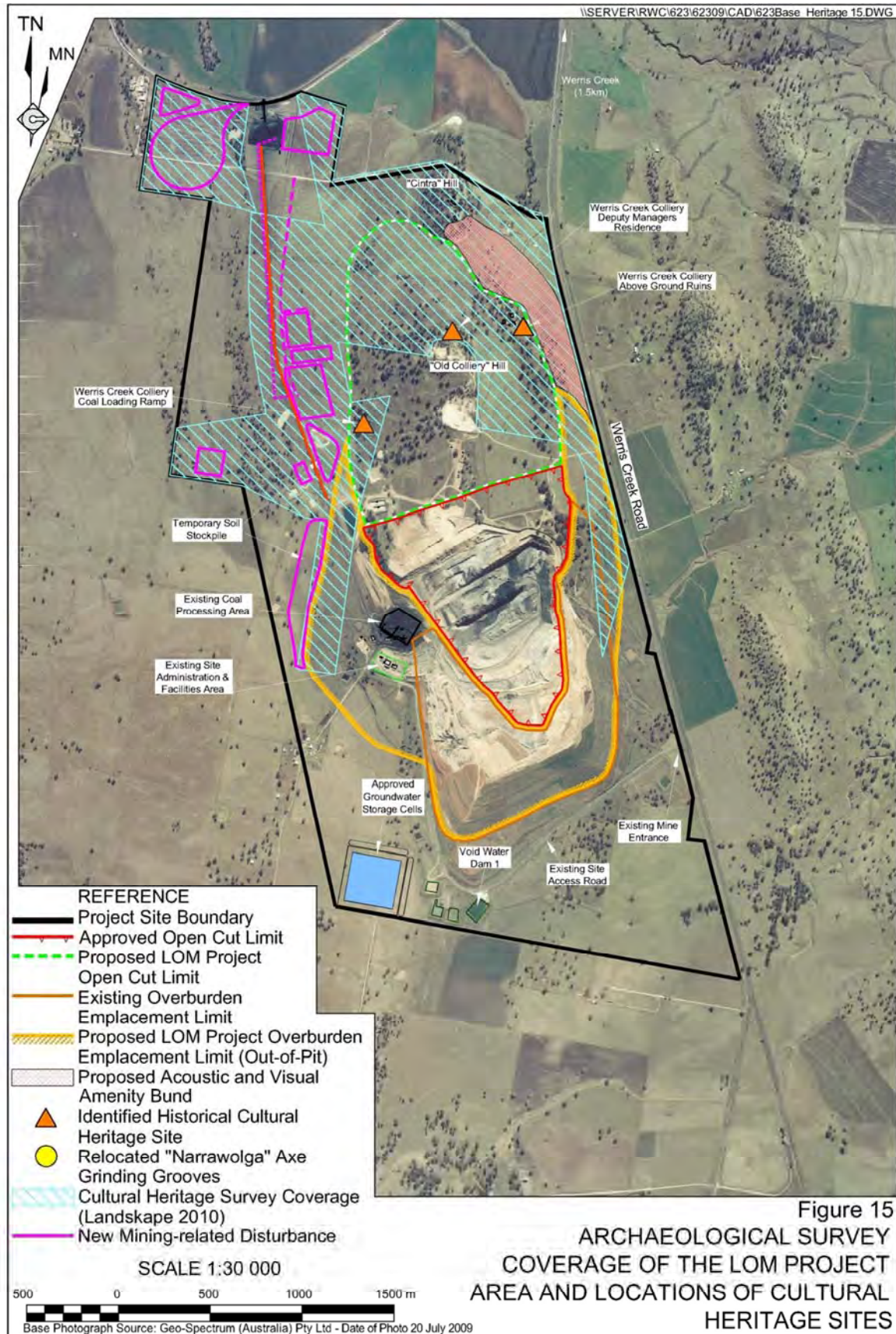
Particular attention was paid to areas with high ground surface visibility such as along stock and vehicle tracks and in scalds, gullies and other eroded areas.



Figure 13 Survey team members inspecting the proposed location of the Rail Turn-around Loop



Figure 14 Survey team members inspecting the proposed locations of the extended Open Cut



The team members walked abreast across the surveyed areas in a series of closely spaced transects. These were evenly distributed over the areas of proposed disturbance and approximately 20 m apart. Due to the general openness of the landscape it was usually possible to identify likely site locations from at least 20 m and deviate from the transects to make closer inspections.

5.2.3 Access to Survey Areas and Weather Conditions

Access was available to all of the areas of development with the exception of those already covered by spoil. Weather conditions during the survey were fine.

5.3 SURVEY COVERAGE DATA

5.3.1 Conditions of Visibility

Conditions of ground surface visibility affect how many sites are located. Visibility may also skew the results of a survey. If, for example, conditions of ground surface visibility vary dramatically between different environments, then this would be reflected in the numbers of sites reported for each area. The area with the best visibility may be reported as having the most sites (because they are visible on the ground) while another area with less visibility but perhaps more sites would be reported as having very little occupation. It is important therefore to consider the nature of ground surface visibility as part of any archaeological investigation.

Conditions of ground surface visibility were typically around 5% to 20 % (**Table 3, Figures 16, 17**). Although grass and herbaceous plant growth was moderate, areas of the ground surface were exposed by erosion by scalding and gully and stock and vehicular traffic.

Table 3
Visibility Conditions At The Project Site

Survey Unit	Landforms	Vegetation	Exposures	Visibili ty (%)	Survey Method
Open Cut Extension	Upper Hill Slope, Hill Crest	White Box, Kurrajong, White Cypress Pine, grasses	Scalds, animal tracks, vehicle tracks, gullies	10	Pedestrian
Out-of-Pit Overburden Emplacement Extension	Lower Hill Slope, Alluvial Plain	White Box, Kurrajong, White Cypress Pine, grasses	Scalds, animal tracks, vehicle tracks	10	Pedestrian
Acoustic and Visual Amenity Bund	Lower Hill Slope	White Box, Grasses	Scalds, animal tracks, vehicle tracks, gullies	20	Pedestrian
Product Coal Storage Area	Alluvial Terrace	Grasses	Scalds, animal tracks, vehicle tracks	5	Pedestrian
Coal Processing Area	Alluvial Terrace, Lower Hill Slope	Grasses	Scalds, animal tracks, vehicle tracks	5	Pedestrian
Administration and Facilities Area	Alluvial Terrace, Lower Hill Slope	Grasses	Scalds, animal tracks, vehicle tracks	5	Pedestrian
Explosives Magazine	Lower Hill Slope	Grasses	Scalds, animal tracks, vehicle tracks	10	Pedestrian
Precursor Storage Area	Alluvial Plain, Lower Hill Slope	Grasses	Scalds, animal tracks, vehicle tracks	20	Pedestrian
Turn-around Rail Loop	Alluvial Plain, Lower Hill Slope	Grasses	Scalds, animal tracks, vehicle tracks	10	Pedestrian
Northern Access Road	Alluvial Plain, Lower Hill Slope	Grasses	Scalds, animal tracks, vehicle tracks	5	Pedestrian
ROM Coal Conveyor	Alluvial Plain, Lower Hill Slope	Grasses	Scalds, animal tracks, vehicle tracks	5	Pedestrian



Figure 16 **Moderate levels of ground surface visibility on the foot slopes of “Old Colliery” Hill**



Figure 17 **Moderate levels of ground surface visibility on the slopes of “Old Colliery” Hill**

5.3.2 Coverage analysis

Coverage analysis is a useful measurement to allow cultural resource managers to assess surveys from adjacent areas and it also allows some meaningful calculation of the actual sample size surveyed. The *actual* or *effective* area surveyed by a study depends on the conditions of ground surface visibility. Conditions of surface visibility are affected by vegetation cover, geomorphic processes such as sedimentation and erosion rates, and the abundance of natural rock that may obscure the remains of cultural activities.

Approximately 18 % of the surface areas of the areas of development of the Project Site were inspected on foot (**Table 4**). This is considered to be a relatively high coverage and was a result of the intensive nature of the survey and the generally fair conditions of surface visibility.

Table 4
Effective Coverage of the Project Site

Survey Unit	Area (ha)	Visibility (%)	Coverage		Effective Coverage		Sites
			(ha)	(% area)	(ha)	(%)	
Open Cut Extension	141	10	24	17	2.4	1.7	4
Out-of-Pit Overburden Emplacement Extension	49	10	6	12.2	0.6	1.2	-
Acoustic and Visual Amenity Bund	22	20	6	27.3	1.2	5.5	-
Product Coal Storage Area	8.7	5	2	23.0	0.1	1.2	-
Coal Processing Area	5.7	5	1	17.5	0.05	0.9	-
Administration and Facilities Area	2.6	5	1	38.5	0.05	1.9	-
Explosives Magazine	1.0	10	0.4	40	0.04	4.0	-
Precursor Storage Area	0.6	20	0.4	66.7	0.08	13.3	-
Turn-around Rail Loop	12.6	10	2	15.9	0.2	1.6	-
Northern Access Road	1.6	5	1	62.5	0.05	3.1	-
ROM Coal Conveyor	2.2	5	1	45.5	0.05	2.3	-
Total	248.7	-	44.8	18.1	4.8	2.0	4

5.4 SURVEY RESULTS

5.4.1 Aboriginal Cultural Heritage Sites

The Narrawolga Axe-Grinding Grooves [AHIMS site number 29-2-0005] were re-located from the currently approved open cut area in 2008. No additional Aboriginal archaeological sites were identified within the Project Site. This negative result does not mean that Aboriginal people did not use these areas to some extent during the past, or that ground surface visibility was inadequate. Rather is attributable to the degree of land surface modification that has occurred since European settlement, as such past disturbance associated with pastoralism, agriculture, gravel quarrying and coal mining may have obliterated any archaeological sites, had they occurred previously.

Previous tree clearing and land levelling could have destroyed earthen features such as mounds and hearths and stone arrangements including ceremonial rings. Shell middens were not encountered because most occur within 100 m of sources of permanent freshwater, absent from the Project Site. Aboriginal stone quarry sites and other stone features such as rock shelters and rock art sites are also definitely not represented in the Project Site as suitable rock outcrop is lacking.

None of the old growth trees present in the areas of proposed disturbance bore any evidence of having had bark or wood removed or carved by Aboriginal people. Additionally, none of the sandstone outcrops exhibited evidence of axe-grinding grooves.

The Project Site does not contain culturally sensitive landforms such as lunettes or source-bordering sand dunes where subsurface Aboriginal cultural deposits (e.g. burials) have been recorded previously. They are located in areas where there is no risk to any identified cultural heritage and the potential for uncovering any previously unidentified cultural heritage is also very low. The sediments of the Project Site had been well enough exposed by prior earthworks and cultivation, vehicular and stock traffic and water erosion to determine that no archaeological material was present on the surface nor is likely to be buried beneath the soil.

5.4.2 Historical Cultural Heritage Sites

Historical features of the former Werris Creek Colliery are located in the areas of proposed disturbance within the Project Site.

These historical cultural heritage sites are all located in the proposed LOM Project Open Cut Area and include:

- Former Werris Creek Colliery Underground Workings;
- Former Werris Creek Colliery Above-Ground Ruins;
- Former Werris Creek Colliery Deputy Mine Manager's Residence; and,
- Former Werris Creek Colliery Coal Loading Ramp.

A summary of the historical cultural heritage sites is contained in **Table 5** and their locations are shown on the map in **Figure 15**. More detailed descriptions are provided by sections 5.4.2.1 to 5.4.2.4.

Table 5
Summary data of historical cultural heritage sites in the LOM Project Site.

Historical Cultural Heritage Site Name	Location	GDA94 mE (Zone 56)	GDA94 mN (Zone 56)
Former Werris Creek Colliery Underground Workings	South slope "Old Colliery" Hill	275678	6525237
Former Werris Creek Colliery Above-Ground Ruins	East slope "Old Colliery" Hill	275678	6525237
Former Werris Creek Colliery Deputy Mine Manager's Residence	Summit "Old Colliery" Hill	275292	6525213
Former Werris Creek Colliery Coal Loading Ramp	Southwest slope "Old Colliery" Hill	274809	6524705

5.4.2.1 Former Werris Creek Colliery Underground Workings

The former Werris Creek Colliery Underground Workings are located up to 30 or 40 m beneath the surface of “Old Colliery” Hill.

Coal was extracted from two seams, the Tunnel (lower) Seam and Black (upper) Seam using the ‘bord and pillar’ method of mining (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010). From 1925 to the early 1940s the coal was hand loaded by shovel into wooden skips. After 1949, electric-driven scraper loaders were used underground to load steel skips (**Figures 18, 19**; Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010). Four miners operated the coal scraper loaders, while two miners operated a smaller scraper loader to construct a parallel air tunnel (J.M. Gatgens *pers. comm.* 10 June 2010). The coal and airway tunnels were between 8 and 16 foot high and shored with Cypress Pine props. Horses towed the skips along light, narrow gauge rails in the coal tunnel to the base of the cable shaft, where they were be hauled to the surface (Andrew and Currey, nd; I.H. Thomas *pers. comm.*, 17 June 2010).

After operations at the colliery ceased in the late 1960s, much of the mine infrastructure underground (e.g. scraper-loaders, skips, electric winches and pumps) was removed (J.M. Gatgens *pers. comm.* 10 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). The tunnels and shafts are likely to be flooded and extensively collapsed.

5.4.2.2 Former Werris Creek Colliery Above-Ground Ruins

The former above-ground works of the colliery surrounding the cable shaft now comprise an elevated platform of rubble on the eastern slopes of “Old Colliery” Hill. This area originally contained the cable winch, two steam boiler houses (*circa* 1925 and late 1940s - the most recent with a concrete chimneystack) (**Figures 20, 21**), skip rail tracks, skip tumbler, coal screen, coal box, coal chute and railway branch line, with run-around and empty wagon loops (Andrew and Currey, nd; Parry Shire Council, 1990; J.M. Gatgens *pers. comm.* 10 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010).

Most of the machinery (e.g. three Babcock and Wilcock boilers, Galloway boiler, cable winch) was dismantled for scrap when the mine was decommissioned in the late 1960s (J.M. Gatgens *pers. comm.* 10 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). A fire in the late 1970s destroyed most of the remaining structures (G.E. Marquett *pers. comm.* 1 June 2010).

Appleton (ASR, 2004) photographed the boiler chimneystack during his cultural heritage assessment for the original layout of the Werris Creek Coal Mine in 2004, but was unable to inspect it. The stack was still standing in 2005 when Halliday (2005) assessed it as being of high local significance and recommended that it be added to the Liverpool Shire Heritage Inventory. The stack was demolished with Liverpool Plains Shire Council consent in March 2010 because it was structurally unstable (DA 26/2010).

All that now remains at the site is rubble from the poured concrete boiler chimneystack and its twisted and rusted framework (**Figure 22**). Iron rails and old River Red Gum sleepers from the skip rail tracks are also evident (**Figure 23**).

The former Deputy Mine Manager’s Residence associated with the former Werris Creek Colliery is located near the summit of “Old Colliery” Hill. It comprises a double-fronted weatherboard dwelling with single gable and hipped corrugated iron roof, surrounded on all sides by verandas, which have been enclosed to form additional rooms (**Figure 24**). Garden trees and shrubs and several outbuildings including a tool shed with attached motor vehicle garage and toilet surround the dwelling (**Figure 25**). More images of this site are provided in **Appendix 7**.

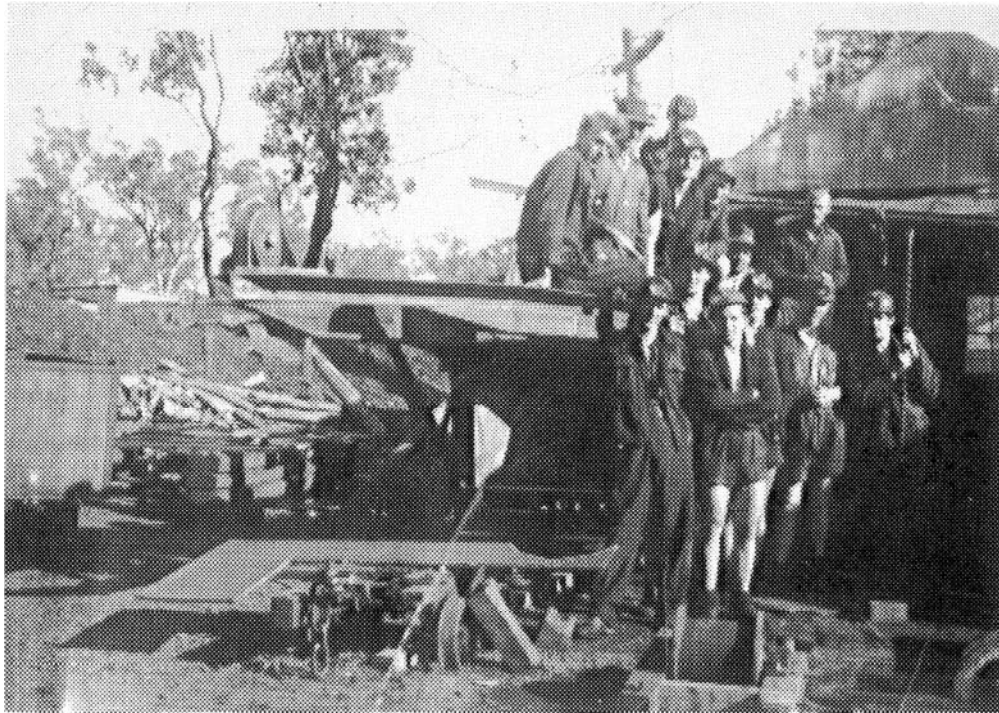


Figure 18 Coal scraper loader at the Werris Creek Colliery *circa* 1951 (Parry Shire Council, 1990)



Figure 19 Coal scraper loader *circa* 1951 with I.H. Thomas at right (Parry Shire Council, 1990)



Figure 20 Concrete boiler chimneystack at the Werris Creek Colliery in *circa* 1970s (McEvilly *et al.*, 2004)



Figure 21 Boiler chimneystack in 2004 (ASR, 2004)



Figure 22 Concrete rubble and steel framework from the demolished boiler chimneystack.



Figure 23 Iron rail and timber sleeper from the Werris Creek Colliery light rail.

5.4.2.3 Former Werris Creek Colliery Deputy Mine Manager's Residence

The Deputy Mine Manager's Residence was constructed near the former Werris Creek Colliery in *circa* 1925 on the eastern mid-slopes of "Old Colliery" Hill (D.J. Koops *pers. comm.*, 15 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). It was moved nearer the summit of the hill to its present location to avoid the dust from the colliery by then-Deputy Mine Manager Ivor Haig ('Doc') Thomas after he married in June 1940. There, Doc Thomas lived with his wife Clare Jean Macdonald Thomas (née Ewbank) and daughters Dora (born 1941) and Elizabeth (born 1943) (D.J. Koops *pers. comm.*, 15 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010; E. Thomas *pers. comm.*, 16 August 2010) (**Figure 26**).

Doc Thomas had first worked at the mine in 1933, aged 16, weighing loaded coal skips at the surface to determine the contract miners' daily tallies of shifted coal (D.J. Koops *pers. comm.*, 15 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). Doc Thomas' father, Henry Jenkin Thomas, was part owner of Preston Iron Coal and Coke Mining Company Limited and its mining engineer and surveyor. He encouraged his son Doc Thomas to learn all the facets of coal mining. Following training as a mining engineer at the Rathmines School of Mines, Newcastle, NSW, Doc Thomas returned to the Werris Creek Colliery as its Deputy Mine Manager in 1940. He held this position until the mine was closed in the late 1960s and also became the mine's sole-owner following buy-outs of three other partners (I.H. Thomas *pers. comm.*, 17 June 2010; E. Thomas *pers. comm.*, 16 August 2010).

Doc and Jean Thomas lived at the Deputy Mine Manager's Residence until the former Werris Creek Colliery closed in the late 1960s (Dora and Elizabeth having left home for university), at which time they moved into Werris Creek, where Doc Thomas operated the news agency. Dora and her husband Rolf Koops moved into the former Deputy Mine Manager's Residence in 1973, where they lived until 1979 (D.J. Koops *pers. comm.*, 15 June 2010). The dwelling and the surrounding 1-acre of land were sold to Gordon and Pauline Marquett in 1980. Gordon and Pauline Marquett sold the property to Werris Creek Coal Pty Limited and moved out in 2008 (G.E. Marquett *pers. comm.*, 1 June 2010; P.A. Marquett *pers. comm.*, 1 June 2010).

The core of the Deputy Mine Manager's Residence is the original *circa* 1925 double-fronted weatherboard dwelling with single gable and hipped corrugated iron roof. This structure would have originally comprised four rooms; two either side of a central passage. Verandas were added when the residence was moved to its current location in *circa* 1940, at which time the back veranda was enclosed to form a kitchen, dining room, laundry and bathroom. The side and front verandas were subsequently enclosed with fly screens and glass windows to form additional living rooms. The tool shed with attached motor vehicle garage was erected in the early 1940s. The concrete slab floor of the shed was inscribed 'Dora Thomas 6 years' and 'Elizabeth Thomas 4 years' and impressed with Dora's and Elizabeth's hand and boot prints in 1947 (**Figure 27**). Gordon and Pauline Marquett added a carport in the 1980s.

5.4.2.4 Former Werris Creek Colliery Coal Loading Ramp

A coal loading ramp and chute is located on the southwestern slopes of "Old Colliery" Hill (**Figure 28**). Appleton (ASR, 2004) recorded this feature during the cultural heritage assessment for the original layout of the Werris Creek Coal Mine. The ramp and chute were associated with an exploratory shaft sunk by Doc Thomas in the western section of the former Werris Creek Colliery in the early 1950s (J.M. Gatgens *pers. comm.* 10 June 2010; I.H. Thomas *pers. comm.*, 17 June 2010). Lacking a second ventilation shaft, air for this entrance was funneled down a pipe constructed from 44-gallon fuel drums. The ramp was constructed from the natural slope using stone rubble and the steel chute suspended by steel cables from the branches of nearby Eucalypt trees. The ramp and chute were used to load coal onto road trucks. The western shaft only operated briefly before being abandoned (I.H. Thomas *pers. comm.*, 17 June 2010).



Figure 24 **Former Deputy Mine Manager's Residence for the Werris Creek Colliery**



Figure 25 **Garden at the Former Deputy Mine Manager's Residence taken in the 1960s**
(photograph courtesy Elizabeth Thomas)



Figure 26 Dora (left) and Elizabeth Thomas at the Former Deputy Mine Manager's Residence in the early 1950s (photograph courtesy Elizabeth Thomas)



Figure 27 Boot and hand impressions of Deputy Mine Manager's children in concrete slab floor



Figure 28 **Werris Creek Colliery coal loading chute**

6. CULTURAL HERITAGE VALUES

6.1 ABORIGINAL CULTURAL HERITAGE VALUES

6.1.1 Aboriginal Cultural Landscape

Scientific information collected from the Aboriginal archaeological site (Narrawolga Axe-Grinding Grooves [AHIMS site number 29-2-0005]) previously re-located from the approved open cut area, combined with social and cultural information provided by the Aboriginal community stakeholders and ethno-historical sources, allows interpretation of the Aboriginal cultural landscape of the Project Site, provided in the following sections.

6.1.1.1 Summary of the Archaeological Record

The material culture of past Aboriginal occupants of the Project Site consisted of a small, non-stratified open site, comprising at least 25 axe-grinding grooves on sandstone outcrops south of “Old Colliery” Hill (AHIMS site number 29-2-0005). Aboriginal people rubbed stone axe blanks or worn or chipped stone axes against sandstone surfaces to sharpen them, with the abrasion creating grooves in the outcrops (McCarthy, 1976). The Narrawolga Axe-Grinding Grooves (AHIMS site number 29-2-0005) were re-identified by ASR (2004) during an archaeological survey of the original layout of the Werris Creek Coal Mine and have subsequently been re-located from the currently approved Open Cut Area (ASR, 2008).

6.1.1.2 Aboriginal Settlement Patterns

The locations of freshwater sources are likely to have been the main controlling factor of Aboriginal occupation of the Project Site. Humans carry out most of their activities close to freshwater, rarely straying far from reliable water sources (see Gould, 1969, 1980; Allen, 1974; Jochim, 1976; Mitchell, 1990; McNiven, 1998). They also prefer larger or more persistent water sources to smaller, ephemeral water bodies. As well as the obvious abundance of aquatic resources including fish at large, permanent water sources, mammals such as macropods and waterbirds that were hunted for protein, skins, eggs and feathers are also limited by water availability.

No ephemeral streams or wetlands occur in the Project Site. The nearest stream is Quipolly Creek, approximately 1.5 km south, with Werris Creek also located some 3 km north of the Project Site. However, axe-grinding grooves, which for example were re-located from sandstone outcrops south of "Old Colliery" Hill (AHIMS site number 29-2-0005), are usually found close to water. This is because when abrading axe-heads Aboriginal people often sprinkled water on the sandstone to make it more abrasive and to reduce dust (ASR, 2004). It is possible that past Aboriginal people of the Project Site used water that had pooled on sandstone surfaces following rain.

6.1.1.3 Aboriginal Subsistence Strategies

Hunter-fisher-gatherers obtain the resources necessary for life by foraging and collecting subsistence strategies. Foragers gather food as it is encountered, regularly moving between resource zones and rarely storing food (Binford, 1980, 1989). Collectors, alternatively, adopt a logistical strategy for procuring resources. They often rely on stores of food and may maintain base camps, with smaller groups dispersing to collect resources. Foraging and collecting are two end-members of a subsistence continuum, with most hunter-fisher-gatherer societies engaging in a combination of both strategies (Yellen, 1977; Binford, 1980, 1989; Renfrew and Bahn, 1991).

Sites occupied by hunter-fisher-gatherer people may reflect these strategies (Binford, 1980; Foley, 1981). For example, base camps were generally occupied for long periods of the year and were used for a range of domestic and industrial activities. Alternatively, base camps may have been intensively used for part of the year, acting as congregative focal points. Temporary field camps were dispersive sites, created when groups charged with carrying out a specific task journeyed beyond the daily foraging radius.

The frequency of site occupation can sometimes be determined from their contents and structure. Residential base campsites, occupied over relatively long periods of time, tend to have a more complex structure than short-term campsites. Base camps may contain evidence of a wide variety of activities associated with daily habitation. Short-term sites were probably only occupied for a specific reason, such as to collect a particular resource. These usually display evidence of being occupied only once or twice, and are often smaller, with fewer and less diverse archaeological remains.

It is probable that the Aborigines who occupied the Project Site were hunter-fisher-gatherers employing both foraging and collecting subsistence strategies. These people would have dispersed from the riverine corridors of the Mooki River and Werris and Quipolly Creeks to exploit ephemeral food and plant resources of the hilly hinterland and manufacture stone axes at the Narrawolga Axe-Grinding Grooves (AHIMS site number 29-2-0005) during favourable climatic conditions, as invoked in the subsistence model of O'Rourke (1997). Only small areas were investigated in a heterogeneous landscape, but it is probable that the archaeological record reflects the occupation of the hill country by small, mobile bands.

The archaeology of the Project Site probably derives from a temporary site used by small groups during periods of seasonal dispersal. The small number of grooves, along with the absence of clear evidence of domestic archaeological components such as stone artefacts and hearths, and probable absence of reliable sources of water, suggest that Aboriginal people only visited the cultural heritage place for brief periods.

6.1.1.4 Synthesis

Aboriginal people probably occupied the Project Site following the end of the last Ice Age some 18,000 years ago. The Aboriginal archaeological record of the Project Site could be late Holocene (less than a few thousand years) in age. The lack of reliable sources of water in the hills would have made the Project Site unattractive for prolonged or regular habitation.

Aboriginal people from small, mobile groups that probably seasonally journeyed into the hill country from the rivers and streams of the Mooki and surrounding valleys to forage for food, lithic and other resources may have periodically used the Narrawolga Axe-Grinding Grooves (AHIMS site number 29-2-0005).

6.2 HISTORICAL CULTURAL HERITAGE VALUES

6.2.1 Historical Cultural Heritage Significance

The assessment of historic heritage significance has been undertaken using the NSW Heritage Branch's assessment criteria detailed in *Assessing Heritage Significance* (NSW Heritage Office, 2001). The NSW criteria cover the generic *Australian ICOMOS Charter for the Conservation of Places of Cultural Significance* (Burra Charter) values of historic, aesthetic, scientific and social significance (see Marquis-Kyle and Walker, 1992; Pearson and Sullivan, 1995), but express the values in a more detailed form to maintain consistency and facilitate comparison of assessments across jurisdictions.

A summary of the significance assessments of the historical heritage sites is presented in **Table 6**.

6.2.1.1 Criterion (a) [Historical Significance]

Importance in the course, or pattern of the cultural history of NSW's cultural or natural history, or the cultural or natural history of the local area;

Most of the features associated with the former Werris Creek Colliery meet this criterion at the moderate level. They are significant in the local history of Werris Creek, being associated with development of the coal mining industry, rail transport and broader society, but are not of state or national importance.

6.2.1.2 Criterion (b) [Historical Association Significance]

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;

Table 6
Assessment of significance of the historical cultural heritage sites

Site Name	Significance						
	Criterion (a)	Criterion (b)	Criterion (c)	Criterion (d)	Criterion (e)	Criterion (f)	Criterion (g)
Former Werris Creek Colliery Underground Workings	Local (Moderate)	Local (Moderate)	na	Local (Moderate)	Local (Low)	Local (Moderate)	Local (Moderate)
Former Werris Creek Colliery Above-ground Ruins	Local (Moderate)	Local (Moderate)	na	Local (Moderate)	Local (Low)	Local (Moderate)	Local (Moderate)
Former Werris Creek Colliery Deputy Mine Manager's Residence	Local (Moderate)	Local (Moderate)	Local (Moderate)	Local (Moderate)	Local (Moderate)	Local (Low)	Local (Low)
Former Werris Creek Colliery Coal Loading Ramp	Local (Low)	Local (Low)	Local (Low)	Local (Low)	Local (Low)	Local (Moderate)	Local (Moderate)

The sites have low to moderate local significance according to this criterion. Original owners and former employees of the former Werris Creek Colliery and occupants of the former Werris Creek Deputy Mine Manager's Residence live in the Werris Creek area or wider North West Slopes region or are known in local histories and to members of the local and regional community. Members of the Thomas family, most notably Henry Jenkin Thomas and Ivor Haig ('Doc') Thomas, had a long association with coal mining in NSW, including at Werris Creek and the Hunter Valley.

6.2.1.3 Criterion (c) [Aesthetic Significance]

Importance in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW or the local area;

The former underground workings of the former Werris Creek Colliery and ruins of the above-ground works have negligible aesthetic values because they are very subdued features in the landscape, and do not meet the thresholds for inclusion at either local or State level. The former Werris Creek Deputy Mine Manager's Residence has a moderate local aesthetic rating. Aesthetic qualities of the former Werris Creek Colliery Coal Loading Ramp are low.

6.2.1.4 Criterion (d) [Social Significance]

Has strong or special association with a particular community or cultural group in NSW or the local area for social, cultural or spiritual reasons;

The social significance of a site is based on whether it has a strong or special association with a particular community or cultural group at a local, regional, state or national level for social, cultural or spiritual reasons.

Historical features associated with the former Werris Creek Colliery generally have moderate local social significance to residents of Werris Creek and the wider community who formerly worked or lived at the site, or have family members and acquaintances who formerly worked or lived at the site.

6.2.1.5 Criterion (e) [Research Potential]

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;

The former Werris Creek Deputy Mine Manager's Residence has moderate technical and research significance. The remains of domestic activities from the middle of the twentieth century may be preserved at the site. The potential for other historical features of the former Werris Creek Colliery to provide information about the history of the coal mining in the local area or NSW is limited, due to their generally poor state of preservation.

6.2.1.6 Criteria (f) and (g) [Rarity and Representativeness]

Possesses uncommon, rare or endangered aspects of NSW's cultural or natural history, or the cultural or natural history on the local area;

Important in demonstrating the principal characteristics of a class of place of NSW's cultural or natural places or environments, or the local areas cultural or natural environments

Mining sites from the middle of the twentieth century are not particularly abundant in the Werris Creek area or North West Slopes regions. However, the former Werris Creek Colliery is a very poorly preserved example of such site type. Dwellings from the 1920s similar to the former Werris Creek Deputy Mine Manager's Residence are common in Werris Creek and the wider region.

7. POTENTIAL IMPACTS OF THE LOM PROJECT ON CULTURAL HERITAGE

The LOM Project could potentially directly and indirectly impact upon the historical cultural heritage sites of the former Werris Creek Colliery. Potential negative direct and indirect impacts may result from the proposed extension to the open cut area and could include the destruction of the sites via earthmoving or indirect physical affects (e.g. dust deposition) or aesthetic affects.

7.1 POTENTIAL DIRECT IMPACTS

The LOM Project mining operations would disturb the current land surface and could directly impact cultural heritage associated with the affected landforms and its landscape context.

Such impacts on cultural heritage values typically fall into three categories:

- the loss of information which could otherwise be gained by conducting research today;
- the loss of the cultural heritage resource for future research using methods and addressing questions not available today; and,
- the permanent loss of the physical record.

These impacts can usually be mitigated to various degrees, depending on the nature and significance of the cultural heritage. Where sites are of low significance, their destruction may have little consequence. This could be due to the lack of useful information that could be gained from research, or the availability of many equivalent and alternative sites for study.

Sites with greater significance may be the subject of cultural heritage investigation prior to their disturbance. This allows for the salvage of information, and the recovery of a sample of artefactual materials according to current methods and research priorities. Sites and site groupings that are common elsewhere may not require the same degree of salvage attention as those which are rare, of high significance, and subject to active deterioration.

Salvage investigations can provide for the discovery of new knowledge about the past human occupation and land use of an area. Despite the loss of physical evidence involved, the information gained can in turn aid the interpretation and better management of the remaining cultural heritage resource.

7.2 POTENTIAL INDIRECT IMPACTS

In areas where the proposed works for the LOM Project would not involve significant earthmoving, impacts may be limited to minor surface disturbance, limited disturbance of the associated substrates or landforms and no significant alteration of the landscape context.

Potential indirect impacts to cultural heritage sites could include.

- deposition of dust generated by mining;
- damage from blasting and vibration from operations and potential instability as a result of open pit operations and layout;
- accidental disturbance by peripheral activities; and
- inappropriate visitation including the unauthorized removal of cultural heritage objects.

7.3 CULTURAL HERITAGE POTENTIALLY IMPACTED BY THE WERRIS CREEK COAL MINE LOM PROJECT

Historical features associated with the former Werris Creek Colliery are located in the proposed extension to the open cut area and could be subject to direct and indirect disturbance during the life of the Werris Creek Coal Mine. These sites are the former Werris Creek Colliery Underground Workings, Above-ground Ruins, Deputy Mine Manager's Residence and Coal Loading Ramp and are not of high historical significance, even at a local level.

7.4 FLEXIBILITY OF THE WERRIS CREEK COAL MINE LOM PROJECT DESIGN

The locations of the proposed mine components associated with the LOM Project are currently within their optimum design locations. In particular, the location of the proposed extension of the open cut area is currently within its optimum design location, offering limited opportunity to avoid the historical cultural heritage sites within this area.

8. MANAGEMENT STRATEGIES FOR CULTURAL HERITAGE

This section presents proposed strategies for the management of cultural heritage values within the Project Site that may be subject to direct impacts by the LOM Project.

8.1 GENERAL RECOMMENDATIONS

8.1.1 Updated Archaeology and Cultural Heritage Management Plan

The optimal means of co-ordinating and implementing the proposed management strategies is to integrate them into a single programme and document in the form of an update to the *Archaeology and Cultural Heritage Management Plan for the Werris Creek Coal Mine* (Werris Creek Coal Pty Limited, 2005) already implemented for the Werris Creek Coal Mine. The Archaeology and Cultural Heritage Management Plan was developed in consultation with the local Aboriginal community in 2005 (Werris Creek Coal Pty Limited, 2005). The Archaeology and Cultural Heritage Management Plan would be updated to reflect the proposed management of the cultural heritage sites within the Project Site. The updated Archaeology and Cultural Heritage Management Plan would cover all relevant actions and requirements to be conducted at the Werris Creek Coal Mine. The updated Archaeology and Cultural Heritage Management Plan would remain active for the life of the Werris Creek Coal Mine and define the tasks, scope and conduct of all cultural heritage management activities.

8.1.2 Role of the Local Aboriginal Community

Werris Creek Coal Pty Limited is committed to involving the local Aboriginal community as an integral participant in the management of Aboriginal cultural heritage values at the Werris Creek Coal Mine. The strategies outlined in this report have incorporated the views of community representatives and the Archaeology and Cultural Heritage Management Plan was drafted in consultation with the local Aboriginal community.

In particular, the re-instatement of the Narrawolga Axe-Grinding Grooves (AHIMS site number 29-2-0005) to a position as close as possible to their original location following restoration and rehabilitation of the Final Landform would occur with the invited participation of local Aboriginal community representatives.

8.2 MANAGEMENT OF CULTURAL HERITAGE WITHIN THE LOM PROJECT DISTURBANCE AREAS

The location of the proposed extension to the Open Cut Area, which would disturb historical cultural heritage sites associated with the former Werris Creek Colliery, is relatively inflexible. Engineering constraints mean that this mine component cannot be relocated away from the cultural heritage sites to avoid disturbance. Additionally, any such relocation would not remove threats to the sites from indirect disturbance.

This assessment has concluded that the former Werris Creek Colliery Underground Workings, Above-ground Ruins, Deputy Mine Manager's Residence and Coal Loading Ramp are not of high historical significance. Additional historical heritage assessment or preservation of the sites is not warranted.

8.3 SUMMARY RECOMMENDATIONS

Based on the results of this cultural heritage assessment and consultation with representatives of the local Aboriginal community, the following recommendations are made.

- The proposed extension to the open cut area progress without additional historical heritage assessment or preservation of historical cultural heritage sites associated with former Werris Creek Colliery, which are not of high historical significance.
- The Narrawolga Axe-Grinding Grooves (AHIMS site number 29-2-0005) be re-instated to a position as close as is possible to their original location following restoration and rehabilitation of the Final Landform.
- Werris Creek Coal Pty Limited should continue to involve the registered Aboriginal stakeholders and any other relevant Aboriginal community groups or members in matters pertaining to the project.
- The general mitigation strategies detailed in the *Archaeology and Cultural Heritage Management Plan* should be implemented. The Archaeology and Cultural Heritage Management Plan should be updated to reflect the proposed management of the historical cultural heritage sites within the Project Site. The updated Archaeology and Cultural Heritage Management Plan should remain active for the life of the Werris Creek Coal Mine.
- If human skeletal remains are encountered during the course of the proposed developments all work in that area must cease. Remains must not be handled or otherwise disturbed except to prevent further disturbance. If the remains are thought to be less than 100 years old the Police or the State Coroner's Office (tel: 02 9552 4066) must be notified. If there is reason to suspect that the skeletal remains are more than 100 years old and Aboriginal, the proponent should contact DECCW's Environmental Line (tel: 131 555) for advice. In the unlikely event that an Aboriginal burial is encountered, strategies for its management would need to be devised with the involvement of the local Aboriginal community.

9. REFERENCES

- Allen, H. (1974). The Bagundji of the Darling Basin: cereal gatherers in an uncertain environment. *World Archaeology* **5**, 309-322.
- Andrews, B. and Currey, J. (no date). *The Werris Creek Colliery*. Unpublished manuscript.
- Archaeological Surveys and Report Pty Limited (ASR) (2004). *Proposed Werris Creek Coal Mine Aboriginal Heritage Assessment*. Report to R.W. Corkery and Company Limited.
- Archaeological Surveys and Report Pty Limited (ASR) (2008). The Salvage and Removal of the "Narrawolga" axe-grinding groove site, Werris Creek Coal Mine, Werris Creek, Northern NSW. Report to Werris Creek Coal Pty Limited.
- Archaeological Surveys and Report Pty Limited (ASR) (2009a). *Proposed Modification to the Werris Creek Coal Mine Aboriginal Heritage Assessment*. Report to R.W. Corkery and Company Limited.
- Archaeological Surveys and Report Pty Limited (ASR) (2009b). *Proposed Modification to the Werris Creek Coal Mine Non-Indigenous Heritage Assessment*. Report to R.W. Corkery and Company Limited.
- Austin, P., Williams, C. and Wurm, S.A. (1980). The linguistic situation in north central New South Wales. In *Papers in Australian linguistics No. 13: Contributions of Australian linguistics*. (ed, B. Rigsby and P. Sutton). pp. 167–180. (Pacific Linguistics: Canberra).
- Australian Bureau of Statistics (ABS) (2006). *2006 Australian Census*. Australian Bureau of Statistics, Canberra.
- Balme, J. (1986). *North central rivers region archaeological project. Vol. 1 and 2*. Report to the NSW NPWS.
- Binford, L.R. (1980). Willow smoke and dog's tails: hunter-gatherer settlement systems and archaeological site formation. *American Antiquity* **45**, 1-17.
- Binford, L.R. (1989). *Debating Archaeology*. Academic Press, San Diego, CA.
- Bonhomme, T. (1990). *Aboriginal burials and sand mining on the Riverine Plain, NSW*. Report to the NSW National Parks and Wildlife Service.
- Bureau of Meteorology (2010). *Climate statistics for Australian locations – Tamworth*. (online: http://www.bom.gov.au/climate/averages/tables/cw_055054.shtml)
- Carey, S.W. (1934). The Geological Structure of the Werrie Basin, *Journal of proceedings of the Linnean Society of NSW* **59**, 351-374.
- Department of Environment and Climate Change (DECC) (2009). *Draft Aboriginal Cultural Heritage Draft Community Consultation Requirements for Proponents Part 6 National Parks and Wildlife Act 1974*. NSW Department of Environment and Climate Change, Sydney.
- Department of Environment, Climate Change and Water (DECCW) (2010). *Aboriginal Cultural Heritage Community Consultation Requirements for Proponents Part 6 National Parks and Wildlife Act 1974*. NSW Department of Environment, Climate Change and Water, Sydney.

Department of Environment and Conservation (DEC) (2004). *Interim Community Consultation Requirements for Applicants*. NSW Department of Environment and Conservation, Sydney.

Department of Environment and Conservation (DEC) (2005). *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*. NSW Department of Environment and Conservation, Sydney.

Department of Mineral Resources (DMR) (2002). *Brigalow Belt South Bioregion Mineral and Petroleum Resources and Potential: NSW Western Regional Assessment Brigalow Belt South Bioregion*. Resource and Conservation Assessment Council, Sydney.

Durrant, D. (1994). *Quirindi in the 19th Century: How a Town Began*. Dorothy Durrant, Quirindi, NSW.

Fison, L. and Howitt, A. W. (1867). *Kamilaroi and Kurnai: Group Marriage and Relationship, and Marriage by Elopement*. Anthropological Publications, Oosterhout, Netherlands.

Frazer, J.G. (1994). *Totemism and Exogamy: A Treatise on Certain Early Forms of Superstition and Society*. Routledge Curzon, London.

Foley, R. (1981). *Off-site Archaeology and Human Adaptation in Eastern Africa*. British Archaeological Reports International Series 97, Oxford.

Gaynor, P. (2002). *An archaeological survey in conjunction with the Walhallow Local Aboriginal Land Council of the State Forests and Travelling Stock Reserves in the Area Assigned to the Walhallow Local Aboriginal Land Council around Caroona*. A report to the NSW National Parks and Wildlife Service, Dubbo, NSW.

Gott, B. (1983). Murnong – *Microseris scapigera*: a study of a staple food of Victorian Aborigines. *Australian Aboriginal Studies* 2, 2-18.

Gould, R.A. (1969). Subsistence behaviour among the Western Desert Aborigines of Australia. *Oceania* 39, 253-274.

Gould, R.A. (1980). *Living Archaeology*. Cambridge University Press, Cambridge.

Halliday, K. (2005). *Liverpool Plains Shire Heritage Assessment Recommendations*. Liverpool Plains Shire Council, Quirindi, NSW.

Hobden, J. (1979). *Tamworth; A peep at our yesteryears*. Tamworth Historical Society, Tamworth, NSW.

Hobden, J. (1981). *Tamworth; A peep at the past*. Tamworth Historical Society, Tamworth, NSW.

Hope, J. (1993). *Aboriginal Burial Sites in the Murray-Darling Basin*. Report to the Murray-Darling Basin Commission, Canberra.

Howitt, A.W. (1996). *The Native Tribes of South-East Australia*. Aboriginal Studies Press, Canberra.

Jochim, M.A. (1976). *Hunter-gatherer Subsistence and Settlement: a Predictive Model*. Academic Press, NY.

Johnson, R. (2001). *The Search for the Inland Sea: John Oxley, Explorer, 1783-1828*. Melbourne University Press, Melbourne.

McCarthy, F.D. (1976). *Australian Aboriginal stone implements: including bone, shell and tooth implements*. Australian Museum Trust, Sydney.

McDonald, J. (1998). *Aboriginal archaeology and European heritage assessment of sites along the proposed natural gas pipeline Dubbo-Tamworth (and Gunnedah)*. Report of Manidis Roberts Consultants on behalf of AGL.

McEvilly, R., Malloch, K., Watkins, J., Tadros, V., Wiles, L., Moloney, J. and Mantaring, R. (2004). *Nandewar Mineral and Petroleum Resources and Potential: NSW Western Regional Assessment Nandewar*. Resource and Conservation Assessment Council, Sydney.

McNiven, I.J. (1998). Aboriginal settlement of the saline lake and volcanic landscapes of the Corangamite Basin, western Victoria. *The Artefact* **21**, 63-94.

Mahaffey, K. (1980). *Pioneers of the North West Plains*. Moree and District Historical Society, Moree, NSW.

Mahaffey, K. (1982). *Pioneers of the North West Plains. Volume II*. Moree and District Historical Society, Moree, NSW.

Marquis-Kyle, P. and Walker, M. (1992). *The Illustrated Burra Charter*. Australian ICOMOS, Sydney.

Mitchell, P. (1990). A palaeoecological model for the archaeological site distribution in southern Africa during the Upper Pleniglacial and Late Glacial. In *The World at 18 000 BP. vol. 2. Low Latitudes*. (ed. C. Gamble and O. Soffer). pp. 189-205. (Unwin Hyman: London).

Mitchell, T.L. (1839). *Three Expeditions into the Interior of Eastern Australia*. T. and W. Boone, London.

National Parks and Wildlife Service (NPWS) (1997). *Standards for Archaeological Practice in Aboriginal Heritage Management*. Cultural Heritage Services Division, NSW National Parks and Wildlife Service, Hurstville, NSW.

NSW Government (1848). *Supplement to the NSW Government Gazette 20 September 1848*. Office of the Colonial Secretary, Sydney.

NSW Heritage Branch (2010). *State Heritage Inventory* (online: <http://www.heritage.nsw.gov.au>)

NSW Heritage Office (1996). *NSW Heritage Manual*. NSW Heritage Office, Sydney.

NSW Heritage Office (2001) *Assessing Heritage Significance*. NSW Heritage Office, Sydney.

NSW Rail Transport Museum (1986). *The Roundhouse: Journal of the NSW Rail Transport Museum*. Volume 23. Burwood, NSW.

O'Rourke, M. (1995). *Raw Possum and Salted Pork: Major Mitchell and the Kamilaroi Aborigines*. Plowpress, Kambah, ACT

O'Rourke, M. (1997). *The Kamilaroi Lands: North-central New South Wales in the early 19th century*. Griffith, ACT.

Parry Shire Council (1987). *Parry Local Environmental Plan*. Parry Shire Council, Tamworth, NSW.

Parry Shire Council (1990). *Between Mt Soma and the Gap Hills lies Werris Creek*. Parry Shire Council, Tamworth, NSW.

Parker, K. (1905). *The Euahlayi Tribe: a Study of Aboriginal Life in Australia*. Archibald Constable, London.

Pearson, M. and Sullivan, S. (1995). *Looking after heritage places*. University of Melbourne Press, Carlton, Victoria.

Pratt, W. (1996). *Coal resources of the Werrie Basin NSW*. Department of Mineral Resources Coal and Petroleum Geology Branch Report 1996/528

Purcell, P. (2000). *Aboriginal Cultural Heritage Assessment: NSW Western Regional Assessment Brigalow Belt South Bioregion (Stage 1)*. Resource and Conservation Assessment Council, Sydney.

Purcell, P. (2002). *Aboriginal Cultural Heritage Assessment: NSW Western Regional Assessment Brigalow Belt South Bioregion (Stage 2)*. Resource and Conservation Assessment Council, Sydney.

Renfrew, C. and Bahn, P. (1991). *Archaeology: Theory, Methods and Practice*. Thames and Hudson, London.

Tindale, N.B. (1974). *Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits and Proper Names*. University of California, Berkeley, CA.

Umwelt (2010). *Review of Environmental Factors For the Caroona Exploration Program. Trial 3D Seismic Survey 2010*. Report to Coal Mines Australia Limited.

Ware, S.H. (1976). *A History of Werris Creek and district*. Quirindi and District Historical Society, Quirindi, NSW.

Werris Creek Coal Pty Limited (2005). *Archaeological and Cultural Heritage Management Plan for the Werris Creek Coal Mine*. Werris Creek Coal Pty Limited, Werris Creek, NSW.

Yellen, J.E. (1977). *Archaeological Approaches to the Present*. Academic Press, NY.

Appendices

(No. of pages excluding this page = 55)

Appendix 1	Letters of Notification
Appendix 2	Public Notice
Appendix 3	Formal Responses from Aboriginal Stakeholders to Notification
Appendix 4	Proposed Methodology for Aboriginal Cultural Heritage Assessment
Appendix 5	Formal Responses from Aboriginal Stakeholders to Draft Methodology
Appendix 6	Formal Responses from Aboriginal Stakeholders to Draft Report
Appendix 7	Image documentation of the former Werris Creek “Old Colliery” Deputy Mine Manager’s Residence

This page has intentionally been left blank

Appendix 1

Letters of Notification

(No. of pages excluding this page = 12)

This page has intentionally been left blank



WHITEHAVEN COAL LIMITED

ABN 68 124 425 396
PO Box 600
GUNNEDAH NSW 2380
Ph: 02 67424337
Fax: 02 67423607
Web: www.whitehavencoal.com.au

11th March 2010

Mr Phil Purcell
Department of Environment, Climate Change and Water
PO Box 2111
DUBBO NSW 2830

Dear Sir

**Subject: WERRIS CREEK COAL MINE - ABORIGINAL CULTURAL
HERITAGE ASSESSMENT**

Whitehaven Coal Limited owns and operates the Werris Creek Coal Mine through subsidiary company, Werris Creek Coal Pty Ltd (WCC). The mine is located approximately 4 km south of Werris Creek, and 11 km north-northwest of Quirindi in central northern New South Wales.

WCC is preparing an application under Part 3A of the *Environmental Planning and Assessment Act, 1979* (NSW) for an extension to the existing Werris Creek Coal Mine within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. As part of the Part 3A application process, WCC will be preparing an Aboriginal Cultural Heritage Impact Assessment in respect of the area provided on the attached public notice.

Advertisement of a proposed survey over the area proposed to be disturbed by the Werris Creek Coal Mine extension, in accordance with the requirements of the "Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005), has been organised by WCC and is to be advertised in the Tamworth and Quirindi print media during the week commencing 15 March 2010.

Information on any Aboriginal groups, stakeholders or traditional knowledge holders in the Werris Creek / Quirindi area, with an interest in the management of Indigenous heritage matters, is sought. Could DECCW please recommend and provide contact details for any known Aboriginal groups with a cultural interest in this area. The nominated groups can then be included in the consultation process with regard to potential Indigenous heritage issues.

We would appreciate it if you could provide any feedback regarding these Indigenous stakeholder groups by **Friday 26th March 2010** to:

Mr Andrew Wright
Environmental Officer

Werris Creek Coal Pty Ltd
PO Box 125
Werris Creek NSW 2341

Ph: (02)6768 7071 Fax: (02)6768 7072
Mob: 0448497701 Email: awright@whitehavencoal.com.au

Yours sincerely

Danny Young
Group Environmental Manager
Ref: dy02910



WHITEHAVEN COAL LIMITED
ABN 68 124 425 396
PO Box 600
GUNNEDAH NSW 2380
Ph: 02 67424337
Fax: 02 67423607
Web: www.whitehavencoal.com.au

11th March 2010

NSW Native Title Tribunal
GPO Box 9973
SYDNEY NSW 2001

Dear Sir/Madam

**Subject: WERRIS CREEK COAL MINE - ABORIGINAL CULTURAL
HERITAGE ASSESSMENT**

Whitehaven Coal Limited owns and operates the Werris Creek Coal Mine through subsidiary company, Werris Creek Coal Pty Ltd (WCC). The mine is located approximately 4 km south of Werris Creek, and 11 km north-northwest of Quirindi in central northern New South Wales.

WCC is preparing an application under Part 3A of the *Environmental Planning and Assessment Act, 1979* (NSW) for an extension to the existing Werris Creek Coal Mine within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. As part of the Part 3A application process, WCC will be preparing an Aboriginal Cultural Heritage Impact Assessment in respect of the area provided on the attached public notice.

Advertisement of a proposed survey over the area proposed to be disturbed by the Werris Creek Coal Mine extension, in accordance with the requirements of the "Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005), has been organised by WCC and is to be advertised in the Tamworth and Quirindi print media during the week commencing 15 March 2010.

Information on any Aboriginal groups, stakeholders or traditional knowledge holders in the Werris Creek / Quirindi area, with an interest in the management of Indigenous heritage matters, is sought. Could the NSW Native Title Tribunal please recommend and provide contact details for any known Aboriginal groups with a cultural interest in this area. The nominated groups can then be included in the consultation process with regard to potential Indigenous heritage issues.

We would appreciate it if you could provide any feedback regarding these Indigenous stakeholder groups by **Friday 26th March 2010** to:

Mr Andrew Wright
Environmental Officer
Werris Creek Coal Pty Ltd
PO Box 125
Werris Creek NSW 2341.

Ph: (02)6768 7071 Fax: (02)6768 7072
Mob: 0488497701 Email: awright@whitehavencoal.com.au

Yours sincerely,

Danny Young
Group Environmental Manager
Ref:dy03410



WHITEHAVEN COAL LIMITED
ABN 68 124 425 396
PO Box 600
GUNNEDAH NSW 2380
Ph: 02 67424337
Fax: 02 67423607
Web: www.whitehavencoal.com.au

11th March 2010

NTS Corp Limited
Suite 15/245
Chalmers Street
REDFERN NSW 2016

Dear Sir

**Subject: WERRIS CREEK COAL MINE - ABORIGINAL CULTURAL
HERITAGE ASSESSMENT**

Whitehaven Coal Limited owns and operates the Werris Creek Coal Mine through subsidiary company, Werris Creek Coal Pty Ltd (WCC). The mine is located approximately 4 km south of Werris Creek, and 11 km north-northwest of Quirindi in central northern New South Wales.

WCC is preparing an application under Part 3A of the *Environmental Planning and Assessment Act, 1979* (NSW) for an extension to the existing Werris Creek Coal Mine within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. As part of the Part 3A application process, WCC will be preparing an Aboriginal Cultural Heritage Impact Assessment in respect of the area provided on the attached public notice.

Advertisement of a proposed survey over the area proposed to be disturbed by the Werris Creek Coal Mine extension, in accordance with the requirements of the "Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005), has been organised by WCC and is to be advertised in the Tamworth and Quirindi print media during the week commencing 15 March 2010.

Information on any Aboriginal groups, stakeholders or traditional knowledge holders in the Werris Creek / Quirindi area, with an interest in the management of Indigenous heritage matters, is sought. Could NTS Corp please recommend and provide contact details for any known Aboriginal groups with a cultural interest in this area. The nominated groups can then be included in the consultation process with regard to potential Indigenous heritage issues.

We would appreciate it if you could provide any feedback regarding these Indigenous stakeholder groups by **Friday 26th March 2010** to:

Mr Andrew Wright
Environmental Officer

Werris Creek Coal Pty Ltd
PO Box 125
Werris Creek NSW 2341

Ph: (02)6768 7071 Fax: (02)6768 7072
Mob: (02) 0448497701 Email: awright@whitehavencoal.com.au

Yours sincerely

Danny Young
Group Environmental Manager
Ref: dy03110



WHITEHAVEN COAL LIMITED
ABN 68 124 425 396
PO Box 800
GUNNEDAH NSW 2380
Ph: 02 67424337
Fax: 02 67423807
Web: www.whitehavencoal.com.au

11th March 2010

The General Manager
Liverpool Plains Shire Council
PO Box 152
QUIRINDI NSW 2343

Dear Sir

**Subject: WERRIS CREEK COAL MINE - ABORIGINAL CULTURAL
HERITAGE ASSESSMENT**

Whitehaven Coal Limited owns and operates the Werris Creek Coal Mine through subsidiary company, Werris Creek Coal Pty Ltd (WCC). The mine is located approximately 4 km south of Werris Creek, and 11 km north-northwest of Quirindi in central northern New South Wales.

WCC is preparing an application under Part 3A of the *Environmental Planning and Assessment Act, 1979* (NSW) for an extension to the existing Werris Creek Coal Mine within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. As part of the Part 3A application process, WCC will be preparing an Aboriginal Cultural Heritage Impact Assessment in respect of the area provided on the attached public notice.

Advertisement of a proposed survey over the area proposed to be disturbed by the Werris Creek Coal Mine extension, in accordance with the requirements of the "Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005), has been organised by WCC and is to be advertised in the Tamworth and Quirindi print media during the week commencing 15 March 2010.

Information on any Aboriginal groups, stakeholders or traditional knowledge holders in the Werris Creek / Quirindi area, with an interest in the management of Indigenous heritage matters, is sought. Could LPSC please recommend and provide contact details for any known Aboriginal groups with a cultural interest in this area. The nominated groups can then be included in the consultation process with regard to potential Indigenous heritage issues.

We would appreciate it if you could provide any feedback regarding these Indigenous stakeholder groups by **Friday 26th March 2010** to:

Mr Andrew Wright
Environmental Officer

Werris Creek Coal Pty Ltd
PO Box 125
Werris Creek NSW 2341

Ph: (02)6768 7071 Fax: (02)6768 7072
Mob: (02) 0448497701 Email: awright@whitehavencoal.com.au

Yours sincerely

Danny Young
Group Environmental Manager
Ref: dy03010



Landscape

Natural and Cultural Heritage Management

a division of M.L. Cupper Pty Ltd

ABN 40 107 802 915

30 April 2010

Mr Shane Allen
Nungaroo Local Aboriginal Land Council
PO Box 28
Qurindi NSW 2343

Dear Mr Allen,

Re: Werris Creek Coal Mine Modification– Notification to Register Interest

Werris Creek Coal Pty Ltd owns and operates the Werris Creek Coal Mine located approximately 4 km south of Werris Creek and 11 km north-northwest of Qurindi in central northern New South Wales (Figure 1; attached).

Werris Creek Coal Pty Ltd is preparing an application under Part 3A of the *Environmental Planning and Assessment Act, 1979* (NSW) for an extension to the existing Werris Creek Coal Mine within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. As part of the Part 3A application process, WCC will be preparing an Aboriginal Cultural Heritage Impact Assessment in respect of the area provided in Figure 2 (attached).

Landscape on behalf of Werris Creek Coal Pty Ltd would like to consult with all Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places in the project area. The purpose of the consultation is to assist Werris Creek Coal Pty Ltd in the preparation of an application for an Aboriginal Heritage Impact Permit and to assist the Director General of DECCW in his or her consideration and determination of the application. Any persons or groups who would like to be consulted are invited to contact me: Dr Matt Cupper, Landscape, PO Box 246, Merbein 3505; e-mail: landscape@telstra.com; tel: 0408 006 690.

Closing date for registrations of interest is 5:00 pm Monday 17 May 2010.

Yours sincerely,

Dr Matt Cupper

PO Box 246 Merbein Victoria 3505

Tel: 0408 006 690 Fax: 03 5025 2549 E-mail: landscape@telstra.com

Landscape

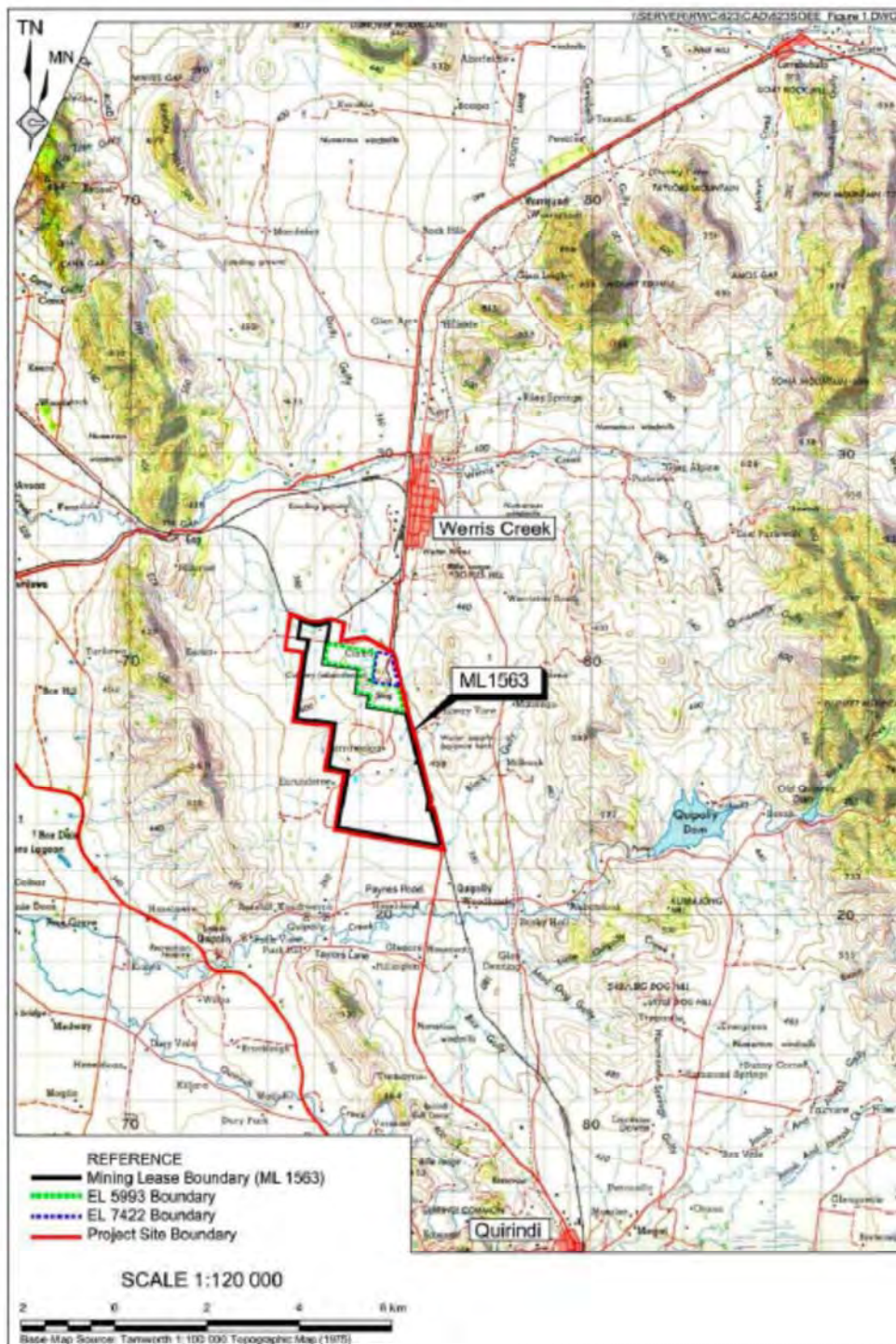


Figure 1.

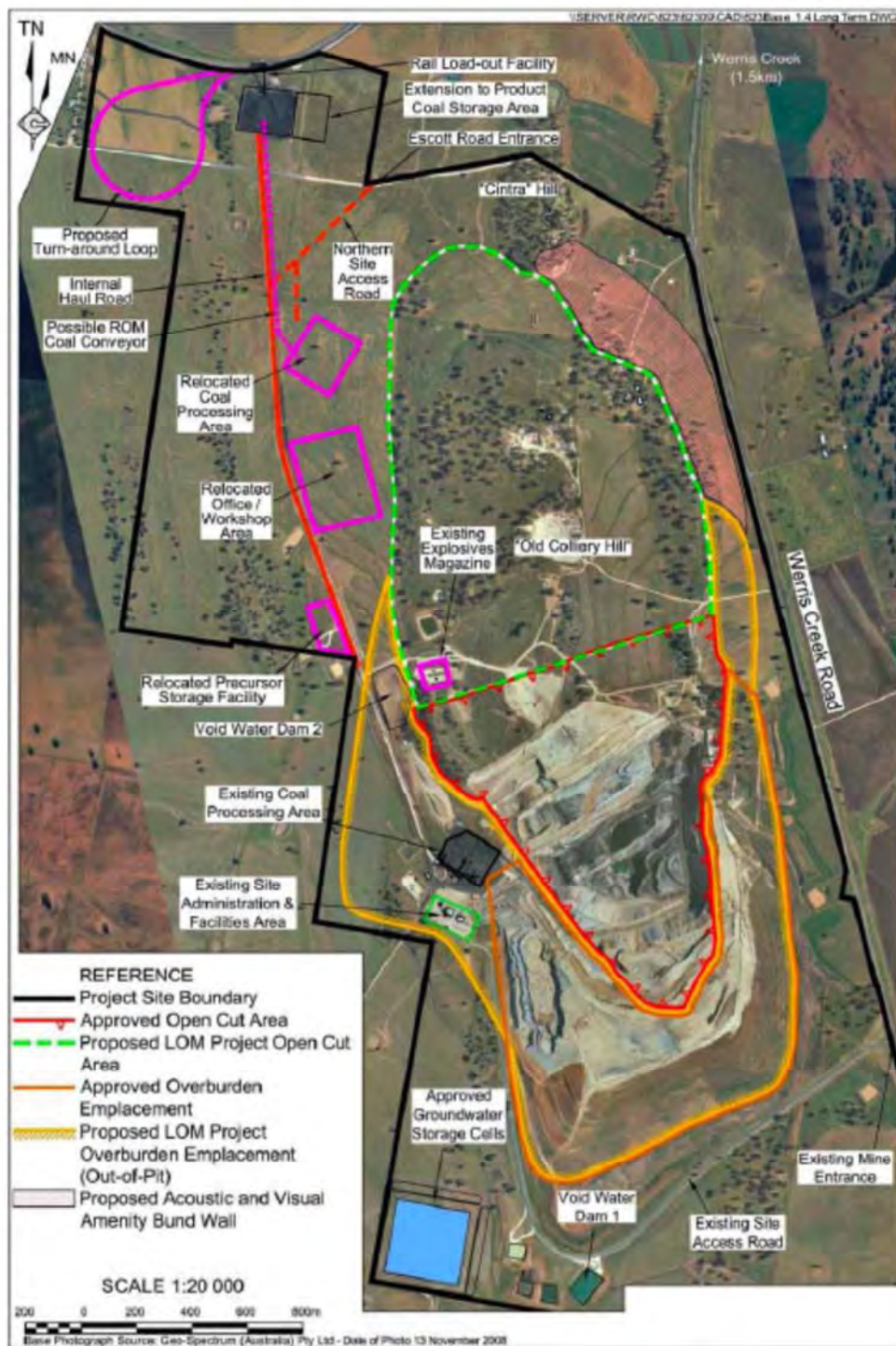


Figure 2.

This page has intentionally been left blank

Appendix 2

Public Notice

(No. of pages excluding this page = 2)

This page has intentionally been left blank

PUBLIC NOTICE

ARCHAEOLOGICAL INVESTIGATION

Application is to be made for project approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for an extension to the existing Werris Creek Coal Mine within Mining Lease No. 1563 and Exploration Leases No. 5993 and 7422.

In order to satisfy the requirements for an approval under Part 3A of the EP&A Act, it is proposed that an archaeological investigation of the subject area (as shown hatched below) will be undertaken for sites of Indigenous cultural significance.

In accordance with "Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005), Part 6 Approvals of the National Parks & Wildlife Act 1974 (as amended), Aboriginal stakeholders with an interest in the project are invited to register their interest within 14 days, with Andrew Wright, Environmental Officer, Werris Creek Coal.

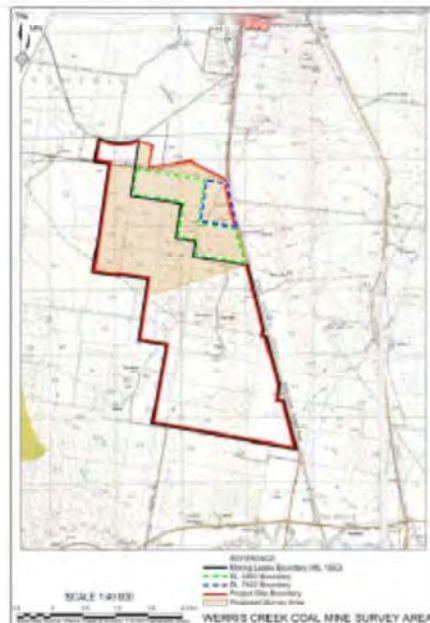
Tel: 02 6768 7071

Fax: 02 6768 7072

Mob: 0488497701

Email:

awright@whitehavencoal.com.au



This page has intentionally been left blank

Appendix 3

Formal Responses from Aboriginal Stakeholders to Notification

(No. of pages excluding this page = 10)

This page has intentionally been left blank



15 March 2010

Danny Young
Group Environmental Manager
Whitehaven Coal Limited
PO Box 600
GUNNEDAH NSW 2380

**New South Wales and
Australian Capital Territory
Registry**

Level 25, 25 Bligh Street
Sydney NSW 2000
GPO Box 9973
Sydney NSW 2000
Telephone (02) 9235 6300
Facsimile (02) 9233 5613

Our Reference: 3343/10kc
Your Reference: dy03410

Dear Danny

Native Title Search Results of Liverpool Plains Local Government Area

Thank you for your letter of 11 March 2010.

My search on 15 March 2010 found:

Register Type	NNTT Reference Numbers
National Native Title Register	Nil.
Register of Native Title Claims	Nil.
Unregistered Claimant applications	Nil.
Register of Indigenous Land Use Agreements	Nil.

I have included a NTT Registers fact sheet to help you understand the search result.

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

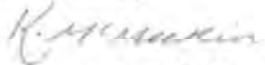
Resolution of native title issues over land and waters.

Freecall 1800 640 501
www.nntt.gov.au

We will invoice you for \$21.45.

If you need more information please call me on 1800 640 501.

Yours sincerely



Kashana Cohen-McMeekin

Receptionist/Search Coordinator

Telephone (02) 9235 6300

Facsimile (02) 9235 5613

Email Kashana.Cohen-McMeekin@rnttt.gov.au

Encl



Searching the NNTT Registers in New South Wales

Search service

On request the National Native Title Tribunal will search its public registers for you. A search may assist you in finding out whether any native title applications (claims), determinations or agreements exist over a particular area of land or water.

In New South Wales native title cannot exist on privately owned land including family homes or farms.

What information can a search provide?

A search can confirm whether any applications, agreements or determinations are registered in a local government area. Relevant information, including register extracts and application summaries, will be provided.

In NSW because we cannot search the registers in relation to individual parcels of land we search by local government area.

Most native title applications do not identify each parcel of land claimed. They have an external boundary and then identify the areas not claimed within the boundary by reference to types of land tenure e.g., freehold, agricultural leasehold, public works.

What if the search shows no current applications?

If there is no application covering the local government area this only indicates that at the time of the search either the Federal Court had not received any claims in relation to the local government area or the Tribunal had not yet been notified of any new native title claims.

It does not mean that native title does not exist in the area.

Native title may exist over an area of land or waters whether or not a claim for native title has been made.

Where the information is found

The information you are seeking is held in three registers and on an applications database.

National Native Title Register

The National Native Title Register contains determinations of native title by the High Court, Federal Court and other courts.

Register of Native Title Claims

The Register of Native Title Claims contains applications for native title that have passed a registration test.

Registered claims attract rights, including the right to negotiate about some types of proposed developments.

Register of Indigenous Land Use Agreements

The Register of Indigenous Land Use Agreements contains agreements made with people who hold or assert native title in an area.

The register identifies development activities that have been agreed by the parties.

Application summaries

An application summary contains a description of the location, content and status of a native title claim.

This information may be different to the information on the Register of Native Title Claims, e.g., because an amendment has not yet been tested.

How do you request a search?

A search request form is available on the Tribunal's web site at:

<http://www.nntt.gov.au/registers/search.html>

This form says how much searches cost.

Mail, fax or email your request to the Tribunal's Sydney registry, identifying the local government area/s you want searched.

Email: SydneySearch@nntt.gov.au

Fax: (02) 9233 5613

Address: GPO Box 9973, Sydney NSW 2001

Phone: (02) 9235 6300



RECEIVED
16 MAR 2010

Reference: MJP:sjb 10/0079

BY:----- Contact: Merv Prendergast

12 March 2010

Whitehaven Coal Ltd
PO Box 600
GUNNDAH NSW 2380

Attn: Andrew Wright

Dear Mr Wright

ABORIGINAL CONTACT GROUPS

I refer to your letter dated 11 March 2010 requesting information or knowledge of any Aboriginal groups in the Werris Creek / Quirindi area and advise that Council's contact list consists of the following:

Quirindi Aboriginal Corporation
233 Hawker Street
QUIRINDI NSW 2343
Tel: 6746 2668

Nungaroo Local Aboriginal Land Council
C/- Hoholt Property Services
PO Box 3630
TAMWORTH NSW 2340

Walhallow Aboriginal Corporation
C/- Hoholt Property Services
PO Box 3630
TAMWORTH NSW 2340

I trust that this information assists you and should you require anything further please contact the undersigned on 6746 1755.

Yours faithfully

M J Prendergast
**ACTING DIRECTOR ENVIRONMENTAL
SERVICES**

LIVERPOOL PLAINS SHIRE COUNCIL
60 Station Street PO Box 152 QUIRINDI NSW 2343 TEL 02 6746 1755 FAX 02 6746 3255
EMAIL lpssc@lpssc.nsw.gov.au WEBSITE www.lpssc.nsw.gov.au ABN 97 810 717 370

From: Andrew Wright <AWright@whitehavencoal.com.au>
Subject: **FW: Narawolga Grooves**
Date: 27 April 2010 2:44:13 PM
To: "landskape@telstra.com" <landskape@telstra.com>
▶ 1 Attachment, 12.4 KB

Cheers, Andrew

Andrew Wright
Environmental Officer
Werris Creek Coal
0488497701

From: corie taylor [<mailto:corie.taylor@cma.nsw.gov.au>]
Sent: Wednesday, 7 April 2010 3:56 PM
To: Andrew Wright
Subject: Re: Narawolga Grooves

G'day Andrew

Thanks for the pics of the site. Is there any way I could view them first hand without creating too much drama for yourself?

I know that access to mine sites can be problematic.

Regards

Corie,

Natural Resource Officer
Aboriginal Support
Namoi CMA
0267 645 936

>>> Andrew Wright <AWright@whitehavencoal.com.au> 7/04/2010 9:25 am >>>

Corie

As discussed, photos of Narawolga Axe Grinding Grooves from Werris Creek Coal.

Andrew Wright

Environmental Officer - Werris Creek Coal

Whitehaven Coal Limited

1435 Werris Creek Road/PO Box 115, Werris Creek NSW 2341

From: Andrew Wright <AWright@whitehavencoal.com.au>
Subject: **FW: Archaeological Investigation**
Date: 27 April 2010 2:44:08 PM
To: "landscape@telstra.com" <landscape@telstra.com>

Cheers, Andrew

Andrew Wright
Environmental Officer
Werris Creek Coal
0488497701

-----Original Message-----

From: Lisa Shipley [<mailto:Lisa.Shipley@hnehealth.nsw.gov.au>]
Sent: Friday, 19 March 2010 1:36 PM
To: Andrew Wright
Subject: Archaeological Investigation

Hello Andrew I would like to register my interest in the extension of the Werris Creek Coal Mine

Thank you

Lisa Shipley
Indigenous Research Academic
University Department Rural Health & Rural Clinical School
Tamworth N.S.W. 2340
Ph. 67678496
Fax 67612355

From: Andrew Wright <AWright@whitehavencoal.com.au>
Subject: **FW: Werris Creek Coal Mine - Aboriginal Cultural Heritage Assessment**
Date: 27 April 2010 2:44:20 PM
To: "landscape@telstra.com" <landscape@telstra.com>
2 Attachments, 7.9 KB

Cheers, Andrew

Andrew Wright
Environmental Officer
Werris Creek Coal
0488497701

From: Tori Edwards [<mailto:tedwards@ntscorp.com.au>]
Sent: Thursday, 25 March 2010 9:18 AM
To: Andrew Wright
Subject: Werris Creek Coal Mine - Aboriginal Cultural Heritage Assessment

Dear Andrew

I refer to your letter to NTSCORP of 11 March 2010 regarding the Aboriginal Cultural Heritage Assessment for the Werris Creek Coal Mine.

NTSCORP provides advice and assistance to the Gomeroi Nation in north-west NSW. The Nation has ratified as its representative structure the Gomeroi Tribal Nation Secretariat ("GTNS"), a group made up of elected representatives from each of the 18 local communities that comprise the Gomeroi Nation. The GTNS meets regularly to discuss issues of importance to the nation, including natural resource management and land use planning.

The GTNS is the appropriate structure with which you should engage regarding the Cultural Heritage Impact Assessment. Correspondence to the GTNS should be sent:

C/o - PO Box 2105, STRAWBERRY HILLS NSW 2012

If you require any further information, please do not hesitate to contact me.

Regards,



Tori Edwards Solicitor

t: +61 2 9310 3188 | f: +61 2 9310 4177 | m: +61 437 761 811
e: tedwards@ntscorp.com.au | w: www.ntscorp.com.au

Caution: This message is intended only for the addressee. It is confidential and may be legally privileged. If you are not the intended recipient, any disclosure, copying, or distribution is prohibited and may be unlawful. By opening any attachment, you agree that NTSCORP Limited (NTSCORP) will not be liable for any loss resulting from viruses or other defects. Any views in this message are those of the individual sender, except where the sender expressly and with authority, states them to be the views of NTSCORP.

Liability is Limited by the Solicitors Scheme approved under the Professional Standards Act 1994 (NSW).



Please consider the environment before printing this e-mail

From: Andrew Wright <AWright@whitehavencoal.com.au>
Subject: **FW: Werris Creek Coal Mine - Aboriginal Cultural Heritage Assessment**
Date: 27 April 2010 2:44:27 PM
To: "landscape@telstra.com" <landscape@telstra.com>

Cheers, Andrew

Andrew Wright
Environmental Officer
Werris Creek Coal
0488497701

From: Tamworth LALC [<mailto:tamworth.lalc@bigpond.com>]
Sent: Monday, 22 March 2010 10:21 AM
To: Andrew Wright
Subject: Werris Creek Coal Mine - Aboriginal Cultural Heritage Assessment

Members of the Tamworth Local Aboriginal Land Council would have a cultural interest in the area of the Werris Creek Coal Mine.

Contact details:

Tamworth Local Aboriginal Land Council
PO Box 57 - 123 Marius Street
TAMWORTH NSW 2340

regards

Fiona Snape
CEO
Tamworth Local Aboriginal Land Council
123 Marius Street (PO Box 57)
Tamworth NSW 2340
Phone: (02) 6766-9028
Fax: (02) 6766-9036

This page has intentionally been left blank

Appendix 4

Proposed Methodology for Aboriginal Cultural Heritage Assessment

(No. of pages excluding this page = 5)

This page has intentionally been left blank



WERRIS CREEK COAL MINE MODIFICATION

PROPOSED METHODOLOGY

FOR THE

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

30 April 2010

Werris Creek Coal Pty Limited
PO Box 125
WERRIS CREEK NSW 2341
Tel: (02) 6768 7071
Fax: (02) 6768 7072

1 INTRODUCTION

Werris Creek Coal Pty Ltd intends to modify the Werris Creek Coal Mine (hereafter, *the Modification*) within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. The Werris Creek Coal Mine is located approximately 4 km south of Werris Creek and 11 km north-northwest of Quirindi in central northern New South Wales (Figure 1).

The Modification will involve:

- Northerly extension of the approved Open Cut. The proposed extent of the Open Cut represents mining of the entire Werris Creek outlier deposit of the Greta Coal Measures.
- An extension to the out-of-pit and in-pit overburden emplacements. In order to attenuate noise impacts and screen the operation visually from Werris Creek, the overburden emplacement would extend around the eastern and northeastern perimeter of the open cut, a bund wall would be constructed of overburden around the northeastern perimeter of the open cut.
- Relocation of the Coal Processing Area and increase in the size of the ROM stockpile to 200 000 t.
- Relocation of the Site Facilities and Administration Area.
- Increase the size of the Product Coal Stockpile Area to 250 000t by extending the pad to the east.
- Installation of a second feed point at the Rail Load-out Facility.
- Construction of a 'turn-around' rail loop off the Werris Creek Rail Siding to the immediate west of the Rail Load-out Facility.
- Construction of a new mine entrance off Escott Road (and closing the existing mine entrance off the Werris Creek – Quirindi Road).
- Continued dewatering of the old underground workings.
- Construction of a new Void Water Dam at the northern end of the Project Site.
- Possible construction of a conveyor to transport coal.

Werris Creek Coal Pty Ltd is seeking to engage with the Aboriginal community as part of the preparation of an Environmental Assessment (EA) under Part 3A of the *Environmental Planning and Assessment Act 1979* for the Modification. To this end, Werris Creek Coal Pty Ltd has invited stakeholder groups or people wishing to be consulted to register their interest.

Cultural heritage consultancy Landskape and project archaeologist Dr Matt Cupper have been engaged by Werris Creek Coal Pty Ltd to undertake an Aboriginal cultural heritage assessment of any Aboriginal heritage that could occur within the proposed disturbance areas of the expanded overburden emplacements and ancillary infrastructure. This

assessment will then be integrated with an historical cultural heritage assessment into a single Cultural Heritage Assessment report, which will form part of the Werris Creek Coal Mine Modification EA. The assessment is required to be conducted in accordance with the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC 2005) and *Standards for Archaeological Practice in Aboriginal Heritage Management* (NPWS 1997). Consultation with Aboriginal people and communities will be guided by the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010).

Section 2 of this document outlines the proposed methodology for the Aboriginal cultural heritage assessment of any Aboriginal objects, places and/or Aboriginal cultural heritage values that could occur within the proposed work areas. These include the areas of the expanded overburden emplacements and ancillary infrastructure. The locations of these areas are illustrated on Figure 2. Werris Creek Coal Pty Ltd invites registered parties to provide comments (either verbally or in writing) on the proposed methodology outlined in Section 2.

Section 3 provides further information on the preparation of the Cultural Heritage Assessment report.

2 PROPOSED ASSESSMENT METHODOLOGY

The proposed methodology for the Aboriginal cultural heritage assessment is as follows:

- Conduct a desktop assessment to delineate areas of known and predicted Aboriginal objects, places and/or Aboriginal cultural heritage values within the proposed work areas.
- Identify the Aboriginal cultural heritage values associated with the area through consulting with Aboriginal people with cultural knowledge or responsibilities for country in which the Modification occurs, utilising written, oral research and field investigation. This would include an archaeological field study of the proposed work areas with representatives of the local Aboriginal community to identify Aboriginal objects, places and/or Aboriginal cultural heritage values. The field investigation would be carried out by the project archaeologist Dr Matt Cupper with the assistance of Aboriginal representatives. These field representatives would, as broadly as is practical, represent all the local Aboriginal stakeholder groups.
- Record any Aboriginal objects, places and/or Aboriginal cultural heritage values within the work areas and assess their significance with representatives of the local Aboriginal community.

- In consultation with the Aboriginal community, develop recommended management and mitigation measures for any Aboriginal objects, places and/or Aboriginal cultural heritage values within the proposed work areas.
- Assess the potential impact of the proposed development on any Aboriginal objects, places and/or Aboriginal cultural heritage values within the proposed work areas.
- Describe and justify the proposed outcomes and alternatives.
- Document the Aboriginal cultural heritage impact assessment and the conclusion and recommendations to minimise potential impacts on Aboriginal cultural heritage.

3 CULTURAL HERITAGE IMPACT ASSESSMENT

Following the Aboriginal cultural heritage assessment, Landskape will prepare a draft Cultural Heritage Assessment report. The Cultural Heritage Assessment report will be provided to registered parties and will include:

- detail of any Aboriginal objects, places and/or Aboriginal cultural heritage values within the study area and how they could be impacted by the proposed modifications;
- detail of the consultation undertaken and how comments received at various times were considered; and,
- management and mitigation recommendations drawing on information provided by registered parties and the results of the cultural and archaeological assessments.

4 PERSONNEL

Project Archaeologist: Dr Matt Cupper would be the project archaeologist. Matt has a wide range of experience in cultural and natural heritage management and an academic background in archaeology, geology and botany, including a PhD in the palaeoecology and early Aboriginal occupation of the Darling River. His particular area of expertise is the interaction of Aboriginal people and arid ecosystems in the interior of Australia. As a consultant archaeologist he has been engaged in many management and research-oriented studies for industry and government. These have included investigation of the cultural heritage of central northern New South Wales for coal extraction.

Aboriginal Field Representatives: Aboriginal field representatives would be engaged by Werris Creek Coal Pty Ltd for the duration of the cultural heritage field survey (~2 days).

Appendix 5

Formal Responses from Aboriginal Stakeholders to Draft Methodology

(No. of pages excluding this page = 3)

This page has intentionally been left blank

From: Tori Edwards <tedwards@ntscorp.com.au>
Subject: RE: Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Werris Creek Coal Mine Modification
Date: 19 May 2010 3:31:38 PM
To: Matt Cupper <landskape@telstra.com>
1 Attachment, 5.2 KB

Dear Matt

Thank you for your email, and the attached proposed methodology.

The proposed methodology refers to archaeological field study, to be conducted by yourself with the assistance of "Aboriginal representatives" who will represent "local Aboriginal Stakeholder groups" (p.2). I note that the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010) refer to traditional owners as being the appropriate persons to consult, with the requisite level of cultural knowledge to provide information about the objects, places and cultural heritage values within the proposed work area (3.3.1, p. 8). The consultation guidelines clearly establish that whilst, in some circumstances, those with historical connections to Country may act on behalf of Traditional Owners, this is only with their permission, and the required cultural knowledge.

NTSCORP represents the Gomeroi Nation through an elected structure of local community representatives - the Gomeroi Nation Tribal Secretariat (GTNS).

The GTNS representatives for the area in question are:

- (a) Burrul Galigabali, PO Box 600, Singleton NSW 2330, 0448 100
- (b) Victor Porter, 18 Dewhurst Street, Werris Creek, (02) 67687396.

Should you wish to discuss the above or require any further clarification, please do not hesitate to contact me.

Regards,

Tori



Tori Edwards Solicitor

t: +61 2 9310 3188 | f: +61 2 9310 4177 | m: +61 437 761 811
e: tedwards@ntscorp.com.au | w: www.ntscorp.com.au

From: Matt Cupper [<mailto:landskape@telstra.com>]
Sent: Friday, 30 April 2010 2:27 PM
To: Tori Edwards
Subject: Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Werris Creek Coal Mine Modification

Dear Tori,

Werris Creek Coal Pty Ltd is preparing an application under Part 3A of the *Environmental Planning and Assessment Act 1979* (NSW) for an extension to the existing Werris Creek Coal Mine within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. Please find attached for your review and feedback a copy of the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Werris Creek Coal Mine Modification.

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010), we have provided this proposed methodology to all registered Aboriginal stakeholders for their review. Please note that your comments or feedback in regard to the proposed methodology will be received up until 5.00 pm on 28 May 2010.

Could you please provide a copy of any comments via fax, e-mail or post to: Dr Matt Cupper, Landskape, PO Box 246, Merbein 3505; e-mail: landskape@telstra.com; fax: 03 5025 2549; tel: 0408 006 690.

From: "Lisa Shipley" <Lisa.Shipley@hnehealth.nsw.gov.au>
Subject: **Re: Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Werris Creek Coal Mine Modification**
Date: 28 May 2010 3:33:01 PM
To: "Matt Cupper" <landscape@telstra.com>
Cc: <daltaylor@bigpond.com>

Hello Mat,

As discussed during our telephone conversation my interest in this is to ensure a broad range of local Aboriginal community members and organisations are consulted in relation to the extension of the existing Werris Creek Coal Mine. In attempting to ensure this I have spoken to a range of local Aboriginal community and professional members and discussed the proposed methodology. While the majority required more time to comprehend the document those that did comment suggested a longer period of time for the field survey given the expanse of the area. Another area of concern was nothing being mentioned pertaining to revisiting the area for follow up inspections once soil has been turned in the event anything culturally significant is uncovered. I look forward to further correspondence with you in relation to the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Werris Creek Coal Mine Modification and the importance of involving the Kamilaroi people in the consultation process.

Kind regards

Lisa Shipley
Indigenous Research Academic
University Department Rural Health & Rural Clinical School
Tamworth N.S.W. 2340
Ph. 67678496
Fax 67612355

||| Matt Cupper <landscape@telstra.com> 26/05/2010 3:48 pm >>>
Dear Lisa,

Werris Creek Coal Pty Ltd is preparing an application under Part 3A of the Environmental Planning and Assessment Act, 1979 (NSW) for an extension to the existing Werris Creek Coal Mine within Mining Lease 1563 and Exploration Lease Areas 5993 and 7422. Please find attached for your review and feedback a copy of the Proposed Methodology for the Aboriginal Cultural Heritage Assessment of the Werris Creek Coal Mine Modification.

In accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), we have provided this proposed methodology to all registered Aboriginal stakeholders for their review. Please note that your comments or feedback in regard to the proposed methodology will be received up until 5.00 pm on 28 May 2010.

Could you please provide a copy of any comments via fax, e-mail or post to: Dr Matt Cupper, Landscape, PO Box 246, Merbein 3505; e-mail: landscape@telstra.com; fax: 03 5025 2549; tel: 0408 006 690.

Many thanks and kind regards,
Matt

Dr Matt Cupper
Principal
Landscape

PO Box 246
Merbein 3505

Tel: 0408 006 690
Fax: 03 5025 2549

Appendix 6

Formal Responses from Aboriginal Stakeholders to Draft Report

(No. of pages excluding this page = 2)

This page has intentionally been left blank

From: Tori Edwards <tedwards@ntscorp.com.au>
Subject: **Draft Cultural Heritage Assessment of Werris Creek Coal Mine Life of Mine Project**
Date: 29 July 2010 9:36:49 AM
To: Matt Cupper <landscape@telstra.com>
▶ 2 Attachments, 7.9 KB

Dear Matt

Thank you for your letter to the Gomeroi Tribal Nation Secretariat on 13 July 2010.

I have reviewed the enclosed Draft Cultural Heritage Assessment for the Werris Creek Coal Mine. I was pleased to see that you had engaged with some of the Traditional Owners from the area in the course of preparing this document.

The GTNS would like to reiterate that the correct people to speak on issues of cultural heritage in relation to the Mine are the Traditional Owners from the Werris Creek area. NTSCORP has previously conveyed this information to you, and provided you with contact details for Burrul Galigabali and Victor Porter. We encourage you to continue to work with the Traditional Owners as the Cultural Heritage Assessment is finalised, and on the cultural heritage work during the life of the Project.

If you require any further information, please do not hesitate to get in touch.

Regards,



Tori Edwards *Solicitor*

tl: +61 2 9310 3188 | fl: +61 2 9310 4177 | ml: +61 437 761 811
e: tedwards@ntscorp.com.au | w: www.ntscorp.com.au

This page has intentionally been left blank

Appendix 7

Image documentation of the Old Colliery Deputy Mine Manager's Residence

(No. of pages excluding this page = 8)

Please Note a Colour Version of These Figures Are Available on the Project CD

This page has intentionally been left blank



Figure 7.1. Old Colliery Former Deputy Mine Manager's Residence from northeast.



Figure 7.2. Residence northeastern aspect.



Figure 7.3. Residence northern aspect.



Figure 7.4. Residence western aspect.



Figure 7.5. Residence from southwest.



Figure 7.6. Washroom of residence from southwest.



Figure 7.7. Interior of washroom.



Figure 7.8. Interior of southern enclosed veranda.



Figure 7.9. Interior of living room.



Figure 7.10. Detail of living room fireplace.



Figure 7.11. Detail of Art Deco hallway fretwork arch.



Figure 7.12. Detail of kitchen range.



Figure 7.13. Shed at the former Deputy Mine Manager's Residence.



Figure 7.14. Interior of shed.

This page has intentionally been left blank