



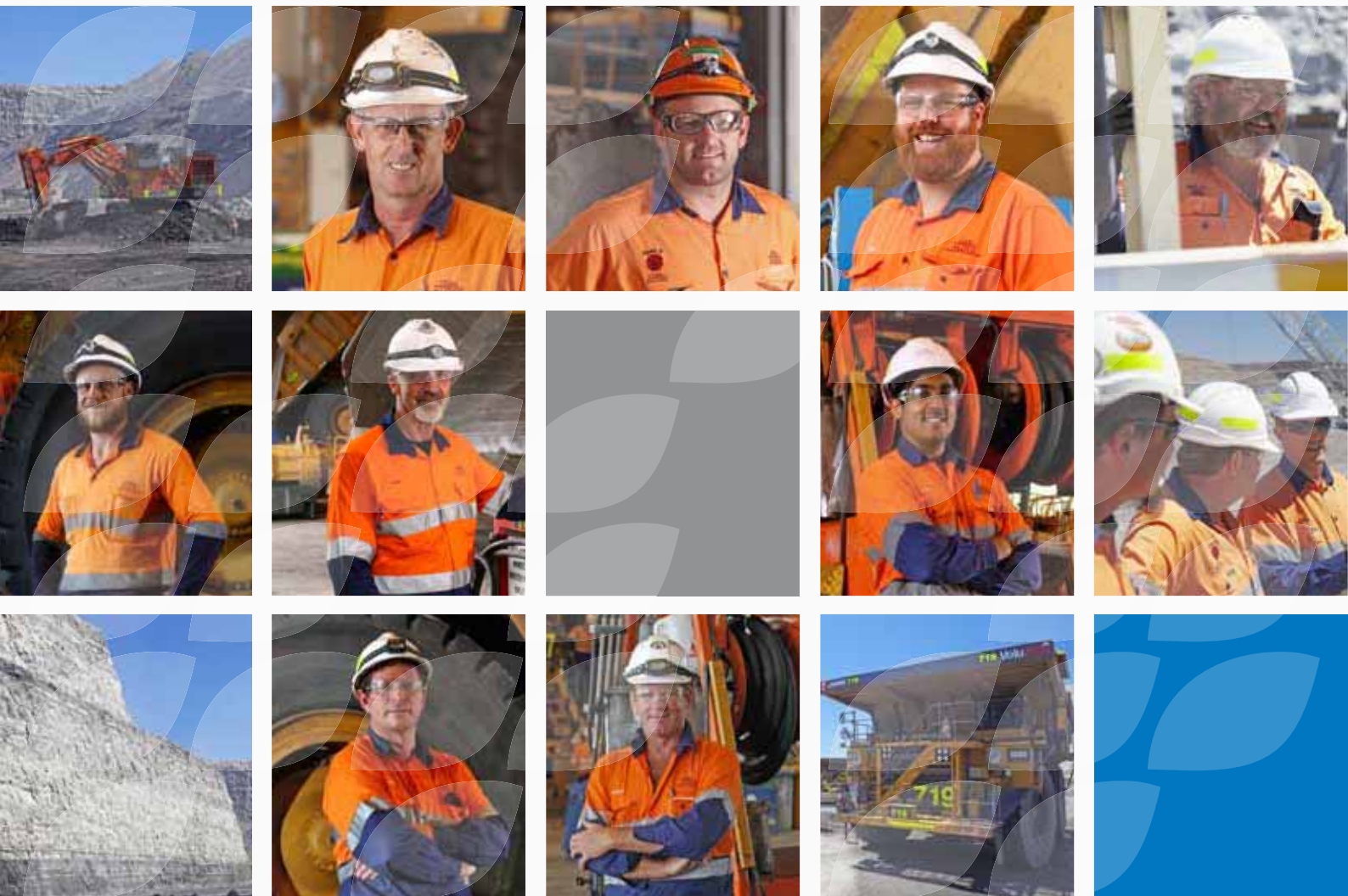
Warkworth Continuation 2014

5

Environmental Impact Statement

Prepared for Warkworth Mining Limited | June 2014

VOLUME 5 — Appendices M to N



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Managed by Rio Tinto Coal Australia



EMM
EMGA Mitchell McLennan

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Appendix M — Aboriginal cultural heritage study



Aboriginal Cultural Heritage Assessment Report
for the
Warkworth Continuation 2014 Proposal
and
Mount Thorley Operations 2014 Proposal
Environmental Impact Statements

Prepared by
Central Queensland Cultural Heritage Management Pty Ltd

for
Rio Tinto Coal Australia

May 2014

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Abbreviations

A&CHMP	Archaeology and Cultural Heritage Management Plan
ACHCRP 2010	Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010
AHIMS	Aboriginal Heritage Information Management Service
AHIP	Aboriginal Heritage Impact Permit
AMBS	Australian Museum Business Services
ATSIHP Act	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 198</i>
BSO	Bulga Surface Operations
CHMD	Cultural Heritage Management Database
CHMS	Cultural Heritage Management System
CHWG	Cultural Heritage Working Group
Coal & Allied	Coal & Allied Operations Pty Limited
CQCHM	Central Queensland Cultural Heritage Management Pty Limited
DECCW	Department of Environment, Climate Change and Water
DEWHA	Department of Environment, Water, Heritage and the Arts
DP&E	Department of Planning & Environment
EA	Environmental Assessment
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GL	Gigalitres
HMA	Habitat Management Area
HMP	Heritage Management Plan
HRSTS	Hunter River Salinity Trading Scheme
Loder Creek ACHCA	Loder Creek Aboriginal Cultural Heritage Conservation Area
MTO	Mount Thorley Operations
Mtpa	Million tonnes per annum
MTW	Mount Thorley Warkworth
NDA	Non-disturbance Areas
NOOP	Northern out-of-pit
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NPWS	National Parks and Wildlife Service
OEH	Office of Environment and Heritage
OSL	Optically Stimulated Luminescence
PAD	Potential Archaeological Deposit
RAP	Registered Aboriginal Party
SOOP	Southern out-of-pit
ToR	Terms of Reference
WBACHCA	Wollombi Brook Aboriginal Cultural Heritage Conservation Area
WMS	Water Management System

Executive Summary

This report has been commissioned by Coal & Allied as part of the preparation of Environmental Impact Assessments (EIS) for the Warkworth Continuation 2014 & Mount Thorley Operations (MTO) 2014 proposals (together, the proposals) under Part 4 of the New South Wales *Environment Planning and Act* 1979 (EP&A Act). The proposals have been declared State Significant developments under Division 4.1 of Part 4 of the EP&A Act.

Coal & Allied have completed comprehensive Aboriginal cultural heritage surveys and research covering the vast majority of the Mount Thorley Warkworth (MTW) mining leases and the adjoining Coal & Allied owned lands, including the entirety of the proposal areas. These have been conducted over an extended period from 2002, but have been particularly intensive since 2008. This work forms part of the company's strategy of minimising the impact of any of its operations on Aboriginal cultural heritage, and has been carried out in consultation with Aboriginal community members and with their active participation in the conduct of field assessments and management activities.

Coal & Allied has comprehensive policies and protocols in place to guide Aboriginal cultural heritage management across all of their operations. These policies are applied consistently across the integrated MTW operation in close consultation with the Aboriginal community who has interests in the region and with whom Coal & Allied have well developed, formal and active relationships. The proposals generally, but the proposal to extend the Warkworth Mine which, in particular, aims to extend mining operations to the west, have been discussed intensively with the Registered Aboriginal Parties (RAPs) primarily through the Upper Hunter Valley Aboriginal Cultural Heritage Working Group (CHWG).

This report provides:

- an outline of current management practices at MTW as they apply to Aboriginal cultural heritage;
- an outline of the research that has been conducted into Aboriginal cultural heritage in the proposal areas and adjoining Coal & Allied owned lands, including the participation of Aboriginal community members;
- an assessment of Aboriginal cultural heritage significance for the proposals, potential impacts and management proposals, including the views of the Aboriginal community; and
- commitments with respect to Aboriginal cultural heritage management for the proposals.

While the key focus of this report is on the management of impacts on Aboriginal cultural heritage within the proposal areas, it also outlines Aboriginal cultural heritage management strategies and commitments as they relate more generally to other Coal & Allied owned lands including the proposed Wollombi Brook Aboriginal Cultural Heritage Conservation Area (WBACHCA) and Loder Creek Aboriginal Cultural Heritage Conservation Area (Loder Creek ACHCA), that reflect the informed views of the Aboriginal community.

The WBACHCA is to be established on Coal & Allied owned lands along the western boundaries of the MTW mining leases. It will include a significant portion of the highly culturally significant Bulga bora ground area on the eastern side of Wollombi Brook. Initially it will be managed by Coal & Allied in collaboration with the CHWG and in accordance with a management plan, which is well advanced, specific to the area. A key longer-term objective will be to establish a co-management regime for the WBACHCA and other Aboriginal cultural heritage conservations areas (such as that also proposed for the remnant riparian areas along Loder Creek within the MTO 2014 proposal area; i.e. the Loder Creek ACHCA) in partnership with the Aboriginal community through the development of a community-based and culturally-appropriate governance structure.

The proposals provide an opportunity for key stakeholders including the Aboriginal community, Coal & Allied and Government agencies to reconsider aspects of the present approach to Aboriginal cultural heritage management, at least in the Upper Hunter Valley. This report proposes that the development of a cultural heritage management accord between Coal & Allied and the Aboriginal community could deliver secure management of important cultural places, as well as a balance of outcomes that deliver intergenerational equity and enhance the cultural and social strength and cohesion of the Aboriginal community in the Upper Hunter Valley.

It would be expected that the proposed accord would require Coal & Allied to meet obligations with respect to and make provision for:

- reasonable and adequate resources for the establishment of both the WBACHCA and associated community governance entity in the first instance, and for the ongoing long-term management of WBACHCA and Loder Creek ACHCA;
- access to and co-management arrangements for both WBACHCA and Loder Creek ACHCA;
- access to culturally-significant places and / or landscapes have been identified by the Aboriginal community on other Coal & Allied lands associated with the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposal areas;
- resourcing Aboriginal cultural heritage and land management training and employment; and

- resourcing cultural and oral history recording by Aboriginal community members to ensure the security of existing but threatened cultural and historical information.

The accord will also capture obligations on behalf of the Aboriginal community. These could include:

- development of an integrated framework model for cultural heritage management applicable to all Coal & Allied's operations and lands in the Upper Hunter Valley that would look to make the best use of available resources to maximise outcomes for the Aboriginal community, including intergenerational equity;
- negotiating in good faith about Aboriginal cultural heritage management outcomes across Coal & Allied's operations and lands in the Upper Hunter Valley; and
- responsible management of Aboriginal cultural heritage places, landscapes and lands that are subject to Aboriginal community co-management arrangements.

Discussions surrounding such an accord will require close engagement with the Aboriginal community of the Upper Hunter Valley and relevant Government agencies (including DP&E and OEH), and will require careful consideration and time to conclude.

The report provides an overview of regional archaeological research including archaeological studies within the MTW mining area which date from the late 1970s. Within this, however, there are a series of key studies undertaken throughout the MTW area which inform this report and provide data for the assessment of the significance of Aboriginal cultural heritage objects and places located within the proposal areas and their management in the context of the proposed development activities. These studies fall into three main categories:

- studies relating to the 2002 extension of the Warkworth Mine;
- Coal & Allied studies undertaken throughout MTW between 2008 and 2014; and
- multidisciplinary archaeological and geomorphological investigations undertaken into areas of the Warkworth Sands land system.

The methodologies and key findings of these studies, including consultation with and participation by the Aboriginal community are presented in the report.

The studies have identified a number of cultural places and features that are considered to have some research potential or to have some level of scientific significance for other reasons. However, with the resolution of the issues surrounding the question of possible Pleistocene occupation deposits

associated with the Warkworth Sands landform, there are no places in proposal areas whose scientific values are such that they should constitute a constraint on the proposals.

The great majority of Aboriginal cultural heritage places identified in the MTW mining area are typical of the regional archaeology of the Upper Hunter Valley. The places are concentrated along drainage lines with a particular focus around permanent sources of water. These areas also have generally been subjected to a long history of disturbance through a range of land uses including vegetation removal, grazing, farming and the development of formal and informal access tracks.

In general, the majority of the Aboriginal cultural heritage places which have so far been identified and recorded are unlikely to yield significant additional information with regard patterns of land and resource use either locally or regionally. Further, chronological attribution given sample sizes both within individual places and across place-types, allied against taphonomic considerations, is notoriously difficult for the majority of this cultural heritage. Further archaeological research into the majority of the identified Aboriginal cultural heritage places is, therefore not considered warranted from a scientific viewpoint.

During their participation in the design and conduct of the cultural heritage survey and assessments which have been conducted, Aboriginal community representatives have expressed views about their strong concern for particular places and cultural locations as well as with respect the preferred mitigation of impacts on them from any potential development activities. In the course of the extensive consultation which has been conducted with the Aboriginal community in relation to Coal & Allied's mining activities throughout the MTW area (including the present proposals), the Aboriginal community have continually endorsed an Aboriginal cultural heritage management approach based on the limits of acceptable change to their heritage at a landscape scale and the desirability of achieving long-term and secure management of a range of significant places and areas, such as the Bulga bora ground and Wollombi Brook in general, which have significance to them at a broader regional level.

In general, the cultural heritage places for which the Aboriginal community has evinced the strongest concerns are also those that have been identified as having a higher order of significance from a scientific viewpoint. There are a number of such places identified as such within the MTW area which have been identified on that basis.

A considerable number of places containing Aboriginal cultural heritage have been identified and recorded throughout the MTW mining area and adjoining Coal & Allied owned lands. Within the report, these are reviewed and considered in six broad landuse-based categories, generally based upon their location within the greater MTW mining area as follows:

1. places situated within the Warkworth Continuation 2014 proposal area;
2. places situated within the Mount Thorley Operations 2014 proposal area;
3. places situated within the proposed WBACHCA;
4. places situated within the proposed Loder Creek ACHCA;
5. places situated within the current Warkworth mine development consent area (DA 300-9-2002-i as modified); and
6. places located on other 'on site' Coal & Allied owned lands not situated within 1-5 above.

The specific Aboriginal cultural heritage places within each of these, assessments of significance, and potential impacts from the proposals are assessed for each of these categories.

A series of Aboriginal cultural heritage impact management commitments have been developed for the proposals. These fall into a series of categories as follows:

- the finalisation of the development of an overarching heritage management plan for the MTW mining area (including the proposal areas) and adjoining Coal & Allied owned lands;
- management of Aboriginal cultural heritage within the proposal areas;
- management of Aboriginal cultural heritage located within the proposed Aboriginal cultural heritage conservation areas;
- management of Aboriginal cultural heritage located on other 'on site' Coal & Allied owned lands, including extant places within the current development consent area (DA 300-9-2002-i as modified);
- management of Aboriginal cultural heritage within any 'off site' Coal and Allied Owned lands such as biodiversity conservation offset areas which may be associated with any new development consent; and
- implementation of a program of research known as the Hunter Valley Sand Bodies Research Study focusing on possible Pleistocene occupation.

1. INTRODUCTION

Central Queensland Cultural Heritage Management Pty Limited (CQCHM) was engaged by Coal & Allied Operations Pty Limited (Coal & Allied) to undertake an assessment of Aboriginal cultural heritage impacts due to the Mount Thorley Operations (MTO) 2014 and Warkworth Continuation 2014 mining proposals.

Warkworth Mine and MTO function as an integrated operation and share the use of a number of resources and infrastructure. This includes a joint workforce and management team. This Aboriginal cultural heritage impact assessment has therefore been based on the combined projects (the proposal). This assessment forms part of the environmental impact statement (EIS) for each project. The location of the proposals in relation to MTW is shown in Figure 1.

Rio Tinto Coal Australia provides management services to all Coal & Allied operations including for Aboriginal cultural heritage management through the Heritage & Aboriginal Relations Section of the company's Health, Safety, Environment & Communities, Coal Australia department.

Coal & Allied has comprehensive policies and protocols in place to guide Aboriginal cultural heritage management across all of their operations. These policies are applied consistently across the integrated Mount Thorley Warkworth (MTW) operation in close consultation with the Aboriginal community who has interests in the region and with whom & Allied have well developed, formal and active relationships.

1.1 Warkworth Continuation 2014 Proposal

Warkworth Mine has approval to operate until 19 May 2021 under its development consent. The proposal seeks a 21 year development consent period from the date of any approval. If approval is granted in late 2014, operations at Warkworth Mine are forecast to continue to 2035, a 14 year extension over the current approval. The proposal seeks a continuation of all aspects of Warkworth Mine as it presently operates together with:

- an extension of the approved mining footprint by approximately 698ha to the west of current operations (referred to herein as the proposed 2014 extension area);
- the ability to transfer overburden to MTO to complete MTO's final landform;
- the closure of Wallaby Scrub Road;
- an option to develop an underpass beneath Putty Road for the third bridge crossing yet to be constructed (while retaining the current approval for an overpass);
- the continued use of secondary access gates to the mine site and offsets for activities such as drilling, offset management, equipment shutdown pad access amongst other things; and

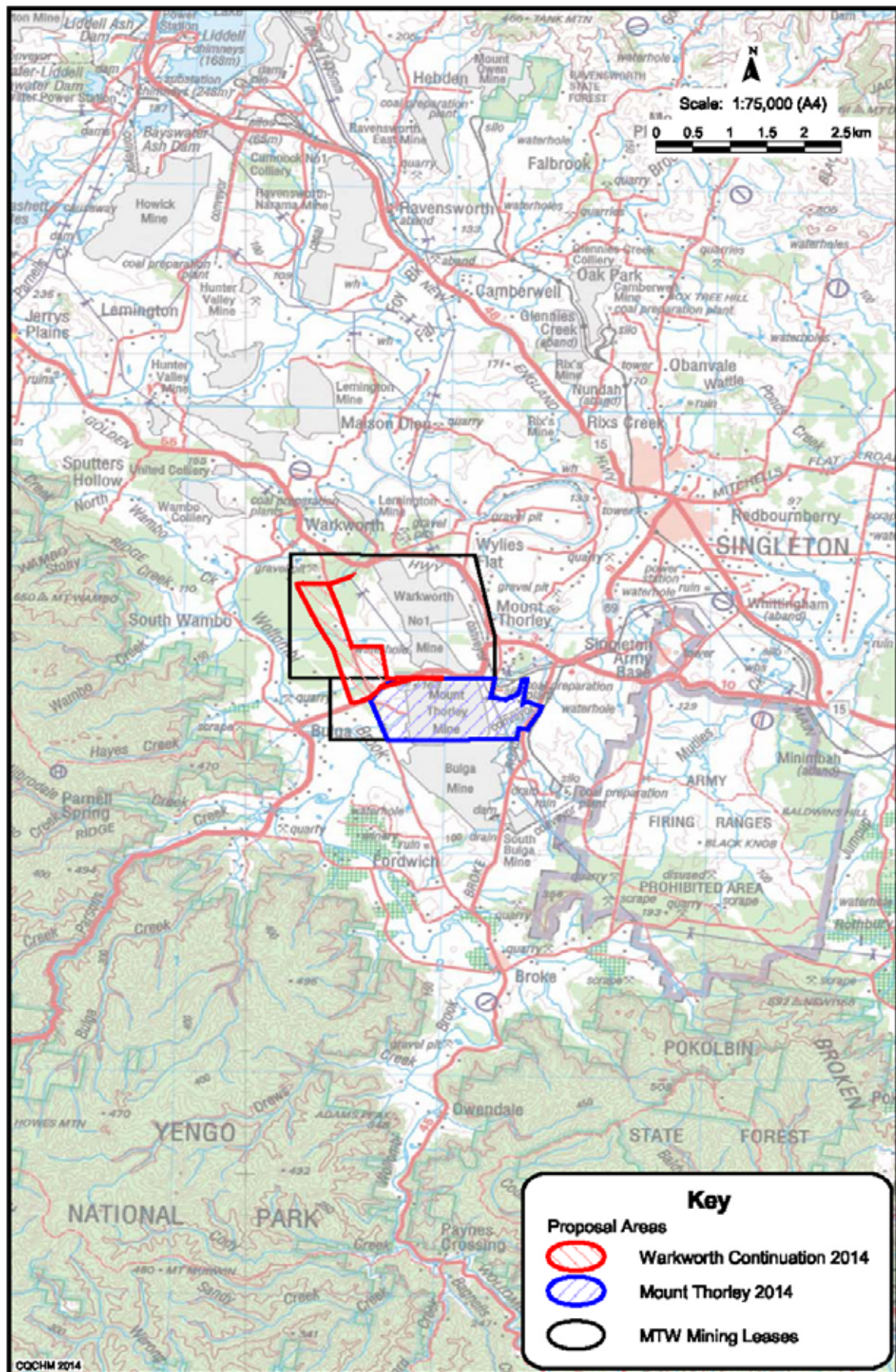


Figure 1: General location of the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposal areas.

- minor changes to the design of the Northern out-of-pit (NOOP) dam.

1.2 Mount Thorley Operations 2014 Proposal

MTO has approval to mine until 22 June 2017 under its development consent. The proposal seeks a 21 year development consent period from the date of any approval. If approval is granted in 2015, operations at MTO are forecast to continue to the end of 2035, an 18 year extension over the current approval. The proposal seeks a continuation of all aspects of MTO as it presently operates and extends or alters them, including:

- mining in Loders Pit and AGN Pit. Mining in Loders Pit is expected to be completed in approximately 2020. Mining in AGN Pit is yet to commence; however, it is anticipated to take approximately two years and be completed before 2022;
- transfer of overburden between MTO and Warkworth Mine to assist in rehabilitation and development of the final landform;
- maintain existing extraction rate of 10 million tonnes per year (Mtpa) of ROM coal;
- maintain and upgrade to the integrated MTW water management system (WMS), including:
 - upgrade to the approved discharge point and rate of discharge into Loders Creek from 100ML/d to 300ML/d via the Hunter River Salinity Trading Scheme (HRSTS);
 - ability to transfer and accept mine water from neighbouring operations (ie Bulga Coal Complex, Wambo Mine, Warkworth Mine and Hunter Valley Operations); and
 - increase in the storage capacity of the southern out-of-pit (SOOP) dam from 1.6 giga litres (GL) to 2.2GL;
- maintain and upgrade to the integrated MTW tailings management:
 - including use of the northern part of Loders Pit as a TSF after completion of mining; and
 - Wall lift to Centre Ramp Tailings Facility to approximately RL150;
- upgrade to the MTO CPP to facilitate an increase in maximum throughput to 18Mtpa with the ability to receive this coal from Warkworth Mine;
- acknowledge all approved interactions with Bulga Coal Complex; and
- continuation of coal transfer between Warkworth Mine and MTO and transportation of coal via the MTCL to Port of Newcastle.

All activities, including coal extraction will be within disturbance areas approved under the existing development consent.

1.3 The Report's Approach

Coal & Allied have completed comprehensive Aboriginal cultural heritage surveys and research covering the vast majority of the MTW mining leases and the adjoining Coal & Allied owned lands. These have been conducted over an extended period from 2002, but have been particularly intensive since 2008. This work forms part of Rio Tinto Coal Australia's strategy of minimising the impact of any of its operations on Aboriginal cultural heritage, and has been carried out in consultation with Aboriginal community members and with their active participation in the conduct of field assessments and management activities. The proposal, in particular the proposal to extend the Warkworth Mine which aims to extend mining operations to the west, have been discussed intensively with the Registered Aboriginal Parties (RAPs) primarily through the Upper Hunter Valley Aboriginal Cultural Heritage Working Group (CHWG; discussed further below).

While these discussions have tended to focus, at least in the case of the Warkworth Continuation 2014 proposal, on Aboriginal cultural heritage places which reside within the development area, they have also incorporated the future management of Aboriginal cultural heritage on adjoining Coal & Allied owned lands. Considerable progress has been made with respect to formalising these discussions. RAPs have expressed the desire to discuss cultural heritage impacts and management at the landscape level. This approach allows for consideration of the long-term management of a range of significant Aboriginal cultural heritage places and areas, such as the Bulga bora ground and its surrounds, and other places which have been identified as having a high cultural significance to them at a broader regional context.

While the key focus of this report is on the management of impacts on Aboriginal cultural heritage within the proposal areas, it also outlines Aboriginal cultural heritage management strategies and commitments as they relate more generally to other Coal & Allied owned lands including the proposed Wollombi Brook Aboriginal Cultural Heritage Conservation Area (WBACHCA) and Loder Creek Aboriginal Cultural Heritage Conservation Area (Loder Creek ACHCA), that reflect the informed views of the Aboriginal community.

In summary, this report provides:

- an outline of current management practices at MTW as they apply to Aboriginal cultural heritage;
- an outline of the research that has been conducted into Aboriginal cultural heritage in the proposal areas and adjoining Coal & Allied owned lands, including the participation of Aboriginal community members;

- an assessment of Aboriginal cultural heritage significance for the proposals, potential impacts and management proposals, including the views of the Aboriginal community; and
- commitments with respect to Aboriginal cultural heritage management for the proposals.

This Aboriginal cultural heritage assessment, including RAP consultation and the preparation of this report, have been undertaken in a manner consistent with government policy and guidelines. Principal among these has been the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (ACHCRP 2010 – see Table 1 for assessment requirements), and Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW. Consistent with this Code, the proponent will complete an Aboriginal Site Impact Recording Form and submit it to the Aboriginal Heritage Information Management System (AHIMS) Registrar, for each AHIMS site that would be harmed through the development activities outlined in the proposals.

This report has been prepared in accordance with the Secretary's Requirements.

2. LEGISLATIVE AND REGULATORY FRAMEWORK FOR ABORIGINAL CULTURAL HERITAGE MANAGEMENT

This section of the report presents a brief discussion of the legal and regulatory framework in which Aboriginal cultural heritage is managed and protected in the context of both NSW and for the proposal.

2.1 Commonwealth Legislation

Commonwealth legislation has a potential role in Aboriginal cultural heritage protection in NSW but it is generally focused on particular places and situations as opposed to the comprehensive management and protective focus and the strong consultative element of the State legislation and policy.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a framework to protect Matters of National Environment Significance. These include nationally significant flora, fauna, ecological communities and heritage places. The EPBC Act establishes both a National Heritage List and Commonwealth Heritage List of protected places. These lists may include Indigenous cultural heritage places or areas in which Indigenous people have interests.

The assessment and permitting processes of the EPBC Act are triggered when a proposed activity or development could potentially have an impact on one of the Matters of National Environment Significance as gazetted under the Act. With respect to the National and Commonwealth heritage lists, no such listed places reside within the proposal.

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSHP Act) is aimed at the protection from injury and desecration of areas and objects that are of significance to Indigenous Australians. This legislation has usually been invoked in emergency and conflicted situations, and has been used as such in the context of MTW around the Bulga bora ground (see Section 3.6 below for further details of this issue). It is generally acknowledged that the legislation has not been successful and is not in accord with contemporary practice. It is at odds with the relationships and protocols that have become the standard between government agencies, developers and representative Indigenous organisations for the protection of Indigenous cultural heritage.

The Commonwealth *Protection of Movable Cultural Heritage Act 1986* includes legislation that prevents objects of cultural heritage significance, such as those that are sacred to Indigenous peoples' heritage, from being exported out of Australia.

The EPBC Act and the *Protection of Movable Cultural Heritage Act 1986* have been reviewed and amended in recent times. The ATSIHP Act, likewise, has been under review for an extended period, stemming initially as a result of the 1995 Evatt inquiry. In August 2009 the Commonwealth released a Discussion Paper (Commonwealth Department of Environment, Water, Heritage and the Arts [DEWHA], 2009) on the ATSIHP Act setting out its perceived shortcomings and the need for reform and calling for submissions from the public. The Discussion Paper sets out proposals

“designed to clarify responsibilities for protecting Indigenous heritage, to set standards of best practice nation-wide, to remove duplication of state and territory decisions that meet the standards, and to improve processes for Australian Government decisions about protection when the standards are not met.” (DEWHA, 2009, p7).

This Act remains under review.

2.2 NSW Legislation

There are two principal elements to the legislative and regulatory framework for Aboriginal cultural heritage management as it may be affected by development activities in NSW. These are

- the NSW *Environmental Planning and Assessment Act 1979* (the EP&A Act); and
- the NSW *National Parks and Wildlife Act 1974* (the NPW Act).

The application and practical effects of these two pieces of legislation and their associated policies are discussed below.

In summary, the EP&A Act establishes the framework for assessment to determine the existence of Aboriginal cultural heritage in an area proposed for development activity and any impact upon it. The NPW Act establishes the framework for protection and management of Aboriginal cultural heritage areas and objects in any situation or tenure.

2.2.1 Environmental Planning and Assessment Act 1979

Development planning, assessment and consent within NSW are controlled under the EP&A Act and its associated regulations. The EP&A Act is administered by the Department of Planning & Environment (DP&E). Over the last ten years this has been subject to several reforms with the most recent repealing and replacing planning processes available to major development projects. In its present form, the following apply to the proposals:

- Part 4 which in general defines the assessment approach for all proposals which require consent under the EP&A Act; and

- within this, Division 4.1 describes the process applicable for proposals which have been declared State Significant developments.

When a development application is made for the Minister's approval for a project, the Secretary of DP&E prepares a set of requirements which set out environmental assessment requirements and key issues to be addressed. The Secretary's Requirements establish the framework for the environmental impact assessment of the project and the format in which an EIS is presented for consideration.

The Secretary's Requirements require the prospective development proponent to provide a comprehensive description of the existing environment and current operations, the nature and impacts of the proposed development and impact mitigation and management proposals with respect to a number of key issues. Aboriginal cultural heritage is included in this list of key issues for examination. The Secretary's Requirements also require consultation with affected parties and stakeholders. For the key issue of Aboriginal cultural heritage, consultation is required to be conducted with relevant Aboriginal communities and organisations and with the NSW Office of Environment and Heritage (OEH) which has a key role in its carriage of the NPW Act.

DP&E maintains a Register of Development Assessment Guidelines for the use of councils, developers, consultants and the general public for the purposes of development assessment at its website at <http://www.planning.nsw.gov.au>. With respect Aboriginal heritage, the Register includes two Guidelines:

- OEH's Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 prepared by the Department of Environment, Climate Change and Water (DECCW – the precursor to the present OEH); and
- A New Biodiversity Strategy for NSW: Discussion Paper prepared jointly between DECCW and the NSW Department of Primary Industries.

In addition, OEH has also published a Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW.

These policy documents have been taken into account in framing the approach to consultation with the Aboriginal community on the management of Aboriginal cultural heritage potentially affected by the proposals.

2.2.2 National Parks and Wildlife Act 1974

The NPW Act is the primary legislation concerned with the protection of Aboriginal cultural heritage in NSW. The Act is administered by OEH and provides protection for all Aboriginal objects (broadly defined) and for declared Aboriginal places. Aboriginal Heritage Impact Permits (AHIPs) are generally required for impacts to Aboriginal objects and places in NSW. AHIPs may be issued under Section 87 and/or Section 90 of Part 6 of the NPW Act following application by proponents for developments that will have the effect of disturbing or destroying Aboriginal objects or declared areas.

A permit under s.87 of the Act is required to disturb, move and or take possession of an Aboriginal object or disturb land for the purpose of discovering an Aboriginal object. A consent under s.90 of the Act is required to destroy, damage or deface an Aboriginal object or Aboriginal place. OEH is the decision maker for the purpose of determining the issue of AHIPs.

OEH provides expert advice to DP&E on major projects that are being assessed under the EP&A Act. It should be noted however, that the requirement for an AHIP is suspended for proposals assessed under Part 4, Division 4.1 of the EP&A Act (s.89J) and is generally superseded by a condition of the Part 4 project approval requiring the preparation of a Heritage Management Plan (HMP). Consistent with their respective consent conditions, Archaeology and Cultural Heritage Management Plans (A&CHMPs) have been prepared and approved which cover both the existing Warkworth and MTO development consent areas within the greater MTW mining area (Coal & Allied 2004a & 2004b). These current A&CHMPs, however, have been prepared under Part 6 of the NPW Act and AHIPs are required for sites that are to be impacted by the project and managed under this plan.

The consent conditions for both the disapproved Warkworth Extension Project (PA 09_0202) and the approved MTO consent (DA 34/95 as modified May 2012) also provided for the preparation of HMPs. In these cases a new single HMP which covered the entirety of the MTW mining leases and other Coal & Allied owned lands (and which specifically include the proposal areas) was drafted and circulated for discussion among the CHWG. Attached to this, a separate management plan is also well advanced for the WBACHCA. These are discussed in further detail elsewhere in the report.

OEH's policy approach places strong emphasis on the involvement of the Aboriginal community in all Aboriginal cultural heritage assessment and management decision-making processes associated with development projects. Key policy requirements include informing RAPs about the nature of a project and fully involving them in the assessment of both tangible and intangible Aboriginal cultural heritage, the determination of its significance, proposals for the management of project impacts upon the material and the process of reporting on cultural heritage for the purposes of Part 6 the Act.

This policy approach has formed the basis of Coal & Allied's approach to consultation with the Aboriginal community on the management of cultural heritage potentially affected by the proposals.

3. RIO TINTO COAL AUSTRALIA'S APPROACH TO ABORIGINAL CULTURAL HERITAGE MANAGEMENT

Rio Tinto Coal Australia has developed and implemented a suite of policies, protocols and processes in the areas of community engagement, heritage management, relationships with Aboriginal communities, and ground disturbing operations that have direct relevance to their approach to Aboriginal cultural heritage management.

3.1 The Rio Tinto Coal Australia Cultural Heritage Management System

Rio Tinto Coal Australia has implemented a series of comprehensive cultural heritage management policies and protocols. These are regularly updated and have the status of work standards at all Coal & Allied's projects and operations. These policies and protocols include:

- Rio Tinto Communities Policy and Standard;
- Rio Tinto Cultural Heritage Management Standard for Australian Businesses;
- Rio Tinto Cultural Heritage Management System Guidelines;
- Rio Tinto Cultural Heritage Management System Auditing Protocols;
- Rio Tinto Coal Australia Cultural Heritage Management Policy;
- Rio Tinto Coal Australia Cultural Heritage Management System Manual and Work Procedures; and
- Rio Tinto Coal Australia Ground Disturbance Permit Procedures.

Collectively these comprise Rio Tinto Coal Australia's Cultural Heritage Management System (CHMS) which provides a comprehensive set of processes and procedures for the efficient management of cultural heritage that apply across all of Rio Tinto Coal Australia's development activities and land tenures including MTW and the adjoining Coal & Allied owned lands.

The overarching objective of CHMS is to efficiently manage and mitigate the risks associated with development impacts on cultural heritage in order to provide operations and projects timely and authorised access to land for mining and associated development activities. The CHMS policy states that:

RTCA will manage its projects and operations to comply with the RTCA Cultural Heritage Management System based upon the guiding principle of causing zero harm to Aboriginal cultural heritage. Where development requirements necessitate impacts on cultural heritage RTCA will ensure that all necessary and reasonable measures are implemented in order to mitigate those impacts in compliance with statutory requirements, cultural heritage agreements, Rio Tinto policies and standards, and in consultation with our host communities.

The CHMS has been developed to ensure that all activities and ground disturbances associated with the company's development activities and operations comply not only with Rio Tinto Coal Australia policies, but are also consistent with State and Commonwealth legislation, and other statutory regulations governing the management of Aboriginal cultural heritage.

3.2 Current Aboriginal Cultural Heritage Management at MTW

Rio Tinto Coal Australia employ heritage professionals on staff to provide cultural heritage management services to Warkworth Mine. These services include:

- active participation in regular meetings with the Coal & Allied CHWG to discuss routine management activities and proposals for new research at Warkworth Mine;
- making arrangements with the CHWG for engagement of Aboriginal community members in cultural heritage research, salvage and monitoring / audit activities;
- advising senior site management on the protection and management of Aboriginal cultural heritage.

Separate A&CHMPs were prepared in accordance with the conditions of the development consents for Warkworth Mine (Condition 41; DA-300-9-2002-i as modified January 2014) and MTO (Condition 25; DA 34/95 as modified September 2002). Each plan was approved by the relevant statutory agencies. These management plans set out the protocols for managing Aboriginal cultural heritage affected by mining operations and key issues of concern to the Aboriginal community.

The Warkworth Mining Limited A&CHMP (Coal & Allied 2004a) is currently in operation and its principles and processes have been applied to cover all Aboriginal cultural heritage within the Warkworth mining lease and adjoining Coal & Allied owned lands. Aboriginal cultural heritage outside of the present development consent boundaries, including the proposal area, are also subject to interim protective management measures developed in consultation with the CHWG and in accordance with the Rio Tinto Coal Australia CHMS.

The MTO A&CHMP (Coal & Allied 2004b) is also currently in operation and its principles and processes have been applied to cover all Aboriginal cultural heritage within the MTO mining lease. Aboriginal cultural heritage outside of the present MTO development consent boundaries are, again, also subject to interim protective management measures developed in consultation with the CHWG and in accordance with the Rio Tinto Coal Australia CHMS.

For context, it should be noted that the Warkworth Extension Project approval (PA 09_0202), required the preparation of a Heritage Management Plan (HMP 2012) to replace the 2004 A&CHMP.

Likewise, Condition 34 of the consent conditions for the modification to the MTO consent (DA 34/95 as modified 2012) also required an HMP. A draft HMP to address condition 34 of DA 34/95 as modified 2012 is being developed in consultation with the CHWG, OEH and DP&E for submission to DP&E by 31st July 2014.

In the case of the Warkworth Extension Project (PA 09_0202) the production of the HMP 2012 was interrelated with a number of other consent conditions for the project (most notably the establishment and settlement of a separate management plan for an Aboriginal cultural heritage conservation area – the WBACHCA). In the context of the timeframe outlined within the consent conditions for the production of the HMP 2012 and the requirements of mining continuation, DP&E agreed that a staged approach to the development of this plan would be appropriate. A Stage 1 Warkworth Mine HMP was developed, submitted and approved by DP&E in July 2012.

Since the issue of the development consent in 2003 for the expanded operations at Warkworth Mine, six detailed Aboriginal cultural heritage field surveys, seven cultural heritage salvage programs, and two comprehensive investigations, which have included multi-disciplinary archaeological and geomorphological investigations (including excavations), into areas of the Warkworth Sands land system have also been conducted.

In the case of the Warkworth Continuation 2014 proposal area, this can generally be separated into portions as they relate to Wallaby Scrub Road. The portion of the Warkworth Continuation 2014 proposal area east of Wallaby Scrub Road, generally restricted to the south and adjoining the MTO mining lease, was originally subject to previous Aboriginal cultural heritage assessment in 2002 (AMBS 2002; which included reassessment of several earlier studies) as part of the 2003 Warkworth Extension Project EIS (DA-300-9-2002-i). The results of this were again reassessed as part of the previously approved 2010 Warkworth Extension Project (PA 09_0202) Environmental Assessment (EA) (Coal & Allied 2010; Volume 3, Annex F). The remaining undeveloped areas of this portion to the east of Wallaby Scrub Road were included in comprehensive investigations and assessments undertaken as part of Warkworth Modification 6 (Coal & Allied 2013) and as part of this present Warkworth Continuation 2014 proposal and the MTW South West Stage 2 study (Scarp Archaeology 2009a).

Those portions of the Warkworth Continuation 2014 proposal area west of Wallaby Scrub Road were the subject of systematic and comprehensive cultural heritage investigations and assessment in 2008 and 2009 as part of the MTW West Stage 1 (AECOM 2009) and MTW South West Stage 2 studies (Scarp Archaeology 2009a). The results of these were incorporated into the previously approved 2010 Warkworth Extension Project EA (PA 09_0202; Coal & Allied 2010; Volume 3, Annex F). In

addition to the Warkworth Continuation 2014 area, the AECOM and Scarp Archaeology studies (2009 and 2009a respectively) included the investigation and assessment of all Coal & Allied owned lands to the north and west of this, a large proportion of which is to be conserved within the WBACHCA.

The Mount Thorley Operations 2014 proposal area was the subject of a number of Aboriginal investigations and salvage programs undertaken between the mid 1980s and the early 2000s. The current MTO development consent area (which also includes the Mount Thorley Operations 2014 proposal area) was also reassessed as part of the subsequently disapproved 2010 Warkworth Extension Project (PA 09_0202; Coal & Allied 2010; Volume 3, Annex F), and subsequently reviewed as part of the Ramp 22 Sedimentation Dam study undertaken in 2013 (RPS 2013).

The remaining portions of the MTO mining lease outside the current development consent area, along with adjacent Coal & Allied owned lands, were also the subject of two systematic and comprehensive Aboriginal cultural heritage investigations and assessments undertaken in 2009 and 2010. Principle among these was the MTW South West Stage 2 studies (Scarp Archaeology 2009a), with this being supplemented by the MTW South West Finalisation and Bulga Farm study (Scarp Archaeology 2011) which completed the assessment of the southern portions of Coal & Allied owned lands surrounding Wollombi Brook. As outlined above, a large proportion of the lands included within these assessments are to be conserved within the WBACHCA.

In all cases, these Aboriginal cultural heritage programs were undertaken in consultation with and the active participation of, Aboriginal community members, and from 2005, under the auspices of the CHWG. Their purpose was several: to meet Rio Tinto Coal Australia's CHMS; to address development consent conditions; and to develop an understanding of Aboriginal cultural heritage issues in areas adjoining consent areas. The results and implications of these studies are discussed in detail in Section 5 of this report.

All Aboriginal cultural heritage areas and objects identified during the conduct of Aboriginal cultural heritage investigations have been, and continue to be, managed under either;

- the A&CHMPs approved under their respective development consents; and/or
- in the case of Aboriginal cultural heritage located outside of the operational areas of these A&CHMPs, interim protective management measures developed in consultation with the CHWG in accordance with the Rio Tinto Coal Australia CHMS.

Under these management arrangements, the condition of sites and management actions implemented are regularly monitored / audited and discussed among the CHWG.

As part of the now disapproved Warkworth Extension Project (PA 09_0202) and the 2012 modification to the existing MTO consent (DA 34/95), Rio Tinto Coal Australia staff consulted in detail with the CHWG on the outcomes of the 2008 & 2009 cultural heritage surveys and the implications of the proposed development applications (particularly the Warkworth Extension Project). The objectives of these consultations and the Aboriginal cultural heritage survey studies that have been conducted were to:

- identify issues for the development of management measures that could be incorporated into the new and comprehensive HMP that would apply to the MTW mining area and adjoining Coal & Allied owned lands (which as noted above was drafted and consulted upon); and
- provide the establishment of a specific Aboriginal cultural heritage conservation area (i.e. WBACHCA) in addition to the management of Aboriginal cultural heritage on other Coal & Allied owned lands.

The future proposed Aboriginal cultural heritage impact management commitments, discussed at length elsewhere in this report, will be an extension of these existing arrangements and processes.

3.3 Aboriginal Consultation in the Upper Hunter Valley

Rio Tinto Coal Australia and Coal & Allied personnel and contractors have legal obligations under the NPW Act not to harm or disturb Aboriginal areas and objects. Coal & Allied is committed to direct, ongoing, meaningful and transparent engagement with the Aboriginal community as the basis for developing and implementing successful management of Aboriginal cultural heritage issues for all projects and operations.

Aboriginal community members who have interests in areas and projects owned, leased and/or operated by Coal & Allied, including the proposal areas, are provided with the opportunity to be fully involved in the identification, significance assessment, mitigation and ongoing management of their cultural heritage on lands associated with Coal & Allied operations.

Coal & Allied established the CHWG in September 2005 so that Coal & Allied and the Aboriginal community could work together to develop and implement an integrated cultural heritage consultation and management process for Coal & Allied's operations in the Upper Hunter Valley. This working group is comprised of Coal & Allied representatives, and representatives from Upper Hunter Valley Aboriginal community groups, corporations and other individuals as RAPs. This approach is centred upon a direct and ongoing engagement between Coal & Allied personnel and the Upper Hunter Valley Aboriginal community and other RAPs. In this, Coal & Allied's objectives have been to develop a robust relationship with the Upper Hunter Valley Aboriginal community and other RAPs and to

cooperatively develop Aboriginal cultural heritage management programs that the Aboriginal community are encouraged to jointly design, implement and manage with Coal & Allied.

The CHWG provides a regular forum for discussions related to, and oversees, all matters pertaining to cultural heritage associated with Coal & Allied owned and operated lands, projects and operations in the Upper Hunter Valley. The CHWG regularly reviews the progress and outcomes of Rio Tinto Coal Australia's cultural heritage processes and management programs in the Upper Hunter Valley, revising and refining elements of the process by consensus. The CHWG is recognised by both DP&E and OEH as an appropriate consultative forum. It currently consists of eighty two (82) RAPs, and includes the Wanaruah Local Aboriginal Land Council. The procedures adopted in running the CHWG conform to published OEH consultation requirements by way of establishment, composition, and timeframes for consultation.

3.4 Consultation with the Aboriginal Community regarding the Proposals

An exhaustive Aboriginal community consultation process was undertaken as part of the Warkworth Extension Project (Coal & Allied 2010; Volume 3, Annex F). Community consultation was also undertaken as part of the 2012 Modification to the existing MTO consent. The proposal areas fall entirely within the boundaries of those previous consented areas. As previously outlined, considerable Aboriginal community consultation had also been undertaken as part of the fulfilment of the consent conditions of the now disapproved consent for the Warkworth Extension Project (PA 09_0202). Further community consultation was also undertaken more recently as part of the Warkworth Modification 6, approved in January 2014, and subsequent approval of an AHIP for this area by OEH in February 2014.

Throughout this time, Aboriginal community consultation has occurred primarily under the auspices of the CHWG undertaken in a manner consistent with consultation requirements published by relevant regulatory agencies from time to time. Prior to April 2010, CHWG consultation pertaining to all Coal & Allied development proposals (most relevantly those conducted for the Warkworth Extension Project) was held in accordance with DECCW (now OEH) *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation Guidelines (July 2005)*. Subsequent to April 2010 CHWG consultation has been held in accordance with the OEH ACHCRP 2010. This included Aboriginal community consultation undertaken as part of the 2012 MTO (DA 34/95) modification and the recent Warkworth Modification 6 approval.

All CHWG meetings are advertised in the local Upper Hunter Valley press. Additionally, all persons and corporations already on the CHWG Aboriginal community register as RAPs at the time of each meeting were also advised by letter of all meetings. In effect, once an individual or organisation has

the status of RAP for consultation with Coal & Allied they retain their status as such in the CHWG register unless they subsequently advise Coal & Allied that they wish to withdraw as a RAP for any or all Coal & Allied operational and project areas. Although structured, CHWG meetings are conducted in a format and style that is largely controlled by the Aboriginal community members present. Supported by an agenda, the order of business may be altered on the basis of community concerns and priorities but always covers the primary purposes for which the meeting has been convened. The CHWG structure provides freedom for Aboriginal community representatives to request time within meetings to hold private discussions.

Project documentation presented and discussed at CHWG meetings is made available to all attendees and follow-up mail outs are provided to those RAPs who were unable to attend these meetings. Notification for all consultation, its conduct, and the provision of associated documentation (both prior to and following) has been, and remains, consistent with timeframes required under the relevant consultation guideline.

Aboriginal community consultation meetings conducted under the auspices of the CHWG with regard to the Warkworth Extension Project (PA 09_0202) and subsequent matters covered by consent conditions prior to that consent being disapproved, such as the heritage management plans for the project, were held on:

- 14 August 2008;
- 02 October 2008;
- 27 November 2008;
- 19 March 2009;
- 21 May 2009;
- 27 August 2009;
- 21 September 2009;
- 1 October 2009;
- 22 October 2009;
- 09 December 2009;
- 12 February 2010;
- 22 April 2010;
- 08 July 2010;
- 30 September 2010;
- 25 November 2010;
- 10 February 2011;

- 24 March 2011;
- 12 May 2011;
- 08 September 2011;
- 15 December 2011;
- 8 March 2012;
- 17 May 2012;
- 16 August 2012;
- 04 October 2012;
- 06 December 2012;
- 7 March 2013; and
- 22 August 2013.

At a number of these meetings, underlined above, community consultation specific to the MTO (DA 34/95) modifications was also undertaken.

Despite the proposals falling entirely within areas the subject of the Warkworth Extension Project, Coal & Allied has conducted consultation specific to the Aboriginal cultural heritage impact assessment for both the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposals at meetings of the CHWG held on 3 April and 7 May 2014. DP&E and OEH require proponents preparing an Aboriginal cultural heritage impact assessment for an EIS to undertake consultation with the Aboriginal community in conformance with the OEH 2010 ACHCRP. The ACHCRP process was specifically developed for Aboriginal community consultation for development activities that require assessment and/or AHIP approvals under Part 6 of the NPW Act. The Warkworth Continuation 2014 and MTO 2014 development applications will seek approval for the proposals as State Significant Developments under Part 4, Division 4.1 of the EP&A Act. Such approvals will enact the provision of Section 89J(d) of the EP&A Act which exempts such developments from the requirement for an AHIP consent under Section 90 of the NPW Act. For the purposes of Aboriginal community consultation for the Aboriginal cultural heritage impact assessment for the proposals, Coal & Allied have aligned the respective EIS consultation process with the ACHCRP process to the extent that it is applicable, with the impact assessment requirements and timeframes of the EIS process.

This has been undertaken in a manner entirely consistent with that already conducted and as outlined above and in alignment with the OEH ACHCRP process. Table 1 provides an overview of the consultation process which has been undertaken.

Step	Aboriginal Cultural Heritage Consultation Requirements for Proponents (ACHCRP) 2010	Warkworth Continuation 2014 EIS and Mount Thorley Operations 2014 EIS Aboriginal Cultural Heritage Impact Assessment Consultation Approach
4.1: Notification of project proposal and registration of interest	<p>Proponents are responsible for ascertaining the names of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places.</p> <p>The proponent must</p> <ul style="list-style-type: none"> a) write to reasonable sources requesting this information b) Write to the Aboriginal people and local lands council and notify them of the proposed project and invite them to register for consultation c) Advertise a notice in the paper containing project information d) Compile a list of registered parties and forward information to OEH and the LALC 	<ul style="list-style-type: none"> • a) Coal & Allied's list of RAPs for the Mount Thorley Warkworth Operations area was updated in January 2014 based on RAP consultation for an AHIP application and supporting Aboriginal Cultural Heritage Assessment Report (ACHAR) for the Mount Thorley/Bulga Surface Operations Ramp 22 Sedimentation Dam Project and also for the Warkworth Mine DA -300-9-2002-i Modification 6 AHIP (C0000201). The list is based upon names of RAPs then already registered with Coal & Allied through the CHWG, list of RAPs provided by OEH, and others provided in response to letters of request sent to the various entities listed in 4.1.2 of the ACHCRP. • b) Letter was sent to all Coal & Allied RAPs (currently 82) on 19 March 2014 notifying them of the proposals and inviting them to a CHWG consultation meeting to review the proposal to be held on 3 April 2014 (15 days notice). • c) Separate public notices inviting Aboriginal knowledge holders to register as Aboriginal parties for consultation for both the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposals were published in the Singleton Argus and the Muswellbrook Chronicle on 21 March 2014. These notices also invited those who wished to register as an Aboriginal Party to attend a meeting of the Coal & Allied CHWG held on 3 April. • d) A list of RAPs engaged for the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposals EIS' Aboriginal cultural heritage impact assessment consultation is provided in Appendix 1 of this report.
4.2: Presentation of information about the proposed project	Proponents are to provide Aboriginal parties with information about the scope of the project	<ul style="list-style-type: none"> • A copy of the Warkworth Continuation 2014 proposal information factsheet (March 2014), which includes details on the Mount Thorley Operations 2014 proposal, was provided with a letter sent to all Coal & Allied RAPs (currently 82) on 19 March 2014 notifying them of the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposals and inviting them to a CHWG consultation meeting to review the proposals on 3 April. • Detailed information on the scope of the proposals was presented to the RAPs who attended the CHWG consultation meeting held on 3 April 2014. The presentation also included a briefing on the previous and ongoing consultation with respect to the assessment and management of Aboriginal cultural heritage associated with the proposal area which commenced in 2008 with the EIS for Warkworth Extension Project 2010. • Discussions focused on the proposed development area and impacts and management of

		<p>Aboriginal cultural heritage based upon information from previous assessment surveys conducted between 2008 and February 2014. These discussions also involved a review of the proposed Wollombi Brook and Loder Creek Aboriginal Cultural Heritage Conservation Areas which have been nominated by Coal & Allied as Aboriginal Cultural Heritage protection areas for the proposed development disturbance footprints of the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposals respectively.</p> <ul style="list-style-type: none"> • Copies of the CHWG presentation, with a statement outlining preliminary impact assessment and proposed management measures, along with other relevant information and maps for the proposals were subsequently mailed out to all RAPs on 7 of April, including those who attended and those who were unable to attend the CHWG consultation meeting held on 3 of April, seeking their comments and feedback on the proposals preliminary impact assessment and proposed management measures.
4.3: Gathering information about cultural significance	Proponents are to facilitate a process whereby registered Aboriginal parties can contribute to information gathering and research, provide information on the significance of objects, have input into the development of any cultural heritage management options	<ul style="list-style-type: none"> • In gathering information about Aboriginal cultural significance of objects and places to inform the preparation of a single Aboriginal cultural heritage impact assessment report for the proposals EIS', Coal & Allied provided information to the RAPs drawn from various Aboriginal cultural heritage assessments that have been conducted over the entirety of the proposal areas and all adjacent Coal & Allied owned lands. These assessments, conducted between 2008 and February 2014, were conducted with the participation of the RAPs through the auspices of the CHWG. • Discussions focusing on the proposals areas and impacts, and management of Aboriginal cultural heritage were conducted at a CHWG meeting held on 3 April. Information on the preliminary impact assessment and proposed management measures were provided for the RAPs to consider in the context of the cultural significance of the objects and places that would be impacted by the development and those that would be managed for their conservation. • Following on from the CHWG meeting of 3 April, Coal & Allied wrote to the RAPs on 7 April to provide them with a preliminary statement on the impact assessment and proposed management measures for their consideration and feedback and to request that they provide feedback on cultural significance objects and places associated with the proposals. The letter also included an invitation for RAPs to attend another CHWG meeting held on 7 May (giving 30 days notice) to review their feedback and discuss management options for Aboriginal cultural heritage. Where RAPs were unable to attend a CHWG meeting they were requested to provide their feedback in writing or to call and submit comments by phone.

		<ul style="list-style-type: none"> • Following the initial CHWG consultation meeting held on 3 April, and prior to the CHWG meeting held on 7 May, Coal & Allied arranged for CHWG RAPs to visit the proposal areas on 29 April to inspect these lands and a range of Aboriginal cultural heritage places which would be impacted by the respective developments, and also to view areas within the proposed Wollombi Brook and Loder Creek Aboriginal Cultural Heritage Conservation Areas. • Feedback gathered from the RAPs at the CHWG meetings on 3 April and 7 May, during the proposal areas inspection conducted on 29 April, and from correspondence received, has been collated and considered to inform the drafting of a single Aboriginal cultural heritage impact assessment report for the proposals EIS’.
4.4: Review of draft cultural heritage assessment report	The proponent must prepare an Aboriginal cultural heritage assessment report with input from registered Aboriginal parties	<ul style="list-style-type: none"> • On 7 April Coal & Allied wrote to all RAPs for the proposals to invite them to a CHWG consultation meeting held on 7 May (giving 30 days notice) to review their feedback on the proposal, gather information about the cultural significance of objects and places associated with the proposal areas, and to discuss their feedback on the preliminary statement on impact assessment and proposed management measures (provide to the RAPs in the mail out of 7 April), to be incorporated into the Aboriginal cultural heritage impact assessment report for the proposals EIS’. This meeting was also advertised by public notices published in local Hunter Valley press during the week 7-11 April. • A final draft Aboriginal cultural heritage impact assessment report was prepared on the basis of information gathered from the RAPs, the results of comprehensive Aboriginal cultural heritage assessment surveys conducted between 2008 and February 2014, outcomes and commitments arising from ongoing consultation with the CHWG and the CHWG meetings of 3 April and 7 May, and the proposal area inspections conducted on 29 April. • During the week commencing 19 May Coal & Allied again wrote to all RAPs for the proposals to provide them with a copy of the final draft Aboriginal cultural heritage impact assessment report that was submitted with the proposals EIS’. • Furthermore, additional comments and feedback received from RAPs after this time, and from written public submissions received during the EIS public exhibition period, will be reviewed, considered and addressed through the Response to Submissions process following the EIS public exhibition period and prior to the submission of the final EIS documentation to DP&E.

Table 1: The proposals EIS’ Aboriginal cultural heritage impact assessment community consultation process, with reference to the 2010 OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents*.

As a result of the CHWG consultation meetings held on 3 April and 7 May 2014, and the site visit conducted on 29 April 2014, the following specific matters regarding the proposals were addressed and resolved by the RAPs:

- support for the implementation of the Hunter Valley Sands Bodies Research Study;
- the cultural importance of the remaining undeveloped areas around Loder Creek and the desirability of it being included within an ACHCA was confirmed;
- a desire was expressed to continue the work that has been undertaken by the CHWG with respect to refining the area deemed to constitute the indicative boundary of the Bulga bora ground and associated features;
- consideration be given to options for the relocation and reuse of existing residential structures located within the Warkworth Continuation 2014 proposal area by the Aboriginal community;
- that salvage mitigation programs required to be undertaken within the Warkworth Continuation 2014 proposal area should be staged on an annual basis and in line with the Warkworth Mine Annual Operating Plan;
- information from Aboriginal cultural heritage places the subject of salvage mitigation programs is to be collected with a view to informing potential research programs of importance to the CHWG;
- a desire was expressed to incorporate the pre-mining landscape topography into post-mining final landform design for the proposal areas;
- a desire was expressed to establish an access corridor along Wollombi Brook to provide connectivity between the southern end of the WBACHCA and the Aboriginal cultural heritage conservation area established for the adjacent Bulga Coal Complex mining operation; and
- continue investigating possibilities and options available for the acquisition of lands within which the highly culturally significant Baiame Cave is located.

These matters have been further considered and addressed within the impact mitigation commitments outlined in Section 8 below.

In summary, while the RAPs have expressed a view that, as a general principle, they would prefer that no additional disturbance to Aboriginal cultural heritage occur, the views expressed at meetings demonstrate that the proposed management measures described in this document, are acceptable to CHWG participants for managing Aboriginal cultural heritage impacts associated with the proposals. Additionally, Coal & Allied is not in receipt of any material from either a RAP or other CHWG stakeholder advising that they do not hold such a view. Further, there has been no specific opposition expressed with regard the impact management commitments outlined herein.

Finally, the CHWG continues to support the establishment of the WBACHCA, to which Coal & Allied also remains committed. Additionally to address the RAPs' request to protect the remnant riparian areas and Aboriginal cultural heritage places along the section of Loder Creek located within Mount Thorley Operations 2014 proposal area, Coal & Allied proposes to establish the Loder Creek Aboriginal Cultural Heritage Conservation Area (Loder Creek ACHCA).

It is noted, however, that in correspondence received (25 March) from Mr Scott Franks, registering interest as a RAP for the Warkworth Continuation 2014 proposal on behalf of the Plains Clans of the Wonnarua People native title claimant group, advised that the group would not participate in the CHWG RAP consultation process because they 'do not support or allow other people making comment or decisions on or for our country (sic) we also advise that we will not attend a meeting with other Aboriginal people that are not a part of our Registered Native Title Claim Group...' Furthermore, in correspondence received on 6 May Mr Franks, writing on behalf of the Plains Clans of the Wonnarua People, advised that they 'do not support the modified approval of this operation...'

Further details of this consultation, associated meetings and their outcomes are provided in Appendix 1.

3.5 Future Directions for Aboriginal Cultural Heritage Management for Coal & Allied's Upper Hunter Valley Projects and Operations

The proposals and the progress already made with respect to the development of both a consolidated HMP for the MTW mining area (including the adjoining Coal & Allied owned lands), and to the management planning with respect to the WBACHCA remains, in Coal & Allied's view, an opportunity for all stakeholders - the Aboriginal community, Coal & Allied and government agencies - to reconsider the approach to Aboriginal cultural heritage management at its operations in the Upper Hunter Valley.

The issue is brought into particular focus by the proximity of the Warkworth Continuation 2014 proposal to the Bulga bora ground and associated cultural heritage places on the western fringe of the Warkworth mining lease. The Bulga bora ground and the potential impact of coal mining operations on it has been a fraught issue in the past (see Section 3.6 below for a more detailed examination of this issue). There is no doubt that the Aboriginal community of the Upper Hunter Valley attribute to it the greatest of cultural significance. Its historic validity and cultural provenance are well established, and the need for its long-term protection is recognised and supported by the CHWG, Coal & Allied and State Government agencies.

A reconsideration of the current generally accepted industry and regulatory approach to aspects of Aboriginal cultural heritage management would deliver secure management of important sites such as this as well as a balance of outcomes that deliver intergenerational equity and enhance the cultural and social strength and cohesion of the Aboriginal community in the Upper Hunter Valley.

3.5.1 Issues in the Current Approach to Aboriginal Cultural Heritage Management

Rio Tinto Coal Australia and its associated companies remain committed to their present leading practice standards and policies of engagement and consultation with the Aboriginal community and Aboriginal cultural heritage management in the Upper Hunter Valley. Rio Tinto Coal Australia accepts as a threshold principle that it is for the relevant Aboriginal people to define the cultural meaning and significance of material and places that are affected by mining operations and that those Aboriginal people must have the key role in establishing cultural heritage management regimes that are put in place to meet regulatory requirements and other obligations. Rio Tinto Coal Australia is proud of the robust and maturing relationship that has been established with the Aboriginal community in the Upper Hunter Valley.

Nevertheless, some shortcomings in the current standard mitigation management approach as mandated by the state government regulators can be identified:

- there remains an emphasis on the identification, collection and curation of stone artefacts as the centrepiece of cultural heritage management activities. There is no doubt that Aboriginal people regard artefacts as culturally significant and tangible evidence of their connection to their country and their ancestors;
- while this approach provides an avenue of cultural engagement for Aboriginal people and involves economically important employment opportunities, it does little to address the importance of critical and well-known regional cultural heritage places (which may not lie directly within proposed development areas) to Aboriginal people, or to assist in the development of a sense of empowerment over the management of such important cultural places;
- it also does not address the potential for community benefits and intergenerational equity that might arise from active engagement in the long term management of cultural places;
- the focus on material culture can also divert attention from the fact that Aboriginal people themselves are the repositories of historical and cultural information that is important to the community and is under threat as older members of the community age and pass on; and
- there is a lack of certainty both for Aboriginal people and Coal & Allied as the revision of mine plans brings potential impacts to Aboriginal cultural heritage places and areas into focus over time. Cultural heritage places that are regarded as protected from disturbance via

various planning provisions, for example, may lose this status as mining plans are revised to reflect new economic circumstances. While absolute and permanent certainty in land use requirements is an elusive concept, a more regional approach to cultural heritage management and planning with a focus on long term management of critical areas or Aboriginal cultural heritage could bring greater certainty to all parties and deliver better outcomes to the Aboriginal community than those outcomes currently secured through a somewhat piecemeal and incremental approach.

3.5.2 *Limits of Acceptable Change*

Rather than dealing with the management of a particular development proposal's impacts on Aboriginal cultural heritage as a unidimensional and localised issue, it can be more useful to approach it from the standpoint of the limits of acceptable change. Aboriginal people will often accept changes that have an impact on their cultural heritage once they have set that impact within a broader context relating to the socio-cultural wellbeing of their community and can see a wider range of benefits that may accrue. A cultural heritage situation that appears intractable when viewed in isolation can be ameliorated when set within a larger, more holistic model of sustainable community engagement, management and empowerment. Such a model involves the development of well-designed and effectively implemented cultural heritage management arrangements that place control for determining significance and management strategies with Aboriginal people. They include other complementary elements such as:

- the opportunity to provide for long-term management of significant regional cultural heritage places and areas;
- access to traditional lands for cultural purposes; and
- other socioeconomic benefits such as employment and training opportunities.

It is this approach that Coal & Allied has been examining with the Aboriginal community of the Upper Hunter Valley through the CHWG, and incrementally adopting for several years now. While to date this has focussed on the Warkworth Mine, the general principles being developed have looked to be applied to all Coal & Allied operations and lands in the Upper Hunter Valley. Members of the CHWG have expressed the desire to address cultural heritage at a landscape scale and consultations with respect both the subsequently disapproved consent for the Warkworth Extension Project (PA 09_0202) and the present proposals have incorporated this approach. As well as discussing cultural heritage impacts and their management within the proposal areas, consultations have focused on the establishment of the proposed ACHCAs to be established, notably the long-standing proposal to establish that on Coal & Allied owned lands along Wollombi Brook (ie the WBACHCA).

Coal & Allied and the CHWG have largely concluded an exhaustive consultation process which has identified various lands, including a significant portion of the Bulga bora ground area and associated cultural sites and landscapes, that will be managed permanently for the conservation of the Aboriginal cultural heritage values associated with these lands. A core area for inclusion in the WBACHCA had been identified. Moves were in train during the time that the Warkworth Extension Project (PA 09_0202) was operational to have it formally gazetted under s.69B of the NWW Act. The overturn and subsequent appeal of that consent has delayed further progress on this.

In the intervening time, Coal & Allied have identified additional areas immediately adjacent to both the north and south which are now to be included within the WBACHCA. Initially upon approval it will be managed by Coal & Allied in collaboration with the CHWG and in accordance with a management plan specific to the area. The CHWG and the company have jointly developed a set of key objectives and principles, which have informed the development of the management plan, which is both well advanced and ongoing.

3.5.3 A Cultural Heritage Management Accord

The concept of the limits of acceptable change provides the basis for a revised approach to cultural heritage management which, while remaining within the scope of current Rio Tinto Coal Australia and Coal & Allied policies and procedures, and their statutory obligations, could provide for greater flexibility and certainty for both parties and more long lasting socially and culturally beneficial outcomes for the Aboriginal community.

To this end Rio Tinto Coal Australia is investigating the development of a cultural heritage management accord with the Aboriginal community of the Upper Hunter Valley. Such an instrument would to apply to all Coal & Allied owned lands and tenures.

As a first step along this path, Coal & Allied have made, and maintain, a commitment to establish the WBACHCA which, among other things, will provide the Aboriginal community with a measure of certainty around the maintenance of integrity and protection of the eastern portion of the area identified as containing and being associated with the Bulga bora ground, and other regionally important Aboriginal cultural heritage places and landscapes within this area.

Coal & Allied will enter into a co-management arrangement with the Aboriginal community, initially through the auspices of the CHWG, with the ultimate intention to establish a specific Aboriginal community controlled governance structure to manage the proposed WBACHCA. It is hoped that other planned (e.g. the Loder Creek ACHCA proposed within the Mount Thorley Operations 2014 area) and future conservation areas can also be managed under this structure.

Involving as it does substantial areas of existing mining tenement with proven coal reserves, the establishment of WBACHCA will see Coal & Allied forgo access to the development of substantial coal reserves located beneath and immediately adjacent to it in order to ensure that a culturally-appropriate protective management area is established around the eastern portion of the Bulga bora ground and its environs along Wollombi Brook. Although supported by considerable history to this point and settled in the eyes of Coal & Allied and the CHWG, the ultimate final extent of lands to be included within, and excluded from, the WBACHCA (e.g. access roads, statutory easements, future utility corridors etc.) remains to be finalised ahead of the commencement of formal gazettal procedures. Again, this will be achieved through a comprehensive consultation process with key stakeholders: principally the CHWG, Rio Tinto Coal Australia and Coal & Allied; DP&E, OEH and the Division of Resources of Energy within the Department of Trade and Investment; but also other departments and entities as have interests in such lands.

The key element of the accord in the long term is for the Aboriginal community co-management of, in the first instance, the proposed WBACHCA, under a community-based and culturally-appropriate governance structure that would be developed in consultation with, and by the Aboriginal community, over time. Such a community governance structure could provide the basis for transferring the management of additional important areas to Aboriginal management in the longer term and delivering intergenerational benefits to Aboriginal people rather than simply short term engagement.

It would be expected that the proposed accord would require Coal & Allied to meet obligations with respect to and make provision for:

- reasonable and adequate resources for the establishment of both the WBACHCA and associated community governance entity in the first instance, and for the ongoing long-term management of WBACHCA and Loder Creek ACHCA;
- access to and co-management arrangements for both WBACHCA and Loder Creek ACHCA;
- access to culturally-significant places and / or landscapes have been identified by the Aboriginal community on other Coal & Allied lands associated with the Warkworth Continuation 2014 and Mount Thorley Operations 2014 proposal areas;
- resourcing Aboriginal cultural heritage and land management training and employment; and
- resourcing cultural and oral history recording by Aboriginal community members to ensure the security of existing but threatened cultural and historical information.

The accord will also capture obligations on behalf of the Aboriginal community. These could include:

- development of an integrated framework model for cultural heritage management applicable to all Coal & Allied's operations and lands in the Upper Hunter Valley that would look to make the best use of available resources to maximise outcomes for the Aboriginal community, including intergenerational equity;
- negotiating in good faith about Aboriginal cultural heritage management outcomes across Coal & Allied's operations and lands in the Upper Hunter Valley; and
- responsible management of Aboriginal cultural heritage places, landscapes and lands that are subject to Aboriginal community co-management arrangements.

Again, discussions surrounding such an accord will require close engagement. Coal & Allied will engage on the proposal with key stakeholders including the Aboriginal community of the Upper Hunter Valley, DP&E, OEH and Division of Resources and Energy within the Department of Trade and Investment on the proposal.

3.6 A Note Regarding the Location and Management of the Bulga Bora Ground Site within the Wollombi Brook Aboriginal Cultural Heritage Conservation Area

Undoubtedly, the most significant Aboriginal cultural heritage place in the greater MTW area is that commonly referred to as the Bulga bora ground site which is the terminology we use hereafter. This site, included on the OEH AHIMS as #37-6-56, is described as carved trees with a ceremonial ground. An additional AHIMS record (#37-6-55), referred to as a ceremonial ground, is located approximately 2km to the south of the former place location. It is generally acknowledged (including by OEH) that 37-6-55 is, in fact, simply a duplicate recording of 37-6-56 but with an erroneous location. Consequently, 37-6-55 is not referred to in subsequent discussion.

The undoubted presence of a ceremonial site of great social significance to the Aboriginal community of the Upper Hunter Valley (see also Section 6 below) has required Coal & Allied to adopt the highest level of management response. Coal & Allied's response has been to excise the area of this place and additional surrounding lands covering 696 hectares to create a conservation area (i.e. WBACHCA) that will be maintained in perpetuity, despite the presence of substantial coal reserves in this area. Coal & Allied has also committed substantial resources to the development of a comprehensive management plan for WBACHCA, including the establishment of an Aboriginal management group to explore long-term management needs and mechanisms for enhanced Aboriginal management control.

3.6.1 The Issue

Substantial research efforts have been made to accurately determine the location of this site. Subsequently, use has been made of this locational data by Aboriginal organisations in various legal actions. There is a general consensus among Aboriginal stakeholders that the location of the site has

been accurately determined and that it lies within the bounds of the conservation area. Notwithstanding this, there have been repeated assertions by an individual to dispute the location of this place. As these assertions would seek to place the site in locations outside the conservation area, with obvious implications for this important management measure and its value, some attention is now given to this issue.

3.6.2 Brief Background

In 1852 local residents in the Warkworth-Wambo area noted that large numbers of Aboriginal people (possibly as many as 600) had gathered in that area for a major ceremonial gathering. This probably was for the purpose of initiating young boys into manhood. Aboriginal people from as far away as Mudgee and Goulburn apparently travelled to participate in the ceremonies that took place.

In 1918, and following a request from a local resident (A.N. Eather) who had visited the site, this bora ground was visited by personnel from the Australia Museum in Sydney, led by W.W. Thorpe. This team recorded the bora ground site, taking a series of photographs and preparing a sketch map of its location. Their description, though never published, was kept on file at the Museum along with the photographs. As recorded, the place included a bora ring, a raised earthen mound, and a series of carved trees - possibly 12 in number. At the time of this recording in 1918, the trees appeared to be dead. It is known that such trees were often carved at ceremonial grounds in NSW. Thorpe also recorded a camp site located to the west-south-west of the carved tree site, on either side of a creek running into the Wollombi Brook.

Subsequent visits made over the next 80 years failed to find any definite trace of the site (a burnt stump that was thought to be significant in identifying the location of the place was recorded in 2002). In 2002-3, a concerted effort was made to definitively answer the question of its location. This research, undertaken by Brayshaw (2003) pursued several lines of inquiry. All documentary data available on the site was exhaustively reviewed. In addition, the last person to have actually seen the bora ground and the carved trees (a local resident named Jim Eather, a descendant of A.N. Eather who had initially brought the site to the attention of the Australian Museum) revisited the site in early 2003. His recollection of the site's location tallied extremely closely with the sketch map made by Thorpe, as well as relevant cadastral data, environmental descriptions and anecdotal information. Based on the cross-referencing of these independent lines of evidence, the location of the bora ground site was considered to have been accurately identified. It is considered that a high degree of confidence can be attached to this conclusion.

3.6.3 Location and Current Condition

Based on the exhaustive work of Brayshaw and subsequent research undertaken by Coal & Allied and others, the best estimate of the site's location is as shown in Figure 2 below. It should be noted that this includes as significant management buffer as agreed with the CHWG. This location has been delineated based on Brayshaw's detailed examination of all the evidence to hand, and confirmed by a number of visits to the area undertaken by RAP and other CHWG representatives in 2009 and as recently as January 2014 – see appendix 1. That portion of the bora ground management precinct incorporating the carved tree/ceremonial site lies categorically within the boundaries of the WBACHCA settled with the CHWG.

Repeated inspections of the area dating from the 1930s confirm that there are now no material vestiges of the site remaining. The area has been subject to repeated bushfires, grazing, land clearing and use for other agricultural purposes. All of the carved trees have disappeared, quite possibly burnt in bushfires, and no one has identified either the rings or the earthen mound reported. Irrespective of the absence of any physical remains, Coal & Allied accepts that this is irrelevant to the significance of the place, and its management precinct, for the Aboriginal community of the Upper Hunter Valley.

3.6.4 ATSIHP Act Section 10 Application and Response

In 2004 the Chief Executive of the Wannaruah Local Aboriginal Land Council lodged an application under provisions of the ATSIHP Act seeking the relevant Minister issue a Section 10 order as provided by that Act. Such orders allow the Minister to set in place such measures as are deemed necessary to protect the cultural heritage values of the place in question. In this case, an order was sought covering not only the site itself but all land falling within an area 4km in radius within which the OEH site (AHIMS 37-6-0056) lay. The basis for the area covered by the application was that there were a large number of other archaeological sites within that area that were directly associated with the bora ground and its use.

Coal & Allied objected to the application on various grounds – notably that the application if granted would have had major economic consequences and that there was no evidence that in any way linked the other known sites within the 4km radius used in preparation of the section 10 application with the bora ground site in the manner asserted in the application. At no stage, however, did Coal & Allied question the significance of the site to the local Aboriginal community (contra comments made by Bell in his 1980 completion of the AHIMS site recording card for this site). To the contrary, Coal & Allied accepted that the site retained its significance and required appropriate management. Coal & Allied made a series of commitments; notable among these being that it would not undertake any mining activities in the area in question and would develop a management plan for the site.

The Minister, taking account of the report received following investigation of the application and responses received to the same, decided not to issue a Section 10 order as had been sought.

One additional point should be made. No person at the time the Section 10 application was made (based as it was on the location of the place as held by OEH on its AHIMS) suggested in any submission made to the ministerial rapporteur that the location of the site was otherwise than as included on AHIMS.

3.6.5 Alternative Locations

In March 2011 two Wonnarua persons contacted Coal & Allied regarding the location of the Bulga bora ground site. These persons claimed to have new information regarding its location and features, including an earthen bora ring situated about 400m to the west of the carved trees area. In consultation with OEH and DP&E, arrangements were made for them to visit the bora ground site location as then understood to verify their information. This visit took place in April 2011. At that time (and as subsequent events likewise indicate) the persons involved agreed that this location, as originally identified both from the AHIMS record and Brayshaw's review, was the location of the bora ground site, and in doing so also accepted, at least by obvious implication, that it lay squarely within the WBACHCA as proposed.

Subsequently, there was correspondence and communication between the parties in relation to the site and its future management.

In August 2012 one of these same individuals gave testimony in the Land and Environment Court (NSW) with respect the Warkworth Extension Project. In that testimony the claim was made that the currently accepted location of the Bulga bora ground site was incorrect and that information should be interpreted as indicating that it was situated some kilometres to the south of the currently accepted location. The implication of this was that the site was not, as was claimed, within the WBACHCA and was at risk from proposed mining activities. While no evidence was tabled, it was claimed that the wrong parish map had been used when the widely accepted assessment of the site's location was made. Accepting for one moment that this claim was correct, and setting aside all other evidence that corroborates the generally accepted and current location, Coal & Allied notes that taking this claim of the alternative locality literally (measuring a distance 2 miles directly east from the 'Meerea' homestead site), would still place the site within the boundaries of the WBACHCA and not within any area which would be subject to development impact.

Subsequent to the Land and Environment Court action, there was further correspondence between the parties regarding the site's location and its ongoing management.

3.6.6 Commentary on Claims of Alternative Locations

In the absence of a new body of historical evidence that makes a compelling case that all other substantiated assessments of its location are incorrect, Coal & Allied continues to view the currently accepted location of the Bulga bora ground as accurate. Even allowing for some error of several hundred metres, the site sits well within the conservation area, and well outside of the proposal area and, therefore, will be protected in perpetuity.

4. ABORIGINAL CULTURAL HERITAGE RESEARCH AND ASSESSMENT

Archaeological research in the Upper Hunter Valley has a long history and has gained significant momentum as a consequence of impact assessment requirements as development activity, particularly coal mining, has expanded since the 1980s. These summaries draw on and acknowledge material from several Aboriginal cultural heritage baseline studies which have been conducted for the broader region, but also a range of specific studies conducted for Coal & Allied on and near the MTW mining area (in this respect notably Coal & Allied 2010 prepared for the Warkworth Extension Project). A number of these relate specifically to the proposal areas.

4.1 Regional Research Summary

Amongst the earliest known studies of Aboriginal cultural heritage in the area is of places containing rock art at Bulga Creek in the late nineteenth century (Matthews 1895 in ERM 2004a). Subsequently, the Bulga bora ground, located on the western boundary of the Warkworth mining lease, was first recorded by Thorpe in 1918 (Brayshaw 2003). What can be termed archaeological ‘research’ into Aboriginal cultural heritage has been conducted in the Upper Hunter Valley since the first half of the twentieth century, initially by archaeologists from the Australian Museum such as McCarthy and Moore in the 1930s. Following this in the 1940s, Davidson (McCarthy and Davidson 1943 in AECOM 2009) located stone artefacts from scatters located adjacent to the Hunter River near Singleton. The Australian Museum under the supervision of David Moore also undertook a systematic archaeological survey of the Hunter River from its confluence with Wollombi Brook to Singleton (Moore 1970 in ERM 2004a).

From the mid to late 1970s an increasing number of surveys and investigations on Aboriginal cultural heritage have been carried out in the Hunter Valley, notably as components of environmental impact studies, but also for individual site management purposes. The acceleration of such investigations from this period is largely attributable to the introduction of the NPW Act in 1974 and the subsequent EP&A Act in 1979, and the interaction of the two in the environmental assessment process.

In 1983 the NSW National Parks and Wildlife Service (NPWS) commissioned a comprehensive study of the region’s archaeology. The impetus for this was increasing development pressures being both experienced and foreshadowed throughout the Upper Hunter Valley, and the perceived threats posed by broad scale mining to the archaeological record.. Significant reports were generated by this research effort (Hughes 1984; Hiscock 1986; Koettig, 1984). The work provided several outcomes: a predictive model for the distribution of various archaeological place-types; a model for landscape use and occupation; archaeological evidence for the use of the plateau and mountain zones of the region; and an understanding of typology and change in stone tool manufacture and use in the region.

Hughes' 1984 study, in particular, made a series of observations regarding chronological models of occupational change within the region. Scarp Archaeology (2009b:23) have summarized this as follows:

Hughes' 1984 project focused in and around the central lowlands between Branxton and Muswellbrook, and with a strong geomorphological focus, examined the nature of archaeological discard in relation to dominant duplex soils. Observing that Aboriginal artefacts only occurred within an upper stratigraphic soil unit, now well known as 'horizon A', and not in the lower clay sediments, 'horizon B', Hughes and colleagues essentially set up the model by which subsequent excavations have been phrased for over 20 years. Further to this they also asserted that as 'horizon A' contained assemblages containing backed blades, sites were typically 5,000 years old or younger. Hughes acknowledged however, that the upper horizon A soils can extend up to Pleistocene in age as rivers within the region have remained fairly stable (Hughes 1983:75)

In the early 1990s NPWS commissioned three additional studies which aimed at: increasing the understanding of the geomorphological context for the region's archaeology (Dean-Jones and Mitchell 1993); proposed management approaches for the archaeological record (Holdaway 1993); and suggested future directions for the focus of archaeological research (Baker 1992).

With respect to the later study, ERM (2004a:49) observed that:

Baker identified the need for research driven archaeology rather than the "dig it and describe it" approach which was common at the time. Baker also identified the need for scientific significance to be based on tangible data rather than vague reference to research potential based simply on observation of high artefact densities.

Throughout the 1990s and into the new millennium the number and scale of Aboriginal cultural heritage research and assessment within the Upper Hunter Valley continued to increase. Again, this was primarily motivated by the need for archaeological information for planning and assessment processes associated with the potential impacts of coal development on Aboriginal cultural heritage. The studies undertaken differed substantially in size and scale concentrating as such studies do on specific areas of land proposed for development. It was again considered that there had been little attempt to draw together the results of this work into a regional understanding of Aboriginal cultural heritage.

With this in mind the Upper Hunter Valley Aboriginal Heritage Trust commissioned another baseline study (ERM 2004a). The study area for this research was defined by the boundaries of the Wanaruah Local Aboriginal and Council. It covered 14,500km² and included a number of biogeographic regions present throughout the Upper Hunter Valley. This study aimed at providing a synthesis of Aboriginal cultural heritage research and assessment which had been undertaken throughout this area in three categories: 'the landscape, the archaeological resource and the history since contact with Europeans' (ERM 2004a:I). It also aimed to identify gaps in the current knowledge –base with respect to these

three areas. The study aimed to use this information to provide future research directions into Aboriginal cultural heritage and ‘facilitate the cultural assessment of sites and places often undertaken for environmental impact assessments in the region’ (ERM 2004a:1).

A series of six sub-regions were identified within the overall study area. These included: the Central Lowlands; Southern Mountains; Central Goulburn Valley; North Eastern Mountains; Merriwa Plateau; and, Northern Ranges. Within these, the Central Lowlands generally corresponds with the bulk of the mining development within the Upper Hunter Valley, including the proposal areas. As a result, this sub-region was identified as having been the most intensively studied and, therefore, contained the largest numbers of recorded Aboriginal cultural heritage places. This bias was evident in an analysis of the Aboriginal Heritage Information Management System (AHIMS) site records available at that time (ERM, 2004a: 60) which showed that although the Central Lowlands comprised approximately 30% of the overall study area, it contained almost three quarters of the Aboriginal cultural heritage places recorded in the Upper Hunter Valley at that time (Table 2).

Study Sub-region	AHIMS Records	%
Central Lowlands	2,641	73.6
Southern Mountains	228	6.4
Central Goulburn Valley	402	11.2
North Eastern Mountains	219	6.1
Merriwa Plateau	90	2.5
Northern Ranges	6	0.2
<i>Totals</i>	<i>3,586</i>	<i>100</i>

Table 2: AHIMS site records across sub-regions identified within the Upper Hunter Valley Aboriginal Heritage Baseline Study (adapted from ERM 2004a:59).

Of the sites included on AHIMS in the Central Lowlands, the vast majority (n=2,576; 97.5%) consisted of places containing stone artefacts or associated with stone artefact production (including a quarry). Other place-types had also been recorded but these were in far smaller numbers and included culturally modified trees (scarred / carved), areas of grinding grooves, and places associated with ceremonial activities (ERM 2004a:59; see also AMBS 2002: 24).

4.2 Aboriginal Occupation of the Central Lowlands

The conduct of Aboriginal cultural heritage surveys, and to a lesser extent excavations, have revealed a rich archaeological record throughout the Central Lowlands. Although, as outlined above, other place-types have been identified, the vast majority of Aboriginal cultural heritage places identified (in excess of 95%) consist of stone artefacts. While not uncommonly found as scatters (some quite extensive) they are more frequently identified as isolated finds. In some measure, this observable patterning is a direct result of the long history of land-use practices (particularly agricultural and pastoral) throughout the lowland areas.

Stone artefact assemblages include a large component associated with the manufacture of backed blades. Within individual assemblages, backed artefacts typically comprise between 1% and 2%, with rare cases being as high as 5% (ERM 2004a:53). The bulk of the remainder is comprised of unmodified flakes and the cores from which they have been struck. Other artefacts, commonly identified as ‘tools’, such as portable grindstones and axes are present but are considerably less common.

A variety of raw materials are utilised in the manufacture of these artefacts although silcrete and indurated mudstone, also variously referred to as tuff, dominate. Other materials such as chert, quartz, prettified wood, chalcedony, porcellanite and a range of other volcanic materials are also utilised where available. The high quality sandstones found throughout the lowlands are favoured for grindstones while the more durable volcanic materials such as basalt are commonly utilised in axe manufacture. Emanating from the erosion of the highland areas of the Upper Hunter Valley, all of these raw materials tend to move downstream through the river and major creek systems of the lowlands: indeed considerable areas of Hunter River gravels have previously been identified (ERM 2004a:53) as providing extensive sources of locally available materials suitable for stone artefact manufacture. In addition, silcrete sources, found both as outcropping reef and nodule ‘floaters’ have also been identified across the extensive Hunter River terraces (White 1999).

Several studies (e.g. AMBS 2002 and ERM 2004a) have stressed the importance and concentration of Aboriginal occupation within the Central Lowlands, as evidenced by the presence of large numbers and diversity of Aboriginal cultural heritage places along the major tributaries of the Hunter River and its alluvial terraces. These drainage systems often contain permanent streams and water bodies, and their associated biodiversity would have offered reliable resources to be utilised and managed by Aboriginal people. Such features have been identified (Coal & Allied 2010:25) as core occupation areas in the seasonal round for Aboriginal people in the region.

This position is also captured in the following from AMBS (2002:27):

It appears that, in the Upper Hunter Valley, the creek valley floors of the Central Lowlands formed the focus of residential base occupation. Sequential positioning of foraging radii along these creek valleys over several millennia would have resulted in a continuous archaeological distribution close to creeks reflecting domestic and maintenance activities in a residential base context. Archaeological evidence on the upper slopes, ridge lines and less domestically amenable areas up to several kilometres from the residential base would reflect resource gathering activity locations. The commonly reported pattern of archaeological evidence in the Upper Hunter whereby artefact distributions are concentrated close to creeks and highly dispersed away from the creeks can be explained by this model.

This regional model is reflected in the results of Aboriginal cultural heritage investigations which have been conducted throughout the greater MTW mining area (including the proposal areas). In particular, salvage archaeological investigations conducted in the currently approved Warkworth Mine operational area (McCardle 2008b:67) suggest a similar landscape and resource use pattern:

The main factor influencing decisions regarding camping locations appears to be the availability of reliable water and associated resources. Based on the evidence, it appears that there are distinct areas of occupation and travel along Langford, Sandy Hollow and Doctors Creeks, all of which are situated in between the Hunter River and Wollombi Brook. Both these two major rivers are well known for sustainable and continued occupation of the region. It therefore seems apparent that the areas in between these two rivers were also utilised either as travel routes and or occupation areas.

The antiquity of Aboriginal occupation of all regions is a matter of abiding interest and the same is true of the Upper Hunter Valley and central Lowlands therein. Observable expressions of Aboriginal cultural heritage are generally thought to date to the Holocene period (i.e. the last 10,000 years) and within that the vast majority to the last 4-5,000 years. Within the broader region, however, evidence for Pleistocene (i.e. prior to 10,000 years ago) has been established. In general, however, Hughes (quoted in Scarp Archaeology 2009b:23) notes that while ‘Aboriginal people occupied the Hunter Valley region during the late Pleistocene [it was] in such small numbers that archaeological visibility of this period is lacking. In particular, fluvial erosion or flood alluvium has effectively destroyed/hidden any evidence of th[is] initial occupation’.

To date there seems little convincing and unequivocal evidence of Pleistocene occupation within the Central Lowlands. Work at both Fal Brook (Koettig 1987), and Mount Arthur (Kuskie 1999) has seen arguments made for Pleistocene cultural materials within ‘Unit B’ soil horizons (currently accepted as having to be older than the Holocene in age), but issues around both of these interpretations remain largely unresolved (see ERM 2004a:68). Subsurface cultural material was identified within colluvial deposits at Carrington. Although radiocarbon determinations did not extend beyond the Holocene period (Huonbrook 2000), the presence of stone artefacts within Unit B soils (referred to in this study as the ‘Lower Stratum’) and the extent of their weathering, was interpreted as being indicative of having been deposited during the Pleistocene. To date, no follow up work has been undertaken.

More recently there has been a strong focus in the Central Lowlands upon research into sand dunes and sheet of aeolian origin as potential hosts of Pleistocene occupation (summarised in detail in AMBS 2002; ERM 2004a). This has included work at places such as AHIMS site 37-5-63 on the northern side of the Hunter River (Hughes 1997), Cheshunt (Hughes 2001, Hughes and Shawcross 2001), and at two areas in the current Warkworth mining consent area (AMBS 2002; Scarp Archaeology 2009a, 2013).

The AMBS (2002) study obtained optically stimulated luminescence (OSL) dates which suggested that cultural material found within this sand sheet potentially dated to the Pleistocene. This consisted of a very sparse stone artefact assemblage inferred to be older than 14,000 years. Scarp Archaeology (2009a) undertook a detailed and multi-disciplinary study of this same sand sheet. This included an extensive excavation and dating program using a refined OSL technique. The results of other geomorphological and sediment studies (such as magnetic susceptibility) provided clear evidence that the sand sheet is a highly mobile and bioturbated feature – internal mixing of sediments being amply demonstrated. Further no association was identified between the cultural material and the Pleistocene period. This will be discussed in further detail below.

4.3 Ethnographic Context for Aboriginal Use of the Central Lowlands

The majority of the information in this section is drawn from AECOM (2009:7-8). The Singleton region was occupied in pre-European times by the Wonnarua peoples (although spelling variations throughout the literature include: Wanaruwa, Wanarua, Wannarawa, Wannerawa, Wonarua, Wonnah Kuah, Wonnuaruah and Wanaruah). According to Brayshaw (1983), the Singleton area, and by extension the proposal areas, lie at the heart of Wonnarua country.

Pre-contact Aboriginal population densities are notoriously difficult to estimate and it is no different in the case of the Wonnarua. Available information (see Brayshaw 1987:46-48) has suggested relatively low numbers, in the order of ten to fifteen individuals within each camp, but several instances of 200-300 ‘able-bodied men observed in separate groups’ (Brayshaw 1987:747) are suggestive of higher overall numbers. Curr (1886:352) estimates that the overall Wonnarua population in 1841 to have numbered 500 individuals, with this having decreased dramatically by the 1880s principally as a result of introduced diseases. It is widely accepted however that the lowland areas had good permanent water bodies and a range of ecosystem types that would have provided a range of living strategies for the Aboriginal occupants.

The information to hand (both from ethnographic sources and the archaeological record) suggests that the base residential unit consisted of small family-based groups of up to ten people. It is thought that at times, four to six family groups may have been found together in locations where certain seasonally abundant resources could be found. Larger, although irregular or infrequent, temporary ‘community’ aggregations in excess of 150 people were also noted as forming to exploit either seasonal plenty or to conduct ceremonial activity.

There are also records of Aboriginal people in the region constructing mud, bush timber and grass huts in large, semi-permanent ‘summer camps’ along the riverine margins of the plains country associated

with descriptions of the seasonal aggregations. From these, people exploited the abundant animal and plant resources (including grass seed) available in the forests, creeks and rivers at these times.

One well documented example of ceremonial aggregation has been noted within the historical record. This recounts a particularly large regional ceremonial gathering at the Bulga bora ground, which, although outside of the Warkworth Continuation 2014 area, at least in part lies in the western portion of the Warkworth Mining lease (see Figure 2). Brayshaw (2003:2) notes in respect of this gathering that ‘This Bora ceremony was held in the year 1852, and on reliable authority residents of the locality was attended by between 500 and 600 aborigines from as far as Mudgee and Goulburn’.

Archaeological and ethnographic research, current models of pre-contact occupation and documented contact history notwithstanding, Aboriginal people whose traditional country lies in the Upper Hunter Valley have a view about their past that is informed by their traditions and cultural belief system. At times, this may be at variance with current scientific understandings but this makes it no less valid. What also informs Aboriginal people’s views is the oral tradition that they inherit from their forbears who lived through the contact period of first encounters with European settlers in the Upper Hunter Valley.

The Aboriginal owners of the Upper Hunter Valley lands endured a similar fate to that encountered by many Aboriginal people whose productive country lay at the expanding edge of European settlement on the east coast of Australia in the late 18th and 19th centuries. They were dispossessed, marginalised and institutionalised. Today, their descendants assert their rights for recognition and a meaningful voice in the management of their cultural heritage.

5. RESEARCH AND DATA SOURCES FOR THIS REPORT

There are a series of key studies undertaken throughout the MTW area which inform this report and provide data for the assessment of the significance of Aboriginal cultural heritage objects and places located within the proposal areas and their management in the context of the proposed development activities.

These fall into three main categories:

- studies relating to the 2002 extension of the Warkworth Mine;
- Coal & Allied studies undertaken between 2008 and 2014; and
- multidisciplinary archaeological and geomorphological investigations undertaken into areas of the Warkworth Sands land system.

The first is the Aboriginal heritage study prepared for the EIS compiled for the extension of Warkworth Mine's operational area in 2002 (the Warkworth Extension Project; AMBS 2002). This study included new survey and assessment fieldwork (including the conduct of excavations) as well as the re-recording and reassessment of all Aboriginal cultural heritage places which had previously been identified and recorded within its study area.

The second category is a series of comprehensive and systematic studies commissioned by Coal & Allied between 2008 and 2014. These aimed for complete coverage of their respective study areas and in all cases were conducted under the auspices of the CHWG and with direct participation of the RAPs. Collectively, these have included either the reappraisal or new investigation of all portions of the MTW mining leases and adjoining Coal & Allied owned lands outside the current consents. Additionally, the comprehensive and systematic reassessment of the undeveloped south eastern portion of the MTO mining lease (included within the Mount Thorley Operations 2014 area) have also commenced but remain to be completed. The purposes of these studies have been several: to meet Rio Tinto Coal Australia's CHMS; to address development consent conditions; and to develop an understanding of Aboriginal cultural heritage issues in areas adjoining current consent areas. These studies include:

- the MTW West Stage 1 Aboriginal cultural heritage study completed in July 2008 (AECOM 2009);
- the MTW Southwest Stage 2 Aboriginal cultural heritage study undertaken in July 2009 (Scarp Archaeology 2009b);

- the MTW Non-Disturbance Area 2 (sometimes referred to as MTW Stage 3) Aboriginal cultural heritage study undertaken in September 2009 (MCH 2009);
- the finalisation of the assessment of the MTW Southwest Stage 2 and new Aboriginal cultural heritage assessment of the area referred to as the Bulga Farm in May 2010 (Scarp Archaeology 2011);

(These studies directly informed the previously granted (but subsequently disapproved) EIS prepared for the Warkworth Extension Project (PA 09_0202))

- at MTO, the Aboriginal cultural heritage study undertaken of the Ramp 22 Sedimentation Dam area in the south east of the current development consent area in August 2013 (RPS 2013); and
- the reassessment of the remaining undeveloped western portions of the Warkworth mining leases located to the east of Wallaby Scrub Road. This area was investigated in two stages, the first in November 2013 as part of the Warkworth Mine Modification 6 (Coal & Allied 2013) and the second in February 2014 as part of the Warkworth Continuation 2014 proposal.

In the final category there have been two comprehensive investigations, one of which was a large scale, multidisciplinary archaeological and geomorphological investigation into areas of the Warkworth Sands land system within the Warkworth mining leases. These include:

- the Warkworth Sands Archaeological Project carried out in 2008 (Scarp Archaeology 2009a); and
- the Warkworth Sandsheet Sub-Area A archaeological test excavations carried out in August 2012 (Scarp Archaeology 2013).

The relationship of these study areas to the MTW mining leases, the proposal areas, and one another is presented in Figure 2. The reports relating to these studies can be provided upon request in electronic data format (see Appendix 2).

In addition to these formalised studies, a number of places containing Aboriginal cultural heritage have been discovered by Rio Tinto Coal Australia and Aboriginal community cultural heritage field officers during the course of their duties. Such places are also considered in this report.

All places containing Aboriginal cultural heritage areas or objects identified as a result of these studies have been registered on the AHIMS maintained by OEHL, as well as included in a Cultural Heritage Management Database (CHMD) established by Coal & Allied specifically for the greater MTW mining area and adjoining Coal & Allied owned lands. The CHMD documents the nature, form,

condition and specific management requirements as agreed by the CHWG, for each place. As a minimum requirement the MTW CHMD includes the following information:

- a unique MTW place identifier;
- the unique AHIMS number maintained by OEH;
- the place type (e.g. isolated find/s, artefact scatter, scarred tree etc);
- grid reference along with datum and projection information as collected exclusively by GPS;
- place description and values (e.g. number / density and attributes);
- place extent (e.g. 10m diameter);
- date recorded and technical adviser recording;
- management options covering eventualities for both the disturbance and non-disturbance as agreed within the CHWG.

The information held within the CHMD is regularly updated as a result of ongoing site inspection / monitoring and implementation of agreed management measures. The CHMD is a key element within the preparation and operation of management plans (including the current Warkworth and MTO A&CHMPs) and associated management arrangements as settled.

The CHWG has worked with Coal & Allied to develop a comprehensive cultural heritage investigation and assessment process. This includes: community consultation procedures; a project work Terms of Reference (ToR) template; cultural heritage investigation methodologies; processes for the selection and engagement of technical advisors (archaeologists or other professionals as may be required to assist with specific tasks); and a process for the selection and engagement of Aboriginal corporate entities for project management and administrative coordination. These arrangements encourage Aboriginal people to take an active role in fieldwork and reporting arrangements for project work with the assistance of technical advisors.

The reports provided for the above-mentioned studies set out detailed accounts of study methodology, analysis, significance assessment, including the views of relevant Aboriginal community groups and the CHWG, impact descriptions and management recommendations. The Warkworth Sands, and to a lesser extent the Sub-Area A, studies addressed the major research question of the possible occupation of the Warkworth Sandsheet area by Aboriginal people in the Pleistocene. Neither of these studies produced evidence that unequivocally supports this proposition.

An outline of each of the studies and a summary of key aspects of each study's findings is presented below. The authors acknowledge freely citing from these study reports in compiling these outlines.

5.1 Warkworth Extension EIS Study – AMBS 2002

5.1.1 Study Outline

The 2002 Aboriginal cultural heritage study undertaken as part of the 2002 Warkworth Extension was commissioned by Coal & Allied and WML as a part of the EIS documentation submitted in support of a proposed modification to DA-300-9-2002-i. This project provided for the extension of the Warkworth Mine open cut operations further to the west.

The study involved two principle components. The first involved the synthesis of all previous Aboriginal cultural heritage survey, assessment and management (e.g. salvage) programs which had been undertaken throughout areas located within the Warkworth mining lease. This noted Thorpe's 1918 recording of the Bulga bora ground, as well as the myriad more recent impact assessment survey work undertaken from 1979 to 1999, and salvage projects undertaken from 1990 to 2002.

The second component consisted of a fieldwork program which was carried out in late 2001, and early to mid-2002 by a team of archaeologists and other specialists from Australian Museum Business Services (AMBS) in collaboration with Dr. Phillip Hughes of Huonbrook Environment and Heritage Pty Ltd. Seven Aboriginal people representing the Upper Hunter Wonnarua Council, the Wanaruah Local Aboriginal Land Council, the Lower Wonnarua Tribal Council and the Wonnarua Nation Aboriginal Corporation participated in the field surveys and test excavations and provided advice on significance and recommendations for the conduct of the study.

The field surveys undertaken were based upon a sampling strategy that inspected 100% of areas of high archaeological and cultural interest (primarily drainage lines) supported by survey transects along selected representative sections of the balance of the study area (see Figure 2). To the extent that it was able to be achieved, the locations for all previously recorded Aboriginal cultural heritage places which lay within the undeveloped portions of this area were also relocated and rerecorded. Although the northern and southern areas were not within the proposed extension project area, the fieldwork program undertaken included all portions of the Warkworth Mining lease west to Wallaby Scrub Road.

A series of test excavations were carried out in the Sandy Hollow Creek area of the Warkworth Sandsheet landform (see Figure 2). It was considered that this landform was created primarily by aeolian action in periods of landscape instability during the late Pleistocene and therefore that evidence of Aboriginal occupation may extend into these periods. A series of 10 x 1m² squares were excavated at two locations in the north and south of this feature respectively. These were excavated by a mixture of hand and shovel, and to a lesser extent, by backhoe in 100mm depth increments (spits). An additional trench 2m x 0.5m was also excavated in the southern excavation area.

The test pitting strategy included the collection of three sediment samples for OSL dating to determine their age and, by inference, the potential age of any artefacts associated with the sampled stratigraphy.

5.1.2 Key Findings

The field surveys identified a total of 120 places containing Aboriginal cultural heritage within the study area (Table 3). These included 47 places which had been previously identified and recorded during earlier studies and 73 new places. With the exception of two areas containing grinding grooves, the remaining places (in excess of 98% of the total) contained stone artefacts.

Place Type	Place No	%
Stone Artefact Scatters	68	56.7
Isolated Stone Artefact/s	50	41.7
Grinding Grooves	2	1.6
<i>Total</i>	<i>120</i>	

Table 3: Frequency of Aboriginal cultural heritage place types identified within the AMBS study for the 2002 Warkworth Extension.

As a result of their analysis of the recorded Aboriginal cultural heritage places and materials AMBS (2002:95) noted that:

The results of the survey and excavations fit with site prediction models. The largest sites occur along major water courses. Grinding grooves occur where there are outcrops of sandstone in the creeklines. Stone artefact scatters were the predominant type of site recorded. The nature of artefacts and raw materials were as expected. The artefacts were of locally derived raw materials. The overall artefact assemblage did not contain any attributes that make them unique or rare in the Upper Hunter Valley.

The study identified that larger cultural places with higher numbers of stone artefacts were generally located on drainage lines (principally Sandy Hollow Creek and Longford Creek) and though these may have some research potential they were adjudged to be of low archaeological significance given the large amount of survey and salvage work that had already been undertaken within the MTW area and the low likelihood of additional research at these places adding to an understanding of Aboriginal people's use of the landscape in the area.

Of the two places identified as containing grinding grooves, only one (Site M) remains extant with PN10 having been the subject of a salvage and relocation program conducted between May and September 2010 (Scarp Archaeology 2010). The Site M grinding grooves were originally identified by Dyall (1979) who identified a total of 73 grooves in a distinct cluster across outcropping sandstone in the bed of an unnamed tributary of Wollombi Brook. Additional surveys of this area by Haglund (1999) recorded an additional nine grooves some 250m upstream. The AMBS (2002) fieldwork relocated both of these grinding areas and, in the case of the larger downstream accumulation (Dyall's original Site M), a detailed sketch plan was prepared.

With respect to the significance of these grinding areas, AMBS (2002:102-03) noted that these have 'some archaeological significance, given they are a relatively rare (although not unexpected) site type. While such sites do not provide much research value, they can be seen to have social, educational and aesthetic values'.

On the whole (see below), the places identified within the study area were, therefore, described as being generally of low archaeological significance, lacking the potential to contribute appreciable additional information to that already obtained from previous research to current research questions on antiquity, spatial patterning, inter-site variation or about Aboriginal life in the past.

The AMBS study highlighted the Warkworth sand sheet located adjacent to Sandy Hollow Creek and its associated artefact assemblages as an exception to the conclusion that the sites in the study area were of little archaeological significance. In this it was noted that such sand sheets are regionally rare and the test pitting carried out by the AMBS within this feature confirmed the presence of cultural materials within its profile.

The study concluded that the sand sheet landform should be viewed as having moderate to high archaeological significance (AMBS 2002: 103) and that its loss to mining could affect aspects of the ability to understand past occupation and use of this landform feature.

Although only available subsequent to the completion of the AMBS study, Hughes (*et. al.* 2003) reported upon the results of the initial OSL dating of the three sediment samples. The upper of the two bands of stone artefacts identified during these excavations was considered to be less than 14,000 years old while the lower (represented by a sparse scatter of seven stone artefacts) was thought could be between 14,000 and 47,000 years old (Hughes *et. al.* 2003:6). The team though remained convinced that the sand sheet had been subject to considerable bioturbation and much more than was suggested by the orderly progression of the OSL dates from younger to older through the profile. The principle effect of such bioturbation was noted as being the downward movement of stone artefacts through the sand sheet. Despite this, the results of these excavations raised the possibility that the Warkworth Sandsheet landform contained evidence of Pleistocene Aboriginal occupation and potentially, on the basis of the lowermost date, one of the oldest areas of human occupation recorded in Australia.

Seventy places containing Aboriginal cultural heritage were identified as being within the proposed extended mining operational area and requiring consent for destruction under Section 90 of the NPW Act. All works required under the consent conditions associated with this modification as granted have been completed.

5.1.3 *Aboriginal Community Views*

A representative of the Upper Hunter Wonnarua Council and Wonnarua Nation Aboriginal Corporation was engaged by Coal & Allied to conduct an Aboriginal cultural heritage assessment of the study area and provided a report. This was completed (Perry 2002) and appended to the AMBS study report (AMBS 2002:Appendix A).

This report noted the cumulative effect on the Aboriginal community of the destruction of Aboriginal cultural heritage places through mining operations in the Upper Hunter Valley and the general view that all such places were of significance to Aboriginal people. Further, it was noted that such destruction was an undesirable outcome. The report advised that Aboriginal people were particularly concerned about the grinding grooves identified in the AMBS study. The report advised that the Upper Hunter Wonnarua Council and Wonnarua Nation Aboriginal Corporation would not oppose the application for Section 90 consent for the sites affected by the proposed operational extension subject to Coal & Allied agreeing to the following recommendations:

- that the Upper Hunter Wonnarua Council be funded to carry out an historical video of the entire Warkworth mining lease area prior to the commencement of mining in order that such footage be added to their historical library. This video was to be carried out by Upper Hunter Wonnarua Council personnel only;
- that an Aboriginal collection and salvage program be drawn up by the Upper Hunter Wonnarua Council for all the affected Aboriginal cultural heritage places recorded inside the area of proposed mining extension; that representatives of the Upper Hunter Wonnarua Council be employed to develop a strategy to be incorporated within the Archaeological and Cultural Heritage Environmental Management Plan for possible identification of Aboriginal skeletal remains during the topsoil stripping process. Should such remains be found the strategy was to provide for the immediate contact with the Upper Hunter Wonnarua Council, Wonnarua Nation Aboriginal Corporation, Lower Wonnarua Tribal Council and Wanaruah Local Aboriginal Land Council (in addition to state regulating authorities) prior to any further work proceeding;
- that representatives of the Upper Hunter Wonnarua Council be employed to assist in the removal of the northern PN10 grinding grooves that were to be affected by this proposal. It was the opinion of the Upper Hunter Wonnarua Council that once the grinding grooves had been removed they should be either placed close to the Site M grinding grooves located further to the south and outside of the proposed development area, or placed in a cultural heritage centre;
- that Aboriginal cultural materials recovered by the Upper Hunter Wonnarua Council as part of the developed salvage program were to be cleaned and catalogued by the Upper Hunter

Wonnarua Council representatives, and that a report developed by the Upper Hunter Wonnarua Council detailing this activity was to be provided to Coal & Allied and the regulating agency once completed. Care and control of all the Aboriginal cultural materials salvaged by the Upper Hunter Wonnarua Council, would be applied for by the Upper Hunter Wonnarua Council. All expenses for this were to be paid for by Coal & Allied; and

- that, although not within the proposed mining extension area, the Upper Hunter Wonnarua Council be able to fence off the Bulga bora ground also at Coal & Allied's expense.

All of these issues have been addressed and works completed via the consultative processes established under the auspices of the CHWG.

5.1.4 The Development Consent and the Archaeology and Cultural Heritage Management Plan

The development consent for the 2002 Warkworth Extension imposed a number of conditions with respect to Aboriginal cultural heritage management. These requirements are set out briefly below:

- carry out salvage archaeological investigations in four landform zones within the project area including the Warkworth Sandsheet;
- obtain Section 90 consent for destruction of sites within the operational footprint;
- allow Aboriginal people to salvage material from the s.90 Aboriginal cultural heritage places prior to destruction and in accordance with a Cultural Salvage Program to be developed under an A&CHMP;
- conserve Aboriginal places and artefacts within the Habitat Management Areas (HMAs) and Non-disturbance Areas (NDAs) established for the operation;
- make a contribution to the Hunter Aboriginal Cultural Heritage Trust Fund;
- develop an A&CHMP in consultation with NPWS and local representative Aboriginal bodies that includes the following:
 - Archaeological Salvage Excavation Program;
 - Cultural Salvage Program;
 - Destruction Program; and
 - Conservation Program

The A&CHMP was also to provide a protocol for consultation on Aboriginal cultural heritage management procedures to be followed if new material is found during the development.

The A&CHMP required by the development consent (the Warkworth Mining Limited Archaeology and Cultural Heritage Management Plan; Coal & Allied 2004a) has been developed with the CHWG and approved by the regulating agency. Key issues that were raised by Aboriginal members of the

CHWG during the preparation of the A&CHMP, and addressed within it, included the definition and management of the Bulga bora ground, the management of the northern, PN10, grinding grooves that would be impacted by mining, and the management of sites in the proposed Habitat Management Areas and Non-Disturbance Areas.

All of the consent conditions attached to the 2002 Warkworth Extension have been met. Salvage archaeological excavations on three of the landforms and salvage collection studies were conducted in the consent area in 2008 under the guidance of the CHWG and with the active participation of Aboriginal cultural heritage fieldworkers (McCardle 2008a; 2008b). Additional salvage work was carried out on the surface Warkworth Sandsheet places in August 2009 (McCardle 2009). Aboriginal cultural material from these programs has been collected and placed for safe keeping in the secure storage facility at Coal & Allied's Hunter Valley Services site in accordance with the procedures developed by the CHWG.

The CHWG desired that the PN10 grinding grooves be placed at a purpose built facility at Coal & Allied's Putty Road property which is also used as the meeting place of the CHWG. This work was completed in 2010 (Scarp Archaeology 2010).

The entirety of the area covered by the AMBS (2002) Aboriginal heritage study and the 2003 development consent conditions have now been investigated and comprehensively mitigated under statutory authorities (s.87 permits and s.90 consents under the NPW Act) and are approved for development. The vast majority of this area has also been subject to mining development impacts.

5.1.5 Additional Aboriginal Community Consultation

In late September 2009 thirteen members of the CHWG inspected the Site M grinding grooves (within the present Warkworth Continuation 2014 area) as part of a more general inspection of the Aboriginal cultural heritage places located within the area known as Non-disturbance Area 1 (NDA1). At this time, the visit was undertaken in the context of the then proposed Warkworth Extension Project 2010 (DA 09_0202), which was to include the NDA1 area in general and the grinding grooves specifically.

As a result of that project, this area, and the Aboriginal cultural heritage places within (including the Site M grinding grooves) it, was within the zone of direct mining disturbance. CHWG members reaffirmed the significance of Site M and discussed options for its mitigation. Depending upon the outcomes of additional assessments (notably geotechnical) the agreed management measures included the completion of detailed recordings of the grinding areas, relocation of all or portions of these features should such be technically feasible, and ultimately destruction if mining is to occur.

The group also viewed the general location of the other Aboriginal cultural heritage places identified and recorded throughout the NDA1 area and discussed cultural salvage options for these. The agreed measures provided for the collection of surface artefacts from all those which were to be impacted by mining and associated development activities.

It should be noted that the eastern portions of NDA1 have been the subject of a subsequent modification (Modification 6) for the Warkworth Mine. This is discussed further below as are the results of additional visits to the present Warkworth Continuation 2014 proposal which also includes these areas and places.

5.2 Warkworth West Stage 1 Study – AECOM 2009

5.2.1 Study Outline

This study was developed in response to Coal & Allied's requirement for additional and updated baseline information with regards Aboriginal cultural heritage as it may be present throughout the western portions of the Warkworth mining lease to the west of Wallaby Scrub Road, and in the north a small portion of adjoining Coal & Allied owned lands fronting Wollombi Brook (see Figure 2). While these areas had been included within the boundaries of earlier studies, Coal & Allied recognised that these had been neither comprehensive nor systematic and had not been refreshed in the intervening times. Updated information was required to assist with the planning, design and management of future projects and activities that might be proposed throughout these areas. A comprehensive ToR for the study was developed through a collaborative process between Coal & Allied and representatives of the Aboriginal community of the Upper Hunter Valley under the auspices of the CHWG. The CHWG drafted, discussed, refined and endorsed these ToR.

The study area comprised approximately 1,050 hectares, bounded in the east by Wallaby Scrub Road and in the north, west and south by either the Warkworth tenement boundaries or the extent of the adjoining Coal & Allied owned lands (see Figure 2).

Due to the size of this area, the survey was conducted across two survey blocks:

- the first was conducted across 9 days in March 2008 during which 13 one hundred metre wide pedestrian transects (totalling approximately 70km) were undertaken;
- the second was undertaken across eight days in July 2008 and during this fieldwork block a further 23 pedestrian transects (totalling approximately 45km) were completed.

The Rio Tinto Coal Australia CHMS requires 100% pedestrian survey coverage of all planned study areas. In the present case this was achieved by a single field team comprising six Aboriginal cultural heritage field officers, their technical advisor (archaeologist), and a Coal & Allied data management officer responsible for the real time recording of the location and features of all Aboriginal cultural heritage identified. This was captured directly within GPS-based mobile mapping equipment and incorporated within the MTW CHMD. The fieldwork team was spaced evenly apart and conducted each pre-planned survey transect by moving forward together in a straight line. This methodology enabled the comprehensive assessment of the entire study area and is a more effective approach than relying on sample transects of areas that are perceived to be prospective for Aboriginal cultural heritage material. Under the fieldwork roster developed and implemented for this study a total of 17 representative members of the CHWG participated in the survey fieldwork.

The fieldwork noted significant levels of human disturbance in parts of the study area due to historic land use practices (e.g. grazing, tree clearing, roads and airfield construction – the WWII Bulga RAAF base is also located within the study area).

5.2.2 Key Findings

The field investigations identified a total of 116 places containing Aboriginal cultural heritage within the study area. Four of these (MTW2, 13, 16 and 81) were not considered as being of Aboriginal origin and were not further considered within the study's reporting. Following discussions among the CHWG however, they were noted as having social / cultural importance to the Aboriginal community and management requirements were developed for them as with all other Aboriginal cultural heritage. As a result, they were subsequently registered on AHIMS (37-6-2301, 2312, 2315 and 2380 respectively).

The 112 places identified as containing Aboriginal cultural heritage (Table 4) and considered by the report were dominated by places containing stone artefacts which composed in excess of 95% of the identified Aboriginal cultural heritage places. In addition there were five potential scarred trees, one of which, described within the report as a complex, was associated with a low density scatter of stone artefacts.

Place Type	Place No	%
Isolated Stone Artefact/s	61	54.4
Stone Artefact Scatters	46	41.1
Scarred Trees	4	3.6
Scarred Tree / Stone Artefact Scatter	1	0.9
<i>Total</i>	<i>112</i>	

Table 4: Frequency of Aboriginal cultural heritage place types identified within the AECOM Warkworth West Stage 1 study.

A total of 42 stone artefacts were identified in the 108 places identified as containing stone artefacts (including those associated with the scarred tree). The great majority of these were classified as being amorphous flakes and broken flakes, although very small numbers of points, blades, cores and hammer stones were also recorded. The majority of the lithic material was manufactured from indurated mudstone and silcrete. One artefact at MTW19 was a thick piece of dark bottle glass that showed clear evidence of having been flaked. Flaking of glass and ceramic is not uncommonly recorded across Australia in areas in which 19th and early 20th century contact between Aboriginal people and European settlers occurred. The study concluded that the glass artefact site at MTW19 was of high scientific significance.

The five potential Scarred Trees identified as MTW8, 14, 43, 70 and 80 were also considered to be of high significance when the views of Aboriginal people and the sites' scientific potential were taken into account (AECOM 2009: 28). Artefact scatters identified as MTW25, 28, 60 and 65, were considered to be of moderate significance, while the remaining places were assessed as being of low significance.

Consistent with agreed processes established through the CHWG for such places, a verification inspection of the five identified potential scarred trees was conducted at the end of October 2008. This was conducted by Aboriginal community representatives with the assistance of specialist technical advice. Of the scars, four were verified as being Aboriginal in origin and a fifth, although considered not to be, was nonetheless still considered as being culturally significant. An additional inspection conducted by an elders groups in November 2011 subsequently considered that the scar present on MTW43 was not Aboriginal in origin. This tree has nevertheless been registered on AHIMS (37-6-2342) and will be managed in accordance with the agreed management measures for such places.

It was particularly noted that very few places containing Aboriginal cultural heritage were found in the central west of the study area. It was considered that this may be due to the density of woodland present in this area, although ground surface visibility throughout this area is of an order experienced elsewhere within the study area and in which larger numbers of Aboriginal cultural heritage places were identified. It was therefore considered that this patterning may also relate to the additional relative distance to Wollombi Brook in these areas.

The maximum stone artefact densities present within scatters throughout the study area was identified as being 1 artefact / 5m², with the majority of such places being considerably lower than this. Although this was noted as being very low, overall this result was considered comparable to those recorded in other studies in the Upper Hunter Valley which have been likewise dominated by low-density artefact scatters (AECOM 2009: 23).

Although not recorded during the field assessments, the report notes that the location of at least the eastern most portion of the Bulga bora ground precinct (see Figure 2), and both AHIMS records for this ceremonial area (37-6-055 and 56) are located within this study area. The Bulga bora ground has been previously identified as being of particular significance to the Aboriginal community of the Upper Hunter Valley.

5.2.3 Additional Aboriginal Community Consultation

Following the conclusion of the study and the preparation of the draft report, an Aboriginal community consultation meeting was held in mid-January 2009 in Singleton. All RAPs (i.e. members of CHWG) were invited to attend. A total of sixteen Aboriginal community members attended the meeting. The purpose of the meeting was to present the results of the survey and scientific significance assessment, the subsequent scarred tree verification inspection, and to obtain feedback from the community on social significance and management recommendations. Aboriginal community groups agreed in general with the options for management presented at the meeting however there were requests for additional site visits (AECOM 2009:18-19). In response to community feedback in the AECOM report that other community representatives be given the opportunity to inspect several of the more significant Aboriginal cultural heritage places and landscapes (including the Bulga bora ground), Coal & Allied conducted a community sites tour of these areas and further CHWG consultation meeting in late September 2009.

5.3 Warkworth Southwest Stage 2 Study – Scarp Archaeology 2009

5.3.1 Study Outline

The rationale, survey methodology for, and conduct of this study is directly comparable to that previously described above for the Warkworth West study (see above). It was carried out by a team comprising six Aboriginal cultural heritage field officers, a technical advisor (on this occasion Scarp Archaeology) appointed through the processes for this established by the CHWG, a Coal & Allied site supervisor and data management officer responsible for the real time recording of the location and features of all Aboriginal cultural heritage identified.

This study was undertaken over a 10 day period in late July 2009. The ToR for the survey were finalised with the CHWG prior to the fieldwork commencing. The study area focussed on the western portions of the MTO mining lease and the adjoining Coal and Allied owned lands westwards to Wollombi Brook. It also included a sliver of Coal & Allied owned land immediately adjoining the Warkworth mining lease (see Figure 2). The study area totalled approximately 770 hectares.

Of the areas able to be assessed, 100% coverage was achieved using the pre-planned 100 metre wide pedestrian transects. A small area in the southern part of the study area was not able to be surveyed due to inundation (subsequently completed and reported upon below) while some 69 hectares in the general area of the Bulga bora ground was not surveyed at the request of CHWG members due to its cultural sensitivity. The 55 survey transects completed totalled 75km.

5.3.2 Key Findings

Although grouped into 80 cultural heritage ‘complexes’ in the report, the field investigations identified a total of 174 individual places containing Aboriginal cultural heritage within the study area (Table 5). As identified during the Stage 1 study (see above) these are again dominated by places containing stone artefacts (88.5%). The vast majority of these consisted of isolated stone artefact/s of which one was identified in association with source stone suitable for working. In addition, a considerable number of features identified as scarred trees (n=16) were identified and recorded. Three areas containing grinding grooves and a small (three metres in diameter) mounded feature, considered to have the potential to contain burial/s, were also identified.

Place Type	Place No	%
Isolated Stone Artefact/s	145	83.3
Possible Scarred Trees	16	9.2
Stone Artefact Scatters	8	4.6
Grinding Grooves	3	1.7
Isolated Stone Artefact/s / Source Stone	1	0.6
Mound Feature (potential burials)	1	0.6
<i>Totals</i>	<i>174</i>	

Table 5: Frequency of Aboriginal cultural heritage place types identified within the Scarp Archaeology Warkworth South West Stage 2 study.

The study’s report noted significant levels of human disturbance to Aboriginal cultural heritage places in parts of the study area as a result of historic land use practices – primarily grazing. Despite the increased diversity of place-types identified during this study, none were considered to be unusual in terms of the regional archaeological record.

On reflection, a number of the places that contained stone artefacts within what was termed cultural ‘complexes’ within the report, such as those identified on Wollombi Brook to the south of the Bulga bora ground, were considered to be significant. The three such complexes as identified include:

- Places MTW237-243 and 245-251 and the scarred tree recorded as MTW 257 located on the eastern bank of Wollombi Brook;

- Places MTW260-263, and including the scarred tree recorded as MTW258-59 and 264. One of the stone artefacts identified within this complex, again located on the eastern bank of Wollombi Brook, included a large basalt edge ground axe; and
- Places MTW 287-309 located directly south of the western most margins of the Bulga RAAF Base's east-west runway.

Other places specifically noted within the report as being significant included:

- the places containing grinding grooves (MTW256 and 268) also located on the eastern bank of Wollombi Brook; and
- the remaining scarred trees not included above within a cultural complex. This includes places recorded as MTW139, 165, 168-69, 179, 181, 223, 227-29, 283 and 285.

With respect to the features identified as being potential scarred trees, the study report recommended that, consistent with agreed processes established through the CHWG for such places, they be the subject of a verification inspection. With the exception of MTW258, which was unable to be visited, this was conducted at the end of August 2010 by Aboriginal community representatives with the assistance of specialist technical advice. Four of these (MTW 139, 229, 257 & 259) were determined not to be Aboriginal in origin. There were no further management measures required for these and they were not registered on AHIMS when the remaining survey results were submitted.

A distinguishing feature of the results of this study was the identification of a considerable number of areas which had the potential to contain archaeological deposits (PADs). A total of 94 of the recorded Aboriginal cultural heritage places (54% of the total identified and recorded) were considered to have this potential. By far the greatest numbers of these are directly associated with the terraces above Wollombi Brook.

The technical advisor's report provided detailed management recommendations for all sites including further possible archaeological research and site protection recommendations.

5.3.3 *Additional Aboriginal Community Consultation*

The results of the study were presented by Scarp Archaeology for discussion at a meeting of the CHWG in late August 2009. An additional consultation meeting between Scarp Archaeology and the RAPs was held in early September 2009 in Singleton. In the case of the areas surrounding Wollombi Brook, the Aboriginal community representatives made specific reference to the concept of a cultural landscape (i.e. an integrated view of these sites), rather than as individual places. As a result of this,

the final report considered the area in these broader landscape terms (Scarp Archaeology 2009b: 18, 32).

Subsequently, a community site visit was conducted in late September 2009 to visit several significant cultural sites and landscapes throughout both the Stage 1 and this Stage 2 study areas. In terms of individual places within this Stage 2 study area, the thirteen members of the CHWG present inspected the two grinding groove places on Wollombi Brook (Places MTW256 and 268) and the large cultural complex (Places MTW260 to 263) and associated scarred trees to their south located also on the eastern banks of Wollombi Brook. The great significance of these places, as well as the Bulga bora ground, both individually and collectively as a cultural landscape, to Aboriginal people, was reaffirmed and management options were discussed.

5.4 Warkworth Non-Disturbance Area 2 – MCH 2009

5.4.1 Study Outline

This study area comprised approximately 110 hectares on land located on the eastern side of Wallaby scrub road between the northern limits of the current Warkworth development consent and the Golden Highway (see Figure 2). The rationale, survey methodology for, and conduct of this study is directly comparable to that previously described above for the Warkworth West study outlined above. As is the case for all such studies, it was carried out by a team comprising six Aboriginal cultural heritage field officers, a technical advisor (on this occasion McCardle Cultural Heritage Pty Ltd - MCH) appointed through the processes for this established by the CHWG, and a Coal & Allied site supervisor and data management officer.

Given the relatively small size of the area, the fieldwork for the study was undertaken over three days – two in early September 2009 and finalised in early October 2009. The ToR for the survey were finalised with the CHWG prior to the fieldwork commencing. A 100% survey coverage of the area was able to be achieved using the pre-planned 100 metre wide pedestrian transects. Thirteen transects totalling approximately 12km were completed.

5.4.2 Key Findings

Forty six places identified as containing Aboriginal cultural heritage were identified within the study area (Table 6). As has been the case in the vast majority of other field assessments undertaken throughout MTW, the majority of the identified Aboriginal cultural heritage places contain stone artefacts (91.3%) either as isolated examples or as part of larger scatters. In addition, an additional four trees considered to have scars of Aboriginal origin were also identified and recorded. No areas of PAD were identified within the study area. This was attributed to ‘... the distance from reliable water

and the high levels of erosion and subsequent disturbances to the cultural materials and minimal A horizon remaining...’ (MCH 2009:35).

Place Type	Place No	%
Isolated Stone Artefact/s	36	78.3
Stone Artefact Scatters	6	13.0
Possible Scarred Trees	4	8.7
<i>Totals</i>	<i>46</i>	

Table 6: Frequency of Aboriginal cultural heritage place types identified within the MCH Warkworth NDA2 study.

The area had previously been subject to two assessments, the original by Haglund (1999) with this being reassessed and supplemented with additional surveys as part of the AMBS (2002) study outlined above. Eighteen places containing Aboriginal cultural heritage were identified and recorded within the NDA as a result of these investigations. With the exception of five (PN4, PN5 (north), W32, W70 & W71), the remaining places were able to be relocated. Stone artefact/s were originally identified and recorded at these places although PN5 (north) was also noted as also containing a scarred tree. It is possible that this feature was observed during the surveys and was not considered to be Aboriginal in origin. All of these places are, nonetheless, registered on AHIMS (37-6-2705-06, 1264, 1239 & 1241 respectively).

The four potential scarred trees were considered to have moderate scientific significance on the basis that they are uncommon in the contemporary cultural landscape owing to the passage of time since they were created and the intervening effects upon them by landuse practices (notable clearing) and bushfires. As a result conservation of these trees was considered warranted. This was not the case for the remaining places (all of which contained stone artefacts) which were considered as having a low scientific significance owing to them being situated within disturbed contexts and being very well represented throughout the Hunter Valley. Despite this assessment, all places containing Aboriginal cultural heritage are afforded equal consideration within the Rio Tinto Coal Australia CHMS and are managed accordingly.

No further assessments (either surface surveys or sub-surface testing for the presence of Aboriginal cultural heritage) were considered as being required.

Although the area was, and remains, to be set aside as a conservation area, management measures were presented for each place. These were presented in three categories. The first was in terms of immediate management actions which included the fencing of these places. The second was in the eventuality that they were to be disturbed which included the collection and removal under an

appropriate NPW Act s90 permit. Finally, where these places were not to be further disturbed they were to remain *in situ* and be managed as agreed among the CHWG but consistent with the provisions of the Warkworth A&CHMP and the Rio Tinto Coal Australia CHMS

Consistent with these provisions, a scarred tree verification visit, tied in with others such identified and recorded trees which had been identified as a result of other previous studies, was undertaken at the end of August 2010. This was undertaken by Aboriginal community representatives with the assistance of specialist technical advice. This resulted in the assessment that all four of these trees contained scars which were Aboriginal in origin.

5.4.3 Additional Aboriginal Community Consultation

MCH invited all of the RAPs to a meeting to discuss the results, significance and management recommendations for each of the Aboriginal cultural heritage places identified during the study. This was held in mid November 2009 in Singleton. Only two representatives of the Aboriginal community were in attendance and a copy of the minutes is appended to the final report of the study. At this the Aboriginal community reiterated its view that all of the identified and recorded places containing Aboriginal cultural heritage were of significance to them. In general the recommendations were supported, particularly the protection of the identified Aboriginal cultural heritage places. It was requested, that should plans alter and there becomes a need for mining development to impact any of these places, that a full and separate consultation process occur prior to the lodgement of any s90 application. This was included within the final report.

5.5 Warkworth Southwest Finalisation and Bulga Farm Study – Scarp Archaeology 2011

5.5.1 Study Outline

This study was the last in the series undertaken in order to complete the comprehensive and systematic studies of the western portions of both the Warkworth and MTO mining lease and adjoining Coal & Allied owned lands. This assessment completed the small portions of the Warkworth Southwest Stage 2 area which were inundated at the time of the initial study. It also included the area known as Bulga Farm, predominantly located on the southern side of Wollombi Brook and in the south western corner of the MTO mining lease and adjacent western areas (see Figure 2). No previous Aboriginal cultural heritage investigations are known to have taken place in this area and there were no previously registered AHIMS records within.

In all the study area comprised approximately 175 hectares.

To maintain consistency between the various studies rationale, survey methodology for, and conduct of this study is directly comparable to that previously described above for the Warkworth West,

Southwest and NDA1 studies outlined above. Again, the present field assessment was undertaken by a team comprising six Aboriginal cultural heritage field officers, a technical advisor (Scarp Archaeology) appointed through the CHWG processes, and a Coal & Allied site supervisor and data management officer.

Again given the relatively restricted size of the area, the fieldwork for the study was undertaken over three days in late May 2010. As was the case with all of these studies, a ToR was finalised with the CHWG prior to the fieldwork commencing. On this occasion 100% survey coverage of the area (including the remnant portions of the Warkworth Southwest Stage 2 study area) was achieved using the pre-planned 100 metre wide pedestrian transects. In all 20 survey transects totalling approximately 20km were completed as part of the study.

5.5.2 Key Findings

The fieldwork identified a total of 56 individual locations containing Aboriginal cultural heritage (Table 7). As was the case during the Warkworth Southwest Stage 2 study, Scarp undertook some groupings of these reducing the total number to 48. The full 56 as originally recorded will be discussed here.

These are almost exclusively (in excess of 98%) places containing stone artefacts. That a total of 124 stone artefacts were identified from these is testament to the low densities observed. In addition, a possible scarred tree was originally recorded however this was determined not to be Aboriginal in origin during a subsequent verification inspection conducted by Aboriginal community representatives with the assistance of specialist technical advice in late August 2010. There were no further management measures required for this place and it was not registered on AHIMS when the remaining survey results were submitted.

Place Type	Place No	%
Isolated Stone Artefact/s	54	96.4
Stone Artefact Scatter	1	1.8
Possible Scarred Tree	1	1.8
<i>Totals</i>	<i>56</i>	

Table 7: Frequency of Aboriginal cultural heritage place types identified within the Scarp Archaeology Warkworth South West Stage 2 Finalisation and Bulga Farm study.

The study's report noted significant levels of human disturbance to Aboriginal cultural heritage places in parts of the study area as a result of historic land use practices – primarily grazing. Despite the increased diversity of place-types identified during this study, none were considered to be unusual in terms of the regional archaeological record.

The report proposed that large parts of the Bulga Farm area were an aggrading landscape with sedimentation building up over time. This was based on three factors. These included: the presence of a series of fence posts which were substantially buried; the strong positive correlation between identified stone artefacts and erosion areas; and the large numbers of Aboriginal cultural heritage places immediately adjacent on the northern side of Wollombi Brook. As a result, PADs were directly associated with 42 (75%) of the identified and recorded Aboriginal cultural heritage places. This includes all but one of the total number of places in the area located on the southern side of Wollombi Brook.

A significance assessment was made of each of the Aboriginal cultural heritage places identified and recorded. Scientific significance was assessed from the separate categories of rarity / representativeness, integrity and research potential. All of these places were considered to be either medium or low across these categories. A series of places were noted as having medium significance across all of these categories however. These include MTW366-72, 378-96 and 398-408. Within this, places which contained the most potential for further archaeological research were identified. Proposed works included the conduct of detailed recordings while others were identified as being locations suitable for the further investigation unidentified subsurface cultural materials (i.e. PAD).

While the places as individual elements of a cultural landscape were noted as all being significant to the Aboriginal community, it was this landscape which was of particular significance. Portions of the study area were also noted as being in close proximity to Wollombi Brook which was noted as being an important cultural feature in its own right.

The technical advisor's report provides detailed management recommendations for all sites including the further possible archaeological research outlined above and site protection recommendations. With the areas outside of any current mining development consent area and there not being any plans to include them in such, no mitigation strategies were proffered or considered appropriate.

5.5.3 Additional Aboriginal Community Consultation

At the completion of the fieldwork, the results of the study were presented by Scarp Archaeology to at two meetings. The first was at a general CHWG meeting held in early July 2010. A subsequent consultation meeting between Scarp Archaeology and the RAPs was held in early January 2011 in Singleton. Minutes of these meetings are appended to the final report.

These meetings provided an opportunity for Aboriginal community representatives to provide feedback on the survey results, review the proposed recommendations, and provide additional management requirements for the Aboriginal cultural heritage places identified. In April 2011, an

updated draft of the report was provided to all members of the CHWG. The only response was received from the Wanaruah Local Aboriginal Land Council. This endorsed the proposals around the protection and monitoring of the identified and recorded places as well as the desirability of undertaking sub-surfacing testing in identified PAD areas.

5.6 MTO Ramp 22 Sedimentation Dam Area Assessment – RPS 2013

5.6.1 Study Outline

Coal & Allied commissioned the preparation of an Aboriginal Cultural Heritage Assessment Report for the proposed construction of a new sedimentation dam in the south east of the MTO mining lease. Although the proposed development is to be constructed by the adjacent Glencore-Xstrata Bulga Surface Operations (BSO) under their proposed Western Mining Limit modification (DA 41-03-99 Modification 7), the dam will be constructed predominantly if not wholly within the existing MTO development consent area (also the Mount Thorley Operations 2014 proposal area). The study area for this assessment was approximately 11 hectares in size (see Figure 2).

The study was co-ordinated by Coal & Allied and therefore undertaken in a manner consistent with their existing processes for the planning, co-ordination and conduct of such. As is the case with all such Coal & Allied studies, a ToR was finalised with the CHWG prior to the fieldwork commencing. Given the highly restricted size of the area, the fieldwork for the study was undertaken over two days in late July 2013. A 100% survey coverage of the area was achieved using the pre-planned pedestrian transects. The field assessment was undertaken by a team comprising six Aboriginal cultural heritage field officers, two technical advisors (both from RPS) appointed through the CHWG processes, a site supervisor and data management officer both from Coal & Allied.

The study undertook a detailed review of all previous Aboriginal cultural heritage assessment work undertaken throughout the MTO mining lease and immediately adjacent areas. This review indicated that, with the exception of the largely undeveloped south eastern portion of the current development consent area (which is the entirety of the MTO mining lease east of Charlton Road), the remainder had been the subject of a series of Aboriginal cultural heritage investigation and salvage operations which completed all such works ahead of mining development. With respect to the study area, this review identified number of previously identified and recorded Aboriginal cultural heritage places had been identified and registered on AHIMS. Initially, only one (37-6-2716) was determined as not having been destroyed under a finalised s90 consent issued under the NPW Act. Irrespective, the location of all of these places was revisited and their current status identified during the fieldwork.

Much of the study area had already been the subject of considerable development impacts. These include dam, drainage channel, bund wall and water pumping station construction, and well as the

development of powerlines, vehicle tracks, fencing and sedimentation traps. Large portions therefore have been cleared of their original vegetation and affected subsequently by erosion. In addition, and linked with these developments, the area has been the subject of a previous Aboriginal cultural heritage salvage program (ERM 2004b).

Undeveloped areas remained within the study area and are predominantly the remnant riparian areas located along the tributary of Loder Creek. These areas formed the core of the field inspections undertaken. Two formal survey transects totalling approximately 1.2km were completed. The previously disturbed areas were also reviewed, particularly with respect to the status of previously registered AHIMS records.

5.6.2 Key Findings

The fieldwork identified a total of 32 individual locations containing Aboriginal cultural heritage (Table 8). Seven previously recorded and registered on AHIMS were also revisited (six of which were inside the study area). Additional Aboriginal cultural material was identified and recorded at five of these. These consist entirely of stone artefacts found predominantly as isolated examples, although there were noted as more extended scatters. All of these places have been registered on AHIMS with the new recordings replacing those previously entered on AHIMS.

Place Type	Place No	%
Isolated Stone Artefact/s	29	96.4
Stone Artefact Scatter	3	1.8
<i>Totals</i>	<i>32</i>	

Table 8: Frequency of Aboriginal cultural heritage place types identified within the RPS Ramp 22 Sedimentation Dam assessment.

The potential for sub-surface Aboriginal cultural material (i.e. PAD) to exist within the study area was also noted in two instances. These are associated with two of the three identified stone artefact scatters.

A significance assessment was made of each of the Aboriginal cultural heritage places identified and recorded. Scientific significance was assessed via the application of a matrix that reviewed the several variables (e.g. research potential and rarity) at both local and regional scales. With the exception of two, the remaining Aboriginal cultural heritage places were considered to have a low overall scientific significance. This was largely on the basis of their relatively low numbers of stone artefacts and high levels of disturbance.

The remaining two Aboriginal cultural heritage places consisted of stone artefacts scatters and included the two MTW524 and 526; AHIMS #37-6-2887 and 2889 respectively) which had been

identified as being associated with PAD. Despite not being assessed as being of State Significance, these were considered as having a medium scientific significance at the regional level and high at the local level. In support of this RPS (2013:54) noted that:

Both these sites showed evidence of conjoining artefacts (knapping event), single platform and multi platform cores, formal tools including hammerstones, evidence of heat treatment and a variety of raw material types including basalt, trachyte, rhyolite and porcellinite. Porcellinite is relatively uncommon in the Upper Hunter Valley area, but had been previously found at other sites near Loder Creek. In addition, it was considered that there was a high potential for in situ subsurface artefacts in the terrace close to the creek line.

Both primary and secondary impacts upon the Aboriginal cultural heritage places recorded during the study were identified. Primary impacts (described as Area A within the report) included those places which would be directly impacted as a result of the dam construction and associated vehicle movements. Within Area B it was identified that secondary impacts to these places may result from increased creek flow and associated potential inundation and erosion as a result of the installation of the dam, as well as from remediation works which may be required to be undertaken throughout the study area.

Fourteen Aboriginal cultural heritage places were identified as being located within the primary impact zone and for which an AHIP would need to be sought for thirteen prior to the commencement of the development activities. All of the remaining places, which were outside of the primary impact areas, were to be appropriately barricaded for the duration of the constructions works. They were also to be monitored and, in the eventuality that secondary impacts meant that any would subsequently be required to be salvage or remediated / rehabilitated, these works would also be undertaken under a subsequently sought AHIP.

The technical advisor's report provides detailed management recommendations for all sites including the further possible archaeological research outlined above and site protection recommendations. With the areas outside of any current mining development consent area and there not being any plans to include them in such, no mitigation strategies were proffered or considered appropriate.

5.6.3 Additional Aboriginal Community Consultation

This report contains very detailed information regarding consultation with the RAPs and other Aboriginal community stakeholders undertaken as part of the study. This includes the presentations and minutes of all meetings (RPS 2013:Appendices 1-4), as well as a detailed statement of compliance with the 2010 DECCW four stage ACHCRP process (RPS 2013:9-14).

At the completion of the fieldwork, the results of the study and a draft of the report were presented by RPS at a CHWG meeting held in late August 2013. Among the general discussions, it was specifically noted that there was a need to undertake some additional assessment of several of the identified Aboriginal cultural heritage places which extended south of MTO into the BSO lands. This additional field assessment was undertaken in mid September and included two representatives of the RAPs, the RPS technical advisor and Coal & Allied representatives.

In early November 2013 all RAPs were invited to take part in a field visit to the study area which was to take place in early December. This was to provide an opportunity for those not present during the fieldwork to review the area and the identified Aboriginal cultural material, provide any comments with respect to cultural heritage and the proposed development activities and their impacts upon that, and the proposed impact management measures. There were no respondents to this.

A subsequent CHWG meeting with the RAPs was held in early December 2013. This meeting reviewed the draft report prepared for the study and provided the opportunity for further input into that ahead of finalisation. Although having ongoing concerns about downstream effect upon Aboriginal cultural heritage as a result of the sedimentation dam, the impact management strategy, methodology and actions were endorsed.

5.7 Warkworth Modification 6 Study – Coal & Allied 2013

5.7.1 Study Outline

The disapproval of the development consent for the Warkworth Extension Project (DA 09_0202) saw Coal & Allied apply for a modification to their existing consent (DA 300-9-2002-i) under section 75W of the EP&A Act. This proposal was to provide for a continuation of mining within the present West Pit area for a period of two years. This time would allow Coal & Allied to undertake further planning with respect to options for the longer term future of MTW. This has expression in the present proposals.

Warkworth Modification 6 provided for the expansion of the existing development consent area a maximum of 350m to the west towards Wallaby Scrub Road. This included a maximum of 300m of additional open cut mining footprint and 50m for infrastructure provision. This area had been the subject of several Aboriginal cultural heritage assessments since 1979 with the most recent being the 2002 AMBS study (outlined above at the beginning of this section). A further subsequent reassessment and salvage collection program of three Aboriginal cultural heritage places in the south of the study area had also been undertaken in early 2008 (MCH 2008 Volume 2).

In addition to the almost 32 hectares which comprised the proposed development consent modification area, the field assessment was to include two additional areas. The first was the narrow undeveloped

strip of land to the east of the Modification area which lay within the existing development consent boundaries. The second was to continue the survey work westwards across the remaining portion of this southern part of the Warkworth mining lease west to Wallaby Scrub Road. This area was the last remaining portions of the MTW mining area and adjacent Coal & Allied owned lands which Coal & Allied desired to complete an updated reassessment to review the status of Aboriginal cultural heritage. Within the time available to this study, a total of 100 hectares was the subject of a 100% survey coverage (see Figure 2). The remaining part of this area to Wallaby Scrub Road was subsequently completed and is outline separately below.

The fieldwork completed as part of this study was undertaken over two days in late November 2013. Six 100 metre wide pedestrian transects totalling approximately 12km were completed. It was undertaken by a field team consisting of six Aboriginal cultural heritage field officers, their technical advisor (CQCHM) appointed under the processes developed by the CHWG, and a Coal & Allied site supervisor and data management officer.

5.7.2 Key Findings

The fieldwork identified a total of 19 individual locations containing Aboriginal cultural heritage. The majority of these (n=14) were locations already registered on AHIMS and these were reassessed and recordings updated. Additional Aboriginal cultural material was identified and recorded at five new locations. The identified Aboriginal cultural heritage consists entirely of areas containing isolated stone artefact/s. A total of 31 stone artefacts were recorded at these places. Being low in numbers, of materials and form commonly identified throughout both the local area and the broader region, and located within highly disturbed contexts, they were considered to be of low archaeological context. Despite this, consultation with the RAPs through the CHWG settled management measures for each which involved the conduct of a cultural salvage ahead of any development activities. Those which lay outside of the Warkworth Modification 6 area (and within the present Warkworth Continuation 2014 proposal area) have been subject to the protective management regimes established under the Warkworth A&CHMP 2004 and the Rio Tinto Coal Australia CHMS.

No potential for sub-surface Aboriginal cultural material (i.e. PAD) was identified within the areas investigated either within or outside of the Warkworth 6 Modification area.

Eight extant places (including five previously registered on AHIMS and three of those newly identified as a result of this study) were located within the Warkworth Modification 6 area. Following consultation with the RAPs, and ACHAR was developed for this in support of an AHIP application. This AHIP was subsequently granted (#C0000201) and the agreed impact mitigation measures implemented in early February 2014. Two of these Aboriginal cultural heritage places (37-6-1234 and

1235) straddled the western boundary of the Warkworth Modification 6 boundary. Only those portions within this development area have been destroyed under the granted AHIP. The remaining parts of these are located within the Warkworth Continuation 2014 proposal area and are considered further elsewhere in this report.

5.8 Wallaby Scrub Road East Completion Study – Coal & Allied 2014

5.8.1 Study Outline

Following on from the field assessment undertaken as part of the Warkworth Modification 6 study, the remaining portion of the Warkworth mining lease outside of the current development consent and east of Wallaby Scrub road was the subject of an Aboriginal cultural heritage investigation and assessment over two days in late February 2014. This remaining area totalled approximately 75 hectares (see Figure 2). The remaining five pre-planned transects totalling approximately 9.5km were completed.

Being immediately adjacent, the study area had been the subject of the same Aboriginal cultural heritage assessments undertaken between 1979 and 2002. Unlike further to the east however, no Aboriginal cultural heritage salvage programs have been undertaken. The earlier field assessments had identified and recorded 18 places containing Aboriginal cultural heritage. As part of the field program, the location of each of these was revisited and the recordings updated.

The field assessment was undertaken by a single field team comprising six Aboriginal cultural heritage field officers, their technical advisor (CQCHM), and a Coal & Allied site supervisor and data management officer responsible for the real time recording of the location and features of all Aboriginal cultural heritage identified. This information was captured directly within GPS-based mobile mapping equipment and incorporated within the MTW CHMD. The fieldwork team was spaced evenly apart and conducted each pre-planned survey transect by moving forward together in a straight line. This methodology enabled the comprehensive assessment of the entire study area.

A comprehensive ToR for the study was developed through a collaborative process between Coal & Allied and representatives of the Aboriginal community of the Upper Hunter Valley under the auspices of the CHWG. The CHWG drafted, discussed, refined and endorsed these ToR.

5.8.2 Key Findings

The fieldwork identified a total of 26 individual locations containing Aboriginal cultural heritage (Table 9). The majority of these (n=18) were locations already registered on AHIMS and these were reassessed and recordings updated. Additional Aboriginal cultural material was identified and recorded at eight new locations. The identified Aboriginal cultural heritage consists almost entirely of areas containing isolated stone artefact/s. A total of 34 stone artefacts were recorded at these places.

Of particular note was a sandstone grindstone identified at one of the newly identified places (37-6-2949 (MTW-576)). All newly identified places have been registered on AHIMS.

Place Type	Place No	%
Isolated Stone Artefact/s	25	96.2
Grinding Grooves	1	3.8
<i>Totals</i>	26	

Table 9: Frequency of Aboriginal cultural heritage place types identified within the Wallaby Scrub Road East Completion study

Of particular note within this area is the previously discussed Site M grinding grooves. As has been the case during previous inspections, the smaller upstream set of groves (Site M east) was not visible owing to being covered with sediment from the creek it is located within. The main grinding groove area (Site M West) has also been regularly inspected and monitored, including by CHWG representatives, as part of the ongoing Aboriginal cultural heritage management processes across MTW. There were no obvious signs of changes to this area since it was last inspected. This area remains of particular significance to the Aboriginal community having been reinforced during both the fieldwork undertaken as part of this study, and the consultations with the RAPs as part of the present Warkworth Continuation 2014 proposal. Agreed management commitments with respect this place are discussed in detail elsewhere in this report.

Other than the known burial of the grinding grooves at Site M east, and entirely consistent with the results obtained during the field assessment for the adjacent areas to the east, no potential for sub-surface Aboriginal cultural material (i.e. PAD) was identified within this study area.

It is worth noting that the AHIMS record for PL9 notes it as containing stone artefacts and a culturally modified (scarred tree). This place was originally identified and recorded by Haglund (1999) within which it is noted as consisting of a single flake manufactured from red chert locates on a 'scuffed surface' (Haglund 1999:47, see also Table 4.1). Further, a photograph and description of this place (Haglund 1999:Plate 31) shows the location of this artefact (which is staked) and notes that it is 'below tree (in the scuffed area)'. It would appear therefore that the reference to the tree within the plate has been erroneously during the entry of this place within AHIMS. Subsequent reassessment of this place undertaken by both AMBS (2002) and as part of this study, have both failed to note the presence of a scarred tree in this area.

5.9 Warkworth Sands Archaeological Project – Scarp Archaeology 2009

5.9.1 Study Outline

The Warkworth Sands Archaeological Project was undertaken in compliance with the development consent conditions attached to the 2002 Warkworth Extension Project (DA-300-9-2002-i). Aeolian sand dune and sand sheets in general but the Warkworth Sandsheet in particular, has been seen by a

number of researchers as a potential location for Aboriginal cultural material of Pleistocene age. As previously outlined above, a series of test excavations undertaken on this sand sheet as part of the AMBS (2002) study returned a series of OSL dates which suggested that a sparse accumulation of stone artefacts identified in the lower part of the excavations were of Pleistocene age – somewhere between 14,000 and 47,000 years old, and a single lower stone artefact which could be even older. If such an association could be positively established, the Warkworth Sandsheet, particularly the older date, would be of singular importance not only to the Aboriginal community, but to regional and Australian archaeology as it would represent one of the earliest dates for human occupation of the continent. Even if this material was identified as being at the lower end of this potential age bracket, this would provide amongst the earliest evidence for Aboriginal occupation of the Central Lowlands of the Hunter Valley.

Under the mine plan developed for the proposed Warkworth Extension Project this portion of the Warkworth Sandsheet (see Figure 2) would be destroyed. This led the state in its consideration of the development application for the Warkworth Extension Project to raise its interest in and concern about this area and its potential to provide information on significant themes of archaeological research including climatic and environmental change, antiquity and continuity of occupation, human settlement patterns and the range of material evidence. Because of the area's potential scientific and cultural significance, Coal & Allied committed substantial financial, technical and logistical resources to its comprehensive investigation.

In accordance with the protocols established through the CHWG, Coal & Allied undertook comprehensive consultations with the Aboriginal community at all stages of the project. Discussions relating to the salvage strategy for the Warkworth Mine Extension project were conducted across eight CHWG meetings held in 2007 and the early months of 2008. The methodology for the Warkworth Sands Archaeological Project was endorsed at an advertised public meeting for the Aboriginal community held in late February 2008. The RAPs oversaw the appointment of the specialist technical assistance engaged for the project through the CHWG processes. A total of 26 members of the Aboriginal community worked on the project which was undertaken over several months in mid and late 2008.

The study involved:

- the comprehensive excavation of the depositional sequence from five trenches on the sand sheet,
- geomorphological analyses and interpretation of the formation and chronology of the sand sheet development over time;

- typological analysis and interpretations of the recovered stone artefact assemblage;
- securing multiple OSL dates for the stratigraphic sequence across the sand sheet;
- complimenting this dating sequence where available with radiocarbon determinations for comparative purposes;
- the use of ground penetrating radar to define the extent of the sand sheet, its relationship with its basement surface and underlying topography and the degree of disturbance; and
- the use of magnetic susceptibility testing to determine the degree of mixing in the sand sheet material.

A permanent record of the both the project fieldwork and general landscape within which the sand sheet resided was also captured in order that it could be retained by the Aboriginal community. A professional film crew undertook this work. They also oversaw the conduct of a series of interviews with project personnel as the project progressed. A professionally produced twelve disc hi-definition digital video DVD package was produced and distributed to all community stakeholders through the CHWG.

5.9.2 Key Findings

The study represented one of the most extensive multidisciplinary archaeological studies conducted for a single cultural place in Australia. In this the report's authors (Scarp Archaeology 2009a:82) record their view that:

Few other sites have been so intensively sampled and dated with such attention to the problems of taphonomy and stratigraphic integrity. The field study has been exhaustive and reached the point of redundancy (Scarp Archaeology, 2009a, 82).

Whereas the AMBS (2002) test excavations has recovered 213 stone artefacts (which included 88 complete flakes) from 10m² of the sandsheet. The Warkworth Sands Archaeological Project increased this tenfold. From the 100m² excavated during this study a total of 1,067 stone artefacts were recovered. This included a total of 1,043 complete flakes (29 of which had evidence of having been used / modified following initial flaking). Some 24 cores from which flakes had been produced were also identified along with an additional 2,022 other stone fragments which could not be positively identified as being the result of Aboriginal flaking activities.

The distribution of these artefacts identified that none of these stone artefacts were identified within the sandsheet any lower than one metre from the surface of any of the four excavated trenches. Further, none were identified within 15cm of the base of the sandsheet where it interfaced with the lower B Horizon. Additional test excavations into this B Horizon also failed to identify any Aboriginal cultural material.

At the conclusion of the study demonstrated that:

- contrary to what appeared to be the case of the basis of the ground penetrating radar survey, the sandsheet contained no discernable stratigraphy;
- the sandsheet evidenced significant sediment disturbance and that the most likely cause of this was bioturbation (displacement and mixture through the activities of insects, worms, burrowing reptiles and mammals and tree roots);
- the previous Pleistocene OSL dates (reported by AMBS 2002) are unreliable indicators of the antiquity of both sediment deposition and therefore the stone artefacts within;
- the oldest artefacts buried in the Warkworth sands are all probably Holocene in age (less than 10,000 years old), or perhaps slightly older; and
- owing to the degree of sediment mixing, further archaeological work is unlikely to recover any stone artefacts that can be securely dated to a Pleistocene age.

The study concluded that although the study of the Warkworth Sandsheet provided unique insights into site disturbance processes, the significance (particularly scientific) of the sandsheet site is low relative to other Hunter Valley archaeological sites which contain better stratigraphic integrity, chronological resolution and intact features (e.g. hearths, pits). The educational potential for the place itself was similarly considered to be low, although the professional video that documents all activities associated with the investigation will be useful for schools and community knowledge (Scarp Archaeology 2009a: 83).

The project was peer reviewed by Professor Ian McNiven (School of Geography and Environmental Science, Monash University) who reported (2009:1) *inter alia* that:

Overall, I concur with most of the conclusions and recommendations of this report and the methodologies employed to arrive at these conclusions and recommendations. The methodologies are largely cutting edge and in many respects the Scarp Archaeology report can be considered best practice.

These findings have also been acknowledged by the members of CHWG who were intensively involved in the design and conduct of the study. The Stage regulating agency issued a s.90 AHIP covering Warkworth Sandsheet area in July 2009. All archaeological investigations and cultural heritage salvage works have now been completed.

5.10 Warkworth Sandsheet Sub-Area A Study – Scarp Archaeology 2013

5.10.1 Study Outline

Like the Warkworth Sands Archaeological Project, investigations of the remaining portions of this same sandsheet were undertaken in compliance with the development consent conditions attached to subsequently disapproved Warkworth Extension Project (DA 09_0202). These focussed on areas immediately adjacent to these earlier excavations and to the northwest running to Wallaby Scrub Road (see Figure 2). The requirement for the undertaking of this study also aligned with a further consent condition which required a broader research project into sand dune and sheet features more generally within the Hunter Valley. As a response to this, Coal & Allied established an ‘expert panel’ comprised of four eminent professionals (archaeologists and geomorphologists) with particular experience and knowledge of both the Warkworth Sands as a landscape feature, and Pleistocene Aboriginal archaeology in Australia.

Coal & Allied personnel and the expert panel convened a workshop in Singleton in early August 2012 to develop methodologies for these studies. Officers from DP&E and OEH attended and assisted with that process. This was subsequently settled with the RAPs through the CHWG at a meeting later in August, and submitted and approved by DP&E. In the case of the Sub-Area A study, the methodology and carious administrative arrangements were settled in an agreed Terms of Reference. In addition to the methodology for the archaeological and geomorphic investigations, a cultural salvage, as requested by the CHWG, was also included.

Preliminary investigations of the study area has noted that it had been substantially altered since European settlement and particularly as a result of the intensification of agricultural and pastoral activities over the previous 100 years which saw these lands revert to smaller and smaller holdings and the duplication of infrastructure and hence impacts associated with that. It was also noted that although now consisting of woodlands, these are known to be regrowth with these having been cleared in the past.

One of the principle elements of the agreed methodology was to test if the patterns and conclusions observed during the very detailed excavations undertaken immediately to the south east during the Warkworth Sandy Archaeological Project also held for this portion of the sandsheet. The agreed methodology provided for the mechanical excavation of six trenches each approximately 5m in length and 0.9m wide (the width of the excavator bucket). Sediments were removed in 10cm increments (spits) through the sandsheet. The six trenches were generally aligned along an east-west transect running across the area. An additional seventh, test, trench was also excavated at the western end immediately adjacent to the areas identified as being part of the sandsheet.

Although provisions were made for the conduct of hand excavations, stone artefact density thresholds identified in the methodology as the trigger for this were not reached at all during the conduct of the fieldwork.

At the completion of the excavations, all of the exposed sections were subject to a geomorphic assessment in order to provide an understanding of the origin, age and post-depositional history of the sand body. As part of this assessment 24 sediments samples taken from six of the seven trenches were submitted for OSL age determination. Additionally, two charred wood samples were submitted for AMS radiocarbon dating.

In the first instance, all sediments removed from the trenches were run through a 1cm sieve with all Aboriginal cultural material retained for analysis. As part of the agreed cultural salvage aspect of the fieldwork, these sediments were subsequently resieved through a 0.5cm mesh.

The fieldwork team consisted of Scarp Archaeology personnel, OSL dating and geomorphological specialists from the University of Wollongong, four CHWG cultural heritage field officers, and Coal & Allied representatives including technical specialists and machine operator.

5.10.2 Key Findings

Approximately 33m³ of sediments was excavated during the fieldwork program. In this area the sandsheet was found to be a maximum of 2.5m deep although this was in one trench only. The remaining trenches contained sand deposits less than 1.6m in depth. In general, the depth of sands decreased dramatically from east to west and between trenches 4-6, this dropped from 56cm to 28cm before the basal deposits were encountered. As had been expected, trench 7 contained almost no sandsheet development, containing a veneer of sands some 10cm in depth.

From these a total of 21 stone artefacts were recovered. Thirteen of these were recovered from the archaeological excavations while the remaining eight were from the additional cultural salvage. As would be expected, the majority of this material (8 of the 13 and 2 of the 8 recovered from the archaeological excavations and cultural salvage respectively) came from those trenches with the deeper deposits. The remaining material was all located from trench 5 (which was a maximum of 43cm deep). No cultural materials were recovered from trenches 4, 6 or 7.

Additionally, within trench two (the deepest occurrence of sands encountered during the study) a shot gun percussion cap was recovered. This was found approximately midway through the sandsheet at a depth of some 120-130cm below the surface. This is some 20-30cm below the lowest identified Aboriginal cultural material. Branding on this percussion cap showed it to be from a company who

commenced manufacturing these from 1837, although the type of shell is indicative of having been produced post-1900.

The OSL dating results were found to vary wildly even between samples taken from the same level within the same trench. Two dates taken from a depth of 60cm within trench one for example returned minimum ages of around 6,600 and 105,000 years old respectively. Additionally, a radiocarbon determination for a piece of charred wood recovered from near the base of trench 4 (a trench which contained no Aboriginal cultural material) returned a result of only 300 years. The second radiocarbon determination for the charred wood located at a depth of approximately 150cm in trench 2 (some 20-30cm below the shot gun percussion cap) returned a date of 43,500 BP.

Overall the results of the dating program indicated extensive mixing of the sediments and the cultural materials (both Aboriginal and European) within. This vertical and lateral displacement of the sediments across the study area was identified as being a result of several factors including tree root penetration (which was observed as being ubiquitous throughout the exposed sections), historical land disturbance, and collapse / slumping as a result of successive wetting and drying conditions.

As was considered the case during the adjacent Warkworth Sandsheet Archaeological Project, the evidence for substantial bioturbation within the Warkworth Sandsheet within Sub-Area A was identified (Scarp Archaeology 2013:43) as including:

- large tree growth (with subsequent decay of roots), deep root penetration and burrowing from insects. With respect animals, it was noted that wombat burrows were common and at least one large termite mound was noted in the immediate area;
- the highly dispersed OSL age determinations for both separate samples taken from the same levels in the same trench, but also from individual sand grains within the same sample;
- the lack of any identifiable old land surfaces or stratigraphic boundaries defining units within the sands; and
- the demonstrated evidence of downward movement of stone artefact-sized objects from the surface up to 1.3m within the deposits.

By way of summary the study's report (Scarp Archaeology 2013:43) concluded that:

...the stratigraphic integrity of the Warkworth Sands at this location is low. The sands are clearly turbated and provide poor chronological resolution. The cultural material contained in the sands is also demonstrably not in situ.

As a result of both the Warkworth Sands Archaeological Project and that subsequently undertaken within Sub-Area A, it was concluded that there were little prospects for additional archaeological research to provide finer resolution or additional insights into questions of Pleistocene cultural materials being located within the Warkworth Sandsheet.

5.11 A Note Regarding the Currency of the Aboriginal Cultural Heritage Studies

OEH has expressed a view that Aboriginal cultural heritage studies should be undertaken in both a timely and effective manner. In particular OEH generally requires that data used in preparing impact assessments, management plans and strategies should be derived from surveys undertaken no more than five years prior to the generation of relevant documentation. OEH does recognise, however, that the currency and validity of data is subject to consideration of the comprehensiveness, effectiveness and methodology of the studies irrespective of when it was undertaken, and also whether significant taphonomic processes, such as large-scale changes in ground surfaces due to erosion, are evident within the study area that would warrant review of the data generated as part of these.

As has been outlined above, the Aboriginal cultural heritage studies outlined above and used as the basis of this impact assessment with respect to the proposals have been conducted between 2008 and 2014. Although there have been two significant weather events which have been experienced across the Upper Hunter Valley in that time these, along with ongoing patterns of land use, erosion and sedimentation have not resulted in any significant changes in landform condition that would have significantly altered the patterns of distribution, form or condition of Aboriginal cultural heritage identified in the course of the fieldwork studies conducted.

This has been concluded on the basis of two main factors. The first is a longitudinal review of aerial imagery collected for the greater MTW mining area across that time, namely that imagery captured in July 2008, December 2010, December 2011, June 2012 and November 2013. This has been complimented with field investigations as part of regular audit and monitoring processes agreed with the CHWG and as captured within various management processes. These activities have been undertaken both specific to particular Aboriginal cultural heritage places and also with the general landscapes within which they reside.

Coal & Allied holds the view that the studies it has undertaken in the proposal areas and over adjoining Coal & Allied owned lands have more than adequate currency and validity for the purpose of informing this impact assessment. As Terms of Reference (Scope of Works) and reports for these studies demonstrate, they were undertaken using a systematic and comprehensive strategy that is consistent with current best practice. Additional studies to provide additional data have been

undertaken and while improving our understanding of issues, have not resulted in any fundamental change in the scale or nature of the issues requiring management.

The technology used in site recording remains of high precision, being either Differential GPS or high resolution (typically less than 2m error) hand-held GPS/Mobile GIS units and the data collected is managed in an integrated Geographic Information System to maintain consistency of recording standards and accuracy while also minimising double handling of data, with the associated possibilities of transcription errors. Consequently, Coal & Allied maintains that the results of these studies, although undertaken over an extended period, remain timely and effective for impact assessment purposes.

6. ABORIGINAL CULTURAL HERITAGE SIGNIFICANCE ASSESSMENT

As is clear from the above discussion, there is a large body of Aboriginal cultural heritage present throughout the MTW area. For the Aboriginal people of the Upper Hunter Valley such places are of cultural significance. While a comprehensive statement of significance has never been tendered on this matter in the Upper Hunter Valley, it is common for people to make comments that capture this in the following terms: archaeological cultural heritage places are seen as the footprint of the ancestors on the landscape, evidence that the ‘old people’ once lived there and indeed that their spirits continue to inhabit that same area and are watching what is going on. In this sense any and all material culture is thereby significant to them. Coal & Allied has accepted this assessment of significance and for this reason, notwithstanding any statement of scientific significance relating to any particular place, has provided for the management of each and every object and area identified during a survey by developing management arrangements with the Aboriginal community that addresses precisely this point.

There are two distinct categories of cultural place that attract Aboriginal cultural heritage significance:

1. places of cultural significance through their association with creator beings, spirit beings, culture heroes, traditional activities, historical events or contemporary values where there may not be any physical material – sometimes referred to as intangible cultural heritage although very tangible to enculturated Aboriginal people; and
2. places where there is material cultural heritage (either organic or inorganic) that derives from cultural activities of Aboriginal people, commonly called archaeological material and constitutes the objects protected under the NPW Act.

Examples of the former have been identified and recorded within the MTW area. The Bulga bora ground (37-6-0056, 37-6-0055) is the most notable in this regard but there are also other features such as an arrangement of three stone mounds (37-6-2315), and an earthen mound with the potential to contain burials (37-6-2555). All of these places and values lie or are situated within the proposed WBACHCA.

Only the latter category of place (i.e. material cultural heritage) with Aboriginal cultural significance has been identified within the proposal areas. Coal & Allied is not aware that any of the extant Aboriginal cultural heritage places identified in the proposal areas are the subject of any specific requirements to address issues of cultural sensitivity. Further, it is considered that there are no Aboriginal cultural heritage places whose scientific values are such that they constitute a constraint on the proposals.

6.1 Scientific Significance

The great majority of Aboriginal cultural heritage places identified in the MTW mining area are typical of the regional archaeology of the Upper Hunter Valley. The places are concentrated along drainage lines with a particular focus around permanent sources of water. These areas also have generally been subjected to a long history of disturbance through a range of land uses including vegetation removal, grazing, farming and the development of formal and informal access tracks.

In general, the majority of the Aboriginal cultural heritage places which have so far been identified and recorded are unlikely to yield significant additional information with regard patterns of land and resource use either locally or regionally. Further, chronological attribution given sample sizes both within individual places and across place-types, allied against taphonomic considerations, is notoriously difficult for the majority of this cultural heritage. Further archaeological research into the majority of the identified Aboriginal cultural heritage places is, therefore not considered warranted from a scientific viewpoint.

Despite this, recommendations for each identified and recorded Aboriginal cultural heritage place deriving from the investigations and assessments undertaken, have been subject to review by Coal & Allied and the Aboriginal community (under the auspices of the CHWG), and reporting finalised consistent with comments received from those parties. The decisions of the CHWG and Coal & Allied, informed by the recommendations, have been accepted and the CHMD developed to capture those decisions, with each recorded place managed in a manner consistent with the scientific significance assessment. The only point at which scientific assessments of significance have not been accepted in their entirety has been where such assessments impose a lesser management requirement than those specified in the CHMD, which set a minimum standard for compliance with Aboriginal cultural significance.

Within the proposal areas, the vast majority of the identified and recorded cultural heritage places consist of isolated stone artefact/s in disturbed contexts. While several scarred trees have been identified they represent a relatively small proportion of the total numbers which would remain extant, and in the case of those within the WBACHCA, will be protected in perpetuity. The most significant place from a scientific perspective is the grinding grooves (37-6-0163) generally referred to as 'Site M'. Although all categories of Aboriginal cultural heritage places have separate and agreed management measures within the CHMD, specific additional management measures have been settled for this place and these are outlined in the impact management commitments below.

6.2 Significance to the Aboriginal Community

In general, the cultural heritage places for which the Aboriginal community has evinced the strongest concerns are also those that have been identified as having a higher order of significance from a scientific viewpoint. There are a number of such places identified as such within the MTW area which have been identified on that basis and these have been outlined above.

During their participation in the design and conduct of the cultural heritage survey and assessments which have been conducted, Aboriginal community representatives have expressed views about their strong concern for particular places and cultural locations as well as with respect the preferred mitigation of impacts on them from any potential development activities. In the course of the extensive consultation which has been conducted with the Aboriginal community in relation to Coal & Allied's mining activities throughout the MTW area, the Aboriginal community have continually endorsed an Aboriginal cultural heritage management approach based on the limits of acceptable change to their heritage at a landscape scale and the desirability of achieving long-term and secure management of a range of significant places and areas, such as the Bulga bora ground and Wollombi Brook in general, which have significance to them at a broader regional level.

The Bulga bora ground, for example, is of very high cultural significance to the Aboriginal community of the Upper Hunter Valley region because it is a location of important traditional ceremonial activity. The place is also of great significance to non-Aboriginal science and history; clearly evinced by its detailed recording by European scientists and anthropologists on several occasions during the nineteenth and early twentieth centuries.

The early recognition of this directly led to the proposal for the establishment of a permanent Aboriginal conservation area to protect such Aboriginal cultural heritage places and areas. This WBACHCA proposal has been jointly developed by Coal & Allied and the Aboriginal community through the CHWG over an extended period and all parties remain committed to its enactment. Having been recently expanded and including considerable areas of the Warkworth mining lease, this is a significant undertaking for Coal & Allied.

With respect to the Mount Thorley Operations proposal area, recent consultation with the Aboriginal community through the CHWG included a request by the CHWG for Coal & Allied to consider options to permanently protect the remnant riparian areas and cultural sites along the section of Loder Creek located within Mount Thorley Operations mining lease area. In response to this request, Coal & Allied has proposed the establishment of an Aboriginal cultural heritage conservation area (approx. 87ha) along Loder Creek as part of the cultural heritage management commitments for the Mount Thorley Operations 2014 proposal.

The key ongoing objective in the particular development of the WBACHA and the proposed Loder Creek ACHCA, will be to establish a co-management regime in partnership with the Aboriginal community through the development of a comprehensive and well considered management strategy supported by an appropriate community-based governance structure. Discussions, positions and mechanisms for the delivery of both are well advanced.

7. ABORIGINAL CULTURAL HERITAGE WITHIN THE GREATER MTW MINING AREA AND EXPECTED IMPACTS

A considerable number of places containing Aboriginal cultural heritage have been identified and recorded throughout the MTW mining area and adjoining Coal & Allied owned lands. For the purposes of this EIS, it is relevant to review and consider these in six broad landuse-based categories. These are generally based upon their location within the greater MTW mining area as follows:

1. places situated within the Warkworth Continuation 2014 proposal area;
2. places situated within the Mount Thorley Operations 2014 proposal area;
3. places situated within the proposed WBACHCA;
4. places situated within the proposed Loder Creek ACHCA;
5. places situated within the current Warkworth mine development consent area (DA 300-9-2002-i as modified); and
6. places located on other 'on site' Coal & Allied owned lands not situated within 1-5 above.

Each of the six categories will be considered in turn below and are presented in Figure 3.

7.1 Warkworth Continuation 2014 Proposal Area

The entirety of the Warkworth Continuation 2014 proposal area (approximately 698ha) has been the subject of comprehensive and systematic cultural heritage investigations. A total of 111 places (either wholly or in part) containing Aboriginal cultural heritage objects have been identified and recorded within this area (Figure 4; see also Figure 3). Of these, one (37-6-1250 - W23;) has previously been destroyed under a finalised consent (AHIP #1131171) under the NPW Act and as such require no further management consideration here. A further two (37-6-1234 - W12 and 37-6-1235; W13) have been only partially destroyed under another finalised consent (AHIP #C0000201) and as such are included in the discussion here.

The remaining 110 extant places (including those which have previously been partially destroyed) primarily consist of stone artefacts although examples of culturally modified (scarred) trees, areas of PAD, and an area containing grinding grooves have all been identified (Table 10). Further details regarding these places are provided in Table 11.

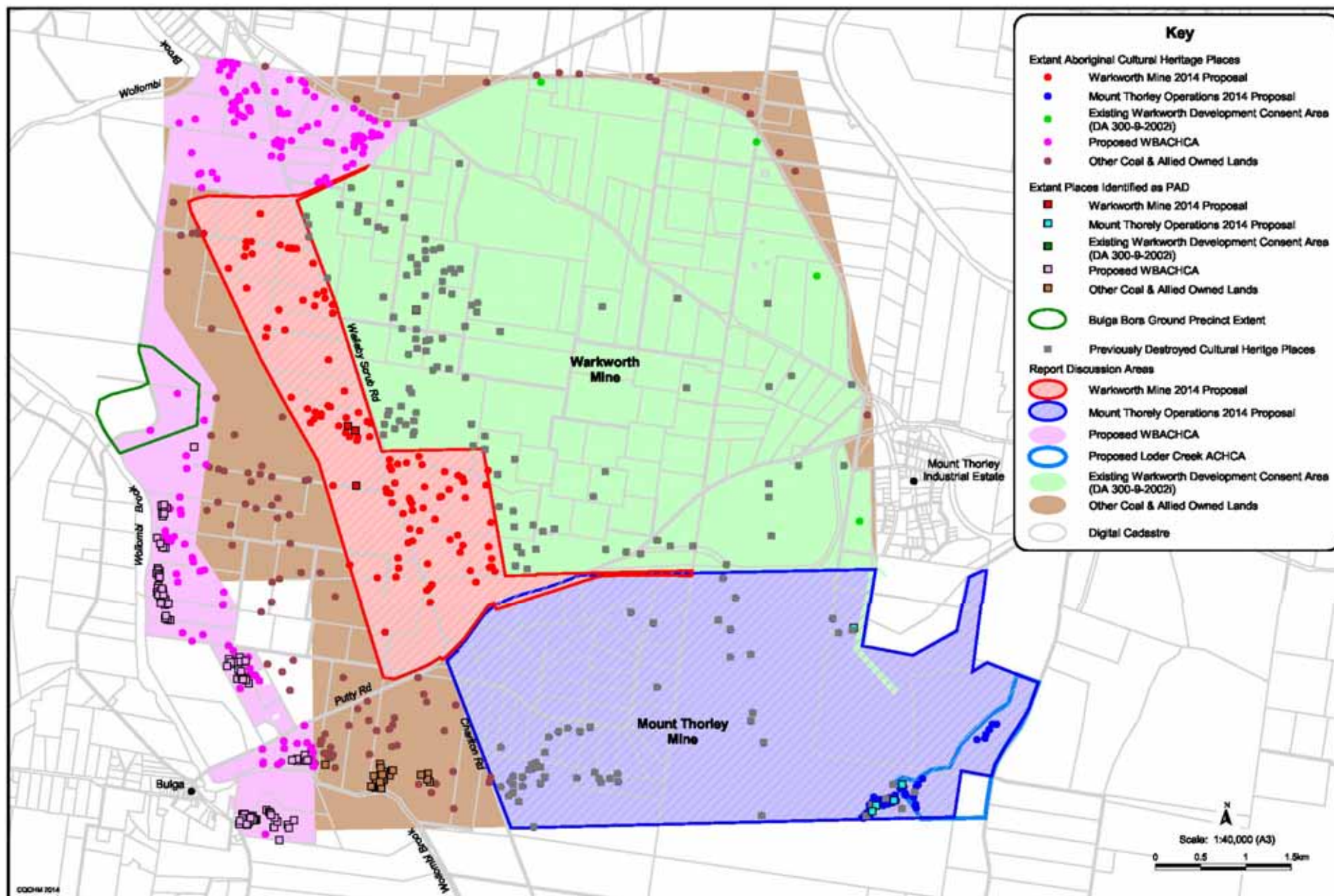


Figure 3: Map showing the current status of Aboriginal cultural heritage places within the proposal areas and the other portions of the greater MTW area discussed in the text.

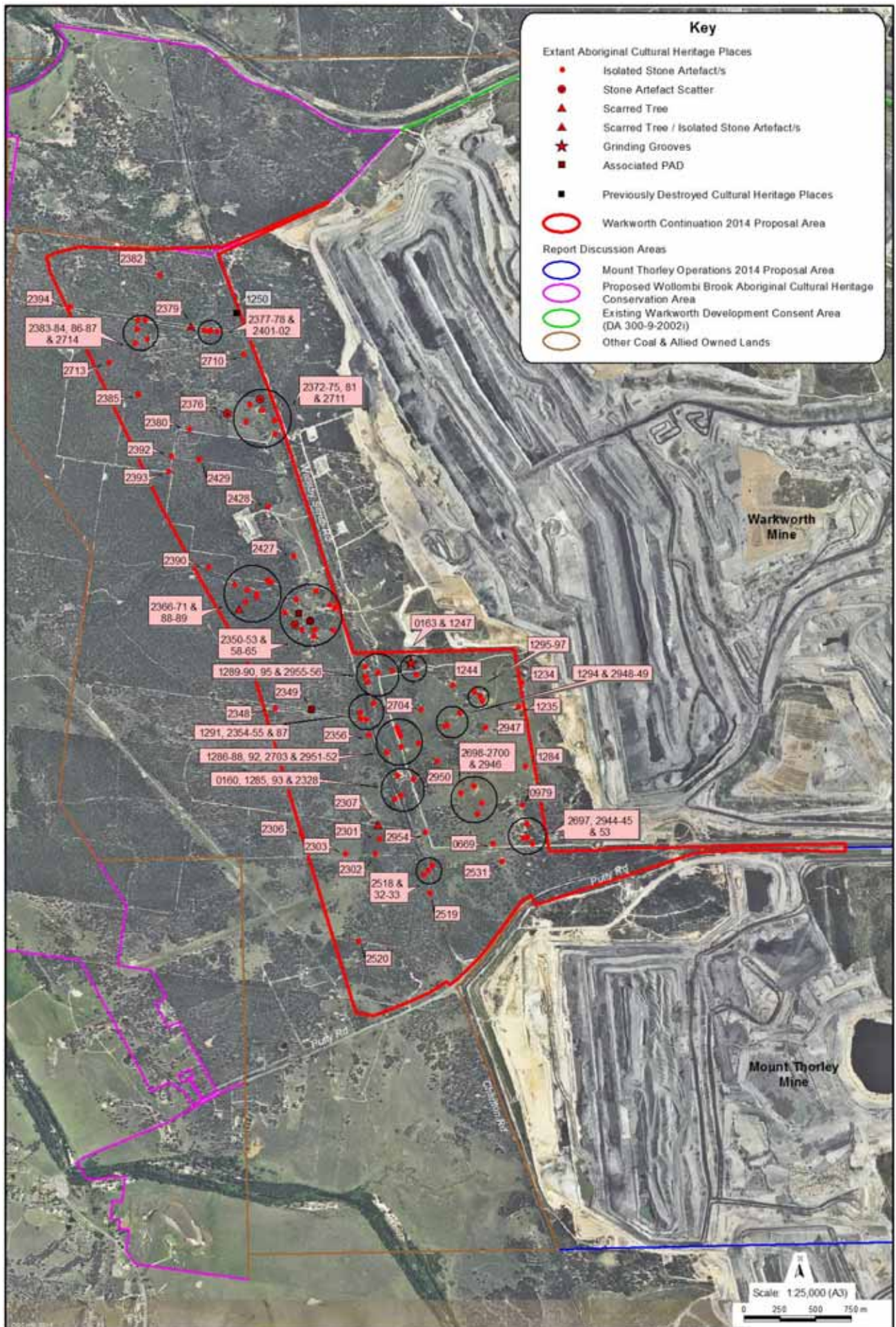


Figure 4: Map showing the location and current status of Aboriginal cultural heritage places within the Warkworth Continuation 2014 proposal area. Note: all place numbers are prefixed by the AHIMS code 37-6-XXXX.

Place Type	Number	%
Stone Artefacts	103	93.7
Stone Artefacts / PAD	3	2.7
Scarred Trees	2	1.8
Scarred Tree / Isolated Stone Artefact/s	1	0.9
Grinding Grooves	1	0.9
<i>Total</i>	<i>110</i>	

Table 10: Summary of extant Aboriginal cultural heritage place-types located within the Warkworth Continuation 2014 proposal area. Note: PAD = Potential Archaeological Deposit.

AHIMS No	Place Name	Place Type	PAD	Status
37-6-0160	Mt Thorley J (MTW590-594)	Isolated Stone Artefact/s	-	Valid
37-6-0163	Mt Thorley M	Grinding Grooves	-	Valid
37-6-0669	MT 37 (MTW587-587)	Isolated Stone Artefact/s	-	Valid
37-6-0979	BP-4	Isolated Stone Artefact/s	-	Valid
37-6-1234	W12 (MTW-563)	Isolated Stone Artefact/s	-	Partially Destroyed
37-6-1235	W13 (MTW-562)	Isolated Stone Artefact/s	-	Partially Destroyed
37-6-1244	W20 (MTW-573)	Isolated Stone Artefact/s	-	Valid
37-6-1247	W21	Isolated Stone Artefact/s	-	Valid
37-6-1250	W23	Isolated Stone Artefact/s	-	Destroyed
37-6-1284	W48 (MTW-561)	Isolated Stone Artefact/s	-	Valid
37-6-1285	W49 (MTW-579)	Isolated Stone Artefact/s	-	Valid
37-6-1286	W50 (MTW-580)	Isolated Stone Artefact/s	-	Valid
37-6-1287	W51 (MTW-582)	Isolated Stone Artefact/s	-	Valid
37-6-1288	W52 (MTW-584)	Isolated Stone Artefact/s	-	Valid
37-6-1289	W53	Isolated Stone Artefact/s	-	Valid
37-6-1290	W54 (MTW-599)	Isolated Stone Artefact/s	-	Valid
37-6-1291	W55 (MTW-596)	Isolated Stone Artefact/s	-	Valid
37-6-1292	W56 (MTW-595)	Isolated Stone Artefact/s	-	Valid
37-6-1293	W57 (MTW-589)	Isolated Stone Artefact/s	-	Valid
37-6-1294	W58 (MTW-574)	Isolated Stone Artefact/s	-	Valid
37-6-1295	W59	Isolated Stone Artefact/s	-	Valid
37-6-1296	W60 (MTW-570)	Isolated Stone Artefact/s	-	Valid
37-6-1297	W61 (MTW-572)	Isolated Stone Artefact/s	-	Valid
37-6-2301	MTW-2	Isolated Stone Artefact/s	-	Valid
37-6-2302	MTW-3	Isolated Stone Artefact/s	-	Valid
37-6-2303	MTW-4	Isolated Stone Artefact/s	-	Valid
37-6-2306	MTW-7	Isolated Stone Artefact/s	-	Valid
37-6-2307	MTW-8	Scarred Tree	-	Valid
37-6-2328	MTW-29	Isolated Stone Artefact/s	-	Valid
37-6-2348	MTW-49	Isolated Stone Artefact/s	-	Valid
37-6-2349	MTW-50	Isolated Stone Artefact/s	Yes	Valid
37-6-2350	MTW-51	Isolated Stone Artefact/s	-	Valid
37-6-2351	MTW-52	Isolated Stone Artefact/s	-	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2352	MTW-53	Isolated Stone Artefact/s	-	Valid
37-6-2353	MTW-54	Isolated Stone Artefact/s	-	Valid
37-6-2354	MTW-55	Isolated Stone Artefact/s	-	Valid
37-6-2355	MTW-56	Isolated Stone Artefact/s	-	Valid
37-6-2356	MTW-57	Isolated Stone Artefact/s	-	Valid
37-6-2357	MTW-58	Isolated Stone Artefact/s	-	Valid
37-6-2358	MTW-59	Isolated Stone Artefact/s	-	Valid
37-6-2359	MTW-60	Stone Artefact Scatter	Yes	Valid
37-6-2360	MTW-61	Stone Artefact Scatter	-	Valid
37-6-2361	MTW-62	Isolated Stone Artefact/s	-	Valid
37-6-2362	MTW-63	Isolated Stone Artefact/s	-	Valid
37-6-2363	MTW-64	Isolated Stone Artefact/s	-	Valid
37-6-2364	MTW-65	Isolated Stone Artefact/s	Yes	Valid
37-6-2365	MTW-66	Isolated Stone Artefact/s	-	Valid
37-6-2366	MTW-67	Isolated Stone Artefact/s	-	Valid
37-6-2367	MTW-68	Isolated Stone Artefact/s	-	Valid
37-6-2368	MTW-69	Isolated Stone Artefact/s	-	Valid
37-6-2369	MTW-70	Scarred Tree	-	Valid
37-6-2370	MTW-71	Isolated Stone Artefact/s	-	Valid
37-6-2371	MTW-72	Isolated Stone Artefact/s	-	Valid
37-6-2372	MTW-73	Isolated Stone Artefact/s	-	Valid
37-6-2373	MTW-74	Isolated Stone Artefact/s	-	Valid
37-6-2374	WS2A (MTW-75)	Stone Artefact Scatter	-	Valid
37-6-2375	MTW-76	Isolated Stone Artefact/s	-	Valid
37-6-2376	MTW-77	Stone Artefact Scatter	-	Valid
37-6-2377	MTW-78	Isolated Stone Artefact/s	-	Valid
37-6-2378	MTW-79	Isolated Stone Artefact/s	-	Valid
37-6-2379	MTW-80	Scarred Tree / Isolated Stone Artefact/s	-	Valid
37-6-2380	MTW-81	Isolated Stone Artefact/s	-	Valid
37-6-2381	MTW-82	Isolated Stone Artefact/s	-	Valid
37-6-2382	MTW-83	Isolated Stone Artefact/s	-	Valid
37-6-2383	MS1 (MTW-84)	Isolated Stone Artefact/s	-	Valid
37-6-2384	MS8 (MTW-85)	Isolated Stone Artefact/s	-	Valid
37-6-2385	MTW-86	Isolated Stone Artefact/s	-	Valid
37-6-2386	MTW-87	Isolated Stone Artefact/s	-	Valid
37-6-2387	MTW-88	Isolated Stone Artefact/s	-	Valid
37-6-2388	MTW-89	Isolated Stone Artefact/s	-	Valid
37-6-2389	MTW-90	Isolated Stone Artefact/s	-	Valid
37-6-2390	MTW-91	Isolated Stone Artefact/s	-	Valid
37-6-2392	MTW-93	Isolated Stone Artefact/s	-	Valid
37-6-2393	MTW-94	Isolated Stone Artefact/s	-	Valid
37-6-2394	MTW-95	Isolated Stone Artefact/s	-	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2401	MTW-102	Isolated Stone Artefact/s	-	Valid
37-6-2402	MTW-103	Isolated Stone Artefact/s	-	Valid
37-6-2427	MTW-128	Isolated Stone Artefact/s	-	Valid
37-6-2428	MTW-129	Isolated Stone Artefact/s	-	Valid
37-6-2429	MTW-130	Isolated Stone Artefact/s	-	Valid
37-6-2518	MTW-220-MSW-09-50	Isolated Stone Artefact/s	-	Valid
37-6-2519	MTW-221-WSW-09-51	Isolated Stone Artefact/s	-	Valid
37-6-2520	MTW-222-WSW-09-52	Isolated Stone Artefact/s	-	Valid
37-6-2531	MTW-234-WSW-09-9	Isolated Stone Artefact/s	-	Valid
37-6-2532	MTW-235-WSW-09-59	Isolated Stone Artefact/s	-	Valid
37-6-2533	MTW-236-WSW-09-60	Isolated Stone Artefact/s	-	Valid
37-6-2695	PL 10 (MTW-600)	Isolated Stone Artefact/s	-	Valid
37-6-2697	PL2	Isolated Stone Artefact/s	-	Valid
37-6-2698	PL3	Isolated Stone Artefact/s	-	Valid
37-6-2699	PL4 (MTW-568)	Isolated Stone Artefact/s	-	Valid
37-6-2700	PL5 (MTW-577)	Isolated Stone Artefact/s	-	Valid
37-6-2703	PL8	Isolated Stone Artefact/s	-	Valid
37-6-2704	PL9	Isolated Stone Artefact/s	-	Valid
37-6-2707	WS10	Isolated Stone Artefact/s	-	Valid
37-6-2710	WS2	Isolated Stone Artefact/s	-	Valid
37-6-2711	WS3	Isolated Stone Artefact/s	-	Valid
37-6-2713	WS7	Isolated Stone Artefact/s	-	Valid
37-6-2714	WS9	Isolated Stone Artefact/s	-	Valid
37-6-2944	MTW-566	Isolated Stone Artefact/s	-	Valid
37-6-2945	MTW-567	Isolated Stone Artefact/s	-	Valid
37-6-2946	MTW-569	Isolated Stone Artefact/s	-	Valid
37-6-2947	MTW-571	Isolated Stone Artefact/s	-	Valid
37-6-2948	MTW-575	Isolated Stone Artefact/s	-	Valid
37-6-2949	MTW-576	Isolated Stone Artefact/s	-	Valid
37-6-2950	MTW-578	Isolated Stone Artefact/s	-	Valid
37-6-2951	MTW-581	Isolated Stone Artefact/s	-	Valid
37-6-2952	MTW-583	Isolated Stone Artefact/s	-	Valid
37-6-2953	MTW-585	Isolated Stone Artefact/s	-	Valid
37-6-2954	MTW-588	Isolated Stone Artefact/s	-	Valid
37-6-2955	MTW-597	Isolated Stone Artefact/s	-	Valid
37-6-2956	MTW-598	Isolated Stone Artefact/s	-	Valid

Table 11: Details of all Aboriginal cultural heritage places and their current status within the Warkworth Continuation 2014 proposal area. Note: the presence of brackets around the Place Name field indicates places which have been assigned multiple place names during the conduct of separate cultural heritage investigations.

Given the nature of the proposed development activities to be undertaken within the Warkworth Continuation 2014 proposal area, it is most likely that all of the presently extant places containing

Aboriginal cultural heritage will be disturbed or destroyed as those activities progress. Impact management commitments stemming from CHWG consultations are outlined further below. In the meantime, these places have been and will continue to be managed consistent with the provisions of the current Warkworth Mine A&CHMP 2004 and the CHMS.

The 'Site M' grinding grooves (37-6-0163) will ultimately be destroyed as mining proceeds in a westerly direction through the Warkworth Continuation 2014 proposal area. With this in mind, the place has been the subject of various investigations. These have focused on three issues:

1. gaining an understanding of the extent of the place, noting that the grooves lie in a creek bed and unconsolidated sediments from higher up the drainage system have washed down and blanketed parts of the site, thereby perhaps obscuring some of the grinding grooves;
2. the nature of the impacts that mining will have on the place, notably the use of explosives and their effects on the integrity of the grinding grooves as it currently stands with increasing proximity of mining development to them;
3. the geological context of the place and the feasibility of any impact being mitigated by the salvage and relocation of the grooves.

In relation to the first, we note that there have been earlier efforts at longitudinal research which have both determined and aimed to determine if there were additional elements buried under sediments (e.g. Dyll 1979; Haglund 1999; AMBS 2002; see sections 5.1 and 5.8). In recent years Coal & Allied has commissioned work on this issue as well. While this has provided a good appreciation of the nature and scale of the place, additional work directly focused on this issue will be undertaken by Coal & Allied as part of the management strategy agreed with the RAPs and other stakeholders.

With respect the second issue, reports considering the impacts of blasting have been commissioned by Coal & Allied both expressly for these grinding grooves but also for other heritage sites located on Coal & Allied lands in the Upper Hunter Valley. Lewandowski (2012) has made an assessment of Site M. He notes two risks associated with blasting: direct vibration of the site and the impact of fly rock. He observes that the geology of the place is such that it will withstand considerable vibration without negative consequences. On his modelling, fly rock will become a significant issue when blasting comes to within 300 metres of the place. He suggests that physical measures to protect the fabric of the place could be taken to minimise impacts from this hazard. However, by implication, this report also indicates that any research on the place would be compromised by blasting when it is taking place within 500m from the place owing to the imposition of blasting exclusion zones.

In relation to the final issue, RTCA has commissioned a report on the geology of site M grinding grooves (Strata Control Technology 2010). This report noted that the place (divided into two parts in the report: Site M East and Site M West) consists of sandstone bedrock. To remove even a relatively small section containing grooves at Site M West (the main body of the place) would require the excision of a block 4m in length, 2.5m wide, 1m thick and weighing an estimated 25 tonnes. Site M East would be somewhat smaller but the geology is such that damage during such an attempt could not be ruled out. The report (Strata Control Technology 2010: 9) concludes as follows:

Sites M West and M East are both massive bedrock exposures along a creek, all the observed grinding grooves are located on exposed bedrock. . . . The massive nature of the outcrops and the thicker nature of the host rock unit create . . . difficult logistical issues. More geotechnical analysis is required to determine if a recovery strategy can be proposed which is logistically possible.

RTCA has committed to undertaking these additional studies to determine the best course of management for this place in the context of mining proceeding through this area.

Although containing areas of the Warkworth Sands Woodland landform, no additional or similar sandsheet or dune features considered as having the potential to contain *in situ* Aboriginal cultural heritage have been identified within the Warkworth Continuation 2014 proposal area. An area of potential interest in this regard though has been identified within the WBACHCA adjacent to the north of Warkworth Continuation 2014 proposal area. This is discussed further in Section 7.3 below.

Impact management commitments for all places identified within the Warkworth Continuation 2014 proposal area are outlined in Section 8 below.

7.2 Mount Thorley Operations 2014 Proposal Area

The entirety of the Mount Thorley Operations 2014 proposal area (approximately 1,465 ha) has an existing development consent granted in 1996 for mining (which is mostly completed) and associated activities. As such, the area has also been the subject of cultural heritage investigations undertaken over an extended period of time. In addition, Coal & Allied has commenced the undertaking of comprehensive and systematic reassessment surveys across the remaining undeveloped south eastern portions of the Mount Thorley Operations 2014 proposal area in order to refresh the currency and comprehensiveness of its understanding of the Aboriginal cultural heritage of this area. The majority of lands the subject of this reassessment are located within the proposed Loder Creek ACHCA (see Section 7.4 below).

A total of 103 places containing Aboriginal cultural heritage objects have been identified and recorded within the Mount Thorley Operations 2014 proposal area (Figure 5, see also Figure 3). These are

almost exclusively dominated by places containing stone artefacts although a number of areas with the potential to contain archaeological deposits (i.e. PAD) have been identified. Additional details of these places are provided in Table 12.

Of these places, 55 (see Table 13 and Figure 5) have previously been destroyed under finalised consents under the NPW Act and as such require no further management consideration here. Another (37-6-2717; AG-PAD-1) has been only partially destroyed and as such is included in the discussion here.

Place Type	Number	%
Stone Artefacts	98	95.2
PAD	3	2.9
Stone Artefacts / PAD	2	1.9
<i>Total</i>	<i>103</i>	

Table 12: Summary of extant Aboriginal cultural heritage place-types located within the Mount Thorley Operations 2014 proposal area. Note: PAD = Potential Archaeological Deposit.

The 48 extant places (including the remnant portion of 37-6-2717; see Table 13) consist of stone artefacts (n=45; 93.8%) found both as isolated findsites and larger scatters. Areas noted as having the potential for archaeological deposit (PAD) have also been identified. While three of these are features devoid of any surface Aboriginal cultural heritage (37-6-2715, 2716 and 217), two are directly associated with places identified as also containing stone artefacts.

With the exception of two areas, the Mount Thorley Operations 2014 proposal (which mirrors the current MTO consent - DA 34/95 as modified 2012 - boundary) has been extensively mined and rehabilitated across substantial areas. The remaining extant Aboriginal cultural heritage places are predominantly located across the south eastern corner of the Mount Thorley Operations 2014 proposal area. The only exception to this is a partially destroyed PAD (37-6-2717; AG-PAD-1) located in the north east.

As part of its ongoing program of assessing the cultural values present on all lands that it owns or operates on, Coal & Allied is committed to completing the systematic and comprehensive reassessment of the south eastern corner of the Mount Thorley Operations 2014 proposal area which it commenced in mid-2013. All Aboriginal cultural heritage, both extant and as may be identified and recorded during the completion of the reassessment surveys, will continue to be managed consistent with the provisions of the current MTO A&CHMP 2004 and the CHMS.



Figure 5: Map showing the location and current status of Aboriginal cultural heritage places within the Mount Thorley Operations 2014 proposal area. Note: all place numbers are prefixed by the AHIMS code 37-6-XXXX.

AHIMS No	Restricted	Place Name	Place Type	PAD	Status
37-6-0312	-	MT 26	Stone Artefact Scatter	-	Valid
37-6-0313	-	MT 27	Stone Artefact Scatter	-	Valid
37-6-0314	-	MT 28	Stone Artefact Scatter	-	Valid
37-6-0315	-	MT 29	Stone Artefact Scatter	-	Valid
37-6-0316	-	MT 30	Stone Artefact Scatter	-	Valid
37-6-0317	-	MT 31	Stone Artefact Scatter	-	Valid
37-6-0318	-	MT 32	Stone Artefact Scatter	-	Valid
37-6-0319	-	MT 33	Isolated Stone Artefact/s	-	Valid
37-6-0529	-	B53	Stone Artefact Scatter	-	Valid
37-6-0656	-	B73	Stone Artefact Scatter	-	Valid
37-6-0658	-	B 75	Stone Artefact Scatter	-	Valid
37-6-0659	-	B 76	Stone Artefact Scatter	-	Valid
37-6-0660	-	B 77	Stone Artefact Scatter	-	Valid
37-6-2715	-	AG-PAD-2	PAD	Yes	Valid
37-6-2716	-	AG-PAD-3	PAD	Yes	Valid
37-6-2717	-	AG-PAD-1	PAD	Yes	Partially Destroyed
37-6-2887	-	MTW-524	Stone Artefact Scatter	Yes	Valid
37-6-2888	-	MTW-525	Isolated Stone Artefact/s	-	Valid
37-6-2889	-	MTW-526	Stone Artefact Scatter	Yes	Valid
37-6-2890	-	MTW-527	Stone Artefact Scatter	-	Valid
37-6-2891	-	MTW-528	Isolated Stone Artefact/s	-	Valid
37-6-2892	-	MTW-529	Isolated Stone Artefact/s	-	Valid
37-6-2893	-	MTW-530	Isolated Stone Artefact/s	-	Valid
37-6-2894	-	MTW-531	Isolated Stone Artefact/s	-	Valid
37-6-2895	-	MTW-532	Isolated Stone Artefact/s	-	Valid
37-6-2896	-	MTW-533	Isolated Stone Artefact/s	-	Valid
37-6-2897	-	MTW-534	Isolated Stone Artefact/s	-	Valid
37-6-2898	-	MTW-535	Isolated Stone Artefact/s	-	Valid
37-6-2899	-	MTW-536	Isolated Stone Artefact/s	-	Valid
37-6-2900	-	MTW-537	Isolated Stone Artefact/s	-	Valid
37-6-2901	-	MTW-538	Isolated Stone Artefact/s	-	Valid
37-6-2902	-	MTW-539	Isolated Stone Artefact/s	-	Valid
37-6-2903	-	MTW-540	Isolated Stone Artefact/s	-	Valid
37-6-2904	-	MTW-541	Isolated Stone Artefact/s	-	Valid
37-6-2905	-	MTW-542	Isolated Stone Artefact/s	-	Valid
37-6-2906	-	MTW-543	Isolated Stone Artefact/s	-	Valid
37-6-2907	-	MTW-544	Isolated Stone Artefact/s	-	Valid
37-6-2908	-	MTW-545	Isolated Stone Artefact/s	-	Valid
37-6-2909	-	MTW-546	Isolated Stone Artefact/s	-	Valid
37-6-2910	-	MTW-547	Isolated Stone Artefact/s	-	Valid
37-6-2911	-	MTW-548	Isolated Stone Artefact/s	-	Valid
37-6-2912	-	MTW-549	Isolated Stone Artefact/s	-	Valid
37-6-2913	-	MTW-550	Isolated Stone Artefact/s	-	Valid
37-6-2914	-	MTW-551	Isolated Stone Artefact/s	-	Valid

AHIMS No	Restricted	Place Name	Place Type	PAD	Status
37-6-2915	-	MTW-552	Isolated Stone Artefact/s	-	Valid
37-6-2916	-	MTW-553	Isolated Stone Artefact/s	-	Valid
37-6-2917	-	MTW-554	Isolated Stone Artefact/s	-	Valid
37-6-2918	-	MTW-555	Isolated Stone Artefact/s	-	Valid
37-6-0288	-	MT 2	Stone Artefact Scatter	-	Destroyed
37-6-0289	-	MT 3	Stone Artefact Scatter	-	Destroyed
37-6-0290	-	MT 4	Isolated Stone Artefact/s	-	Destroyed
37-6-0291	-	MT 5	Isolated Stone Artefact/s	-	Destroyed
37-6-0292	-	MT 6	Isolated Stone Artefact/s	-	Destroyed
37-6-0293	-	MT 7	Isolated Stone Artefact/s	-	Destroyed
37-6-0294	-	MT 8	Isolated Stone Artefact/s	-	Destroyed
37-6-0295	-	MT 9	Isolated Stone Artefact/s	-	Destroyed
37-6-0296	-	MT 10	Isolated Stone Artefact/s	-	Destroyed
37-6-0297	-	MT 11	Isolated Stone Artefact/s	-	Destroyed
37-6-0298	-	MT 12	Isolated Stone Artefact/s	-	Destroyed
37-6-0299	-	MT 13	Isolated Stone Artefact/s	-	Destroyed
37-6-0300	-	MT 14	Isolated Stone Artefact/s	-	Destroyed
37-6-0302	-	MT 16	Stone Artefact Scatter	-	Destroyed
37-6-0303	-	MT 17	Stone Artefact Scatter	-	Destroyed
37-6-0304	-	MT 18	Stone Artefact Scatter	-	Destroyed
37-6-0305	-	MT 19	Stone Artefact Scatter	-	Destroyed
37-6-0306	-	MT 20	Isolated Stone Artefact/s	-	Destroyed
37-6-0307	-	MT 21	Stone Artefact Scatter	-	Destroyed
37-6-0308	-	MT 22	Stone Artefact Scatter	-	Destroyed
37-6-0309	-	MT 23	Stone Artefact Scatter	-	Destroyed
37-6-0310	-	MT 24	Stone Artefact Scatter	-	Destroyed
37-6-0311	-	MT 25	Stone Artefact Scatter	-	Destroyed
37-6-0320	-	MT 34	Isolated Stone Artefact/s	-	Destroyed
37-6-0321	-	MT 35	Isolated Stone Artefact/s	-	Destroyed
37-6-0322	-	MT 36	Isolated Stone Artefact/s	-	Destroyed
37-6-0530	-	B54	Stone Artefact Scatter	-	Destroyed
37-6-0535	-	B59	Isolated Stone Artefact/s	-	Destroyed
37-6-0657	-	B 47	Stone Artefact Scatter	-	Destroyed
37-6-0661	-	W5	Stone Artefact Scatter	-	Destroyed
37-6-0846	-	Site V (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0847	-	Site U (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0849	-	Site S (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0850	-	Site R (Bulga)	Isolated Stone Artefact/s	-	Destroyed
37-6-0851	-	Site Q (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0852	-	Site P (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0853	-	Site O (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0854	-	Site N (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0855	-	Site M (Bulga)	Isolated Stone Artefact/s	-	Destroyed
37-6-0856	-	Site L (Bulga)	Isolated Stone Artefact/s	-	Destroyed

AHIMS No	Restricted	Place Name	Place Type	PAD	Status
37-6-0857	-	Site K (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0858	-	Site J (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0859	-	Site I (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0860	-	Site H (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0861	-	Site G (Bulga)	Stone Artefact Scatter	-	Destroyed
37-6-0862	-	Site F (Bulga)	Isolated Stone Artefact/s	-	Destroyed
37-6-0863	-	Site E (Bulga)	Isolated Stone Artefact/s	-	Destroyed
37-6-0864	-	Site D (Bulga)	Isolated Stone Artefact/s	-	Destroyed
37-6-1108	Yes	-	Isolated Stone Artefact/s	-	Destroyed
37-6-1109	-	AG-IF-2	Isolated Stone Artefact/s	-	Destroyed
37-6-1110	-	AG-OS-1	Stone Artefact Scatter	-	Destroyed
37-6-1111	-	AG-OS-2	Stone Artefact Scatter	-	Destroyed
37-6-1112	-	AG-OS-3	Stone Artefact Scatter	-	Destroyed
37-6-1113	Yes	-	Stone Artefact Scatter	-	Destroyed
37-6-1114	Yes	-	Stone Artefact Scatter	-	Destroyed

Table 13: Details of all Aboriginal cultural heritage places and their current status within the MTO 2014 proposal area.

Other than those places the subject of an AHIP application as part of the proposed ramp 22 sedimentation dam construction proposal (see Section 5.6 above), none of the remaining extant Aboriginal cultural heritage places will be impacted by the Mount Thorley Operations 2014 proposal and indeed the majority will reside within the proposed Loder Creek ACHCA (see Section 7.4 below). Commitments around this are outlined in Section 8 below.

7.3 Wollombi Brook Aboriginal Cultural Heritage Conservation Area

The WBACHCA was proposed for the 2010 Warkworth Extension Project and covered approximately 513 hectares. The area was identified by the Aboriginal community during the Warkworth Extension Project consultation process as being of high conservation value for the protection and conservation of significant Aboriginal cultural heritage objects, places and landscapes, and includes the entirety of the portion of the Bulga bora ground that is known to be situated on Coal & Allied owned lands. Coal & Allied made a commitment during the Warkworth Extension Project to establish an Aboriginal Cultural Heritage Conservation Area over those lands and since 2010 has implemented internal management measures to exclude development disturbance activities in the proposed WBACHA.

The WBACHCA proposed for the Warkworth Continuation 2014 proposal has been enlarged to incorporate additional lands for the in-perpetuity protection of Aboriginal cultural heritage. The proposed WBACHCA 2014 lands will protect a total of approximately 696 hectares (see Figure 3), an increase of approximately 35 per cent in the areas to be permanently protected than originally proposed in 2010.

The westerly extents of the WBACHCA front large areas of Wollombi Brook and several other drainage systems. It also includes substantial portions of the existing Warkworth mining lease. The adequacy of the original area proposed as a conservation area for the in perpetuity protection of Aboriginal cultural heritage has been widely discussed and accepted among both the Aboriginal community and government, including DP&E and OEH.

As outlined in Section 5.3 above, on the advice of the CHWG and owing to the sensitivity of its location (which is in the area of the Bulga bora ground), a small portion (some 69 hectares) of the WBACHCA has not been the subject of comprehensive and systematic cultural heritage investigation and assessment at this time. A total of 265 places containing Aboriginal cultural heritage have been identified and recorded within the areas that have been subject of survey.

Although again heavily dominated by places containing stone artefacts, there is considerably more diversity in Aboriginal cultural heritage place types which have been identified here than elsewhere across the greater Warkworth area (Table 14). Of particular note is the identification of spiritual and ceremonial places (notably the Bulga bora ground which is of particular significance to the Aboriginal community) and a mound feature which potentially may contain burials. Examples of grinding grooves and scarred trees noted elsewhere within the Warkworth mining area are also present within the WBACHCA albeit in greater numbers. For scarred trees this probably is a direct function of the general lack of all forms of development activity which have taken place in this area.

Although not specifically included in Table 14 below (c.f. Table 15), a large number of places (n=112; 42.3% of the total number) containing the potential for archaeological deposits (i.e. PAD) have been identified. As elsewhere across the MTW mining area, these are predominantly associated with areas containing stone artefacts (n=106; 94.6% of the total PAD areas), but they also were found associated with three of the grinding groove places, two of the scarred trees and the mound feature.

Place Type	Number	%
Stone Artefacts	244	92.1
Scarred Trees	11	4.1
Grinding Grooves	4	1.4
Spiritual Place	1	0.4
Spiritual Place / Scarred Trees	1	0.4
Stone Arrangement	1	0.4
Mound Feature (potential burials)	1	0.4
Stone Source	1	0.4
Isolated Stone Artefact/s / Stone Source	1	0.4
<i>Total</i>	<i>265</i>	

Table 14: Summary of Aboriginal cultural heritage place-types located within the proposed WBACHCA area.

Further details for these places in provided in Table 15.

AHIMS No	Place Name	Place Type	PAD	Status
37-6-0055	Wollombi Brook 04	Spiritual Place	-	Valid
37-6-0056	Wollombi Brook 03	Spiritual Place / Scarred Tree	-	Valid
37-6-1103	Site 1 GG	Grinding Grooves	-	Valid
37-6-1239	W70	Isolated Stone Artefact/s	-	Valid
37-6-1241	W71	Isolated Stone Artefact/s	-	Valid
37-6-1254	W25 (MTW337-336)	Stone Artefact Scatter	-	Valid
37-6-1255	W26 (MTW-334, MTW-343)	Isolated Stone Artefact/s	-	Valid
37-6-1258	W27 (MTW-342)	Isolated Stone Artefact/s	-	Valid
37-6-1259	W28 (MTW-314)	Isolated Stone Artefact/s	-	Valid
37-6-1260	W29 (MTW-356)	Isolated Stone Artefact/s	-	Valid
37-6-1262	W31 (MTW-333)	Isolated Stone Artefact/s	-	Valid
37-6-1264	W32	Isolated Stone Artefact/s	-	Valid
37-6-1265	W33 (MTW-332)	Isolated Stone Artefact/s	-	Valid
37-6-1267	W34 (MTW-320)	Isolated Stone Artefact/s	-	Valid
37-6-1268	W35 (MTW-312)	Isolated Stone Artefact/s	-	Valid
37-6-1270	W36 (MTW-316)	Isolated Stone Artefact/s	-	Valid
37-6-1300	W64 (MTW-315)	Isolated Stone Artefact/s	-	Valid
37-6-2308	MTW-9	Isolated Stone Artefact/s	-	Valid
37-6-2309	MTW-10	Isolated Stone Artefact/s	-	Valid
37-6-2310	MTW-11	Isolated Stone Artefact/s	-	Valid
37-6-2312	MTW-13	Stone Source	-	Valid
37-6-2313	MTW-14	Scarred Tree	-	Valid
37-6-2314	MTW-15	Isolated Stone Artefact/s	-	Valid
37-6-2315	MTW-16	Stone Arrangement	-	Valid
37-6-2316	MTW-17	Isolated Stone Artefact/s	-	Valid
37-6-2317	MTW-18	Isolated Stone Artefact/s	-	Valid
37-6-2318	MTW-19	Isolated Stone Artefact/s	-	Valid
37-6-2319	MTW-20	Isolated Stone Artefact/s	-	Valid
37-6-2320	MTW-21	Isolated Stone Artefact/s	-	Valid
37-6-2321	MTW-22	Isolated Stone Artefact/s	-	Valid
37-6-2324	MTW-25	Isolated Stone Artefact/s / Stone Source	-	Valid
37-6-2325	MTW-26	Isolated Stone Artefact/s	-	Valid
37-6-2326	MTW-27	Isolated Stone Artefact/s	-	Valid
37-6-2327	MTW-28	Isolated Stone Artefact/s	Yes	Valid
37-6-2330	MTW-31	Isolated Stone Artefact/s	-	Valid
37-6-2403	MTW-104	Isolated Stone Artefact/s	-	Valid
37-6-2404	MTW-105	Isolated Stone Artefact/s	-	Valid
37-6-2405	MTW-106	Isolated Stone Artefact/s	-	Valid
37-6-2406	MTW-107	Isolated Stone Artefact/s	-	Valid
37-6-2407	MTW-108	Isolated Stone Artefact/s	-	Valid
37-6-2408	MTW-109	Stone Artefact Scatter	-	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2409	MTW-110	Isolated Stone Artefact/s	-	Valid
37-6-2410	MTW-111	Isolated Stone Artefact/s	-	Valid
37-6-2411	MTW-112	Isolated Stone Artefact/s	-	Valid
37-6-2412	MTW-113	Stone Artefact Scatter	-	Valid
37-6-2413	MTW-114, MTW-518	Isolated Stone Artefact/s	-	Valid
37-6-2414	MTW-115	Isolated Stone Artefact/s	-	Valid
37-6-2415	MTW-116	Isolated Stone Artefact/s	-	Valid
37-6-2416	MTW-117	Isolated Stone Artefact/s	-	Valid
37-6-2417	MTW-118	Isolated Stone Artefact/s	-	Valid
37-6-2418	MTW-119	Isolated Stone Artefact/s	-	Valid
37-6-2419	MTW-120	Isolated Stone Artefact/s	-	Valid
37-6-2420	MTW-121	Isolated Stone Artefact/s	-	Valid
37-6-2421	MTW-122	Isolated Stone Artefact/s	-	Valid
37-6-2422	MTW-123	Isolated Stone Artefact/s	-	Valid
37-6-2423	MTW-124	Isolated Stone Artefact/s	-	Valid
37-6-2424	MTW-125	Isolated Stone Artefact/s	-	Valid
37-6-2425	MTW-126	Isolated Stone Artefact/s	-	Valid
37-6-2426	MTW-127	Isolated Stone Artefact/s	-	Valid
37-6-2430	MTW-131	Isolated Stone Artefact/s	-	Valid
37-6-2431	MTW-132	Isolated Stone Artefact/s	-	Valid
37-6-2432	MTW-133	Isolated Stone Artefact/s	-	Valid
37-6-2433	MTW-134	Isolated Stone Artefact/s	-	Valid
37-6-2434	MTW-135	Isolated Stone Artefact/s	-	Valid
37-6-2435	MTW-136	Isolated Stone Artefact/s	-	Valid
37-6-2493	MTW-195-WSW-09-75	Isolated Stone Artefact/s	-	Valid
37-6-2495	MTW-197-WSW-09-14	Isolated Stone Artefact/s	-	Valid
37-6-2496	MTW-198-WSW-09-14	Isolated Stone Artefact/s	-	Valid
37-6-2497	MTW-199-wsw-09-14	Isolated Stone Artefact/s	-	Valid
37-6-2498	MTW-200-WSW-09-15	Isolated Stone Artefact/s	Yes	Valid
37-6-2499	MTW-201-WSW-09-15	Isolated Stone Artefact/s	Yes	Valid
37-6-2500	MTW-202-WSW-09-15	Stone Artefact Scatter	Yes	Valid
37-6-2501	MTW-203-WSW-09-79	Isolated Stone Artefact/s	-	Valid
37-6-2502	MTW-204-WSW-09-16	Isolated Stone Artefact/s	-	Valid
37-6-2503	MTW-205-WSW-09-76	Isolated Stone Artefact/s	-	Valid
37-6-2504	MTW-206-WSW-09-80	Isolated Stone Artefact/s	-	Valid
37-6-2508	MTW-210-WSW-09-19	Isolated Stone Artefact/s	Yes	Valid
37-6-2509	MTW-211-WSW-09-19	Isolated Stone Artefact/s	Yes	Valid
37-6-2510	MTW-212-WSW-09-19	Isolated Stone Artefact/s	Yes	Valid
37-6-2511	MTW-213-WSW-09-19	Isolated Stone Artefact/s	Yes	Valid
37-6-2512	MTW-214-WSW-09-78	Isolated Stone Artefact/s	-	Valid
37-6-2513	MTW-215-WSW-09-77	Isolated Stone Artefact/s	-	Valid
37-6-2514	MTW-216-WSW-09-46	Isolated Stone Artefact/s	-	Valid
37-6-2515	MTW-217-WSW-09-47	Isolated Stone Artefact/s	-	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2516	MTW-218-WSW-09-48	Isolated Stone Artefact/s	-	Valid
37-6-2517	MTW-219-WSW-09-49	Isolated Stone Artefact/s	-	Valid
37-6-2525	MTW-227-WSW-09-33	Scarred Tree	-	Valid
37-6-2526	MTW-228-WSW-09-34	Scarred Tree	-	Valid
37-6-2527	MTW-230-WSW-09-55	Isolated Stone Artefact/s	-	Valid
37-6-2528	MTW-231-WSW-09-56	Isolated Stone Artefact/s	-	Valid
37-6-2529	MTW-232-WSW-09-20	Isolated Stone Artefact/s	Yes	Valid
37-6-2530	MTW-233-WSW-09-58	Isolated Stone Artefact/s	-	Valid
37-6-2534	MTW-237-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2535	MTW-238-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2536	MTW-239-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2537	MTW-240-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2538	MTW-241-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2539	MTW-242-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2540	MTW-243-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2541	MTW-244-WSW-09	Isolated Stone Artefact/s	-	Valid
37-6-2542	MTW-245-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2543	MTW-246-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2544	MTW-247-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2545	MTW-248-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2546	MTW-249-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2547	MTW-250-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2548	MTW-251-WSW-09-10	Isolated Stone Artefact/s	Yes	Valid
37-6-2549	MTW-252-WSW-09-20	Isolated Stone Artefact/s	Yes	Valid
37-6-2550	MTW-253-WSW-09-20	Isolated Stone Artefact/s	Yes	Valid
37-6-2551	MTW-254-WSW-09-20	Isolated Stone Artefact/s	Yes	Valid
37-6-2552	MTW-255-WSW-09-20	Isolated Stone Artefact/s	Yes	Valid
37-6-2553	MTW-256-WSW-09-22	Isolated Stone Artefact/s	Yes	Valid
37-6-2554	MTW-258-WSW-09-21	Scarred Tree	Yes	Valid
37-6-2555	MTW-260-WSW-09-21	Mound Feature (possible Burials)	Yes	Valid
37-6-2556	MTW-261-WSW-09-21	Isolated Stone Artefact/s	Yes	Valid
37-6-2557	MTW-262-WSW-09-21	Isolated Stone Artefact/s	Yes	Valid
37-6-2558	MTW-263-WSW-09-21	Isolated Stone Artefact/s	Yes	Valid
37-6-2559	MTW-264-WSW-09-21	Scarred Tree	Yes	Valid
37-6-2560	MTW-265-WSW-09-21	Isolated Stone Artefact/s	Yes	Valid
37-6-2561	MTW-266-WSW-09-22	Grinding Grooves	Yes	Valid
37-6-2562	MTW-267-WSW-09-22	Grinding Grooves	Yes	Valid
37-6-2563	MTW-268-WSW-09-23	Grinding Grooves	Yes	Valid
37-6-2564	MTW-269-WSW-09-24	Isolated Stone Artefact/s	Yes	Valid
37-6-2565	MTW-270-WSW-09-24	Isolated Stone Artefact/s	Yes	Valid
37-6-2566	MTW-271-WSW-09-24	Isolated Stone Artefact/s	Yes	Valid
37-6-2567	MTW-272-WSW-09-24	Isolated Stone Artefact/s	Yes	Valid
37-6-2568	MTW-273-WSM-09-24	Isolated Stone Artefact/s	Yes	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2569	MTW-274-WSW-09-24	Isolated Stone Artefact/s	Yes	Valid
37-6-2570	MTW-275-WSW-09-24	Isolated Stone Artefact/s	Yes	Valid
37-6-2571	MTW-276	Isolated Stone Artefact/s	Yes	Valid
37-6-2572	MTW-277-WSW-09-24	Isolated Stone Artefact/s	Yes	Valid
37-6-2573	MTW-278-WSW-09-61	Isolated Stone Artefact/s	-	Valid
37-6-2574	MTW-279-WSW-09-62	Isolated Stone Artefact/s	-	Valid
37-6-2575	MTW-280-WSW-09-62	Isolated Stone Artefact/s	-	Valid
37-6-2576	MTW-281-WSW-09-62	Isolated Stone Artefact/s	-	Valid
37-6-2582	MTW-287-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2583	MTW-288-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2584	MTW-289-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2585	MTW-290-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2586	MTW-291-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2587	MTW-292-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2588	MTW-293-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2589	MTW-294-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2590	MTW-295-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2591	MTW-296-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2592	MTW-297-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2593	MTW-298-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2594	MTW-299-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2595	MTW-300-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2596	MTW-301-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2597	MTW-302-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2598	MTW-303-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2599	MTW-304-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2600	MTW-305-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2601	MTW-306-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2602	MTW-307-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2603	MTW-308-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2604	MTW-309-WSW-09-25	Isolated Stone Artefact/s	Yes	Valid
37-6-2605	MTW-310-WSW-09-66	Isolated Stone Artefact/s	-	Valid
37-6-2606	MTW-311-WSW-09-67	Isolated Stone Artefact/s	-	Valid
37-6-2607	MTW-313	Isolated Stone Artefact/s	-	Valid
37-6-2608	MTW-317	Isolated Stone Artefact/s	-	Valid
37-6-2609	MTW-318	Isolated Stone Artefact/s	-	Valid
37-6-2610	MTW-319	Scarred Tree	-	Valid
37-6-2611	WE 16 (MTW-321)	Scarred Tree	-	Valid
37-6-2612	MTW-322	Scarred Tree	-	Valid
37-6-2613	MTW-323	Scarred Tree	-	Valid
37-6-2614	MTW-324	Scarred Tree	-	Valid
37-6-2615	MTW-325	Isolated Stone Artefact/s	-	Valid
37-6-2616	MTW-326	Isolated Stone Artefact/s	-	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2617	MTW-327	Isolated Stone Artefact/s	-	Valid
37-6-2618	MTW-328	Isolated Stone Artefact/s	-	Valid
37-6-2619	MTW-329	Isolated Stone Artefact/s	-	Valid
37-6-2620	MTW-330	Isolated Stone Artefact/s	-	Valid
37-6-2621	PN6 (MTW-331)	Isolated Stone Artefact/s	-	Valid
37-6-2622	MTW-335	Isolated Stone Artefact/s	-	Valid
37-6-2623	MTW-338	Isolated Stone Artefact/s	-	Valid
37-6-2624	MTW-339	Isolated Stone Artefact/s	-	Valid
37-6-2625	MTW-340	Isolated Stone Artefact/s	-	Valid
37-6-2626	MTW-341	Isolated Stone Artefact/s	-	Valid
37-6-2627	MTW-344	Isolated Stone Artefact/s	-	Valid
37-6-2628	MTW-345	Isolated Stone Artefact/s	-	Valid
37-6-2629	MTW-346	Isolated Stone Artefact/s	-	Valid
37-6-2630	MTW-347	Isolated Stone Artefact/s		Valid
37-6-2631	MTW-348	Isolated Stone Artefact/s	-	Valid
37-6-2632	MTW-349	Isolated Stone Artefact/s	-	Valid
37-6-2633	MTW-350	Isolated Stone Artefact/s	-	Valid
37-6-2634	MTW-351	Isolated Stone Artefact/s	-	Valid
37-6-2635	MTW-352	Isolated Stone Artefact/s	-	Valid
37-6-2636	MTW-353	Isolated Stone Artefact/s	-	Valid
37-6-2637	MTW-354	Isolated Stone Artefact/s	-	Valid
37-6-2638	MTW-355	Isolated Stone Artefact/s	-	Valid
37-6-2639	MTW-357	Stone Artefact Scatter	-	Valid
37-6-2640	MTW-358	Isolated Stone Artefact/s	-	Valid
37-6-2641	MTW-359	Isolated Stone Artefact/s	-	Valid
37-6-2642	MTW-360	Isolated Stone Artefact/s	-	Valid
37-6-2643	MTW-361	Isolated Stone Artefact/s	-	Valid
37-6-2644	MTW-362	Isolated Stone Artefact/s	-	Valid
37-6-2645	MTW-363	Isolated Stone Artefact/s	-	Valid
37-6-2646	MTW-365	Isolated Stone Artefact/s	-	Valid
37-6-2647	MTW-366	Isolated Stone Artefact/s	Yes	Valid
37-6-2648	MTW-367	Isolated Stone Artefact/s	Yes	Valid
37-6-2649	MTW-368	Isolated Stone Artefact/s	Yes	Valid
37-6-2650	MTW-369	Isolated Stone Artefact/s	Yes	Valid
37-6-2651	MTW-370	Isolated Stone Artefact/s	Yes	Valid
37-6-2652	MTW-371	Isolated Stone Artefact/s	Yes	Valid
37-6-2653	MTW-372	Isolated Stone Artefact/s	Yes	Valid
37-6-2654	MTW-373	Isolated Stone Artefact/s	Yes	Valid
37-6-2655	MTW-374	Isolated Stone Artefact/s	Yes	Valid
37-6-2656	MTW-375	Isolated Stone Artefact/s	Yes	Valid
37-6-2657	MTW-376	Isolated Stone Artefact/s	Yes	Valid
37-6-2658	MTW-377	Isolated Stone Artefact/s	Yes	Valid
37-6-2659	MTW-378	Isolated Stone Artefact/s	Yes	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2660	MTW-379	Isolated Stone Artefact/s	Yes	Valid
37-6-2661	MTW-380	Isolated Stone Artefact/s	Yes	Valid
37-6-2662	MTW-381	Isolated Stone Artefact/s	Yes	Valid
37-6-2663	MTW-382	Isolated Stone Artefact/s	Yes	Valid
37-6-2664	MTW-383	Isolated Stone Artefact/s	Yes	Valid
37-6-2665	MTW-384	Isolated Stone Artefact/s	Yes	Valid
37-6-2666	MTW-385	Isolated Stone Artefact/s	Yes	Valid
37-6-2667	MTW-386	Isolated Stone Artefact/s	Yes	Valid
37-6-2668	MTW-387	Isolated Stone Artefact/s	Yes	Valid
37-6-2669	MTW-388	Isolated Stone Artefact/s	Yes	Valid
37-6-2670	MTW-389	Isolated Stone Artefact/s	Yes	Valid
37-6-2671	MTW-390	Isolated Stone Artefact/s	Yes	Valid
37-6-2672	MTW-391	Isolated Stone Artefact/s	Yes	Valid
37-6-2673	MTW-392	Isolated Stone Artefact/s	Yes	Valid
37-6-2674	MTW-393	Isolated Stone Artefact/s	Yes	Valid
37-6-2675	MTW-394	Isolated Stone Artefact/s	Yes	Valid
37-6-2676	MTW-395	Isolated Stone Artefact/s	Yes	Valid
37-6-2677	MTW-396	Isolated Stone Artefact/s	Yes	Valid
37-6-2678	MTW-397	Isolated Stone Artefact/s	-	Valid
37-6-2679	MTW-398	Isolated Stone Artefact/s	Yes	Valid
37-6-2680	MTW-399	Isolated Stone Artefact/s	Yes	Valid
37-6-2681	MTW-400	Isolated Stone Artefact/s	Yes	Valid
37-6-2682	MTW-401	Isolated Stone Artefact/s	Yes	Valid
37-6-2683	MTW-402	Isolated Stone Artefact/s	Yes	Valid
37-6-2684	MTW-403	Isolated Stone Artefact/s	Yes	Valid
37-6-2685	MTW-404	Isolated Stone Artefact/s	Yes	Valid
37-6-2686	MTW-405	Isolated Stone Artefact/s	Yes	Valid
37-6-2687	MTW-406	Isolated Stone Artefact/s	Yes	Valid
37-6-2688	MTW-407	Isolated Stone Artefact/s	Yes	Valid
37-6-2689	MTW-408	Isolated Stone Artefact/s	Yes	Valid
37-6-2690	MTW-409	Isolated Stone Artefact/s	-	Valid
37-6-2691	MTW-410	Isolated Stone Artefact/s	-	Valid
37-6-2692	MTW-411	Isolated Stone Artefact/s	-	Valid
37-6-2693	MTW-412	Isolated Stone Artefact/s	-	Valid
37-6-2694	MTW-413	Scarred Tree	-	Valid
37-6-2705	PN4	Isolated Stone Artefact/s	-	Valid
37-6-2706	PN5 (N)	Isolated Stone Artefact/s	-	Valid
37-6-2924	MTW-505	Isolated Stone Artefact/s	-	Valid
37-6-2923	MTW-506	Isolated Stone Artefact/s	-	Valid
37-6-2925	MTW-507	Isolated Stone Artefact/s	-	Valid
37-6-2926	MTW-508	Isolated Stone Artefact/s	-	Valid
37-6-2927	MTW-509	Isolated Stone Artefact/s	-	Valid
37-6-2928	MTW-510	Isolated Stone Artefact/s	-	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2929	MTW-511	Stone Artefact Scatter	-	Valid
37-6-2930	MTW-512	Isolated Stone Artefact/s	-	Valid
37-6-2931	MTW-513	Isolated Stone Artefact/s	-	Valid
37-6-2939	MTW-514	Isolated Stone Artefact/s	-	Valid
37-6-2937	MTW-515	Isolated Stone Artefact/s	-	Valid
37-6-2938	MTW-516	Isolated Stone Artefact/s	-	Valid
37-6-2939	MTW-517	Isolated Stone Artefact/s	-	Valid
37-6-2940	MTW-519	Isolated Stone Artefact/s	-	Valid
37-6-2941	MTW-520	Isolated Stone Artefact/s	-	Valid

Table 15: Details of all Aboriginal cultural heritage places and their current status within the proposed WBACHCA. Note: the presence of brackets around the Place Name field indicates places which have been assigned multiple place names during the conduct of separate cultural heritage investigations over time.

Geographically, PADs have tended to cluster throughout the central and southern portions of the conservation area and particularly adjacent to Wollombi Brook (see Figure 3). In addition, and although not identified formally as a PAD during cultural heritage investigations, portions of an extensive linear Warkworth sand dune (portions of which have previously been quarried) also lie within the WBACHCA.

This later feature was previously identified as one of the locations suitable for further research as part of the Hunter Valley Sand Bodies Research Study. This study was included within two of the conditions (Numbers 59 and 60) within the now disapproved development consent (PA 09_0202) for the 2010 Warkworth Extension Project. Consistent with these previous conditions, a research design and action plan for their implementation was developed by an expert panel in conjunction with DP&E and OEH. DP&E subsequently approved this design and plan.

All Aboriginal cultural heritage located within the proposed WBACHCA are managed in accordance with CHMS provisions and management principles developed in consultation with the CHWG. Under the auspices of the CHWG, a WBACHCA Steering Committee (comprised from the CHWG membership) has been established and in operation for several years. This group has, and it is proposed will continue to develop specific management arrangements for this area. The WBACHCA will be managed under its own stand alone and formalised Aboriginal cultural heritage management plan developed in consultation with the CHWG. A draft management plan was developed during CHWG consultation for the Warkworth Extension Project and is in the process of further consultation and revision. Further details on the commitments stemming from Aboriginal community consultation surrounding the establishment and protection of the WBACHCA are outlined in Section 8 below.

7.4 Proposed Loder Creek Aboriginal Cultural Heritage Conservation Area

As outlined above in Section 7.2, the vast majority of the proposed Loder Creek ACHCA lies within the remaining undeveloped south eastern portion of the Mount Thorley Operations 2014 proposal area (see Figures 5 and 3). The proposed conservation area totals approximately 87 hectares of which 70.6 hectares lies within the Mount Thorley Operations 2014 proposal area. The remaining portion lies on adjoining Coal & Allied owned land and is not currently covered by a mining tenement. The proposed Loder Creek ACHCA represents the remaining remnant riparian landscape within the Mount Thorley Operations 2014 proposal area.

The Loder Creek environment and cultural landscape has been identified, through consultation with the CHWG, as a priority area for protection and conservation. Through discussions with the CHWG RAPs on the Mount Thorley Operations 2014 proposal, Coal & Allied committed to permanently protect this area as an ACHCA. This proposal was supported by the RAPs. The key ongoing objective in the development of the Loder Creek ACHCA will be to establish a co-management regime in partnership with the Aboriginal community through the development of a comprehensive and well considered management strategy supported by an appropriate community-based governance structure.

As outlined above, while this portion of the Mount Thorley Operations 2014 proposal area has been the subject of previous Aboriginal cultural heritage investigations, Coal & Allied is conducting a reassessment of this area to refresh the currency and comprehensiveness of its understanding of the Aboriginal cultural heritage of this area. These commenced in mid-2013, with those surveys completed focussing on that portion of the Mount Thorley Operations 2014 proposal area immediately to the west of the proposed Loder Creek ACHCA and required for the construction of the Ramp 22 sedimentation dam (see Section 5.6 above). The reassessment surveys of the proposed Loder Creek ACHCA will be completed to inform the development of a plan of management for the area.

Noting that the identified and recorded Aboriginal cultural heritage places identified within the Loder Creek ACHCA are also within the overall Mount Thorley Operations 2014 proposal area and are also discussed in Section 7.2 above, a total of 19 places containing Aboriginal cultural heritage have been identified and recorded within the Loder Creek ACHCA (see Figure 5). One of these places (37-6-0657 – B47) has previously been destroyed under a finalised consent under the NPW Act and as such will again not be discussed further here.

The remaining 18 extant Aboriginal cultural heritage places currently identified and recorded within the Loder Creek ACHCA are almost exclusively dominated by places containing stone artefacts (n=17; 94.4%) although one area with the potential to contain archaeological deposits (i.e. PAD) has also been identified. When originally identified and recorded, this PAD was not associated with any

surface Aboriginal cultural heritage objects. Additional details of these places are provided in Table 16.

AHIMS No	Restricted	Place Name	Place Type	PAD	Status
37-6-0315	-	MT 29	Stone Artefact Scatter	-	Valid
37-6-0316	-	MT 30	Stone Artefact Scatter	-	Valid
37-6-0314	-	MT 28	Stone Artefact Scatter	-	Valid
37-6-0319	-	MT 33	Isolated Stone Artefact/s	-	Valid
37-6-0659	-	B 76	Stone Artefact Scatter	-	Valid
37-6-0656	-	B73	Stone Artefact Scatter	-	Valid
37-6-0317	-	MT 31	Stone Artefact Scatter	-	Valid
37-6-0318	-	MT 32	Stone Artefact Scatter	-	Valid
37-6-0312	-	MT 26	Stone Artefact Scatter	-	Valid
37-6-0313	-	MT 27	Stone Artefact Scatter	-	Valid
37-6-0658	-	B 75	Stone Artefact Scatter	-	Valid
37-6-0660	-	B 77	Stone Artefact Scatter	-	Valid
37-6-0657	-	B 47	Stone Artefact Scatter	-	Destroyed
37-6-2715	-	AG-PAD-2	Other (PAD)	Yes	Valid
37-6-2907	-	MTW-544	Isolated Stone Artefact/s	-	Valid
37-6-2908	-	MTW-545	Isolated Stone Artefact/s	-	Valid
37-6-2909	-	MTW-546	Isolated Stone Artefact/s	-	Valid
37-6-2917	-	MTW-554	Isolated Stone Artefact/s	-	Valid
37-6-2918	-	MTW-555	Isolated Stone Artefact/s	-	Valid

Table 16: Details of all Aboriginal cultural heritage places and their current status within the proposed Loder Creek ACHCA.

As outlined above, Coal & Allied is committed to completing the systematic and comprehensive reassessment of the proposed Loder Creek ACHCA which it commenced in mid-2013. All Aboriginal cultural heritage, both extant and as may be identified and recorded during the completion of the reassessment surveys, will continue to be managed consistent with the provisions of the current Mount Thorley Operations A&CHMP 2004 and the CHMS until such time as a comprehensive and formalised Aboriginal cultural heritage management plan has been developed in consultation with the CHWG. Commitments to these ends are outlined in Section 8 below.

7.5 Current Warkworth Mine Development Consent Area

A total of 111 places containing Aboriginal cultural heritage objects have also been previously identified and recorded within the current Warkworth Mine development consent area (DA 300-9-2002-i as modified) (Table 17; see Figure 3). With four exceptions (see Table 17), all of the remaining places have been destroyed under finalised consents under the NPW Act. It should be noted that this does not include the two places identified in Section 7.1 above as being Partially

Destroyed (37-6-1234; W12 and 37-6-1235; W13). The remaining extant portions of these two places which lie within the Warkworth Continuation 2014 proposal area are considered above in that section.

AHIMS No	Place Name	Place Type	PAD	Status
37-6-0611	Jerry's Plains Road 2	Isolated Stone Artefact/s	-	Valid
37-6-0682	Wark-2	Isolated Stone Artefact/s	-	Valid
37-6-2061	KR56	Stone Artefact Scatter	-	Valid
37-6-2063	KR58	Stone Artefact Scatter	-	Valid
37-6-0108	Warkworth 1	Scarred Tree	-	Destroyed
37-6-0151	Warkworth Mine 6	Stone Artefact Scatter	-	Destroyed
37-6-0152	Mt Thorley B	Stone Artefact Scatter	-	Destroyed
37-6-0153	Mt Thorley C	Isolated Stone Artefact/s	-	Destroyed
37-6-0155	Warkworth Mine 4	Isolated Stone Artefact/s	-	Destroyed
37-6-0156	Warkworth Mine 2	Isolated Stone Artefact/s	-	Destroyed
37-6-0157	Mt Thorley G	Isolated Stone Artefact/s	-	Destroyed
37-6-0158	Mt Thorley H	Isolated Stone Artefact/s	-	Destroyed
37-6-0159	Mt Thorley I	Isolated Stone Artefact/s	-	Destroyed
37-6-0161	K1,K2	Isolated Stone Artefact/s	-	Destroyed
37-6-0162	Mt Thorley L	Stone Artefact Scatter	-	Destroyed
37-6-0164	Mt Thorley N	Isolated Stone Artefact/s	-	Destroyed
37-6-0165	Mt Thorley O	Isolated Stone Artefact/s	-	Destroyed
37-6-0458	Doctors creek	Stone Artefact Scatter	-	Destroyed
37-6-0549	Warkworth Mine 1	Isolated Stone Artefact/s	-	Destroyed
37-6-0550	Warkworth Mine 3	Stone Artefact Scatter	-	Destroyed
37-6-0589	Warkworth mines 7	Stone Artefact Scatter	-	Destroyed
37-6-0590	Warkworth mines 8	Isolated Stone Artefact/s	-	Destroyed
37-6-0591	Warkworth mines 9	Isolated Stone Artefact/s	-	Destroyed
37-6-0592	Warkworth mines 10	Stone Artefact Scatter	-	Destroyed
37-6-0593	Warkworth mines 11	Stone Artefact Scatter	-	Destroyed
37-6-0662	F1	Isolated Stone Artefact/s	-	Destroyed
37-6-0663	F2	Isolated Stone Artefact/s	-	Destroyed
37-6-0664	F3	Isolated Stone Artefact/s	-	Destroyed
37-6-0665	Ulan Id#71 (F4)	Isolated Stone Artefact/s	-	Destroyed
37-6-0666	F5-15	Isolated Stone Artefact/s	-	Destroyed
37-6-0667	F16 & F17	Isolated Stone Artefact/s	-	Destroyed
37-6-0668	F18	Isolated Stone Artefact/s	-	Destroyed
37-6-0946	W14 Sandsheet	Isolated Stone Artefact/s	Yes	Destroyed
37-6-1090	W79	Isolated Stone Artefact/s	-	Destroyed
37-6-1236	W14 Campsite	Isolated Stone Artefact/s	-	Destroyed
37-6-1237	W15	Isolated Stone Artefact/s	-	Destroyed
37-6-1238	W16	Isolated Stone Artefact/s	-	Destroyed
37-6-1240	W17	Isolated Stone Artefact/s	-	Destroyed
37-6-1242	W18	Stone Artefact Scatter	-	Destroyed
37-6-1243	W19	Isolated Stone Artefact/s	-	Destroyed
37-6-1245	W72	Isolated Stone Artefact/s	-	Destroyed

AHIMS No	Place Name	Place Type	PAD	Status
37-6-1246	W73	Isolated Stone Artefact/s	-	Destroyed
37-6-1248	W22	Isolated Stone Artefact/s	-	Destroyed
37-6-1249	W74	Isolated Stone Artefact/s	-	Destroyed
37-6-1251	W75	Isolated Stone Artefact/s	-	Destroyed
37-6-1252	W24	Isolated Stone Artefact/s	-	Destroyed
37-6-1253	W76	Isolated Stone Artefact/s	-	Destroyed
37-6-1256	W77	Isolated Stone Artefact/s	-	Destroyed
37-6-1257	W78	Isolated Stone Artefact/s	-	Destroyed
37-6-1261	W30	Isolated Stone Artefact/s	-	Destroyed
37-6-1263	W80	Isolated Stone Artefact/s	-	Destroyed
37-6-1266	W81	Isolated Stone Artefact/s	-	Destroyed
37-6-1269	W82	Isolated Stone Artefact/s	-	Destroyed
37-6-1271	W83	Isolated Stone Artefact/s	-	Destroyed
37-6-1272	W37	Isolated Stone Artefact/s	-	Destroyed
37-6-1273	W84	Isolated Stone Artefact/s	-	Destroyed
37-6-1274	W38	Isolated Stone Artefact/s	-	Destroyed
37-6-1275	W39	Isolated Stone Artefact/s	-	Destroyed
37-6-1276	W40	Isolated Stone Artefact/s	-	Destroyed
37-6-1277	W41	Isolated Stone Artefact/s	-	Destroyed
37-6-1278	W42	Isolated Stone Artefact/s	-	Destroyed
37-6-1279	W43	Isolated Stone Artefact/s	-	Destroyed
37-6-1280	W44	Isolated Stone Artefact/s	-	Destroyed
37-6-1281	W45	Isolated Stone Artefact/s	-	Destroyed
37-6-1282	W46	Isolated Stone Artefact/s	-	Destroyed
37-6-1283	W47	Isolated Stone Artefact/s	-	Destroyed
37-6-1298	W62	Isolated Stone Artefact/s	-	Destroyed
37-6-1299	W63	Isolated Stone Artefact/s	-	Destroyed
37-6-1301	W65	Isolated Stone Artefact/s	-	Destroyed
37-6-1302	W66	Isolated Stone Artefact/s	-	Destroyed
37-6-1303	W67	Isolated Stone Artefact/s	-	Destroyed
37-6-1304	W68	Isolated Stone Artefact/s	-	Destroyed
37-6-1305	W69	Isolated Stone Artefact/s	-	Destroyed
37-6-1785	PN12	Isolated Stone Artefact/s	-	Destroyed
37-6-1786	PN 10	Grinding Grooves	-	Destroyed
37-6-1787	PN 7	Isolated Stone Artefact/s	-	Destroyed
37-6-1788	PN 8	Isolated Stone Artefact/s	-	Destroyed
37-6-1789	PN 9	Isolated Stone Artefact/s	-	Destroyed
37-6-1790	PN 11	Isolated Stone Artefact/s	-	Destroyed
37-6-1791	PN 1	Isolated Stone Artefact/s	-	Destroyed
37-6-1792	PC 01	Isolated Stone Artefact/s	-	Destroyed
37-6-1807	WE01	Stone Artefact Scatter	-	Destroyed
37-6-1808	WE02	Isolated Stone Artefact/s	-	Destroyed
37-6-1809	WE03	Isolated Stone Artefact/s	-	Destroyed
37-6-1810	WE04	Stone Artefact Scatter	-	Destroyed

AHIMS No	Place Name	Place Type	PAD	Status
37-6-1811	WE05	Stone Artefact Scatter	-	Destroyed
37-6-1812	WE06	Stone Artefact Scatter	-	Destroyed
37-6-1813	WE07	Isolated Stone Artefact/s	-	Destroyed
37-6-1814	WE08	Stone Artefact Scatter	-	Destroyed
37-6-1815	MTW1	Isolated Stone Artefact/s	-	Destroyed
37-6-1816	WE09	Isolated Stone Artefact/s	-	Destroyed
37-6-1817	WE10	Isolated Stone Artefact/s	-	Destroyed
37-6-1818	WE12	Isolated Stone Artefact/s	-	Destroyed
37-6-1819	WE13	Isolated Stone Artefact/s	-	Destroyed
37-6-1820	WE14	Isolated Stone Artefact/s	-	Destroyed
37-6-1821	WE15	Isolated Stone Artefact/s	-	Destroyed
37-6-2292	PC 2	Isolated Stone Artefact/s	-	Destroyed
37-6-2295	PL12 Location 2	Stone Artefact Scatter	-	Destroyed
37-6-2299	PN2	Isolated Stone Artefact/s	-	Destroyed
37-6-2300	PN3	Isolated Stone Artefact/s	-	Destroyed
37-6-2293	PC 3	Isolated Stone Artefact/s	-	Destroyed
37-6-2701	PL6 (MTW-556)	Isolated Stone Artefact/s	-	Destroyed
37-6-2296	PL12 Location 3	Stone Artefact Scatter	-	Destroyed
37-6-2294	PL12 Location 1	Stone Artefact Scatter	-	Destroyed
37-6-2297	PL13	Stone Artefact Scatter	-	Destroyed
37-6-2298	PL13 - new exposures	Stone Artefact Scatter	-	Destroyed
37-6-2696	PL11	Isolated Stone Artefact/sz	-	Destroyed
37-6-2702	PL7 (MTW-559)	Isolated Stone Artefact/s	-	Destroyed
37-6-2873	MTW-557	Isolated Stone Artefact/s	-	Destroyed
37-6-2874	MTW-558	Isolated Stone Artefact/s	-	Destroyed
37-6-2875	MTW-560	Isolated Stone Artefact/s	-	Destroyed

Table 17: Summary and present status of Aboriginal cultural heritage places located within the current Warkworth Mine development consent area.

The remaining extant places will not be impacted upon by the Warkworth Continuation 2014 proposal and will continue to be managed in a manner consistent with the provisions of the current Warkworth Mine A&CHMP 2004 and the CHMS. Commitments to these ends are outlined in Section 8 below.

As originally recorded, the 111 places containing Aboriginal cultural heritage are broadly similar to the Warkworth Continuation 2014 proposal area (see Section 7.1 above). Aboriginal cultural heritage is dominated by places containing stone artefacts (n=105; 94.6%), but again a culturally modified (scarred) tree and a set of axe grinding grooves were also identified. Only one area (also associated with stone artefacts) was observed to contain PAD. This was the W14 ‘Warkworth Sands’ sand-sheet (37-6-0946) the subject of previous reporting of intensive multidisciplinary investigations (Scarp 2009b; see Section 5.9 above).

7.6 Other ‘On site’ Coal & Allied Owned Lands

Lands which fit this category generally consist of the western parts of the MTW mining leases situated between the Warkworth Continuation 2014 proposal area, and areas south of Putty Road and west of Charlton Road within the MTO mining lease and the proposed WBACHCA. They also include small remnant portions of the Warkworth mining lease in the north and east which lie outside of the current Warkworth development consent area (DA 300-9-2002-i as modified) (see Figure 3). These areas total approximately 1,044 hectares.

An additional 121 places containing Aboriginal cultural heritage have been identified and recorded in this area (Table 18; see Figure 3). As with the WBACHCA (see Section 7.3 above), all of these remain extant. Consistent with patterns observed elsewhere throughout the greater MTW mining area, places containing stone artefacts again dominate, along with a number of scarred trees. Grinding grooves are notably absent from these areas. One place which was noted as having shell material (37-6-2338; MTW-39) was observed. Shell material with the possibility of being culturally-derived (this has not been verified at the present time) has not previously been identified within the greater MTW mining area.

Place Type	Number	%
Stone Artefacts	86	71.1
Stone Artefacts / PAD	23	19.0
Scarred Trees	9	7.4
Isolated Stone Artefact/s / Stone Source	2	1.7
Isolated Stone Artefact/s / Shell Material	1	0.8
<i>Total</i>	<i>121</i>	

Table 18: Summary of Aboriginal cultural heritage place-types located within other ‘on site’ Coal & Allied owned lands.

Although considerably fewer in number than within the WBACHCA, a nonetheless significant number of places identified as containing the potential for archaeological deposit (i.e. PAD) have been identified among these Aboriginal cultural heritage places. These cluster exclusively on the northern side of Wollombi Brook in the south western portions of the MTO mining lease (see Figure 3).

Further detail for all places located throughout the other ‘on site’ Coal & Allied owned lands is provided in Table 19. These places have been and will continue to be managed consistent with the provisions of the current Warkworth Mine A&CHMP 2004 and the CHMS.

AHIMS No	Place Name	Place Type	PAD	Status
37-6-0641	Lemington Mine Lease ISF4	Isolated Stone Artefact/s	-	Valid
37-6-0848	Site T (Bulga)	Stone Artefact Scatter	-	Valid
37-6-0991	JP30	Isolated Stone Artefact/s	-	Valid
37-6-1437	JP 16	Isolated Stone Artefact/s	-	Valid
37-6-1438	JP 17	Isolated Stone Artefact/s	-	Valid
37-6-1440	JP 18	Isolated Stone Artefact/s	-	Valid
37-6-1441	JP 19	Isolated Stone Artefact/s	-	Valid
37-6-1442	JP 21	Isolated Stone Artefact/s	-	Valid
37-6-1445	JP 24	Stone Artefact Scatter	-	Valid
37-6-1446	JP 25	Stone Artefact Scatter	-	Valid
37-6-1448	JP 27	Stone Artefact Scatter	-	Valid
37-6-1450	JP 31	Isolated Stone Artefact/s	-	Valid
37-6-1451	JP 35	Stone Artefact Scatter	-	Valid
37-6-2062	KR57	Stone Artefact Scatter	-	Valid
37-6-2064	KR59	Stone Artefact Scatter	-	Valid
37-6-2065	KR60	Stone Artefact Scatter	-	Valid
37-6-2304	MTW-5	Isolated Stone Artefact/s	-	Valid
37-6-2305	MTW-6	Isolated Stone Artefact/s	-	Valid
37-6-2311	MTW-12	Isolated Stone Artefact/s	-	Valid
37-6-2322	MTW-23	Isolated Stone Artefact/s	-	Valid
37-6-2323	MTW-24	Isolated Stone Artefact/s	-	Valid
37-6-2329	MTW-30	Isolated Stone Artefact/s	-	Valid
37-6-2331	MTW-32	Isolated Stone Artefact/s	-	Valid
37-6-2332	MTW-33	Isolated Stone Artefact/s	-	Valid
37-6-2333	MTW-34	Isolated Stone Artefact/s	-	Valid
37-6-2334	MTW-35	Isolated Stone Artefact/s	-	Valid
37-6-2335	MTW-36	Isolated Stone Artefact/s	-	Valid
37-6-2336	MTW-37	Isolated Stone Artefact/s	-	Valid
37-6-2337	MTW-38	Isolated Stone Artefact/s	-	Valid
37-6-2338	MTW-39	Isolated Stone Artefact/s / Shell Material	-	Valid
37-6-2339	MTW-40	Isolated Stone Artefact/s	-	Valid
37-6-2340	MTW-41	Isolated Stone Artefact/s	-	Valid
37-6-2341	MTW-42	Isolated Stone Artefact/s	-	Valid
37-6-2342	MTW-43	Scarred Tree	-	Valid
37-6-2343	MTW-44	Isolated Stone Artefact/s / Stone Source	-	Valid
37-6-2344	MTW-45	Isolated Stone Artefact/s	-	Valid
37-6-2345	MTW-46	Isolated Stone Artefact/s	-	Valid
37-6-2346	MTW-47	Isolated Stone Artefact/s	-	Valid
37-6-2347	MTW-48	Isolated Stone Artefact/s	-	Valid
37-6-2391	MTW-92	Isolated Stone Artefact/s	-	Valid
37-6-2395	MTW-96	Isolated Stone Artefact/s	-	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2396	MTW-97	Isolated Stone Artefact/s	-	Valid
37-6-2397	MTW-98	Isolated Stone Artefact/s	-	Valid
37-6-2398	MTW-99	Isolated Stone Artefact/s	-	Valid
37-6-2399	MTW-100	Isolated Stone Artefact/s	-	Valid
37-6-2400	MTW-101	Isolated Stone Artefact/s	-	Valid
37-6-2436	MTW-137	Isolated Stone Artefact/s	-	Valid
37-6-2437	MTW-138	Isolated Stone Artefact/s	-	Valid
37-6-2438	MTW-140	Stone Artefact Scatter	-	Valid
37-6-2439	MTW-141	Stone Artefact Scatter	-	Valid
37-6-2440	MTW-142	Stone Artefact Scatter	-	Valid
37-6-2441	MTW-143	Isolated Stone Artefact/s	Yes	Valid
37-6-2442	MTW-144	Isolated Stone Artefact/s	-	Valid
37-6-2443	MTW-145	Isolated Stone Artefact/s	-	Valid
37-6-2444	MTW-146-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2445	MTW-147-WSW09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2446	MTW-148-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2447	MTW-149-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2448	MTW-150-WSW-09-4	Stone Artefact Scatter	Yes	Valid
37-6-2449	MTW-151-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2450	MTW-152-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2451	MTW-153-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2452	MTW-154-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2453	MTW-155-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2454	MTW-156-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2455	MTW-157-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2456	MTW-158-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2457	MTW-159-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2458	MTW-160-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2459	MTW-161-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2460	MTW-162-WSW-09-4	Isolated Stone Artefact/s	Yes	Valid
37-6-2461	MTW-163-WSW-09-41	Isolated Stone Artefact/s	-	Valid
37-6-2462	MTW-164-WSW-09-40	Isolated Stone Artefact/s	-	Valid
37-6-2463	MTW-165-WSW-09-27	Scarred Tree	-	Valid
37-6-2464	MTW-166-WSW-09-42	Isolated Stone Artefact/s	-	Valid
37-6-2465	MTW-167-WSW-09-43	Isolated Stone Artefact/s	-	Valid
37-6-2466	MTW-168-WSW-09-28	Scarred Tree	-	Valid
37-6-2467	MTW-169-WSW-09-29	Scarred Tree	-	Valid
37-6-2468	MTW-170-WSW-09-44	Isolated Stone Artefact/s	-	Valid
37-6-2469	MTW-171-WSW-09-5	Isolated Stone Artefact/s	-	Valid
37-6-2470	MTW-172-WSW-09-45	Isolated Stone Artefact/s	-	Valid
37-6-2471	MTW-173-WSW-09-6	Isolated Stone Artefact/s	Yes	Valid
37-6-2472	MTW-174-WSW-09-6	Isolated Stone Artefact/s	Yes	Valid
37-6-2473	MTW-175-WSW-09-6	Isolated Stone Artefact/s	Yes	Valid

AHIMS No	Place Name	Place Type	PAD	Status
37-6-2474	MTW-176-WSW-09-6	Stone Artefact Scatter	Yes	Valid
37-6-2475	MTW-177-WSW-09-7	Isolated Stone Artefact/s	-	Valid
37-6-2476	MTW-178-WSW-09-68	Isolated Stone Artefact/s	-	Valid
37-6-2477	MTW-179-WSW-09-30	Scarred Tree	-	Valid
37-6-2478	MTW-180-WSW-09-69	Isolated Stone Artefact/s	-	Valid
37-6-2479	MTW-181-WSW-09-31	Scarred Tree	-	Valid
37-6-2480	MTW-182-WSW-09-70	Isolated Stone Artefact/s	-	Valid
37-6-2481	MTW-183-WSW-09-71	Isolated Stone Artefact/s	-	Valid
37-6-2482	MTW-184-WSW-09-11	Stone Artefact Scatter	Yes	Valid
37-6-2483	MTW-185-WSW-09-12	Isolated Stone Artefact/s	-	Valid
37-6-2484	MTW-186-WSW-09-12	Isolated Stone Artefact/s	-	Valid
37-6-2485	MTW-187-WSW-09-12	Isolated Stone Artefact/s	-	Valid
37-6-2486	MTW-188-WSW-09-12	Isolated Stone Artefact/s	-	Valid
37-6-2487	MTW-189-WSW-09-12	Isolated Stone Artefact/s	-	Valid
37-6-2488	MTW-190-WSW-09-57	Isolated Stone Artefact/s	-	Valid
37-6-2489	MTW-191-WSW-09-72	Isolated Stone Artefact/s	-	Valid
37-6-2490	MTW-192-WSW-09-13	Isolated Stone Artefact/s	-	Valid
37-6-2491	MTW-193-WSW-09-73	Isolated Stone Artefact/s	-	Valid
37-6-2492	MTW-194-WSW-09-74	Isolated Stone Artefact/s	-	Valid
37-6-2494	MTW-196-WSW-09-14	Isolated Stone Artefact/s	-	Valid
37-6-2505	MTW-207-WSW-09-18	Isolated Stone Artefact/s	-	Valid
37-6-2506	MTW-208-WSW-09-17	Isolated Stone Artefact/s	-	Valid
37-6-2507	MTW-209-WSW-09-18	Stone Artefact Scatter	-	Valid
37-6-2521	MTW-223-WSW-09-32	Scarred Tree	-	Valid
37-6-2522	MTW-224-WSW-09-53	Isolated Stone Artefact/s	-	Valid
37-6-2523	MTW-225-WSW-09-54	Isolated Stone Artefact/s	-	Valid
37-6-2524	MTW-226-WSW-09-8	Isolated Stone Artefact/s / Stone Source	-	Valid
37-6-2577	MTW-282-WSW-09-63	Isolated Stone Artefact/s	-	Valid
37-6-2578	MTW-283-WSW-09-36	Scarred Tree	-	Valid
37-6-2579	MTW-284-WSW-09-64	Isolated Stone Artefact/s	-	Valid
37-6-2580	MTW-285-WSW-09-37	Scarred Tree	-	Valid
37-6-2581	MTW-286-WSW-09-65	Isolated Stone Artefact/s	-	Valid
37-6-2708	WS12	Isolated Stone Artefact/s	-	Valid
37-6-2709	WS13	Isolated Stone Artefact/s	-	Valid
37-6-2712	WS6	Isolated Stone Artefact/s	-	Valid
37-6-2942	MTW-521	Isolated Stone Artefact/s	-	Valid
37-6-2943	MTW-522	Isolated Stone Artefact/s	-	Valid

Table 19: Details of all Aboriginal cultural heritage places and their current status within the remaining MTW Coal & Allied Owned lands.

Impact management commitments with respect to these other ‘on-site’ Coal & Allied owned lands are outlined in Section 8 below.

8. ABORIGINAL CULTURAL HERITAGE IMPACT MANAGEMENT COMMITMENTS

The numerous development consent processes in which Coal & Allied have been engaged over the last decade throughout the MTW mining area and adjoining Coal & Allied owned lands, along with the structures that have been established with respect Aboriginal community consultation, engagement and heritage management, have seen a responsible working relationship developed with the Aboriginal community of the Upper Hunter Valley in relation to cultural heritage issues. The Aboriginal cultural heritage impact management commitments provided here form part of a longstanding suite of management strategies which have been developed with them through the CHWG.

The Aboriginal cultural heritage impact management commitments which have been developed for the proposals fall into a series of categories as follows:

- the finalisation of the development of an overarching heritage management plan for the MTW mining area (including WML and MTO and therein the proposal areas) and adjoining Coal & Allied owned lands;
- management of Aboriginal cultural heritage within the proposal areas;
- management of Aboriginal cultural heritage located within the proposed Aboriginal cultural heritage conservation areas;
- management of Aboriginal cultural heritage located on other 'on site' Coal & Allied owned lands, including extant places within the current development consent area (DA 300-9-2002-i as modified);
- management of Aboriginal cultural heritage within any 'off site' Coal and Allied Owned lands such as biodiversity conservation offset areas which may be associated with any new development consent; and
- implementation of a program of research known as the Hunter Valley Sand Bodies Research Study focusing on possible Pleistocene occupation.

The management commitments within each of these areas are outlined separately below.

8.1 Integrated Heritage Management Plan

A completed consultation draft HMP 2012 had been provided to the RAPs as part of the previous Warkworth Extension Project approval. This captured existing agreed principles, protocols and processes for Aboriginal cultural heritage management which were also given expression within the Warkworth Mine and MTO A&CHMPs previously settled and agreed in 2004, as well as the provisions of the Rio Tinto Coal Australia CHMS. Coal & Allied commits:

- to reviewing, revising and settling Aboriginal cultural heritage management measures for the proposal area, and
- to the finalisation and implementation of an integrated HMP for the MTW mining area and adjoining Coal & Allied owned lands.

8.2 Warkworth Continuation 2014 Proposal Impact Area

A total of 110 extant places (or remnant portions thereof) containing Aboriginal cultural heritage are located within this area. It is highly likely that all of these will be impacted by the proposed mining development activities. Notwithstanding this, Coal & Allied commits:

- to only implement the agreed impact management measures for those places for which development impacts are unavoidable, with avoidance through design planning being the preferred option;
- the implementation of the agreed impact management measures will be staged over time so that these measures (such as salvage) would be implemented no more than five years in advance of mine operation plan requirements;
- until such time as the agreed impact management measures need to be implemented, all Aboriginal cultural heritage within the area will continue to be managed in accordance with the Warkworth Mine A&CHMP 2004, the provisions of the CHMS, or, upon finalisation, the HMP. Avoidance and physical protection will comprise the key management strategy in this period;
- if and when mitigation becomes necessary, areas containing stone artefacts (as per Table 11) will be managed in accordance with the specific provisions for such objects within the HMP. This will include standard salvage collection measures, which in the case of the four stone artefact scatters (37-6-2359, 2360, 2374 and 2376) will include controlled collections with the assistance of established grids;
- if and when mitigation becomes necessary, the three areas (37-6-2349, 2359 & 2364) noted as having the potential to contain archaeological deposits (i.e. PAD) will be investigated and managed in accordance with the specific provisions for such features within HMP. This will involve sub-surface testing to confirm or otherwise this potential. The results will be submitted to DP&E/OEH;
- if and when mitigation becomes necessary, the three scarred trees (37-6-2307, 2369 and 2379) will be managed in accordance with the specific provisions for such objects within the HMP and the RTCA Scarred Tree Management Procedure. This may include removal and relocation;

- although considerable review of the matter has taken place already, investigations will continue into the feasibility of moving the Site M grinding grooves (37-6-0163). The final management and salvage measures for this place will be settled in consultation with the CHWG, and with DP&E and OEH. Specific settled impact mitigation activities that will be undertaken include:
 - further geotechnical assessment and testing of the suitability for the removal and relocation of all or parts of this place;
 - the removal of soils which surround and cover portions of the place to gain the fullest appreciation of its constituents;
 - the completion of high definition laser scanning (including photography) of the site and its immediate surrounds; and
 - ahead of the completion of the final management and salvage measures for this place, the establishment of a blast monitoring regime to ensure that ongoing mining activities are not having deleterious effects upon the place;
- any other currently unidentified Aboriginal cultural heritage place, or currently unidentified place-type, which may come to light as part of the implementation of impact management measures, will also be managed in accordance with the relevant specific provisions for such places within the HMP. Such will be reported to DP&E / OEH ahead of the implementation of the agreed impact management measures;
- the Aboriginal community will be involved in the implementation of all impact management measures consistent with the existing CHWG processes and protocols with such being formalised and conducted under a Terms of Reference; and
- all Aboriginal cultural heritage objects collected will be curated and stored in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. Until such time as an adequate facility is in place within the WBACHCA, objects will be stored in the secure facility at Hunter Valley Services.

8.3 Mount Thorley Operations 2014 Proposal Area

A total of 48 extant places (or remnant portions thereof) containing Aboriginal cultural heritage are located within this area. With regard the continuation of mining activities, and the management of the Aboriginal cultural heritage within, Coal & Allied commits:

- to complete the reassessment surveys of the remaining undisturbed portion of the Mount Thorley Operations 2014 proposal area along Loder Creek with a view to determining the area to be included in the proposed Loder Creek ACHCA;

- all Aboriginal cultural heritage within the area (both as currently known and as may be identified from the completion of the reassessment survey) will continue to be managed in accordance with the MTO A&CHMP 2004, the provisions of the Rio Tinto Coal Australia CHMS, or, upon finalisation, the HMP;
- places assessed as vulnerable to unintended harm owing to the proximity of roads or tracks or other operational infrastructure, will be appropriately buffered and barricaded in accordance with existing protection procedures and protocols as outlined within the MTO A&CHMP 2004, the provisions of the Rio Tinto Coal Australia CHMS or, upon finalisation, the HMP;
- all Aboriginal cultural heritage places within these areas will be monitored in accordance with such procedures and protocols as outlined within the A&CHMP, the provisions of the Rio Tinto Coal Australia CHMS or, upon finalisation, the HMP; and
- should mine plans change and any additional and currently undisturbed portions of the Mount Thorley Operations 2014 proposal area (excluding the Loder Creek ACHCA) are to be impacted, the following shall apply:
 - the implementation of the agreed impact management measures will only be undertaken for those places for which development impacts are unavoidable, with avoidance through design planning being the preferred option elsewhere;
 - areas containing stone artefacts will be managed in accordance with the specific provisions for such objects within the HMP. This will include standard salvage collection measures, which in the case of stone artefact scatters will include controlled collections with the assistance of established grids;
 - the areas noted as having the potential to contain archaeological deposits (i.e. PAD) will be investigated and managed in accordance with the specific provisions for such features within the HMP. This will involve sub-surface testing to confirm or otherwise this potential. The results will be submitted to DP&E / OEI;
 - the other currently unidentified Aboriginal cultural heritage place, or currently unidentified place-type, which may come to light as part of the implementation of impact management measures, will also be managed in accordance with the relevant specific provisions for such places within the HMP. Such will be reported to DP&E / OEI ahead of the implementation of the agreed impact management measures;
 - the Aboriginal community will be involved in the implementation of all impact management measures consistent with the existing CHWG processes and protocols with such being formalised and conducted under a Terms of Reference; and
 - all Aboriginal cultural heritage objects collected will be curated and stored in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. Until such time as an adequate facility is in place, objects will be stored in the secure facility at Hunter Valley Services.

8.4 Wollombi Brook Aboriginal Cultural Heritage Conservation Area

Coal & Allied remains committed to the establishment of the WBACHCA and reconfirms as follows:

- the establishment of the WBACHCA in perpetuity for the conservation and management of Aboriginal cultural heritage places and values. In particular, it will provide for the protective management and cultural maintenance of the Bulga bora ground and associated cultural landscape and other places;
- the WBACHCA will be protected permanently from all mining (open cut, underground, highwall), exploration drilling and associated development disturbance;
- will include the expanded areas as shown in Figure 3;
- the WBACHCA will be managed in accordance with a specific management plan developed in consultation with the CHWG and other stakeholders including DP&E and OEH. This plan will include the following matters:
 - the establishment of strictly controlled non-access zones and protocols around culturally sensitive areas as determined in consultation with the CHWG;
 - the establishment of areas for use by the Aboriginal community for cultural and community purposes;
 - the establishment of areas for active Aboriginal cultural heritage and landscape management, including vegetation rehabilitation;
 - the processes and protocols by which ongoing Aboriginal community access to the WBACHCA can be facilitated; and
 - procedures for access and works for maintenance of existing infrastructure, land management, environmental compliance, land management and safety requirements;
- the Aboriginal community, through a WBACHCA management committee, will oversee the implementation of the management plan;
- Coal & Allied will continue to ensure an active Aboriginal community role in both Aboriginal cultural heritage and environmental management activities for the WBACHCA with this including training and employment development opportunities; and
- engage with Wambo Coal Pty Ltd with a view to developing a collaborative management protocol for highly significant areas associated with and immediately adjacent the Bulga bora ground (which has been identified as containing portions of the extended Bulga bora ground precinct and associated places) situated on Wambo Coal lands.

8.5 Proposed Loder Creek Aboriginal Cultural Heritage Conservation Area

Coal & Allied is committed to the establishment of the Loder Creek ACHCA as follows:

- the establishment of the Loder Creek ACHCA in perpetuity for the conservation and management of Aboriginal cultural heritage places and values. in particular, it will provide for the protective management and cultural maintenance of the remaining undisturbed portion of Loder Creek within the Mount Thorley Operations 2014 proposal area;
- the Loder Creek ACHCA will be protected permanently from all mining (open cut, underground, highwall), exploration drilling and associated development disturbance;
- the Loder Creek ACHCA will be managed in accordance with a specific management plan developed in consultation with the CHWG and other stakeholders including DP&E and OEH.

This plan will include the following matters:

- the establishment of strictly controlled non-access zones and protocols around culturally sensitive areas as determined in consultation with the CHWG;
- the establishment of areas for use by the Aboriginal community for cultural and community purposes;
- the establishment of areas for active Aboriginal cultural heritage and landscape management, including vegetation rehabilitation;
- the processes and protocols by which ongoing Aboriginal community access to the Loder Creek ACHCA can be facilitated; and
- procedures for access and works for maintenance of existing infrastructure, land management, environmental compliance, land management and safety requirements;
- the Aboriginal community, through a Coal & Allied ACHCA management committee, will oversee the implementation of the management plan; and
- Coal & Allied will continue to ensure an active Aboriginal community role in both Aboriginal cultural heritage and environmental management activities for the Loder Creek ACHCA with this including training and employment development opportunities.

8.6 Other ‘On Site’ Coal & Allied Owned Lands

A range of Aboriginal cultural heritage places are located throughout these areas. With regard these lands, Coal & Allied commits that:

- all Aboriginal cultural heritage within these areas will continue to be managed for long-term protection in accordance with the relevant A&CHMP, the provisions of the CHMS, or, upon finalisation;

- places assessed as vulnerable to unintended harm owing to their proximity to roads or tracks or other operational infrastructure will be appropriately buffered and barricaded in accordance with existing protection procedures and protocols as outlined within the relevant A&CHMP, the provisions of the CHMS or, upon finalisation, the HMP; and
- all Aboriginal cultural heritage places within these areas will be monitored in accordance with such procedures and protocols as outlined within the relevant A&CHMP, the provisions of the CHMS or, upon finalisation, the HMP.

8.7 ‘Off Site’ Coal & Allied Owned Lands (Biodiversity Offsets)

In the event that any Coal & Allied managed ‘off site’ biodiversity offset areas are required for the proposals, Coal & Allied commits to the following management measures for Aboriginal cultural heritage:

- the inclusion of Aboriginal cultural heritage management processes, aligned with biodiversity management principles, within separate management plans;
- processes that will provide for the identification, conservation and enhancement of Aboriginal cultural heritage values (both archaeological and cultural) of these areas;
- the provision of regulated access by the Aboriginal community to these areas for cultural purposes;
- the establishment of a Cultural Heritage Zoning Scheme for each area which details the current status and management actions / responsibilities for all parts of each area; and
- the establishment, through the CHWG, of the Offsets Management Group, who will be responsible for:
 - providing direct input into the development of the Aboriginal cultural heritage provisions for each plan;
 - overseeing the conservation and management of Aboriginal cultural heritage within these areas in a culturally-appropriate fashion; and
 - maintaining a direct role in the management of Aboriginal community access to these areas.

8.8 Hunter Valley Sand Bodies Research Study

As outlined in Section 5.10 above, the consent conditions for the now disapproved Warkworth Extension Project (PA 09_0202) also included a condition with respect the undertaking of what was termed the Hunter Valley Sand Bodies Research Study. With respect to the present Warkworth Continuation 2014 proposal, Coal & Allied remains committed to the implementation of this research program, the research design and implementation action plan for which was previously developed by an expert panel with input from DP&E and OEH, and which was subsequently approved by DP&E.

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Appendix 1

Aboriginal Community Consultation Undertaken for the Proposals

Appendix 1.1: Consultation Register

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
CHWG Meeting	7 April 2014	9 - 11 April 2014	7 May 2014	<u>Warkworth Continuation 2014 proposal (DP&E EP&A, OEH ACHCR 2010)</u> <ul style="list-style-type: none"> Discussion & review of long term approval proposal for Warkworth Mine, including: scope of proposal , Aboriginal cultural heritage impact assessment & proposed management measures Feedback on CHWG EIS site tour of the MTW proposal area 	<u>Mount Thorley Operations 2014 proposal (DP&E EP&A, OEH ACHCR 2010)</u> <ul style="list-style-type: none"> Discussion & review of long term approval proposal for Mount Thorley Mine, including: Scope of proposal Aboriginal cultural heritage impact assessment proposed management measures. Feedback on EIS site tour of the MTO proposal area 	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage David Cameron - RTCA Manager Cultural Heritage Scott L'Oste-Brown - CQCHM Georgia Bennett – RTCA Advisor Cultural Heritage Noel Downs – WLALC Suzie Worth – WLALC Rhonda Ward – Ungooroo Cultural & Community Services Inc. Rhoda Perry – Upper Hunter Wonnarua Council <p>[Note – email received on 6/5/14 from Scott Franks on behalf of the PCWP native title claimants advising that they ‘do not support the modified approval of this operation...’]</p> <p>[Note - email response to Scott Franks made by David Cameron on 11/05/14 acknowledging his email and its inclusion in the consultation section of the Aboriginal Heritage impact assessment for the Warkworth Continuation 2014 EIS].</p>
CHWG Site	9 April 2014	n/a	29 April 2014	<u>Warkworth Continuation</u>	<u>Mount Thorley Operations</u>	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
Visit				<u>2014 proposal</u> ; site tour of cultural heritage sites in the proposal area and the Wollombi Brook ACH conservation area, and Springwood and Newport ACH conservation areas.	<u>2014 proposal</u> site tour	Cultural Heritage <ul style="list-style-type: none"> • Georgia Bennett – RTCA Advisor Cultural Heritage • Luc Daigle – SCT • Rhonda Griffiths - HVAC • Suzie Worth - WLALC • Gary Perkins – Divine Diggers Aboriginal Cultural Consultants • Les Atkinson - <u>Jarban & Mugrebea</u>
CHWG Meeting	19 March 2014	Week of 17 March 2014	3 April 2014	<u>Warkworth Mine Continuation 2014 Proposal</u> <ul style="list-style-type: none"> • Discussion and review of long term approval proposal and review of Aboriginal cultural heritage impact assessment process for EIS 	<u>Mount Thorley Operations Continuation 2014 Proposal</u> <ul style="list-style-type: none"> • Discussion and review of long term approval proposal and review of Aboriginal cultural heritage impact assessment process for EIS 	<ul style="list-style-type: none"> • Joel Deacon – RTCA Specialist Cultural Heritage • David Cameron - RTCA Manager Cultural Heritage • Scott L'Oste-Brown - CQCHM • Georgia Bennett – RTCA Advisor Cultural Heritage • Deslee Matthew – Deslee Talbot Consultants • Vicky Slater – Kawul Cultural Services • Noel Downs – WLALC • Tim Miller - WLALC • George Sampson - Cacatua General Services • Mitchum Neave – HECMO • Des Hickey – Wattaka Wonnarua Cultural Consultants Service

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> • Kerry Boyd – HECMO • Rhonda Ward – Ungooroo Cultural & Community Services Inc. • Les Atkinson – Jarban & Mugreba <p>[Note – email response received on 25/3/14 from Scott Franks registering interest as RAP for PCWP native title claimants but advised the PCWP would not participate in CHWG consultation process because they ‘do not support or allow other people making comment or decisions on or for our country we also advise that we will not attend a meeting with other Aboriginal people that are not a part of our Registered Native Title Claim Group...’]</p>
CHWG Meeting		5 - 7 February 2014	19 February 2014	<p><u>Warkworth Coal Mine Development Consent</u> (DA-300-9-2002-i). Modified approval for Minor Extension to West Pit. Review of AHIP approval.</p> <ul style="list-style-type: none"> • RAPs inspection of Bulga bora ground visit 	<p><u>Mount Thorley/Bulga Ramp 22 Sedimentation Dam AHIP Application</u> (DA 34/95)</p>	<ul style="list-style-type: none"> • Joel Deacon – RTCA Specialist Cultural Heritage • David Cameron - RTCA Manager Cultural Heritage • Margaret Matthews – Aboriginal Native Title Consultants • John Matthews – Aboriginal Native Title Consultants • Clifford Johnson – Hielamon • Arthur Fletcher – Wonn 1 • Suzie Worth – WLALC

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> • Gary Perkins – Divine Diggers • Kevin Sampson – Bawurra Consultants • Les Field - L.J Culture Management • Tony Griffiths - T & G Culture Consultants • Rhonda Ward – Ungooroo Cultural & Community Services Inc. • Tracey Skene – Culturally Aware • Maree Waugh - Wallangan Cultural Services • Samuel Cameron - Luke Cameron Cultural Management • Laurie Perry - Wonnarua Nation Aboriginal Corporation • Deslee Matthews – Deslee Talbot Consultants • Steven Hickey – Widescope • Luke Hickey - HVCS • Des Hickey – Wattaka • Mitchum Neave - Hecmo
CHWG Meeting	14 November 2013	15, 19, 20, 21 November 2013	5 December 2013	<u>Warkworth Coal Mine Development Consent</u> (DA-300-9-2002-i). <ul style="list-style-type: none"> • Modification proposal for Minor Extension to West Pit & lodgement 	<u>Mount Thorley/Bulga Ramp 22 Sedimentation Dam AHIP Application</u> (DA 34/95). <ul style="list-style-type: none"> • Summary of results of assessment survey. 	<ul style="list-style-type: none"> • Joel Deacon – RTCA Specialist Cultural Heritage • David Cameron - RTCA Manager Cultural Heritage • Georgia Bennett – RTCA Graduate Cultural Heritage

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<p>of EA.</p> <ul style="list-style-type: none"> Review of previous & current consultation process re: management of ACH in West Pit EA area. Review of results (draft Aboriginal Cultural Heritage Assessment Report) of previous ACH assessments & supplementary investigations for EA area. AHIP. Bulga Bora Ground Community Visit/Meeting Proposal 	<ul style="list-style-type: none"> Review of development impacts on ACH. Review of draft report and discussion of management measures for AHIP application <p><u>Mount Thorley Development Consent condition 34</u> preparation & implementation of a HMP.</p>	<ul style="list-style-type: none"> Rhonda Griffiths - Hunter Valley Aboriginal Corporation Jenny-Lee Chambers – JLC Cultural Services Gary Perkins – Divine Diggers Aboriginal Cultural Consultants Rhoda Perry – Upper Hunter Wonnarua Council Incorporated Noel Downs – Wanaruah Local Aboriginal Lands Council Maree Waugh – Wallangan Cultural Services Des Hickey – Wattaka Wonnarua Cultural Consultants Service Rod Hickey – Kawul Cultural Services Vicky Slater -Kawul Cultural Services
CHWG Meeting	30 July 2013	1 – 2 August 2013	22 August 2013	<p><u>Warkworth Coal Mine Development Consent</u> (DA-300-9-2002-i).</p> <ul style="list-style-type: none"> Review of potential requirement for an Aboriginal Heritage Impact Permit for Battle Axe Pit development under 	<p><u>Mount Thorley Development Consent</u> (DA 34/95) Modification.</p> <ul style="list-style-type: none"> Update on status of consent condition 34, & status of WML Archaeological & Cultural Heritage Management Plan 	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage David Cameron - RTCA Manager Cultural Heritage Georgia Bennett – RTCA Graduate Cultural Heritage Gillian Goode – RPS Paul Amidy – Bulga Coal Rhonda Griffiths – Hunter Valley

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				WML Archaeological & Cultural Heritage Management Plan 2003.	<p>2003.</p> <p><u>Mount Thorley/Bulga Ramp 22</u> Sedimentation Dam AHIP Application (DA 34/95).</p> <ul style="list-style-type: none"> Briefing by RPS on results of assessment survey to inform an AHIP assessment report. Review of development impacts, CH management measures for managing development impacts. 	<p>Aboriginal Corporation</p> <ul style="list-style-type: none"> Laurie Perry – Wonnarua Nation Aboriginal Corporation Maree Waugh- Wallangan Cultural Services Noel Downs – Wanaruah Local Aboriginal Lands Council Allen Paget - Ungooroo Aboriginal Corporation Kerryn Boyd – HECMO Consultants Jenny Chambers - JLC Cultural Services Deslee Matthews – Deslee Talbot Consultants Arthur Fletcher - Wonn 1 Gary Perkins - Divine Diggers Margaret Matthews – Aboriginal Native Title Consultants John Matthews – Aboriginal Native Title Consultants Gay Horton – Muswellbrook Culture Consultants Martin Salavador
CHWG Meeting	4 February 2013	6 – 8 February 2013	7 March 2013	<p><u>Warkworth Extension Project Approval</u> (PA_09_0202).</p> <ul style="list-style-type: none"> Detailed review of 	<p><u>Mount Thorley Development Consent</u> (DA 34/95) Modification</p> <ul style="list-style-type: none"> Review of final draft 	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage David Cameron - RTCA Manager Cultural Heritage

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<p>Aboriginal Cultural Heritage consent conditions, including:</p> <ul style="list-style-type: none"> • (53, 54 & 55) Preparation & implementation of Aboriginal Heritage Conservation Strategy, including establishment of Wollombi Brook ACH Conservation Area and review possible draft terms of Conservation Agreement under section 69 of NP&W Act – Submitted 30 October • (64) Preparation & implementation of Heritage Management Plan for the project – Review of final draft • Summary update on outcomes of initial WBACHCA Steering Group meetings held 6th Sept, 15th Oct, 15th Nov (53, 54, 55) • Warkworth Extension initial management & 	<p>of consent condition 34 (HMP)</p> <ul style="list-style-type: none"> • Review of Mount Thorley/Bulga Mine shared boundary proposed land use – ACH sites recording & management requirements • Discussion of potential AHIP application for construction of sediment dam in vicinity of the Mount Thorley/Bulga Mine shared boundary 	<ul style="list-style-type: none"> • Gary Pappin – RTCA Advisor Cultural Heritage • Georgia Bennett – RTCA Graduate Cultural Heritage • Rhonda Griffiths – Hunter Valley Aboriginal Corp • Rhoda Perry – Upper Hunter Wonnarua Council Incorporated • Laurie Perry – Wonnarua Nation Aboriginal Corporation • Maree Waugh- Wallangan Cultural Services • Suzie Worth – Wanaruah Local Aboriginal Lands Council • Steven Hickey - Widescope Indigenous Group • Allen Paget - Ungooroo Aboriginal Corporation • Vicky Slater – Kawul Cultural Services • Rod Hickey – Kawul Cultural Services • Les Atkinson - Jarban & Mugrebea • Jenny Chambers - JLC Cultural Services

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				mitigation program		
CHWG Meeting	19 November 2012	Week of 19 November 2012	6 December 2012	<u>Warkworth Extension Project Approval</u> (PA_09_0202). <ul style="list-style-type: none"> Review of ACH consent conditions including: <ul style="list-style-type: none"> (53, 54 & 55) Preparation & implementation of Aboriginal Heritage Conservation Strategy, including establishment of Wollombi Brook ACH Conservation Area and review possible draft terms of Conservation Agreement under section 69 of NP&W Act – Submitted 30 October (61) Interim results of Archaeological Excavation Program of Warkworth Sand Sheet – Conducted September 2012 (64) Preparation & implementation of Heritage Management 	<u>Mt Thorley Development Consent</u> (DA 34/95) Modification. <ul style="list-style-type: none"> Review of consent condition 34. 	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage Scott L'Oste -Brown - CQCHM Gary Pappin – RTCA Advisor Cultural Heritage Georgia Bennett – RTCA Graduate Cultural Heritage Noel Downs – WLALC Rhoda Perry – UHWC Rhonda Griffiths - Hunter Valley Aboriginal Corp George Sampson – Cacatua Culture Consultant Annette Dunstan - Ungooroo Aboriginal Corp Laurie Perry – Wonnarua Nation Aboriginal Corp Les Atkinson – Jarban & Mugrebea

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				Plan for the project <ul style="list-style-type: none"> • Summary update on outcomes of initial WBACHCA Steering Group meetings held 6th Sept, 15th Oct, 15th Nov (53, 54, 55) • Warkworth Extension initial management & mitigation program 		
CHWG Meeting	10 September 2012	Week of 10 September 2012	4 October 2012	<u>Warkworth Extension Project Approval</u> <ul style="list-style-type: none"> • Review of Aboriginal Cultural Heritage consent conditions, including: <ul style="list-style-type: none"> - (53, 54 & 55) Preparation & implementation of Aboriginal Heritage Conservation Strategy, including establishment of Wollombi Brook ACH Conservation Area and review possible draft terms of Conservation Agreement under section 69 of NP&W Act, - (61) Methodology for Archaeological 	<u>Mt Thorley Development Consent (DA 34/95) Modification.</u> <ul style="list-style-type: none"> • Review of consent condition 34. 	<ul style="list-style-type: none"> • Joel Deacon – RTCA Specialist Cultural Heritage • Dave Cameron – RTCA Manager Cultural Heritage • Scott L'Oste -Brown - CQCHM • Gary Pappin – RTCA Advisor Cultural Heritage • Georgia Bennett – RTCA Graduate Cultural Heritage • Arthur Fletcher – Wonn 1 • Allen Paget – Ungooroo Aboriginal Corp • Noel Downs – WLALC • Cliff Johnson – Heilamon Cultural Consultants • Deslee Matthews – Deslee Talbot Consultants • John and Margaret Matthews – ANTC • George Sampson – Cacatua Culture

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<p>Excavation Program of Warkworth Sand Sheet</p> <ul style="list-style-type: none"> - (64) Preparation & implementation of Heritage Management Plan for the project. • Review of schedule for heritage activities required under these Approval conditions: - Outcomes of initial WBACHCA Steering Group meeting held 6th Sept (53, 54, 55) - Interim results from Warkworth Sand Sheet Further Archaeological Excavation Program (61) • Warkworth Extension archaeological excavations • Review of any new expressions of interest in participation in this Steering Group 		<p>Consultant</p> <ul style="list-style-type: none"> • Terry Mathews – Breeza Plains • Colleen Stair – • Martin Salvador • Brian Horton - Muswellbrook Culture Consultants
CHWG Meeting	25 July 2012	Week of 23 July 2012	16 August 2012	<p><u>Warkworth Extension Project Approval (PA 09 0202)</u></p> <ul style="list-style-type: none"> • Detailed review of Aboriginal Cultural Heritage consent 	<p><u>Mt Thorley Development</u> Consent (DA 34/95). Review of consent condition 34.</p>	<ul style="list-style-type: none"> • Joel Deacon – RTCA Specialist Cultural Heritage • Dave Cameron – RTCA Manager Cultural Heritage • Scott L'Oste -Brown - CQCHM

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<p>conditions, including:</p> <ul style="list-style-type: none"> - (53, 54 & 55) Preparation & implementation of Aboriginal Heritage Conservation Strategy, including establishment of Wollombi Brook ACH Conservation Area and review possible draft terms of Conservation Agreement under section 69 of NP&W Act, - (59 & 60) Undertaking a Hunter Valley Sand Bodies Research Study - (61) Methodology for Archaeological Excavation Program of Warkworth Sand Sheet - (64) Preparation & implementation of Heritage Management Plan for the project. • Review of schedule for heritage activities required under these Approval conditions • Warkworth Extension initial management & mitigation program 		<ul style="list-style-type: none"> • Gary Pappin – RTCA Advisor Cultural Heritage • Georgia Bennett – RTCA Graduate Cultural Heritage • Tahlea Walton - RTCA • Allen Paget – Ungooroo Aboriginal Corp • Noel Downs – WLALC • Rhoda Perry – UHWC • Rhonda Griffiths – HVAC • Nerida Saunders – KL.KG Saunders Trading • Steven Hickey - Widescope • Laurie Perry -WNAC • Luke Hickey – Hunter Valley Cultural Surveying • Cliff Johnson – Heliamon Cultural Consultants • Corey Matthews - • Des Hickey – Wattaka Wonnarua Cultural Consultants • Norm Archibald - • George Sampson – Cacatua Culture Consultants • Arthur Fletcher – Wonn 1

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
CHWG Meeting	20 April 2012	Week of 23 April 2012	17 May 2012	<u>Warkworth Extension Project Approval (PA_09_0202)</u> <ul style="list-style-type: none"> Confirmation of PAC approval & review of Heritage conditions, including AHCS & HMP Detailed review of methodology for initial Archaeological Excavation Program of Warkworth Sand Sheet for 2012/13 MOP areas. Review of Wollombi Brook ACH conservation area project approval consent requirements Review of schedule for Heritage activities required under Development Consent <u>Warkworth Extension initial management & mitigation program</u> (field work) <ul style="list-style-type: none"> Warkworth ex-Hawkes property – survey of buffer lands (field 	n/a	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage Dave Cameron – RTCA Manager Cultural Heritage Gary Pappin – RTCA Cultural Heritage Advisor Georgia Bennett – RTCA Graduate Cultural Heritage Allen Paget – Ungooroo Aboriginal Corp Noel Downs – WLALC Rhoda Perry – UHWC Rhonda Griffiths – HVAC Tammy Knox – Bunda Consultants Nerida Saunders – KL.KG Saunders Trading Deslee Matthews – Deslee Talbot Consultants Kevin Sampson – Bawurra Consultants Steven Hickey - Widescope

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				work)		
CHWG Meeting	10 February 2012	15 – 17 February 2012	8 March 2012	<u>Warkworth Extension Project Approval (DP&E EP&A Part 3A)</u> <ul style="list-style-type: none"> • Confirmation of project approval from PAC & review of Heritage conditions • Detailed review of management measures required for interim initial Archaeological Excavation Program & Management Mitigation Plan for 2012/13 MOP areas. • Review of schedule for Heritage activities required under Development Consent • Warkworth ex-Hawkes property – survey of buffer lands (field work) 	<u>MTO loader/Kangaroo Downs area – survey of buffer lands</u> (field work)	<ul style="list-style-type: none"> • Joel Deacon – RTCA Specialist Cultural Heritage • Gary Pappin – RTCA Advisor Cultural Heritage • Georgia Bennett – RTCA Graduate Cultural Heritage • Scott L'Oste Brown – CQCHM • Alieria French - Alieria French Trading • George Sampson - Cacatua Culture • Arthur Fletcher – Wonn 1 • David French – HVNCRM • Noel Downs – WLALC • Rhonda Griffiths – HVAC • Allen Paget – Ungooroo Aboriginal Corp • Rod Hickey – Kawul • Aaron Slater – Warragil CS • Norm Archibold – Yinarr Cultural Services • John Simpson – Dynamic Spatial Solutions • Des Hickey – Wattaka • Luke Hickey – HVCS • John and Margaret Matthews – ANTC • Rhoda Perry – UHWC • Jeff Matthews – Crimson Rosie

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> Deslee Matthews – Deslee Talbot Consultants
CHWG Meeting	22 November 2011	23 – 25 November 2011	15 December 2011	<u>Warkworth Coal Mine (DA-300-9-2002-i) Stage 3 AHIP Application (OEI ACHCR 2010)</u> <ul style="list-style-type: none"> Confirmation of receipt of AHIP & circulation of permit to Aboriginal stakeholders, as per conditions Detailed review of management and mitigation measures implemented Update on other project approvals – Warkworth Coal Mine Extension Environmental Assessment (DoP EP&A Part 3A) Survey of additional buffer lands 	<u>MTO loader/Kangaroo Downs area – survey of buffer lands</u>	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage Gary Pappin – RTCA Advisor Cultural Heritage Georgia Bennett – RTCA Graduate Cultural Heritage Scott L'Oste Brown – CQCHM Luke Godwin - CQCHM Rhonda Griffiths – HVAC Laurie Perry – WNAC Lee Perry – Upper Hunter Wonnarua Council Luke Hickey – HVCS Des Hickey – Wattaka Suzie Worth – Lands Council Arthur Fletcher – Kauwul trading as Wonn 1
CHWG Meeting	12 August 2011	Week of 15 August 2011	8 September 2011	<u>Warkworth Coal Mine (DA-300-9-2002-i) Stage 3 AHIP Application (OEI ACHCR 2010)</u> <ul style="list-style-type: none"> Confirmation of 	<u>MTO loader/Kangaroo Downs area – survey of buffer lands</u>	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage Dave Cameron – RTCA Cultural Heritage Manager Peter Pichler – RTCM Riversdale

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<p>submission to OEH & circulation of submission documents to Aboriginal stakeholders, as per ACHCR</p> <ul style="list-style-type: none"> Detailed review of management and mitigation measures to be implemented and construction schedule Update on other project approvals – Warkworth Coal Mine Extension Environmental Assessment (DoP EP&A Part 3A) Survey of buffer lands – Ex-Hawkes property 		<ul style="list-style-type: none"> Rhonda Griffiths – HVAC Laurie Perry – WNAC Rhoda Perry – UHWC George Sampson – Cacatua Ashley Sampson - Cacatua Desley Matthews - DTC Travis Matthews – RNMC Luke Hickey – HVCS Norm Archibald – Yinarr Kathie Kinchella – <u>Yinarr</u> Des Hickey - Wattaka
CHWG Meeting	11 April 2011	14 -15 April 2011	12 May 2011	<p><u>Warkworth Coal Mine (DA-300-9-2002-i) Stage 3 AHIP Application Methodology & Report (OEH ACHCR 2010)</u></p> <ul style="list-style-type: none"> Review of stakeholder feedback on draft AHIP application assessment and mitigation methodology report and ACHMP sites 	n/a	<ul style="list-style-type: none"> Joel Deacon – RTCA Specialist Cultural Heritage Eleanor Cooper – RTCA Cultural Heritage Advisor Scott L’Oste Brown – CQCHM Barry Stair – Giwiirr Colleen Stair – Bullem Bullem Arthur Fletcher – Wonn1 Contracting Noel Downs – Wanaruah LALC Rhonda Griffiths – HVAC

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<p>management procedures</p> <ul style="list-style-type: none"> Detailed review of management and mitigation measures to be implemented and construction schedule <p><u>Warkworth Coal Mine Extension Environmental Assessment (DoP EP&A Part 3A)</u></p>		<ul style="list-style-type: none"> Allen Paget – Ungooroo Aboriginal Corporation John Matthews – HVCC Gay Horton – MCC Margaret Matthews – ANTC Briana Matthews – UHHC Laurie Perry – WNAC Darrel Matthews – UHHC Rhoda Perry – UHWC Cliff Matthews - Mingga Sheryl Matthews – Carrawonga consultants
CHWG Meeting	4 March 2011	Week of 7 March 2011	24 March 2011	<p><u>Warkworth Coal Mine (DA-300-9-2002-i) Stage 3 AHIP Application Methodology & Report (DECCW ACHCR 2010)</u></p> <ul style="list-style-type: none"> Presentation of AHIP application assessment and mitigation methodology report Review of the ACHMP sites management procedures Detailed review of management and mitigation measures to be implemented and 	n/a	<ul style="list-style-type: none"> Dr David Cameron – RTCA Principal Advisor Cultural Heritage Eleanor Cooper – RTCA Cultural Heritage Advisor Joel Deacon – RTCA Specialist Cultural Heritage NSW Scott L’oste-Brown – CQCHM Donna Sampson? – Cacatua Culture Consultants Rhonda Griffiths – Hunter Valley Aboriginal Corporation Noel Downs – Wannaruah Local Aboriginal Lands Council Rhoda Perry – Upper Hunter Wonnarua Council

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				construction schedule <u>Warkworth Coal Mine Extension Environmental Assessment (DoP EP&A Part 3A)</u>		<ul style="list-style-type: none"> • Laurie Perry – Wonnarua Nation Aboriginal Corporation • Alen Pages – Ungooroo Aboriginal Corporation
CHWG Meeting	10 January 2011	19 – 21 January 2011	10 February 2011	<u>Warkworth Coal Mine (DA-300-9-2002-i) Stage 3 AHIP Methodology (DECCW ACHCR 2010) MTW Extension Environmental Assessment (DoP EP&A Part 3A)</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Eleanor Cooper – RTCA Cultural Heritage Advisor • Joel Deacon – RTCA Cultural Heritage Advisor • Phil Shiner – RTCA Graduate Cultural Heritage • Luke Hickey – Hunter Valley Cultural Surveying • Mark Hickey – Kayaway Eco-cultural & Heritage Services • Steven Hickey – Widescope Indigenous Group • Kathie Kinchela – Yinarr Cultural Services • Noel Downs – Wanaruah Local Aboriginal Land Council • Arthur Fletcher – Wonn1 Contracting • George Sampson – Cacatua Cultural Consultants • Lloyd Matthews – Bullem Bullem

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						<ul style="list-style-type: none"> • Paulette Ryan – Hunter Traditional Owner Environmental Services • Pansy Hickey
CHWG Workshop & Meeting	3 November 2010 (letter to administrative co-ordinator) 6 September 2010	3 – 5 November 2010	25 November 2010	<u>MTW Extension Environmental Assessment (DoP EP&A)</u> <ul style="list-style-type: none"> • Wollombi Brook Aboriginal Cultural Heritage Conservation Area - management plan discussions • PN10 Grinding Groove relocation 	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Eleanor Cooper – RTCA Cultural Heritage Advisor • Joel Deacon – RTCA Cultural Heritage Advisor • Rebecca Yit – RTCA Cultural Heritage Advisor • Rachel Mapson – RTIO Heritage Advisor • Dan Gillespie – Central Queensland Cultural Heritage Management • Michael Slack – Scarp Archaeology • Helen Selimiotis – Scarp Archaeology • Mark Hickey – Kayaway Eco-cultural & Heritage Services • Kathie Kinchela – Yinarr Cultural Services • Wayne French – Yarrawalk • Colleen Stair – Valley Culture • Gay Horton – Muswellbrook Culture Consultants • Margaret Matthews – Aboriginal Native Title Consultants

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						<ul style="list-style-type: none"> • John Matthews – Hunter Valley Culture Consultants • Darrel Matthews – Upper Hunter Heritage Consultants • Rod Hickey – Hunter Traditional Owner Services • Georgina Berry – Upper Hunter Wonnarua Council • Rhonda Ward – Ungooroo Cultural & Community Services • Des Hickey – Wattaka Wonnarua Cultural Consultants Service • Joshua Hickey – Hunter Valley Cultural Surveying • Noel Downs – Wanaruah Local Aboriginal Land Council • Arthur Fletcher – Wonn1 Contracting • George Sampson – Cacatua Cultural Consultants • Allen Paget – Ungooroo Aboriginal Corporation • Maree Waugh – Wonnarua Nation Aboriginal Corporation • Cliff Matthews – Mingga Consultants • Justin Matthews – Carrawonga Consultants • Rhoda Perry – Upper Hunter

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						Wonnarua Council <ul style="list-style-type: none"> • Scott Franks – Yarrawalk • Rhonda Griffiths – Hunter Valley Aboriginal Corporation • Michele Stair – Giwiir Consultants • Lloyd Matthews – Bullem Bullem • Tracey Skene – Culturally Aware • Tom Miller – Lower Hunter Wonnarua Council
CHWG site tour	3 November 2010 (letter to administrative co-ordinator)	3 – 5 November 2010	26 November 2010	<u>Site tour to Wollombi Brook Aboriginal Cultural Heritage Conservation Area and Bulga Farm Areas</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Eleanor Cooper – RTCA Cultural Heritage Advisor • Joel Deacon – RTCA Cultural Heritage Advisor • Rebecca Yit – RTCA Cultural Heritage Advisor • Mark Nolan – RTCA • Rachel Mapson – RTIO Heritage Advisor • Dan Gillespie – Central Queensland Cultural Heritage Management • Sarah Paddington - DECCW • Michelle Bruce – DECCW • John Treadgold – DECCW • Kylie Seretis - DoP • Colleen Stair – Valley Culture

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						<ul style="list-style-type: none"> • Wayne French – Yarrawalk Enterprises • Scott Franks – Yarrawalk Enterprises • Margaret Matthews - Aboriginal Native title consultants • Des Hickey - Wattaka Wonnarua Cultural Consultants Service • Rhonda Griffiths - Hunter Valley Aboriginal Corporation • Georgina Berry - Upper Hunter Wonnarua Council • Allen Paget - Ungooroo Aboriginal Corporation • Rhonda Ward - Ungooroo Cultural and Community Services • Darrel Matthews- Upper Hunter Heritage Consultants • Clifford Matthews- Mingga Consultants • Michele Stair - Giwiir Consultants • John Matthews - Hunter Valley Culture consultants • Arthur Fletcher – Wonn 1 • Joshua Hickey - Hunter Valley Cultural Surveying • George Sampson - Cacatua Culture Consultants

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> • Lloyd Matthews - Bullem Bullem • Tom Miller - Lower Hunter Wonnarua Council • Maree Waugh - Wonnarua Nation Aboriginal Corporation • Mark Hickey - Kayaway eco-cultural and heritage services • Justin Matthews - Carrawonga Consultants • Rod Hickey - Hunter Traditional Owner Services • Gay Horton - Muswellbrook Culture consultants • Noel Phillips • David Swan • Kirstin Berry • Rhoda Perry - Upper Hunter Wonnarua Council
CHWG Meeting	6 September 2010	8 – 10 September 2010	30 September 2010	<ul style="list-style-type: none"> • Warkworth Coal Mine Extension Wollombi Brook Aboriginal Cultural Heritage Conservation Area draft management plan - review plan and recommendations from steering committee (DoP EP&A Part 3A) • Briefing on MTW 	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Rebecca Yit – RTCA Cultural Heritage Advisor • Noel Downs - WLALC • Barry Stair – Giwiirr Consultants • Arthur Fletcher – Wonn1 Contracting • George Sampson – Cacatua Cultural Consultants

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				PN10 grinding grooves salvage excavation and relocation to WBACHCA (AHIP #2801, DECCW ACHCR 2010) <ul style="list-style-type: none"> Briefing on MTW Extension Environmental Assessment (DoP EP&A Part 3A) 		<ul style="list-style-type: none"> Allen Paget – Ungooroo Aboriginal Corporation
CHWG Meeting and site visit	administrative Co-ordinator)	Week of 7 June 2010	7 & 8 June 2010	Visit to MTW West extension, PN10 grinding grooves, WBACHCA. <ul style="list-style-type: none"> Discussion & endorsement of the PN 10 grinding grooves site excavation results & revised relocation methodology & Care & Control Permit application to DECCW (ACHCR 2010) Review of draft Wollombi Brook ACH Conservation Area Management Plan (EP&A Part 3A) Results of MTW South-West & Bulga Farm assessment surveys (ACHCR 	n/a	<ul style="list-style-type: none"> Dr David Cameron – RTCA Principal Advisor Cultural Heritage Eleanor Cooper – RTCA Cultural Heritage Advisor Joel Deacon – RTCA Cultural Heritage Advisor Dan Gillespie – Central Queensland Cultural Heritage Management Luke Godwin - Central Queensland Cultural Heritage Management Michael Slack – Scarp Archaeology Helen Selimiotis – Scarp Archaeology Mark Hickey – Kayaway Eco-cultural & Heritage Services Norm Archibald – Yinarr Cultural Services Wayne French – Hunter Valley Aboriginal Corporation

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				2010)		<ul style="list-style-type: none"> • Barry Stair – Giwiirr Consultants • Colleen Stair – Bullem Bullem Consultants • Gay Horton – Muswellbrook Culture Consultants • Margaret Matthews – Aboriginal Native Title Consultants • John Matthews – Hunter Valley Culture Consultants • Darrel Matthews – Upper Hunter Heritage Consultants • Paulette Ryan – Hunter Traditional Owner Services • Georgina Berry – Upper Hunter Wonnarua Council • Maree Waugh – Wonnarua Nation Aboriginal Corporation • Rhonda Ward – Ungooroo Cultural & Community Services • Des Hickey – Wattaka Wonnarua Cultural Consultants Service • Luke Hickey – Hunter Valley Cultural Surveying • Suzie Worth – Wanaruah Local Aboriginal Land Council • Arthur Fletcher – Wonn1 Contracting • George Sampson – Cacatua Cultural

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						Consultants <ul style="list-style-type: none"> • Allen Paget – Ungooroo Aboriginal Corporation • Laurie Perry – Wonnarua Nation Aboriginal Corporation • Cliff Matthews – Mingga Consultants • Justin Matthews – Carrawonga Consultants • Rhoda Perry – Upper Hunter Wonnarua Council
CHWG Meeting	7 April 2010	Week of 5 April 2010	22 April 2010	<u>Update on WML Extension Project (EA report, Conservation Area)</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Elspeth Mackenzie – RTCA Cultural Heritage Advisor • Dan Gillespie – Central Queensland Cultural Heritage Management • Arthur Fletcher – Wonna 1 Consultants • Kathleen Steward-Kinchela – Yinarr Cultural Services • George Sampson – Cacatua Culture Consultants • Darrel Matthews – Upper Hunter Heritage Consultants • John Matthews – Upper Hunter Heritage Consultants • Margaret Matthews – Aboriginal

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						Native Title Consultants <ul style="list-style-type: none"> • Laurie Perry – Wonnarua Nation • Allen Paget – Ungooroo Aboriginal Corporation • Luke Hickey – Hunter Valley Cultural Surveying • Mark Hickey – Kayaway eco-Cultural and Heritage Services • Noel Downs – Wanaruah Local Aboriginal Lands Council • Suzie Worth – Wanaruah Local Aboriginal Lands Council • Rhoda Perry – Upper Hunter Wonnarua Council • Des Hickey – Wattaka Wonnarua Traditional Owner
Workshop	23 February 2010 (letter sent to Administrative Co-ordinator)	Week of 22 February 2010	4 & 5 March 2010	<u>Workshop to consider community alliance of Upper Hunter Cultural & Heritage stakeholders</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Arthur Fletcher – Wonn1 Contracting • Margaret Matthews – Aboriginal Native Title Consultants • Colleen Stair – Hunter Valley Culture Consultancy • George Sampson – Cacatua Culture Consultants • Rhonda Ward – Ungooroo Aboriginal Cultural & Community Services

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> • Mark Hickey – Kayaway eco-Cultural and Heritage Services • Gay Horton – Muswellbrook CC • Des Hickey – Wattaka Wonnarua Traditional Owner • Justin Matthews – Carrawonga • Laurie Perry – Wonnarua Nation • John Matthews – Valley Culture • Pansy Hickey – Yarrawalk Aboriginal Corporation • Tom Miller – Lower Hunter Wonnarua Council • Kathleen Steward-Kinchela – Yinarr Cultural Services • Maree Waugh – Wonnarua Nation • David Swan – Culturally Aware • Sarah Hall – Ungooroo Aboriginal Corporation • Noel Downs – Wanaruah Local Aboriginal Lands Council • Suzie Worth – Wanaruah Local Aboriginal Lands Council • Lloyd Matthews – Bullem Bullem Consultants • Cliff Matthews – Mingga Consultants • Georgina Berry – UHWC • Michael Stair – Giwirr

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						<ul style="list-style-type: none"> • Gail Shearer – Wonaruah Custodian • Darrel Matthews – UHHC • Paulette Ryan - HTO
CHWG Meeting	22 January 2010	Week of 25 January 2010	12 February 2010	<u>Update on WML Extension Project (EA report, Conservation Area)</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Elspeth Mackenzie – RTCA Cultural Heritage Advisor • Scott L'Oste-Brown – CQCHM • Dan Gillespie - CQCHM • Arthur Fletcher – Wonna 1 Consultants • George Sampson – Cacatua Culture Consultants • Rick Coles – Hunter Traditional Owners EMS • Colleen Stair – Hunter Valley Culture Consultancy • Barry French – Hunter Valley Aboriginal Corporation • John Matthews – Upper Hunter Heritage Consultants • Margaret – Aboriginal Native Title Consultants • Lloyd Matthews – Bullem Bullem Consultants • Suzie Worth – Wanaruah Local Aboriginal Lands Council

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> • Des Hickey – Wattaka WCCS • Rhonda Ward – Ungooroo Aboriginal Cultural & Community Services • Maree Waugh – Wonnarua Nation • Laurie Perry – Wonnarua Nation • Keith Rogers – Keith Rogers Consulting • Gay Horton – Muswellbrook CC • Joshua Hickey • Mark Hickey - Kayaway • Darrel Matthews – Upper Hunter Heritage Consultants • Melissa Matthews – Upper Hunter Heritage Consultants • Allen Paget – Ungooroo AC • Rhoda Perry – Upper Hunter Wonnarua Council • Justin Matthews – Carrawonga • Mick Matthews - Mingga • Michael Matthews – Mingga • Malcolm Moodie – Mingga • Tom Miller – Lower Hunter Wonnarua Council • Luke Hickey – Hunter Valley Cultural Surveying • Noel Downs – Wanaruah Local Aboriginal Lands Council

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
CHWG Meeting	17 November 2009	Week of 16 November 2009	9 December 2009	<u>Review of the draft Warkworth Mine Extension Aboriginal cultural heritage assessment report for the Environmental Assessment</u> <ul style="list-style-type: none"> • Discuss report elements and key findings • Review and confirm development impacts on Aboriginal cultural heritage • Review and confirm proposed cultural heritage management measures for development and non-development areas <u>Review of updated concept plan and management options for the Wollombi Brook Aboriginal Cultural Heritage Conservation Area</u> <ul style="list-style-type: none"> • Review of draft concept plan for the conservation area • Operational feedback on current and potential future mining development requirements 	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Elspeth Mackenzie – RTCA Cultural Heritage Advisor • Laura Harkins – RTCA Graduate Community Relations • Celeste Baldwin – RTCA Vacation Student Cultural Heritage • Trent Jordan - SKM • Julie Ling - SKM • Kathleen Steward-Kinchela – Yinarr Cultural Services • Ronda Ward – Ungooroo Aboriginal Cultural & Community Services • Maree Waugh – Wonnarua Nation • Norm Archibald – Wanaruah Local Aboriginal Land Council • Victor Perry – Upper Hunter Wonnarua Council • Laurie Perry – Wonnarua Nation • Allen Paget – Ungooroo AC • Rhoda Perry – Upper Hunter Wonnarua Council • Donna Sampson – Cacatua Culture Consultants • Darrel Matthews – Upper Hunter Heritage Consultants

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<ul style="list-style-type: none"> Review of key management principles and core conservation areas 		
CHWG Workshop	9 October 2009	Week of 5 October 2009	22 October 2009	<ul style="list-style-type: none"> Proposal for MTW AHIP#2801 time extension for site PN10 WML Extension project update WML Extension & associated CNA lands & leases management zones WML Extension development impacts area management measures Proposed Wollombi Brook Aboriginal Cultural Heritage Conservation Area 	n/a	<ul style="list-style-type: none"> Dr David Cameron – RTCA Principal Advisor Cultural Heritage Elspeth Mackenzie – RTCA Cultural Heritage Advisor Joel Deacon – RTCA Cultural Heritage Advisor Barry Hunter – RTCA Aboriginal Relations Specialist Laura Hawkins – RTCA Graduate Communications Dan Gillespie – Central Qld Cultural Heritage Management Allen Paget – Ungooroo Aboriginal Corporation Annie Hickey – Gidaawale WCHC Arthur Fletcher – Wonn1 Contracting Barry Stair – Cacatua Culture Consultants Mick Matthews – Mingga Consultants Colleen Stair – Hunter Valley Culture Consultancy Darrel Matthews – Upper Hunter Heritage Consultants Des Hickey – Wattaka Wonnarua Cultural Consultants Service

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> • Irene Hickey – Hunter Traditional Owners • Jesse Waugh – Culturally Aware • John Matthews – Valley Culture • Justin Matthews – Carrawonga Consultants • Lloyd Matthews – Bullem Bullem Consultants • Luke Hickey – Hunter Valley Cultural Surveying • Margaret Matthews – Aboriginal Native Title Consultants • Maree Waugh – Wonnarua Nation • Michele Stair – Giwirr Consultants • Pansy Hickey – Yarrawalk Aboriginal Corporation • Rhoda Perry – Upper Hunter Wonnarua Council • Rhonda Ward – Ungooroo Aboriginal Cultural & Community Services • Suzie Worth – Wanaruah Local Aboriginal Land Council • Tom Miller – Lower Hunter Wonnarua Council • Tony Matthews – Hunter Valley Aboriginal Corporation
CHWG Meeting	7 September	Week of 7	1 October	<u>MTW Extension</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
	2009	September 2009	2009	<u>Aboriginal cultural heritage assessment process</u> <ul style="list-style-type: none"> • Update on Warkworth Extension Environmental Assessment process • Cultural heritage assessment & management plan consultation process for EA • Review of results of AMBS 2002, MTW West 2008 and South-West 2009 survey assessments and management recommendations • Briefing on discussions conducted during the community site tour and consultation meeting on site 21 September 		<p>Advisor Cultural Heritage</p> <ul style="list-style-type: none"> • Dan Gillespie – Tallegalla Consultants • Scott L'Oste-Brown – Central Queensland Cultural Heritage Management • Arthur Fletcher – Wonn1 Contracting • Darrel Matthews – UHHC • Rodney Matthews - Giwirr • Donna Sampson – Cacatua • Colleen Stair – HVCC • Suzie Worth - WLALC • Rhoda Perry – UHWC • Des Hickey – Wattaka WCCS • Lloyd Matthews – Bullem Bullem • Justin Matthews – Carrowonga • Margaret Matthews – Aboriginal Native Title Consultants • John Matthews – Aboriginal Native Title Consultants
Site Visit and meeting	1 September 2009 (letter sent to administration co-ordinators)	Week of 7 September 2009	21 September 2009	<u>Community visit to cultural heritage sites in proposed extension area</u> <u>Review of Warkworth Extension EA process,</u> <ul style="list-style-type: none"> • community feedback on proposed ACH 	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Laura Hawkins – Graduate Communications • Mark Nolan – Environmental Specialist Project Approvals

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				management and conservation areas and discussion on management options to inform development of a draft ACHMP		<ul style="list-style-type: none"> • Dan Gillespie – Tallegalla Consultants • Arthur Fletcher – Wonn1 • Michele Stair - Giwirr • Barry French - Cacatua • Colleen Stair – HVCC • Suzie Worth - WLALC • Rhoda Perry – UHWC • Justin Matthews – UHHC • Margaret Matthews – ANTC • John Matthews – Bullem Bullem • Mick Matthews – Mingga • Kathleen Steward/Kinchela – Yinarr Cultural Services • Allen Paget – Ungooroo AC • Luke Hickey - HVCS
CHWG Meeting	22 July 2009	Week of 27 July 2009	27 August 2009	<u>MTW Extension options assessment process</u> <ul style="list-style-type: none"> • EA being developed during 2009 • Cultural heritage assessment & management plan consultation <u>MTW South-West assessment survey</u> <ul style="list-style-type: none"> • Review of interim results of MTW South-West assessment survey 	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Elspeth Mackenzie – RTCA Cultural Heritage Advisor • Dr Luke Godwin – CQCHM • Dan Gillespie – Tallegalla Consultants • Dr Michael Slack – Scarp Archaeology • Helen Selimiotis – Scarp Archaeology • Arthur Fletcher – Wonna 1 Consultants • Darrel Matthews – UHHC

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<ul style="list-style-type: none"> • Linkage to MTW West survey assessment and management • Proposal for an integrated MTW cultural heritage management plan as basis for MTW Extension EA <u>MTW Bulga Bora Ground (BBG) management strategy</u> <ul style="list-style-type: none"> • Reviewing options for current and future management options for the Bulga Bora Ground focusing on extent within CNA lands • Initiate the BBG management strategy committee <u>MTW Warkworth Sandsheet s90 AHIPs 1103070 & 2801 sites salvage results</u> <ul style="list-style-type: none"> • Overview of cultural salvage activities conducted 4-5 August • Reporting requirements 		<ul style="list-style-type: none"> • Michele Stair - Giwiirr • Kathleen Steward/Kinchela – Yanarr Cultural Services • Nicole Smith - HVAC • Suzie Worth - WLALC • Rhoda Perry – UHWC • Des Hickey – Wattaka WCCS • Irene Hickey – HTO • Gordon Swan - Yarrawalk
CHWG Meeting	27 April	Week of 27	21 May 2009	<u>Warkworth Sandsheet archaeological excavation</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
	2009	April 2009		<ul style="list-style-type: none"> • s90 application & cultural salvage update <u>MTW West assessment report</u> • proposed interim management measures <u>MTW South-West assessment study</u> • review future management options and survey proposed for South west study area 		<p>Advisor Cultural Heritage</p> <ul style="list-style-type: none"> • Elspeth Mackenzie – RTCA Cultural Heritage Advisor • Kathleen Steward/Kinchela – Yinarr Cultural Services • David French – HVNCRM • Margaret Matthews – ANTC • John Matthews – ANTC • Darrel Matthews - UHHC • Luke Hickey – HVCS • Arthur Fletcher – Wonna Consultants • Suzie Worth - WLALC • Rhonda Ward – UCCS • Rhoda Perry – UHWC • Des Hickey – Wattaka WCCS
CHWG Meeting	24 February 2009	Week of 23 February 2009	19 March 2009	<u>Warkworth Sandsheet archaeological excavations progress report</u> <u>MTW West assessment report</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – RTCA Principal Advisor Cultural Heritage • Scott L'Oste-Brown – Heritage Advisor – CQCHM • Pansey Hickey - HVCS • Rhonda Ward – UCC • Rick Coles - HVCS • Allen Paget – Ungooroo Aboriginal Corporation • Rhoda Perry – UHWC • Kathleen Steward/Kinchela – Yinarr Cultural Services

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
						<ul style="list-style-type: none"> David French – HVNCRM Cara Coles – HTO Environmental Management
Meeting cancelled	28 January 2009		19 February 2009	<u>Warkworth Sandsheet archaeological excavations progress report</u> <u>MTW West assessment report</u>	n/a	n/a
CHWG Meeting	7 November 2008	Week of 10 November 2008	27 November 2008	<u>Warkworth Sandsheet archaeological excavations progress report</u> <u>MTW West assessment results briefing</u>	n/a	<ul style="list-style-type: none"> Dr David Cameron – Cultural Heritage Systems Specialist – Brisbane Dr Luke Godwin – Principal Heritage Advisor – CQCHM Elspeth Mackenzie – Graduate Cultural Heritage – RTCA Dr Richard Fullagar – Scarp Archaeology Luke Hickey – HVCS Arthur Fletcher – Wonna Consultants Suzie Worth - WLALC George Sampson – CCC Rick Coles - HVCS Des Hickey – Wattaka WCCS Allen Paget – Ungooroo Aboriginal Corporation Rhoda Perry – UHWC Lew Griffiths - Oziris
CHWG Meeting	22 September	Week of 22	2 October	<u>MTW West assessment</u>	n/a	<ul style="list-style-type: none"> Dr David Cameron – Cultural Heritage

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
	2008	September 2008	2008	<u>briefing</u> <u>Bulga Bora Ground Management Plan</u> <u>Warkworth Sandsheet archaeological excavations progress report</u> <u>s90 application methodologies</u> - MTW West road mitigation		Systems Specialist – Brisbane <ul style="list-style-type: none"> • Dr Luke Godwin – Principal Heritage Advisor – CQCHM • Allen Paget – Ungooroo Aboriginal Corporation • Luke Hickey – HVCS • Arthur Fletcher – Wonna Consultants • Colleen Stair – HVCC • Barry Stair – HVAC • Suzie Worth - WLALC • George Sampson – CCC • Rhonda Ward – UCC • Des Hickey – Wattaka WCCS • Noel Downs - WLALC • Margaret Matthews – ANTC • John Matthews – ANTC • Michael Stair • Rhoda Perry – UHWC • Barry Anderson – LWTC • Barry McTaggart – Yarrawalk Aboriginal Corporation • Michael Everleigh - Yarrawalk Aboriginal Corporation (trainee)
CHWG Meeting	18 July 2008	Week of 22 July 2008	14 August 2008	<u>Warkworth Sandsheet archaeological excavations progress report</u> <u>Warkworth West cultural</u>	n/a	<ul style="list-style-type: none"> • Dr David Cameron – Cultural Heritage Systems Specialist – Brisbane • Arthur Fletcher – Wonn 1 Consultants • Suzie Worth - WLALC

Consultation Activity	Letter & Information Sent	Notice Advertised	Date of Consultation	Warkworth	Mount Thorley Operations	RTCA / Consultants and RAPs in Attendance or non-attending RAP feedback
				<u>heritage assessment</u>		<ul style="list-style-type: none"> • Margaret Matthews – ANTC • John Matthews – Giwirri • Melissa Matthews – Upper Hunter Heritage Consultants • Darrell Matthews – Upper Hunter Heritage Consultants • Chloe Matthews – Upper Hunter Heritage Consultants • George Sampson – CCC • Donna Sampson - CCC • Rhonda Ward – UCCS • Michael Roy Stair – HVAC • Luke Hickey – HVCS • Noel Downs – WLALC • Des Hickey - Wattaka WCCS • Colleen Stair – UHHC • Barry Anderson – LWTC • Rhoda Perry - UHWC

Appendix 1.2: RAP and Stakeholder Consultation Contact List - May 2014

Mr David Ahoy
Lower Hunter Aboriginal Incorporated

Mr Ben Cameron
BJC Cultural Management

Mr Barry Anderson
Lower Wonnarua Tribal Consultancy Pty Ltd

Mr Luke Cameron
Luke Cameron Cultural Management

Christine Archbold
Hunter Valley Cultural Consultants

Jenny-Lee Chambers
JLC Cultural Services

Mr Norm Archibald
Jumbunna Traffic Management Group Pty Ltd

Hazel Collins

Mr Les Atkinson
Jarban & Mugrebea

Susan Cutmore
Moreeites

Kerren Boyd
HECMO Consultants

Mr Noel Downs
Wanaruah Local Aboriginal Lands Council

Fiona Draper

Mr Scott Franks
Plains Clans of the Wonnarua People

Helen Faulkner
DRM Cultural Management

Mr Scott Franks
Tocomwall

Mr Les Field
L.J Culture Management

Alieria French
Alieria French Trading

Gina Field

Mr David French
Upper Hunter Natural and Cultural Resources
Management

Mr Arthur Fletcher
Kauwul trading as Wonn l

Mr Wayne Griffiths
Bigundi Biame Traditional People

Mr Arthur Fletcher
Wonnarua Elders Council Inc.

Rhonda Griffiths
Hunter Valley Aboriginal Corp

Mr Greg Griffiths
Gomerioi Murri Ganuurr Yuuray Wadi Palinka

Mr Luke Hickey
Hunter Valley Cultural Surveying

Marie-Ellen Griffiths
ME Griffiths Cultural Management

Mr Rod Hickey
Kawul Cultural Services

Mr Tony Griffiths
T & G Culture Consultants

Mr Mark Hickey
Kayaway Eco-Cultural and Heritage Services

Chantae Griffiths

Gordon Griffiths
Wonnarua Culture Heritage

Mr Des Hickey
Wattaka Wonnarua Cultural Consultants
Service

Amanda Hickey

Mr Steven Hickey
Widescope Indigenous Group Pty. Ltd.

Mrs Anne Hickey
Gidawaa Walang Cultural Heritage
Consultancy

Mr David Horton
Gomery Cultural Consultants

Mr Brian Horton
Muswellbrook Culture Consultants

Mr Robert Lester
Plains Clans of the Wonnarua People

Elizabeth Howard
Waabi Gabinya Cultural Consultancy

Rebecca Lester
Wonnarua Culture and Heritage

Alison Howlett
Buda Mada Koori Womens Aboriginal
Corporation

John & Margaret Matthews
Aboriginal Native Title Consultants

Ivy Jaeger
I & E Aboriginal Culture and Heritage

Mr Terry Matthews
Breeza Plains Culture and Heritage
Consultants

Mr Clifford Johnson
Hielamon Cultural Consultants

Mr Lloyd Matthews
Bullem Bullem Consultants

Tammy Knox
Bunda Counsultants

Mr Justin Matthews
Carrawonga

Mr Jeff Matthews
Crimson-Rosie

Deslee Matthews
Deslee Talbot Consultant

Mr Tom Miller
Lower Hunter Wonnarua Council Inc.

Karen Matthews
Galamaay Consultant

Mr Allen Paget
Ungooroo Aboriginal Corporation

Mr Rodney Matthews
Giwiirr

Deidre Perkins
Divine Diggers Aboriginal Cultural
Consultants

Mr Clifford Matthews
Mingga Consultants

Mr Roger Noel Matthews

Mrs Rhoda Perry
Upper Hunter Wonnarua Council Incorporated

Mr Darrel Matthews
Upper Hunter Heritage Consultants

Mr Laurie Perry
Wonnarua Nation Aboriginal Corporation

Paulette Ryan
HTO Environmental Management Services

Mr Robert Smith
Murrawan Cultural Consultants

Mr Kevin Sampson
Bawurra Consultants

Mr Timothy Smith
Smith Dhagaans Cultural Group

Mr George Sampson
Cacatua General Services

Mr & Mrs Barry & Colleen Stair

Michele Stair

Krystal Saunders
KL.KG Saunders Trading Services

Kathleen Steward-Kinchela
Yinarr Cultural Services

Mr Warren Schillings
My Land Cultural Heritage

Tracey Skene
Culturally Aware

Maria Stocks
Wanaruah Aboriginal Custodians Corporation

Mr Warren Taggart

Mrs Rhonda Ward
Ungooroo Cultural & Community Services Inc

Esther Tighe

Maree Waugh
Wallangan Cultural Services

Mr Derrick Vale Sr
DFTV Enterprises

Marvonnia Welsh

Mr Larry van Vliet
Valley Culture

Suzie Worth
Wanaruah Local Aboriginal Lands Council

Wanaruah Cultural Heritage

Appendix 1.3: Example Consultation Meeting Invitation Letter for the Proposals

Private and confidential

[NAME AND ADDRESS]

7th April 2014

Dear [NAME],

Coal & Allied Cultural Heritage Working Group Meeting – 7th May 2014

Coal & Allied will conduct its consultation process with registered Aboriginal parties, through the auspices of the Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group (CHWG), regarding the assessment and management of Aboriginal cultural heritage associated with development activities at its operations, projects and lands requiring assessment and/or Aboriginal Heritage Impact Permit (AHIP) approvals under Part 6 of the *National Parks & Wildlife Act* (NPW Act), and other projects and development activities that are associated with major projects that are subject to a project approval &/or ACHMP conditioned by the Department of Planning & Infrastructure and not requiring an AHIP approval from OEH.

Details of the next CHWG meeting are as follows:

Date: Wednesday 7th May 2014
Time: 9.00am to 2.00pm
Venue: Wollombi Brook Conservation Area, 1916 Putty Road, Bulga (see location map). Morning tea and lunch will be provided

Please advise of your intention to attend the CHWG meeting at your earliest convenience (or by close of business 6th May 2014) or if you have any queries about the community consultation meeting. You are receiving this letter because you have already registered your expression of interest for consultation with Coal & Allied regarding Aboriginal cultural heritage and there is no need to re-register your written expression of interest.

The following developments are to be discussed at the CHWG meeting:

- **The Mount Thorley Operations (MTO) 2014 Proposal** (DoPI EP&A, OEH ACHCR 2010). Review of Aboriginal cultural heritage impact assessment and draft management measures for Mount Thorley Operations Environmental Impact Statement
- **Warkworth Mine Continuation 2014 Proposal** (DoPI EP&A, OEH ACHCR 2010). Review of Aboriginal cultural heritage impact assessment and draft management measures for Warkworth Mine Environmental Impact Statement.

For your review ahead of this meeting, attached with this letter are two preliminary statements outlining the Aboriginal cultural heritage impact assessments & the proposed management measures for each proposal. These documents outline Coal & Allied's approach to cultural heritage management, the consultation process for the proposals

(including previous relevant consultation), previous cultural heritage assessments over the areas, the nature of cultural heritage sites recorded in the areas, expected impacts, significance assessments & proposed management measures for the proposals.

All environmental, economic and social impacts associated with the proposals will be assessed as part of the two EISs, which will also include a dedicated Social Impact Assessment (SIA). The SIA process, to be undertaken by EMGA Mitchell McLennan (EMM), includes consultation with community members and other key stakeholders in order to assess the social impacts related to the proposed projects. If you would like to provide feedback through the SIA process, please contact EMM on (02) 4927 0506 or sia@emgamm.com. Any information or concerns you have regarding the proposals will be reported on as part of the assessment. All information you provide will be kept confidential and will not be linked to you in any way.

The CHWG meeting will also discuss existing and planned operations and development activities at other CNA mining operations that are associated with consents required under the Environmental Planning and Assessment Act 1979 (EP&A Act), in particular:

- Hunter Valley Operations South (PA06_0261)
- Hunter Valley Operations North (DA 450-10-2003)
- Mount Thorley Development Consent (DA 34/95)
- Warkworth Coal Mine (DA-300-9-2002-i)
- Mount Pleasant Coal Project (DA92/97)

CHWG discussions pertaining to development activities requiring assessment and AHIP approvals under Part 6 of the NPW Act are held in accordance with the OEH *Aboriginal cultural heritage consultation requirements for proponents 2010*. CHWG discussions pertaining to approvals obtained under the EP&A Act & conditioned by DoPI are held in accordance with the OEH *Draft Guidelines for Aboriginal cultural heritage impact assessment and community consultation guidelines (July 2005)*.

If you are unable to attend the meeting you may lodge comments, queries or feedback on these or other topics associated with CNA's cultural heritage management program via letter, fax, email or phone prior to the scheduled date of the CHWG meeting. Please see the attached CHWG confidential feedback form which you may choose to complete for this purpose.

I look forward to seeing you at the meeting, and please also find enclosed the minutes & presentation from the last CHWG meeting, as well as directions to the venue if you have yet to visit the facility. If you have any queries prior to this date, please feel free to contact myself on the numbers below.

Yours sincerely



Joel Deacon

Specialist Cultural Heritage, NSW – External Relations, Coal Australia

Rio Tinto

Hunter Valley Services, Lemington Road, LEMINGTON

PO Box 315 SINGLETON, NSW, 2330 Australia
P: (02) 6570 0462
M: +61 (0)488 721 985
F: (02) 65703601
joel.deacon@riotinto.com

Please see enclosed the following documents

- 140407_Warkworth_Continuation_2014_Preliminary_ACH_Statement
- 140407_MTO_2014_Preliminary_ACH_Statement
- Minutes of CHWG meeting 3rd April 2014
- Presentation from the 3rd April 2014 CHWG meeting
- Confidential feedback form
- Agenda for CHWG meeting 7th May 2014
- Map & directions to the venue

Appendix 1.4: Example Consultation Meeting Public Notices for the Proposals



Public Notice

Invitation for Aboriginal parties to register their interest to participate in cultural heritage consultation for the Mount Thorley Operations 2014 Proposal

The Mount Thorley Operations 2014 Proposal is an application for an approval under Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to complete mining & rehabilitation activities within the current limits of approval DA 34/95. The Mount Thorley Operations 2014 Proposal area is located at the Mount Thorley Mine, approximately 12kms south-west of Singleton.

Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal object(s) and/or place(s) associated with the Mount Thorley Operations 2014 Proposal area are invited to participate in consultation with Coal & Allied to inform the preparation of an Aboriginal Cultural Heritage impact assessment for the Mount Thorley Operations 2014 Proposal Environmental Impact Statement.

If you wish to register your interest as an Aboriginal party your registration must be in writing (letter, fax or email), and include your name/organisation, current contact details (postal address, email, phone number/s) and be received by Coal & Allied by close of business on **Tuesday 6th May 2014** (see contact details at end of this notice). Details of people registering as Aboriginal parties will be provided to Office of Environment and Heritage (OEH), and also the Wanaruah Local Aboriginal Land Council unless you specify otherwise.

Aboriginal parties who register for consultation are invited to attend a meeting of the **Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group (CHWG)** with the following details:

Date: Wednesday 7th May 2014

Time: 9.00am to 2.00pm

Venue: Wollombi Brook Conservation Area, 1916 Putty Road, Bulga
(Morning tea and lunch will be provided)

CHWG discussions and other consultation with Registered Aboriginal Parties pertaining to the Mount Thorley Operations 2014 Proposal application under Part 4, Division 4.1, EP&A Act, and other activities requiring approvals under Part 6 of the National Parks & Wildlife Act 1974, are conducted in accordance with the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.

The CHWG meeting will also review current and proposed operations and development activities that are associated with existing development approvals, in particular:

- Hunter Valley Operations South (PA06_0261)
- Hunter Valley Operations North (DA 450-10-2003)
 - Mount Pleasant Coal Project (DA92/97)
 - Mount Thorley Operations (DA 34/95)
 - Warkworth Operations (DA-300-9-2002-i)

If you are unable to attend the meeting you may lodge comments, queries or feedback on these or other topics associated with Coal & Allied's cultural heritage management program via letter, fax, email or phone prior to the scheduled date of the CHWG meeting.

Joel Deacon
Specialist Cultural Heritage
Rio Tinto Coal Australia Pty Ltd
Hunter Valley Services
PO Box 315, Singleton NSW 2330
joel.deacon@riotinto.com
Fax: 02 6570 0350
Ph: 02 6570 0462



Public Notice

Invitation for Aboriginal parties to register their interest to participate in cultural heritage consultation for the Warkworth Continuation 2014 Proposal

The Warkworth Continuation 2014 Proposal is an application for an approval under Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to continue mining beyond the current limits of approval DA 300-9-2002-i. The Warkworth Continuation 2014 Proposal area is located at the Warkworth Mine, approximately 11kms south-west of Singleton.

Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal object(s) and/or place(s) associated with the Warkworth Continuation 2014 Proposal area are invited to participate in consultation with Coal & Allied to inform the preparation of an Aboriginal Cultural Heritage impact assessment for the Warkworth Continuation 2014 Proposal Environmental Impact Statement.

If you wish to register your interest as an Aboriginal party your registration must be in writing (letter, fax or email), and include your name/organisation, current contact details (postal address, email, phone number/s) and be received by Coal & Allied by close of business on Tuesday 6th May 2014 (see contact details at end of this notice). Details of people registering as Aboriginal parties will be provided to Office of Environment and Heritage (OEH), and also the Wanaruah Local Aboriginal Land Council unless you specify otherwise.

Aboriginal parties who register for consultation are invited to attend a meeting of the **Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group (CHWG)** with the following details:

Date: Wednesday 7th May 2014

Time: 9.00am to 2.00pm

Venue: Wollombi Brook Conservation Area, 1916 Putty Road, Bulga
(Morning tea and lunch will be provided)

CHWG discussions and other consultation with Registered Aboriginal Parties pertaining to the Warkworth Continuation 2014 Proposal application under Part 4, Division 4.1, EP&A Act, and other activities requiring approvals under Part 6 of the National Parks & Wildlife Act 1974, are conducted in accordance with the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.

The CHWG meeting will also review current and proposed operations and development activities that are associated with existing development approvals, in particular:

- Hunter Valley Operations South (PA06_0261)
- Hunter Valley Operations North (DA 450-10-2003)
 - Mount Pleasant Coal Project (DA92/97)
 - Mount Thorley Operations (DA 34/95)
- Warkworth Operations (DA-300-9-2002-i)

If you are unable to attend the meeting you may lodge comments, queries or feedback on these or other topics associated with Coal & Allied's cultural heritage management program via letter, fax, email or phone prior to the scheduled date of the CHWG meeting.

Joel Deacon
Specialist Cultural Heritage
Rio Tinto Coal Australia Pty Ltd
Hunter Valley Services
PO Box 315, Singleton NSW 2330
joel.deacon@riotinto.com
Fax: 02 6570 0350
Ph: 02 6570 0462

Appendix 1.5: Meeting Agenda for the Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group Community Consultation Meeting 3 April 2014

Venue: 1916 Putty Road Cultural Heritage Facility - 9.00am to 2.00pm

Welcome and introductions

1. Review of Minutes & Actions from previous CHWG meeting 19th February 2014

2. Update on status of Coal & Allied operations, business outlook & projects

3. Warkworth Mine Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Warkworth Mine
- Review of Aboriginal cultural heritage impact assessment process for Warkworth Mine Environmental Impact Statement

4. Mount Thorley Operations Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Mount Thorley Operations
- Review of Aboriginal cultural heritage impact assessment process for Mount Thorley Operations Environmental Impact Statement

5. Mount Thorley/Bulga Ramp 22 Sedimentation Dam Aboriginal Heritage Impact Permit Application (DA 34/95) (OEH ACHCR 2010)

- Update on AHIP application for the proposed Ramp 22 Sedimentation Dam project area
- Review of management measures proposed within AHIP application (salvage mitigation & possible creek remediation works)

6. Hunter Valley Operations – North (DA-450-10-2003) & South (PA_06_0261) - Heritage Management Program (OEH ACHCR 2010)

- Discussion & review of existing & planned operations & development activities at Hunter Valley Operations
- Review of proposed & potential future cultural heritage management activities

7. Updates on other Coal & Allied cultural heritage management activities

- Mount Pleasant Coal Project (DA92/97)
- Mount Thorley Operations (DA 34/95)

8. Administrative Coordination & rostering

- Stakeholder review of eligibility requirements for, & current membership of, the Coal & Allied Cultural Heritage Administrative Co-ordination & Fieldwork Rosters

9. Other Business and Community Feedback/Issues

- Discussion on appropriate training providers, including local Aboriginal community members with relevant skills who may wish to provide an expression of interest, who may be able to offer artefact analysis training programs

Notes:

- 'OEH ACHCR 2010' in text denotes development subject to assessment & AHIP approvals under Part 6 of the NPW Act, Office of Environment and Heritage.
- 'DoPI EP&A' in text denotes development subject to a project approval &/or ACHMP conditioned by the Department of Planning & Infrastructure and not requiring an AHIP approval from OEH.

Appendix 1.6: Meeting Minutes for the Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group Community Consultation Meeting 3 April 2014

MINUTES

Date: 3rd April 2014

Time: 0900 - 1400

Venue: Wollombi Brook ACH Conservation Area, 1916 Putty Rd, BULGA.

Chairperson: Joel Deacon

Attendees: Joel Deacon – RTCA Specialist Cultural Heritage
David Cameron - RTCA Manager Cultural Heritage
Scott L'Oste-Brown - CQCHM
Georgia Bennett – RTCA Advisor Cultural Heritage
Deslee Matthew – Deslee Talbot Consultants
Vicky Slater – Kawul Cultural Services
Noel Downs – WLALC
Tim Miller - WLALC
George Sampson - Cacatua General Services
Mitchum Neave – HECMO
Des Hickey – Wattaka Wonnarua Cultural Consultants Service
Kerry Boyd – HECMO
Rhonda Ward – Ungooroo Cultural & Community Services Inc
Les Atkinson – Jarban & Mugrebea

Apologies: Allen Paget – Ungooroo Aboriginal Corporation
Suzie worth - WLALC
Tracey Skene – Culturally Aware
Maree Waugh - Wallangan

Minutes: Georgia Bennett

Meeting started: Minutes silence

Apologies given

Welcome and introductions – by RTCA staff and those present at the meeting.

Main Agenda Items: Two main agenda items today are the announcement of the Warkworth continuation 2014 proposal and the Mount Thorley Operations 2014 proposal. These will be covered in some detail today. Also Ramp 22 and where we're at with that. Other business as per the agenda.

Social Impact Assessment consultants will be here at the end of the meeting if you want to talk to them about the proposal(s). They will record any comments you have to feed into the social impact assessment.

3. Warkworth Mine Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Warkworth Mine
- Review of Aboriginal cultural heritage impact assessment process for Warkworth Mine

Overview of the Warkworth Continuation 2014 and Mt Thorley Operations 2014 Proposals:

Dave- West pit modification area was approved to give the mine another 2 years to continue mining while we sorted out what to do in the future. The company has now made a decision about what it wants to do: 1) The Warkworth Continuation 2014 proposal, application for a new development under the EP&A Act to continue mining beyond the current limits. 2) Mount Thorley Operations - another approval to seek a new approval for additional time to complete the mining that's already been approved (more time to complete mining within the current footprint). Last time it was an integrated project, this time we need to seek 2 separate EIS's. (Maps can be found in the handouts given out today which show the extent of the Warkworth proposal area which will cross Wallaby Scrub Rd). The area is very similar to what was proposed in 2010 for the Warkworth Extension Project (WEP).

Conservation Areas are pointed out on the map. The Wollombi Brook Aboriginal Heritage Conservation Area (WBACHCA), was set up in 2009 and we've continued to manage that as a conservation area (i.e. no drilling or other development works allowed in that area), are in the process of establishing that as a conservation area under the NPWs act as we were consented to have to do, because that all got suspended its just been sitting there waiting to see what happens in the future. What we're proposing to do now that we are going for a new approval, is to again put this area up for permanent protection as an Aboriginal Conservation area, we now have additional land: Springwood homestead and an area west of Newport Dairy. Also in MTO there is an area at Loder Creek to get locked up as an Aboriginal Conservation Area. MTW and MTO operate as integrated operations. Does anyone have any questions about the overview before we go into a bit more detail?

Mitchum – where's the buffer zone?

Dave – points out the project boundary area (disturbance area), buffer area and conservation areas. The mining leases are also pointed out.

Kerryn – can you tell me what the agreement was with Saddleback Ridge for the protection of Wallaby Scrub rd.?

Dave – under the 2003 consent that area was set aside as NDA1 (non-disturbance area 1 - ecological conservation), since then and after the 2010 extension the government has agreed to rescind that: it doesn't have status as a non-disturbance area any more.

Les – do they put another offset as a conservation area?

Dave - so the process in 2010 they established a series of offsets including this one, as a biodiversity area, further to the north Archerfield, Goulburn River, Bowditch, as offset packages for that proposal. Things have changed in terms of government policy around these conservation offsets, a new government policy came out a few weeks ago that says they're not going to be looking at section 69 under the NPWs act conservation agreements to protect bio-diversity, instead they'll now look at bio-banking and covenant over land and there's also what's called the *Hunter Valley Strategic Offset Strategy* which is a combination of bio-banking or getting other lands that can be used for bio-banking offsets or (Interrupted)

Discussion about losing heritage through offsets being on lands which are off country.

Dave – issue is satisfying what the regulator decides is of conservation importance and significance. They decide what offsets you need to have to offset the ecological disturbance for example. Also funds going into a strategic fund that the government can buy land of ecological significance and set them up as National Parks but that's not a decision we get to make. Ecological offsets is something we have no say over.

When we looked at how we could secure this area with the working group, one of the things that people didn't want was for that area to be protected under a conservation agreement under the NPWs act for a number of reasons; including the government has their finger in it, also raises questions of can the government rescind that, and our legal advice was to put a covenant on title through the conveyancing act. We'll put in those proposals - it's the PAC who will decide what that mechanism is. Covenant is there forever. Main thing is that the area is locked away and protected and is managed by you guys.

- Discussion about Wambo land ownership and the Bora Ground and co-management. Message from the community is that the community wants to be able to manage the area as one area, a holistic place irrespective of the boundaries. Want Wambo to attend a meeting to listen to what you have to say. Noel says that the best form of protection for the area is ownership by Land Council.
- Wollombi Brook Aboriginal Cultural Heritage Conservation Area Steering Group Committee - Principles of Management / governance structure were discussed at numerous steering group workshops (no answer reached as yet): what entity will manage the land and will it then have the status to manage other offsets? It's not the intention of C&A to manage this area, it's for you guys and for us to assist to make sure there are adequate resources to manage the area. Community access, rehabilitation etc. are key issues for the conservation area.

ACTION - distribute the notes / minutes (package of information) from the steering group meetings to show where it got to (44:32)

Dave – both new proposals are **state significant developments**: means provisions under 89J (D) of the EP&A act- exempt from section 90 process of the NPW act. This means that no ACHAR or AHIPS required but will require approved Heritage Management Plan (e.g. HVO South ACHMP). For the EIS process we have to do Aboriginal Cultural Heritage Impact Assessments for both proposals.

Consultation process is explained by Dave with the CHWG being the primary forum for consultation. Part of the consultation process will include a site visit to the impact area (before 7th May) followed by another CHWG meeting on 7th May. Dates to be discussed later on in this meeting. Documentation from today's meeting will be sent out to all RAPs. New guidelines for Aboriginal Consultation Process (supersedes the 2005 guidelines): is specific to AHIPS but this process is not an AHIP but that's the process we have to follow. Extensive consultation process is as part of the EIS process.

Site visit to include: proposal areas, disturbance areas / impact areas, conservation areas

Noel – are there any houses in the area to be destroyed that are suitable for relocation / adaptive re-use that could go onto WLALC land say in Warkworth village?

Dave – yes there are buildings, one or two of which are P1 huts (WWII huts). We'll capture that feedback.

Feedback: "C&A to consider any houses in the impact area that may be relocatable for re-use by Aboriginal Community groups"

Noel - Baiaame Cave: is privately owned but WLALC owns two blocks of land behind it. Discussion about the purchase of this land.

ACTION - C&A to investigate status of land ownership at Baiaame Cave.

Dave – (see slide 13) project details for Warkworth: it's a continuation of mining activity 698ha. west over Wallaby Scrub Rd. (and subsequent closure of wallaby Scrub Rd). Discussion about assessment studies and comprehensive surveys that have been undertaken in the area (Slides 14 – 20).

Dave – refer to map on slide 15 which shows where all the surveys have been done. Only area not surveyed at the request of the CHWG is small portion of land at Bora Ground. This provokes discussion about the Bora Ground with Noel suggesting it's located a bit further north of current location (still in the conservation area). Dave states that we need to continue on with looking at and understanding that area. Critical that the full extent of the site is within the conservation area.

Noel - registers WLALCs objection to the proposed construction of the dam (Ramp 22 sedimentation dam) and the impact to the creek that this will have.

Dave – those comments that you provided at one of the consultation meetings were recorded at that and put into the ACHAR submission. Noting that the Land Council objected to the development of that dam. That dam is subject to an environmental approval being submitted by Bulga, it is still being assessed by the government.

Noel – asks for the contact for the group / department who is doing the environmental assessment.

Dave - you'll need to talk to Ralph Northey from Bulga Surface Operations.

-MORNING TEA -

Dave - 698 ha (approx.) development disturbance area for the Warkworth continuation has been subject to 100% coverage and systematic survey. Are 110 extant sites in that development area that will be impacted over the life of the mine. 386 extant sites located outside the development disturbance area that will not be impacted.

(See slides 17,18, 19, 20 for breakdown of figures and site types).

Dave – slide 21, Wollombi Brook ACH Conservation Area: expanded to include Springwood (extra 74 ha) and Newport (extra 98 ha), total area 685 ha. To provide for the protective management and cultural maintenance of the Bulga Bora Ground and associated cultural landscapes. Area projected from all mining and development activities. Only activities that may be permitted in that area are those associated with environmental compliance. See slide 23 map.

Heritage Management Plan – to be developed in consultation with you guys, one plan for the two operations. Separate plans that we'll integrate.

- **Staged mitigation approach** to be used in the development area (minimize disturbance to 5 years in advance of mining) so we don't culturally sterilize the area.

Noel - re: staged approach we'd prefer that it's a 12 month approach so that the work keeps rolling in over a longer time frame. We don't want to be too far out in front of the mine, break up the 5 years into smaller time frames.

Dave - OK we can capture that, I think we can work with that. Primarily it's about not going too far ahead in case things don't continue and making sure that there's an adequate buffer. Staged on the basis of the annual operating plan - 12 months, so we'll put some words in around this.

Slide 25 Heritage Impact Management Commitments. Discussion about the Hunter Valley Sand Bodies Research Study (which is a commitment): Noel says that he would like to see the research for this continue and also says that if the 110 sites are going to be destroyed then given the Land Councils concern that it's part of a much larger ceremonial area, asks if it could be part of a research project through a university to ensure that as much information as possible is captured.

Dave – that sort of proposal is exactly what will need to be discussed with the group in more detail and that would form part of the management plan. Methodology etc. We can put that in as a proposal.

Further discussion about the cultural heritage values and storylines being captured.

Dave – that's the general overview of the Warkworth process. We'll send out all information from today and a preliminary statement on the impact assessment.

Environmental Impact Statement - specific matters raised were:

- support for the implementation of the Hunter Valley Sands Bodies Research Study;
- a desire to continue the work that has been undertaken by the CHWG with respect to refining the area to be included within indicative boundary of the Bulga Bora ground features;
- considerations for options for the relocation and reuse of existing residential structures located within the Warkworth Continuation 2014 proposal area by the Aboriginal community;
- that salvage mitigation programs required to be undertaken within the Warkworth Continuation 2014 proposal area should be staged on an annual basis and in line with the Warkworth Mine Annual Operating Plan;
- information from Aboriginal cultural heritage places the subject of salvage mitigation programs be collected with a view to informing potential research programs of importance to the CHWG;
- a desire to incorporate the pre-mining topography into post-mining final landform design for the Warkworth Continuation 2014 proposal area;
- a desire to establish an access corridor along Wollombi Brook to provide connectivity between the southern end of the WBACHCA and the Aboriginal cultural heritage conservation area established for the adjacent Bulga Coal Complex; and
- continue to investigate possibilities and options available for the acquisition of lands within which the highly culturally significant Baiame Cave is located.

4. Mount Thorley Operations Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Mount Thorley Operations
- Review of Aboriginal cultural heritage impact assessment process for Mount Thorley Operations Environmental Impact Statement

Dave – to complete mining within the currently approved mining footprint (not going further than Charlton rd.) The key thing is we're not mining in an area that's not already been approved for mining. The only area subject to future impact is the Ramp 22 dam.

Noel – any chance of C&A returning the final landform back to its original state (i.e. showing features etc.)

Dave - comes down to where the final voids end up how much dump is there, what can be shaped in the area that's there. Part of the HMP process could be to work with the long term planners to work on the rehabilitation plan and what the final landform might look like. Are constraints around that but if you want to be part of that process?

Dave - slide 29, 30 shows a breakdown of the 48 extant sites.

Discussion about recording sites as one big site rather than as numerous sites; one cultural precinct. Problems with this is that government doesn't recognize this recording of one big site / cultural complex.

Dave – Proposed Loder Creek Aboriginal Cultural Heritage Conservation Area (LCACHCA) (slide 31). 18 sites recorded in that area but will undoubtedly find more when a comprehensive survey is conducted.

Need to develop a Heritage Management Plan in consultation with the CHWG. Integrated HMP. Commitments are similar to those listed for Warkworth (slide 34).

Noel – mentions considering an access easement corridor (50 meters on either side of Wollombi Brook) between Xstrata heritage/ conservation area and C&A conservation area.

Dave - that's an overview of the Mount Thorley operations proposal. Summary statement will also be mailed out to you along with all the information from today. Next CHWG meeting on 7th May and there will also be a site visit on 29th April. Important for people to RSVP for the site visit.

Environmental Impact Statement. Specific matters raised were:

- support for the implementation of the Hunter Valley Sands Bodies Research Study;
- confirmed the cultural importance of the remaining undeveloped areas around Loder Creek and the desirability of it being included within an ACHCA;
- a desire to incorporate the pre-mining landscape topography into post-mining final landform design for the MTO 2014 proposal area;
- a desire to establish an access corridor, within the MTO mining lease, along Wollombi Brook to provide connectivity between the southern end of the proposed Wollombi Brook Aboriginal Cultural Heritage Conservation Area (WBACHCA), associated with the Warkworth Continuation 2014 Proposal, and the Aboriginal cultural heritage conservation area established for the adjacent Bulga Coal Complex mining operation; and
- continue to investigate possibilities and options available for the acquisition of lands within which the highly culturally significant Baiame Cave is located.

-MEETING ENDS-

**Appendix 1.7: Meeting Presentation for the Coal & Allied Upper Hunter Valley
Aboriginal Cultural Heritage Working Group Community
Consultation Meeting 3 April 2014**

This documentation is provided in electronic data format independently to this report.

Rio Tinto



**Coal & Allied Aboriginal Cultural Heritage Working Group
Meeting (3rd April 2014)**

CHWG Meeting Agenda

- 1. Review of Minutes & Actions from previous CHWG meeting 19th Feb 2014**
- 2. Update on status of Coal & Allied operations, business outlook & projects**
- 3. Warkworth Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)**
 - Discussion & review of long term approval proposal for Warkworth Mine
 - Review of Aboriginal cultural heritage impact assessment process for Warkworth Mine Environmental Impact Statement
- 4. Mount Thorley Operations 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)**
 - Discussion & review of long term approval proposal for Mount Thorley Operations
 - Review of Aboriginal cultural heritage impact assessment process for Mount Thorley Operations Environmental Impact Statement

CHWG Meeting Agenda

5. Mount Thorley/Bulga Ramp 22 Sedimentation Dam AHIP Application (DA 34/95 - OEH ACHCR 2010)

- Update on AHIP application for the proposed Ramp 22 Sedimentation Dam project area
- Review of management measures proposed within AHIP application (salvage mitigation & possible creek remediation works)

6. Hunter Valley Operations – North (DA-450-10-2003) & South (PA_06_0261) - Heritage Management Program

- Discussion & review of existing & planned operations & development activities at Hunter Valley Operations
- Review of proposed & potential future cultural heritage management activities

7. Updates on other C&A cultural heritage management activities

- Mount Thorley Operations (DA 34/95)
- Mount Pleasant Coal Project (DA92/97)

CHWG Meeting Agenda

8. Administrative Coordination & rostering

- Stakeholder review of status & eligibility requirements for the C&A Cultural Heritage Administrative Co-ordination & Fieldwork rosters

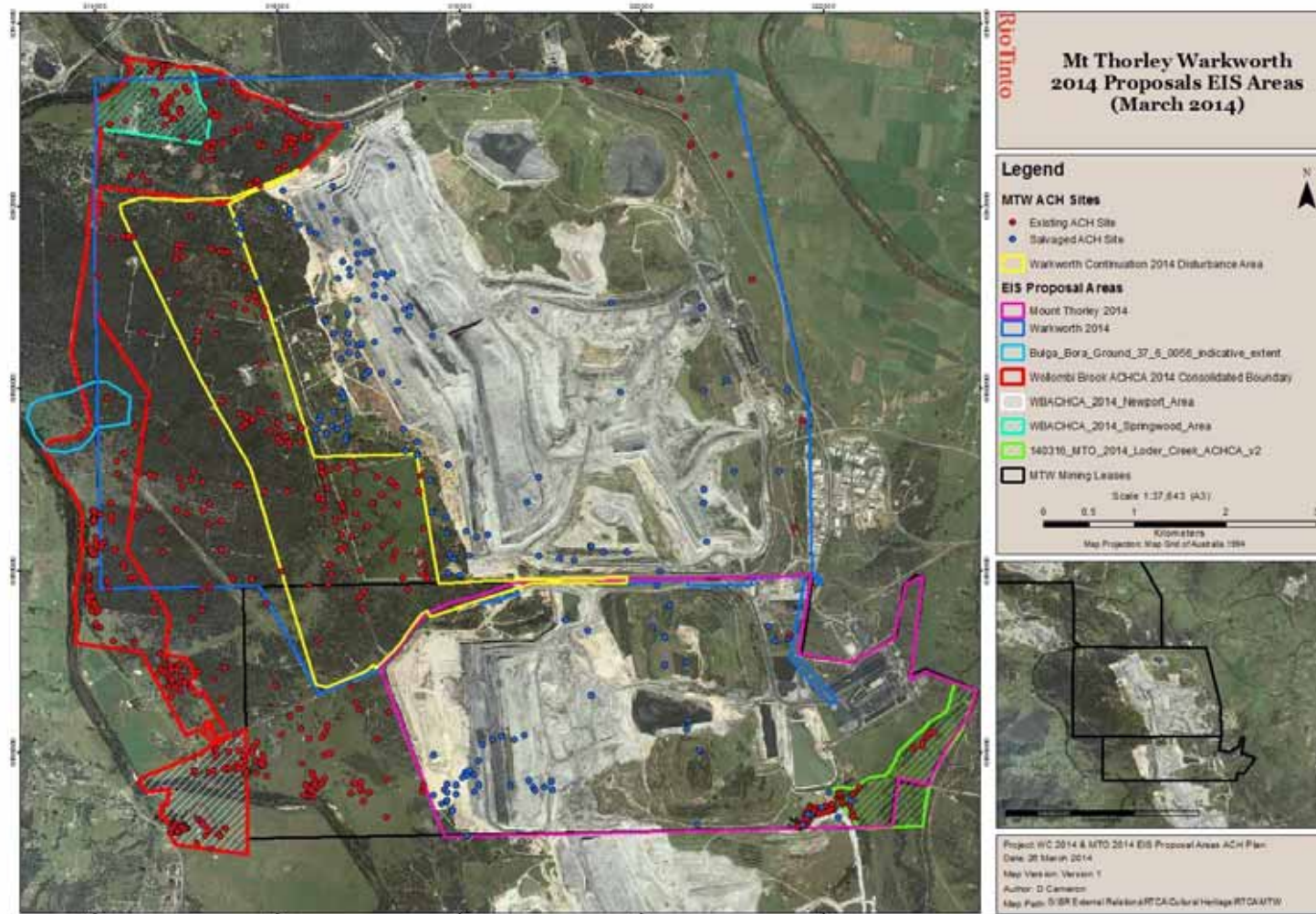
9. Other Business and Community Feedback/Issues

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

1. The Warkworth Continuation 2014 Proposal is an application for an approval under Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to continue mining beyond the current limits of approval DA 300-9-2002-i.
2. The Mount Thorley Operations 2014 Proposal is an application for an approval under Part 4, Division 4.1 of the EP&A Act for additional time to complete mining & rehabilitation activities within the current limits of approval DA 34/95.

They are two separate proposals requiring their own Environmental Impact Statements & development consents

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals



3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

- State Significant Developments (SSD) - Both proposals will have SSD status which enacts the provision under 89J (D) of the EP&A act that exempts them from section 90 of NPW Act.
- No ACHAR or AHIPS required but will require approved Heritage Management Plan (e.g. HVO South ACHMP)
- Aboriginal Cultural Heritage Impact Assessments required for both the Warkworth Continuation 2014 Proposal and for the Mount Thorley Operations 2014 Proposal Environmental Impact Statements

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

ACH Consultation Process & Timelines:

- Coal & Allied CHWG primary forum for Aboriginal Community consultation for these proposals
- DoPI (Planning & Infrastructure) & OEH require development proponents preparing an Aboriginal cultural heritage impact assessment for an EIS to undertake consultation with the Aboriginal community in conformance with the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRP).
- Process will incorporate previous consultation associated with the former Warkworth Extension Project (WEP), Warkworth Modification 6 AHIP & Mt Thorley Operations Ramp 22 Dam AHIP

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

- **ACH Consultation Process & Timelines:**
 - 19th March 2014: Warkworth & Mount Thorley proposals announced
 - 19th March: RAPs notified by letter of proposals & today's CHWG consultation meeting
 - 3rd April: CHWG consultation meeting; information regarding the proposals presented & discussed
 - 7th April: RAPs provided with 3rd April CHWG meeting information package, summary statement of ACH impact assessments & notified of 2nd CHWG consultation meeting (7th May)
 - RAP site visit to proposal & ACHCA areas (timing to be discussed with CHWG RAPs)

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

- **ACH Consultation Process & Timelines:**
 - 7th May: 2nd CHWG consultation meeting to collate RAP feedback on ACH significance, impact assessments & management commitments
 - w/c 12th May: Provision of the EIS submission ACH impact assessment report to RAPs
 - May/June (EIS statutory process):
 - EIS Public Exhibition Period
 - Response to Submissions
 - Submission for Planning & Assessment Commission review

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Warkworth Continuation 2014 Project Description (Key Elements)

- Continuation of mining activity over an additional 698 ha westwards from current operations;
- The maintenance of approval of all aspects of the existing operations for Warkworth Mine approved under DA 300-9-2002-i, including, coal processing rates and integrations with MTO amongst other aspects.
- The closure of Wallaby Scrub Road;
- An option to develop an underpass beneath Putty Road (to connect with MTO)

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Aboriginal Cultural Heritage Assessment Studies

- Aboriginal cultural heritage investigations associated with the Warkworth Mine began in the late 1970s
- Since the granting of the current development consent in 2003 there have been:
 - Six detailed Aboriginal cultural heritage surveys
 - Nine cultural heritage salvage & excavation activities, including:
 - 2008 large scale archaeological excavation & geomorphological investigation, &
 - 2012 trench excavations of the Warkworth Sandsheet landform

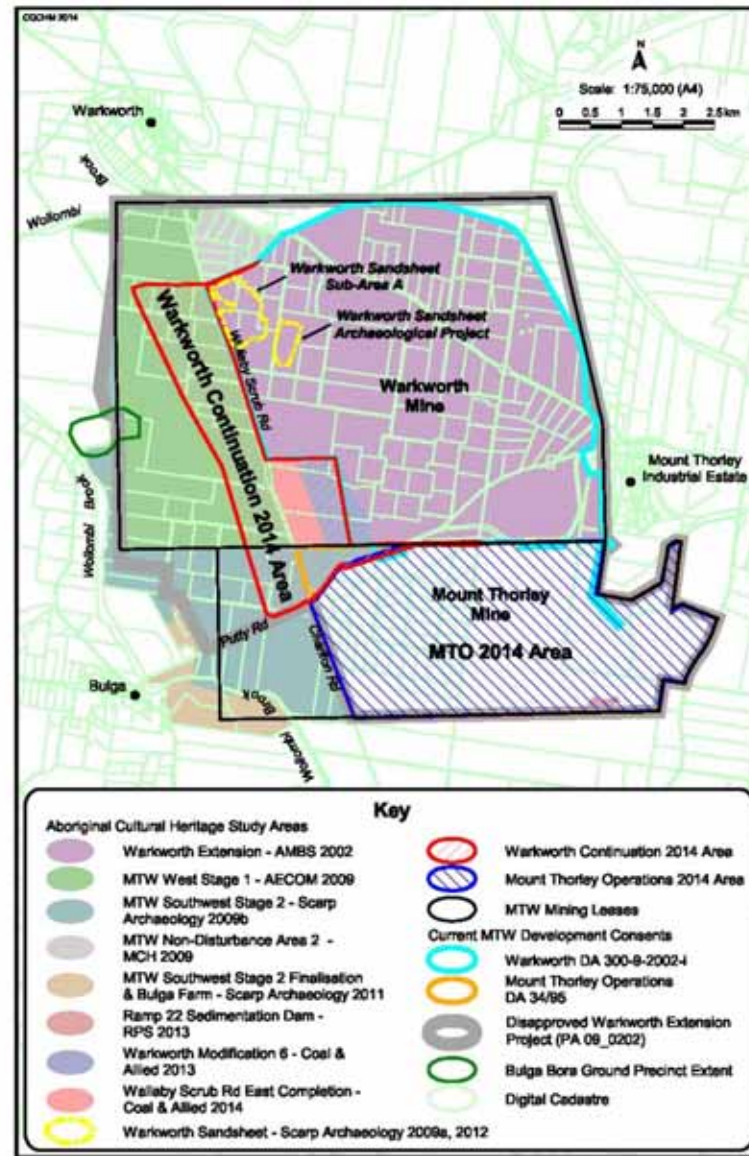


Figure 3: Key Aboriginal cultural heritage study areas and their relationship to the Warkworth Continuation 2014 and MTO 2014 proposal areas, major consent areas, tenement & other features referred to in the text.

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Aboriginal Cultural Heritage Assessment Studies

- The whole of the Warkworth Mine Continuation 2014 Proposal development disturbance area (698ha approx) has been the subject of comprehensive (100% coverage) & systematic cultural heritage investigations.
- There are 110 extant Aboriginal cultural heritage places (objects & sites) that have been identified & recorded within the development disturbance area that will be impacted by the development.
- There are 386 extant Aboriginal cultural heritage places located outside development disturbance area that will not be impacted (on other C&A lands within Warkworth ML & the Wollombi Brook Conservation Area).

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Warkworth Continuation 2014 Proposal Area

	Area (ha)	Number of sites	%
Development Disturbance Area	698ha	110	22.2%
Wollombi Brook ACH Conservation Area	685ha*	265	53.4%
Other 'on-site' C&A lands	1,044ha	121	24.4%
<i>Total</i>		496	
<i>* Approximation subject to final ground truthing</i>			

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

ACH sites located in development disturbance area

Place Type	Number	%
Stone Artefacts	103	93.7
Stone Artefacts / PAD	3	2.7
Scarred Trees	2	1.8
Scarred Tree /Isolated Stone Artefact/s	1	0.9
Grinding Grooves	1	0.9
<i>Total</i>	<i>110</i>	

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

ACH sites located on other 'on site' C&A lands

Place Type	Number	%
Stone Artefacts	86	71.1
Stone Artefacts / PAD	23	19.0
Scarred Trees	9	7.4
Isolated Stone Artefact/s / Stone Source	2	1.7
Isolated Stone Artefact/s / Shell Material	1	0.8
<i>Total</i>	<i>121</i>	

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

ACH sites located in the Wollombi Brook Aboriginal Cultural Heritage Conservation Area

Place Type	Number	%
Stone Artefacts/Scatters	244	92.1
Scarred Trees	11	4.1
Grinding Grooves	4	1.4
Spiritual Place	1	0.4
Spiritual Place / Scarred Trees	1	0.4
Stone Arrangement	1	0.4
Mound Feature (potential burials)	1	0.4
Stone Source	1	0.4
<i>Total</i>	<i>265</i>	

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Wollombi Brook ACH Conservation Area

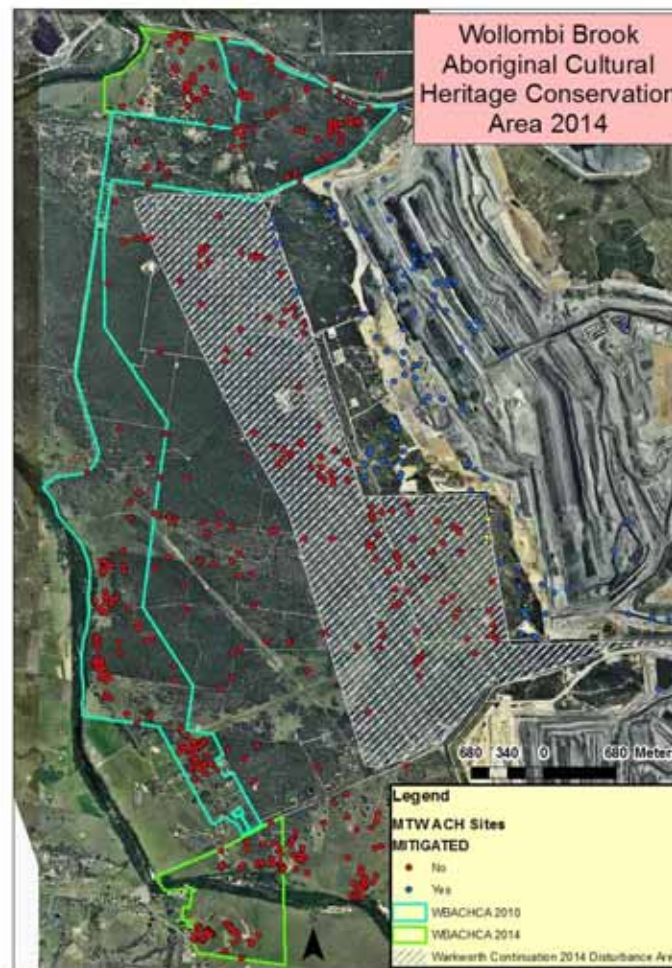
- WBACHCA 2009 area (513 ha) expanded to include Springwood (74 ha) & Newport (98 ha) with total area of 685ha to be protected in perpetuity for the conservation & management of Aboriginal cultural heritage places & values
- Will provide for the protective management & cultural maintenance of the Bulga Bora Ground & associated cultural landscapes
- Will be protected permanently from all mining (open cut & underground), exploration drilling & associated development disturbance

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Wollombi Brook ACH Conservation Area

- The WBACHCA will be managed in accordance with a specific management plan developed in consultation with the CHWG
- The Aboriginal community, through a WBACHCA management committee, will oversee the implementation of the management plan
- C&A will continue to ensure an active Aboriginal community role in both Aboriginal cultural heritage and environmental management activities for the WBACHA
- Engage with Wambo Coal with a view to developing a collaborative management protocol for highly significant areas associated with and immediately adjacent the Bulga Bora Ground

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment



3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Heritage Management Plan (HMP)

- A HMP will be developed in consultation with CHWG RAPs
- Based on existing principles, protocols & processes for Aboriginal cultural heritage management developed with CHWG
- Intention is for an integrated HMP to cover the entirety of the MTW mining leases & adjoining C&A owned lands
- Management (mitigation) of ACH sites in the development area will be staged to minimise disturbance to five years in advance of mining & development footprint

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Heritage Impact Management Commitments

- Development of integrated heritage management plan for entire MTW mining area & adjacent C&A lands
- In perpetuity protection for the WBACHCA (c.685ha)
- Aboriginal community management & access for the WBACHCA
- Protective management of ACH sites located on adjacent C&A owned lands
- Mitigation for all ACH sites subject to development disturbance activities
- Comprehensive recording & excavation of Site M grinding grooves site & recovery of sections subject to geotechnical assessment
- Implementation of the Hunter Valley Sand Bodies Research Study

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Mt Thorley Operations 2014 Project Description (Key Elements)

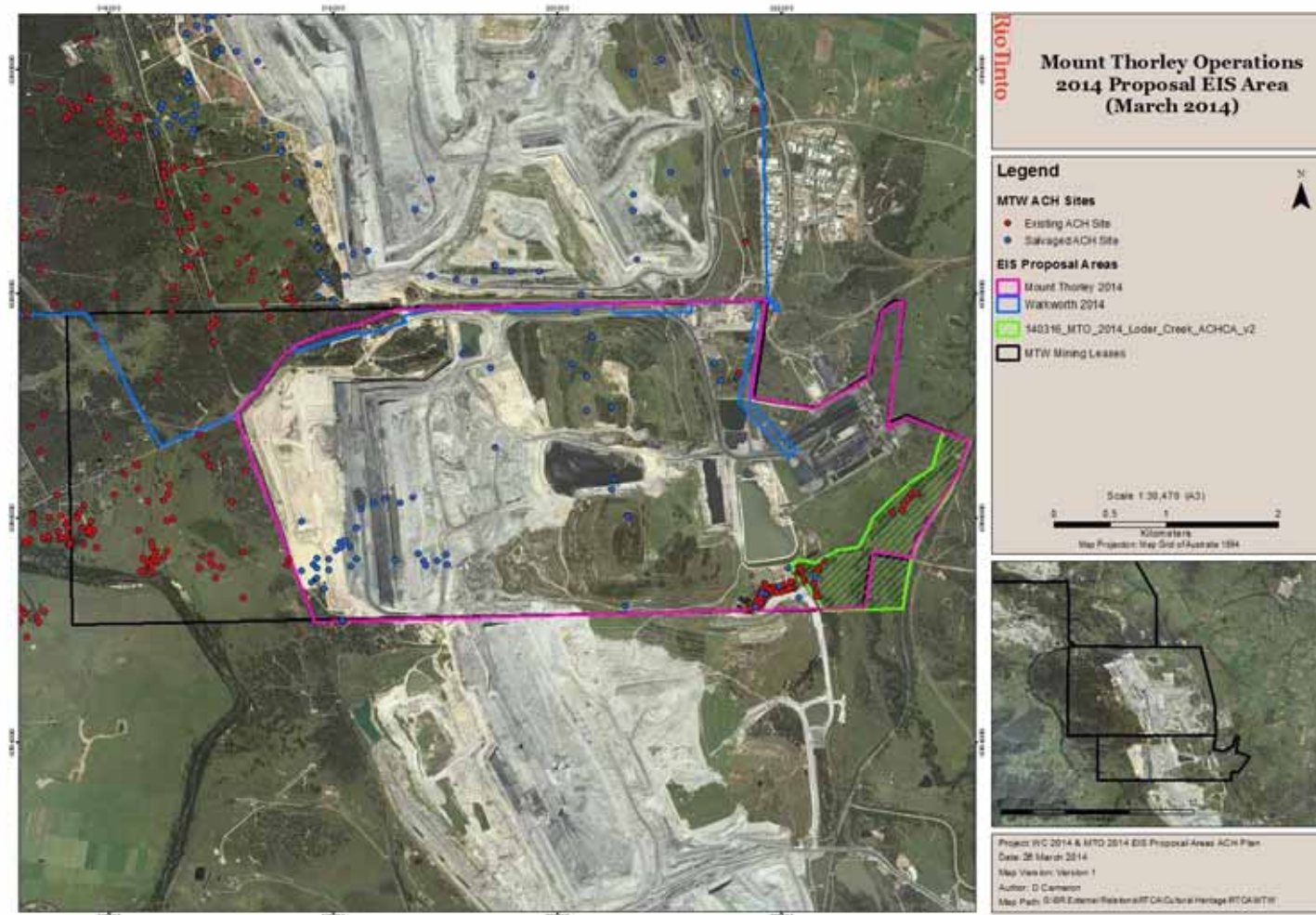
- The completion of mining in Loder & Abbey Green North pits (within currently approved mining footprint east of Charlton Road);
- The ability to accept overburden from Warkworth Mine to complete the final landform;
- The maintenance of operational level integrated components of MTW, including upgrades to the water management system;
- An upgrade to the CPP to facilitate an increase in maximum annual throughput of 18 Mt;
- The maintenance of approval of all aspects of the existing operations for Warkworth Mine approved under DA 34/95, including, coal processing rates and integrations with WML amongst other aspects.

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Aboriginal Cultural Heritage Assessment Studies

- Aboriginal cultural heritage investigations associated with MTO mining area began in the early 1980s
- Since current DA 34/95 consent in 2002 & A&CHMP (2004) a range of cultural heritage investigation & management programs.
- All ACH management completed for current & future mining areas at Loder's Pit & Abbey Green North
- There have been recent cultural heritage surveys in the SE portion of MTO 2014 proposal area – Ramp 22 Sedimentation Dam ACHAR
- MTW South West Stage 2 studies – 2009 & 2010. West of Charlton Road, large portion of land for these assessments to be conserved within Wollombi Brook ACHCA

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment



4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Extant Sites located within the MTO 2014 Proposal Area

Place Type	Number	%
Isolated Stone Artefact/s	30	62.5
Stone Artefact Scatters	15	31.3
PAD (Potential Archaeological Deposit)	3	6.2
<i>Total Sites identified</i>	48	

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

ACH sites located in the Loder Creek Aboriginal Cultural Heritage Conservation Area (87ha)

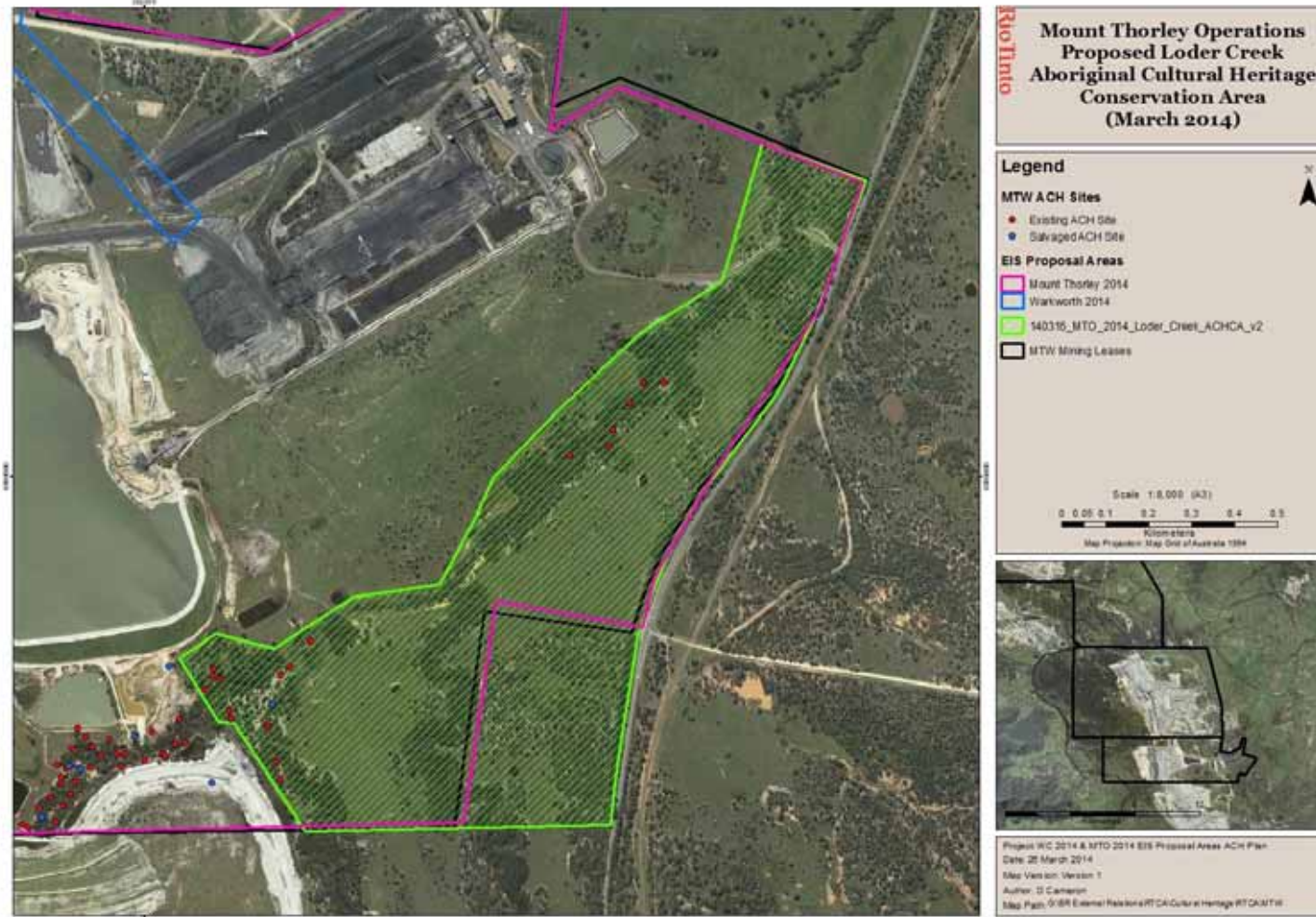
Place Type	Number	%
Stone Artefact/s/ Scatter	11	61.1%
Isolated Stone Artefact/s	6	33.3%
PAD (Potential Archaeological Deposit)	1	5.6%
<i>Total</i>	18	

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Proposed Loder Creek Aboriginal Cultural Heritage Conservation Area (LCACHCA)

- Establish Loder Creek ACHCA in perpetuity for the conservation and management of Aboriginal cultural heritage places and values
- Area to be protected permanently from future mining, exploration, drilling and associated development disturbance
- Proposed conservation area totals approximately 87 hectares protecting about 2.2kms of Loder Creek & 900m of Nine Mile Creek watercourses
- Area has been subject to previous Aboriginal cultural heritage investigations with comprehensive survey assessment to be conducted to inform management plan
- 19 places have previously been identified (one has been salvaged) containing Aboriginal cultural heritage objects in the LCACHCA, primarily of stone artefacts

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment



4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Heritage Management Plan (HMP)

- A HMP will be developed in consultation with CHWG RAPs
- Based on existing principles, protocols & processes for Aboriginal cultural heritage management developed with CHWG
- Intention is for an integrated HMP to cover the entirety of the MTW mining leases & adjoining C&A owned lands
- Management (mitigation) of ACH sites in the development area limited to Ramp 22 Sedimentation Dam area & rehabilitation work along the watercourse (No other sites will be disturbed)
- Current A&CHMP requires revision for DA 34/95 Modification 6 (2012) HMP requirement – to be completed by July 2014

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Heritage Impact Management Commitments

- Development of integrated heritage management plan for entire MTW mining area & adjacent C&A lands
- Complete the reassessment survey of the Loder Creek ACHCA
- In perpetuity protection for the Loder Creek ACHCA (87 ha approx.)
- Aboriginal community management & access for the Loder Creek ACHCA
- Protective management of ACH sites located on adjacent C&A owned lands
- Mitigation of any ACH sites subject to development disturbance activities, e.g. Ramp 22 Area

Appendix 1.8: Invitation to Attend Site Visit to the Proposal Areas 29 April 2014

Private and confidential

[NAME AND ADDRESS]

9th April 2014

Dear [NAME],

Coal & Allied Cultural Heritage Working Group Site Visit – Warkworth Continuation 2014 & Mount Thorley Operations 2014 Proposal Areas Tuesday 29th April 2014

As part of its consultation process with Registered Aboriginal Parties (RAPs) through the auspices of the Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group (CHWG) for the Warkworth Continuation 2014 & Mount Thorley Operations 2014 Proposals, Coal & Allied will conduct a site tour of these proposal areas on Tuesday 29th April 2014.

This site tour has been arranged in response to requests from RAPs at the CHWG meeting held on 3rd April 2014 to visit the proposal areas & to provide RAPs with the opportunity:

- to familiarise themselves with current operations at Mount Thorley Warkworth & the proposal areas;
- to familiarise themselves with the location & nature of Aboriginal cultural heritage (ACH) sites within these areas;
- to visit the Wollombi Brook ACH Conservation Area, including the areas recently added to the north (Springwood) & south (Newport), & to inspect some of the significant ACH sites located in this area;
- to visit the proposed Loder Creek ACH Conservation Area & inspect some of the ACH sites located in this area; and
- to personally assess the impacts of the proposals on ACH values to consider the suitability of the proposed management & mitigation measures.

The MTW site visit will be on an **unpaid, voluntary** basis, & participants will be required to wear PPE: i.e. a long-sleeved shirt, long pants & ankle-height lace-up steel-capped boots. The details of the site visit are as follows:

Date: Tuesday 29th April 2014
Time: 10.00am to 2.00pm
Venue: Wollombi Brook Conservation Area, 1916 Putty Road, Bulga (see location map). Lunch will be provided

So that appropriate transportation, mine safety and catering arrangements can be made, it is **essential** that you **RSVP** your intention to attend the site visit by **Thursday 24th April**. RSVPs must be directed to:

Georgia Bennett
Cultural Heritage Advisor, NSW – HSEC
M: +61 (0)477 304 755
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georgia.bennett@riotinto.com.au

If you are unable to attend the site visit, or CHWG meetings, you may lodge comments, queries or feedback on these proposals via letter, email or phone to Georgia or myself. I look forward to seeing you on the day, and please find enclosed directions to the Putty Road facility.

Yours sincerely



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Appendix 1.9: Minutes of Site Visit to the Proposal Areas 29 April 2014

Attendance:

Joel Deacon - RTCA
Georgia Bennett - RTCA
Luc Daigle – SCT
Rhonda Griffiths - Hunter Valley Aboriginal Corporation
Suzie Worth – Wanaruah Local Aboriginal Lands Council
Gary Perkins – Divine Diggers Aboriginal Cultural Consultants
Les Atkinson - Jarban & Mugrebea

Apologies:

Arthur Fletcher – Wonn 1
Vicky Slater – Kawul Cultural Services
Jenny Chambers – JLC Cultural Services

- We started the day at the 1916 Putty Road cultural heritage facility where we introduced Luc Daigle, who attended to provide geotechnical advice on potential management measures for the Site M grinding grooves.
- Using the map we spoke about the proposals & where the disturbance impacts would occur, & also looked at the Aboriginal cultural heritage conservation areas, including the new additions proposed.
- We visited the Site M Grinding Grooves & video recorded this discussion. The video file is too large to email, so please let Georgia know if you would like a copy & it can be mailed to you on a disc.
- The main points raised at the grinding grooves were:
 - The need for the site to be fully documented through photography, mapping & also 3D digital imaging. This should occur regardless of whether Coal & Allied receives approval to disturb the area & will provide a time lock copy of what is there now. Spherical imaging will also provide a 3D image of the surface of the grooves and the landscape in which they are situated that will enable the viewer to 'walk around the site on line', like Google Street View/Earth.
 - Luc says that it's not impossible to move the grooves, but he would need to assess the rock strength & composition first to determine if & how this could be done. This work would form a stage 2 package of works that would be completed only if Coal & Allied received permission to move the grooves
 - An issue raised was "where do you store the relocated grinding grooves?" Options within the Wollombi Brook Aboriginal Cultural Heritage Conservation Area (WBACHCA) were discussed, & it was noted that a detailed management plan would be developed first with the wider CHWG group.
 - Luc also mentioned that if left in-situ the sandstone & the grooves will wear away (exfoliate) over time, & that the hay bales placed over them to protect them from potential blast fly rock are not hurting the grooves, & that they would also help reduce the stress caused by the wetting/drying cycle.
- We then went up the road as high as we could to view the current operations & look back over the proposed new mining areas towards the Wollombi Brook conservation area.
- We drove up along the inside of Wallaby Scrub Road within the current consent area to the double scar tree (MTW-321 / 37-6-2611). Issues raised regarding the scar tree were:
 - The need to get a baseline health assessment done of the tree to better understand the impact of mining disturbance on the tree as mining encroaches. The tree's health would then need to be monitored over time
 - A stronger fence could be erected around the tree, & new access from within the conservation area will need to be instituted as, or if, mining blocks the current access.
- We then crossed over Wallaby Scrub Rd & drove to the conservation area, pointing out the limit of the proposed disturbance area on the tracks as we passed.

- We visited the ACH sites including the grinding grooves & the axe on Wollombi Brook.
- Comments made by the group were
 - The need for suitable relocated buildings for use in the WBACHCA area for community & educational use;
 - community access to the area and camping on site by school groups etc.
 - The use of a caretaker on site to oversee site visits was also raised as a good idea to help maintain & protect these areas.
- The Bora Ground was not visited as the group felt protocol may have been breached if they did.
- We then drove around the airstrip & back down to a clear open field area near Wollombi Brook that would be great for these kinds of activities.
- We then drove north along Wallaby Scrub Road to Springwood to point out the additional area that has been added to the WBACHCA. Wambo's biodiversity conservation area on the other side of Springwood was discussed, & it would be good to talk to them about linking up different company's conservation areas to be managed as one, & also Xstrata Bulga on the other side of the leases.
- We then drove around Warkworth & Mount Thorley mines to the newly proposed Loder Creek Aboriginal Cultural Heritage Conservation Area off the Broke Road
- It was pointed out that the area would need to be surveyed, but that it was highly likely that artefact scatters would continue along this important creek.
- Again, the open country off the creek was noted as being suitable for camping.
- A concern raised by the group was –“ what happens to the land being offered as conservation areas if C&A does not gain new approvals & closes the mine?”
- Before we concluded the day we drove back along the Putty Road to view the new southern additions to the WBACHCA on both sides of Wollombi Brook near Bulga. Comments raised again about the cultural benefits of making connections with Bulga Coal's conservation areas to the south

Site Visit end 2:30pm.

Appendix 1.10: Meeting Agenda for the Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group Community Consultation Meeting 7 May 2014

Venue: 1916 Putty Road Cultural Heritage Facility - 9.00am to 2.00pm

Welcome and introductions

1. Review of Minutes & Actions from previous CHWG meeting 3rd April 2014

2. Update on status of Coal & Allied operations, business outlook & projects

3. Warkworth Mine Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Warkworth Mine, including:
 - Scope of proposal
 - Aboriginal cultural heritage impact assessment &
 - proposed management measures

4. Mount Thorley Operations Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Mount Thorley Mine, including:
 - Scope of proposal
 - Aboriginal cultural heritage impact assessment
 - proposed management measures

5. Updates on other Coal & Allied cultural heritage management activities

- Mount Pleasant Coal Project (DA92/97)
- Hunter Valley Operations – North (DA-450-10-2003)
- Hunter Valley Operations – South (PA_06_0261)
- Mount Thorley Operations (DA 34/95)

6. Administrative Coordination & rostering

- Stakeholder review of eligibility requirements for, & current membership of, the Coal & Allied Cultural Heritage Administrative Co-ordination & Fieldwork Rosters

7. Other Business and Community Feedback/Issues

Notes:

- 'OEH ACHCR 2010' in text denotes development subject to assessment & AHIP approvals under Part 6 of the NPW Act, Office of Environment and Heritage.
- 'DoPI EP&A' in text denotes development subject to a project approval &/or ACHMP conditioned by the Department of Planning & Infrastructure and not requiring an AHIP approval from OEH.

Appendix 1.11: Meeting Minutes for the Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group Community Consultation Meeting 7 May 2014

MINUTES

Date: 7th May 2014 **Time:** 0900 - 1400

Venue: Wollombi Brook ACH Conservation Area, 1916 Putty Rd, BULGA.

Chairperson: Joel Deacon

Attendees: Joel Deacon – RTCA Specialist Cultural Heritage
David Cameron - RTCA Manager Cultural Heritage
Georgia Bennett – RTCA Advisor Cultural Heritage
Noel Downs – WLALC
Suzie Worth - WLALC
Rhoda Perry – Upper Hunter Wonnarua Council Incorporated
Rhonda Ward -Ungooroo Cultural & Community Services

Apologies: Rhonda Griffiths - HVAC
Arthur Fletcher – Wonn 1
Kathy Kinchela –Yinarr Cultural Services
David Ahoy – Lower Hunter Aboriginal Incorporated
Tracey Skene – Culturally Aware
Maree Waugh – Wallangan Cultural Services
John & Margaret Matthews – Aboriginal Native Title Consultants
Deidre Perkins – Divine Diggers
Kerry Boyd – HECMO Consultants

Minutes: Georgia Bennett

Meeting started: Minutes silence

Apologies given

Welcome and introductions – by RTCA staff and those present at the meeting

3. Warkworth Mine Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Warkworth Mine, including:
 - Scope of proposal
 - Aboriginal cultural heritage impact assessment &
 - proposed management measures

Dave - The two proposals which are being sought for a new approval are Mount Thorley Operations & Warkworth Continuation which is an existing area that's already consented and adding an additional area (very similar to what was looked at in 2010) which crosses Wallaby Scrub rd. and heads toward Wollombi Brook. To continue the life of the mine by 21 years. Mt Thorley Operations proposal, is about having additional time to continue the mine up to, but not crossing Charlton Rd. All within the currently consented area.

Points out the extension area / boundary of the conservation area on the map.

Key Areas: sites in the Warkworth Continuation area
conservation area, including the 2 new areas
Loder Creek Aboriginal Cultural Heritage Conservation Area (in MTO)

Whilst they are separate consents they are inter-related operations, involve two separate approval and two separate EIS's.

State Significant Developments: If / when we get approval we'll need to develop a Heritage Management Plan, to be developed by the RAPs and the CHWG and approved by OEH.

Consultation Process: CHWG is the primary forum. Feedback via attending meetings, phone, email etc. As a result of the last meeting we invited people on a site visit (29th April) to look around the areas to be impacted and the conservation areas. We need to follow the AHIP process even though it's not an AHIP. Key point for this group is that our consultation process doesn't stop, it's a continuous process. We'll also be looking at previous consultation that we've undertaken.

110 extant sites (places) to be impacted, 386 extant sites outside the impact area. 700 ha (approx.) to be disturbed (types of sites is run through).

WBACHCA area has now been extended from 513 ha to 685 ha. Protective management of sites in the area

Bora Ground – the indicative boundary has been expanded to include an area to the north in response to a community request. It is still inside the conservation area and follows the Warkworth Sand woodlands land form.

Noel – there's still a lot interest in doing further work / study out there.

Dave – we need to do this with Wambo.

Noel – we want to talk to Wambo and see how we can get co-management of the two conservation area so there is one protocol. Is the WBACHCA an offset? OEH don't recognize cultural offsets, only conservation areas or a bio-diversity offset.

Dave – looking at options for how to protect that in perpetuity; covenant on title. The PAC decided conservation agreement under section 69 of the NPW act was the best mechanism to protect. Not an actual mechanism under the act that recognizes Aboriginal Cultural Heritage as being off-settable. It is an issue and we want to make sure that this is preserved in perpetuity.

Discussion about conservation lands and cultural offsets / bio-diversity offsets.

Heritage Management plan – to be developed for the Warkworth Mine continuation area: understand the impacts, how do we manage sites (those to be disturbed and not disturbed) how do we manage the impacts, what offset initiatives / commitment do we make i.e. conservation areas: these are critical issues. There will be a separate plan for the conservation areas which will be referenced in the HMP. The HMP will be the management document for the life of the consent.

Dave – does anyone have any feedback on the impacts, management outcomes, commitments, above and beyond what we've already talked about?

No comments are made.

Suzie – I do feel that there needs to be some sort of permanent protection between the area that's going to be mined and the edge of the conservation area. I don't just want to see a fence line

Dave- like the berms? Some sort of physical barrier along that boundary?

Joel – one thing that will happen, because Wallaby Scrub rd. will close as a result of this proposal is we still need to provide access from Putty Rd and the Golden Hwy for the RFS

Suzie - I'm talking about the area that is proposed for the extension

Dave – in terms of a physical barrier for to separate where the mine will end up, then what does that look like? As Joel was about to say one thing we'll have to do inside the development area is there'll be an access track so that company personnel, RFS staff can get to Bulga or other areas quickly, there also looking at potentially an earthen berm to provide a visual barrier back from Bulga.

Noel – Suzie means something like the earthen barrier that runs down Denman rd.

Suzie – physical protection for the environment from the mine, dust etc.

Discussion about ground water / surface water runoff and managing these impacts. Could add into the HMP: how to assess that and the appropriate way to manage it.

Dave – re: un-authorized access we'll have locked gates. One discussion that came up last time was do we fence this boundary? More appropriate maybe to peg the boundary (less disruptive) with markers to define the area?

Rhoda – could this work be done by Aboriginal people?

Dave - Conserving Country Training Program: program to train up Aboriginal people with land management skills. Any of that work could be done through this program.

Dave – any other ideas or proposals?

Rhoda - I still have a bit of a problem with the lack of structure, we're all representing ourselves

Dave – (talks about governance structure issues and that we need to work through the options over time).

Discussion about governance structure and transparency.

Noel – transparency is the Land Councils issue and the model that keeps getting put up is an autonomous non-transparent model that's excludes the Land Council from having a say in it and any organization that wants to exclude the Land Council is going to have opposition from the Land Council. The community wants the Land Council to be involved as its representative talking on their behalf.

Dave – so that challenge is before us and we'll delve back into that again and hopefully find a solution.

Rhoda – I want to see us all move forward together, working together.

Dave – the other thing to raise about the commitments is around the Site M grinding grooves. We'll send out a copy of the video that was taken on the day (site visit 29th April) which shows Luc Daigel (geo-technical engineer) talking about the site. Looking to develop a specific mitigation strategy for that area; protection whilst there and then if mining gets approved how to mitigate that site and further archaeological investigations and 3D recording of the site.

Morning Tea

4. Mount Thorley Operations Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)

- Discussion & review of long term approval proposal for Mount Thorley Mine, including:
 - Scope of proposal
 - Aboriginal cultural heritage impact assessment
 - proposed management measures

Dave - feedback on the summary impact assessment that was mailed out: anyone have any comments or feedback?

Noel – ours will come out in writing anyway.

Dave – welcome in writing any specific comments. That's great.

Noel – Land Councils usual thing is minimization of impact and ability to access.

Dave – we'll send out the technical report that gets appended to the EIS which picks up all of this and has the consultation requirements and management commitments.

Dave – OK now we'll move onto Mount Thorley some of which may be a bit repetitive. Key thing here is this is effectively a time extension to continue mining in the already consented mine area. No sites disturbed by mining activities at MTO only at Ramp 22. This area has been comprehensively surveyed.

Dave – do you guys know if there's an offset or something in the Bulga site adjacent to the LCACHCA?

Noel – a portion of Loder Creek is supposed to be protected,

Dave – we'll follow that up especially considering the previous comments about connection to other offset areas.

HMP - needs to be developed. We want the 2 plans integrated (MTW and MTO). We need to update the current plan at MTO (between now and July) but that will then be superseded by this integrated plan.

Any other comments or feedback regarding the commitments at MTO?

Noel – Still concerned about Ramp 22 and that gully is a flowing creek.

Dave – you'll note in the ACHAR (Aboriginal Cultural Heritage Assessment Report) that we put in with the AHIP application, that we did include that objection.

Noel – I saw it in the minutes as well

Dave – 2 things; Bulga got their environmental approval for it (which is out of our hands) and the AHIP was approved.

Noel – the only thing I can think of to give it some credence is if you guys took up a water study of it. A definitive yes or no.

Dave - it's out of our hands now, but what we can do as part of the management commitments of that area downstream of the dam wall, is long term management and monitoring of the water quality downstream. We'll pick this up in the management plan for that area.

Any other comments? Again we did send out the impact assessment and its very similar, same issues, so if you have any additional comments please let us know.

No comments made

Site Visit – April 29th

Georgia – gives an overview of the site visit with a focus on the site m grinding grooves. Complete notes of the visit are available as minutes (1.51)

ACTION - develop specific management measures for the double scar tree.

MEETING ENDS

**Appendix 1.12: Meeting Presentation for the Coal & Allied Upper Hunter Valley
Aboriginal Cultural Heritage Working Group Community
Consultation Meeting 7 May 2014**

This documentation is provided in electronic data format independently to this report.

Rio Tinto



**Coal & Allied Aboriginal Cultural Heritage Working Group
Meeting (7th May 2014)**

CHWG Meeting Agenda

- 1. Review of Minutes & Actions from previous CHWG meeting 3rd April 2014**
- 2. Update on status of Coal & Allied operations, business outlook & projects**
- 3. Warkworth Mine Continuation 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)**
 - Discussion & review of long term approval proposal for Warkworth Mine
 - Scope of proposal
 - Aboriginal cultural heritage impact assessment &
 - Proposed management measures
- 4. Mount Thorley Operations 2014 Proposal (DoPI EP&A, OEH ACHCR 2010)**
 - Discussion & review of long term approval proposal for Mount Thorley Operations
 - Scope of proposal
 - Aboriginal cultural heritage impact assessment
 - Proposed management measures

CHWG Meeting Agenda

5. Updates on other Coal & Allied cultural heritage management activities

- Mount Pleasant Coal Project (DA92/97)
- Hunter Valley Operations – North (DA-450-10-2003)
- Hunter Valley Operations – South (PA_06_0261)
- Mount Thorley Operations (DA 34/95)

6. Administrative Coordination & rostering

- Stakeholder review of eligibility requirements for, & current membership of, the Coal & Allied Cultural Heritage Administrative Co-ordination & Fieldwork Rosters

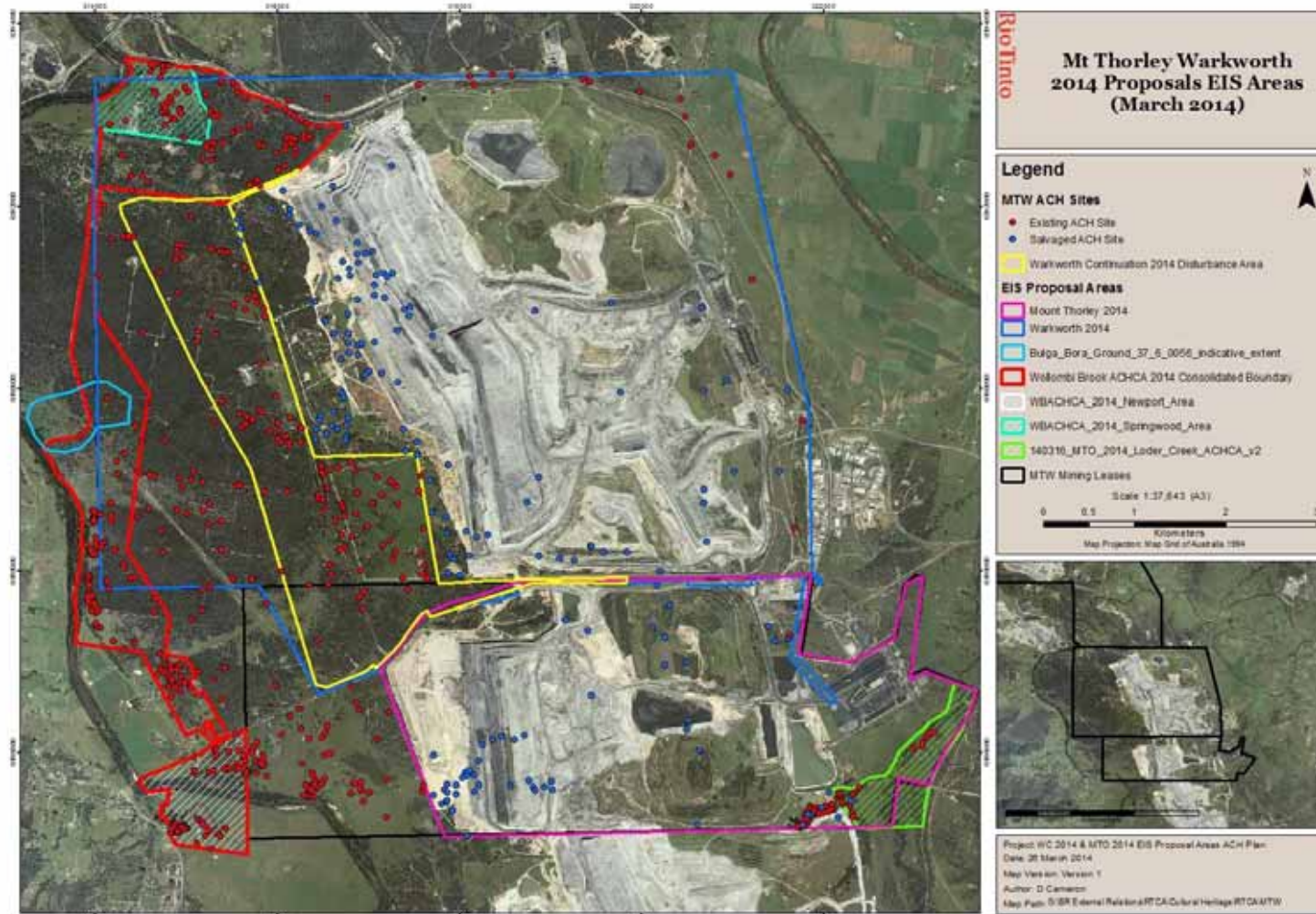
7. Other Business and Community Feedback/Issues

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

1. The Warkworth Continuation 2014 Proposal is an application for an approval under Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to continue mining beyond the current limits of approval DA 300-9-2002-i.
2. The Mount Thorley Operations 2014 Proposal is an application for an approval under Part 4, Division 4.1 of the EP&A Act for additional time to complete mining & rehabilitation activities within the current limits of approval DA 34/95.

They are two separate proposals requiring their own Environmental Impact Statements & development consents

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals



3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

- State Significant Developments (SSD) - Both proposals will have SSD status which enacts the provision under 89J (D) of the EP&A act that exempts them from section 90 of NPW Act.
- No ACHAR or AHIPS required but will require approved Heritage Management Plan (e.g. HVO South ACHMP)
- Aboriginal Cultural Heritage Impact Assessments required for both the Warkworth Continuation 2014 Proposal and for the Mount Thorley Operations 2014 Proposal Environmental Impact Statements

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

ACH Consultation Process & Timelines:

- Coal & Allied CHWG primary forum for Aboriginal Community consultation for these proposals
- DoPI (Planning & Infrastructure) & OEH require development proponents preparing an Aboriginal cultural heritage impact assessment for an EIS to undertake consultation with the Aboriginal community in conformance with the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRP).
- Process will incorporate previous consultation associated with the former Warkworth Extension Project (WEP), Warkworth Modification 6 AHIP & Mt Thorley Operations Ramp 22 Dam AHIP

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

- **ACH Consultation Process & Timelines:**
 - 19th March 2014: Warkworth & Mount Thorley proposals announced
 - 19th March: RAPs notified by letter of proposals
 - 3rd April: CHWG consultation meeting; information regarding the proposals presented & discussed
 - 7th April: RAPs provided with 3rd April CHWG meeting information package, summary statement of ACH impact assessments & notified of this 2nd CHWG consultation meeting
 - 29th April: RAP site visit to proposal & ACHCA areas conducted
 - 7th May: Today's 2nd CHWG consultation meeting to collate RAP feedback on ACH significance, impact assessments & management commitments
 - 12th May: RAPs provided with 7th May CHWG meeting information package

3. Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

- **ACH Consultation Process & Timelines:**
 - w/c 12th May: Provision of the EIS submission ACH impact assessment report to RAPs
 - May/June (EIS statutory process):
 - EIS Public Exhibition Period
 - Response to Submissions
 - Submission for Planning & Assessment Commission review

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Warkworth Continuation 2014 Project Description (Key Elements)

- Continuation of mining activity over an additional 698 ha westwards from current operations;
- The maintenance of approval of all aspects of the existing operations for Warkworth Mine approved under DA 300-9-2002-i, including, coal processing rates and integrations with MTO amongst other aspects.
- The closure of Wallaby Scrub Road;
- An option to develop an underpass beneath Putty Road (to connect with MTO)

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Aboriginal Cultural Heritage Assessment Studies

- Aboriginal cultural heritage investigations associated with the Warkworth Mine began in the late 1970s
- Since the granting of the current development consent in 2003 there have been:
 - Six detailed Aboriginal cultural heritage surveys
 - Nine cultural heritage salvage & excavation activities, including:
 - 2008 large scale archaeological excavation & geomorphological investigation, &
 - 2012 trench excavations of the Warkworth Sandsheet landform

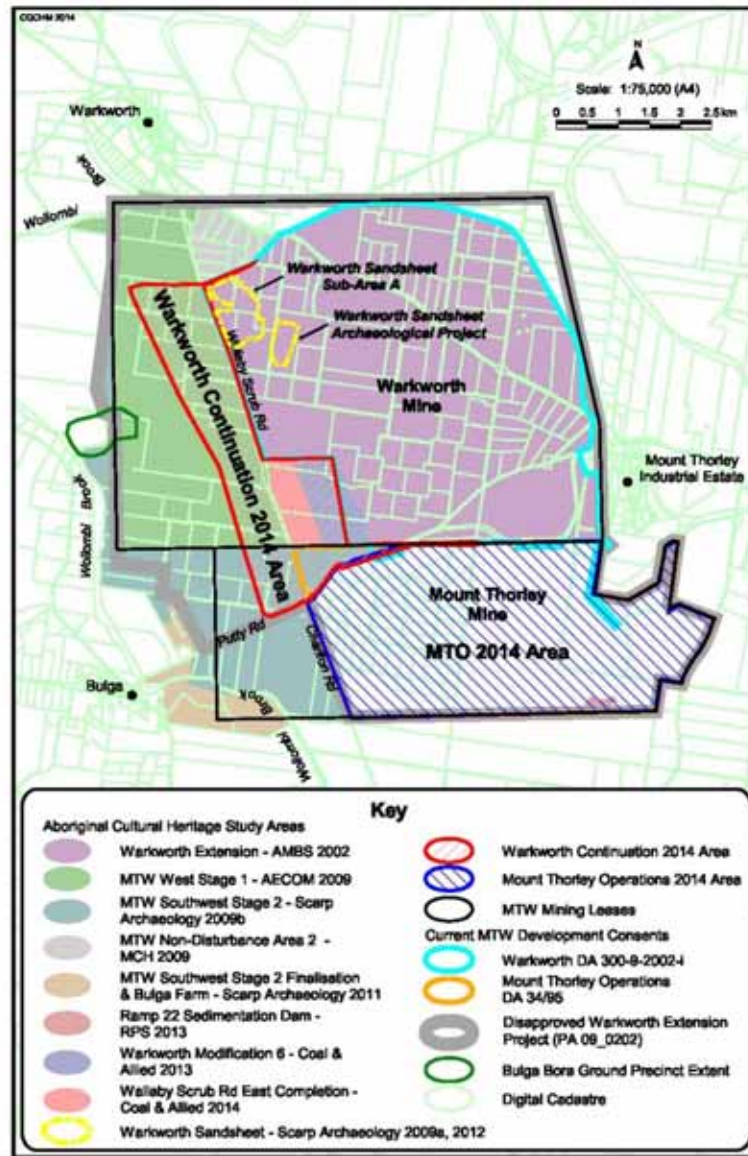


Figure 3: Key Aboriginal cultural heritage study areas and their relationship to the Warkworth Continuation 2014 and MTO 2014 proposal areas, major consent areas, tenement & other features referred to in the text.

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Aboriginal Cultural Heritage Assessment Studies

- The whole of the Warkworth Mine Continuation 2014 Proposal development disturbance area (698ha approx) has been the subject of comprehensive (100% coverage) & systematic cultural heritage investigations.
- There are 110 extant Aboriginal cultural heritage places (objects & sites) that have been identified & recorded within the development disturbance area that will be impacted by the development.
- There are 386 extant Aboriginal cultural heritage places located outside development disturbance area that will not be impacted (on other C&A lands within Warkworth ML & the Wollombi Brook Conservation Area).

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Warkworth Continuation 2014 Proposal Area

	Area (ha)	Number of sites	%
Development Disturbance Area	698ha	110	22.2%
Wollombi Brook ACH Conservation Area	685ha*	265	53.4%
Other 'on-site' C&A lands	1,044ha	121	24.4%
<i>Total</i>		496	
<i>* Approximation subject to final ground truthing</i>			

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

ACH sites located in development disturbance area

Place Type	Number	%
Stone Artefacts	103	93.7
Stone Artefacts / PAD	3	2.7
Scarred Trees	2	1.8
Scarred Tree /Isolated Stone Artefact/s	1	0.9
Grinding Grooves	1	0.9
<i>Total</i>	<i>110</i>	

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

ACH sites located on other 'on site' C&A lands

Place Type	Number	%
Stone Artefacts	86	71.1
Stone Artefacts / PAD	23	19.0
Scarred Trees	9	7.4
Isolated Stone Artefact/s / Stone Source	2	1.7
Isolated Stone Artefact/s / Shell Material	1	0.8
<i>Total</i>	<i>121</i>	

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

ACH sites located in the Wollombi Brook Aboriginal Cultural Heritage Conservation Area

Place Type	Number	%
Stone Artefacts/Scatters	244	92.1
Scarred Trees	11	4.1
Grinding Grooves	4	1.4
Spiritual Place	1	0.4
Spiritual Place / Scarred Trees	1	0.4
Stone Arrangement	1	0.4
Mound Feature (potential burials)	1	0.4
Stone Source	1	0.4
<i>Total</i>	<i>265</i>	

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Wollombi Brook ACH Conservation Area

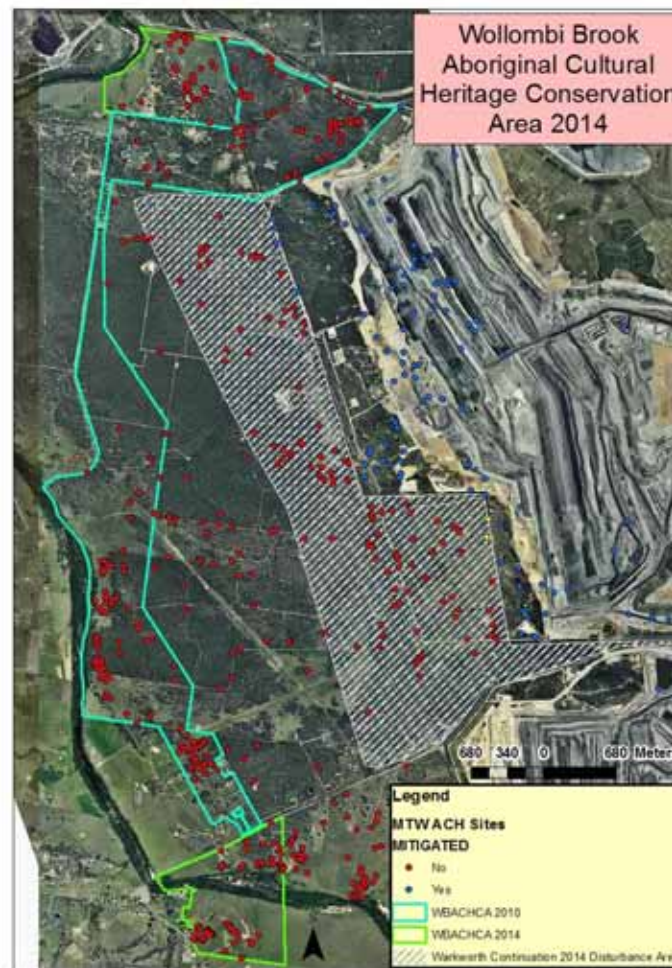
- WBACHCA 2009 area (513 ha) expanded to include Springwood (74 ha) & Newport (98 ha) with total area of 685ha to be protected in perpetuity for the conservation & management of Aboriginal cultural heritage places & values
- Will provide for the protective management & cultural maintenance of the Bulga Bora Ground & associated cultural landscapes
- Will be protected permanently from all mining (open cut & underground), exploration drilling & associated development disturbance

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Wollombi Brook ACH Conservation Area

- The WBACHCA will be managed in accordance with a specific management plan developed in consultation with the CHWG
- The Aboriginal community, through a WBACHCA management committee, will oversee the implementation of the management plan
- C&A will continue to ensure an active Aboriginal community role in both Aboriginal cultural heritage and environmental management activities for the WBACHA
- Engage with Wambo Coal with a view to developing a collaborative management protocol for highly significant areas associated with and immediately adjacent the Bulga Bora Ground

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment



3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Heritage Management Plan (HMP)

- A HMP for the WMC 2014 area will be developed in consultation with CHWG RAPs
- Based on existing principles, protocols & processes for Aboriginal cultural heritage management developed with CHWG
- Intention is to develop an integrated HMP to cover the entirety of the MTW mining leases & adjoining C&A owned lands
- Management (mitigation) of ACH sites in the development area will be staged to minimise disturbance to five years in advance of mining & development footprint

3. Warkworth Mine Continuation 2014 Proposal: Aboriginal Heritage Impact Assessment

Heritage Impact Management Commitments

- Development of heritage management plan for WMC 2014 area & adjacent C&A lands
- In perpetuity protection for the WBACHCA (c.685ha)
- Aboriginal community management & access for the WBACHCA
- Protective management of ACH sites located on adjacent C&A owned lands
- Mitigation for all ACH sites subject to development disturbance activities
- Comprehensive recording & excavation of Site M grinding grooves site & recovery of sections subject to geotechnical assessment
- Implementation of the Hunter Valley Sand Bodies Research Study

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Mt Thorley Operations 2014 Project Description (Key Elements)

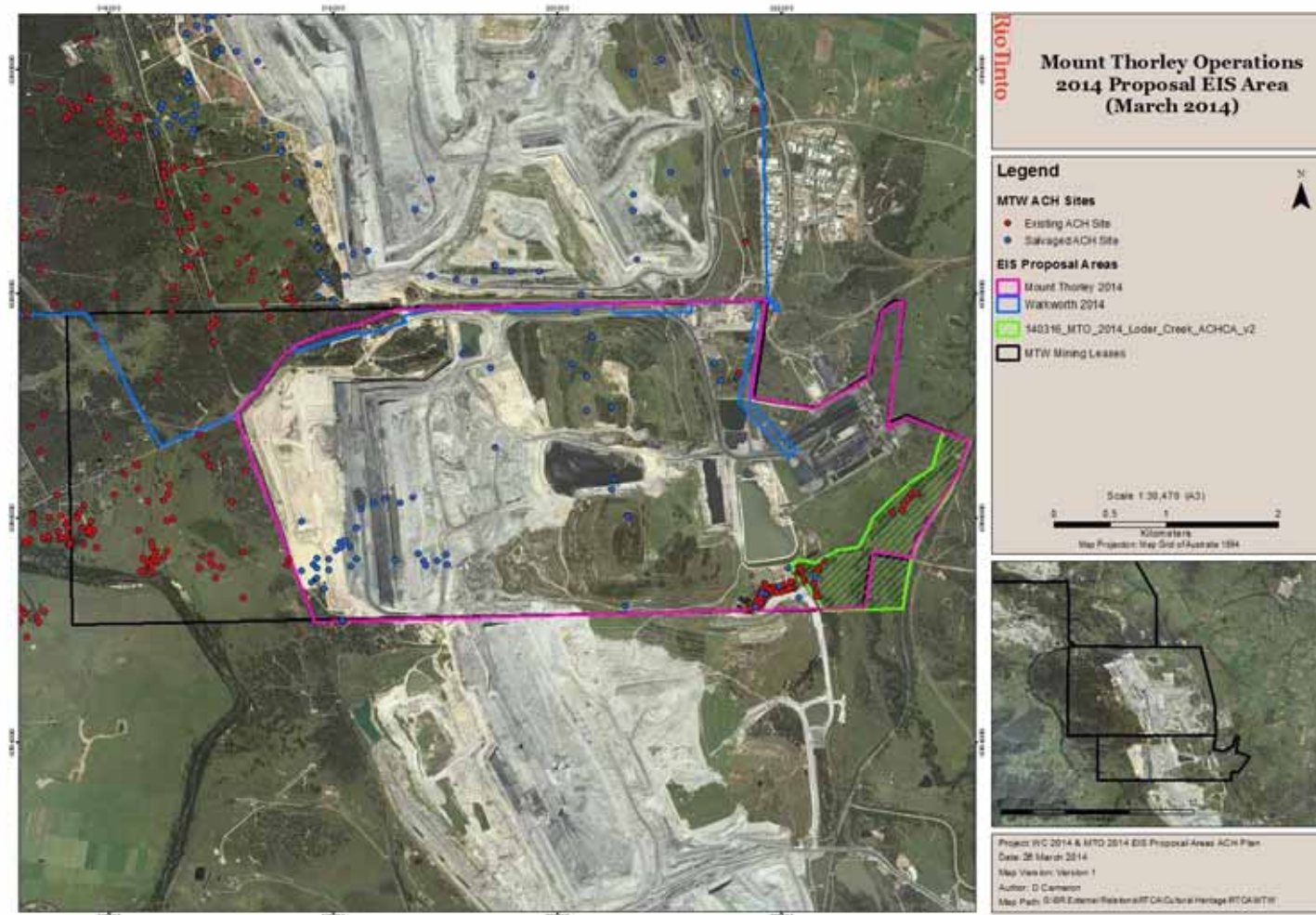
- The completion of mining in Loder & Abbey Green North pits (within currently approved mining footprint east of Charlton Road);
- The ability to accept overburden from Warkworth Mine to complete the final landform;
- The maintenance of operational level integrated components of MTW, including upgrades to the water management system;
- An upgrade to the CPP to facilitate an increase in maximum annual throughput of 18 Mt;
- The maintenance of approval of all aspects of the existing operations for Warkworth Mine approved under DA 34/95, including, coal processing rates and integrations with WML amongst other aspects.

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Aboriginal Cultural Heritage Assessment Studies

- Aboriginal cultural heritage investigations associated with MTO mining area began in the early 1980s
- Since current DA 34/95 consent in 2002 & A&CHMP (2004) a range of cultural heritage investigation & management programs.
- All ACH management completed for current & future mining areas at Loder's Pit & Abbey Green North
- There have been recent cultural heritage surveys in the SE portion of MTO 2014 proposal area – Ramp 22 Sedimentation Dam ACHAR
- MTW South West Stage 2 studies – 2009 & 2010. West of Charlton Road, large portion of land for these assessments to be conserved within Wollombi Brook ACHCA

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment



4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Extant Sites located within the MTO 2014 Proposal Area

Place Type	Number	%
Isolated Stone Artefact/s	30	62.5
Stone Artefact Scatters	15	31.3
PAD (Potential Archaeological Deposit)	3	6.2
<i>Total Sites identified</i>	48	

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

ACH sites located in the Loder Creek Aboriginal Cultural Heritage Conservation Area (87ha)

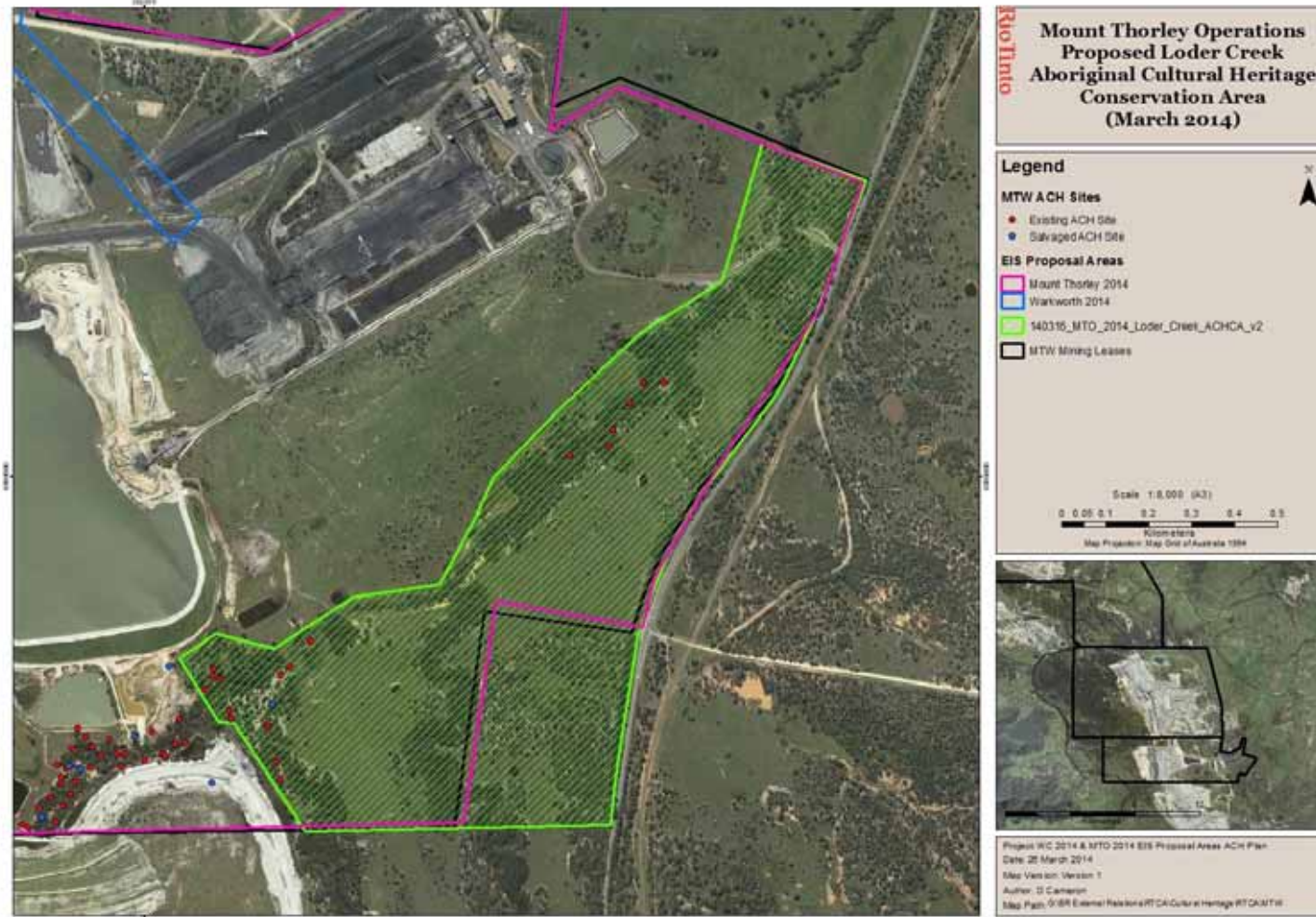
Place Type	Number	%
Stone Artefact/s/ Scatter	11	61.1%
Isolated Stone Artefact/s	6	33.3%
PAD (Potential Archaeological Deposit)	1	5.6%
<i>Total</i>	18	

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Loder Creek Aboriginal Cultural Heritage Conservation Area (LCACHCA)

- CHWG feedback prior to & during EIS process protection of cultural landscape associated with remnant sections of Loder Creek.
- In response C&A proposes to establish the Loder Creek ACHCA for the conservation and management of Aboriginal cultural heritage places and values in that area
- Area to be protected permanently from future mining, exploration, drilling and associated development disturbance
- Proposed conservation area totals approximately 87 hectares protecting about 2.2kms of Loder Creek & 900m of Nine Mile Creek watercourses
- Area has been subject to previous Aboriginal cultural heritage investigations with comprehensive survey assessment to be conducted to inform management plan
- 19 places have previously been identified (one has been salvaged) containing Aboriginal cultural heritage objects in the LCACHCA, primarily of stone artefacts

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment



4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Heritage Management Plan (HMP)

- A HMP for the MTO 2014 area will be developed in consultation with CHWG RAPs
- Based on existing principles, protocols & processes for Aboriginal cultural heritage management developed with CHWG
- Intention is to develop an integrated HMP to cover the entirety of the MTW mining leases & adjoining C&A owned lands
- Management (mitigation) of ACH sites in the development area limited to Ramp 22 Sedimentation Dam area & rehabilitation work along the watercourse (No other sites will be disturbed)
- Current A&CHMP requires revision for DA 34/95 Modification 6 (2012) HMP requirement – to be completed by July 2014

4. Mount Thorley Operations 2014: Aboriginal Heritage Impact Assessment

Heritage Impact Management Commitments

- Development of heritage management plan for MTO 2014 area & adjacent C&A lands
- Complete the reassessment survey of the Loder Creek ACHCA
- Establish the Loder Creek ACHCA (87 ha approx.) & provide for Aboriginal community management & access to the area
- Protective management of ACH sites located on adjacent C&A owned lands
- Mitigation of any ACH sites subject to development disturbance activities, e.g. Ramp 22 Area, & rehabilitation of extant sites in the area (e.g. erosion control, revegetation)

Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

- CHWG inspection of the Warkworth Continuation 2014 & Mount Thorley Operations 2014 Proposal Areas held on 29th April.
- purpose to familiarise RAPs with current operations at Mount Thorley Warkworth & the proposal areas;
- to familiarise RAPs with the location & nature of Aboriginal cultural heritage (ACH) sites within these areas;
- to visit the Wollombi Brook ACH Conservation Area, including the areas recently added to the north (Springwood) & south (Newport), & to inspect some of the significant ACH sites located in this area;
- to visit the proposed Loder Creek ACH Conservation Area & inspect some of the ACH sites located in this area; and
- to personally assess the impacts of the proposals on ACH values to consider the suitability of the proposed management & mitigation measures.

Warkworth Continuation 2014 & Mt Thorley Operations 2014 Proposals

Key outcomes of CHWG inspection:

- Luc Daigle (consultant geotechnical engineer) provided geotechnical advice on the potential recording/relocation/salvage options for the Site M (37-6-0163) grinding grooves (3D imaging & strength testing).
- Continued condition monitoring for double scarred tree WE-16 (37-6-2611)
- Proposed ACH conservation areas are appropriate & will allow for community management of ACH values
- Plan of Management for ACH conservation areas incorporate suitable infrastructure & access to enable community visits, camping & education programs on these lands
- Desire for collaborative approach with adjoining mining companies (Bulga Coal & Wambo Coal) for management & community access to conservation areas

Appendix 2

Aboriginal Cultural Heritage Studies Undertaken within the Proposal Areas

(as reviewed in Section 5)

The documentation from the following studies can be provided in electronic data format upon request.

Author & Year	Study
AMBS 2002	Warkworth Extension
AECOM 2009	Warkworth West Stage 1
Scarp Archaeology 2009	Warkworth Southwest Stage 2
MCH 2009	Warkworth Non-Disturbance Area 2
Scarp Archaeology 2011	Warkworth Southwest Finalisation & Bulga Farm
RPS 2013	MTO Ramp 22 Sedimentation Dam Area
Coal & Allied 2013	Warkworth Modification 6
Scarp Archaeology 2009	Warkworth Sands Archaeological Project
Scarp Archaeology 2013	Warkworth Sandsheet Sub-Area A

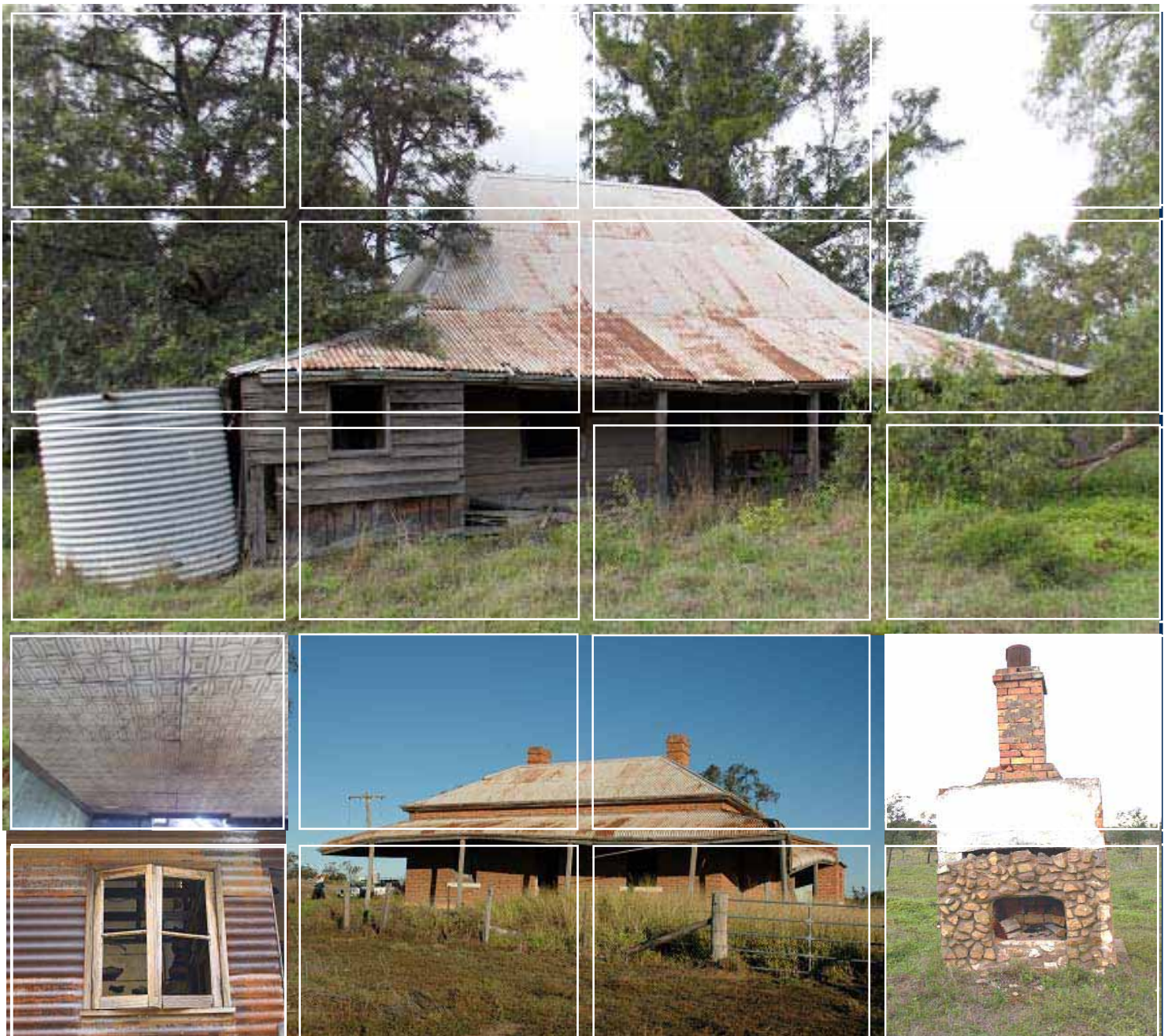
Appendix N

Historic heritage study



Appendix N — Historic heritage study

N



Mount Thorley Operations 2014 and Warkworth Continuation 2014 Mining Proposals

Historic Heritage Assessment

Rio Tinto Coal Australia

May 2014

0234261

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Mount Thorley Operations 2014 and Warkworth Continuation 2014 Mining Proposals

Historic Heritage Assessment

Rio Tinto Coal Australia

05/14

0234261rp4

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Approved by:	Tina King
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Signed:	
Date:	22 May, 2014

Approved by:	Sandy Vigar
Position:	Partner in Charge
Signed:	
Date:	22 May, 2014

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Rio Tinto Coal Australia

Mount Thorley Operations
2014 and Warkworth
Continuation 2014 Mining
Proposals
Historic Heritage Assessment

May 2014

Reference: 0234261rp4

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EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Rio Tinto Coal Australia (RTCA) to prepare a Historic Heritage Assessment (HHA) to inform two environmental impact statements (EISs) for the Mount Thorley Operations (MTO) 2014 and Warkworth Continuation 2014 mining projects.

MTO and Warkworth Mine function as an integrated operation and share the use of a number of resources and infrastructure. This HHA assessment has been based on the combined projects (the proposal).

The Project Area comprises two Proposal Areas at Mount Thorley Warkworth (MTW) mine. The two Proposal Areas are the Warkworth Continuation Project 2014 Proposal Area and the Mount Thorley Operations 2014 Proposal Area.

A search of registered heritage items within the Singleton Local Government Area (LGA) found one registered place within the Warkworth Continuation Project Proposal Area - a Brick Farm House situated along the Golden Highway at Mount Thorley. This is unlikely to be directly impacted by the proposed works, but there is potential for the place to be indirectly impacted through lack of maintenance and deterioration of the heritage fabric.

Field survey undertaken in March 2014 recorded 50 historic sites and features and included all buildings along Putty and Wallaby Scrub Roads. Sites recorded in previous heritage surveys were also re-surveyed to provide an up-to-date assessment of their condition.

Two historic features were recorded within the Mount Thorley Operations 2014 Proposal Area, but were not assessed as being significant or being impacted on by the proposal. An additional five sites within the Warkworth Continuation 2014 Proposal Area were found to have local heritage significance, and two of these possess potential State significance.

Small portions of the Great North Road and former RAAF Base Bulga are also located within the Proposal Areas. Both have previously been subject to comprehensive assessment, and Conservation Management Plans (CMPs) prepared. The former RAAF Base has also been subject to archival recording (AR) in accordance with NSW Heritage Office guidelines. A key management recommendation involves undertaking additional archaeological investigation along Wallaby Scrub Road to determine the extent of potential archaeological remains associated with the Great North Road.

Along Wallaby Scrub Road, and within the impact area of the Warkworth Continuation 2014 Proposal Area, a number of former World War II army barracks (P1 huts) have been converted for use as residential accommodation. Initial consultation with members of the Cultural Heritage Advisory Committee (CHAG) suggests these buildings were originally sited at the Greta

Army/Migrant Camp, which was sited approximately 40 kilometres (km) east of Bulga. Further research into the history and origins of these buildings is recommended, and further consultation is also recommended to determine the social significance of these buildings to the local community. Opportunities for their future relocation and adaptive reuse should be sought.

The HHA also recorded Springwood Homestead in the north-west portion of the Warkworth Continuation 2014 Project Proposal Area, and assessed the place as meeting the threshold for local heritage significance. While it is unlikely to be directly impacted by the proposed works, there are potential indirect impacts through blasting and lack of maintenance and further assessment including preparation of a Conservation Management Plan is recommended.

While not meeting threshold for local or State heritage significance, remnant historic heritage features within the Project Area are to be photographically recorded, and a Chance Finds Procedure implemented to ensure that in the event that new discoveries are made during future works, an appropriate procedure is in place to record and assess their potential heritage values.

ABBREVIATIONS

AGN - Abbey Green North Pit

CMP – Conservation Management Plan

CPP – Coal Preparation Plant

EP&A Act - NSW Environmental Planning and Assessment Act

EPBC Act - Environment Protection and Biodiversity Conservation Act 1999

ERM - Environmental Resources Management Australia Pty Ltd

HHA – Historic Heritage Assessment

KM - Kilometre

LEP – Local Environmental Plan

MTCL - Mount Thorley Coal Loader

MTO - Mount Thorley Operations

MTJV - Mount Thorley Joint Venture

MTW - Mount Thorley Warkworth

NAA – National Archives of Australia

NPW Act - NSW National Parks and Wildlife ACT 1974

NTNSW – National Trust of NSW

RTCA - Rio Tinto Coal Australia

SHR – State Heritage Register

WML - Warkworth Mining Limited

WWII – World War II

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Rio Tinto Coal Australia (RTCA) to prepare a Historic Heritage Assessment (HHA) to inform two environmental impact statements (EISs) for the Mount Thorley Operations (MTO) 2014 and Warkworth Continuation 2014 mining projects.

MTO and Warkworth Mine function as an integrated operation and share the use of a number of resources and infrastructure. This HHA assessment has been based on the combined projects (the proposal).

1.1***PROJECT AREA***

The Project Area comprises two Proposal Areas at Mount Thorley Warkworth (MTW) mine. The two Proposal Areas are the Warkworth Continuation Project 2014 Proposal Area, and the Mount Thorley Operations 2014 Proposal Area.

Mount Thorley Warkworth (MTW) is located approximately 15km south west of Singleton, and lies within the Singleton Local Government Area of the Upper Hunter Region. The region is dominated by coal mines, most of which are open cut (Wambo, Ravensworth and Mount Owen to the north and Bulga Coal Complex to the South); power generation facilities (Liddell and Bayswater Power Stations to the north and north east), with the remainder of the region predominately used for pastoral activities. Wollemi and Yengo National Parks are located to the west.

MTW comprises two large open cut coal mines; MTO and Warkworth Mine. Putty Road separates the two mines. Current mining operations are located to the east of Wallaby Scrub and Charlton roads. Charlton and Wallaby Scrub Roads follow the former alignment of the Great North Road, running in a north-south direction between Warkworth and Broke. Putty Road runs along an east-west alignment connecting Bulga to Singleton.

To the west of Wallaby Scrub Road are Wollombi Brook and the Wollombi Brook Aboriginal Cultural Heritage Conservation Area. Warkworth Village is located to the north, and the former RAAF Base Bulga is located north west of the intersection of Putty and Wallaby Scrub roads. The area is predominantly flat with some gentle undulating slopes.

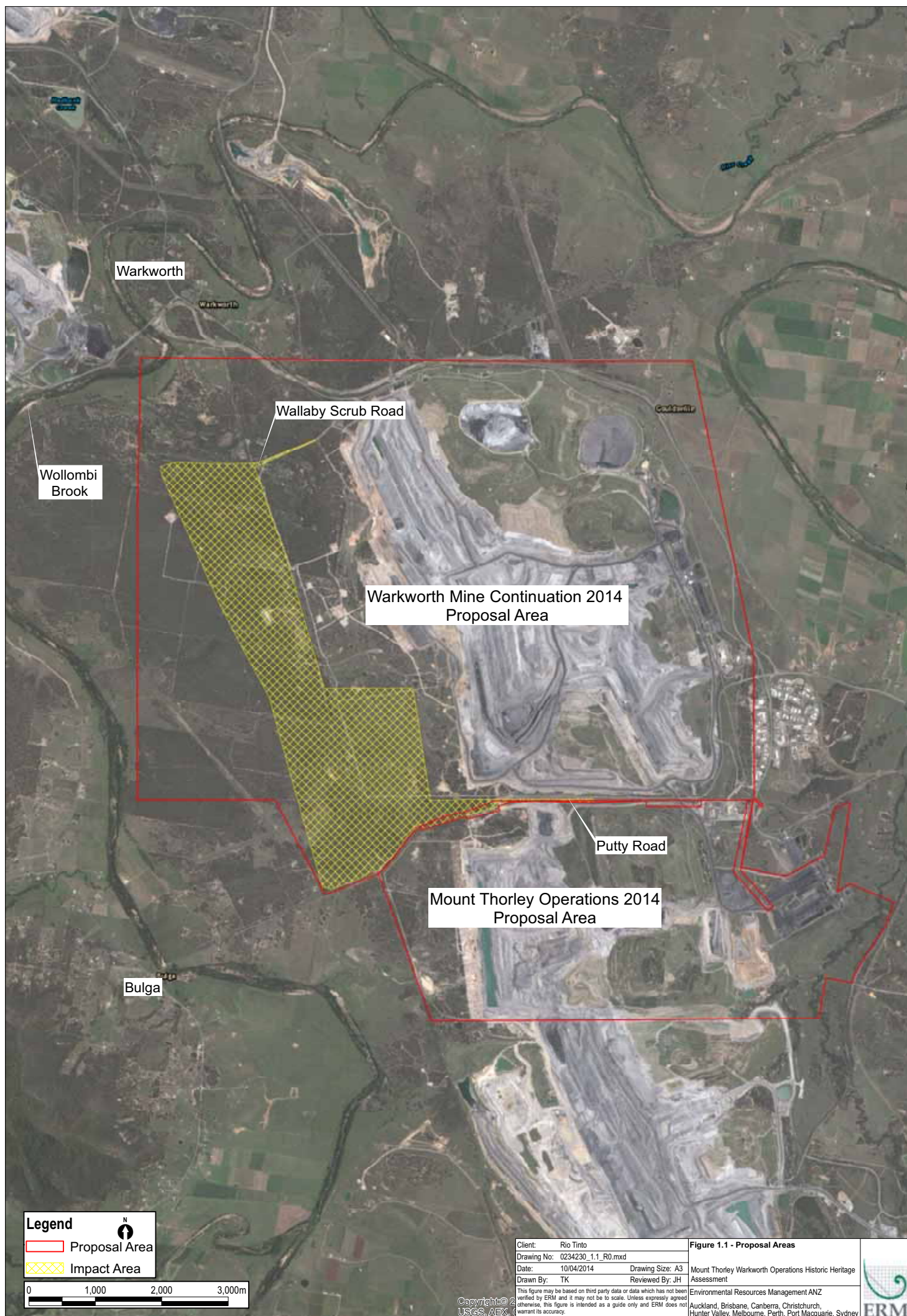
1.1.1***Warkworth Continuation Project 2014 Proposal Area***

This Proposal Area comprises the proposed Warkworth Mine development consent boundary to the north and the proposed MTO development consent boundary to the south. The proposed development consent boundaries are generally consistent with the mining lease boundaries for Warkworth Mine and MTO. Within the proposed Warkworth Mine development consent

boundary is the proposed Impact Area, which is the area to be disturbed by proposed mining activities (refer to *Figure 1.1.*).

1.1.2 *Mount Thorley Operations 2014 Proposal Area*

The MTO Proposal Area is located in the south east portion of the Project Area as shown at *Figure 1.1.*



MTO is an open cut coal mine approximately 10.5 kilometres (km) south-west of Singleton in the Hunter Valley, NSW. The mine is operated by Coal & Allied on behalf of Mount Thorley Joint Venture (MTJV). The site currently operates under Development Consent No. DA 34/95 (the development consent) issued by the then Minister for Planning on 22 June 1996 under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Immediately to the north is Warkworth Mine. Since 2004, the two mines have integrated at an operational level and are known as Mount Thorley Warkworth (MTW), with a single management team responsible for all the operations. Equipment, personnel, water, rejects and coal preparation are all shared between the mines. The MTW operations involve an existing operation of approximately 1,300 persons, which includes full-time personnel and a small number of short-term contractors. Ownership of the two mines remains separate.

Mining activities approved under DA 34/95 have mostly been completed with the exception of Loders Pit and Abbey Green North Pit (AGN) with rehabilitation well-progressed on the east of the site. Run-of-mine (ROM) coal from MTO is transported to either the MTO or Warkworth Mine coal preparation plant (CPP) for processing. Extraction of coal from other pits has been completed; overburden emplacement is ongoing. Product coal from the CPPs is transported via conveyor or haul road to the Mount Thorley Coal Loader (MTCL). Coal loaded onto trains at the MTCL is transported to the Port of Newcastle for export.

The proposal at MTO seeks an approval under Part 4, Division 4.1 of the EP&A Act to complete mining and rehabilitation activities within the current limits of approval.

1.2.1

Project Description

MTO has approval to mine until 22 June 2017 under its development consent. The proposal seeks a 21 year development consent period from the date of any approval. If approval is granted in 2015, operations at MTO are forecast to continue to the end of 2035, an 18 year extension over the current approval. The proposal seeks a continuation of all aspects of MTO as it presently operates and extends or alters them, including:

- mining in Loders Pit and AGN Pit. Mining in Loders Pit is expected to be completed in approximately 2020. Mining in AGN Pit is yet to commence; however, it is anticipated to take approximately two years and be completed before 2022;
- transfer of overburden between MTO and Warkworth Mine to assist in rehabilitation and development of the final landform;

- maintain existing extraction rate of 10 million tonnes per year (Mtpa) of ROM coal;
- maintain and upgrade to the integrated MTW water management system (WMS), including:
 - upgrade to the approved discharge point and rate of discharge into Loders Creek from 100ML/d to 300ML/d via the Hunter River Salinity Trading Scheme (HRSTS);
 - ability to transfer and accept mine water from neighbouring operations (ie Bulga Coal Complex, Wambo Mine, Warkworth Mine and Hunter Valley Operations); and
 - increase in the storage capacity of the southern out-of-pit (SOOP) dam from 1.6 giga litres (GL) to 2.2GL.
- maintain and upgrade to the integrated MTW tailings management:
 - including use of the northern part of Loders Pit as a TSF after completion of mining; and
 - Wall lift to Centre Ramp Tailings Facility to approximately RL150.
- upgrade to the MTO CPP to facilitate an increase in maximum throughput to 18Mtpa with the ability to receive this coal from Warkworth Mine;
- acknowledge all approved interactions with Bulga Coal Complex; and
- continuation of coal transfer between Warkworth Mine and MTO and transportation of coal via the MTCL to Port of Newcastle.

All activities, including coal extraction will be within disturbance areas approved under the existing development consent.

The proposal is shown in *Figure 1.3*.

1.3

WARKWORTH MINE CONTINUATION 2014 EIS

Warkworth Mine is an open cut coal mine approximately 8 km south-west of Singleton in the Hunter Valley, NSW. The mine is operated by Coal & Allied on behalf of WML. The site currently operates under Development Consent No. DA 300-9-2002-i (the development consent) issued by the then Minister for Planning in May 2003 under Part 4 of the NSW EP&A Act. The site also operates under two separate Commonwealth approvals (*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)); EPBC 2002/629 and EPBC 2009/5081.

Warkworth Mine has been in operation since 1981 and the originally approved operation has been modified several times. Immediately to the south of Warkworth Mine is MTO.

Warkworth Mine currently operates three integrated open cut mining areas, namely North, West and South pits with West and North pits being the focus of production. ROM coal from Warkworth Mine is transported to either the Warkworth or Mount Thorley for processing. Product coal from the CPPs is transported via conveyor to either the MTCL or to the Redbank Power Station. Coal loaded onto trains at the MTCL is transported to the Port of Newcastle for export.

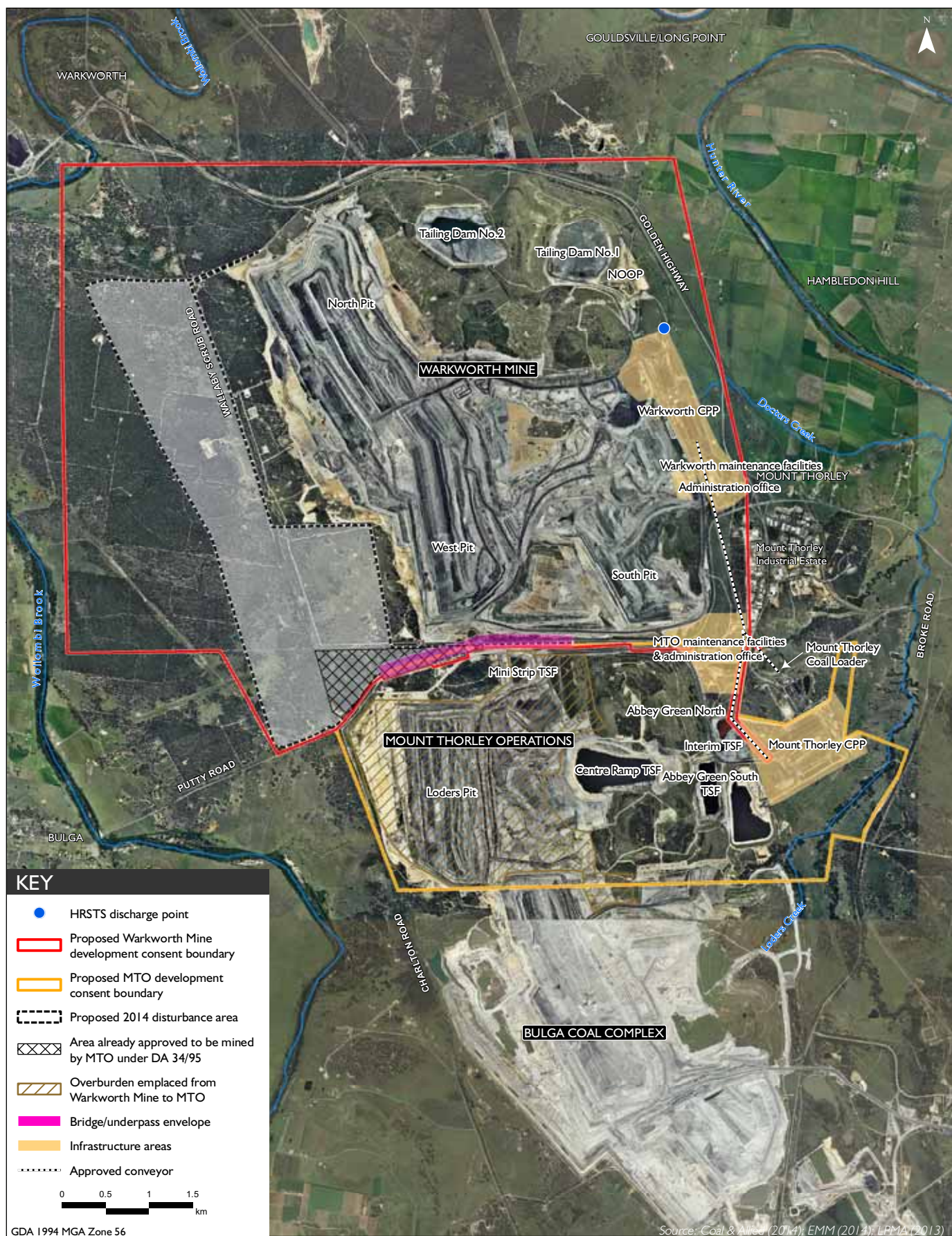
The proposal at Warkworth Mine seeks an approval under Part 4, Division 4.1 of the EP&A Act to extend mining beyond the current limits.

1.3.1 Project Description

Warkworth Mine has approval to operate until 19 May 2021 under its development consent. The proposal seeks a 21 year development consent period from the date of any approval. If approval is granted in late 2014, operations at Warkworth Mine are forecast to continue to 2035, a 14 year extension over the current approval. The proposal seeks a continuation of all aspects of Warkworth Mine as it presently operates together with:

- an extension of the approved mining footprint by approximately 698 ha to the west of current operations (referred to herein as the proposed 2014 extension area);
- the ability to transfer overburden to MTO to complete MTO's final landform;
- the closure of Wallaby Scrub Road;
- an option to develop an underpass beneath Putty Road for the third bridge crossing yet to be constructed (while retaining the current approval for an overpass);
- minor changes to the design of the Northern out-of-pit (NOOP) dam; and
- the continued use of secondary access gates to the mine site and offsets for activities such as drilling, offset management, equipment shutdown pad access amongst other things.

The proposal is shown in *Figure 1.3*.



The proposal
Warkworth Continuation 2014
Environmental Impact Statement
Figure I.3

1.4

METHODOLOGY

This report has been prepared in accordance with the *NSW Heritage Act 1977* (Heritage Act) and the national best practice guidelines for cultural heritage management, the Australia ICOMOS Charter for Places of Cultural Significance (the Burra Charter).

This report has also been prepared in accordance with the Secretary's Requirements.

The methodology of specific tasks is outlined in further detail below.

1.4.1

Background Review

A search of relevant statutory and non-statutory heritage registers was undertaken for this assessment. These included:

- the World Heritage List;
- the Australian Heritage Database (comprising National and Commonwealth Heritage Places and places previously entered in the Register of the National Estate);
- the State Heritage Register;
- Singleton Shire Local Environmental Plan (LEP) (1996 and 2013) Heritage Schedule; and
- the National Trust of NSW (NTNSW) heritage register.

Existing historic heritage studies undertaken within and adjacent to the Proposal Areas were reviewed to develop an understanding of the historical development of the region and an understanding of the types of heritage places likely to occur within the Proposal Areas. These included:

- ERM (2014) RAAF Bulga Conservation Management Plan, unpublished report prepared for Rio Tinto Coal Australia, January 2014;
- ERM (2013) Great North Road Heritage Management Plan, unpublished report prepared for Rio Tinto Coal Australia, November 2013;
- ERM (2013) RAAF Bulga Archival Recording, unpublished report prepared for Rio Tinto Coal Australia, November 2013;
- Clive Lucas, Stapleton and Partners Pty Ltd (2013) Hunter Estates: A Comparative Study of pre 1850s Homestead Complexes in the Hunter Region, prepared for the NSW Office of Environment and Heritage, April 2013;

- Weir Phillips (2012) Heritage Assessment Charlton Road Realignment – Bulga Optimisation Project, Singleton Shire, New South Wales;
- Weir Phillips (2010) Heritage Assessment Wallaby Scrub Road, Singleton Shire, New South Wales;
- Weir Phillips (2007) Heritage Assessment Former RAAF Base Bulga New South Wales; and
- ERM (2007) RTCA Heritage Register Update for the Upper Hunter Lands.

1.4.2 *Research*

Contextual background research was undertaken including a review of primary and secondary archival records. Parish maps, run maps and charting maps were reviewed and additional research into the tenure history of the Proposal Areas carried out by undertaking title searches and obtaining history of title transactions.

1.4.3 *Field Survey*

A field survey of the Proposal Areas was undertaken on 3-7 March 2014. The field survey comprised a pedestrian survey of the portion of RAAF Bulga proposed to be directly impacted by mining activities. The remainder of the field survey targeted potential historic places identified through background research, additional historical research, consultation and assessment of aerial photography.

Where places were identified, their locations were recorded with a differential global positioning system (GPS) tracking unit and photographs were taken of the place or item and its context.

Previous field surveys concentrating on the former RAAF Base Bulga and Great North Road were undertaken in November and December 2012.

1.4.4 *Consultation*

Consultation was undertaken with the Cultural Heritage Advisory Committee (CHAG) on 8 April 2014. The CHAG was initiated by Coal & Allied, and is comprised of community representatives with particular knowledge and interests in historic heritage of the region including individuals, representatives from historical groups, and local government.

The consultation meeting provided the CHAG with an overview of the current Coal & Allied (Rio Tinto) operations at the Warkworth and MTO mines, and discussed the current status of and future operations under the Warkworth Continuation 2014 and MTO 2014 Proposals.

ERM presented the CHAG with the results of the heritage surveys undertaken on 3-7 March 2014. This was intended to facilitate discussion about the

potential social significance of the identified heritage places to the local community. The group was also afforded the opportunity to provide any historical information known about any of the identified heritage places, and to provide input into the proposed mitigation measures for each identified place.

In particular, the CHAG expressed interest in the future conservation of Springwood Homestead. Some interest was also expressed in an orchard site that was identified during the survey, approximately 750m to the south west of Springwood and on the land that historically forms part of the Springwood Estate. The suggestion was made to consider having a horticulturalist examine the trees to determine whether there were any older varieties of fruit within the orchard that may not be in existence/widely distributed today.

The group suggested that the former P1 huts converted to homes on Wallaby Scrub Road most likely originated from the Greta Army/Migrant Camp. The Camp was constructed in 1939 for Army purposes, and was converted in the 1960s to serve as a reception and training centre for European migrants. The army reacquired the camp in 1962 and occasionally used the camp until its sale in 1980.

Members of the CHAG also noted that one of the heritage-listed places within the project area, Mt Leonard Public School, was known locally as the Old Bulga Public School.

1.5

AUTHORSHIP

The report was prepared by ERM Heritage Consultants, Tina King and Holly Maclean. Technical Review was undertaken by Principal Heritage Architect, John Hoysted, and Partner Review by Sandy Vigar.

2.1 HERITAGE ACT 1977 (NSW)

The Heritage Act protects the natural and cultural history of NSW with emphasis on non-indigenous cultural heritage through protection provisions and the establishment of a Heritage Council.

In NSW, assessments of heritage significance are guided by the principles of the *Burra Charter (2013) (the Australian ICOMOS Charter for places of cultural significance)* and the Heritage Office's publication *Assessing Heritage Significance (2001)*.

The Heritage Act defers to local planning instruments under the EP&A Act for the protection of items of local significance ('items of the environmental heritage').

2.1.1 State Heritage Register

The *Heritage Act 1977* provides blanket protection for subsurface relics and for heritage items of state significance listed on the State Heritage Register (SHR). The Heritage Division of the Office of Environment and Heritage (Heritage Office 2001) considers that an item will be considered to have State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

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

There are no places situated within the Proposal Areas that are entered in the SHR.

2.2 SINGLETON SHIRE COUNCIL LEP

2.2.1 Singleton Shire Council Local Environmental Plan 1996

The 2013 Singleton LEP, discussed in the following section, excludes a small area in Bulga, and so the 1996 LEP is also applicable to this HHA.

There are no places situated within the Proposal Areas that are entered in the 1996 Singleton LEP, Schedule 3 Heritage Items, Part 3 Items Classified as being of local significance.

2.2.2 Singleton Shire Council Local Environmental Plan 2013

The Singleton Local Environmental Plan (LEP) 2013 contains a list of local heritage places incorporating Heritage items, Heritage Conservation Areas and Archaeological Sites (*Schedule 5, Environmental Heritage*). The inclusion of a property on such a schedule can impose certain restrictions as development is subject to heritage codes. *Part 5.10* of the LEP outlines the requirements in relation to heritage conservation in the shire, with the main objectives being:

- a) to conserve the environmental heritage of Singleton;
- b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views;
- c) to conserve archaeological sites; and
- d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

There is one registered place within the Proposal Areas included in Schedule 5 Heritage Items, Heritage Conservation Areas and Archaeological Sites.

- Brick Farm House – Golden Highway, Mount Thorley (LEP#I40).

Within a 7.5km radius of the Proposal Areas there are six heritage sites identified in the LEP:

- Bulga Bridge - 213 Main Road, Bulga (LEP#I8);
- “Mount Leonard” - 2201 Putty Road Bulga (LEP#I9);
- Mt Leonard Public School - 2099 Putty Road, Bulga (LEP#I10);
- War Memorial Gates - 19 The Inlet Road, Bulga (LEP#I11);
- St Phillips Church - Off High Road, Warkworth (LEP#I143); and
- Former Queen Victoria Inn Ruins - Jerrys Plains Road (LEP#A6).

The locations of these sites are shown at *Figure 2.1*

2.3 *NON STATUTORY CONSIDERATIONS*

2.3.1 *Burra Charter*

The Australian International Council on Monuments and Sites (ICOMOS) Charter for the conservation of places of cultural significance (the Burra Charter) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians. The Charter provides specific guidance for physical and procedural actions that should occur in relation to significant places, regardless of their legislative listing.

The Charter was revised in 2013 and now includes seven Practice Notes designed to offer practical guidance for the management of heritage across Australia. Other changes include additional explanatory notes, and an updated Burra Charter Process diagram that recognises the importance of community and stakeholder engagement. A copy of the charter can be accessed at <http://australia.icomos.org/publications/charters>

The Burra Charter sets out a number of conservation principles for heritage places which are relevant to the historic heritage features within the MTO area including managing change, disturbance of fabric, and interpretation of heritage values.

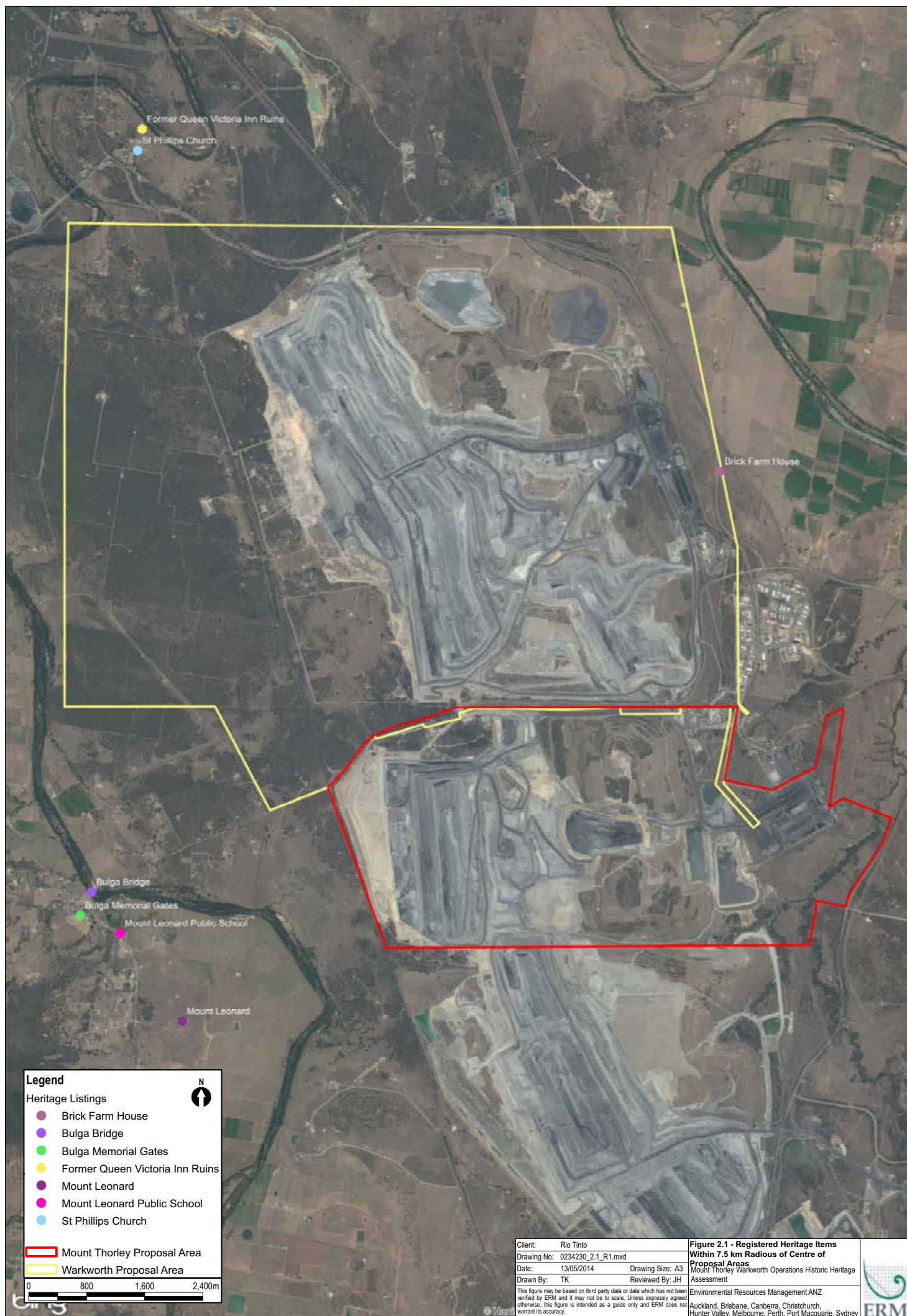
2.3.2 *National Trust of New South Wales*

The National Trust is a community-based, non-government organization, and has no statutory power. They maintain a database of important heritage sites across the state.

There are no places situated within the Proposal Areas included in the National Trust of New South Wales Heritage Register.

Within a 7.5km radius of the Proposal Areas there are 3 heritage sites listed in the National Trust NSW Heritage Register:

- Mt Leonard Public School (NTNSW #R1330);
- Mount Leonard St (NTNSW #R1331); and
- Phillips Church (NTNSW #R5782).



Legend

Heritage Listings

- Brick Farm House
- Bulga Bridge
- Bulga Memorial Gates
- Former Queen Victoria Inn Ruins
- Mount Leonard
- Mount Leonard Public School
- St Phillips Church

- Mount Thorley Proposal Area
- Warkworth Proposal Area

0 800 1,600 2,400m



Client: Rio Tinto
Drawing No: 0234230_2.1_R1.mxd
Date: 13/05/2014
Drawn By: TK
Reviewed By: JH

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Figure 2.1 - Registered Heritage Items Within 7.5 km Radius of Centre of Proposal Areas
Mount Thorley Warkworth Operations Historic Heritage Assessment

Environmental Resources Management ANZ
Auckland, Brisbane, Canberra, Christchurch, Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney



This section provides a historical overview of the area surrounding the Proposal Areas from the time of European settlement to the present day.

3.1**EARLY EXPLORATION**

The earliest European presence in the Hunter region dates back to the 1790s, when coal was discovered by a party of escaped convicts. The resource was exploited at a low level and shipped to Sydney, but difficult terrain hampered attempts to explore the region (Weir Phillips 2012).

More in depth survey of the coastlines east and north of the Hunter region was undertaken by John Oxley in 1818, and the following year the countryside was explored by John Howe, Chief Constable of Windsor (ERM 2013b, Weir Phillips 2012). He traversed the country north to Patrick's Plains and Wallis Plains, and his overland trail became known as the Bulga Road in 1823 (Weir Phillips 2012). This road was sealed in WWII and the name changed to Putty Road. It is one of the oldest road alignments in the Hunter Valley (Karskens in Lavelle 2005, Karskens and RTA Technology 2005, OEH 2011). Howe was granted 700 acres of land in the Upper Hunter, as a reward for his exploration efforts (Weir Phillips 2012).

A penal settlement had been established at Newcastle in 1804, but was closed in 1822 to enable settlement of the Hunter Region. On the orders of Governor Sir Thomas Brisbane, government surveyor Henry Dangar was sent to Newcastle in 1822 to begin preparations for the free settlements. Between 1822 and 1824 Dangar measured and marked out village reserves, land for churches and land plots for settlers along the Hunter River, north to Patrick's Plains and north west to the Liverpool Plains. His 1824 publication *Return of Land Cleared and Other Improvements Made by Small Settlers*, and his 1828 publication *Index and Directory to Map of the Country Bordering Upon the River Hunter* were instrumental in guiding European settlement of the 'desirable' lands of the Hunter Valley (OEH 2011).

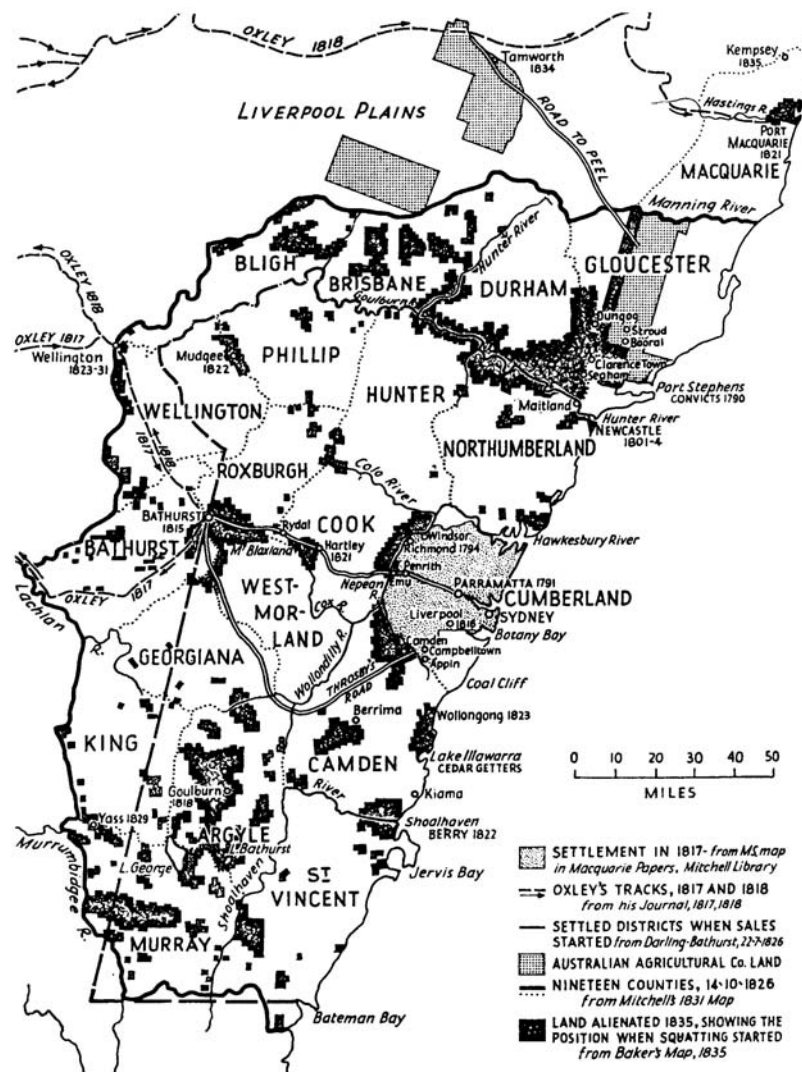


Figure 3.1 Map showing the sequence of exploration and settlement around the Sydney colony, and the line of Oxley's 1818 expedition, north of the Hunter Valley (GWG, 1997).

3.2 EUROPEAN SETTLEMENT AND THE GREAT NORTH ROAD

Cedar getters had been slowly occupying land in the Hunter from c1810, establishing farms around Patterson's Plains, Jerry's Plains (near Warkworth) and Wallis Plains (now Maitland) (Karskens in Lavelle, Karskens and RTA Technology 2005, Weir Phillips 2012). However, following the closure of the penal settlement at Newcastle, the European population of New South Wales grew rapidly, from a matter of hundreds of people to tens of thousands.

To sustain the increasing population opening up of regional areas was necessary for farming pursuits. The King's Town (Newcastle) penal settlement was closed in 1822-1823 and the Hunter Valley was opened for settlement (Bill Jordan and Associates 2006). John Howe's Bulga Road land route through to the Hunter Valley had a significant influence on the pattern of settlement in the Hunter region, with settlers taking up lands along the route. Most properties comprised less than 100 acres each and generally had

minimal development, including cottages of wattle and plaster, sometimes with detached barns or yards complexes (Atkinson in OEH: 2011).

The land became used for a variety of purposes, with pastoral grazing and wheat growing being the primary industries. Maize was also extensively grown, and to a lesser degree sorghum, barley, hay, rye and millet, and some fruits and vegetables (OEH 2011).

Towns soon became established around higher population areas. In the 1830s a village reserve was proclaimed at Jerry's Plains, and a police barracks, school and post office were established. At Warkworth, originally known as Cockfighter's Creek, the land remained primarily used for grazing and little development occurred, apart from a few hotels constructed along the road alignment in the 1840s for people travelling between the Hunter Valley and Sydney (RPS 2012). The Bulga Township was established along Wollombi Brook in the 1840s (known as Cockfighter's Creek at the time).

With the influx of settlers, Bulga Road soon proved inadequate to deal with the increased traffic between Sydney and the Hunter Valley. Boat services were operating between Newcastle and Wallis Plains, but the settlers strongly desired a convenient and improved road route (Weir Phillips 2012).

Plans were made in the early 1820s for three 'great roads' radiating west, south and north out of Sydney, the latter of which would connect Sydney and Newcastle (Griffin NRM 2005) and ultimately be known as the Great North Road. In 1825, Government Surveyor Heneage Finch commenced survey for the alignment of the road, starting at Baulkham Hills (west of present day Sydney), heading to Wollombi via Wiseman's Ferry and continuing to Maitland (Karskens 1982). The route was resurveyed by Surveyor-General Thomas Mitchell in 1827 to create a straighter road, and convict gangs were sent to Newcastle and Wiseman's Ferry to commence construction on the northern and central parts of the road, respectively.

Between 1829 and 1830 the road was extended from Wollombi to Broke, and branch lines to Patrick's Plains (Whittingham/Singleton) and Cockfighter's Creek (Warkworth) were added (Nexus Archaeology and Heritage 2006; Bill Jordan and Associates 2006; Karskens 1982).

Despite a town reserve being allocated at Whittingham in Patrick's Plains, the road in that direction was never used. Travellers preferred the route through the higher ground and easier terrain via Benjamin Singleton's Inn, understood to have been called The Barley Mow or the Plough Inn, established on Singleton's land in 1827. The commencement of European settlement of the Upper Hunter Valley is largely credited to the presence of Benjamin Singleton.

Benjamin Singleton had tried, unsuccessfully, to find a land route between the Hunter and Sydney in 1818. However, part of his surveyed route would later be incorporated into Putty Road. As a result of his exploration, Singleton was granted land in the Upper Hunter Valley, 240 acres, in 1821 (Weir Phillips

2012), to the west of Howe's grant. Singleton purchased additional lands around his existing plot, and engaged in wheat and maize production and stock grazing.

As a result of Singleton's Inn construction and the number of travellers passing through, a flour mill, post office and other buildings were soon constructed (Karskens 1982). This development eventually became the hub of a small town, dubbed Singleton's Ford. The settlement grew rapidly over the next decade, with over 100 houses and over 500 people, a brewery, and churches.

By 1830, convict gangs were constructing the road at Wollombi and at Warkworth heading towards Broke (Karskens in Lavelle et al 2005), and branch lines, and bridges were being completed at the northern reaches of the road, at Warkworth by 1834 (Nexus Archaeology and Heritage 2006; Bill Jordan and Associates 2006).

The use of the Great North Road had decreased significantly by the mid-1830s. As a result of the straightening of the road's alignment, the Great North Road bypassed a number of existing settlements, and consequently the long journey north from Sydney had very few places to rest, little grass available for bullocks, and no permanent water sources (Convict Trail n.d). The introduction of regular steam ships in 1832 between Sydney and Newcastle, and the creation of alternative overland routes, in particular the Peat's Ferry Road which was opened in the 1840s but ultimately became the Pacific Highway in 1930 led to the eventual disuse of the Great North Road (Karskens in Lavelle et al 2005, Bill Jordan and Associates 2006).

3.3

EARLY PASTORAL HISTORY

The first European occupation of the Proposal Areas dates back to 1826 when the area was taken up by early settlers and primarily used as grazing land for cattle. Sheep grazing was also undertaken on a smaller scale, for wool exports. Small pastoral holdings became dominant in the lower Hunter Valley whereas in the upper Hunter, where climactic conditions were drier, large estates became dominant. These estates were generally used for stock grazing or retained for financial purposes, and owned by people who resided in Sydney. Consequently, the land was rarely developed (Karskens in Lavelle et al 2005; Scholes 1985 in Weir Phillips 2012).

By 1841, this area of the Hunter Valley was already quite established:

A situation adapted in every sense of the word for the formation of a thriving Township, nearly adjoining the Government Reserve for a similar purpose ; a neighbourhood whose population is immense, and daily augmenting in number. The traffic necessarily communicating with the whole of the district of the Upper Hunter, intersected by the occupation road, leading from Singleton to Jerry's Plains.

Mr Joseph Simmons has been instructed by the proprietor, to offer to Public Competition, at his Rooms, opposite the Post Office, George-St, on Friday evening next, the 27th August, at half past Six o'clock.

The remaining number of allotments, at the advantageously situated town of Warkworth. But a few remarks will be necessary to show the true value of this inestimable property; it is situated on the River Hunter, in the parish of Warkworth. Warkworth, distant about one mile and a half from Cockfighter's Creek, where the Great Road from Maitland and Sydney to New England, Liverpool Plains, &c, &c, crosses; it is distant from Singleton only seven miles, and about the same distance from Falbrook.

Warkworth is surrounded on every side by an immense population, small farmers and industrious settlers being located in vast numbers in the immediate neighborhood, the district being proved fertile.

Warkworth is held by the inhabitants of the Hunter's River, more than the fact of a great portion of the allotments having been already sold to some of the most influential and respectable residents upon the Hunter, amongst whom may be mentioned, Messrs. T. Danger, Griffiths, Dowsey. G. Bowman, Turner, Cornish, Kerrigan, Vincent, Williams, Bignell, Taylor, Chick, Walter, Rotten, Pugnoll, Miller, Frodsham, Gilbert, Hadslock, Medlam, Drain, Simpson, John Edwards, and numerous others, who have already become purchasers by private bargain (The Sydney Herald, 26 August 1841, page 3).

Following the introduction of the *Real Property Act 1863*, the larger estates became progressively contracted into smaller lots, and farmers began to take advantage of the region's rich alluvial soils and began dairying and establishing orchards.

From the early 1900s until World War II, dairying was the primary industry in the Hunter Valley (RPS 2012). In the lands around Bulga and Warkworth, lucerne growing was popular and to a lesser extent viticulture supported by timber felling, fruit production and grazing. The *Souvenir* (1926) predicted that one day coal mining was likely to become an important factor in the prosperity of the district (Weir Phillips 2012).

Wambo Estate

The Wambo Estate, originally called Lemington Grange until 1857, was one of the earliest pastoral runs established in the Hunter, when ex-convict James Hale acquired a series of land parcels totalling around 8,000 acres in the 1830s (RPS 2012), increasing to around 100,000 acres by 1841. These land parcels fell within the Hunter Valley Parishes of Lemington and Warkworth around the Wollombi Brook and into the Liverpool Plains region (GML 2012). A large homestead, Wambo Homestead, was constructed in stages throughout the 1830s and 1840s. To manage the estate, Hale employed around 20 men and provided board and lodging in a series of buildings constructed on the property.

The estate was used for cattle grazing and cultivation until the late 1890s when the property was sold out of the family, and in the early 1900s became a thoroughbred horse stud. Horse boxes and mounting yards were established, and additions were made to the Wambo Homestead (GML 2012). Three dairies were later added to the property, in the mid-1900s. Until 1971 the land was used for grazing and dairying, after which time the land was sold to the Wambo Mining Corporation (EJE Heritage 2006 in RPS 2012).

Springwood Estate

James Hale was also the first grantee of the majority of the land east of Wollombi Brook. James Neal had a grant of 100 acres north of this taken up in 1839 called 'Burwood', and William Watts took up two 50 acre grants north of this in 1856 and 1859. Watts established an orchard in this location above Wollombi Brook, and the property became known as Springwood Estate.

Springwood was noted as containing 10 acres of grape vines, and 12 acres of fruit trees (Maitland Weekly Mercury, 7 March 1896), with the house on a rise overlooking the vineyard and orchard below, and lucerne fields beyond. The quality of the fruit was well known in the district in the early 1900s with the district inspector regularly noting fine samples of peaches, plums and grapes, and approving exportation of his fruit to New Zealand in 1912 (Singleton Argus, 9 January, 1912, page 2).

By 1931, the size of Springwood had doubled to 200 acres, and now had a frontage of one mile to Wollombi Brook, indicating that it had taken over James Neal's grant to the south. Following the death of William Watts, Springwood Estate gradually declined and was sold by the Watts family in the 1930s.

LOT 1.—That Well-known Property, "SPRINGWOOD," situate at Warkworth, comprising 200 Acres, 12 Acres of Orchard, in full bearing, with best market varieties of Fruits, 12 Acres Table Grapes, 6 Acres suitable for Lucerne, a further 40 Acres suitable for Cultivation or Orchard land, whilst the balance is splendid Grazing country. The Property is watered by frontage of one mile to the Wollombi Brook, subdivided into 4 Grazing and a number of small Cultivation Paddocks. The Improvements comprise Cottage of 6 Rooms and Kitchen, also 3 Sheds. This Property is noted for its Fruit, and is also suitable for Dairying and Mixed Farming.

Figure 3.2 *Singleton Argus, 31 January, 1931, page 9.*

Newport

On the south western corner of Charlton and Putty Roads, a large 500 acre land grant was originally taken up by early settler, Festus Tong in 1834 and leased for agricultural purposes. The land was auctioned in March 1857, and at the time was being used for the production of wheat and maize (The Maitland Mercury and Hunter River General Adviser, 24 February, 1857, page 4). The property, known locally as 'Old Fet's', was taken up by Frederick Hope in the 1860s where the residence was known as 'Newport.' By the 1880s, Joseph Clark was living at Newport, and continued with agricultural pursuits on the property.

In 1931, Mr Edric McGregor of the 16th Light Horse Regiment moved to Newport. The McGregor family lived at Newport for five years before moving to Newcastle (Singleton Argus, 26 February, 1936, page 2), and upon their departure auctioned off a number of buildings and stock (Singleton Argus, 19 February, 1937, page 4) including a two roomed cottage and dairy with milk room.

Abbey Green

South east of the Putty Road and Charlton Road intersection, Abbey Green was an early Estate taken up by Archibald Mosman in 1838. Abbey Green was primarily a grazing property, and was acquired by George Loder in the 1850s. Loder also established a meat preserving facility on the property in which beef was tinned for export to London (Maitland Mercury and Hunter River General Advertiser, 21 September, 1869, page 2). Loder also established a homestead on the property c1861:

"constructed in the old design of colonial country seats, with a large and broad foyer or hall-way, the doors and window linings all being of solid cedar and as good as the day in which the fittings were placed in position. ' It is a delightful old mansion, just over towards the Hunter River. Within view of the house is the large face of rock known as 'Howe's Rock,' where the 1819 overland party from Windsor first struck the river on the 5th November, 1819" (Windsor and Richmond Gazette, 29 October, 1926, page 5).

In the mid-twentieth century the Abbey Green Estate was subdivided and accommodated a number of dairy farms. The present day MTO occupies the western portion of the original Abbey Green Estate.

Charlton Estate

At the southern reaches of the present day MTW Operations, settler John Cobcroft owned a series of small grants, dubbed the Charlton Estate, spanning either side of Charlton Road. These blocks were later acquired under the *Returned Soldier Settlement Act 1916*, for settlement of returned WWI soldiers.

Following the attack on Pearl Harbour in December 1941, the Australian Government planned for expansions of Royal Australian Air Force (RAAF) facilities around the country as part of the '73 Squadron Plan'. In April 1942, Bulga was identified as an ideal site to serve as a 'parent base', with satellite bases at Broke, Strowan and Warkworth.

The area was officially taken over by the RAAF under the provision of the National Security (General) recommendations on 12 June 1942 for use as a relief landing strip (NAA 33029651). Specifications and estimates for the RAAF Base were subsequently prepared in July, and construction was underway with clearing of the landing strip well advanced by early August.

Aerial photographs dated September 1942 clearly demonstrates construction of the runway was underway with a construction camp established to the west of the north – south runway (see *Figure 3.3*). It also shows clearing had begun on the western portion of the east – west runway.



Figure 3.3 *Aerial photograph showing construction camp and progress (Department of Defence, SHQ/582 VX3733 Bulga, Frame #114, 14 September 1942)*

The extent of required facilities changed numerous times during construction including realignments to the runways. Original plans for the site included a total of 16 hideouts, two of which were to be "splinter proof pens," but by February 1943 only 12 were required. The shape of hideouts were to be varied to suit local tree features, and it was noted that no sacrifice of cover was to be made in providing splinter proof protection (NAA #169093, 20 June 1942 p111). The size of hideouts was to allow for the concealment of medium bomber aircraft. Floors of hideouts were to be graded to shed stormwater to a convenient outlet and floor gravelled with a central strip 24 ft wide to be 6 in thick, and the remaining area to be lightly gravelled.

By July 1943, the completed site contained two sealed runways and associated landing grounds, 12 hideouts and associated taxiways, a number of buildings including mess facilities and ablutions blocks, and petrol storage tanks. The completed facilities were noted as having mess and ablutions facilities to cater for up to 310 personnel. Accommodation was to be in tent form with construction notes indicating that tents were to include an administration tent, medical aid post tent, and Officers', Sergeants' and Airmen's sleeping tents.

By January 1944 the use of the RAAF Bulga was limited due to the decreasing threat of attack, but general maintenance continued. A decision was approved by the Director of Works and Buildings (DWB) to reduce the base to an area of approximately 260 acres comprising the runways, camp site, pump house and filtration plant. The rest of the surrounding land was to be returned to owners subject to dispersal works including taxiways, hideouts and drains remaining undisturbed.

3.5 *POST WORLD WAR II*

In March 1946, the decision was made by the RAAF to cease maintenance following vandalism of the site. RAAF policy subsequently came into effect setting that all "D" Class aerodromes, including RAAF Bulga were to be "retained, but not maintained." This meant that all runways, taxiways, drainage and fencing were to be retained, but moveable assets such as buildings were to be removed (NAA 3302965, p87).

Following cessation of RAAF use of the site, a number of former land owners sought return of their land for grazing use, and arrangements were made by the Department of Civil Aviation for the removal of all buildings to enable the Commonwealth to return hired land to its owners. An auction was held in May 1948 to dispose of assets and by 1949 all assets except the kitchen building had been sold and removed from the site. The Department of the Interior offered the kitchen building for sale to the landowner, W.A. McGregor and the sale was approved in December 1952 on the condition that he would either relocate or demolish the building.

Dairying was the dominant industry in the region, with the majority of land adjacent to Wollombi Brook being used for dairy farming post World War II (March 1966). A proposal to construct a dam to control flooding in the region was put forward in the 1950s, and a large amount of grazing land within the Proposal Areas was proposed to be resumed for its construction. The dam was proposed to submerge 12,000 acres in the area, in which 25,000 gallons of milk a year were being produced in 1950 (Singleton Argus, 23 October 1950, page 1). The scheme was subsequently rejected.

A number of schemes were put forward to turn the former RAAF Base into a commercial airport, but these were rejected by local government in 1950. During the 1960s and 1970s tree felling occurred around the former RAAF Base, and it continued being used for grazing of cattle and dairying.

Acquisition of coal mining leases in the Hunter began in the 1970s to 1980s. The mining lease for Warkworth was granted in 1976, and mining operations began in 1981. Coal and Allied purchased an interest in the Warkworth Mine in 2001, and the land was subsequently acquired. The adjacent MTO, which has also been in operation since 1981, and the Warkworth Mine were integrated in 2004 to increase efficiency and operate as one business Mount Thorley Warkworth Operations (Rio Tinto Coal Australia 2014).

In February 2012, Coal & Allied was granted approval (PA_09_0202) by the Planning Assessment Commission to extend mining within its existing Warkworth lease, extending the operation of the mine by 21 years to 2033. A number of development consent conditions relating to the historic heritage values of the expansion area which included preparation of a Conservation Management Plan for the Wallaby Scrub and Charlton Road portions of the Great North Road, and Archival Recording and a Conservation Management Plan for former RAAF Base Bulga.

This approval was subsequently overturned by the Land & Environment Court in April 2013.

4 RESULTS

4.1 DESKTOP FINDINGS

Desktop findings includes the results of database searches, reviews of previous cultural heritage reports undertaken within the Project Area, and additional historical research into past land use and development.

4.1.1 Registered Heritage Items

A search of registered heritage items within the Singleton Shire found one registered place within the Proposal Areas, and an additional six registered places located within a 7.5km radius of the centre of the Proposal Areas.

Table 4.1 Registered Items and Places

Register ID#	Name	Location	Approximate Distance from Centre of Project Area
LEP#140	Brick Farm House	Golden Highway, Mount Thorley	4.5km
SHR 01459	Bulga Bridge	213 Main Road, Bulga	6km
LEP#18			
LEP#I10, NTNSW #R1330	Mt Leonard Public School	2099 Putty Road, Bulga	6.5km
LEP#I9 NTNSW #R1331	Mount Leonard	2201 Putty Road Bulga	7km
LEP#I143, NTNSW #R5782	St Phillips Church	Off High Road, Warkworth	7km
LEP#A6	Former Queen Victoria Inn Ruins	Jerrys Plains Road	7km
LEP#I11	War Memorial Gates	19 The Inlet Road, Bulga	7.5km
LEP= Local Environmental Plan			
NTNSW= National Trust of New South Wales			
SHR= State Heritage Register			

4.1.2 Previously Recorded Heritage Items

Review of previous reporting, community consultation and assessment surveys also highlighted additional known heritage items within the Proposal Area and these are outlined in Table 4.2.

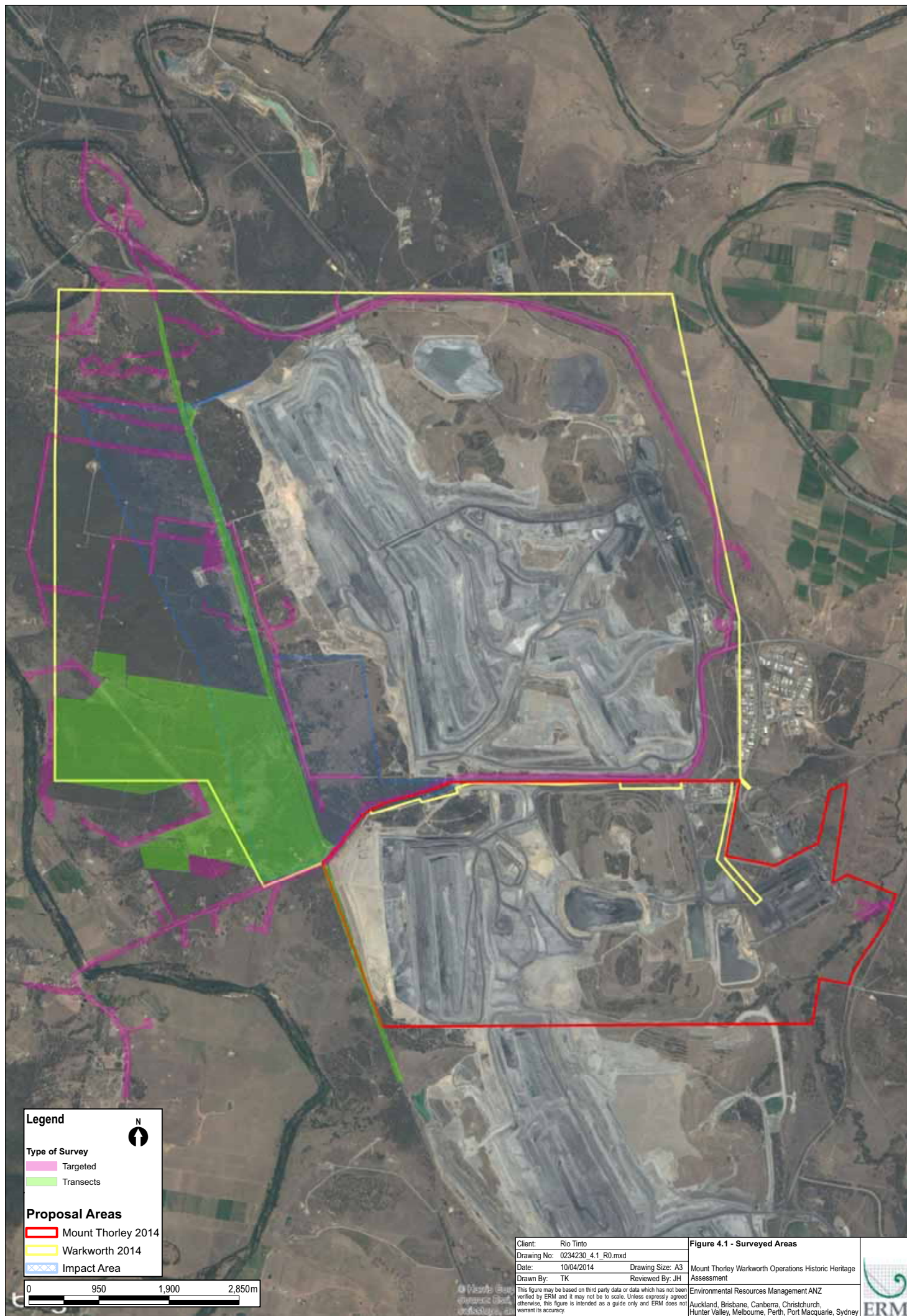
Table 4.2 *Previously Recorded Heritage Items Within Impact Area*

ID#	Name	Location	Description	Source of Information
Within Warkworth Continuation Project Impact Area				
RBHH-001	Former RAAF Base Bulga Complex ¹	East of Wallaby Scrub Road, west of Wollombi Brook MTW Area	Remains of 1940s RAAF Base including runways, hideouts, Mess building and other associated infrastructure.	ERM (2013) RAAF Bulga Conservation Management Plan
GNR-001	Great North Road Complex ²	Wallaby Scrub and Charlton Roads MTW Area	General alignment and physical remnants of early road system	ERM (2014) Great North Road Conservation Management Plan
GNR-005	Blazed Tree	East of Wallaby Scrub Road, approximately 5m from road MTW Area	Scar is 900mm from base of tree and measures 550x200mm. Scar has previously been painted white, bears an axe mark and nail but no other discernible numbers or arrows.	ERM (2014) Great North Road Conservation Management Plan
GNR-009	Well #1	East of Wallaby Scrub Road MTW Area	Timber lined well that has been filled in.	RTCA and included in ERM (2014) Great North Road Conservation Management Plan
GNR-012	Well #2	East of Wallaby Scrub Road MTW Area	Partially filled in. Timber lined measuring 800x800mm and 400mm deep.	RTCA and included in ERM (2014) Great North Road Conservation Management Plan
GNR-014	Bridge Remains	North western corner of the intersection of Wallaby Scrub and Putty Roads MTW Area	Number of circular sawn timber decking and girders with square head bolts concealed in vegetation.	ERM (2014) Great North Road Conservation Management Plan
¹ Complex comprises a series of recorded historical features associated with the former RAAF Base, and referred to herein as RBHH-001 - former RAAF Base Bulga Complex ² Complex comprises a series of recorded historical features associated with the former Great North Road, and referred to herein as GNR-001 - former Great North Road Complex				

The 2014 assessment survey recorded 50 historic features of varying dates and associations that were recorded using differential GPS. All buildings along Putty and Wallaby Scrub Roads were also recorded, and while the majority were of modern construction with no heritage value they were included in the site log (refer to *Annex A* for recorded buildings with no heritage value). Known heritage sites (listed in *Table 4.2*) were also re-surveyed to provide an up-to-date assessment of their condition. All newly recorded historic features were assigned a site identifier number with a prefix of MTW (Mount Thorley Warkworth).

Figure 4.1 shows areas surveyed by ERM between November 2012 and March 2014, and *Figure 4.2* shows the locations of all historic features recorded.

Tables 4.3 to 4.6 provide summary details on locations and descriptions of all recorded features within the impact area, within the greater Proposal Area, and adjacent to the Proposal Area.



Legend

Type of Survey

- Targeted
- Transects

Proposal Areas

- Mount Thorley 2014
- Warkworth 2014
- Impact Area

0 950 1,900 2,850m

Client: Rio Tinto
Drawing No: 0234230_4.1_R0.mxd
Date: 10/04/2014
Drawn By: TK
Reviewed By: JH

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Figure 4.1 - Surveyed Areas

Mount Thorley Warkworth Operations Historic Heritage Assessment

Environmental Resources Management ANZ

Auckland, Brisbane, Canberra, Christchurch, Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney



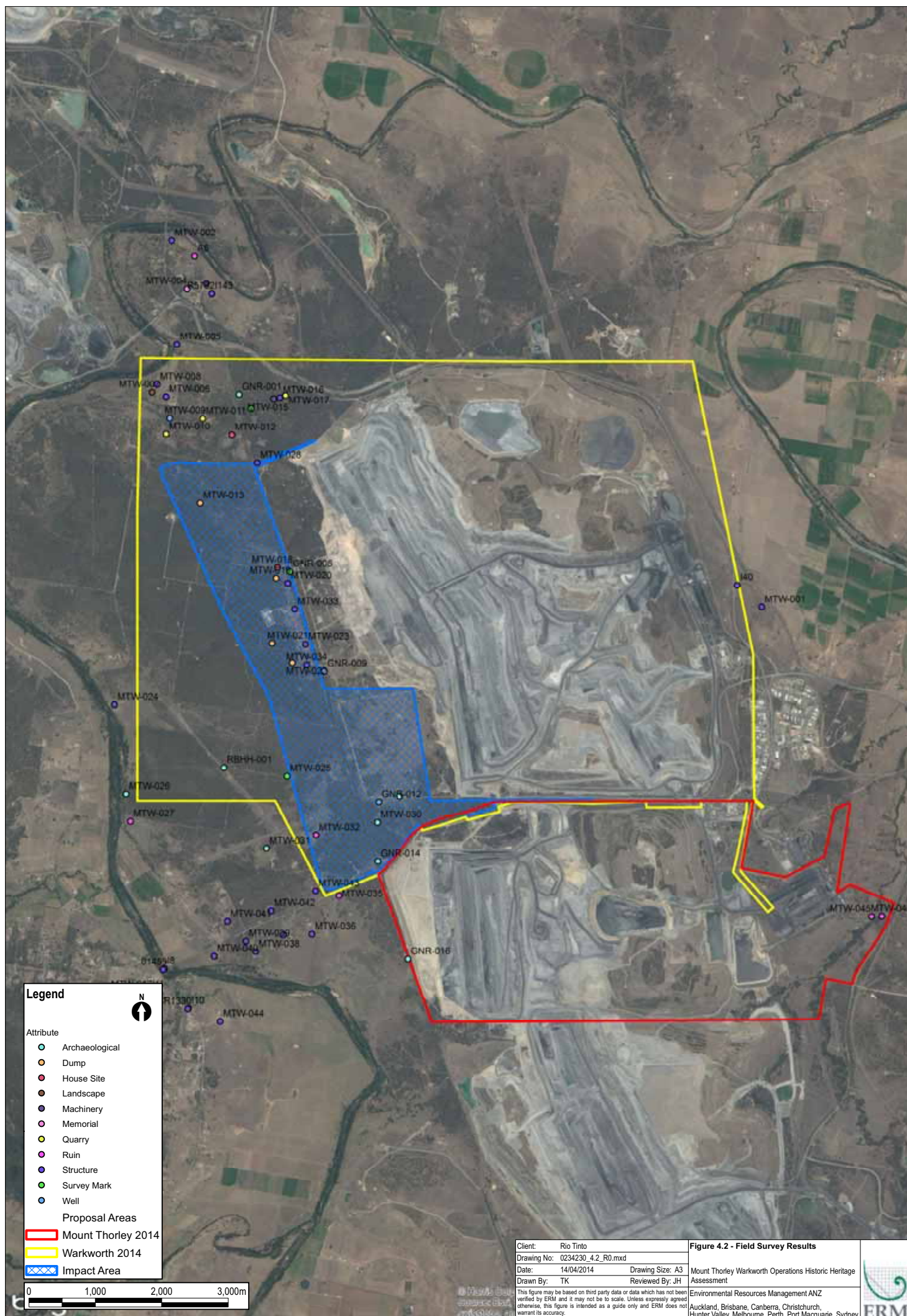










Table 4.3 Field Survey Results – Within Warkworth Continuation Project 2014 Impact Area




#	Name	Location	Description	Historical Information	Photo
I40	Brick Farm House	Golden Highway, Mount Thorley	Single storey square in plan. Brick laid in Flemish bond. Hipped corrugated iron roof and bull nosed verandah to north, east and west elevations. Outbuildings to rear.	Land granted to Eliza Jane Glass in 1872. Following Glass's death, was transferred to daughter, Margaret Brady in 1899, and Margaret's daughter Florence in 1924. Ownership transferred to Singleton farmer, Gordon Jarvis in 1960, and sold to Warkworth Mining Pty Ltd in 1979 (ERM 2007).	
RBHH-001	Former RAAF Base Bulga Complex	North west of the Putty Road and Wallaby Scrub Road intersection.	Remains of 1940s RAAF Base including runways, hideouts, Mess building and other associated infrastructure.	Decision made in April 1942 to establish an operational base at RAAF Bulga, to serve as a parent base, with satellite bases at Broke, Strowan and Warkworth (ERM 2014).	
		Very small portion of the eastern part of east-west runway falls within impact area. No structures or structural remains associated with the former RAAF base are located within the impact area.	The kitchen and mess was originally irregular in plan comprising a central kitchen area measuring 13.4 x 8.8m, with long rectangular mess halls to the east and west, connected by a servery on either side. The remnant structure today comprises the kitchen building and the foundation of one of the serveries. It is "L" shaped in plan with brick and concrete footings. Overall the building is in poor condition with trees physically	By July 1943 the completed site contained two sealed runways and associated landing grounds, 12 hideouts and associated taxiways, a number of buildings including mess facilities and ablutions blocks, and petrol storage tanks. By January 1944, the use of the site was limited due to the decreasing threat of attack, and it was subsequently returned to landholders. In March 1946, the decision was made by the RAAF to cease maintenance following vandalism of the site. RAAF policy subsequently came into effect which meant	


#	Name	Location	Description	Historical Information	Photo
			impacting on the building fabric, and some minor settlement issues resulting in cracking and failing brickwork. The western section of the building is the most intact part and retains the original timber frame, corrugated asbestos cement roof sheeting and walls clad with corrugated iron sheeting.	that all runways, taxiways, drainage and fencing were to be retained, but moveable assets such as buildings were to be removed. An auction was held in May 1948 to dispose of assets and by 1949 all assets except the kitchen building had been sold and removed from the site.	
GNR-001	Great North Road Complex	<p>The whole of Wallaby Scrub Road from the intersection with the Golden Highway in the north, across Putty Road and onto Charlton Road in the south.</p> <p>Alignment of road falls within impact area.</p>	<p>General alignment and physical remnants of early road system.</p> <p>The existing road was observed to have been constructed with more recent road construction techniques, with a large extent of the road within the Proposal Area undergoing major road and earth works over the last 40 years. These more recent road works appear to have been built on top of the original road alignment along most of the Proposal Area, potentially</p>	<p>Plans were made in the early 1820s for three great roads radiating west, south and north out of Sydney.</p> <p>By 1830 convict gangs were constructing the road at Wollombi and at Warkworth heading towards Broke (Karskens in Lavelle et al 2005), and branch lines, and bridges were being completed at the northern reaches of the road, at Warkworth by 1834.</p> <p>The use of the Great North Road had decreased significantly by the mid-1830s and the introduction of steam ships and the Peat's Ferry Road which was opened</p>	




Plan of RAAF Bulga, October 1943 (NAA 3302965)



#	Name	Location	Description	Historical Information	Photo
			<p>resulting in the demolition of the original road in a number of locations.</p> <p>Where the alignment and grading of the more recent road construction works have been significantly elevated to create a more level and consistent road gradient, there is potential for original road pavement in the form of stone cobbles to remain in place underneath the newer sub grade.</p>	<p>in the 1840s led to the eventual disuse of the Great North Road.</p> <p>Some minor changes have occurred to the road since its construction, primarily at the northern and southern reaches of Wallaby Scrub Road, where the northern curve south of Warkworth Village was straightened, and the southern portion of Wallaby Scrub Road where changes were made to the intersection with Putty Road. These major changes to the road occurred in the 1970s.</p>	 <p><i>Planned Modifications to Intersection, 1969 (Wollombi Parish Map, 1938)</i></p>
GNR-005	Blazed Tree	Western side of Wallaby Scrub Road. The tree is located approximately five metres east of the current road with the scar facing north.	<p>Scar is 900m from base of tree and measures 550x200mm. Scar has previously been painted white, bears an axe mark and nail but no other discernible numbers or arrows.</p>	Unknown.	

#	Name	Location	Description	Historical Information	Photo
GNR-012	Well #2	East of Wallaby Scrub Road.	Partially filled in. Timber lined measuring 800x800mm and 400mm deep.	Likely associated with property formerly located to the east along the vehicle track.	
GNR-014	Bridge Remains	The bridge remains are located in a swampy area at the north western corner of the intersection with Wallaby Scrub Road and Putty Road.	<p>Number of circular sawn timber decking and girders with square head bolts concealed in vegetation.</p> <p>The remains are in poor condition.</p>	The history of the surrounding region and physical remains indicate that the bridge was likely constructed during World War II when roads in the region were upgraded for defence training and evacuation routes. The bridge remains are similar to a bridge constructed at nearby RAAF Bulga c1942.	

#	Name	Location	Description	Historical Information	Photo
MTW-013	Dump Site	Adjacent to track west of Wallaby Scrub Road. Lot 97 on DP755267	Approximately 50x50m. Containing car bodies, car parts and general modern rubbish.	Unknown. Surface material appears of recent origin.	
MTW-018	Former House Site #2	West of Wallaby Scrub Road. Lot 1 on DP	Levelled area with concrete slabs surrounded by mature plantings, with septic tank and "hills hoist" clothesline to rear.	Unknown. Buildings evident in this location in 1960s aerial photographs.	
MTW-019	Dump Site #2	West of Wallaby Scrub Road.	Large dump site approximately 200x200m. Contains car bodies, mounds of concrete blocks, building materials including timber posts and corrugated iron, and modern rubbish.	Unknown. Surface material appears of recent origin. Disturbance is evident in this location as early as 1963 in historical aerial photographs.	

#	Name	Location	Description	Historical Information	Photo
MTW-020	P1 Huts #1	377 Wallaby Scrub Road	<p>Two P1 huts joined to form an “L shaped” floor plan. 16m along main elevation, and 11m along southern elevation. 5.7m in width. Corrugated galvanised iron roof. Original timber windows have been replaced with aluminium and boarded up. Vents below each gable.</p> <p>Interior has been re-lined with plasterboard and forms a modern three bedroom, one bathroom house.</p>	<p>During WWII military camps were established across Australia and filled with the “P-series” hut. These huts were a standard, serially designed, wooden framed, timber or corrugated iron clad hut with no internal partitions and a low pitch gabled roof. Utilitarian in their architecture, they were designed as a temporary solution to wartime building needs, providing cheap, reliable, easily constructible buildings which used readily available materials (Nolan 2005). The “P1– Sleeping or Stores Hut” was the basic model and generally held 20 stretchers. The original P1 hut design was a timber framed rectangular building with simple gable roof. The original design had a width of 4.9m, however this was extended to 5.7m and then 6.1m as the war progressed(Nolan 2005). The standard “P” style huts were named after their place of origin at Puckapunyal, where they were once prevalent in the landscape (Pullar 1997). Aerial photographs indicate the buildings were moved to their current location in the mid 1970s/early 1980s. Potentially from Singleton Army Barracks or Greta Migrant Camp.</p>	

#	Name	Location	Description	Historical Information	Photo
MTW-021	Dump Site #3	West of Wallaby Scrub Road.	Seven car bodies and modern rubbish in pit to rear of property.	Likely associated with house at MTW-023.	
MTW-022	Dump Site #4	West of Wallaby Scrub Road	Approximately 20x30m in size. Contains corroded tanks, corrugated iron, kitchen appliances and bottles.	Likely associated with house at MTW-034.	
MTW-023	P1 Huts #2	297 Wallaby Scrub Road	Two P1 huts joined to form an “L shaped” floor plan, and used as a residential property. Windows have been replaced with aluminium.	Unknown. Aerial photographs indicate the buildings were moved to their current location in the mid 1970s/early 1980s. Potentially from Singleton Army Barracks or Greta Migrant Camp.	

#	Name	Location	Description	Historical Information	Photo
MTW-029	Former House Site #4	East of Wallaby Scrub Road.	Located either side of vehicle track, with yards and paddock on southern side of track, and former house site with brick and concrete well, building materials and car bodies on northern side.	Unknown. Land originally taken up by Thomas Bates by 1880s. Buildings evident in historical aerial photographs as early as 1960s.	
MTW-030	Former House Site #5	East of Wallaby Scrub Road.	Small dam and orchard on western side, and former house site near pine trees and oleanders. Building materials include bricks, concrete and corrugated iron.	Unknown. Buildings evident in this location in 1960s aerial photographs, but removed by 1990s.	












#	Name	Location	Description	Historical Information	Photo
MTW-032	Building Remains	West of Wallaby Scrub Road.	Broken concrete slab, approximately 10x40m, timber posts and brick footings.	Structure evident in this location in 1942 aerial photograph.	



Table 4.4 Field Survey Results – Within Warkworth Continuation Project 2014 Proposal Area, Outside Impact Area




ID #	Name	Location	Description	Historical Information	Photo
MTW-005	Springwood	South of Golden Highway, west of Wallaby Scrub Road and adjacent to Wollombi Brook.	<p>Building located on rise on top of Wollombi Brook with outbuilding and yard remains to north of building towards Golden Highway. Dam located 100m south east.</p> <p>Building is a slab construction, 4 roomed cottage with central hallway. Has a verandah to three sides and enclosed along eastern and western elevations. W\There are weatherboards to front over slabs. Corrugated iron roof over timber shingles. Sandstone chimney in centre of house.</p> <p>Overall in good condition for age of building, but trees are physically impacting on structure, some damp in stone and stones dropping from fireplace.</p>	<p>Land originally taken up by William Watts in 1856 and 1859. Homestead constructed within first two decades, and an orchard established.</p> <p>By 1896 Springwood was noted as containing 10 acres of grape vines, and 12 acres of fruit trees, with the house on a rise overlooking the vineyard and orchard below, and lucerne fields beyond. The quality of the fruit was well known in the district in the early 1900s with the district inspector regularly noting fine samples of peaches, plums and grapes, and approving exportation of his fruit to New Zealand in 1912.</p> <p>By 1931, the size of Springwood had doubled to 200 acres, and now had a frontage of 1 mile to Wollombi Brook, indicating that it had taken over James Neal's grant to the south.</p> <p>Building has been vacant in recent history.</p>	  

ID #	Name	Location	Description	Historical Information	Photo
MTW-006	Shed Complex	800m south of Springwood	<p>Three modern sheds used until recently for storage.</p> <p>Shed 1: 14x15m timber framed with galvanised iron roof and side cladding. Fixed with mixture of bolts, pop rivets and screws. Chicken coop on northern side.</p> <p>Shed 2: 5x20m timber framed, galvanised roof and cladding to three sides.</p> <p>Shed 3: Machinery shed 10x25m, steel frame on concrete footings, roof and eastern elevation clad with galvanised steel. Cages to rear.</p>	<p>Historically land was part of James Neal's Burwood Estate which was later acquired by the Watts Brothers and formed part of the Springwood Estate by 1931.</p> <p>Sheds are of more recent origin, and likely used as fruit packing and machinery sheds.</p>	 
MTW-007	Orchard Remains	750m south west of Springwood	<p>Remains of orchard containing fruit trees. Extends east and west of the vehicle track approximately 200x200m.</p>	<p>Historically land was part of James Neal's Burwood Estate which was later acquired by the Watts Brothers and formed part of the Springwood Estate.</p> <p>Historically area has been used for growing fruit from late 1800s.</p>	

ID #	Name	Location	Description	Historical Information	Photo
MTW-008	Building Complex	650m south west of Springwood	Number of structures including a shed used for residential purposes (concrete foundation, steel and timber framed and enclosed on three sides), storage shed (timber framed on concrete slab, clad with galvanised iron), brick toilet block, and concrete well with pump. Fig trees and grape vines around complex.	Historically land was part of James Neal's Burwood Estate which was later acquired by the Watts Brothers and formed part of the Springwood Estate. Potentially historically used as quarters for fruit pickers.	
MTW-009	Timber Well	Approximately 20m east of former fence line and 5m west of track.	Timber lined well 1x1m. only top three slabs visible (approx. 60cm deep), remainder of well filled in.	Unknown Historical aerial photographs indicate area was partially cleared of vegetation in mid to late twentieth century.	

ID #	Name	Location	Description	Historical Information	Photo
MTW-010	Quarry #1	West of Wallaby Scrub Road	Remnant gravel quarry, approximately 200x200m.	Unknown Area cleared of vegetation in 1960s aerial photographs. Potentially used as a borrow pit for the construction of the RAAF Base at Bulga during World War II.	
MTW-011	Quarry #2	West of Wallaby Scrub Road	Remnant gravel quarry, approximately 150x100m.	Cleared late 1970s/early 1980s consistent with works being undertaken to Wallaby Scrub Road.	

ID #	Name	Location	Description	Historical Information	Photo
MTW-012	Former House Site	West of Wallaby Scrub Road	Cleared area with remnant building material.	Structures evident in this location as early as 1963 in historical aerial photographs.	
MTW-014	Trig Station Watts	220m east of Wallaby Scrub Road	Concrete plinth with galvanised iron mast and steel beacon. Remains of earlier timber station adjacent. Plaque reads "Central Mapping Authority Geodetic Station WATTS." TS5572WATTS	Current Station constructed in February 1976. Earlier timber trig station was located in adjacent stone cairn. Timber mast with steel beacon remain on ground adjacent.	

ID #	Name	Location	Description	Historical Information	Photo
MTW-015	Harvester	West of Wallaby Scrub Road	Large harvester on rise north of track.	Unknown	
MTW-016	Shed	West of Wallaby Scrub Road, on rise north of vehicle track.	Timber framed fibrous cement clad shed with floorboards. Roof corrugated galvanised steel. Valiant under front awning.	Unknown	
MTW-017	Quarry #3	West of Wallaby Scrub Road, south of Golden Highway.	Quarry containing large cut stones.	Unknown.	





ID #	Name	Location	Description	Historical Information	Photo
MTW-024	House Complex	Adjacent to Wollombi Brook. Lot 7 on DP735566	Residential complex comprising house, separate building containing bar and entertaining area, dairy and laundry building and machinery sheds. Buildings have been constructed with mixture of building materials likely sourced from earlier structures on site and dating from 1920s-1970s. Internal fitout is c1970s era.	Land originally granted to James Hale in June 1837. RAAF Base Bulga established to the east of these buildings in the 1940s. Buildings are evident in this location in 1942 aerial photographs, but are not consistent with the form of current structures.	  
MTW-025	Trig Station - Warkworth 11	West of Wallaby Scrub Road, east of airstrip and north of vehicle track.	Steel on concrete Trig Station with beacon on ground. TS10241WARKWORTH11	Current pillar placed in August 1976.	

Table 4.5 Field Survey Results – Within Mount Thorley Operations 2014 Proposal Area














ID #	Name	Location	Description	Historical Information	Photo
MTW-045	Kangaroo Downs Cattle Run	Adjacent to Loders Creek, off Broke Road	Located 10m north of road. Timber log cattle run and dump containing posts.	Land originally granted to Archibald Mossman in the 1830s. Historical aerial photographs show paddocks in this location and small farms surrounding the yards prior to the establishment of the mine.	
MTW-046	Kangaroo Downs Bridge Remains	Adjacent to Loders Creek, off Broke Road	Located approximately 20m downstream of current bridge and culvert. Remains of early timber bridge approximately 3m wide, with timber piles, horizontal slab abutment, but no decking remaining.	Land originally granted to Archibald Mossman in the 1830s. Prior to the establishment of the mine, this area contained small paddocks and was surrounded by small farms, and a road led to a residence in this location.	




Table 4.6 Field Survey Results – Within 7.5km Radius of Proposal Areas




ID #	Name	Location	Description	Historical Information	Photo
A6	Former Queen Victoria Inn/Three Brothers Inn Ruins	High Street, Warkworth Village	Site of the former Queen Victoria Inn/Three Brothers Inn. Brick and stone chimney with hard concrete mortar marks location of former inn. Timber lean-to located to the west.	The Inn was constructed c1850s and was of Georgian style (Fink 1977)	
I8 SHR 01459	Bulga Bridge	Putty Road, Bulga	The Bulga bridge is a Dare type timber truss bridge. It was constructed in 1912 and has had some recent strengthening works.	Constructed in 1912 by the Public Works Department. Harvey Dare, the designer of Dare truss and other bridges, was a leading engineer in the Public Works Department, and a prominent figure in early 20th century NSW (NSW Roads and Maritime, Item #4300181). Has recently had strengthening works undertaken.	

ID #	Name	Location	Description	Historical Information	Photo
I10 R1330	Mount Leonard Public School	2099 Putty Road	Single storey brick with verandah to front elevation. Galvanised iron roof with three chimneys. Number of alterations and additions including the front verandah, fibrous cement sheeting extension to the rear with aluminium windows.	Constructed c 1879 (Singleton Argus 19 April 1879, p2). Has most recently been used by the Scouts.	
I11	War Memorial Gates	19 The Inlet Road Bulga	Two concrete and stone memorial posts, painted steel gates.	Honour roll and memorial gates unveiled in October 1920 (Singleton Argus, 21 October, 1920).	
I143	St Phillips Church	Off High Street, Warkworth	Early Victorian style stone and brick construction. Brick and render to three elevations and new Colorbond roof. A number of cemeteries to the rear.	Constructed c1840, consecrated c1856 (Fink 1977).	

ID #	Name	Location	Description	Historical Information	Photo
GNR-016	Cattle Run and Yards	Located on a ~2.5 m embankment on the western side of Charlton Road.	It comprises a cattle run and yards positioned to indicate that it previously crossed the road in a north east direction in this location. This gives an indication of the extent of excavation in this location for the modern road. Timber used has been circular sawn, and fencing uses wire twitches.	On land originally taken up by Reuben Clarke who also owned a portion of land on the eastern side of Charlton Road.	
MTW-001	Jarvis House Cottage	East of Brick Farm House (Jarvis House)	Timber framed with corrugated iron roof. Weatherboard cladding and pressed metal ceilings remaining in interior.	Located on land originally granted to J.F McDougall and others in 1840.	
MTW-002	Warkworth Public School	High Street, Warkworth	Single storey Victorian Gothic architectural style. Brick amenities block to rear of building. Sign at front reads "Warkworth Public School 1859."	Constructed c1859 Has been converted for use as residence in recent years.	

ID #	Name	Location	Description	Historical Information	Photo
MTW-003	Warkworth Village Recreational Hall	High Street, Warkworth	Single storey, rectangular in plan on timber stumps. Corrugated iron clad and with aluminium windows.	Unknown.	
MTW-004	Warkworth Cricket Club Memorial	Cricket club, Warkworth Village	Concrete plinth adjacent to cricket club.	Erected in 1959.	
MTW-026	Stone Feature	Approximately 100m east of Wollombi Brook and west of vehicle track.	Large mound of cut stone measuring 2x4m, and approximately 70cm above ground surface. Top of mound appears to have stone in courses. Fence posts located approximately 20m east towards track, and three posts running towards Wollombi Brook to the west. Brick and glass fragments in surrounding area.	Unknown	

ID #	Name	Location	Description	Historical Information	Photo
MTW-027	Building Remains	Located in paddock approximately 200m east of Wollombi Brook.	Location marked by number of mature Pepper trees. Pieces of concrete, brick footings, timber framing and metal machinery indicate locations of former structures.	Unknown. Structures evident in this location in 1960s aerial photos.	
MTW-031	Yards Complex		Operational paddock and yards including the remains of an old dairy shed, number of mature plantings, concrete slabs, tanks and dumps.	Structures evident in this location as early as 1942 aerial photographs of the site.	
MTW-035	Newport Dairy Complex	Putty Road, south of Charlton Road.	Remains of dairy and yards including single storey brick structure with concrete floor and concrete render to interior. Yards a mixture of slab, steel, and wire twitch construction.	Land original taken up by early settler, Festus Tong in 1834. Estate was known as Newport by 1860s. Owners auctioned off all buildings on site in 1936 including a two roomed cottage and dairy with milk room. Structures evident in this location as early as 1942 aerial photographs of the site.	

ID #	Name	Location	Description	Historical Information	Photo
MTW-037	P1 huts	1855 Putty Rd	Three P1 huts including one used for residence, one with original features to rear, and a portion of one used as a shed to the east.	Unknown. Aerial photographs indicate the buildings were moved to their current location in the mid-1970s/early 1980s. Potentially from Singleton Army Barracks or Greta Migrant Camp.	
MTW-044	Riverview House and Dairy Complex	Putty Road, Bulga	Single storey interwar building on stumps. Number of additions and alterations including enclosed front verandah, fibrous cement sheeting extension to rear and aluminium windows. Dairy timber and weatherboard construction with concrete slab floor. Second modern brick house located to north.	Land originally granted to early settler, Joseph Onus in the mid-nineteenth century. By 1916 had been subdivided to smaller blocks.	
MTW-047	Post Rail Fence	Inlet Road, Bulga	Remnant two rail post and rail fence, provenanced to the former Police Station Paddock at Bulga.	Plaque indicates fence was constructed for Police Station paddock in 1925.	

4.3 FORMER RAAF BASE BULGA

The former RAAF Base Bulga was surveyed by ERM in November 2012, and a Conservation Management Plan (CMP) prepared to aid in managing the historic heritage values of the place. An archival record (AR) was also prepared to document the surviving features.

The CMP for the site can be found at *Annex B*.

4.4 GREAT NORTH ROAD

The Wallaby Scrub and part of the Charlton Road portions of the Great North Road was surveyed by ERM in December 2012, and a CMP prepared which provided recommendations for its future management and conservation.

The CMP for the site can be found at *Annex C*.

5.1 ASSESSMENT OF SIGNIFICANCE

To be assessed as being of local or State significance a site must meet one of the following criteria (Heritage Office 2001):

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

Each of the historic features recorded during the field survey phase have been assessed against each of the criteria, also assessed to determine whether they are of local or State significance. Existing registered items of local and State significance outside of the Proposal area have also been included in the table, but have not been reassessed against the Heritage Office (2001) criteria. The results are outlined in Tables 5.1 to 5.4.

Table 5.1 Significance Assessment Results – Sites Within Warkworth Continuation 2014 Impact Area

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
I40	Brick Farm House		X		Local historical significance.	The ownership of the land for almost 100 years by women was considered to be of interest, and worthy of potential future research.
RBHH-001	Former RAAF Base Bulga		X	X	The former RAAF Base Bulga demonstrates the response to threat of attack from the Japanese during World War Two and has local historical significance for its establishment as an operational airfield for general reconnaissance for the Upper Hunter Valley region. The NSW heritage office thematic study furthermore recommends that all parent air bases be considered for inclusion on the state heritage register.	General discussion suggested that few people in the community knew of the existence of this RAAF Base. Further community comments will be forthcoming.
GNR-001	Great North Road		X	X	The Great North Road was the first of the 'Great Roads' to be established in Australia and was important in connecting Sydney and the Hunter Valley. The road was modelled on the 'Great Roads' of England and is significant in demonstrating an early convict road that resulted in opening up the Hunter Valley to trade and settlement. While not retaining as much physical evidence as other sections of the GNR, this section retains much of the original alignment and is historically significant at State level. The road has a special association with Governor Darling who was responsible for the 'Great Roads' concept in Australia and assistant surveyor, Heneage Finch and Sir Thomas Mitchell who were responsible for surveying this section of road. While very little original fabric is thought to survive, much of the original road	Significant CHAG interest in the Great North Road. Further comments will be forthcoming.

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
					alignment has been retained in the modern Wallaby Scrub Road, therefore meeting threshold requirements for this criterion.	
					A number of areas along the road have a degree of archaeological potential, and information yielded has the potential to contribute to knowledge of New South Wales history.	
GNR-005	Blazed Tree	X			Some local historical significance in demonstrating past survey activities in the area, however the poor condition means it is no longer visible to provide evidence of a particular association or event.	Interest in this tree was expressed by some members of CHAG, however others regarded the potential of this tree to yield useful research information was low.
GNR-012	Well #2	X			Has some archaeological potential, however the information obtained would contribute little knowledge to the history of the local area.	General interest in excavating the wells was expressed by the CHAG.
GNR-014	Bridge Remains	X			Has some research potential, however the information obtained would contribute little knowledge to the history of the local area.	No information provided.
MTW-013	Dump Site	X			Has some archaeological potential, however the information obtained would contribute little knowledge to the history of the local area.	No interest expressed in this site.
MTW-018	Former House Site #2	X			Information from this site is considered to contribute little knowledge to the history of the local area.	Little interest expressed in this site. Potential research value regarding land tenure.
MTW-019	Dump Site #2	X			Has some archaeological potential, however the information obtained would contribute little knowledge to the history of the local area.	No interest expressed in this site.
MTW-020	P1 Huts #1		X		P style buildings in general are becoming increasingly rare, with less than 500 examples of P1 huts remaining in 2007 (Miller 2007), and many more anticipated to have been demolished as part of recent	CHAG consultation suggests these buildings originated at the Greta Army/Migrant

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
					redevelopment projects across the Defence Estate. A number of examples appear to remain within the Singleton LGA. The building has some historical significance due to its potential association with the WWII era of the local area.	Camp.
MTW-021	Dump Site #3	X			Has some archaeological potential, however the information obtained would contribute little knowledge to the history of the local area.	No interest expressed in this site.
MTW-022	Dump Site #4	X			Has some archaeological potential, however the information obtained would contribute little knowledge to the history of the local area.	No interest expressed in this site.
MTW-023	P1 Huts #2		X		P style buildings in general are becoming increasingly rare, with less than 500 examples of P1 huts remaining in 2007 (Miller 2007), and many more anticipated to have been demolished as part of recent redevelopment projects across the Defence Estate. A number of examples appear to remain within the Singleton LGA. The building has some historical significance due to its potential association with the WWII era of the local area.	CHAG consultation suggests these buildings originated at the Greta Army/Migrant Camp.
MTW-029	Former House Site #4	X			Has some research potential, however the information obtained would contribute little knowledge to the history of the local area.	Little interest expressed in this site. Potential research value regarding land tenure.
MTW-030	Former House Site #5	X			Has some research potential, however the information obtained would contribute little knowledge to the history of the local area.	Little interest expressed in this site. Potential research value regarding land tenure.
MTW-032	Building Remains	X			Remains contribute little knowledge to the history of the area.	Little interest expressed in this site. Potential research value regarding land tenure.

Table 5.2 Significance Assessment Results – Sites Within Warkworth Continuation Project 2014 Proposal Area, Outside of Impact Area

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
GNR-009	Well #1	X			Has some archaeological potential, however the information obtained would contribute little knowledge to the history of the local area.	General interest in excavating the wells was expressed by the CHAG.
MTW-005	Springwood		X		Established south of Warkworth Village in the mid nineteenth century, Springwood Estate was a well-known orchard associated with early pioneers, William Watts. The remnant homestead is representative of the types of dwellings constructed in regional areas during the nineteenth century, and remains in good condition, with slab construction, timber shingle roof and sandstone chimney remaining intact. The house and surrounding property has some research potential, which could contribute knowledge to the history of the local area.	Interest expressed by all members of CHAG regarding the future conservation and use of this building. Additional comments likely to be forthcoming.
MTW-006	Shed Complex	X			Some local historical significance, however there is no evidence to suggest association with the Watts family.	No interest expressed in this site.
MTW-007	Orchard Remains	X			The structures are not considered rare or representative, and are considered unlikely to contribute our knowledge of the history of the area.	Some interest in this site was expressed. Suggestion was made to have a horticulturalist examine the trees to determine whether there were any older varieties of fruit within the orchard that may not be in existence/widely distributed today.

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
MTW-008	Building Complex	X			There is no evidence to suggest association with the Watts family. The structures are not considered rare or representative or good examples of their type, and are considered unlikely to contribute our knowledge of the history of the area.	No interest expressed in this site.
MTW-009	Timber Well	X			Has some archaeological potential, however the information obtained would contribute little knowledge to the history of the local area.	General interest in archaeological excavation of the well.
MTW-010	Quarry #1	X			The quarry has potential association with the establishment of former RAAF Base Bulga, however there is currently no evidence to substantiate this.	No interest expressed in this site.
MTW-011	Quarry #2	X			Does not contribute substantial knowledge to the history of the area.	No interest expressed in this site.
MTW-012	Former House Site	X			Has some research potential, however the information obtained would contribute little knowledge to the history of the local area.	Some interest expressed regarding the potential research value of this site.
MTW-014	Trig Station Watts	X			Does not contribute substantial knowledge to the history of the area.	Some interest expressed regarding the potential research value of this site.
MTW-015	Harvester	X			Does not contribute substantial knowledge to the history of the area.	No information known.
MTW-016	Shed	X			Does not contribute substantial knowledge to the history of the area.	No interest expressed in this site.
MTW-017	Quarry #3	X			Does not contribute substantial knowledge to the history of the area.	No interest expressed in this site.
MTW-024	House Complex	X			Has some local historical significance, however the poor condition means it is no longer able to provide	No interest expressed in this site.

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
MTW-025	Trig Station - Warkworth 11	X			evidence of a particular association or event. Does not contribute substantial knowledge to the history of the area.	Some interest expressed regarding the potential research value of this site.

Table 5.3 Significance Assessment Results – Sites Within Mount Thorley Operations 2014 Proposal Area

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
MTW-045	Kangaroo Downs Cattle Run	X			Has some research potential, however the information obtained would contribute little knowledge to the history of the local area.	Some interest expressed regarding the potential research value of this site.
MTW-046	Kangaroo Downs Bridge Remains	X			Has some research potential, however the information obtained would contribute little knowledge to the history of the local area.	Some interest expressed regarding the potential research value of this site.

Table 5.4 Significance Assessment for Places Within a 7.5km Radius of Proposal Areas

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
A6	Former Queen Victoria Inn/Three Brothers Inn Ruins		X		Local historical and archaeological significance.	Some interest expressed regarding the potential research value of this site.
I8 SHR 01459	Bulga Bridge		X	X	State historical, aesthetic and social significance, representativeness, rarity and research potential.	General interest expressed in this site. No additional actions.
I10 R1330	Mount Leonard Public School		X		Local historical significance.	General interest expressed in this site. No additional actions.
I11	War Memorial Gates		X		Local historical significance.	General interest expressed in this site. No additional actions.
I143	St Phillips Church		X		Local historical significance.	General interest expressed in this site. No additional actions.
GNR-016	Cattle Run and Yards	X			Some historical significance, however the buildings are unable to provide substantial evidence of a particular association or event. The structures are not considered rare or representative, and are considered unlikely to contribute to our knowledge of the history of the area.	No interest expressed in this site.
MTW-001	Jarvis House Cottage	X			Some historical significance, however the buildings are unable to provide substantial evidence of a particular association or event. The structures are not considered rare or representative, and are considered unlikely to	Some interest expressed into the history of this site. No further information provided to date.

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
MTW-002	Warkworth Public School		X		contribute our knowledge of the history of the area. Warkworth Public School was constructed c1859, and has historical significance and special association with the community for its continued use as a school for over a century.	General interest expressed in this site. No additional actions.
MTW-003	Warkworth Village Recreational Hall	X			Some historical significance, however the building is unable to provide substantial evidence of a particular association or event. The hall is not considered rare or representative, and is unlikely to contribute our knowledge of the history of the area.	No interest expressed in this site.
MTW-004	Warkworth Cricket Club Memorial	X			Some social and associational significance, but not considered to meet threshold requirements.	No interest expressed in this site.
MTW-026	Stone Feature	X			Has some archaeological potential, however the information obtained is unlikely to make a substantial contribution to knowledge of the history of the local area.	Some interest in this site regarding the unknown nature of this feature. No additional recommendation expressed.
MTW-027	Building Remains	X			Information from this site is considered to contribute little knowledge to the history of the local area.	General interest expressed in this site. No additional actions.
MTW-031	Yards Complex	X			Structures are common in the local area and considered good examples of their type. Information from this site is considered to contribute little knowledge to the history of the local area.	General interest expressed in this site. No additional actions.
MTW-035	Newport Dairy Complex	X			Some local historical significance, however the poor condition means it is no longer able to provide evidence of a particular association or event.	CHAG revealed an external party is interested in the restoration of this site. No further information

Site #	Name	Does not meet threshold	Local Significance	State Significance	Summary of Significance Assessment	Community Comments
MTW-037	P1 huts #3		X		P style buildings in general are becoming increasingly rare, with less than 500 examples of P1 huts remaining in 2007 (Miller 2007), and many more anticipated to have been demolished as part of recent redevelopment projects across the Defence Estate. A number of examples appear to remain within the Singleton LGA. The building has some historical significance due to its association with the WWII era of the local area.	provided CHAG consultation suggests these buildings originated at the Greta Army/Migrant Camp.
MTW-044	Riverview House and Dairy Complex	X			Some local historical significance, however the poor condition means it is no longer able to provide evidence of a particular association or event. The structures are not considered rare or representative or good examples of their type.	No interest expressed in this site.
MTW-047	Post Rail Fence		X		The post and rail fence has local historical significance for its association with the Bulga Police Station. Its retention and commemoration with a plaque shows its importance within the local community.	No interest expressed in this site.

Background review, research, community consultation and field surveys has found that there are a number of historic features within the proposed impact area with the potential to be directly impacted by the proposals. This includes direct impacts through continuation of mining activities, and indirect impacts associated with exploration activities, maintenance of tracks and blasting. The following section determines the potential impact on the historic heritage values of the Proposal Area and uses the *ERM Impact Assessment Standard Annex B: Cultural Heritage* (ERM IA Standard).

The ERM IA Standard was formulated by ERM's Cultural Heritage practitioners for use in the absence of national, state or local impact assessment guidelines or requirements. The ERM IA Standard has been developed through experience on client projects involving pipelines and other linear infrastructure, hydropower, large scale manufacturing or transport projects and mining operations. As there are no Australia-wide, or NSW-specific impact assessment guidelines for cultural heritage, the ERM IA Standard has been used.

The criteria for assessing the heritage impact include determining the level of cultural heritage sensitivity, which is dependent on its level of cultural heritage significance, and determining the magnitude of the impact which is assessed by evaluating the potential changes that will occur as a result of the proposed works. This allows for an assessment of the corresponding level of impact on a scale of negligible, minor and major. The summary assessment table used is shown at *Table 6.1*.

Each identified site within and adjacent to the Proposal Area that has some level of historic heritage value been assessed in accordance with this format, and the results shown at *Table 6.2*. Sites within the impact area are assessed firstly, followed by sites within the broader Proposal Area, and lastly sites adjacent to the Proposal Area that have potential for indirect impacts.

Table 6.1 Cultural Heritage Impact Assessment Table

			Cultural Heritage Site Sensitivity		
			Low	Medium	High
Definitions			Defining Characteristic(s): Site is not specifically protected under local, national, or international laws or treaties; Site can be moved to another location or replaced by a similar site, or is of a type that is common in surrounding region; site has limited or no cultural value to local, national, or international stakeholders; and/or site has limited scientific value or similar information can be obtained at numerous sites. (Replicable Cultural Heritage)	Defining Characteristic(s): Site is specifically or generically protected by local or national laws but laws allow for mitigated impacts; Site can be moved or replaced, or data and artefacts recovered in consultation with stakeholders; Site has considerable cultural value for local and/or national stakeholders; and/or Site has substantial scientific value but similar information can be obtained at a limited number of other sites. (Non-replicable Cultural Heritage)	Defining Characteristic(s): Site is protected by local, national, and international laws or treaties; Site cannot be moved or replaced without major loss of cultural value; Legal status specifically prohibits direct impacts or encroachment on site and/or protection zone; Site has substantial value to local, national, and international stakeholders; and/or Site has exceptional scientific value and similar site types are rare or non-existent. (Critical Cultural Heritage)
Magnitude of Impact	Negligible	No discernible change in the physical condition, setting, or accessibility of the site.	Negligible	Negligible	Negligible
	Small	Small part of the site is lost or damaged, resulting in a loss of scientific or cultural value; Setting undergoes temporary or permanent change that has limited effect on the site's perceived value to stakeholders; Stakeholder/public or scientific access to site is temporarily impeded; and/or Historic building suffers minor, reparable, structural damage.	Negligible	Minor	Moderate
	Medium	A significant portion of the site is lost or damaged, resulting in a loss of scientific or cultural value; Setting undergoes permanent change that permanently diminishes the site's perceived value to stakeholders; Site becomes inaccessible for the life of the Project to stakeholders including traditional users or researchers; and/or Historic building suffers major structural damage that is not reparable.	Minor	Moderate	Major
	High	The entire site is damaged or lost, resulting in a nearly complete or complete loss of scientific or cultural value; Setting is sufficiently impact to cause site to lose nearly all or all cultural value or functionality; Site becomes permanently inaccessible to stakeholders including traditional users or researchers; and/or Historic building suffers major structural failure.	Moderate	Major	Major

Table 6.2 *Heritage Impact Assessment of Individual Features Within Warkworth Continuation Project 2014 Impact Area*

Site	Type of Impact	Magnitude of Impact	Cultural Heritage Site Sensitivity	Cultural Heritage Impact
140 Brick Farm House	Potential impact through lack of maintenance.	Small	Medium	Minor
RBHH-001 Former RAAF Base Bulga Complex	Partial direct impact (mining)	Small	Medium	Minor
GNR-001 Great North Road Complex	Partial direct impact (mining)	Small	Medium	Minor
GNR-005 Blazed Tree	Direct (mining)	High	Low	Moderate
GNR-012 Well #2	Direct (mining)	High	Low	Moderate
GNR-014 Bridge Remains	Direct (mining)	High	Low	Moderate
MTW-013 Dump Site	Direct (mining)	High	Low	Moderate
MTW-018 Former House Site #2	Direct (mining)	High	Low	Moderate
MTW-019 Dump Site #2	Direct (mining)	High	Low	Moderate
MTW-020 P1 Huts #1	Direct (mining)	High	Low	Moderate
MTW-021 Dump Site #3	Direct (mining)	High	Low	Moderate
MTW-022 Dump Site #4	Direct (mining)	High	Low	Moderate
MTW-023 P1 Huts #2	Direct (mining)	High	Low	Moderate
MTW-029 Former House Site #4	Direct (mining)	High	Low	Moderate
MTW-030 Former House Site #5	Direct (mining)	High	Low	Moderate
MTW-032 Building Remains	Direct (mining)	High	Low	Moderate

Table 6.3 *Heritage Impact Assessment of Individual Features Within Warkworth Continuation Project 2014 Proposal Area, Outside of Impact Area*

Site	Type of Impact	Magnitude of Impact	Cultural Heritage Site Sensitivity	Cultural Heritage Impact
GNR-009 Well #1	No impacts anticipated.	Negligible	Low	Negligible

Site	Type of Impact	Magnitude of Impact	Cultural Heritage Site Sensitivity	Cultural Heritage Impact
MTW-005 Springwood	Potential indirect impacts by blasting, lack of maintenance, and alteration of setting.	Small	Medium	Minor
MTW-006 Shed Complex	No impacts anticipated.	Negligible	Low	Negligible
MTW-007 Orchard Remains	No impacts anticipated.	Negligible	Low	Negligible
MTW-008 Building Complex	No impacts anticipated.	Negligible	Low	Negligible
MTW-009 Timber Well	No impacts anticipated.	Negligible	Low	Negligible
MTW-010 Quarry #1	No impacts anticipated.	Negligible	Low	Negligible
MTW-011 Quarry #2	No impacts anticipated.	Negligible	Low	Negligible
MTW-012 Former House Site	No impacts anticipated.	Negligible	Low	Negligible
MTW-014 Trig Station Watts	No impacts anticipated.	Negligible	Low	Negligible
MTW-015 Harvester	No impacts anticipated.	Negligible	Low	Negligible
MTW-016 Shed	No impacts anticipated.	Negligible	Low	Negligible
MTW-017 Quarry #3	No impacts anticipated.	Negligible	Low	Negligible
MTW-024 House Complex	No impacts anticipated.	Negligible	Low	Negligible
MTW-025 Trig Station - Warkworth 11	No impacts anticipated.	Negligible	Low	Negligible

Table 6.4 *Heritage Impact Assessment of Individual Features Sites Within Mount Thorley Operations 2014 Proposal Area*

Site	Type of Impact	Magnitude of Impact	Cultural Heritage Site Sensitivity	Cultural Heritage Impact
MTW-045 Kangaroo Downs Cattle Run	No impacts anticipated.	Negligible	Low	Negligible
MTW-046 Kangaroo Downs Bridge Remains	No impacts anticipated.	Negligible	Low	Negligible

Table 6.5 *Heritage Impact Assessment of Individual Features Within 7.5km Radius of Proposal Areas*

Site	Type of Impact	Magnitude of Impact	Cultural Heritage Site Sensitivity	Cultural Heritage Impact
A6 Former Queen Victoria Inn/Three Brothers Inn Ruins	No impacts anticipated.	Negligible	Medium	Negligible
I8, SHR 01459 Bulga Bridge	No impacts anticipated.	Negligible	Medium	Negligible
I10, R1330 Mount Leonard Public School	No impacts anticipated.	Negligible	Medium	Negligible
I11 War Memorial Gates	No impacts anticipated.	Negligible	Medium	Negligible
I143 St Phillips Church	No impacts anticipated.	Negligible	Medium	Negligible
GNR-016 Cattle Run and Yards	No impacts anticipated.	Negligible	Low	Negligible
MTW-001 Jarvis House Cottage	No impacts anticipated.	Negligible	Low	Negligible
MTW-002 Warkworth Public School	No impacts anticipated.	Negligible	Low	Negligible
MTW-003 Warkworth Village Recreational Hall	No impacts anticipated.	Negligible	Low	Negligible
MTW-004 Warkworth Cricket Club Memorial	No impacts anticipated.	Negligible	Low	Negligible
MTW-026 Stone Feature	No impacts anticipated.	Negligible	Low	Negligible
MTW-027 Building Remains	No impacts anticipated.	Negligible	Low	Negligible
MTW-031 Yards Complex	No impacts anticipated.	Negligible	Low	Negligible
MTW-035 Newport Dairy Complex	No impacts anticipated.	Negligible	Low	Negligible
MTW-037 P1 huts #3	No impacts anticipated.	Negligible	Medium	Negligible
MTW-044 Riverview House and Dairy Complex	No impacts anticipated.	Negligible	Low	Negligible

Where identified historic sites are unable to be avoided by mining activities, mitigation of their impact should be in accordance with their level of heritage value. Management recommendations for individual heritage features are outlined at *Table 7.1*, with further detail on mitigation strategies at *Section 7.1 – 7.6*.

Should the recommended mitigation measures be implemented, the residual impacts on historic heritage sites would be reduced.

Table 7.1 *Mitigation Recommendations – Sites Within Warkworth Continuation Project 2014 Impact Area*

Site	Type of Impact	Heritage Impact	Mitigation
RBHH-001 Former RAAF Base Bulga Complex	Direct (mining)	Minor	<ul style="list-style-type: none"> • Preparation of a Conservation Management Plan (completed). • Archival Recording of historic features of former RAAF Base complex (completed). • Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities. • Test excavation of east - west runway in impact area.
GNR-001 Great North Road Complex	Direct (mining)	Minor	<ul style="list-style-type: none"> • Preparation of a Conservation Management Plan (completed). • Following closure of the road, further investigation of the archaeological potential of the road, and test pitting in specific locations along Wallaby Scrub Road to determine potential physical remains and aid in interpretation. • Interpretation of the alignment of the road.
GNR-005 Blazed Tree	Direct (mining)	Moderate	<ul style="list-style-type: none"> • Photographically record.
GNR-012 Well #2	Direct (mining)	Moderate	<ul style="list-style-type: none"> • Archaeological excavation and recording.
GNR-014 Bridge Remains	Direct (mining)	Moderate	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities.
MTW-013 Dump Site	Direct (mining)	Moderate	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities.
MTW-018 Former House Site #2	Direct (mining)	Moderate	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds

Site		Type of Impact	Heritage Impact	Mitigation
MTW-019 Dump Site #2		Direct (mining)	Moderate	<ul style="list-style-type: none"> Protocol in the event that additional features are discovered during clearance activities. Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities.
MTW-020 Huts	P1	Direct (mining)	High	<ul style="list-style-type: none"> Further assessment to determine the origin of the buildings. Consider opportunities for relocation and adaptive reuse of building.
MTW-022 Dump Site #4		Direct (mining)	Moderate	<ul style="list-style-type: none"> Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities.
MTW-023 Huts	P1	Direct (mining)	High	<ul style="list-style-type: none"> Further assessment to determine the origin of the buildings. Consider opportunities for relocation and adaptive reuse of building.
MTW-029 Former House Site #4		Direct (mining)	Moderate	<ul style="list-style-type: none"> Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities.
MTW-030 Former House Site #5		Direct (mining)	Moderate	<ul style="list-style-type: none"> Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities.
MTW-032 Building Remains		Direct (mining)	Moderate	<ul style="list-style-type: none"> Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clearance activities.

Table 7.2 *Mitigation Recommendations – Sites Within Warkworth Continuation Project 2013 Proposal Area, Outside of Impact Area*

Site	Type of Impact	Heritage Impact	Mitigation
GNR-009 Well #1	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> Photographically record.
MTW-005 Springwood	Potential indirect impacts by blasting, lack of maintenance, and alteration of setting.	Minor	<ul style="list-style-type: none"> Preparation of Conservation Management Plan including recommendations for ongoing management and maintenance of the place.

Site	Type of Impact	Heritage Impact	Mitigation
MTW-006 Shed Complex	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-007 Orchard Remains	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-008 Building Complex	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-009 Timber Well	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-010 Quarry #1	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-011 Quarry #2	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-012 Former House Site	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-014 Trig Station Watts	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record.
MTW-015 Harvester	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record.
MTW-016 Shed	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record.
MTW-017 Quarry #3	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> • Photographically record. • Implementation of Chance Finds Protocol in the event that additional features are

Site	Type of Impact	Heritage Impact	Mitigation
MTW-024 House Complex	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> discovered during clean-up and maintenance activities. Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-025 Trig Station - Warkworth 11	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> Photographically record.

Table 7.3 *Mitigation Recommendations – Sites Within Mount Thorley Operations Proposal Area*

Site	Type of Impact	Heritage Impact	Mitigation
MTW-045 Kangaroo Downs Cattle Run	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.
MTW-046 Kangaroo Downs Bridge Remains	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> Photographically record. Implementation of Chance Finds Protocol in the event that additional features are discovered during clean-up and maintenance activities.

Table 7.4 *Mitigation Recommendations – Sites Within a 7.5km radius of Proposal Areas*

Table 7.5

Site	Type of Impact	Heritage Impact	Mitigation
A6 Former Queen Victoria Inn/Three Brothers Inn Ruins	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> Nil
I8, SHR 01459 Bulga Bridge	No impacts anticipated.	Negligible	<ul style="list-style-type: none"> Nil
I10, R1330 Mount Leonard Public	No impacts anticipated.	Negligible	

Site	Type of Impact	Heritage Impact	Mitigation
School			
I11 War Memorial Gates	No impacts anticipated.	Negligible	• Nil
I143 St Phillips Church	No impacts anticipated.	Negligible	• Nil
GNR-016 Cattle Run and Yards	No impacts anticipated.	Negligible	• Nil
MTW-001 Jarvis House Cottage	No impacts anticipated.	Negligible	• Nil
MTW-002 Warkworth Public School	No impacts anticipated.	Negligible	• Nil
MTW-003 Warkworth Village Recreational Hall	No impacts anticipated.	Negligible	• Nil
MTW-004 Warkworth Cricket Club Memorial	No impacts anticipated.	Negligible	• Nil
MTW-026 Stone Feature	No impacts anticipated.	Negligible	• Nil
MTW-027 Building Remains	No impacts anticipated.	Negligible	• Nil
MTW-031 Yards Complex	No impacts anticipated.	Negligible	• Nil
MTW-035 Newport Dairy Complex	No impacts anticipated.	Negligible	• Nil
MTW-037 P1 huts	No impacts anticipated.	Negligible	• Nil
MTW-044 Riverview House and Dairy Complex	No impacts anticipated.	Negligible	• Nil
MTW-047 Post Rail Fence	No impacts anticipated.	Negligible	• Nil

7.1

CONSERVATION MANAGEMENT PLANS

CMPs have been prepared for the Wallaby Scrub portion of the Great North Road, former RAAF Base Bulga and the Brick Farm House at Mount Thorley. Recommendations within these plans should be implemented to ensure the heritage values of these places are maintained and conserved.

Due to its age, condition, level of significance and community interest in the future conservation of Springwood Homestead (refer section 1.4.4), Coal and Allied should consider the preparation of a CMP for Springwood Homestead. The CMP should include the following information:

- comprehensive history of the Springwood Estate including important associations such as the Watts family;
- description of the place identifying all associated historical features and areas of archaeological potential;
- an assessment of the significance of the place against NSW State Heritage Register criteria, including a comparative analysis with similar sites and identification of significant fabric;
- an assessment of the condition of the building including a prioritised schedule of maintenance and repair works; and
- management recommendations to ensure the heritage values of the place are appropriately maintained and conserved.

7.2

ARCHAEOLOGICAL INVESTIGATION

Article 28 of the Burra Charter concerns disturbance of fabric, including archaeological excavations:

Disturbance of significant fabric for study, or to obtain evidence, should be minimised. Study of a place by any disturbance of the fabric, including archaeological excavation, should only be undertaken to provide data essential for decisions on the conservation of the place, or to obtain important evidence about to be lost or made inaccessible.

Within the Proposal Areas, archaeological investigations may assist in contributing to the historical record and aiding in interpretation of the place. The following investigations are recommended:

1. Test pitting along locations of the Great North Road along Wallaby Scrub Road where there is potential for subsurface remains associated with the early road system;
2. Mechanical excavation and recording of Well# 2 which is located within the impact area and likely to be directly impacted by mining activities; and
3. Further archaeological investigations of the former RAAF Base Bulga.

In accordance with Burra Charter principles it is further recommended that archaeological investigation should observe the maxim: change as much as necessary, but as little as possible (Articles 3 and 28). Therefore excavation should only be undertaken in areas to be directly impacted on by the proposed works, and potential archaeological deposits outside of the impact area should be retained in situ to minimise any potential heritage impact.

It is recommended that the Singleton Local Historical Society and Museum be approached to determine their interest in any items of moveable heritage within the Proposal Areas. Clean-up of dumps should be monitored by an archaeologist and any items of heritage interest including machinery, bottles or other moveable heritage considered appropriate for a museum collection be salvaged and provided to the Museum, or another interested community group.

While the Proposal Areas have been comprehensively surveyed for potential historic heritage features, there remains the possibility that sites of potential historic heritage value may be encountered or uncovered unexpectedly during clean-up or construction activities. The site induction should include information relating to the requirement to report and retain these historic heritage items with special reference to the Chance Finds Procedure.

These finds may include (but are not limited to) structural ruins, wells, bottle dumps or grave sites. A Chance Finds procedure will assist in the process for identifying and reporting such places. In the first instance, the Coal and Allied Specialist or Advisor Cultural Heritage, NSW, should be notified of the find, who will then advise on an appropriate procedure.

Heritage interpretation is a means of sharing the history and significance of a given place, with the aim of promoting and helping to retain the cultural significance of a particular place. This can take many forms including signs, publications, video, artworks, trails and interactive displays.

The Project Area demonstrates a number of key historic themes which can be used to interpret the history and development of the area. These include:

2.3 – Coming to Australia as Punishment

3.5 – Developing Primary Production

7.7 – Defending Australia

Presently the history of RAAF Base Bulga and the Great North Road in the Upper Hunter region is not widely published. It is recommended that in collaboration with local community groups, Coal & Allied implement an interpretation program to ensure the historic heritage values of the Proposal Areas are adequately captured. In particular, consideration should be given to interpreting the alignment of the Great North Road (including site GNR-001)

through naming of future roads, interpretive signage or a link through the Rio Tinto website informing people of the historic heritage values of the area.

To assist with the implementation of interpretation within the Project Area, an Interpretation plan should be prepared. In accordance with Burra Charter principles, this should include:

- Research and identification of significant themes and stories about the place;
- Identification of interpretive opportunities and siting;
- Audience identification; and
- Detail on the priorities, timing and resources required to implement the interpretation.

7.6 *COMMUNITY PARTICIPATION IN HISTORIC HERITAGE MANAGEMENT AND CONSERVATION*

Coal & Allied recognises that it is important to involve the community in decisions involving the impact assessment, management and protection of historical and archaeological heritage values associated with the Warkworth Mine Continuation 2014 proposal area and Mount Thorley Operation 2014 proposal area . Coal & Allied is committed to ongoing engagement with the local community through community consultation meetings and workshops, involvement in heritage surveys, significance assessments and development of appropriate management measures and community participation in any future archaeological work.

To this end Coal & Allied will conduct ongoing community engagement and consultation primarily through Coal & Allied Community Heritage Advisory Group (CHAG). The CHAG is comprised of community representatives with particular knowledge and interests in historic heritage of the region including representatives from historical groups, individuals and local government.

7.6.1 *Local Community Historic Heritage Conservation Initiative*

Coal & Allied acknowledges local community concerns about the recognition and management of sites and areas of historical and heritage importance or significance to the local community. In response to community engagement and consultation through the CHAG and from public submissions, Coal & Allied proposes to implement a Local Community Historic Heritage Conservation Initiative. The key element of the initiative is to establish two historic heritage conservation funds.

The Mount Thorley Warkworth Historic Heritage Conservation Fund would be established with the purpose of providing resources for local historical research and heritage conservation projects proposed by the local community.

This fund will provide a direct community benefit toward realising positive local historical and heritage conservation outcomes of importance to the local community. Governance arrangements for this fund would be developed in consultation with Singleton Council and the Coal & Allied CHAG.

The Mount Thorley Warkworth Great North Road Conservation Fund would be established with the purpose of providing resources for heritage conservation works on significant surviving elements of the convict built Great North Road located within the Singleton LGA (and potentially other areas including the Great North Road World Heritage Area). This fund is intended to provide a positive heritage conservation outcome in recognition of the disturbance of some of the remnant elements of the convict built Great North Road that exist along the section of Wallaby Scrub that will be disturbed as a result of development activities associated with the Warkworth Mine Continuation 2014 proposal. Governance arrangements for this fund would be developed in consultation with Singleton Council, the Coal & Allied CHAG, the Convict Trail Project Inc and the Office of Environment and Heritage.

The HHA has involved a combination of desktop review and additional research with field survey and consultation. Identified historic heritage features included buildings and building remains, dump sites, quarries, wells and potential archaeological sites, all of which have been photographically recorded and subject to significance assessment.

This HHA has recorded two historic features within the Mount Thorley Operations 2014 Proposal Area, but these were assessed as not being significant or being impacted on by the proposal. It also found one registered heritage site exists within the Warkworth Continuation 2014 Proposal Area. It has also recorded five historic sites within this Proposal Area, four of which are wholly or partially located within the impact area.

Of these five sites, the Great North Road and former RAAF Base Bulga have been subject to comprehensive assessment, and Conservation Management Plans prepared for both (see *Annex B* and *C*). The former RAAF Base has also been subject to archival recording in accordance with NSW Heritage Office guidelines. Mitigation measures involve undertaking archaeological investigation along Wallaby Scrub Road to determine the extent of potential archaeological remains.

Within the Warkworth Continuation 2014 Proposal Area impact area along Wallaby Scrub Road, a number of former World War II army barracks (P1 huts) have been converted for use as residential accommodation. The origins of these buildings is currently unknown and it is recommended that these buildings be subject to further investigation to determine their origin and degree of rarity in a local context, and opportunities considered for their relocation and adaptive reuse.

The HHA also recorded Springwood Homestead in the north west portion of the Warkworth Continuation 2014 Project Proposal Area, and assessed the place as meeting the threshold for local heritage significance. While it is unlikely to be directly impacted by the proposed works, there are potential indirect impacts through blasting and lack of maintenance and further assessment including preparation of a Conservation Management Plan is recommended.

While not meeting threshold for local or State heritage significance, remnant heritage features within the Project Area should be photographically recorded, and a Chance Finds Procedure implemented to ensure that in the event that new discoveries are made during future works, an appropriate procedure is in place to record and assess their potential heritage values.

Subject to the implementation of the proposed mitigation measures, potential heritage impacts within the Project Area will be reduced to negligible-minor.

REFERENCES

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Annex A






Field Survey Site Log





ID #	Name	Location	Description	Photo
RBHH-001	Former RAAF Base Bulga Complex	North west of the Putty Road and Wallaby Scrub Road intersection.	Remains of 1940s RAAF Base including runways, hideouts, Mess building and other associated infrastructure.	
GNR-001	Great North Road Complex	The whole of Wallaby Scrub Road from the intersection with the Golden Highway in the north, across Putty Road and onto Charlton Road in the south.	General alignment and physical remnants of early road system.	
GNR-005	Blazed Tree	Western side of Wallaby Scrub Road. The tree is located approximately five metres east of the current road with the scar facing north.	Scar is 900m from base of tree and measures 550x200mm. Scar has previously been painted white, bears an axe mark and nail but no other discernible numbers or arrows.	
GNR-009	Well #1	East of Wallaby Scrub Road.	Partially filled in. Timber lined measuring 800x800mm and 400mm deep.	







ID #	Name	Location	Description	Photo
GNR-012	Well #2	The bridge remains are located in a swampy area at the north western corner of the intersection with Wallaby Scrub Road and Putty Road.	Number of circular sawn timber decking and girders with square head bolts concealed in vegetation. The remains are in poor condition.	
GNR-014	Bridge Remains	Adjacent to track west of Wallaby Scrub Road. Lot 97 on DP755267	Approximately 50x50m. Containing car bodies, car parts and general modern rubbish.	
GNR-016	Cattle Run and Yards	Located on a ~2.5 m embankment on the western side of Charlton Road.	It comprises a cattle run and yards positioned to indicate that it previously crossed the road in a north east direction in this location. This gives an indication of the extent of excavation in this location for the modern road. Timber used has been circular sawn, and fencing uses wire twitches.	
A6	Former Queen Victoria Inn/Three Brothers Inn Ruins	High Street Warkworth	Site of the former Queen Victoria Inn/Three Brothers Inn. Brick and stone chimney with hard concrete mortar marks location of former inn. Timber lean-to located to the west.	
I8 SHR 01459	Bulga Bridge		The Bulga bridge is a Dare type timber truss bridge. It was constructed in 1912 and has had some recent strengthening works.	






ID #	Name	Location	Description	Photo
I10 R1330	Mount Leonard Public School	2099 Putty Road	Single storey brick with verandah to front elevation. Galvanised iron roof with three chimneys. Number of alterations and additions including the front verandah, fibrous cement sheeting extension to the rear with aluminium windows.	
I11	War Memoria l Gates	19 The Inlet Road Bulga	Two concrete and stone memorial posts, painted steel gates.	
I40	Brick Farm House	Golden Highway, Mount Thorley	Single storey square in plan. Brick laid in Flemish bond. Hipped corrugated iron roof and bull nosed verandah to north, east and west elevations. Outbuildings to rear.	
I143	St Phillips Church	Off High Street, Warkworth	Early Victorian style stone and brick construction. Brick and render to three elevations and new Colorbond roof. A number of cemeteries to the rear.	
MTW- 001	Jarvis House Cottage	East of Brick Farm House (Jarvis House)	Timber framed with corrugated iron roof. Weatherboard cladding and pressed metal ceilings remaining in interior.	
MTW- 002	Warkwor th Public School	High Street, Warkworth	Single storey Victorian Gothic architectural style. Brick amenities block to rear of building. Sign at front reads "Warkworth Public School 1859"	

ID #	Name	Location	Description	Photo
MTW-003	Warkworth Village Recreational Hall	High Street, Warkworth	Single storey, rectangular in plan on timber stumps. Corrugated iron clad and with aluminium windows.	
MTW-004	Warkworth Cricket Club Memorial	Cricket club, Warkworth Village	Concrete plinth adjacent to cricket club.	
MTW-005	Springwood	Adjacent to Wollombi Brook Lot 360 on DP 1135647	Slab construction, 4 roomed cottage with verandah to all sides. Corrugated iron roof over timber shingles. Sandstone chimney in centre of house.	
MTW-006	Shed Complex	Adjacent to Wollombi Brook Lot 220 on DP 1135537	Three modern sheds.	
MTW-007	Orchard Remains	Adjacent to Wollombi Brook Lot 220 on DP 1135537	Remains of orchard containing apple fruit trees.	
MTW-008	Building Complex	Adjacent to Wollombi Brook Lot 220 on DP 1135537	Number of structures including a shed used for residential purposes, storage shed and brick toilet block.	

ID #	Name	Location	Description	Photo
MTW-009	Timber Well	Approximately 20m east of former fence line and 5m west of track.	Timber lined well 1x1m. only top three slabs visible (approx. 60cm deep), remainder of well filled in.	
		West of Wallaby Scrub Road	Remnant gravel quarry, approximately 200x200m.	
MTW-010	Quarry #1	West of Wallaby Scrub Road	Remnant gravel quarry, approximately 150x100m.	
MTW-011	Quarry #2	West of Wallaby Scrub Road	Cleared area with remnant building material.	
MTW-012	Former House Site		Approximately 50x50m. Containing car bodies, car parts and general modern rubbish.	
MTW-013	Dump Site			





ID #	Name	Location	Description	Photo
MTW-014	Trig Station Watts	East of Wallaby Scrub Road	Concrete plinth with steel beacon. Remains of earlier timber station adjacent. Plaque reads "Central Mapping Authority Geodetic Station WATTS"	
		West of Wallaby Scrub Road.	Large harvester on rise north of track.	
MTW-015	Harvester	West of Wallaby Scrub Road, on rise north of vehicle track.	Timber framed fibrous cement clad shed with floorboards.	
MTW-016	Shed	West of Wallaby Scrub Road, south of Golden Highway.	Quarry containing large cut stones.	
MTW-017	Quarry #3			

ID #	Name	Location	Description	Photo
		West of Wallaby Scrub Road, entry through Gate 46.	Levelled area with concrete slabs surrounded by mature plantings, with septic tank and hills hoist to rear.	
MTW-018	Former House Site #2			
MTW-019	Dump Site #2	Located west of 377 Wallaby Scrub Road	Large dump site approximately 200x200m. Contains car bodies, mounds of concrete blocks, building materials including timber posts and corrugated iron, and modern rubbish.	
MTW-020	P1 Huts	377 Wallaby Scrub Road	Two P1 huts joined to form an "L shaped" floorplan. Original timber windows have been replaced with aluminium and boarded up. Interior has been re-lined with plasterboard and forms a modern three bedroom, one bathroom house.	
MTW-021	Dump Site #3	West of Wallaby Scrub Road, south of chook farm.	Seven car bodies and rubbish in pit to rear of property.	
MTW-022	Dump Site #4	West of Wallaby Scrub Road	Approximately 20x30m in size. Contains corroded tanks, corrugated iron, kitchen appliances and bottles.	
MTW-023	P1 Huts	297 Wallaby Scrub Road	Two P1 huts joined to form an "L shaped" floorplan, and used as a residential property. Windows have been replaced with aluminium.	

ID #	Name	Location	Description	Photo
MTW-024	House Complex	Adjacent to Wollombi Brook. Lot 7 on DP735566	Residential complex comprising house, separate building containing bar and entertaining area, dairy and laundry building and machinery sheds. Buildings constructed with mixture of building materials likely sourced from earlier structures on site and dating from 1920s-1970s. Internal fitout is 1970s era.	
MTW-025	Trig Station - Warkworth 11	West of Wallaby Scrub Road, east of airstrip and north of vehicle track.	Steel on concrete Trig Station with beacon on ground. TS10241WARKWORTH11	
MTW-026	Stone Feature	Approximately 100m east of Wollombi Brook and west of vehicle track.	Large mound of cut stone measuring 2x4m, and approximately 70cm above ground surface. Top of mound appears to have stone in courses. Fence posts located approximately 20m east towards track, and three posts running towards Brook to the west. Brick and glass fragments in surrounding area.	
MTW-027	Building Remains	Located in paddock approximately 200m east of Wollombi Brook.	Location marked by number of mature Pepper trees. Pieces on concrete, brick footings, timber framing and metal machinery indicate locations of former structures.	
MTW-028	UNE House	East of Wallaby Scrub Road, providing access to mine area.	Single storey 1960s house with aluminium framed windows and weatherboard and batten cladding. Number of sheds and tank stands to rear.	

ID #	Name	Location	Description	Photo
MTW-029	Former House Site #4	East of Wallaby Scrub Road.	Located either side of vehicle track, with yards and paddock on southern side of track, and former house site with brick and concrete well, building materials and car bodies on northern side.	
MTW-030	Former House Site #5	East of Wallaby Scrub Road in area recently cleared of vegetation.	Small dam and orchard on western side, and former house site near Pine trees and oleanders. Building materials include bricks, concrete and corrugated iron.	
MTW-031	Yards Complex		Operational paddock and yards including the remains of an old dairy shed, number of nature plantings, concrete slabs, tanks and dumps.	
MTW-032	Building Remains	Adjacent to east west runway	Broken concrete slab, approximately 10x40m, timber posts and brick footings.	
MTW-033	House	273 Wallaby Scrub Road	Modern house.	
MTW-034	House	129 Wallaby Scrub Rd	Square besser brick house with shed to rear.	
MTW-035	Newport Dairy Complex	Putty Road, south of Charlton Road.	Remains of dairy, and yards including single storey brick structure with concrete floor and concrete render to interior. Yards a mixture of slab, steel, and wire twitch construction.	

ID #	Name	Location	Description	Photo
MTW-036	House	1821 Putty Rd	Single storey weatherboard with skillion roof. Aluminium framed windows	
MTW-037	P1 huts	1855 Putty Rd	Three P1 huts including one used for residence, one with original features to rear, and a portion of one used as a shed to the east.	
MTW-038	House	1893 Putty Rd	Single storey weatherboard with aluminium framed windows.	
MTW-039	House	1909 Putty Rd	Single storey with gable roof.	
MTW-040	House	1951 Putty Rd	Single storey brick and tile.	
MTW-041	House	1916 Putty Rd	Modern building.	
MTW-042	House	1906 Putty Rd	Modern building.	
MTW-043	House	1804 Putty Rd	Modern building.	

ID #	Name	Location	Description	Photo
MTW-044	Rivervie w House and Dairy Complex	Putty Road	Single storey interwar building on stumps. Number of additions and alterations including enclosed front verandah, fibrous cement sheeting extension to rear and aluminium windows. Dairy timber and weatherboard construction with concrete slab floor. Second modern brick house located to north.	
MTW-045	Kangaroo Downs Cattle Run	Loders Creek, off Payne's Crossing Road	Located 10m north of road. Timber log cattle run and dump containing posts.	
MTW-046	Kangaroo Downs Bridge Remains	Loders Creek, off Payne's Crossing Road	Located approximately 20m downstream of current bridge and culvert. Remains of early timber bridge approximately 3m wide, with timber piles, horizontal slab abutment, but no decking remaining.	
MTW-047	Post Rail Fence	Inlet Road, Bulga, adjacent to War Memorial.	Remnant two rail post and rail fence, former Police Station Paddock, 1925.	

Annex B

Former RAAF Base Bulga CMP



RAAF Bulga

Conservation Management Plan

For Rio Tinto Coal Australia

January 2014

0175782.02

www.erm.com

Approved by:	Tina King
Position:	Project Manager
Signed:	
Date:	17 January 2014

Approved by:	Chris Pratt
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Signed:	
Date:	17 January 2014

RAAF Bulga

Conservation Management Plan

Rio Tinto Coal Australia

01/14

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Rio Tinto Coal Australia

RAAF Bulga
*Conservation Management
Plan*

January 2014

Reference: 0175782_02

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Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Rio Tinto Coal Australia in August 2012 to prepare a Conservation Management Plan for the former RAAF Bulga site as part of the Warkworth Mine Extension project in the Hunter Valley.

BACKGROUND

The Warkworth Mine was opened in 1981, with Rio Tinto purchasing an interest in the Mine in 2001. In 2004 the Warkworth and Mount Thorley Mines were integrated to improve efficiency and became known as Mount Thorley Warkworth (MTW). Today MTW is noted as being one of the largest multi seam open cut mining operations in Australia.

The Warkworth Mine Extension Environmental Assessment in April 2010 assessed the potential impacts of the proposed extension on the historic heritage values of the area. Of these historic places identified, the eastern portion of the former RAAF Base Bulga was found to be located within the disturbance area, but was not considered to be directly impacted by the proposed works.

A comprehensive Heritage Assessment of the former RAAF Base was prepared by Weir and Phillips (2007) which included a detailed history of the place, description of the site and significance assessment, but failed to map locations of associated features. Archival recording in accordance with NSW Heritage Office Standards was also recommended in the report.

In February 2012 Coal & Allied was granted approval (PA_09_0202) by the Planning Assessment Commission to extend mining within its existing Warkworth lease, extending the operation of the mine by 21 years to 2033. A number of development consent conditions relating to the former RAAF Base Bulga were subsequently specified which included:

63. By the end of March 2013, unless the Director-General agrees otherwise, the Proponent shall prepare:

(a) a detailed archival record and survey of the whole Bulga RAAF Base in accordance with the applicable heritage guidelines; and

(b) a conservation management plan for the parts of the base that are not to be developed, which includes an assessment of the structural integrity of the kitchen building, and describes what measures would be implemented (if any) to enhance its structural integrity, to the satisfaction of the Director-General.

Following approval, the Proponent shall implement the conservation management plan to the satisfaction of the Director-General.

After the commencement of the fieldwork component of this project, this approval was overturned by the Land & Environment Court in April 2013. Despite this ruling, this report has been finalised so that the results may inform future management strategies & provide the wider public with further information regarding this former RAAF Base Bulga.

The eastern portion of former RAAF Base Bulga was to be located in the “disturbance area” of the proposed Warkworth Mine Extension, comprising approximately 4.8 ha of land. This area includes the eastern end of one of the two intersecting runways and a number of known historical features associated with the former RAAF Base.

An Aboriginal cultural heritage conservation area has been established in the area west of the disturbance area adjacent to the Wollombi Brook, which also contains the majority of historic heritage features associated with the former RAAF Base.

1.2 OBJECTIVES

The primary objective of this CMP was to fulfil the requirements of Section 63 (b) of the development consent conditions (*Section 1.1*) which will require comprehensive survey of the former RAAF area to identify and assess associated historical features, and provide advice as to how the heritage values are best managed in the future. An archival recording (AR) has also been prepared in conjunction with the CMP.

1.3 STUDY AREA

Former RAAF Base Bulga is located in the Hunter Valley, approximately 16 km south west of Singleton as shown at *Figure 1.1*.

1.4 METHODOLOGY

This report has been prepared in accordance with the *NSW Heritage Act 1977* (Heritage Act) and the national best practice guidelines for cultural heritage management, the Australia ICOMOS Charter for Places of Cultural Significance – the Burra Charter.

The methodology of specific tasks is outlined in further detail below.

1.4.1 Desktop Assessment

A desktop assessment was initially undertaken to determine the potential historic heritage values of the former RAAF Base. This included searches of local, State and National heritage registers and databases to determine any potential heritage listings, and reviews of cultural heritage reports previously prepared for the area.

Additional research was not considered necessary at the commencement of the project due to the comprehensive Heritage Assessment for the Former RAAF Base undertaken by Weir and Phillips Architects and Heritage Consultants in May 2007. However, a search of the National Library of Australia Trove database and National Archives of Australia yielded additional useful information about the proposed uses for the aerodrome following its closure, and the disposal of material on site. A number of files have been digitised as part of this process and are now publically available (refer to References, p71).

The information arising from the desktop study included information such as site plans and specifications from the National Archives of Australia indicating locations of structures and other features associated with the RAAF Base.



**WWII Bulga RAAF Airbase
Historic Heritage Study Area
(29 August 2012)**

Legend

ACH sites
SITE_TYPE

- Ceremonial Area
- Burial
- Scarred Tree
- Axe Grinding Grooves
- Stone Artefact Scatter
- Isolated Stone Artefact/s
- Other
- Bulga_Bora_Ground_37_6_0056_indicative_extent transects
- Bulga_RAAF_base_core_focus_study_area_v1
- Bulga_RAAF_base_broad_study_area_v1
- Wollombi_Brook_ACH_Conservation_Area
- MTW_Mining_Leases

0 125 250 500 750 1,000
Metres

Scale 1:15,000 (A3)

Map Projection: Map Grid of Australia 1994



Project: Bulga RAAF Airbase Heritage Study Area Map
Date: 29 August 2012
Map Version: v.1
Author: D. Cameron
Map Path: G:\BR External Relations\RTCA\GIS\MT Thorley Warkworth

1.4.2

Consultation

Consultation was undertaken during both the desktop assessment and site investigation phases and included the following parties:

- NSW Heritage Office;
- Rio Tinto Coal Australia Community Heritage Advisory Group (CHAG);
- Fighterworld Museum, RAAF Williamtown;
- RAAF Museum, Point Cook; and
- Rio Tinto Coal Australia staff.

Further detail on the outcome of consultation is at Section 4.

1.4.3

Site Investigation

Site investigation was carried out over a five day period 12-16 November 2012. The first three days involved pedestrian survey of the study area, and two days were spent archivally recording the features associated with the former RAAF Base.

Pedestrian survey initially focussed on the core area surrounding the runways undertaking 100 m wide transects and using pin flags to identify historic features for further assessment. Due to the large number of features being recorded and associated time constraints, the survey methodology was altered to target specific areas identified as part of the desktop assessment phase. The survey involved two ERM historical archaeologists, up to three Rio Tinto representatives, one CHAG member, a GIS specialist, and two Aboriginal community representatives.

Historic features associated with the former RAAF Base were recorded using high resolution digital and black and white film photography, and sketches for measured drawings where appropriate. This was undertaken in accordance with the NSW Heritage Office "*How to prepare archival recordings of heritage items*" and "*Photographic recording of heritage items using film or digital capture*" guidelines.

1.4.4

Assessment

Following site investigation, ERM undertook an assessment of the GIS data captured in the field, focussing on features associated with the former RAAF Base. Further research was also undertaken at this time to aid in the identification of historic features located during the survey that were not included in the 2007 heritage assessment.

Significance assessment was undertaken against the Heritage Act criteria and in accordance with the 2001 NSW guideline “*Assessing Heritage Significance*” which includes threshold guidance for the inclusion and exclusion of places.

1.5

LEGISLATION

1.5.1

Heritage Act 1977 (NSW)

The *Heritage Act 1977* protects the natural and cultural history of NSW with emphasis on non-indigenous cultural heritage through protection provisions and the establishment of a Heritage Council. The *Heritage Act 1977* provides blanket protection for subsurface relics and for heritage items of state significance listed on the State Heritage Register (SHR).

In NSW, assessments of heritage significance are guided by the principles of the *Burra Charter (1999)* (*the Australian ICOMOS Charter for places of Cultural significance*) and the Heritage Office’s publication *Assessing Heritage significance* (2001).

The Heritage Office of NSW considers that an item will be considered to have State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

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

- g) *an item is important in demonstrating the principal characteristics of a class of NSW's:*
 - i) *cultural or natural places; or*
 - ii) *cultural or natural environments;*

The Act defers to local planning instruments under the *Environmental Planning & Assessment Act 1979* for the protection of items of local significance ("items of the environmental heritage").

While Aboriginal heritage sites and objects are protected principally by the *NPW Act 1974*, if an Aboriginal site, object or place is of great significance it can be protected by a heritage order issued by the Minister on the advice of the Heritage Council. However, the Heritage Act does not apply to Aboriginal heritage items found within the study area.

1.5.2 Singleton Shire Council Local Environmental Plan 1996

The former RAAF Base Bulga is not included in the *Singleton LEP, Schedule 3 Heritage Items, Part 3 Items Classified as being of local significance*.

The inclusion of a property on such a schedule can impose certain restrictions as development is subject to heritage codes. Regulation 22 of the LEP lists its controls in terms of identified heritage places:

- (1) A person shall not, in respect of a building, work, relic, tree or place that is a heritage item:
 - (a) Demolish or alter the building or work, or
 - (b) Damage or move the relic, or excavate for the purpose of exposing the relic, or
 - (c) Damage or despoil land on which the building, work or relic is situated or land which comprises the place, or
 - (d) Erect a building on or subdivide land on which the building, work or relic is situated or on the land which comprises the place, or
 - (e) Damage any tree on the land on which the building, work or relic is situated or on the land which comprises the place, except with the consent of the Council.
- (2) The Council shall not grant consent to a development application unless it has made an assessment of:
 - (a) The significance of the item as a heritage item, and

(b) The extent to which the carrying out of the development in accordance with the consent would affect the heritage significance of the item and its site, and

(c) Whether the setting of the item and, in particular, whether any stylistic, horticultural, or archaeological features of the setting should be retained, and

(d) Whether the item constitutes a danger to the users or occupiers of that item or to the public, and

(e) Measures to be taken to conserve heritage items, including any conservation plan prepared by the applicant.

Regulation 27 also states that the Council will not permit development on land in the vicinity of a heritage item unless an assessment of the effect the carrying out of that development will have on the heritage significance of the item and its setting has been made.

1.6 *AUTHORSHIP*

The primary author of the CMP was ERM Senior Heritage Consultant, Tina King. Heritage Consultant, Holly Maclean assisted with field survey and Principal Heritage Architect, John Hoysted undertook technical review. Bligh Tanner Structural Engineer, Simon Kochanek undertook condition assessment of the kitchen building and provided advice to stabilise the building. Partner in Charge, Chris Pratt undertook Partner and QA review of the HMP.

1.7 *ACKNOWLEDGEMENTS*

ERM gratefully acknowledges the following people who provided valuable assistance in the CMP process:

- David Cameron, Manager Community Relations (QLD) and Cultural Heritage, RTCA;
- Joel Deacon, Specialist Cultural Heritage NSW, RTCA;
- Gary Pappin, Heritage Advisor NSW, RTCA;
- Georgia Bennett, Graduate Cultural Heritage NSW, RTCA;
- Andrew Turner, Specialist Community Relations, RTCA;
- Jason Scriffignano, External GIS Specialist;
- Neville Hodgkinson, CHAG Member;
- Allen Paget, Local Aboriginal Community Representative;

- Wayne French, Local Aboriginal Community Representative;
- Alieria French, Local Aboriginal Community Representative;
- Fighterworld staff; and
- RAAF Museum Point Cook.

This section provides a summary historical overview of the Former RAAF Base Bulga taken from the Weir and Phillips (2007) Heritage Assessment, which contains a comprehensive contextual history. Additional research has been undertaken at National Archives Australia to provide a more detailed history of the development of the RAAF Base Bulga.

2.1**PRE WORLD WAR II**

The first European occupation of the study area dates back to 1826 when the area was taken up by early settlers and primarily used as grazing land for cattle.

The Bulga township was established along Wollombi Creek in the 1840s, and following the introduction of the Land Act in 1863, a number of smaller lots were created, many of which contained dairies. Dairying continued to be the dominant industry in the area until post World War II.

2.2**WORLD WAR II**

Following the attack on Pearl Harbour in December 1941, plans were approved to expand the RAAF throughout Australia from 45 to 73 flying squadrons, known as the '73 Squadron Plan.' Part of this plan required the expansion of existing RAAF Bases and the establishment of new RAAF bases including a number of sites in the Hunter Valley.

Bulga was identified as a potential site for an operational base in April 1942 with works to commence as a matter of urgency. It was to be the parent base with satellite bases at Broke, Strowan and Warkworth. The intent of these bases was to provide accommodation for RAAF squadrons while under threat of attack from the east coast:

Our operational bases have been planned to accommodate in each area a balanced air force capable of meeting the threat of attack from seawards. While the risk of attack is high, squadrons will be in occupation of these bases, but when the threat subsides to reappear against another area the air forces will be redispersed accordingly. It is only by the provision now of bases suitably located can the flexibility of air forces be exploited to yield a high degree of security with the minimum of forces. The construction of operational bases, therefore, has no relation to any particular squadron in our planned programme but is influenced only by the types of squadrons which may be required to use the base.

(National Archives of Australia, Item # 4163093, Enclosure 36a December 1942)

In May 1942, an inspection of the site was undertaken by staff from the Department of Works and Buildings and District Architect and Surveyor from the Department of the Interior to assess the suitability of the site. It reported:

No work has commenced and it is anticipated little or no camouflage work will be required beyond disposition of buildings, dispersal of aircraft, and treatment of runways... The siting of various requirements can be done effectively in the knolls of trees in the vicinity, with the dispersal of the operational units and bomb stores at suitable distances. Numerous dead trees will have to be disposed of and care taken in the siting of access roadway both to the dispersal units and the bomb store. (National Archives of Australia Inspection Report, NAA163093)

The area was officially taken over by the RAAF under the provision of the National Security (General) recommendations on 12 June 1942 for use as a relief landing strip (NAA 33029651). Specifications and estimates for the RAAF Base were subsequently prepared in July, and construction was underway with clearing of the landing strip well advanced by early August.

In early August construction notes indicate that a large gravel pit close to the site was being developed with gravelling of the runway to commence shortly. Earthmoving operations were being severely hampered by a lack of equipment due to wartime shortages, and as a result much of the work was being carried out by hand.

An inspection report by the Directorate of Works and Buildings on 29 August 1942 (NAA33029651) indicates that works were being undertaken quickly, with clearing and grading mostly complete, about one third of the total required gravel having been spread on the north south runway, and some interceptor drains having been constructed. The inspection report also notes that the dispersal works had not yet started, the alignment of the east-west runway was found to be unsatisfactory and requiring alteration, and the north – south alignment was also noted as needing some slight alteration and improvement. The pit from where gravel is being obtained was also inspected and was noted as containing what appeared to be an unlimited quantity of excellent gravel to aid in construction works.

Aerial photographs dated September 1942 clearly demonstrates construction of the runway was underway with a construction camp established to the west of the north-south runway (see *Figure 2.1*). It also shows clearing had begun on the western portion of the east west runway.



Figure 2.1 *Aerial photograph showing construction camp and progress (Department of Defence, SHQ/582 VX3733 Bulga, Frame #114, 14 September 1942)*

The extent of facilities required changed numerous times during construction including realignments to the runways. Original plans for the site included a total of 16 hideouts, two of which were to be “splinter proof pens,” but by February 1943 only 12 were required. The shape of hideouts were to be varied to suit local tree features, and it was noted that no sacrifice of cover was to be made in providing splinter proof protection (NAA #169093, 20 June 1942 p111). The size of hideouts was to allow for the concealment of medium bomber aircraft. Floors of hideouts were to be graded to shed stormwater to a convenient outlet and floor gravelled with a central strip 24 ft wide to be gravelled 6” thick, and the remaining area to be lightly gravelled.

Dispersal works including the establishment of taxiways and 12 hideouts were well underway early in 1943, however there were construction difficulties in February, with the Allied Works Council noting that there were severe shortages of manpower combined with pressure to complete the work as quickly as possible.

By 19 May 1943, construction had been completed on runways, roads, fences and five buildings, and by July 1943 the completed site contained:

- Two sealed runways;
- a landing ground and dispersal services;
- Twelve hideouts and connecting taxiways;
- Kitchen and mess hall;
- One general purpose building;

- Officers' latrines and ablutions block;
- Airmens' latrines and ablutions block;
- Four bulk petrol storage tanks;
- Underground petrol tank and bowser; and
- Drainage, filtration plant and pump house.

The completed facilities were noted as having mess and ablutions facilities to cater for up to 310 personnel. Accommodation was to be in tent form with construction notes indicating that tents were to include:

- Administration tent;
- Medical aid post tent;
- Officers' sleeping tents;
- Sergeants' sleeping tents; and
- Airmens' sleeping tents.

By January 1944 the use of the site was limited due to the decreasing threat of attack, but general maintenance continued. A decision was approved by the Director of Works and Buildings (DWB) to reduce the base to an area of approximately 260 acres comprising the runways, camp site, pump house and filtration plant as shown in red at *Figure 2.2*. Land coloured blue was to be returned to owners subject to dispersal works including taxiways, hideouts and drains remaining undisturbed.

2.3 *POST WORLD WAR II*

After cessation of hostilities in 1945, the Newcastle Aero Club sought and were given permission of the RAAF to use the landing grounds for a maximum of 5 hours per week as training grounds and to practice forced landings.

An inspection of the site by the Allied Works Council late in 1945 identified some maintenance works requiring attention including clearing of sumps and drains, and removal of suckers from the air strip. In March 1946 the decision was made by the RAAF to cease maintenance following vandalism of the site. RAAF policy subsequently came into effect setting that all D Class aerodromes, including RAAF Bulga were to be "retained, but not maintained." This meant that all runways, taxiways, drainage and fencing were to be retained, but moveable assets such as buildings were to be removed (NAA 3302965, p87).

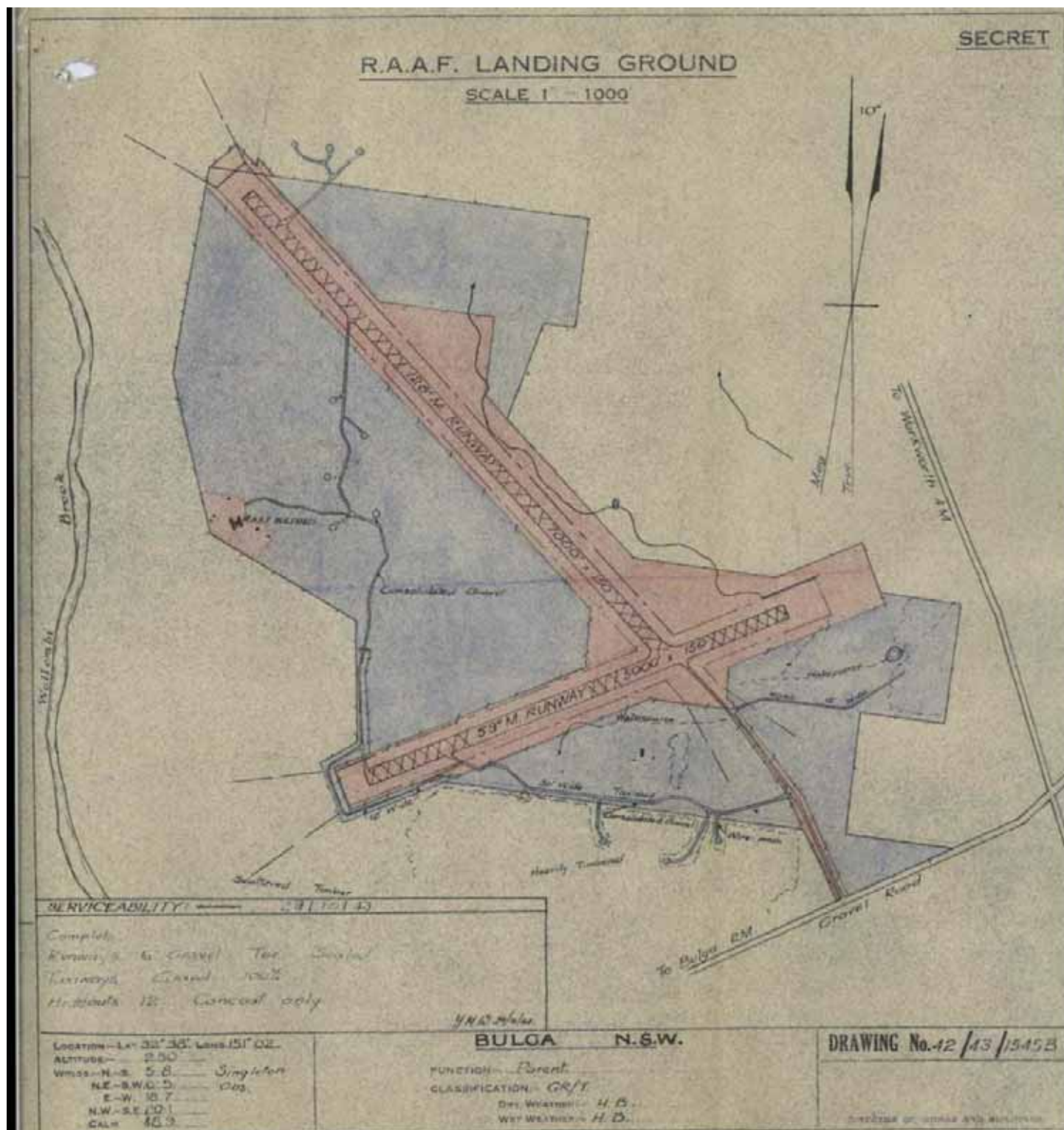


Figure 2.2 Plan of RAAF Bulga, October 1943

In October 1946 the DWB undertook a property asset analysis of remaining assets and identified 9 remaining assets which provided a description of each of the buildings as outlined at *Table 2.1*.

Table 2.1 **DWB Property Asset Analysis**

No	Type	Construction	Contents
1	General Purpose	Corrugated asbestos roof, terne coated corrugated iron walls, wood and concrete floor. 13 rooms with Masonite and fibro partitions.	Two water tanks, Samson double oven stove, sink.
2	Ablution	Corrugated asbestos roof, corrugated iron walls, concrete floor.	Water piping, 13 taps, 60ft ablution troughing.
3	Latrine	Corrugated asbestos roof, corrugated iron walls, concrete floor. 2 rooms, corrugated iron partitions.	20ft latrine troughing.
4	Ablution	Corrugated asbestos roof, corrugated iron walls, concrete floor. 2 rooms, corrugated iron partitions.	40ft water piping, 20' wash trough.
5	Latrine	Corrugated asbestos roof, corrugated iron walls, concrete floor. 2 rooms, corrugated iron partitions.	20' latrine troughing.
6	Filtration Plant	2x 10,000 gallon corrugated iron tanks on 10ft and 2ft brick piers. 10ft stand with galvanised iron shed underneath.	-
7	Pump House	Corrugated iron roof, weatherboard walls, concrete floor with sump for pump and equipment.	-
8	Petrol Bowser and Underground Tank		-
9	10,000 gal tank	On 20ft hardwood stand	-

Following cessation of RAAF use of the site, a number of former land owners sought return of their land for grazing use, and arrangements were made by the Department of Civil Aviation for the removal of all buildings to enable the Commonwealth to return hired land to its owners. An auction was held in May 1948 to dispose of assets and by 1949 all assets except the kitchen building had been sold and removed from the site. The Department of the Interior offered the kitchen building for sale to the landowner, W.A. McGregor and the sale was approved in December 1952 on the condition that he would either relocate or demolish the building.

Termination of the land hirings was effected on the 28 February 1955, and claims for physical damaged occasioned by RAAF occupancy finalised (NAA 33029651, p16).

A number of schemes were put forward in local newspapers to turn the former RAAF Base into a commercial airport, but these were rejected by local government in 1950.

In 1956, a Sabre MK31 attempted an emergency landing at RAAF Base Bulga, resulting in external damage to the aircraft. Parts of the wreck were salvaged by local men who were consequently fined before the wreck was salvaged by the RAAF and taken to Fishermen's Bend for repairs in March 1957. The aircraft was rebuilt and put back into use and crashed again at Williamtown in October 1961. After subsequent use for explosives training, the reconstructed aircraft is now located at the Queensland Air Museum at Caloundra in Queensland.



Figure 2.3 Restored Sabre A-94-935 at Queensland Air Museum (http://www.adf-gallery.com.au/gallery/Sabre-A94-935/Sabre_A94_935_QAM_April_2011)

During the 1960s and 1970s tree felling occurred around the former RAAF Base, and it continued being used for grazing of cattle and livestock.

Coal and Allied acquired an interest in the Warkworth Mine in 2001, and the land was subsequently acquired.

Table 2.2 *Key Events Associated with the Former RAAF Bulga Site*

Date		Event
1941		Plans to expand the RAAF throughout Australia
1942	13 April	Bulga identified as a potential site on 13 April at an estimated cost of £1000. Due to urgency it was recommended that the site be approved, land requisitions undertaken and detailed estimates and plans to follow.
	May	Inspection of the site by District Architect, Surveyor and DWB.
	12 June	RAAF Bulga officially taken over under the provisions of the National Security Regulations.
	23 July	Preliminary plans and estimates for construction issued.
	7 August	Clearing of the strip is well advanced and a large gravel pit nearby is being developed with gravelling commencing shortly. Earthmoving operations severely hampered by lack of plant, and a lot of work is being carried out by hand.
	29 August	Alignment of east-west runway found to be unsatisfactory and alteration was ordered. The north – south alignment was also noted need some improvement. After redesign of the runways the whole section of taxiways and road into camp should be examined with a view to providing better traffic arrangements. The pit from where gravel is being obtained was also inspected and there appears to be an unlimited quantity of excellent gravel.
	September-October	Changes required including changing bearing of runways
	1 December	Final estimates completed for work completed.
	9 December	Some areas of land have already been acquired.
1943	28 January	Construction in progress including one runway and dispersal works.
	February	16 hideouts no longer considered necessary, and only 12 now required.
	10 February	Allied Works Council difficulties and workers are under pressure due to shortage of manpower and necessity for early completion.
	19 May	Details of works to be undertaken by Allied Works Council and Civil Construction Corps include clearing, grubbing, felling, earthworks, construction of pavement, drainage, fencing, roads and camp site including 5 buildings, water supply, underground fuel storage tanks.
	July	By July construction complete on runways, taxiways, hideouts and five buildings
	19 November	A review of RAAF projects notes that the original budget of £301,500.00 had risen to £340,000.00.
	4 December	Facilities noted as being able to cater for 310 personnel.
1944	11 January	RAAF Bulga listed as an unoccupied aerodrome comprising 2 runways, 12 hideouts and connecting taxiways. Buildings include mess, kitchens, latrines and ablutions for 310 personnel. A decision was approved by the Director of Works and Buildings to reduce the base to an area of approximately 260 acres. Part of this process was to include dismantling and erecting new fences.
	June	RAAF occupation of the site is to be limited to the runway area, camp site, pump house and filtration plant. In handing back surplus land, taxiways, drains and hideouts are to remain undisturbed.
1945	27 April	Newcastle Aero Club seeking permission of RAAF to use RAAF Bulga occasionally as training grounds and for practice in forced landings. Proposing to use Bulga no more than 5 hours per week.
	11 June	Newcastle Aero Club provided approval to use RAAF Aerodromes at Bulga, Broke and Warkworth.

Date	Event
3 December	Inspection by Allied Works identified some maintenance works. Runway noted as being in good condition, flight strips need some suckers removed, sumps and drains require some cleaning, buildings are in good condition, but two boilers are missing.
7 December	Funding approved for maintenance works
1946 26 February	Inspection of 4 underground storage tanks undertaken by DWB in association with caretaker Mr Davidson.
March	Decision was made by the RAAF to cease maintenance of the facility
27 September	RAAF Bulga is not a post war RAAF requirement and no further maintenance work is proposed to be carried out.
22 October	DWB Property Asset analysis of 9 remaining assets on site.
27 November	Consideration at Singleton Chamber of Commerce meeting regarding establishment of air service from Singleton to Sydney.
1947 20 January	Recommendation made by the Air Board that surplus assets at RAAF Bulga be disposed of.
February	Department of Civil Aviation has taken over RAAF Bulga and is noted as potentially being interested in assets being declared surplus.
31 July	Control of aerodrome handed to Department of Civil Aviation on a permissive occupancy basis.
28 November	D class aerodromes (including RAAF Bulga) are to be retained but not maintained.
12 September	Bulga only airstrip of those established in area to be retained.
1948 13 May	Commonwealth Disposals Commission Auction Sale at Bulga Dispersal Aerodrome with a number of assets up for auction including the filtration plant, kitchen and mess, ablutions and latrines, tanks, pipes and fencing.
4 June	Underground petrol tanks sold to AMP Co LTD, Sydney
21 June	Buildings 2 (Ablutions), 5 (Latrine) and 7 (Pump House) purchased by the Municipality of Singleton, and to be removed from site within 28 days.
1949 August	Report submitted outlining removal of approximately 3000 feet of water piping from the site by 1946-1948 caretaker.
1949 30 November	Former caretaker charged with theft of 3600 feet of fibro water piping from RAAF Bulga.
1950 26 May	Patrick Plains Shire Council refuses support for establishment of municipal airport at Bulga airstrip.
1952 June	Arrangements made by Department of Civil Aviation for the removal of all buildings to enable Commonwealth to return to the owners their land which has been held on a hiring basis.
28 August	Landowner WA Macgregor initiates enquiries into buying the kitchen building. Only kitchen building remaining after others relocated.
December	Building No 1 declared surplus by the Department of Civil Aviation consisting of combined mess and kitchen. Several sheets of iron and some windows missing. Offer received from landowner W.A McGregor for building removal.
	RAAF Station no longer requiring caretaker.
1953 8 January	Sale finalised for kitchen building - to be relocated or demolished by landowner at cost of £450.
1955 28 February	Termination of hirings. And land given back to owners.
1956 27 November	Emergency landing by Sabre MK341 on Bulga airstrip.
14 December	Two Singleton men fined in court for stealing parts of Sabre wreck.
1957 28 March	Sabre removed from site by RAAF and taken to Williamstown for repairs.
1981	Warkworth Mining operations established.
2001	Coal and Allied acquired interest in Warkworth Mine.
2004	Warkworth and Mount Thorley Mines integrated.
2007	Heritage Assessment undertaken by Weir and Phillips.

3 *PHYSICAL CONTEXT*

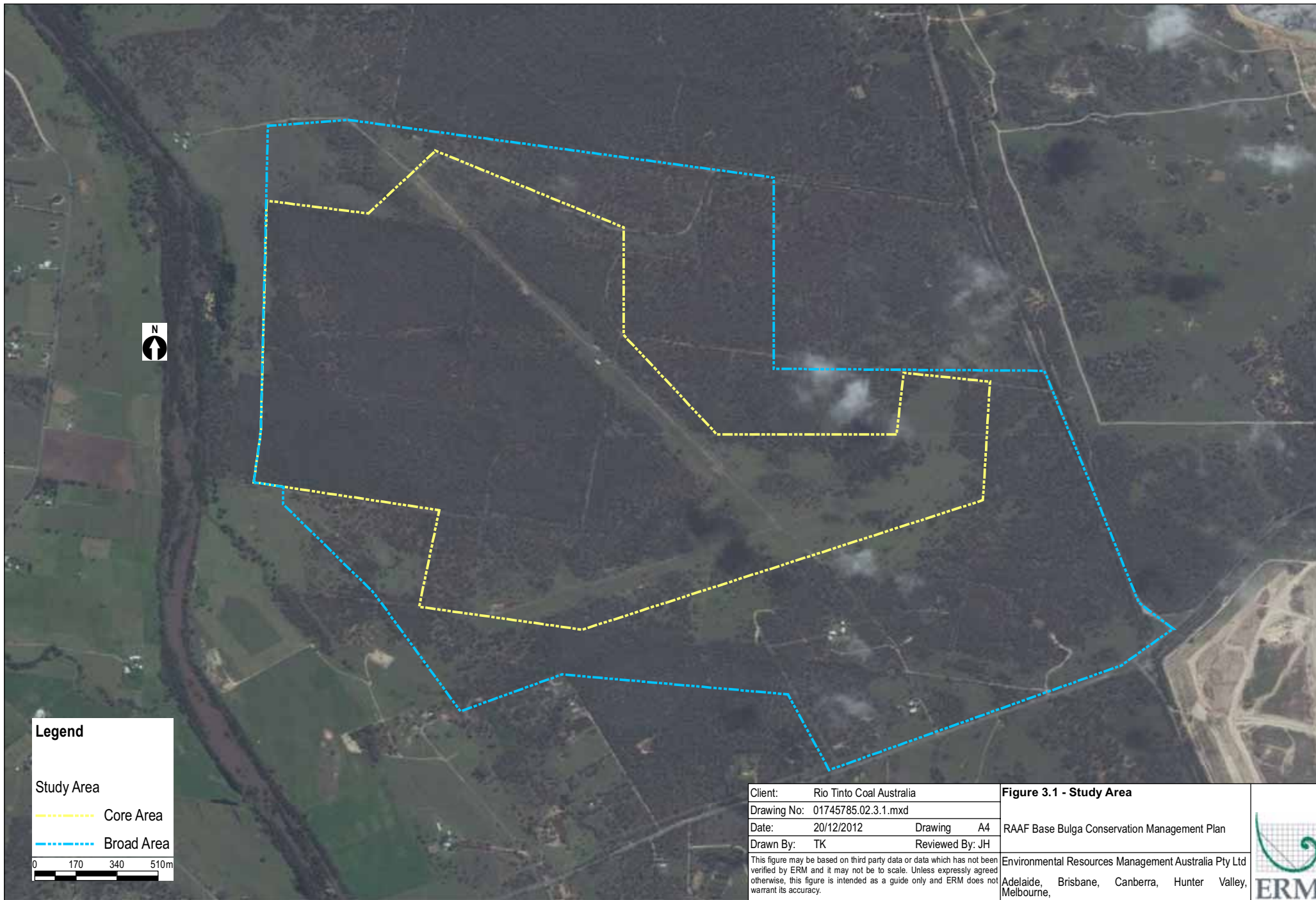
3.1 *NEIGHBOURING CONTEXT*

The former RAAF Base Bulga is situated approximately 15km south west of Singleton. The Mount Thorley Warkworth Mine is directly to the east of Wallaby Scrub Road, comprising two large open cut coal mines adjacent to each other. To the west of the former RAAF Base is the Wollombi Brook, and the Wollombi Brook Aboriginal Cultural Heritage Conservation Area.

3.2 *STUDY AREA*

The study area is predominantly flat with some gentle undulating slopes, and includes a core study area incorporating the area surrounding the runways, and a broader study area taking in a larger area to the north east and south (See *Figure 3.1*).

The study area is dominated by two intersecting runways known as the north-south runway and the east-west runway. The north-south runway sits at 308° and the east-west at 59°. The runways remain largely free of vegetation, while the remainder of the study area contains she-oak regrowth, with some Ironbark woodland also remaining.



Legend

Study Area

----- Core Area

----- Broad Area

0 170 340 510m

Client:	Rio Tinto Coal Australia		
Drawing No:	01745785.02.3.1.mxd		
Date:	20/12/2012	Drawing	A4
Drawn By:	TK	Reviewed By:	JH
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

Figure 3.1 - Study Area	
RAAF Base Bulga Conservation Management Plan	
Environmental Resources Management Australia Pty Ltd	
Adelaide, Brisbane, Canberra, Hunter Valley, Melbourne,	



4 CONSULTATION

4.1 NSW HERITAGE OFFICE

The NSW Heritage Office was contacted to obtain information about the former RAAF Base Bulga collated during the WWII Aerodromes Thematic Study (NSW Heritage Office 2001). Consultation indicated that the former RAAF Base Bulga was a parent aerodrome and therefore recommended for consideration for entry to the State Heritage Register. The NSW Heritage Office also assisted with providing additional information in RAAF Bases included in the 2001 study for comparative purposes.

4.2 COMMUNITY HERITAGE ADVISORY GROUP

The Community Heritage Advisory Group (CHAG) was invited to participate in the survey. One member, Neville Hodgkinson, took up the invitation and participated in the site investigation for two days over 13-14 November 2012. Neville provided valuable assistance in identifying key features during the survey.

4.3 FIGHTERWORLD MUSEUM, RAAF WILLIAMTOWN

The staff at the Fighterworld Museum at RAAF Williamtown were also engaged as part of the consultation process, however no one held any knowledge of the former RAAF Bulga site apart from noting the emergency landing of the Sabre MK31 at the airfield in 1956. Staff allowed perusal of research material at the Museum, but no new information was discovered.

4.4 RAAF MUSEUM, POINT COOK

The RAAF Museum at Point Cook holds a great deal of historical information on specific RAAF bases and squadrons across Australia. Consultation with the Curator of Research indicated that Bulga was only ever used by the RAAF as an emergency landing strip and had no facilities or buildings. The Curator of Research also provided aerial photography taken over the site by the military in 1942 that shows the runways under construction and construction camps in place.

Field survey was undertaken over a period of five days 12-16 November 2012 and the results outlined below.

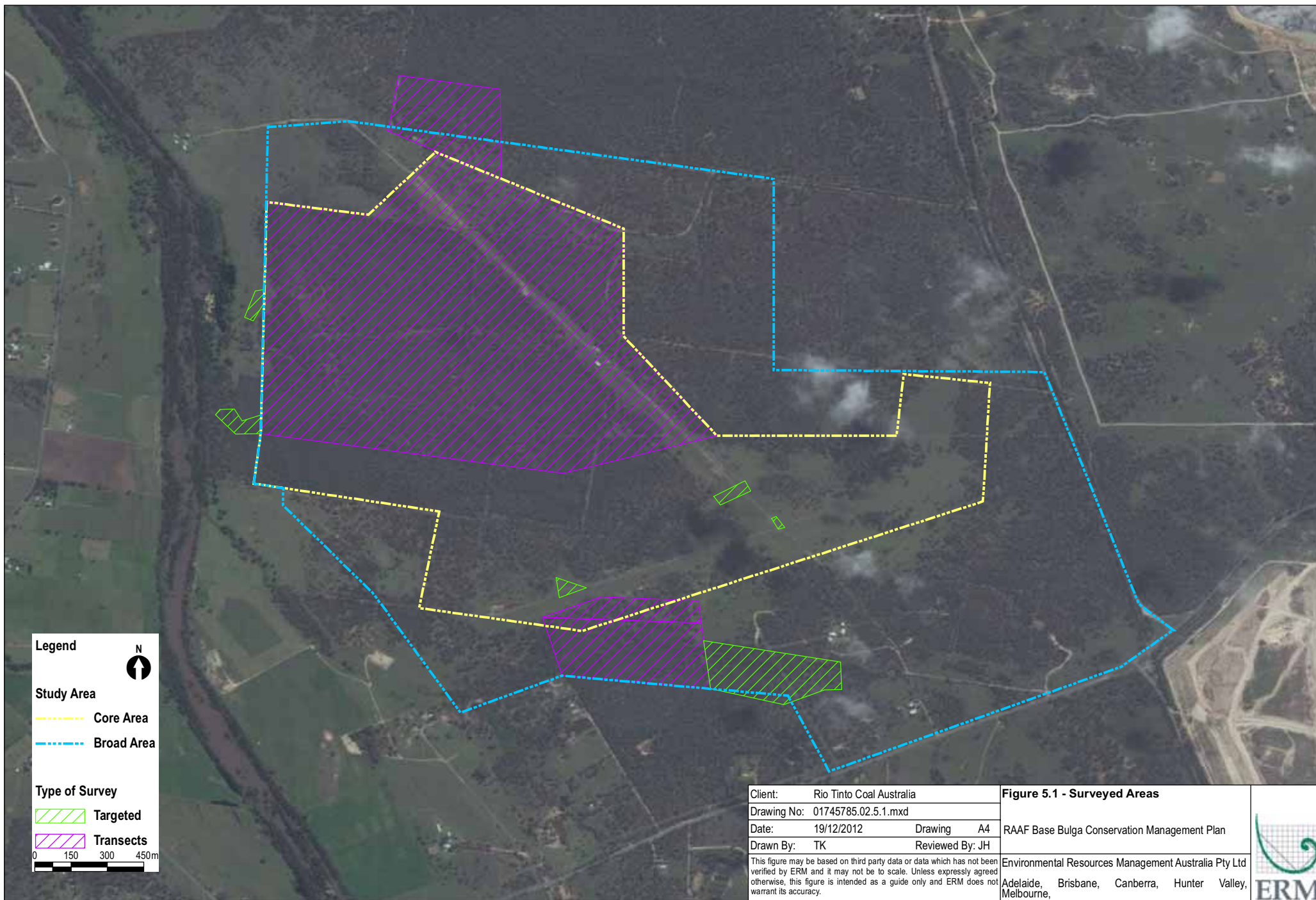
5.1***SURVEY COVERAGE***

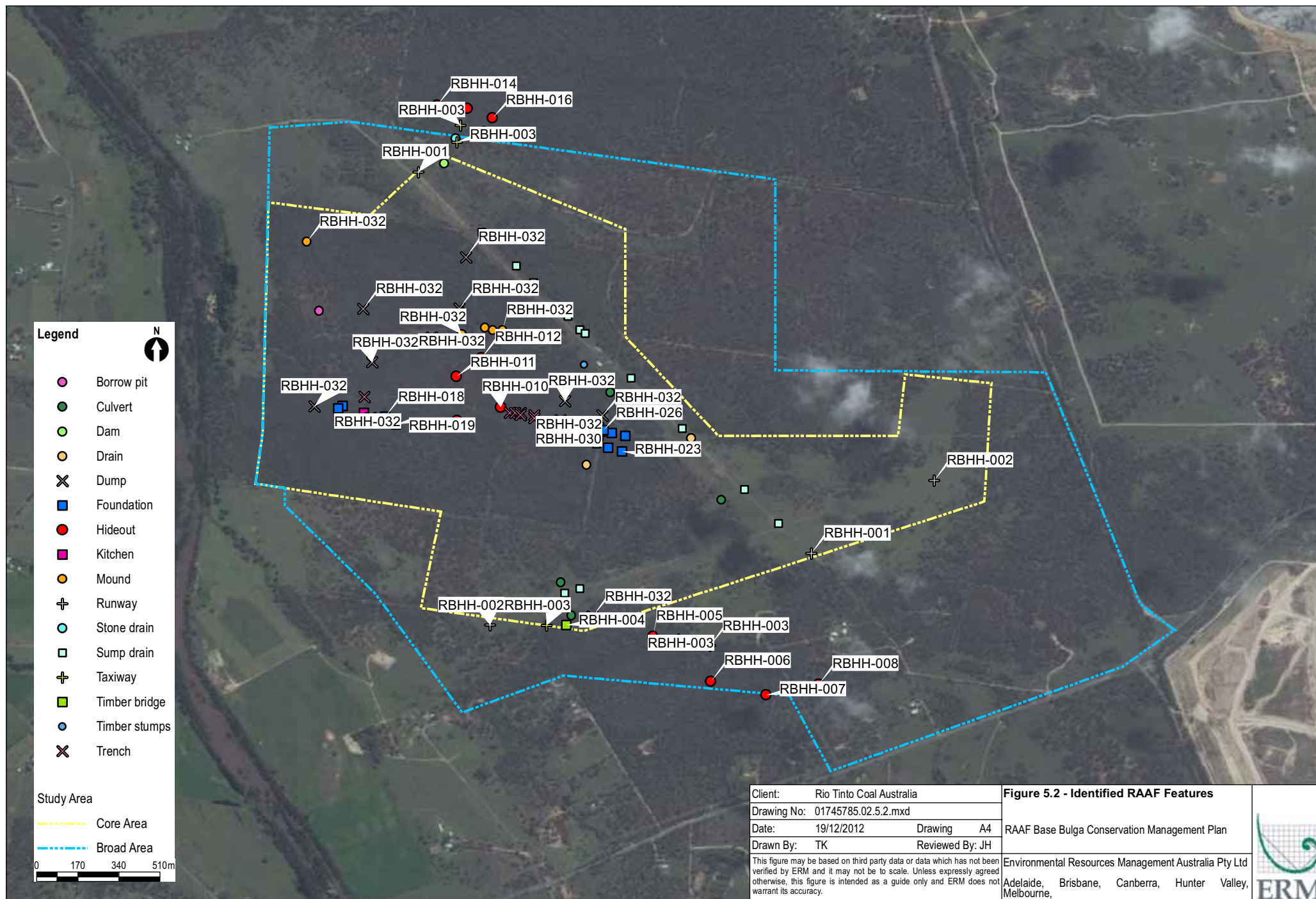
The majority of the core focus study area was surveyed via 100m transects, and a number of targeted areas within the broader study area were also surveyed as shown at *Figure 5.1*.

5.2***HISTORIC FEATURES***

The survey identified over 150 historic features of varying dates and associations that were recorded using differential GPS. The location of all recorded sites is shown at *Annex A*. Features associated with the former RAAF Base Bulga were subject to more comprehensive assessment including archival recording. These are outlined in further detail below and mapped at *Figure 5.2*.




All features associated with the RAAF Base were assigned a site identifier number with a prefix of RBHH of (RAAF Bulga Historic Heritage).








5.2.1

RBHH-001 – North South Runway

ERM Site ID	RBHH-001	Name	North - South Runway		
RTCA Site ID		Easting	314425-315932	Northing	6388993- 6387349
Historical Notes					
<p>The north-south runway had been partially constructed by September 1942, and was completed by July 1943. It was 2.1km in length and 46m wide. Specifications note that it was constructed using 15cm of gravel sealed with tar. Although a number of borrow pits were identified on the former RAAF Base site, the large amount necessary for the construction of runways indicates that the gravel was probably sourced from a large quarry approximately 4km north of the former RAAF Base, west of Wallaby Scrub Road.</p> <p>Plans of the north-south runway note an axis of 128°S indicating planes would have approached this runway from a northerly direction.</p>					
Description					
<p>The north south runway sits at 308°N. It comprises a large cleared area with a defined vehicle track along the centre and remnant bitumen surface with some grass growth. Running parallel to the runway is a drainage system comprising concrete sump drains (400mmx600mm) spaced at irregular intervals, and culverts in two locations along this runway that ensure the water collected in the sump drains is diverted away from the runway. There is also a loose rubble filter drain running parallel to the runway to keep groundwater away along the eastern side of the runway in a number of locations.</p>					
Photograph 1: Runway looking south			Photograph 2: Drainage running parallel to runway		
					
Photograph 3: Close-up of bitumen runway					
					





5.2.2

RBHH-002 – East West Runway

ERM Site ID	RBHH-002	Name	East-west runway		
RTCA Site ID		Easting	314812-316263	Northing	6387045-6387606
Historical Notes					
<p>The east-west runway had been constructed by July 1943 and was 1.5km in length and 46 metres wide. As with the north-south runway it was constructed using 15cm of gravel sealed with tar.</p> <p>Plans of the east-west runway note a bearing of 59° indicating that planes would have approached this runway from a westerly direction.</p>					
Description					
<p>The runway today remains largely clear of vegetation with remnant bitumen evident amongst the grass. Similar to the north-south runway there is a drainage system in place along the northern side of the runway in the form of sump drains connecting to a culvert diverting water away from the runway.</p>					
Photograph 1: East-west runway looking west			Photograph 2: Drainage at intersection of east-west and north-south runway		
					
Photograph 3: Intersection of east-west and north south runway looking south					
					





5.2.3

RBHH-003 - Taxiways

ERM Site ID	RBHH-001	Name	Taxiways		
RTCA Site ID	Various	Easting	Various	Northing	Various
Historical Notes					
<p>Taxiways were also in place by July 1943 and were noted to be gravel sealed and up to 9m wide in the southern section of the site. Taxiways were constructed to disperse aircraft from the runway to their concealed hideouts.</p> <p>The locations of taxiways remain evident in historical aerial photographs in the 1960s.</p>					
Description					
<p>Two locations were identified where taxiways were tar sealed, presumably due to the natural drainage in the area. The first is located at the northern end of the north-south runway where access is provided to three of the hideouts (10,11,12) across a small drainage channel. The remnant bitumenised area here measures approximately 23 x 6m.</p> <p>The second bitumenised area is located at the western end of the east-west runway connecting to Hideout #1.</p> <p>Many remaining taxiways remain in use as vehicle tracks and are also identifiable by gravel surface and/or uniform regrowth.</p>					
Photograph 1: Bitumen taxiway in the north			Photograph 2: Bitumen taxiway in the south		
					
Photograph 3: Taxiway between east-west and north-south runway			Photograph 4: Southern taxiway between hideouts #5 and #6		
					



5.2.4

RBHH-004 - Timber Bridge



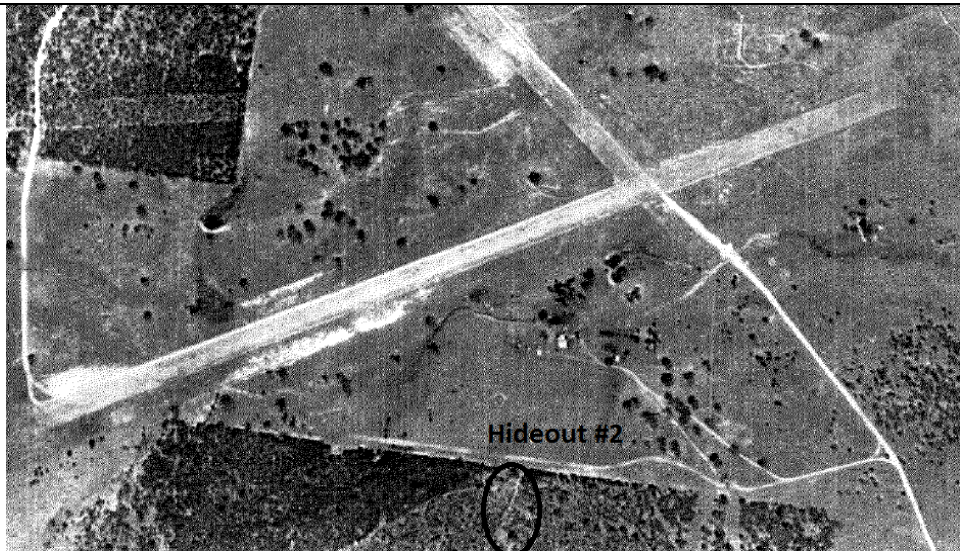
ERM Site ID	RBHH-004	Name	Timber bridge		
RTCA Site ID	153	Easting	315100	Northing	6387035
Historical Notes					
No historic records of construction or existence of bridge, but construction and alignment appears consistent with WWII construction across the watercourse providing access to the southern hideouts.					
Description					
<p>The physical remains of the timber bridge include two timber abutments and remnant longitudinal round log girders approximately 3.65m in length. The north western abutment comprises two horizontal members 5m in length, and the south eastern abutment also has two extant timber members 4.65m in length. Timber members are fixed to piles using $\frac{3}{4}$" steel square head bolts that are heavily corroded.</p> <p>The condition of the bridge is poor.</p>					
Photograph 1: North western abutment			Photograph 2: South eastern abutment		
					
Photograph 3: View towards runway			Photograph 4: Construction Detail		
					

5.2.5





RBHH-005 – Hideout #1

ERM Site ID	RBHH-005	Name	Hideout#1		
RTCA Site ID	155	Easting	315418	Northing	6386996
Historical Notes					
Hideout #1 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 15.1m in diameter (east-west).					
Photograph 1: Hideout #1 looking west					
					
Photograph 2: 1963 Aerial Photograph¹					
					




¹ NSW Lands Photo Log, Cessnock Run 35, November 1963, #1192 5061

ERM Site ID	RBHH-006	Name	Hideout #2		
RTCA Site ID	165	Easting	315609	Northing	6386806
Historical Notes					
Hideout #2 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
Hideout#2 is located in an area that has been highly disturbed. While there are sections of bitumen remaining, the extent of the original hideout is no longer discernible.					
Photograph 1: Hideout #2 surface			Photograph 2: Hideout #2 surface		
					
Photograph 3: 1963 Aerial Photograph ²					
					


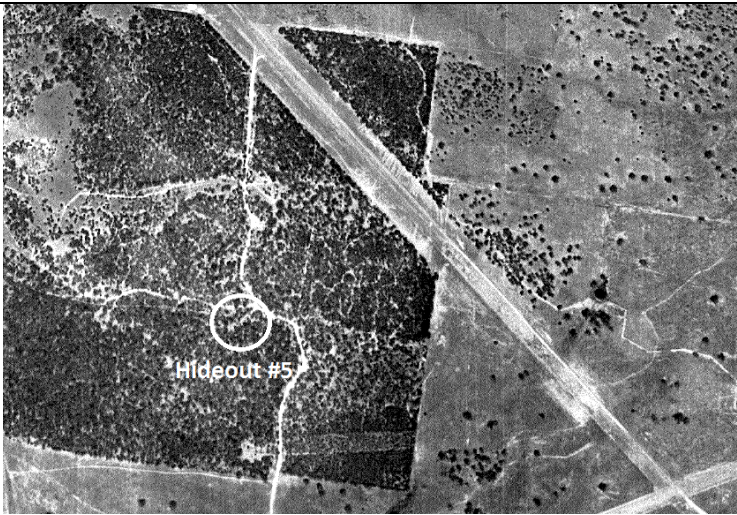
² Ibid

ERM Site ID	RBHH-007	Name	Hideout #3		
RTCA Site ID	166	Easting	315802	Northing	6386754
Historical Notes					
Hideout #3 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 13.96m in diameter (east-west).					
Photograph 1: Hideout #3 looking east			Photograph 2: Water tank adjacent to hideout		
					
Photograph 3: Remnant building material including asbestos cement sheeting			Photograph 4: 1963 Aerial Photograph³		
					

³ Ibid

ERM Site ID	RBHH-008	Name	Hideout #4		
RTCA Site ID	167	Easting	315987	Northing	6386820
Historical Notes					
Hideout #4 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 15.58m in diameter (north-south).					
A fenceline has been constructed through the eastern section of the hideout resulting in disturbance to the bitumen surface of the hideout.					
Photograph 1: View from south			Photograph 2: View from west		
					
Photograph 3: 1963 Aerial Photograph ⁴					
					


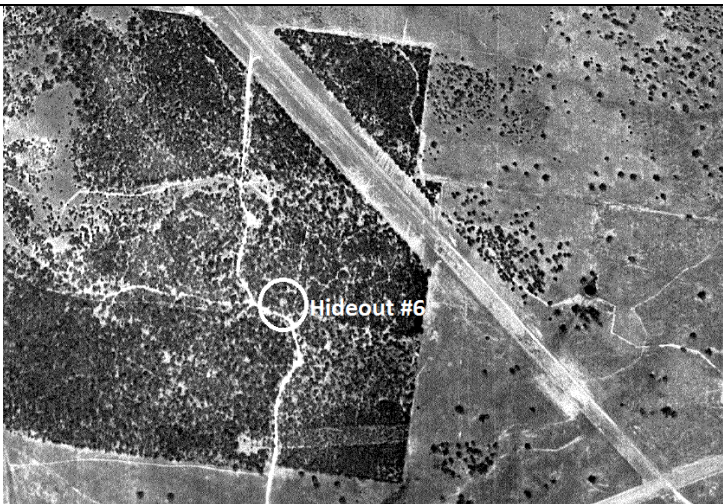
⁴ Ibid

ERM Site ID	RBHH-009	Name	Hideout #5		
RTCA Site ID	111	Easting	314710	Northing	6387875
Historical Notes					
Hideout #5 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 20.96m in diameter (east-west).					
Photograph 1: View from east					
					
Photograph 2: 1963 Aerial Photograph⁵					
					

⁵ Ibid

5.2.10


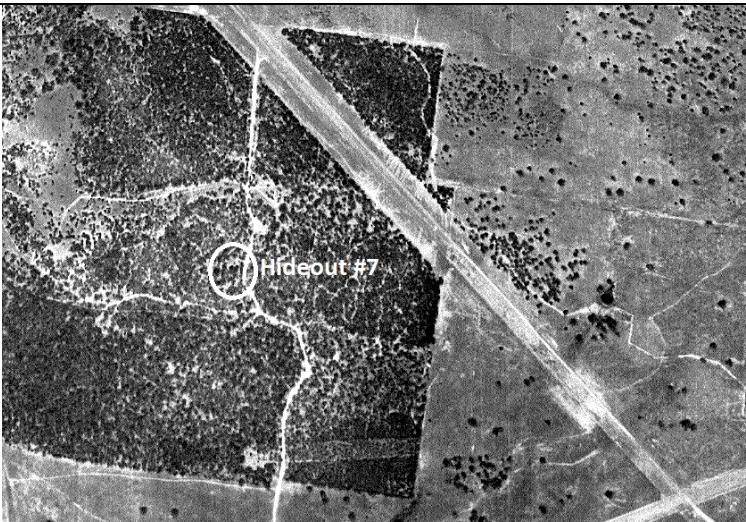
RBHH-010 – Hideout #6

ERM Site ID	RBHH-010	Name	Hideout #6		
RTCA Site ID	129	Easting	314859	Northing	6387932
Historical Notes					
Hideout #6 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 25.6m in diameter (east-west).					
Photograph 1: Hideout #6 looking west					
					
Photograph 2: 1963 Aerial Photograph⁶					
					


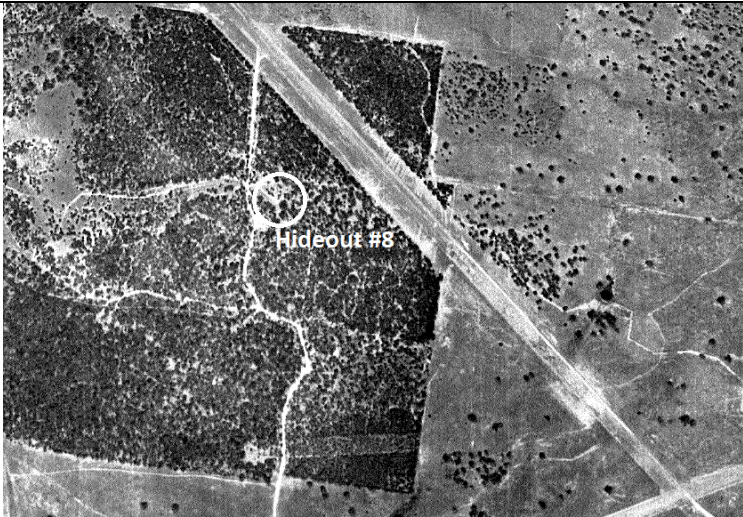
⁶ Ibid

5.2.11

RBHH-011 – Hideout #7

ERM Site ID	RBHH-011	Name	Hideout #7		
RTCA Site ID	128	Easting	314704	Northing	6388058
Historical Notes					
Hideout #7 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 20.73m in diameter (east-west).					
Photograph 1: Hideout #7 looking west					
					
Photograph 2: 1963 Aerial Photograph⁷					
					



⁷ Ibid

ERM Site ID	RBHH-012	Name	Hideout #8		
RTCA Site ID		Easting	314785	Northing	6388138
Historical Notes					
Hideout #8 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 16.4m in diameter (east-west).					
Photograph 1: Hideout #8 looking east					
					
Photograph 2: 1963 Aerial Photograph⁸					
					



⁸ Ibid

5.2.13


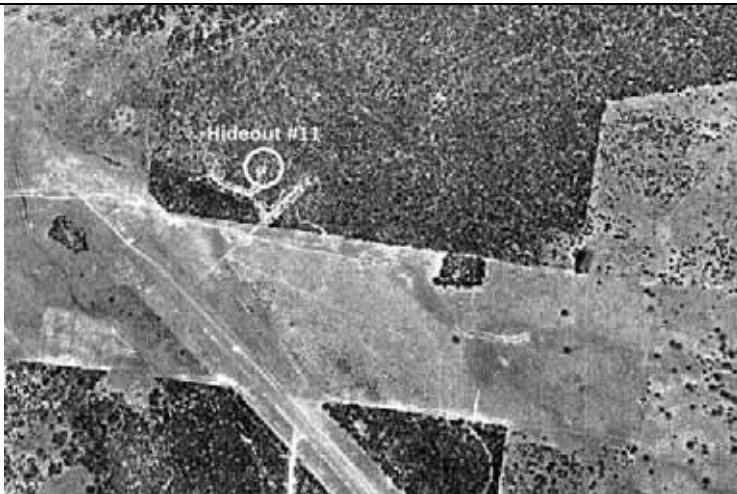
RBHH-013 – Hideout #9

ERM Site ID	RBHH-013	Name	Hideout #9		
RTCA Site ID	23	Easting	314705	Northing	6388329
Historical Notes					
Hideout #9 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 20.95m in diameter (east-west).					
Photograph 1: Hideout #9 looking north					
					
Photograph 2: 1963 Aerial Photograph⁹					
					

⁹ Ibid

ERM Site ID	RBHH-014	Name	Hideout #10		
RTCA Site ID	147	Easting	314610	Northing	6389171
Historical Notes					
Hideout #10 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 12.92 (east-west) and 15.76 (north-south) in diameter.					
Photograph 1: Hideout #10 looking west					
					
Photograph 2: 1963 Aerial Photograph¹⁰					
					



¹⁰ Ibid

ERM Site ID	RBHH-015	Name	Hideout #11		
RTCA Site ID	146	Easting	314714	Northing	6389157
Historical Notes					
Hideout #11 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 15.4m in diameter (east-west).					
Photograph 1: Hideout #11 looking north					
					
Photograph 2: 1963 Aerial Photograph¹¹					
					

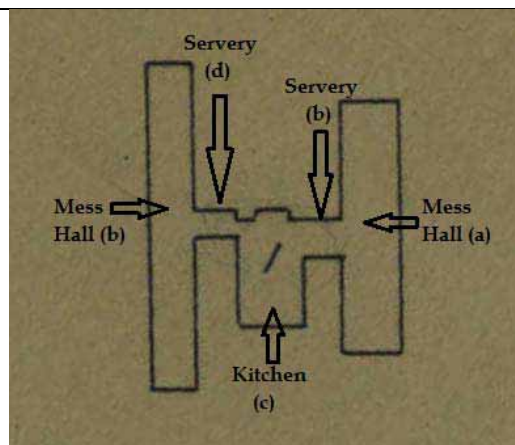
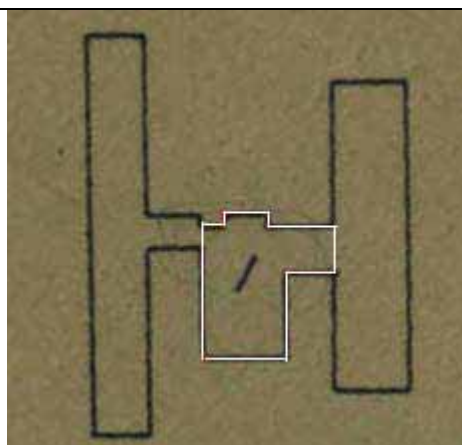
¹¹ Ibid

5.2.16

RBHH-016 – Hideout #12




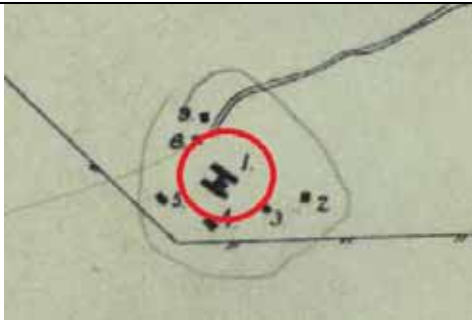
ERM Site ID	RBHH-016	Name	Hideout #12		
RTCA Site ID	145	Easting	314775	Northing	6389136
Historical Notes					
Hideout #12 is noted to have been constructed by July 1943 and is shown as complete on the October 1943 plan.					
Description					
The hideout comprises an area roughly circular in shape and cleared of mature trees. The surface of the hideout is tar sealed and approximately 18.88m in diameter (east-west).					
Photograph 1: Hideout #12 looking north					
					
Photograph 2: 1963 Aerial Photograph¹²					
					

¹² Ibid



ERM Site ID	RBHH-017	Name	Kitchen and Servery Building		
RTCA Site ID	105	Easting	314374	Northing	6387904
Historical Notes					
The kitchen and mess for all ranks had been constructed on site by July 1943. Plans show the building as being roughly “H “shaped, (see Photograph 4), the central portion containing the kitchen, messes on either side and servery in between. A 1946 condition report noted this building as deteriorating. In January 1953, the Department of the Interior paid £450 for the removal and demolition of the building. At this time, the building was noted as missing a few sheets of iron and windows.					
Description					
The building sits in the camp area west of the north-south runway (see Figure 5.2). It was originally irregular in plan comprising a central kitchen area measuring 13.4 x 8.8m, with long rectangular mess halls to the east and west, connected by a servery on either side (see Figure 1). The remnant structure today comprises the kitchen building and the foundation of one of the serveries (see Figure 2).					
Figure 1: Original Layout of Building ¹³			Figure 2: Remaining Structure ¹⁴		
					
The remnant building is “L” shaped in plan with brick and concrete footings. Overall the building is in poor condition with trees physically impacting on the building fabric, and some minor settlement issues resulting in cracking and failing brickwork. The western section of the building is the most intact part and retains the original timber frame, corrugated asbestos cement roof sheeting and walls clad with corrugated iron sheeting.					
There are door openings along the southern and western elevation. The northern elevation has two window openings, the eastern elevation three and the western elevation has six. A number of the openings on the western elevation contain the original timber casement window frame. Internally the building is lined with sheet metal and fibrous cement sheet ceilings and is littered with a range of debris including remnant building material, tyres, furniture and drums.					

¹³ Taken from NAA 1040501 “Bulga Aerodrome – Disposal of Building” p11

¹⁴ Ibid

Condition	
<p>The building is currently structurally unsound, with a large tree impacting on the roof and a number of timber elements either missing or in a deteriorated state. Corrugated asbestos roof sheeting is also missing in some places, and damaged and in poor condition where it remains.</p> <p>Much of the corrugated iron sheeting is corroded.</p> <p>Brickwork is also cracking in a number of locations resulting in significant movement outward, loss of mortar and loss of bricks along the southern and eastern elevations.</p>	
Photograph 1: View to mess from south east	Photograph 2: Remnant kitchen area
	
Photograph 3: Building interior	Photograph 4: Shape of building on 1946 plan¹⁵
	



¹⁵ RAAF Aerodrome, Bulga NSW, NAA 3302965

ERM Site ID	RBHH-018	Name	Former Ablutions Block		
RTCA Site ID	107	Easting	314457	Northing	6387890
Historical Notes					
The former ablutions block was constructed with concrete floor and corrugated iron cladding. Disposal notes indicate that it contained a total of 13 taps and was in good condition at the time of disposal. The building was planned to be relocated to Narrabri in the early 1950s, but ended up being relocated to Coonamble instead ¹⁶ .					
Description					
The former ablutions block is located approximately 90m east of the kitchen building. All that remains of the former ablutions block is a rectangular concrete slab measuring 10 x 6.7m with three drainage channels. The layout indicates that it was a single room.					
The foundation was covered in debris and no other notable features were identifiable.					
Photograph 1: View from north					
					
Photograph 2: View from east					
					

¹⁶ NAA 1040501 “Bulga Aerodrome – Disposal of Building” p11



5.2.19



RBHH-019 – Former Latrines



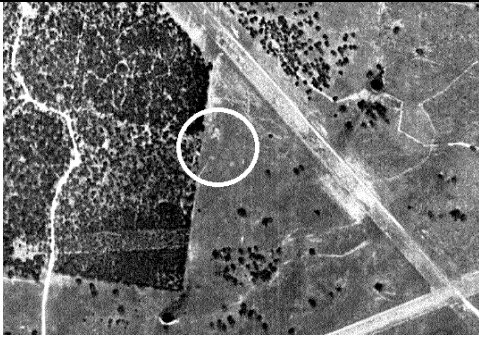
ERM Site ID	RBHH-019	Name	Former Latrines		
RTCA Site ID	93	Easting	314491	Northing	6387855
Historical Notes					
The former latrine block was constructed with concrete floor and corrugated iron cladding. Disposal notes indicate this building had been removed from the site by 1952.					
Description					
The former latrine block comprises a rectangular concrete slab measuring 8.2 x 3.6m located approximately 150m south east of the kitchen building.					
The floor plan indicates that there were two rooms with three separate entrances to the building and an internal doorway between the two rooms. The foundation was covered in debris and no drainage systems or other notable features were identifiable.					
Photograph 1:					
					
Photograph 2:					
					





5.2.20

RBHH-020 – Former Ablutions Block

ERM Site ID	RBHH-020	Name	Former Ablutions Block		
RTCA Site ID	104	Easting	314300	Northing	6387929
Historical Notes					
The former ablutions block was constructed with concrete floor and corrugated iron cladding. Disposal notes indicate this building had been removed from the site by 1952.					
Description					
The physical remains of the former ablutions block comprises a rectangular concrete slab measuring 8.2 x 3.6m located approximately 90m north west of the kitchen building.					
The floor plan indicates that there were two rooms, however the foundation was covered in debris and no drainage systems or other notable features were identifiable.					
Photograph 1: View to west					
					
Photograph 2: View from south west					
					




ERM Site ID	RBHH-021	Name	Former Ablutions Block		
RTCA Site ID	103	Easting	314290	Northing	6387921
Historical Notes					
<p>The former ablutions block was constructed with concrete floor and corrugated iron cladding and is located approximately 110m north west of the kitchen building</p> <p>By 1952 it had been relocated off site and transported to Narrabri.</p>					
Description					
<p>The former latrine block comprises a rectangular concrete slab measuring 6.4 x 3.6m, located approximately 15m from the RBHH-022 ablutions block.</p> <p>The floor plan indicates that there were two rooms divided by a central brick wall and with two separate entrances to the building. The foundation was covered in debris and no drainage systems or other notable features were identifiable.</p>					
Photograph 2: Northern entrance to latrines					
					
Photograph 2: Southern entrance to latrines					
					



ERM Site ID	RBHH-022	Name	Foundation #1		
RTCA Site ID	169	Easting	315294	Northing	6387817
Historical Notes					
The September 1942 aerial for the site shows rows of buildings in this location that are likely the construction camp. Not identified on plans for disposal of the site in the 1950s, and not evident on 1963 aerial photographs.					
Description					
Foundation #1 is positioned on north west-south east axis approximately 80m north of RBHH-023 and 58m east of RBHH-024. It is located between an unsealed track and barbed wire fence.					
The foundation comprises a concrete slab with coarse aggregate measuring 1.6 x 2.65m. No fixings were evident.					
The slab is in poor condition with vegetation growing through cracks.					
Photograph 1: View to west.			Photograph 2: Location between track and fence		
					
			Photograph 3: Location on 1963 aerial.		
					



ERM Site ID	RBHH-023	Name	Foundation #2		
RTCA Site ID	170	Easting	315279	Northing	6387758
Historical Notes					
The September 1942 aerial for the site shows rows of buildings in this location that are likely the construction camp. Not identified on plans for disposal of the site in the 1950s, and not evident on 1963 aerial photographs.					
Description					
Foundation #2 is surrounded by regrowth and partially concealed with leaf litter and other debris. There is remnant brick, ceramic and metal fragments in the surrounding area.					
Foundation #2 is a concrete slab measuring 10.7m along the eastern and western lengths and 11.8m along the northern and southern. There is a grease trap on the eastern side and pit area on the northern side containing collapsed pieces of timber.					
Overall the concrete appears to be in good condition, with some vegetation growth between the joins.					
Photograph 1: View from south			Photograph 2: View from north		
					
Photograph 3: Pit detail			Photograph 4: Sump detail		
					





5.2.24


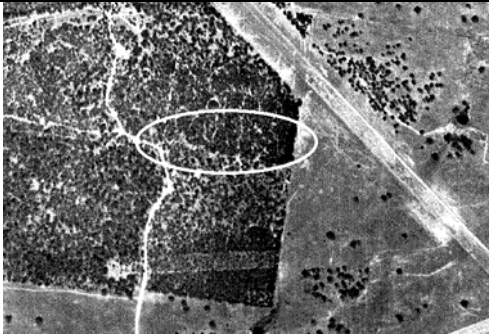
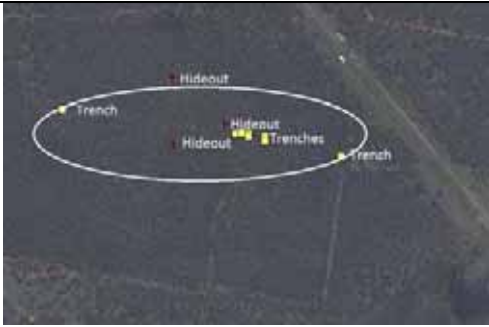
RBHH-024 – Foundation #3





ERM Site ID	RBHH-024	Name	Foundation #3		
RTCA Site ID	171	Easting	315230	Northing	6387770
Historical Notes					
The September 1942 aerial for the site shows rows of buildings in this location that are likely the construction camp. Not identified on plans for disposal of the site in the 1950s, and not evident on 1963 aerial photographs.					
Description					
Foundation #3 is located 58m north west of RBHH-023 and is also partially concealed with leaf litter of surrounding regrowth.					
The concrete slab measures 10.7x8.5m, and also includes a collapsed pit area of approximately 3.8x3.4m along the southern length. The slab also has a number of drainage features and remains of a timber post on the north eastern corner.					
Overall the concrete appears to be in good condition, with some vegetation growth between the joins.					
Photograph 1: View from west			Photograph 2: Sump and spoon drain		
					
Photograph 3: View from north					
					

ERM Site ID	RBHH-025	Name	Foundation #4		
RTCA Site ID	172	Easting	315237	Northing	6387829
Historical Notes					
The September 1942 aerial for the site shows rows of buildings in this location that are likely the construction camp. Not identified on plans for disposal of the site in the 1950s, and not evident on 1963 aerial photographs.					
Description					
Foundation #4 has been disturbed by the erection of a fence and a vehicle track to the south. It is a series of large irregularly shaped concrete slabs, measuring 27m along the east-west axis and 21m along the north south axis.					
Features include a sump drain in the north (1.87x1.02m), an open pit to the east (0.63x.90m), and a timber post along the eastern boundary of the foundation.					
The concrete appears to have been covered with a layer of gravel, and vegetation is growing in the gaps throughout.					
Photograph 1: View from south west			Photograph 2: View from north across fenceline		
					
Photograph 3: Sump detail			Photograph 4: Pit detail		
					

ERM Site ID	RBHH-026	Name	Foundation #5		
RTCA Site ID	175	Easting	315215	Northing	6387836
Historical Notes					
The September 1942 aerial for the site shows rows of buildings in this location that are likely the construction camp. Not identified on plans for disposal of the site in the 1950s, and not evident on 1963 aerial photographs.					
Description					
Foundation #5 comprises a long rectangular concrete slab measuring 1.8x5m with a timber post approximately 1.8m south of the slab.					
Photograph 1: View from north					
					
Photograph 3: View from east towards brick sump					
					

ERM Site ID	RBHH-027-030	Name	Brick and concrete sumps		
RTCA Site ID	173, 174, 177, 181	Easting	315211-315194	Northing	6387839--6387787
Historical Notes					
The September 1942 aerial for the site shows rows of buildings in this location that are likely the construction camp. Not identified on plans for disposal of the site in the 1950s, and not evident on 1963 aerial photographs.					
Description					
A series of brick sumps are located east of RBHH-022 to RBHH-026. Brick Sump #1 is located 2.96 m south west of RBHH-02, and the remainder continue in a southerly direction. Sumps 1-3 are uniform size (1.4x1.1m), while #4 is 1.2m ² and 0.95m deep. Sump#3 has been completely filled in while the others have been partially filled with leaf litter and debris. The drain appears to continue to the south.					
Photograph 1: Brick sump #1			Photograph 2: Brick sump #2		
					
Photograph 3: Brick sump #3			Photograph 4: Brick sump #4		
					

ERM Site ID	RBHH-031	Name	Trenches		
RTCA Site ID	183, 184, 185, 186, 187, 188	Easting	Various around 151.030006	Northing	-32.631492
Historical Notes					
<p>The RAAF works schedule for RAAF Bulga allowed for the construction of 600' (182 metres) worth of air raid shelter trenches on the site. These trenches were to be sited by the Commanding Officer when the base was taken over.</p> <p>These air raid shelter trenches are not shown on any historic plans, including those associated with the disposal of the site.</p>					
Description					
<p>Field survey identified a series of "L" shaped trenches east of Hideout 6 (RBHH-010). These are all of similar size (2x1m) and appear to have been partially filled in leaving a depression on the surface.</p> <p>These trenches are likely associated with the RAAF history of the site, but their function is unknown.</p>					
Photograph 1: Trench example			Photograph 2: Location of identified trenches 1963 aerial photograph		
					
			<p>Photograph 2: Location of identified trenches 2010 aerial photograph</p> 		

ERM Site ID	RBHH-032	Name	Dump sites		
RTCA Site ID	Various	Easting	Various	Northing	Various
Historical Notes					
Research material associated with the construction of the RAAF Base indicates that construction began in mid 1942, and was completed within approximately 12 months. There was no permanent accommodation buildings constructed, and therefore construction camps likely consisted of temporary tents.					
Description					
A number of dump sites were identified during the survey that date to World War II. These include bottle dumps, building remnants and stockpiles of material.					
Photograph 1: Dump near kitchen building			Photograph 2: Sheets of corrugated fibrous cement sheeting		
					
Photograph 3: Stockpiles of rock near Hideout #9			Photograph 4: Dump near Hideout #6		
					

6.1

COMPARATIVE ANALYSIS

Comparison with other related or similar sites and places assists in determining the heritage values of a particular item or feature. Comparative analysis can assist with identifying the appropriate level of heritage significance of a site, and is useful in the validation process of determining whether a heritage listing remains current.

At the end of WW2, the Royal Australian Air Force had 317 mainland and regional airfields that it controlled. Within a short period of time the greater majority of these airfields were disposed of. According to the NSW Heritage Office Thematic Study of WWII aerodromes, there were 125 World War II RAAF aerodromes and landing grounds in New South Wales. Of these, there were a total of 22 parent bases which were generally where squadrons were based in a region, with satellite aerodromes constructed within the surrounding area to alleviate any congestion at these parent aerodromes. The following comparative analysis uses examples at RAAF Williamtown, RAAF Richmond, RAAF Cootamundra and Evans Head aerodrome which were all parent aerodromes during World War II (see Figure 6.1).

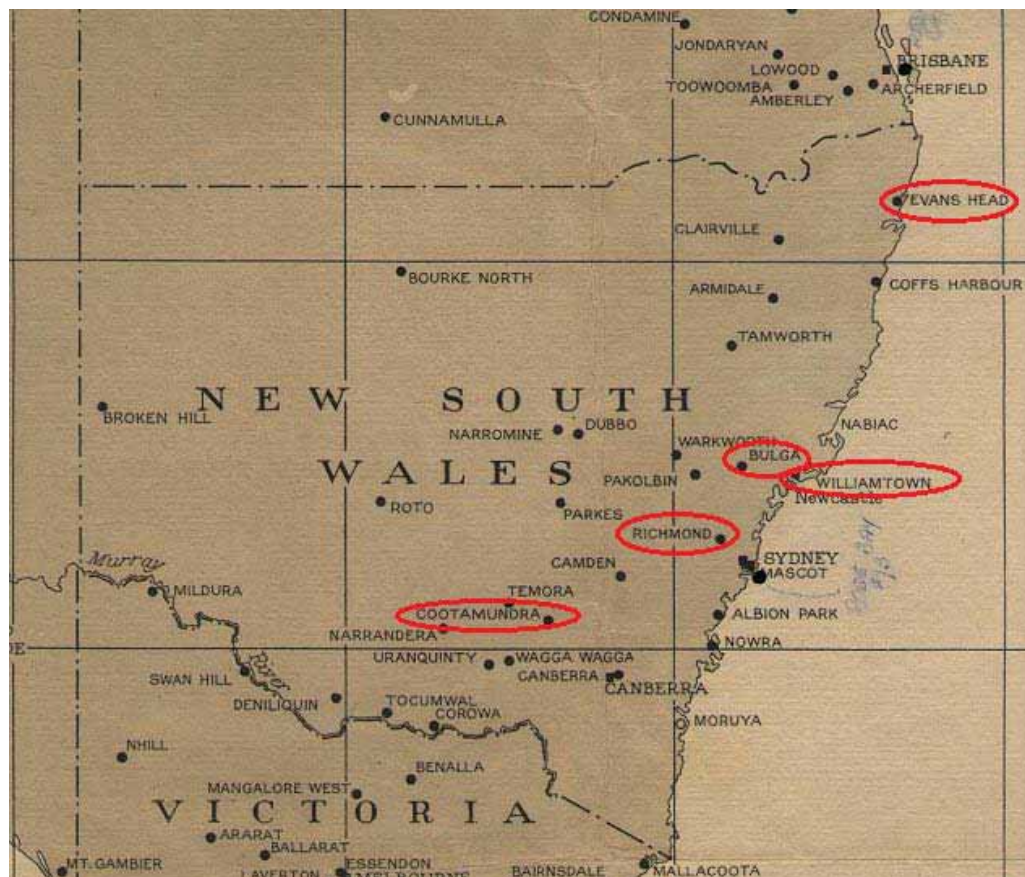


Figure 6.1

Parent RAAF Bases used for Comparative Analysis

6.1.1

Example #1 RAAF Williamtown

NAME	RAAF WILLIAMTOWN
Source	NSW Heritage Office State Heritage Inventory Citation, Commonwealth Heritage List citation
Site ID	CHL#105639
Location:	Nelson Bay Road, RAAF Williamtown
Local Government	Port Stephens Shire
State:	NSW
Construction Date:	1940
Period of Use	Ongoing
Current Use	RAAF Base
Heritage Status	Commonwealth Heritage List
Satellites	
History	<p>In 1938 local authorities recognised the need for new airport facilities for Newcastle's growing needs, over and above the capacity of District Park at Broadmeadow. Acquisition of land on the Williamtown moors was gazetted on 14 March 1940 and works were started, using unemployment relief labour. The Base was officially opened on 15 February 1941.</p> <p>Prior to its opening, a detachment of Hudson bombers was sent to the Base and was involved in antisubmarine patrols. Later the Base was used as a staging base. During 1941 the Base was used for a variety of purposes such as landing practice for amphibious aircraft from rathmines, air gunnery training, defence exercises, deployments and detachments involving Seagull, Cataline, Wirraway, Fairey Battle and Boston aircraft.</p> <p>Also during 1941, under the Empire Air Training Scheme (EATS), new squadron personnel gathered at Williamtown for service overseas. In February 1942, squadrons from the United States Army Air Corps (USAAC) arrived at the Base for training and during April, administrative control was handed to USAAC and RAAF Station Williamtown was disbanded in May. The USAAC aircraft left the Base at the end of September 1942 and an Operational Training Unit arrived in late 1942.</p> <p>Also at the end of 1942 members of the Women's Auxiliary Australian Air Force joined the strength of the Base. Satellite airfields, emergency landing grounds, bombing and gunnery ranges, radar stations and radio direction finders were set up to service Williamtown's needs.</p> <p>Post-war changes began in 1946 with the arrival of various squadrons. In October 1947 Training courses began for fighter pilots going to the British Commonwealth Occupation Force in Japan to relieve pilots who were completing their tours of duty.</p> <p>The 1950s saw considerable expansion involving improvement of Base facilities - buildings, runways, taxiways, aprons and a crash barrier to accommodate Sabres. During the 1960s and early 1970s, Williamtown was developed. World War II huts were replaced by modern buildings and significant works took place, costing approximately \$10 million. When the decision was made in the 1980s to acquire the F/A-18 Hornet, \$100 million was spent in a major reconstruction program which changed the face of the Base.</p>

Description RAAF Williamtown contains remnant WWII features and buildings including the road network of the 1939-1945 camp, 1939-1945 buildings and structures (50, 96, 97, 98, 99, 171-173, 211-214 and associated taxiways, sections of runways 1 and 4 and Pump House 186).

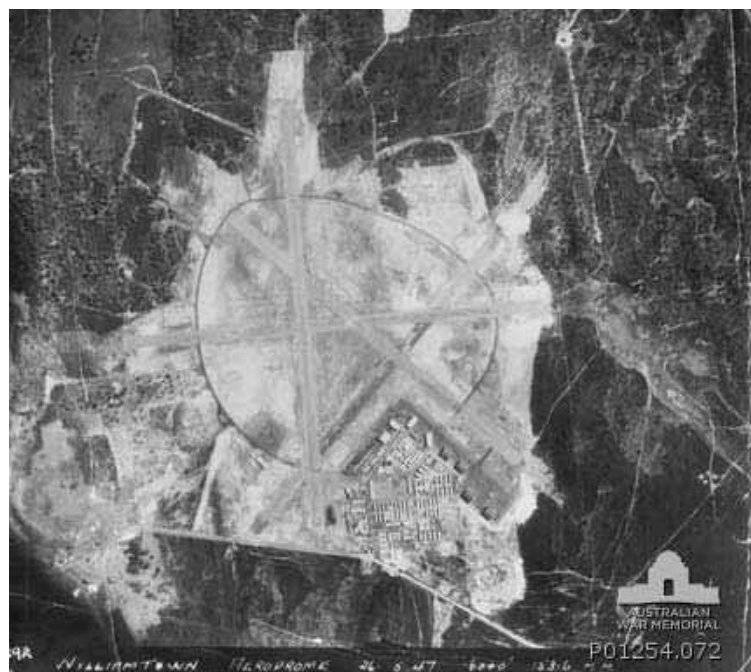
Integrity and intactness High degree of integrity and intactness with structures.

Significance RAAF Williamtown has historical significance being selected for the RAAF in August 1939, when the site was surveyed for an emergency landing ground, a significant factor in its selection being its proximity to Newcastle's steel mills and coalmines. The base is also significant for the use of limited resources through the NSW Government Unemployment Relief Program and the completion of four runways in 1940. Officially opened in February 1941, the base is historically significant for its contribution to the Empire Air Training Scheme as No. 2 Recruit Depot and as No. 4 Operational Training Unit between 1942 and 1945. The evolving landscape of RAAF Base Williamtown, comprising Henderson Road, the road network of the 1939-1945 camp, 1939-1945 buildings and structures and post war structures and buildings is important as the operational and training focus for Australia's jet fighter aircraft.

The street layout of the initial 'camp area', including the grid pattern road layout, the alignment of Medowie Road, Parade Ground, Bellman Hangars and the northern taxiway areas (including the alignment of runway 1 and part of the dispersal taxiway associated with runways 1 and 4) and the underground fuel tanks, are important in illustrating the principal functional characteristics of RAAF Bases developed in the immediate pre-war years and the early years of the Second World War.

The Bellman Hangars as a group are important in illustrating the principal characteristics and uses of this wartime prefabricated hangar, which enabled the rapid development of RAAF facilities on many Second World War RAAF bases.

Photograph:



1947 Aerial, Australian War Memorial #P01254.072

6.1.2

Example #2 RAAF Richmond

NAME	RAAF BASE RICHMOND
Source	NSW Heritage Office State Heritage Inventory Citation
Site ID	105653
Location:	McNamarra Avenue, Richmond
Local Government	Hawkesbury City
State:	NSW
Construction Date:	1925
Period of Use	Ongoing
Current Use	RAAF Base
Heritage Status	Commonwealth Heritage List
History	<p>RAAF Base Richmond was the first Air Force base to be established in New South Wales and the second within Australia. During World War 2, Richmond developed into a base of major importance to Australia's defence, and has since evolved from a combat centre to become the home of Air Lift Group. As such, the base is now the hub of logistics support for the Australian Defence Force.</p> <p>When war was declared on 3 September 1939, Richmond's strength increased with squadrons flying Hawker Demons, Avro Ansons, Seagulls and Lockheed Hudsons. Squadrons were transferred to the Middle East, and departed for the Pacific where they saw action in New Britain and New Guinea.</p> <p>No 3 RAAF Hospital was formed at Richmond on 15 October 1940, taking over former quarters and buildings. In May 1942 the unit moved to Bradfield Park then Concord West but returned by October 1949. It remains one of the Base's units today. On 1 August 1941, No 1 Radar School was formed, training in both ground and air radar mechanics and operators. It moved to Maryborough Queensland on 6 November 1944. In addition to the school, numerous radar stations were formed and moved to various locations around Australia and overseas.</p> <p>Numerous squadrons, a Medical Receiving Station, Operational Base Unit, Repair and Salvage Unit, Fighter Wing Headquarters, Paratroop Training Unit from Tocumwal, Stores Unit, were formed at Richmond between 1942 and 1943. When operation control of coastal surveillance was transferred to Camden in November 1942, Richmond assumed flying training, target towing, meteorological surveys and Army cooperations duties, such as searchlight practice.</p> <p>Two squadrons formed at Richmond during World War II, 11 and 38 Squadrons, are still flying today.</p>

- Description** Much of the base was constructed in the 1930s, and the only World War II construction on site is in the form of Bellman hangars, Nissen and P-type huts.
- Integrity and Intactness** Although much of the construction during World War II comprised prefabricated structures intended for temporary use, many of these remain today. Their condition is unknown.
- Significance** RAAF Richmond meets 6 of the CHL criteria, including historical, technological, aesthetic, social and associational significance and a degree of rarity. However this primarily relates to the 1930s era of the base.

In terms of the World War II era, the group of Nissen and P-type huts illustrate the principal characteristics of utilitarian accommodation erected during the war years 1939-45. T

Photograph:



RAAF Base Richmond 1940, Australian War Memorial #P04440.003

NAME	EVANS HEAD MEMORIAL AERODROME
Source	NSW Heritage Office State Heritage Inventory Citation
Site ID	5052603
Location:	Memorial Airport Drive, Evans Head
Local Government	Richmond River Shire
State:	NSW
Construction Date:	1930s as an emergency landing ground and resumed by Department of Defence in 1937.
Period of Use	In use by Department of Defence 1937-1952. Still used by aircraft today.
Current Use	Memorial Aerodrome
Heritage Status	NSW Heritage Register
History	<p>The Evans Head Memorial Aerodrome Precinct represents a defining part of the history of Australia during World War II and particularly of the RAAF. This is widely acknowledged in newspaper articles, books on WW II, websites, war records and archives, etc. It is also historically, socially and culturally significant for local people because of the social, emotional and economic impact it had on the community during the War and subsequent to the war.</p>

The Evans Head Aerodrome grew from a bush Emergency Landing Field in the 1930's to the largest RAAF training base in the Southern Hemisphere during WW II. It was a significant player in the Empire Air Training Scheme, a huge undertaking of all the Air Forces of the Commonwealth to make sure that there were sufficient trained aircrew to support the effort of the WW II Allies. Evans Head was involved in the training of Air Observers/Bomb Aimers, Wireless Operators/ Air Gunners and Navigators.

More than 5000 Airforce personel from Australia and overseas passed through its training programs and of these, more than a 1000 were killed. At its height the RAAF Base had some 70 Fairey Battle Aircraft and extensive bombing and gunnery ranges to the north and south of the village of Evans Head in daily active use. The Base itself contained many buildings and structures. Only the Southern Ranges are used today for F1-11 weapons practice. Following WW II the Aerodrome was used for commercial airline services. Queen Elizabeth II flew into Evans Head during her 'Royal' visit to Australia in 1954.

The Aerodrome was closed to commercial flights in the mid-fifties for political reasons and its activities were transferred to Casino much to the chagrin of many local people. Since that time it has been used for a variety of purposes outlined elsewhere in this application. In 1992 ownership of the Aerodrome was passed to Richmond River Shire Council under an ALOP agreement. Council has since downgraded the 'flying' status of the Aerodrome but it is still used by many different types of aircraft.

Description	The aerodrome has four landing strips and one remaining (modified) Bellman Hangar which is situated on the apron adjacent to the main north-south landing strip. It is the only remaining hangar on its original site, out of 17. Three of the four runways are sealed - the main north-south runway being in better condition. Two short taxiways that lead to the main north-south runway are sealed and two others off the northeast-southeast runway are scars in the landscape. These originally led from the hangars.
Integrity	None of the original buildings and related facilities from WW II, such as water tanks and control tower, remain except for one (modified) Bellman Hangar.
Significance	<p>The aerodrome is purported to be the largest RAAF training base (over 5000 personnel) in the Southern Hemisphere during World War II (No 1 Bombing and Gunnery School) under the Empire Air Training Scheme, and made a major contribution, through provision of trained personnel, to the Commonwealth's war effort (see Haughton-James & Manley, 1995). The site contains only one original Bellman Hangar of 17 that represents technical innovation for that period. The hangars were designed and built for Australian conditions by Sir Valston Hancock, Director of Works, who later became the first commanding officer for the base.</p> <p>The site has social significance to the many ex service-men and -women who were associated with the aerodrome, RAAF personnel, ANZAC Day celebrations, and fellow personnel, families and friends of people who served there and died during WWII. It is also significant to the people of the North Coast region, the residents of Evans Head and visitors who attend activities or are tourists.</p> <p>Moreover it is significant because it is a substantial landmark, from the ground and from the air. It is a cultural site and continues to have an effect on the civilian, ex service, and defence population of the North Coast area of NSW and all visitors to the region."</p>

Photograph:



Evans Head Memorial Aerodrome Looking West (NSW Heritage Office 2001)

6.1.4

Example #4 Former RAAF Base Cootamundra

NAME	Former RAAF Base Cootamundra
Source	NSW Heritage Office State Heritage Inventory Citation
Site ID	-
Location:	Cootamundra Airport
Local Government	Cootamundra
State:	NSW
Construction Date:	1940
Period of Use	Defence use 1940-1945. Continued use as airfield.
Current Use	Cootamundra Airport.
Heritage Status	-
History	<p>In 1940 Cootamundra was selected as a site to meet the RAAF requirements for the training of air crews under the Empire Air Training Scheme (EATS). No 1 Air Observers School was formed in April 1940 and began its function to provide training for air observers. In March 1942, numbers almost doubled with the absorption of No 3 AOS. No 2 Training Group arrived in April 1942 and later 144 WAAAF personnel. The Station had to be extended to accommodate the additional personnel. Other squadrons formed at Cootamundra and in November 1942 was the home to 974 personnel.</p> <p>In early 1946 Cootamundra was listed as no longer required by the RAAF and buildings were sold to various organisations including the Municipalities of Cootamundra and Murrumburrah, the Gundagai and Tumut District Ambulance Service and the Police Boys Club. Then in December, the Department of Civil Aviation assumed control with a permissive occupancy of RAAF buildings. In early 1947 buildings were sold to Butler Air Transport, the Council and at public auction. RAAF connections remained due to the remnant Bellman Hangars.</p> <p>During the 1950s contention ensued regarding the retention of the Hangars. Bellman Hangar No 41 remains and is still used for civil aviation purposes.</p>
Description	The runways and one bellman hangar survives.
Integrity	Unknown
Significance	-
Photograph:	



RAAF Cootamundra cWWII (Point Cook RAAF Museum)

6.1.5

Summary Comparative Analysis

The former RAAF Base Bulga has been compared with four other RAAF bases across New South Wales that were also used as parent bases during World War II. Of these bases RAAF Bulga had the latest establishment date of 1942, and was constructed as a result of military operations in the 1940s in a manner similar to RAAF Williamtown and RAAF Cootamundra. Of these sites, RAAF Williamtown and Richmond are the only two that have had continued RAAF use until the present day, and they also contain the greatest number of extant buildings and features. On the other hand, RAAF Base Cootamundra and RAAF Base Bulga had the shortest periods of Defence use before reverting to civilian use, and also have the least amount of surviving structures.

In terms of cultural heritage significance, all RAAF bases have a degree of historical significance for the part they played in the defence of NSW and Australia. However the level of significance is also dependant on the remnant physical features and overall condition and integrity of the site. Overall, the former RAAF Base Bulga is considered to contain less physical evidence than comparative examples that have been entered in Commonwealth and State heritage registers. *Table 6.1* provides a summary comparative analysis.

Table 6.1 Summary Comparative Analysis

Name of Base	Type of Base	Satellite Bases	Establishment Date	Period of RAAF use	Extant WWII Structures	Heritage Status
RAAF Richmond	Parent	Castlereagh Marsden Park Pitt Town	1925	Ongoing	Yes	Commonwealth Heritage List
Evans Head Aerodrome	Parent	Coraki	1930s	1937-1952	Yes One Bellman hangar	State Heritage Register
RAAF Williamtown	Parent	Hexham Hotham Ringwood	1940/1941	Ongoing	Yes	Commonwealth Heritage List
RAAF Cootamundra	Parent	Unknown	1940	1940-1945	Yes One Bellman hangar	Nil
RAAF Bulga	Parent	Broke Strowan Warkworth	1942	1942-1952	Partial kitchen building remaining.	Nil

The State Heritage Register is established under Part 3A of the Heritage Act for listing of items of state heritage significance. To be assessed for listing on the State Heritage Register, a place will meet one or more of the following criteria:

SHR Criteria	Weir and Phillips Assessment 2007	ERM Assessment 2012
(a) Historical significance	<p>The former RAAF Base Bulga has national historical significance for its ability to demonstrate the effort to defend Australia from attack by the Japanese in the early stages of the Pacific War. The base was built as part of an elaborate defence system centred on the use of aerial defence to repel sea and airborne attacks. As such the project was mooted in early 1943¹⁷, soon after the attack on Pearl Harbour and at a time when Singapore had fallen, Darwin had been bombed and a Japanese attack on the industrial areas of the east coast of Australia seemed imminent.</p> <p>The difference between the initial plans and the work realised on the site demonstrates a range of aspects of the prosecution of the war including the difficulties encountered by a massive increase in public works, placing a strain on a wide range of resources; the time taken by a bureaucracy to plan and activate works even when deemed to be of the utmost urgency; and the rapidity with which priorities change as war progresses.</p>	<p>The former RAAF Base Bulga demonstrates the response to threat of attack from the Japanese during World War Two and has historical significance for its establishment as an operational airfield for general reconnaissance for the Upper Hunter Valley region. The NSW heritage office thematic study furthermore recommends that all parent air bases be considered for inclusion on the state heritage register.</p> <p>This criterion is met.</p>
(b) Historical association significance	The former RAAF Base Bulga is not significant under this criterion.	<p>No special association with a particular person.</p> <p>This criterion is not met.</p>
(c) Aesthetic significance	The former RAAF Base Bulga is not significant under this criterion.	<p>The former RAAF Base Bulga is not considered to have high aesthetic characteristics.</p> <p>This criterion is not met.</p>
(d) Social significance	<p>The former RAAF Base Bulga is not significant under this criterion.</p> <p>In general, World War II sites have strong associative significance, particularly for those who served there. In the case of the Former RAAF Base</p>	<p>Historical research has indicated that no specific squadron was based at the airfield, and therefore there has been no ongoing association with the place. Consultation with the RAAF Museum at Point Cook and Fighter World</p>

¹⁷ This is taken from the 2007 significance assessment and is likely meant to be 1942

SHR Criteria	Weir and Phillips Assessment 2007	ERM Assessment 2012
	Bulga, however, there is no evidence of RAAF personnel ever served on the site.	<p>museum at Williamtown has also indicated that there is little known about the place, no ongoing association, and little interest.</p> <p>This criterion is not met.</p>
(e) Technical significance/research potential	The Former RAAF Bulga has limited significance under this criterion for its ability to demonstrate a range of characteristics common to RAAF facilities built during World War II. As outlined under criterion (a), the difference between the initial plans and the work realised on the site demonstrates a range of aspects of the prosecution of the war.	<p>The remnant historic features at RAAF Base Bulga have the potential to yield further information about the use and layout of the site. It may contribute to our knowledge of the military history of the Upper Hunter region. However this information is unlikely to yield information that would make a significant contribution to New South Wales history. The former RAAF Base Bulga including the runway, taxiway, hideouts and remnant kitchen building use standard construction methods used at the time and elsewhere at RAAF bases across Australia and does not demonstrate high technological achievement for its time.</p> <p>This criterion is not met.</p>
(f) Rarity	The former RAAF Base Bulga is one of a number of sites that is capable of demonstrating the strategy of the RAAF during World War II.	<p>The NSW Heritage Office, World War II Aerodromes and Associated Structures in New South Wales Thematic Study, outlines all the other parent airfields constructed during World War II, and RAAF Base Bulga was one of 22 at this time.</p> <p>The comparative analysis at <i>Section 6.1</i> demonstrates that the RAAF Base is not considered rare at a state level. At a local level, the former RAAF Base Bulga site demonstrates a World War Two airfield in the upper hunter valley region, and may be the only remaining one.</p> <p>This criterion is not met.</p>
(g) Representativeness	<p>The RAAF Bulga Site demonstrates the basic characteristics of a World War II RAAF facility in terms of runway construction and possible camouflage works.</p> <p>As identified under Criterion (a), the Former RAAF Bulga Site has minor local historical significance for its ability to demonstrate the effort to defend</p>	<p>Comparative analysis has indicated that there are a number of examples of World War II RAAF bases in New South Wales that are much more intact, and therefore by comparison are a better example of this type. The integrity of the kitchen building has been impacted on by the loss of adjoining mess halls.</p>

SHR Criteria	Weir and Phillips Assessment 2007	ERM Assessment 2012
	<p>Australia from attack by the Japanese during the early stages of the Pacific War (World War II, 1939-1945). The RAAF Base Bulga was built as part of an elaborate defence system centred on the use of aerial defence to repel sea and airborne attack. The project was mooted in early 1942, soon after the Japanese attack on Pearl Harbour and at a time when Singapore had fallen, Darwin had been bombed and a Japanese attack on the industrial areas of the east coast of Australia was imminent.</p> <p>The difference between the initial plans and the work realised on the site demonstrates a range of aspects of the prosecution of the war including the difficulties encountered by a massive increase in public works, placing a strain on a wide range of resources; the time taken by a bureaucracy to plan and activate works even when deemed to be of the utmost urgency; and the rapidity with which priorities change as war progresses.</p> <p>The fact that little of the original plans for the site were carried through means that there are better and more complete examples of World War II RAAF bases in New South Wales.</p>	This criterion is not met.

6.3

SUMMARY STATEMENT OF SIGNIFICANCE

The former RAAF Base Bulga has historical significance in demonstrating a significant time in Australia's history when the threat of Japanese attack resulted in an expansion of RAAF capabilities across Australia.

By mid 1942, plans were approved and work began shortly afterward on the parent base at Bulga comprising two runways, taxiways, hideouts and a camp area in the event of attack from the coast. While structures have been removed from the site or remain in a deteriorated state, the original layout of the base remains legible and there remains potential for the site to contribute to the local history of the region.

Former RAAF Base Bulga is of cultural significance at a local level.

7.1 MINING ACTIVITIES

The disturbance footprint mooted for the Warkworth Extension Project Disturbance Footprint takes in the western portion of former RAAF Base Bulga as shown at *Figure 7.1*. Mining activities therefore had the potential to impact on identified historical features within the Warkworth Extension Project Disturbance Footprint.

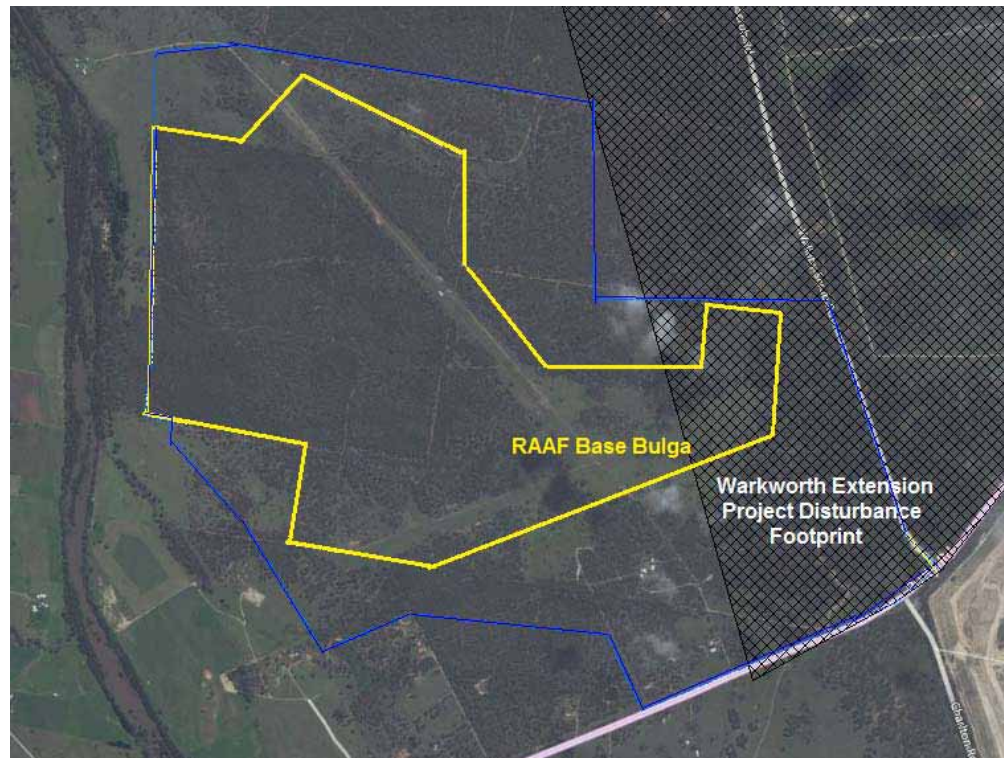


Figure 7.1 Warkworth Extension Project Disturbance Footprint

Mining activities had the potential to directly impact on the former RAAF Base and any identified historical features within this area. Extension of the mine into the eastern portion of the former RAAF would have been likely to alter the historic layout of the place.

Recommendation #1: *Historical features associated with the former RAAF Base should be archivally recorded in accordance with NSW Heritage Office guidelines, and consideration given to further investigation including clean up and/or archaeological excavation prior to the area being impacted on.*

Recommendation #2: *Where items of moveable heritage value associated with the former RAAF Base are to be impacted on by mining activities, a process of salvage should be undertaken to ensure any items of significance are collected prior to the area being impacted on (refer to Section 7.4).*

Features such as runways, taxiways, hideouts etc west of the disturbance footprint should be left in the landscape and retained within the proposed Conservation Area. The nature of these features requires no maintenance or conservation work to be undertaken.

In future the area may be used for purposes such as grazing which is not considered to impact on these features.

Recommendation #3: Extant historic features west of the disturbance footprint should be retained in the landscape and no conservation work is considered necessary.

Short to Medium Term Structural Recommendations

The remnant kitchen building was originally linked to mess halls on either side with a servery connecting to the kitchen, but now only comprises the kitchen and floor of the eastern servery. It is currently in poor condition and the following recommendations are not intended to return the building to a serviceable state. However, they seek to do the minimum required to allow safe access to the building to prevent significant damage, and also allow safe access for asbestos removal and internal inspection of the building in the short to medium term.

- In the first instance the tree branch impacting on the roof of the building should be removed. This should not be undertaken from within the building, but should be undertaken externally using a mobile elevated platform or boom lift.
- The building should be temporarily propped and supported as per Bligh Tanner plans SK 1.0 A and SK 2.0 A (see *Annex B*) to allow for safe access into the building and more detailed inspection of the structure.
- Asbestos removal should be completed by a licensed asbestos removal specialist using all necessary safety equipment. This should include the roof sheeting, all asbestos dust and fibres, and include loose fragments that are known to exist in the remaining area.
- Any structural roof members that are destabilized once the roof sheeting is removed are to be secured as required. Side walls which lose stiffness once the roof sheeting has been removed are to be propped temporarily until the new roof has been replaced (the roof provides protection of the underlying timber members from decay and fungal attack as well as providing some bracing and stabilization to the structure).

- Asbestos removal and clean-up should be supervised by a historical archaeologist to ensure any identified items of significance are retained.
- A structural engineer should complete a building inspection to identify structural repairs and stability requirements within four weeks of the building being cleaned up and decontaminated from asbestos.

Recommendation #4: The kitchen building is currently in poor condition with a low degree of integrity and the stabilisation works outlined above should be undertaken to allow safe access for asbestos removal and internal inspection.

7.3.2

Medium to Long Term Structural Recommendations

Following an internal inspection of the building further advice may be provided regarding medium to long term recommendations. Due to the lack of integrity of the building, recommendations are unlikely to be directed at restoration of the building, but more towards retaining the remnant structure in a safe environment, and reducing further deterioration.

- Following asbestos removal and further internal assessment, areas where there is major cracking in the brickwork and where sections of brickwork have either partially collapsed or broken away from the wall should be repaired in accordance with the Bligh Tanner brickwork repair drawings at Annex C.

Recommendation #5: Following asbestos removal and further internal assessment, the building should be made safe and maintenance works carried out to ensure the building does not deteriorate further.

7.4

FURTHER INVESTIGATION

7.4.1

1. Further Survey

If the area is to be impacted in future, the remainder of the study area should be comprehensively surveyed to identify any additional historic features.

7.4.2

2. Further Archival Research

The November 2012 survey identified a great deal of historic features that were not identified in the 2007 HA and associated research. Therefore, further archival research through the National Archives of Australia was required to aid in the identification of additional building remains. In particular archival research focussed on files associated with the disposal of the former RAAF Base and remnant assets, particularly the kitchen building.

Further archival research was undertaken in December 2012.

3. Clean Up and Further Assessment

A number of features identified during the survey are covered in debris which makes identification of certain features and assessment difficult. It is recommended that features such as the kitchen and mess, and concrete foundations be cleaned up in future for further assessment. This should follow clean-up of hazardous items such as pieces of asbestos cement sheeting.

4. Archaeological Investigation

There are a number of opportunities for archaeological investigation of the former RAAF Base Bulga which may contribute valuable information to the current knowledge of the site. These include:

- Features that have been identified through Lidar survey;
- Area surrounding the construction camp area; and
- “L shaped trenches near Hideout #6.

If archaeological investigation were to occur, it should be undertaken in accordance with the NSW code of practice for historical archaeology (Heritage Office of NSW 2006) and the NSW Heritage Act 1977.

Under Section 139 of the Heritage Act, a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.

In accordance with the legislation, when excavating any land where there are known or suspected relics¹⁸, an excavation permit must be obtained from the Heritage Council of NSW (section 140). The application takes up to six weeks to process, must nominate a qualified archaeologist to manage the disturbance of the relics, and costs a minimum of \$100 to apply, dependant on estimated cost of carrying out the development relating to the excavation.

A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.

Recommendation #6: Further investigation in the form of clean-up and further assessment, additional research and archaeological excavation should all be considered to mitigate any potential indirect or cumulative impacts from mining activities in the east of the study area.

¹⁸ A relic is defined as relic" means any deposit, artefact, object or material evidence that: (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and (b) is of State or local heritage significance.

Field survey identified a number of items of moveable heritage, primarily associated with dump sites (RBHH-032). These items include artefacts such as old bottles which have some local historical significance and which also have potential to be looted as the site becomes more accessible to contractors and consultants during the design phase of the project.

Consultation should be undertaken with the Singleton Historical Society and Museum and any items of historical interest located within or immediately adjacent to the disturbance zone should be offered to the Museum for accessioning in their collection.

If the Singleton Museum is unable to accept items, they could also be offered to Newcastle Museum, and any items specifically relating to the RAAF offered to the RAAF Museum Point Cook.

Recommendation #7: Where moveable items of historical interest are to be impacted directly or indirectly by mining activities, they should be offered to the Singleton Historical Society and Museum for retention in their collection.

Research and consultation identified the fact that there is little publically known about the former Bulga RAAF Base, and there is potential to increase public knowledge through interpretive opportunities. As the site is not currently able to be accessed by the public, opportunities for interpretation would need to be off site and may include:

- A link on Rio Tinto Coal Australia's website, including textual information about the history of the former RAAF Base, supported by historic photographs; and
- A poster for display in the Singleton Library, along with copies of this CMP and the Archival Record outlining the establishment and subsequent decline of the RAAF Base.

Recommendation #8: To increase public knowledge of the former RAAF Base Bulga and its local historical importance, Rio Tinto should consider implementing interpretive opportunities either online or in a public place such as the Singleton Library.

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NSW Heritage Office (2001) **Evans Head Memorial Aerodrome Precinct**, NSW Heritage Office State Heritage Inventory Form.

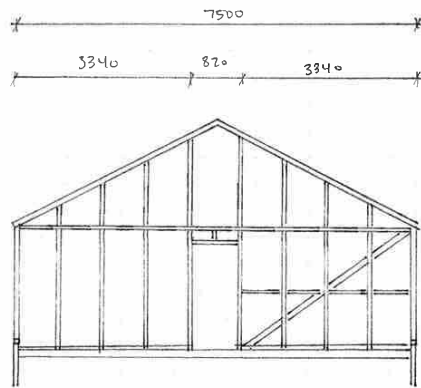
Weir and Philips (2007) **Heritage Assessment Former RAAF Base Bulga New South Wales**.

Annex A

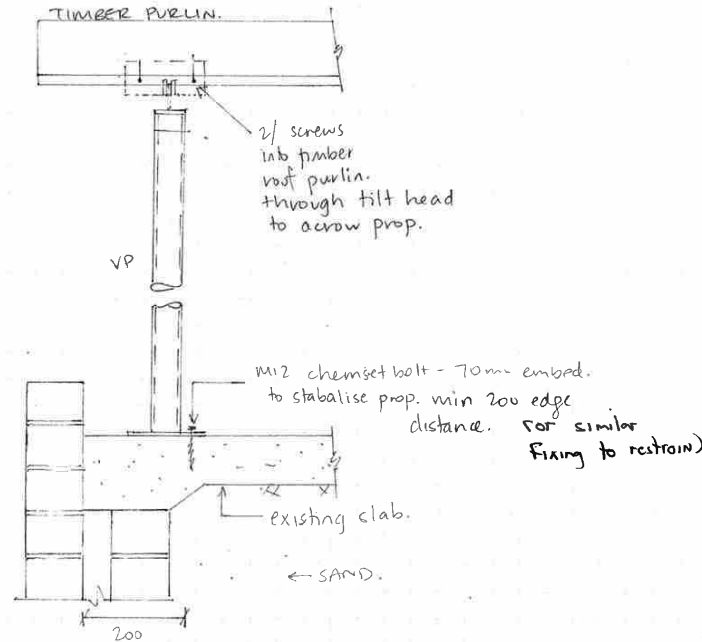
Identified Historic Features

Annex B

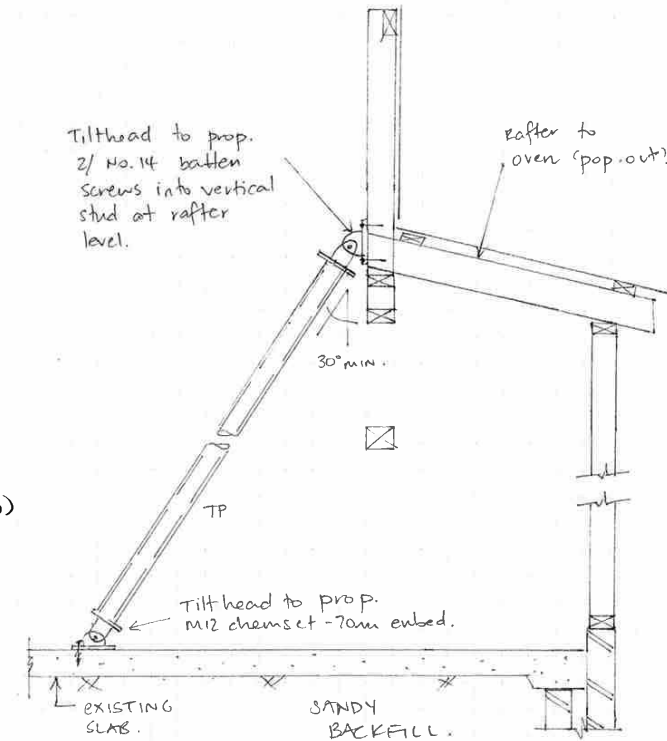
Bligh Tanner Drawings - Temporary Propping




A section
1:100



Vertical prop detail
1:10

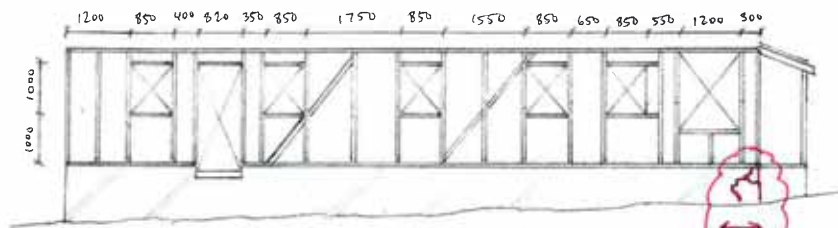


B TEMP DIAGONAL PROP ELEVATION

 <div>BLIGH TANNER CONSULTING ENGINEERS</div> <div>LEVEL 9, 269 WICKHAM STREET, PO BOX 612 FORTITUDE VALLEY QLD 4006 AUSTRALIA T 07 3251 8555 F 07 3251 8599</div>	REV	DATE	DESCRIPTION	DRAWN	DESIGN	APPROVED	PROJECT	DRAWING TITLE	SCALES		
				AC			BUGGA RAAC BASE	BLDG. SECTION DETAILS.			
				CHECKED	CHECKED	R.P.E.G	LOCATION	ARCHITECT	JOB NO		
				SK			CLIENT	ASSOCIATE CONSULTANT	DRAWING NO	REVISION	
			DATE	DATE	DATE						
			28/11/12.						2012.288.3	SK 2.0	A

Annex C

Bligh Tanner Drawings - Brickwork Repairs



LEGEND

TI TIMBER TRUSS
RP TIMBER ROOF PURLIN

REPAIR WORKS

A: INDICATES SECTION OF BRICK WORK WHERE THE OUTER SKIN HAS EITHER PARTIALLY COLLAPSED OR BROKEN AWAY FROM THE WALL LINE - MOST LIKELY AS A RESULT OF SETTLING IN A REACTIVE GROUND

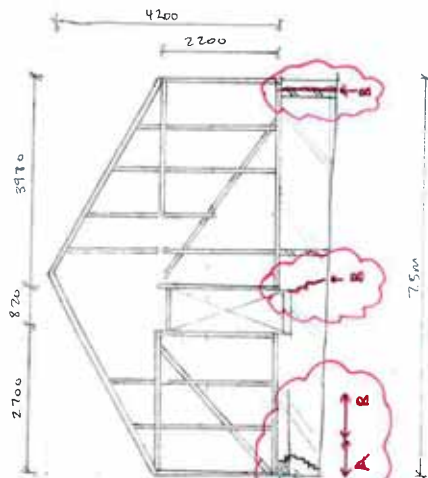
REPAIR: GRADUALLY REMOVE DELAPIDATED BRICK SECTION WHILE INSTALLING PROPS TO EDGE OF SLAB. REBUILD BRICK WALL UP TO 2 COURSES BELOW SLAB LEVEL. BACKFILL UNDER SLAB WITH STABILISING SAND (CEMENTITIOUS) - PACK TO UNDERSIDE OF SLAB. FINISH BUILDING NEW BRICKWORK.

B: INDICATES ZONE OF MAJOR CRACKING IN BRICKWORK.

REPAIR: INJECT GROUT INTO THE CRACKS TO FULLY PREVENT FURTHER SAND LEAKAGE.

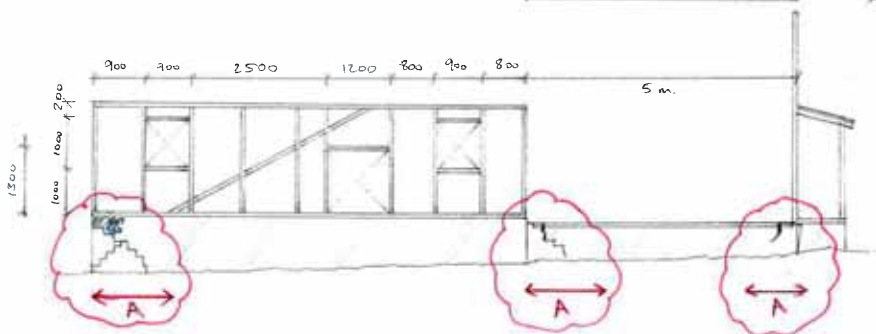
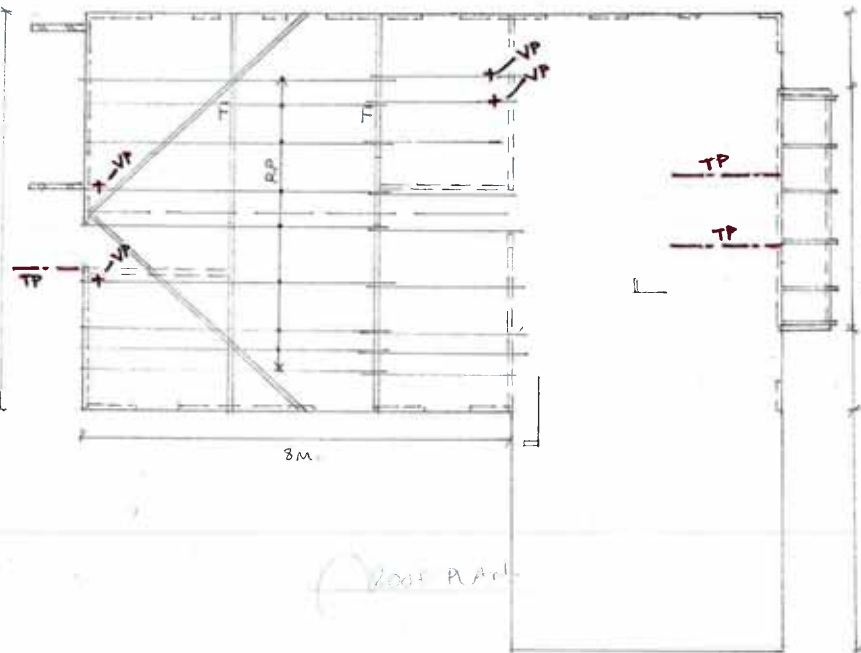
TEMPORARY ARROW PROPS FOR STABILITY DURING REPAIR


+VP - VERTICAL PROP TO PURLIN
- 5kN working load capacity
TP - TEMPORARY DIAGONAL PROP
- 5kN working load capacity

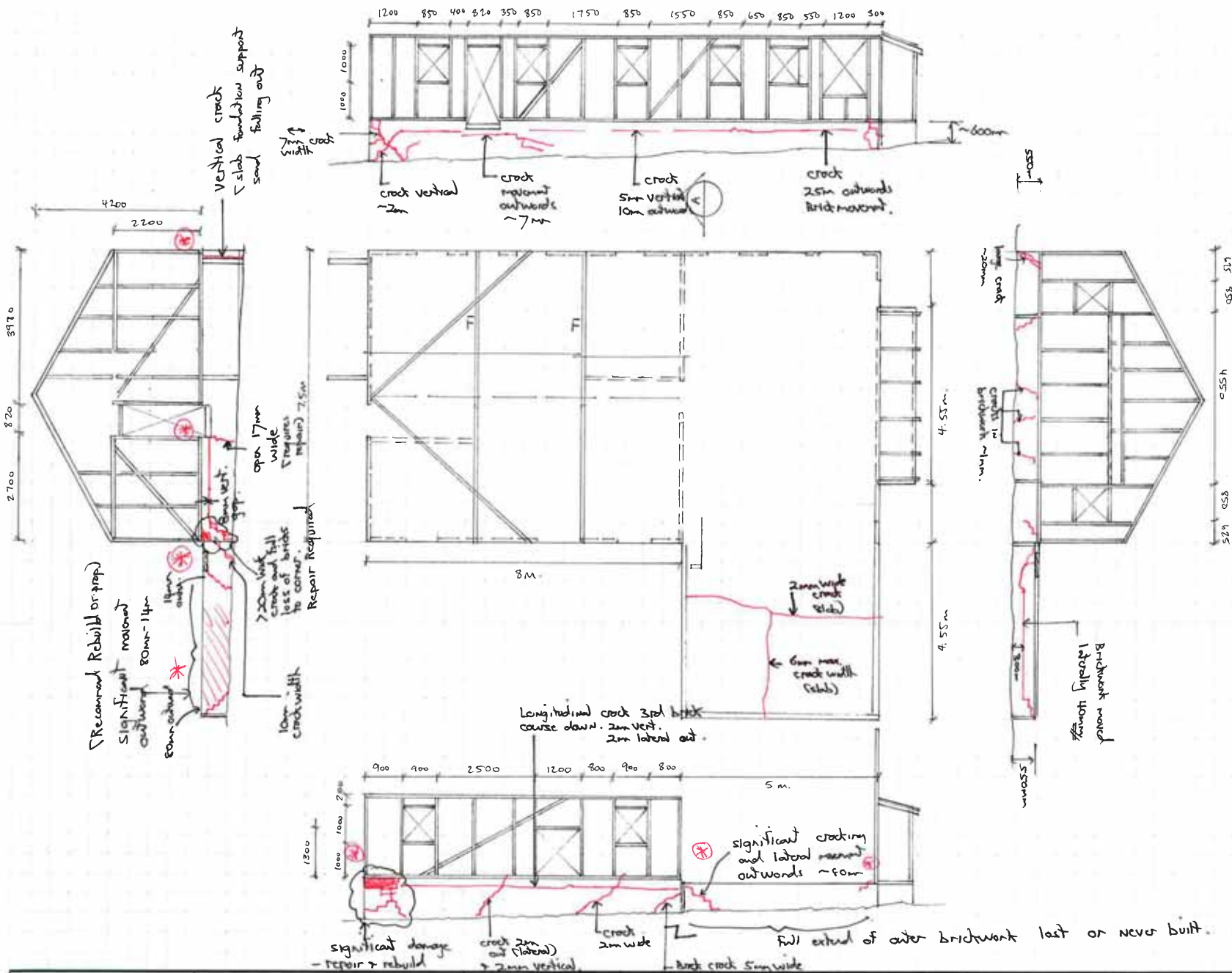


Alternatively provide small diagonal props at 2m centres to support wall.

Brickwork repairs circled in Red




 <div>BLIGH TANNER CONSULTING ENGINEERS</div> <div>LEVEL 3, 269 WICKHAM STREET PO BOX 812 FORTITUDE VALLEY QLD 4006 AUSTRALIA T 07 3251 8555 F 07 3251 8599</div>	REV	DATE	DESCRIPTION	DRAWN	DESIGN	APPROVED	PROJECT	DRAWING TITLE	SCALES
				AC			BUGGA RAFT BASE	BLDG PLAN, ELEVATIONS, REPAIR SPEC.	1:100
				CHECKED	CHECKED	RPEQ	LOCATION	ARCHITECT	JOB NO
				SK			Singdon	Brickwork Repairs.	2012.288.3
			DATE	DATE	DATE	CLIENT	ASSOCIATE CONSULTANT	DRAWING NO	REVISION
			28/11/12					SK 1.0	A



LEGEND
TI TIMBER TRUSS

Brickwork Repair Required

Note
Crack width
Approximate only

 BLIGH TANNER CONSULTING ENGINEERS LEVEL 9, 269 WICKHAM STREET, PO BOX 612 FORTITUDE VALLEY QLD 4006 AUSTRALIA T 07 3251 8555 F 07 3251 8599	REV	DATE	DESCRIPTION	DRAWN	DESIGN	APPROVED	PROJECT	DRAWING TITLE	SCALES
	CHECKED			CHECKED		R.P.E.G.	Bulga RAAF Base Kitchen Building	Brickwork Crack Log	1:100
	DATE			DATE		DATE	LOCATION	ARCHITECT	JOB NO
							Crack Log (Brickwork)	ASSOCIATE CONSULTANT	2012.288.300
							CLIENT		DRAWING NO
									REVISION

Annex C

Great North Road CMP



Great North Road


Heritage Management Plan

For Rio Tinto Coal Australia

November 2013

0175782.01

www.erm.com

Approved by:	Tina King
Position:	Project Manager
Signed:	
Date:	27 November 2013

Approved by:	Chris Pratt
Position:	Partner Director
Signed:	
Date:	27 November 2013

Great North Road

Heritage Management Plan

Rio Tinto Coal Australia

11/13

0175782_01

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Rio Tinto Coal Australia

Great North Road
*Conservation Management
Plan*

November 2013

Reference: 0175782.01

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INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Rio Tinto Coal Australia (RTCA) in August 2012 to undertake historical and physical archaeological investigations along a portion of Wallaby Scrub Road (the Study Area) near Warkworth, NSW, as part of the Warkworth Mine Extension project in the Hunter Valley.

Wallaby Scrub Road forms part of the early alignment of the Great North Road (GNR) between Warkworth and Broke, which was surveyed in 1829.

1.1

BACKGROUND

The Warkworth Mine Extension Environmental Assessment in April 2010 assessed the potential impacts of the proposed extension on the historic heritage values of Wallaby Scrub Road. Closure of this road had been proposed as part of the mine expansions.

1.1.1

Conditions of Proposed Works

In February 2012 Coal & Allied was granted approval (PA_09_0202 by the NSW Planning Assessment Commission to extend mining within its existing Warkworth lease, extending the operation of the mine by 21 years to 2033. A number of development consent conditions relating to the GNR were subsequently specified which included:

62. By the end of March 2013, unless the Director-General agrees otherwise, the Proponent shall carry out further historical and physical archaeological investigations on site in relation to the Great North Road to the satisfaction of the Director-General. These investigations must:

(a) be undertaken by suitably qualified and experienced persons whose appointment has been endorsed by the Director-General, and in consultation with the Department and OEH;

(b) use a suitable methodology for the archaeological investigation (to identify significant remnant road fabric);

(c) provide for the detailed analysis of any heritage items discovered during the investigations;

(d) include management options for these heritage items (including options for relocation); and

(e) if the findings of the investigations are significant, provide for the preparation and implementation of a heritage interpretation plan.

After the commencement of the fieldwork component of this project, this approval was overturned by the Land & Environment Court in April 2013. Despite this ruling, this report has been finalised so that the results may inform future management strategies & provide the wider public with further information regarding this section of the Great North Road.

1.2 OBJECTIVES

The primary objective of this Conservation Management Plan (CMP) is to fulfil the requirements of *Section 62* (specifically c and d) of the Director-General's development consent conditions which require comprehensive survey of the Study Area to identify and assess extant historical features, and provide advice as to how the heritage values are best managed for the future.

1.3 STUDY LOCATION

The portion of the GNR which is the subject of this HMP (the Study Area) is approximately 8 km in length along Wallaby Scrub Road, sited directly west of the Warkworth mine, between Warkworth and Bulga, NSW. The town of Singleton lies approximately 20 km to the north-east. The Study Area is shown in *Figure 1.1*.

1.4 METHODOLOGY

This report has been prepared in accordance with the *NSW Heritage Act 1977* (Heritage Act) and the national best practice guidelines for cultural heritage management, the Australia ICOMOS Charter for Places of Cultural Significance – the Burra Charter.

The methodology for the specific tasks is outlined in further detail below.

1.4.1 Desktop Assessment

A desktop assessment was undertaken to understand the history and significance of the Study Area. This included searches of National, State and Local heritage registers and databases, and reviews of existing cultural heritage studies and publications regarding the GNR.

1.4.2 Consultation

Consultation was undertaken during both the desktop assessment and site investigation phases and included the following parties:

- RTCA Community Heritage Advisory Group (CHAG);
- Convict Trail Project;

- New South Wales Heritage Office; and
- NSW Roads and Maritime Services (RMS).



1.4.3 *Site Investigation*

A pedestrian survey of the Study Area was undertaken over two days, from the 4th to the 5th of December 2012. The survey team inspected the eastern side of the road on the first day, and the western side on the second day. Areas of known realignments such as the northern cutting and southern approach to Putty Road were targeted.

Historic features were recorded by a GIS specialist using differential GPS. Digital photographs were also taken along the road, and areas of archaeological potential noted.

1.4.4 *Assessment*

Following site investigation, ERM undertook an assessment of the data captured in the field, focussing on identified features. Significance assessment was then undertaken against the NSW Heritage Act criteria and in accordance with the NSW guideline “*Assessing Heritage Significance*” (NSW Heritage Office 2001) which includes threshold guidance for the inclusion and exclusion of places.

1.5 *LIMITATIONS*

Research has been limited by availability of previous reports of archaeological work undertaken along other parts of the road and availability of documentation from the Department of Roads and Maritime Services (RMS).

Due to health and safety concerns of working within a road reserve and in close proximity to a working mine, the site survey was also limited by ability to survey areas close to the current road alignment in many areas.

1.6 *HERITAGE STATUS*

The Devine’s Hill and Finch’s Line sections of the GNR were inscribed in the World Heritage List in 2010, as part of the Australian Convict Sites World Heritage Property. These sections of the GNR are known as the “Old Great North Road” (OGNR), and is located outside of the study area.

The Devine’s Hill and Finch’s Line sections of the GNR are also inscribed on the National Heritage List (Place Identifier #105961). The Study Area is not included in this listing.

Sections of the GNR are included in the NSW Heritage Register. These are the section of the road between Mt Manning and Wollombi, and the section of the road between Devine’s Hill and Mt Manning, both in the Hawkesbury Local Government Area (LGA). The Study Area is not included in any of these listings.

A number of sections of the GNR are included in Local Government heritage lists; however the Study Area is not included in any of these listings.

Parts of the GNR between Mount Manning and north to Payne's Crossing, Wollombi, Wiseman's Ferry and parts along St Albans Road near the Hawkesbury River were included in the Register of the National Estate in the late 1970s and early 1980s. The Study Area is not included in these listings.

1.7 LEGISLATION

1.7.1 Heritage Act 1977 (NSW)

The *Heritage Act 1977* protects the natural and cultural history of NSW with emphasis on non-indigenous cultural heritage through protection provisions and the establishment of a Heritage Council. The *Heritage Act 1977* provides blanket protection for subsurface relics and for heritage items of state significance listed on the State Heritage Register (SHR).

In NSW, assessments of heritage significance are guided by the principles of the *Burra Charter (1999)* (*the Australian ICOMOS Charter for places of Cultural significance*) and the Heritage Office's publication *Assessing Heritage significance* (2001).

The Heritage Office of NSW considers that an item will be considered to have State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

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

The Act defers to local planning instruments under the *Environmental Planning & Assessment Act 1979* for the protection of items of local significance ('items of the environmental heritage').

While Aboriginal heritage sites and objects are protected principally by the *NPW Act 1974*, if an Aboriginal site, object or place is of great significance it can be protected by a heritage order issued by the Minister on the advice of the Heritage Council. However, the Heritage Act does not apply to Aboriginal heritage items found within the study area.

1.7.2

Singleton Shire Council Local Environmental Plan 1996 and Draft Local Environment Plan 2013

The Study Area is not presently included in the *Singleton LEP, Schedule 3 Heritage Items* or the *Draft Singleton LEP 2013 Schedule 5 Environmental heritage: Part 1 Heritage Items*.

The inclusion of a property on such a schedule can impose certain restrictions as development is subject to heritage codes. Regulation 22 of the LEP lists its controls in terms of identified heritage places:

(1) A person shall not, in respect of a building, work, relic, tree or place that is a heritage item:

- (a) Demolish or alter the building or work, or
- (b) Damage or move the relic, or excavate for the purpose of exposing the relic, or
- (c) Damage or despoil land on which the building, work or relic is situated or land which comprises the place, or
- (d) Erect a building on or subdivide land on which the building, work or relic is situated or on the land which comprises the place, or
- (e) Damage any tree on the land on which the building, work or relic is situated or on the land which comprises the place, except with the consent of the Council.

(2) The Council shall not grant consent to a development application unless it has made an assessment of:

- (a) The significance of the item as a heritage item, and
- (b) The extent to which the carrying out of the development in accordance with the consent would affect the heritage significance of the item and its site, and
- (c) Whether the setting of the item and, in particular, whether any stylistic, horticultural, or archaeological features of the setting should be retained, and

(d) Whether the item constitutes a danger to the users or occupiers of that item or to the public, and

(e) Measures to be taken to conserve heritage items, including any conservation plan prepared by the applicant.

Regulation 27 also states that the Council will not permit development on land in the vicinity of a heritage item unless an assessment of the effect the carrying out of that development will have on the heritage significance of the item and its setting has been made.

1.8

AUTHORSHIP

The primary author of the CMP was ERM Senior Heritage Consultant, Tina King. ERM Heritage Consultant, Holly Maclean, undertook the research and prepared the history, while advice regarding the modern construction and condition of the road was provided by Bligh Tanner Principal Structural Engineer, Simon Kochanek. Principal Heritage Architect, John Hoysted undertook technical review and Partner in Charge, Chris Pratt undertook QA review of the CMP.

1.9

ACKNOWLEDGEMENTS

ERM gratefully acknowledges the following people who provided valuable assistance in the CMP process:

- David Cameron, Manager Community Relations (QLD) and Cultural Heritage, RTCA;
- Joel Deacon, Specialist Cultural Heritage NSW, RTCA;
- Gary Pappin, Heritage Advisor NSW, RTCA;
- Georgia Bennett, Graduate Cultural Heritage NSW – RTCA; and
- Elizabeth Roberts, Executive Director Convict Trail Project.

2.1

OVERVIEW

The GNR was constructed between 1826 and 1836 by a convict labour force of around 500-600 men. The road, which originally spanned around 250 km, was constructed to provide land access between Sydney and the Hunter Valley, and was the first of the three 'Great Roads' which radiated out of Sydney, constructed under the direction of Governor Ralph Darling, Governor of NSW between 1825 and 1831 (NSW OEH 2011; SEWPaC 2008).

Around 50% of convicts who worked on the GNR had some experience in the tasks required for road construction. Convict groups who worked on the road were known as 'road gangs'. Those who had committed more serious offences were required to undertake road construction wearing leg irons, and were known as 'iron gangs'. It is believed that around 18% of all transported convicts spent time in an iron gang (Rosen 2006 in SEWPaC 2008).

A map of the GNR is presented at *Figure 2.1*.

2.2

CONVICTS AND CONVICT GANGS

As Britain's jails became more and more overcrowded in the 1700s, British authorities realised that the threat of incarceration was not deterring would-be criminals. In 1718 the *Transportation Act* was introduced, enabling the authorities to sentence criminals to transportation to a British Colony overseas (Vaver 2008). Transportation of convicts was viewed as a way to deter crimes in Britain, serve as an alternative to execution of serious offenders, reform criminals by sending them far from home and engaging them in hard labour, and also provide a free workforce to establish and improve Britain's Colonies and make them more useful to Britain (Nicholas 1988 in Australian Government 2008; Vaver 2008).

During the first few decades of transportation, upon arrival in Sydney, those convicts with special skills were assigned to public works projects, such as bridge building, construction of public buildings, farming and milling timber. Skilled convicts became valuable to the Colony, and were permitted to undertake odd jobs in their spare time, to earn some extra money. Those with non-specialised skills were assigned to free settlers to undertake manual labour tasks. (Convict Trail n.d; Australian Government 2008).

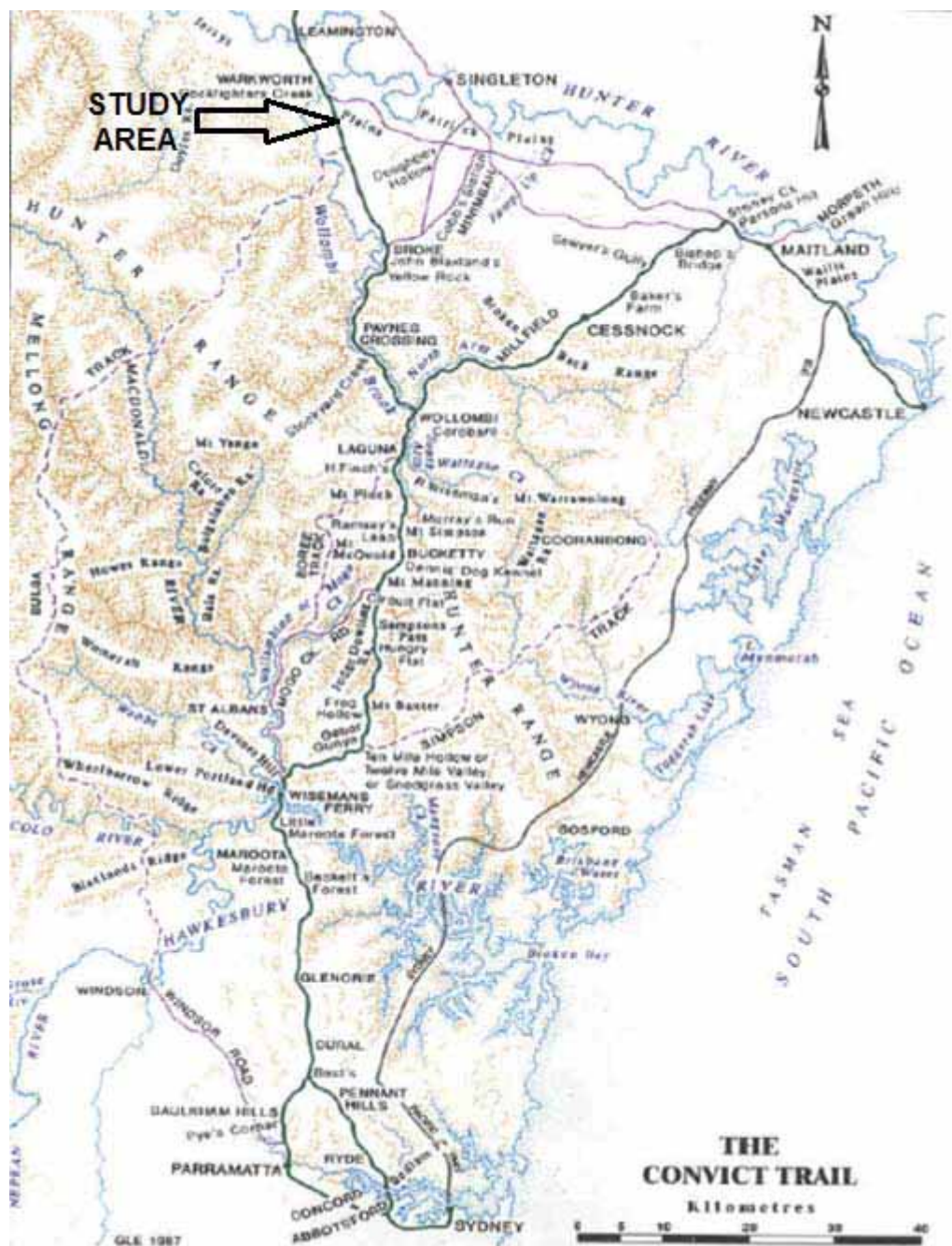


Figure 2.1 *Map of the Great North Road from Sydney to Wollombi, with branch lines to Newcastle and Warkworth (RTA n.d)*

In the early 1800s, John Thomas Bigge, English judge and royal commissioner, was tasked with travelling to Australia and reporting on the state of the Colonial Government, including commentary on the success of the convict system as a deterrent to crime (Bennett 1966). One of the outcomes of Bigge's three volume report was that the act of transportation alone was not punishment enough, and upon arrival in the Colony more rigorous discipline was needed to truly instil the fear of transportation in Britain's criminals (National Museum of Australia n.d; Bennet 1966). This report brought about the concept of 'secondary punishment', and inspired Governor Darling to establish the 'gang system' in the early 1820s (Karskens 1982).

Convicts could be assigned to road gangs, timber getting gangs, lime burning gangs and public works gangs (Australian Government 2008). Those displaying the worst behaviour were often made to wear irons while undertaking work (the 'iron gangs'), which were generally around 4 kg, or heavier for more serious offenders (SEWPaC 2008). There were around 60 men in each iron gang, supervised by a principal overseer and three assistants (SEWPaC 2008). The iron gangs initially slept in rough huts, later in cramped stockades which resembled a small village with fenced barracks for convicts, surrounded by sentry huts, guard rooms and the barracks of the overseers with high fence and tiered sleeping spaces. The stockades were constructed along the length of the road then dismantled and the materials reused or sold as the gang moved along the road (SEWPaC 2008).

Sometimes the iron gangs were housed in portable wooden houses in which 20 men would sleep, 10 men each in two tiers (see *Figures 2.2 and 2.3*). The houses could be pulled along the road to wherever the gang was next stationed, and reduced time and costs associated with constructing stockades.

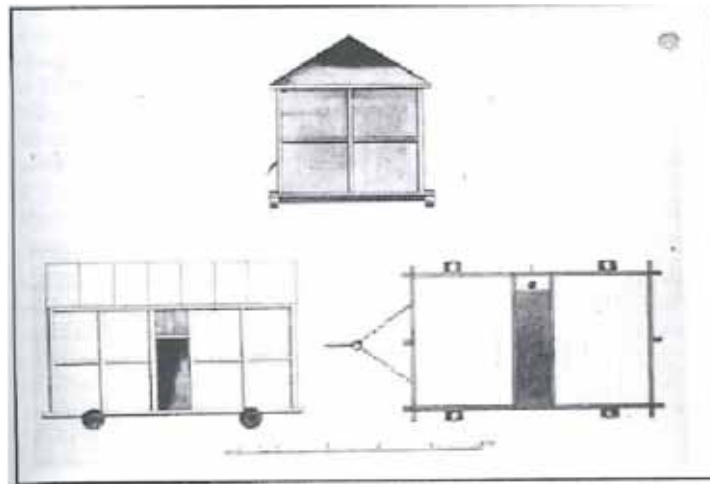


Figure 2.2 Sketch of the portable wooden box to house iron gangs (Karskens 1984)

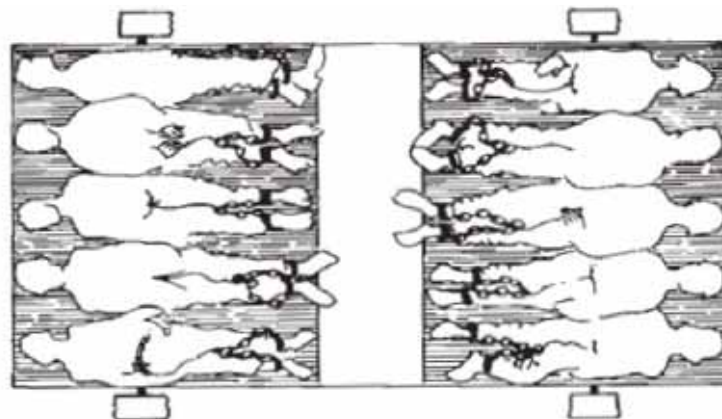


Figure 2.3 Sleeping arrangements for convicts in the portable wooden box (Government of Australia 2008)

Living in such close conditions led to regular outbreaks of illness and disease, including dysentery, whooping cough, influenza and trachoma. These were in addition to injuries caused by the works, including sunburn, heatstroke, dehydration, crushed or bruised limbs and injured backs (Roberts 2006b).

Those who were better behaved or serving time for less serious offences were assigned to road parties, constructing the road unimpeded by leg irons. These gangs comprised around 50 convicts, who were of an average age of 23, and were generally serving minimum sentences of seven years, primarily for property crimes (Rosen 2006 in SEWPaC 2008). These gangs were supervised by a principal overseer and two assistants. The most skilled and best behaved convicts were assigned to bridge parties, of around 25 men with a single overseer. This system of gradation enabled prisoners to move between ranks, including the possibility of the prisoners to be 'rewarded' for good work and behaviour (SEWPaC 2008).

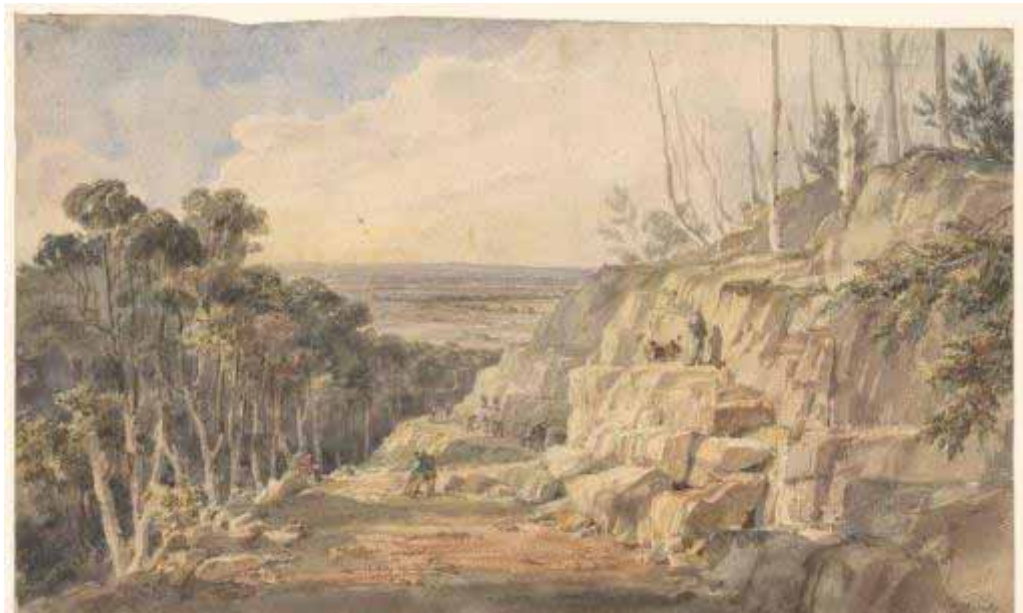


Figure 2.4 *Convicts in a road gang constructing a road in NSW (Rodius 1833 at National Library of Australia)*

The unironed road and bridge gangs were housed in huts, and it is understood that in the Wollombi District the huts comprised upright split log slabs with a mixed covering of bark and thatch, and the men slept on sheets of bark on the floor (SEWPaC 2008; Maitland Mercury 1844 in Webb 2003). The huts were time consuming to erect, so in 1828 the convicts were issued with bullock hide tents instead (Webb 2003).

The conditions the convicts worked under were harsh and isolated. They received food rations that barely sustained them for the arduous road building tasks, including quarrying sandstone, clearing trees, carrying and breaking up rocks, grading and constructing masonry walls and constructing drains (Australian Government 2008; Roberts 2006a). Tools and equipment were minimal, those who misbehaved were routinely flogged, and many convicts

fled if the opportunity presented itself, sometimes becoming bush rangers (SEWPaC 2008). When convicts died in the gangs, they were either sent for burial at the nearest settlement, or buried near their camp or stockade. Burials were generally unmarked (Webb 2003).

2.3

EARLY FREE SETTLEMENT IN THE SYDNEY – HUNTER VALLEY REGION

The first free settlers to the newly established Colony of New South Wales arrived in 1793 (SEWPaC 2008). At the time, the Colonial Government's primary use for Australia was a penal settlement, but gradually began to encourage population of the Colony by free settlers. In order to ensure survival and growth of the Colony, establishment of farms and provision of food was an essential venture, and farmland was gradually expanded to the south and west in conjunction with investigation of new overland routes (SEWPaC 2008).

Sea voyages to explore lands north of Sydney resulted in the establishment of a penal settlement at King's Town, now known as Newcastle, in 1804, for convicts found guilty of re-offending whilst in the Colony (SEWPaC 2008). The convicts were put to work acquiring coal, timber and lime to send to Sydney (Bill Jordan and Associates 2006). The location was considered ideal for a penal settlement, as it was only accessible by sea.

The lands of the Hunter Valley around Newcastle had been identified as lush and fertile, with alluvial soils suitable for a range of agricultural pursuits. Free settlement of the Hunter Valley had been disallowed due to the presence of the penal colony. Further, there was no land access between Sydney and the Hunter Valley. However, the need for more land for settlement led to some areas to the north and west of Newcastle opened in 1817-1818, including Wallis Plains (Maitland), and also around Jerry's Plains (around Warkworth). Grazier John Howe discovered a land route in 1819 from Jerry's Plains that accessed settlements at Windsor, north of Sydney. This route was officially opened in 1823 as Bulga Road, and is now known as Putty Road (Karskens in Lavelle, Karskens and RTA Technology 2005).

By 1821 the population of the New South Wales Colony had grown to 29,783 and more than half of those lived in Sydney. More farming land was needed to sustain the growing population. This was solved by closing the penal settlement at Newcastle in 1822, following ongoing reports that convicts were escaping the penal settlement and using the Bulga Road to travel to Sydney (Karskens 1985). The convicts were sent to Port Macquarie and Brisbane, and the Hunter was opened to free settlers (SEWPaC 2008). Some convicts were retained in the Hunter region, tasked with building roads and bridges to the new settlements (Bill Jordan and Associates 2006). The lands of the lower Hunter Valley became rapidly dominated by small agricultural holdings, whereas the upper Hunter with its drier conditions became dominated by large pastoral estates (Karskens in Lavelle et al 2005).

With the influx of settlers, Bulga Road soon proved inadequate to deal with the increased traffic between Sydney and the Hunter Valley. The only other way to access the Hunter Valley was via sea to Newcastle, which was considered an inconvenient and risky undertaking (Karskens 1982). The settlers began petitioning Governor Darling for a road. In 1825 Assistant Surveyor Heneage Finch was tasked with surveying an overland route between Sydney and Newcastle, which would ultimately become known as the GNR (SEWPaC 2008).

2.4

CONSTRUCTION OF THE GREAT NORTH ROAD

At the turn of the 18th Century, engineers and surveyors in England and Europe became interested in ways to advance road construction technology, through increasing recognition of the flaws of traditional convex earth roads, including rutting, sinking and decomposing (Karskens in Lavelle et al 2005). The technological improvements included more effective drainage and long-wearing pavements, supported by development in road planning techniques. These concepts influenced British surveyors who applied them in the Australian context (Karskens 1985).

The creation of the GNR was initiated by Governor Ralph Darling, Governor of NSW between 1825 and 1831 (Australian Dictionary of Biography Online n.d). He was inspired by the Great Roads radiating out of London, England, and promoted the ideas of expansion and exploration via road (Griffin NRM 2005). The Colonial Government during c1813 to c1830 were focussed on the future of the Colony of NSW, including exploring land, establishing broader settlement, and developing a sense of permanency for the new Colony. Three great roads were constructed in NSW, radiating west, south and north from Sydney, with the latter becoming the Great North Road, and thereby representing the Colonial Government's desire for expansion and permanency (SEWPaC 2008; Karskens 1982).

The route surveyed by Finch for the GNR went from Baulkham Hills, west of present day Sydney, to Wollombi in the Hunter Valley, via Wiseman's Ferry at the congruence of the Hawkesbury and MacDonald Rivers before continuing to Maitland (Karskens 1982).

In 1827 Surveyor-General Mitchell undertook re-survey of the majority of the Great North Road alignment. Mitchell was fixated on the idea that the best roads were the straightest ones, and thereby also formed the quickest route (Karskens in Lavelle et al 2005). He implemented a range of deviations in the original alignment, between Ten Mile Hollow (formerly Twelve Mile Hollow) and Wollombi, and around Hungry Flat and Sampson's Pass (Karskens in Lavelle et al 2005). After inspecting the ascent from Wiseman's Ferry along Finch's Line, he determined that the route was too steep, and not straight enough. The road was ordered to be redirected, to follow Devine's Hill, and required significant cutting and blasting of solid rock and the construction of a

massive retaining wall supported by five buttresses (NSW OEH 2011; SEWPaC 2008; Karskens in Lavelle et al 2005).

As a result of these surveys, in 1829 – 1830 the road was extended from Wollombi to Broke, then via branch lines to Patrick's Plains (Whittingham) and Cockfighters Creek at Warkworth, the latter of which includes the Study Area (Nexus Archaeology and Heritage 2006; Bill Jordan and Associates 2006; Karskens 1982) (refer to map, *Figure 2.5*). The road to Whittingham, however, was never used. Land for a town reserve was allocated, but never developed as travellers preferred to take a route through easier terrain to the existing accommodations at Benjamin Singleton's Plough Inn. Consequently the town of Singleton was established (Karskens 1982).

Captain William Dumaresq, who resided at Jerry's Plains at the time of construction of the GNR, stated that the route passed through areas of great opportunity for development of the Colony. He considered the Hawkesbury area '*of abundance*', the Hunter Valley as '*the future garden of the Colony*', and that the Wollombi region '*will be one of the most pleasing in the Colony...when the present uncultivated wilderness is exchanged for the cheerful pursuits of rural industry*' (Karskens 1985).

The first works on the GNR commenced in September 1826, by two convict road gangs posted at Castle Hill. In 1827, gangs were sent to Newcastle to begin working on the northern reaches of the road, and to Wiseman's Ferry to construct the central portions of the road, and in 1830 gangs were constructing the road around Wollombi under the supervision of Henneage Finch (Karskens in Lavelle et al 2005). A convict road party was sent to Warkworth that same year, to commence construction of the road towards Broke (Nexus Archaeology and Heritage 2006; Bill Jordan and Associates 2006).

The road was suitable for horse and cart traffic, and was constructed in a variety of ways, responding to the terrain. If the land was reasonably level, minimal work was undertaken, including clearing followed by laying of a broken stone pavement. The pavement used in New South Wales was introduced by Edmund Lockyer, Surveyor of Roads and Bridges, and was a mixture of the two most acclaimed road technologies employed in Britain at the time. It was to be built above the level of the surrounding ground to encourage drainage, and comprised of a base of whinstone or ironstone, broken to a gauge of 38-51 mm (1.5-2 inches), laid 152.4 mm (6 inches) deep and 6.4 m (21 feet) wide. The wearing surface comprised a coat of ironstone gravel, screened to remove soil (Karskens in Lavelle et al 2005:9).

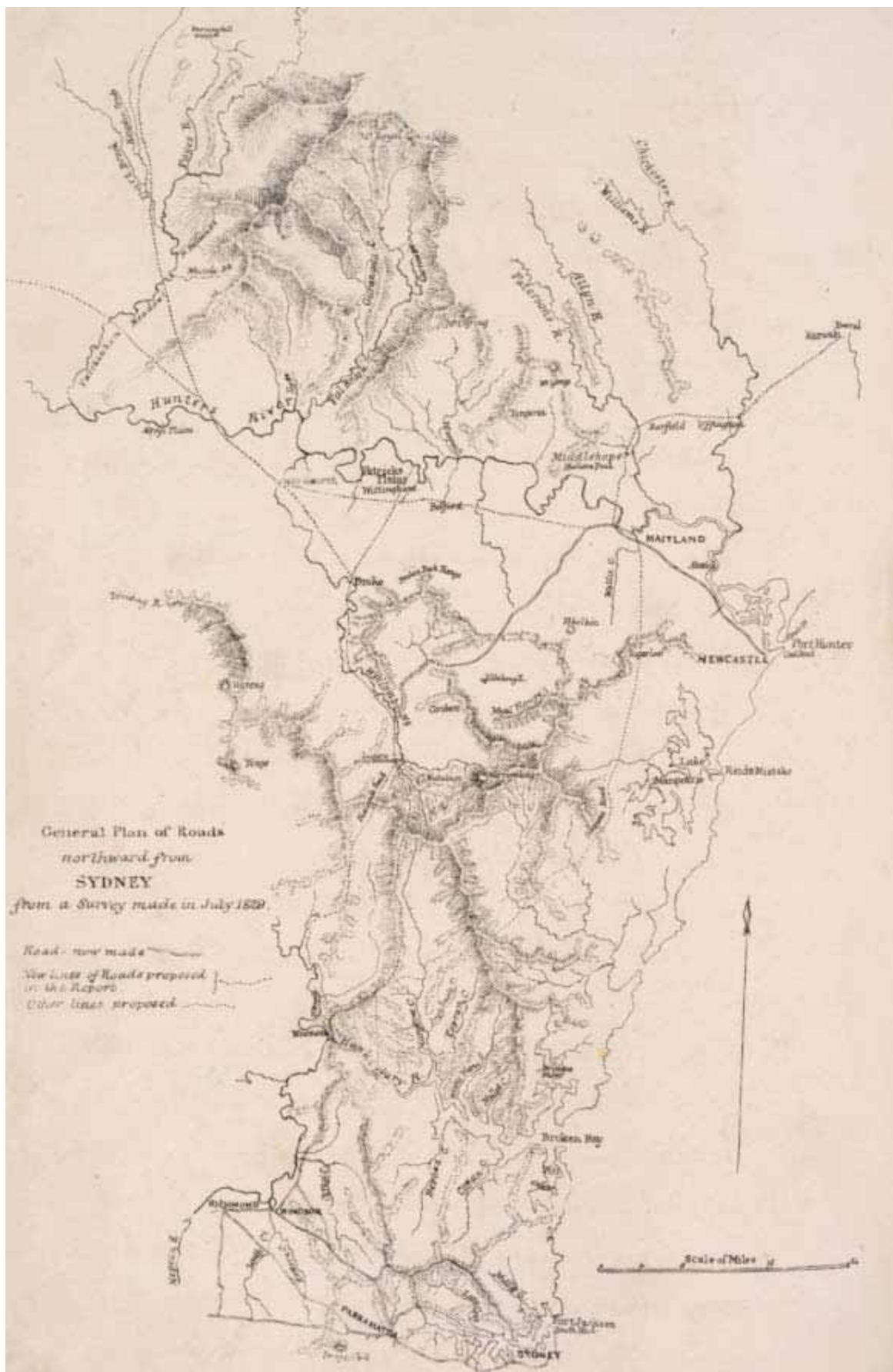


Figure 2.5 General Plan of Progress of Roads showing proposed route between Broke and Warkworth, Sir Thomas Mitchell, July 1829 (State Library NSW a1480022)

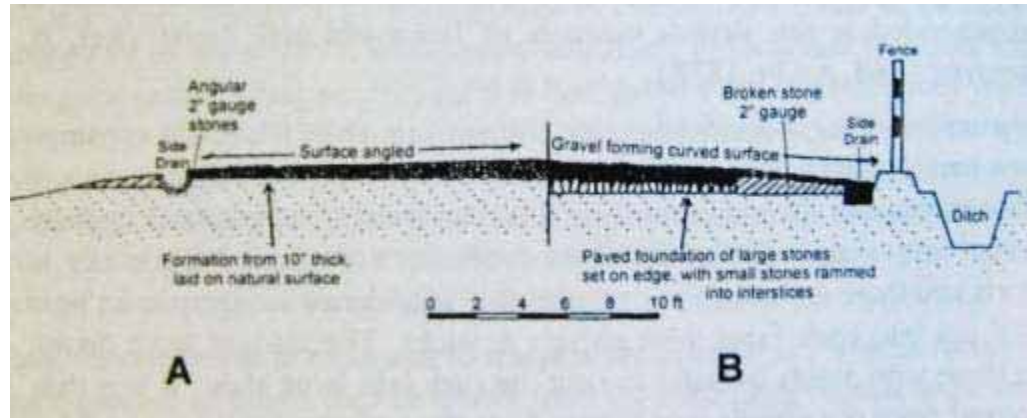


Figure 2.6 *Cross-section of the recommended pavement, according to British design (Karskens 1985)*



Figure 2.7 *Showing coarse aggregate base of the original pavement at Devine's Hill. The surface layer has eroded away (Young 2007: Figure 29)*

If the road sloped from one side to the other, after clearing the convicts would either embank the lower side or cut the higher side. Where very steep slopes existed, cutting was undertaken, and the cuttings were then generally used for the embankment. This activity was usually undertaken simultaneously (Karskens 1985 in SEWPaC 2008). Where small slopes required reducing the rock was hand-cut with chisels or picks, whereas hewing the rock by using iron wedges and mauls to split the rock was undertaken on larger faces (SEWPaC 2008). Sometimes blasting was required, by inserting a jumper bar into the rock face, inserting blasting powder and a wick of touchpaper,

tamped down with clay. Blasting would be undertaken in successive layers, until the desired level was reached, and often the quarried stone was used for retaining walls and drains (Karskens 1985 in SEWPaC 2008).

Dry-laid sandstone retaining walls were constructed to support the road, some as low as 30 cm, reaching to 9.5 m high in others (see *Figure 2.9*) (SEWPaC 2008; (Karskens in Lavelle et al 2005). Where backing fill was required, this was comprised a mixture of earth and stones (Karskens 1985). Constructed in conjunction with the massive retaining walls was an intricate drainage system, including culverts, which passed under the road where required (primarily box culverts, generally of sandstone but also timber) and side drains designed to redirect water away from the pavement, and to deter waterlogging of the foundations which would speed up deterioration of the walls (SEWPaC 2008).



Figure 2.8 *Showing pavement and side drains at Devine's Hill section of the Old Great North Road (SEWPaC 2007)*



Figure 2.9 *Example of retaining wall and culvert, Wiseman's Ferry section of the Old Great North Road (SEWPaC 2007)*

The initial construction works were undertaken under the supervision of Lieutenant Jonathon Warner, followed by Lieutenant Percy Simpson, who undertook rebuilding and improving of the earlier works and the road began to have the appearance of a fine and permanent road (Karskens in Lavelle et al 2005). It was under the supervision of Lieutenant Simpson that the road became officially known as the GNR.

The majority of the road construction works were completed by 1832, and the convicts moved on to other roads, including branch lines between Wallis Plains, Patrick's Plains and Singleton. By 1833 there were two road gangs and a bridge gang, completing the numerous crossings required across Wollombi Brook at Wollombi.

In 1834 the gangs had moved further north to Cockfighter's Creek at Warkworth. It is believed that limited further road or bridge work was undertaken between Wollombi and Warkworth after 1834, and some sections may have remained unfinished, due to the decline in the use of the road (Nexus Archaeology and Heritage 2006; Bill Jordan and Associates 2006).

The use of the GNR had decreased significantly by the mid-1830s. Mitchell's love of straight roads had resulted in the Great North Road bypassing existing settlements, and therefore very few if any places to rest during the four to five day journey. There was little grass available for bullocks, and no permanent water sources, and travelling along it was therefore too arduous (Convict Trail n.d). The introduction of regular steam ships in 1832 between Sydney and Newcastle and the creation of alternative overland routes led to the eventual disuse of the Great North Road (Karskens in Lavelle et al 2005).

An alternative route was constructed in 1844 around Peat's Ferry and became quickly regarded as a preferred route, and in 1884 another route from Wiseman's Ferry through St Alban's to Wollombi was opened (SEWPaC 2008). Finally, Peat's Ferry Road which had been opened in the 1840s was improved and proclaimed a Main Road in 1925, then further improved and opened as the Pacific Highway in 1930. This ended the GNR's importance as an overland route (Bill Jordan and Associates 2006).

Parts of the road remained in some use. Bulga Road was used as a land link, and was sealed in World War II and the name changed to Putty Road. Branch roads around Windsor and Sydney remained in use, and Simpson's Track became the main route between Sydney and Gosford in the 1920s (Karskens in Lavelle et al 2005). The first telegraph line between Sydney and Brisbane followed the GNR between Wollombi and Wiseman's Ferry c1860 (NSW OEH 2011). However, maintenance work on the telegraph line in the 1900s led to some destruction of the road as a result of graders and bulldozers, and the replacement of a number of wooden culverts with concrete pipes and headwalls (SEWPaC 2008).

Approximately 43km of the Road between Wiseman's Ferry and Mt Manning is undeveloped and intact, largely due to its early abandonment in favour of alternative routes (Griffin NRM 2005). Generally, the road surface is damaged throughout and in many places has been modernised (NSW OEH 2011; SEWPaC 2008). Extant convict-era structural features include buttresses, culverts, retaining walls and some of the oldest stone bridges in mainland Australia. There is also a range of extant evidence of the convict gangs which constructed the road, including basins and wells along the road, mile markers, lettering and drawings inscribed into the stonework, ruined hut sites and camp stockades, quarry sites and a powder magazine (SEWPaC 2008; Australian Government 2008).

Many parts of the GNR are closed to motor vehicles to minimise impacts and decrease its rate of deterioration. The Devine's Hill and Finch's Lane sections of the GNR were included with 11 other historic sites in the Australian Convict Sites World Heritage Property listing in 2010.

The Study Area alignment would have been surveyed by Mitchell in 1829 to 1830, when he was surveying for the extension of the GNR between Broke and Warkworth. Gangs were stationed at Cockfighter's Creek, and started constructing the road from Warkworth, heading south towards Broke.

Historical letters sent by Surveyor Laurence Dulhunty in the early to mid-1830s (NSW State Records) provide an insight into the activities of the convicts within the study area in 1833. Road Gangs 13, 14, 27 and 42 were stationed at Cockfighter's Creek between April and September 1833. They undertook a range of tasks, including cutting hills, quarrying and breaking stone, and moving and spreading earth. Between April and July, the gangs quarried 144 tons (around 144,000 kg) of stone, cleared around 0.35 ha of land, constructed around 2km of road which was 6.4 m wide.

2.6.1

Changes to the Road

Some minor changes have occurred to the road within the Study Area since its construction, primarily at the northern and the southern reaches of the road. The changes to the alignment at the northern and central portions of the road are discussed below, followed by discussion of the changes to the southern end.

The earliest available plan showing the road dates to 1891. It shows that the approach to Warkworth has a slight curve in the alignment (shown in *Figure 2.10*, circled), and a second slight curve further to the south at the boundary between Wollombi and Warkworth Parishes (shown in a square, *Figure 2.11*).

Northern Realignment

The northern bend in the road is not subject to modifications until the 1970s, when plans to straighten the road were being undertaken, as shown in *Figure 2.12*. By 1984 the changes in the northern part of the road had been undertaken, as shown in *Figure 2.13* in which the original curved alignment is becoming overgrown.

Central Realignment

In 1928 the alignment towards Warkworth has not changed, but the central section of the road appears to have been modified and widened, with a notation on the map of 'varying width' (refer *Figure 2.11*).

The central portion of the road is shown in 1963 at *Figure 2.14*, and demonstrates that the road alignment in this area was moved very slightly east. The road is further modified during the 1970s (refer *Figure 2.15*) and 1980s until it is ultimately straightened by 1994 (shown in *Figure 2.16*).

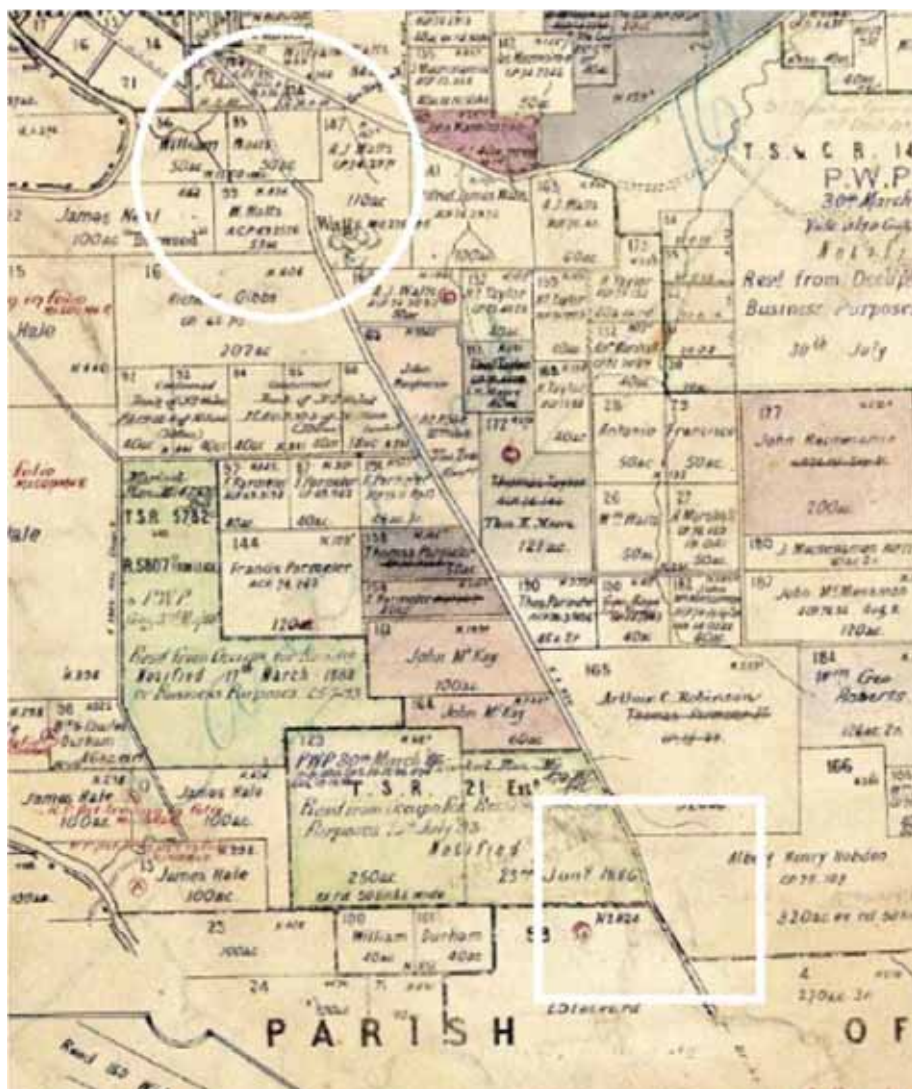


Figure 2.10 1891 Parish Map Showing the Great North Road (NSW Land and Property Information (NSW LPI))

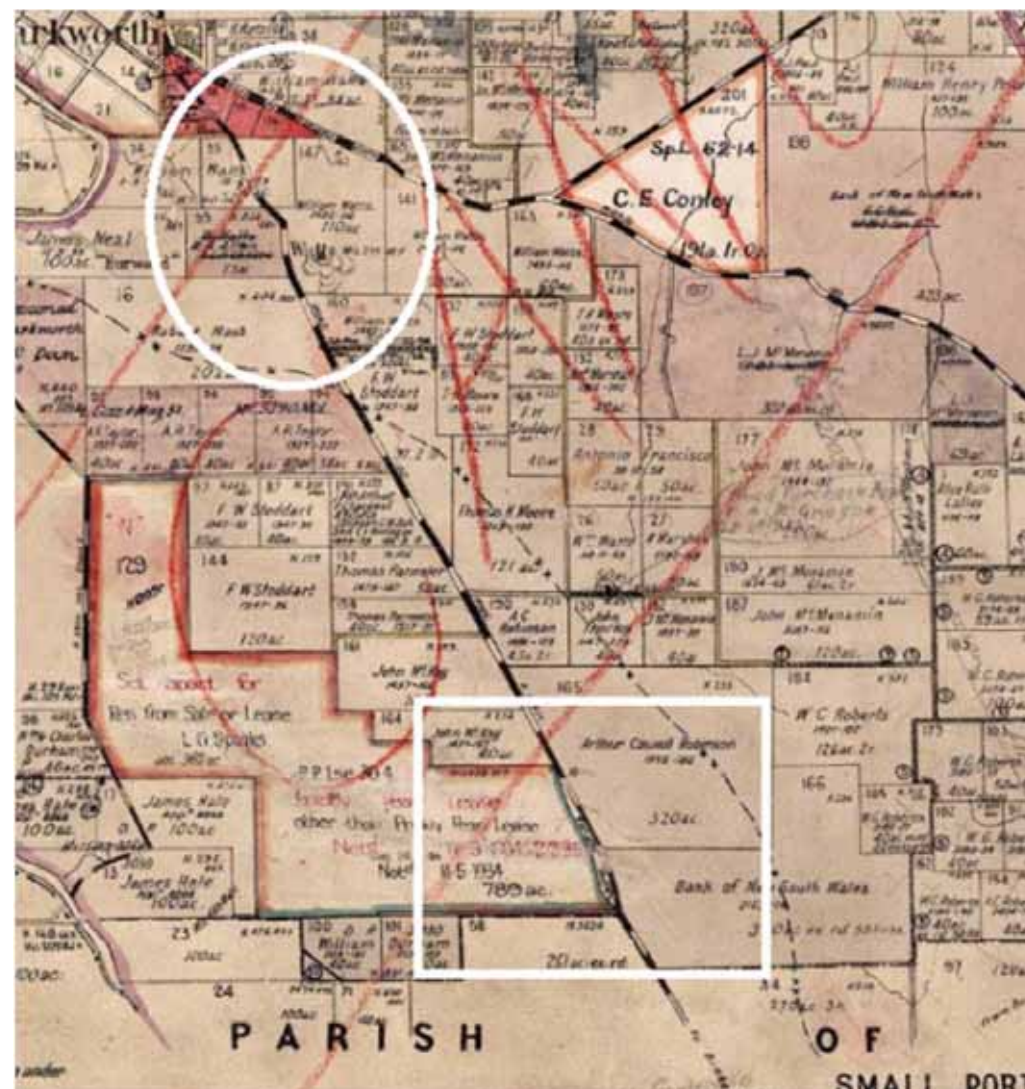


Figure 2.11 1928 Parish Map Showing Early Changes to the Great North Road Alignment (NSW LPI)

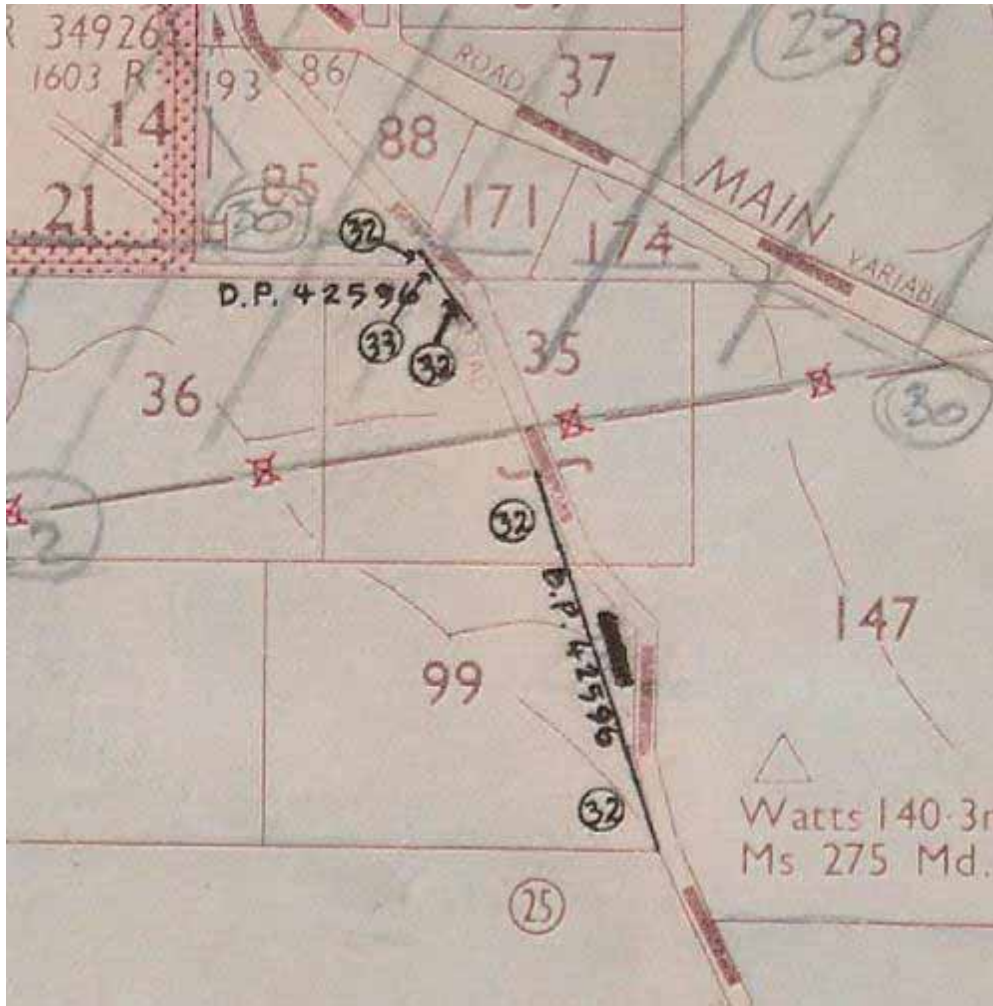


Figure 2.12 Plans to Straighten Parts of the Northern Reaches of the Road, 1976 (NSW LPI)



Figure 2.13 Showing Straightened Alignment, with Original Curved Alignment to the East, 1994

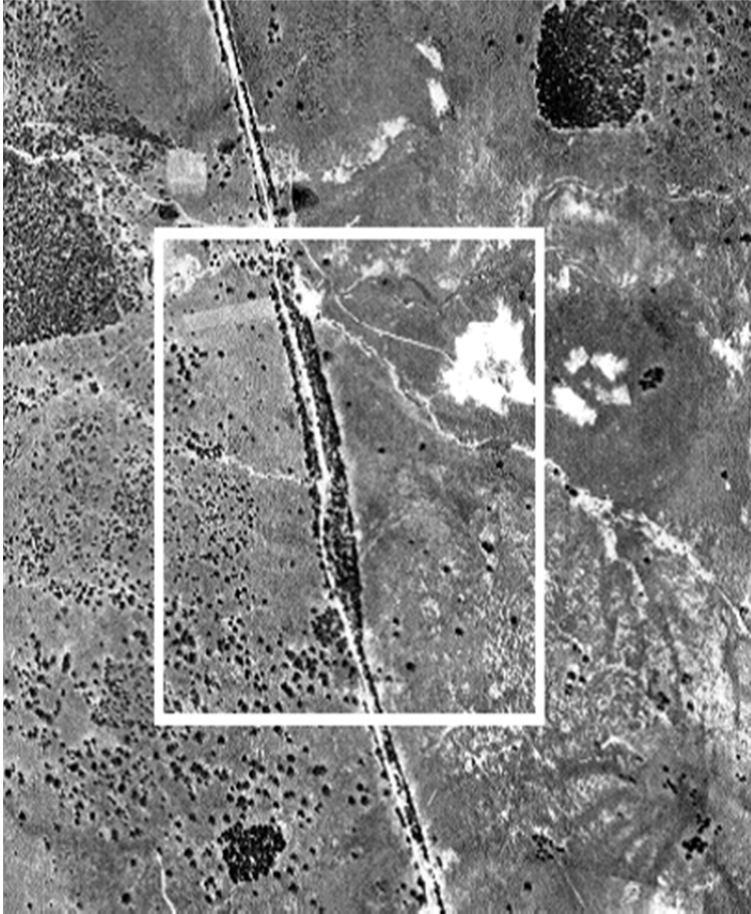


Figure 2.14 Showing Re-Alignment of Central Portion 1963 (NSW LPI)



Figure 2.15 Showing Activity at the Central Portion of the Road, 1974 (NSW LPI)



Figure 2.16 Showing the Straightened Alignment, with the Original Alignment becoming Covered with Regrowth, 1994 (NSW LPI)

Putty Road Realignment

The southern portion of Wallaby Scrub Road has also been modified, specifically the approaches to the intersection with Putty Road, as shown in Figures 2.17 – 2.20.

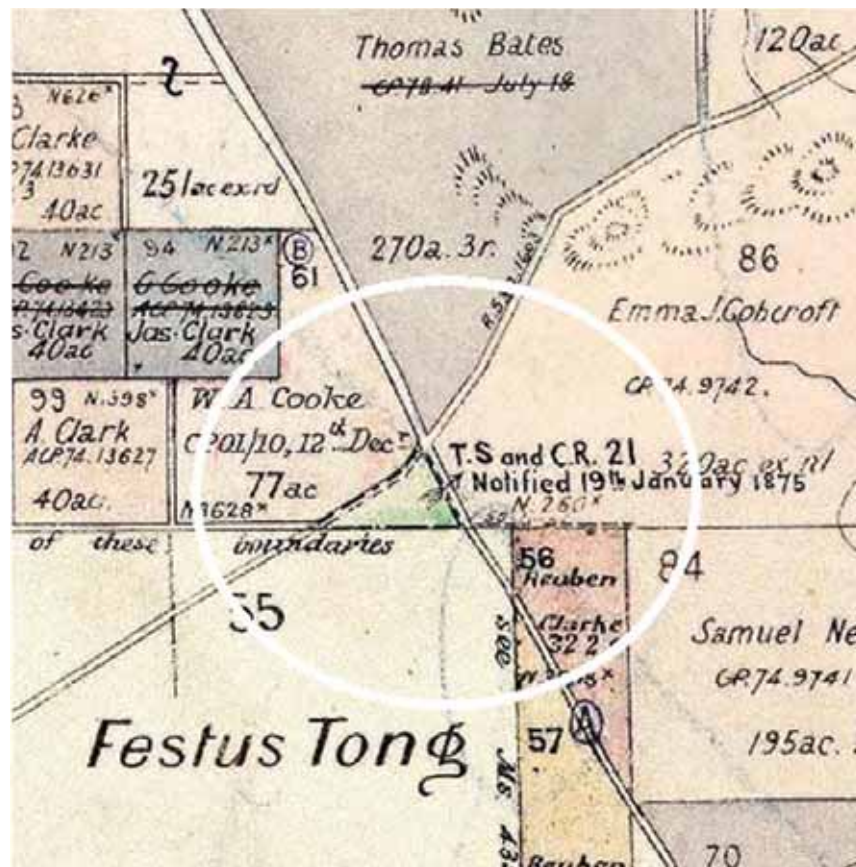


Figure 2.17 Four-way Intersection, 1891 (NSW LPI)



Figure 2.18 Planned Modifications to Intersection, 1969 (NSW LPI)

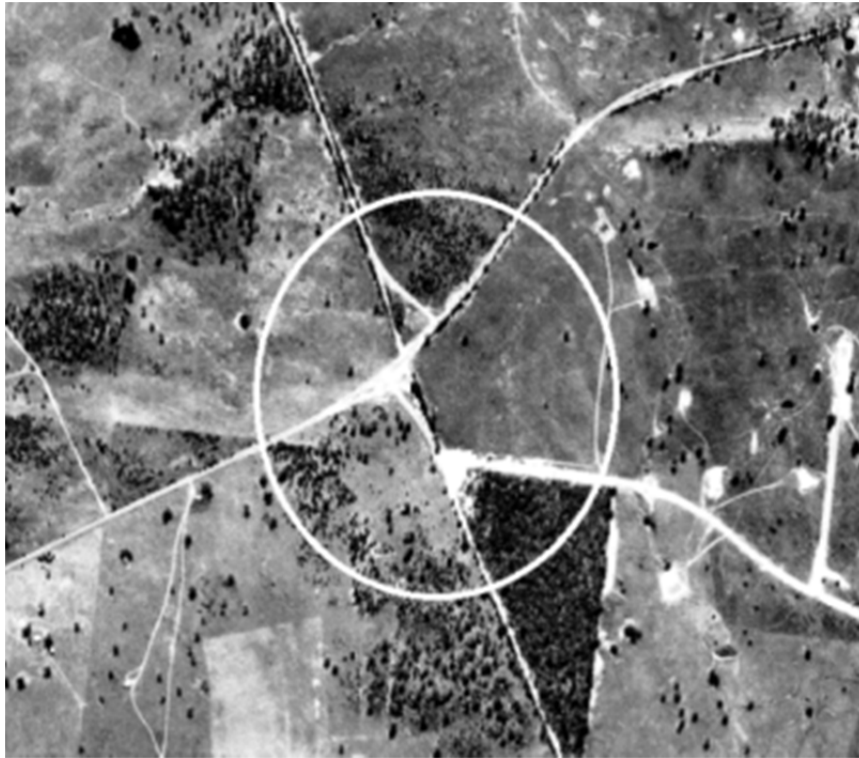


Figure 2.19 Showing Changes Occurring to Intersection, 1974 (NSW LPI)



Figure 2.20 Showing Original Alignment Abandoned and Covered with Regrowth, and New Sealed Alignment, 1994 (NSW LPI)

3 *DESCRIPTION*

3.1 *SURROUNDING CONTEXT*

The Study Area is located approximately 20 km south west of Singleton. The road is south of the Golden Highway and is bound by the Warkworth Mine to the east, and the former RAAF Bulga site to the west. A number of rural properties are also located along the road to the west.

3.2 *STUDY AREA*

The Study Area comprises a small portion of the northern section of the GNR at Warkworth in the Upper Hunter Valley. It comprises the whole of Wallaby Scrub Road from the intersection with the Golden Highway in the north, across Putty Road and onto Charlton Road in the south as shown at *Figure 1.1*. The total length of road is approximately 8 km.

3.3 *DESCRIPTION AND CONDITION OF ROAD*

The existing road was observed to have been constructed with more recent road construction techniques, with a large extent of the Study Area undergoing major road and earth works over the last 40 years. These more recent road works appear to have been built on top of the original road alignment along most of the Study Area, potentially resulting in the demolition of the original road in a number of locations. Where the alignment and grading of the more recent road construction works have been significantly elevated to create a more level and consistent road gradient, there is potential for original road pavement in the form of stone cobbles to remain in place underneath the newer sub grade.

The current alignment of the road has been achieved using cut and fill techniques, and has used imported well graded granular materials used as subgrade materials, and most likely sourced from nearby quarries. The final base courses under the wearing asphalt surface were observed to be constructed from granular well graded and compacted materials with high mechanical strength. The base courses observed along the GNR are typical for road construction with similar techniques and base materials used in modern day road construction. The type and thickness of the wearing asphalt surface varied along the length of the Study Area. In a number of locations it was generally around 50mm thick with a sealing binder observed to have been installed at a number of locations.

A number of bridges, culverts and stormwater pipes with headwalls have been constructed along the length of the Study Area. These civil structures had all been constructed in the last 60 years and were generally constructed from reinforced and precast concrete.

Some of the embankments where road levels have been significantly raised indicated that levels and grades had been raised and altered on more than three occasions. This was visible in the layers formed through the use of different subgrade materials during each road construction event.

Overall there is evidence of continual road repair, upgrading and realignment work being completed to the road over the last 100 years, and the modern road appears to remain in good condition today.

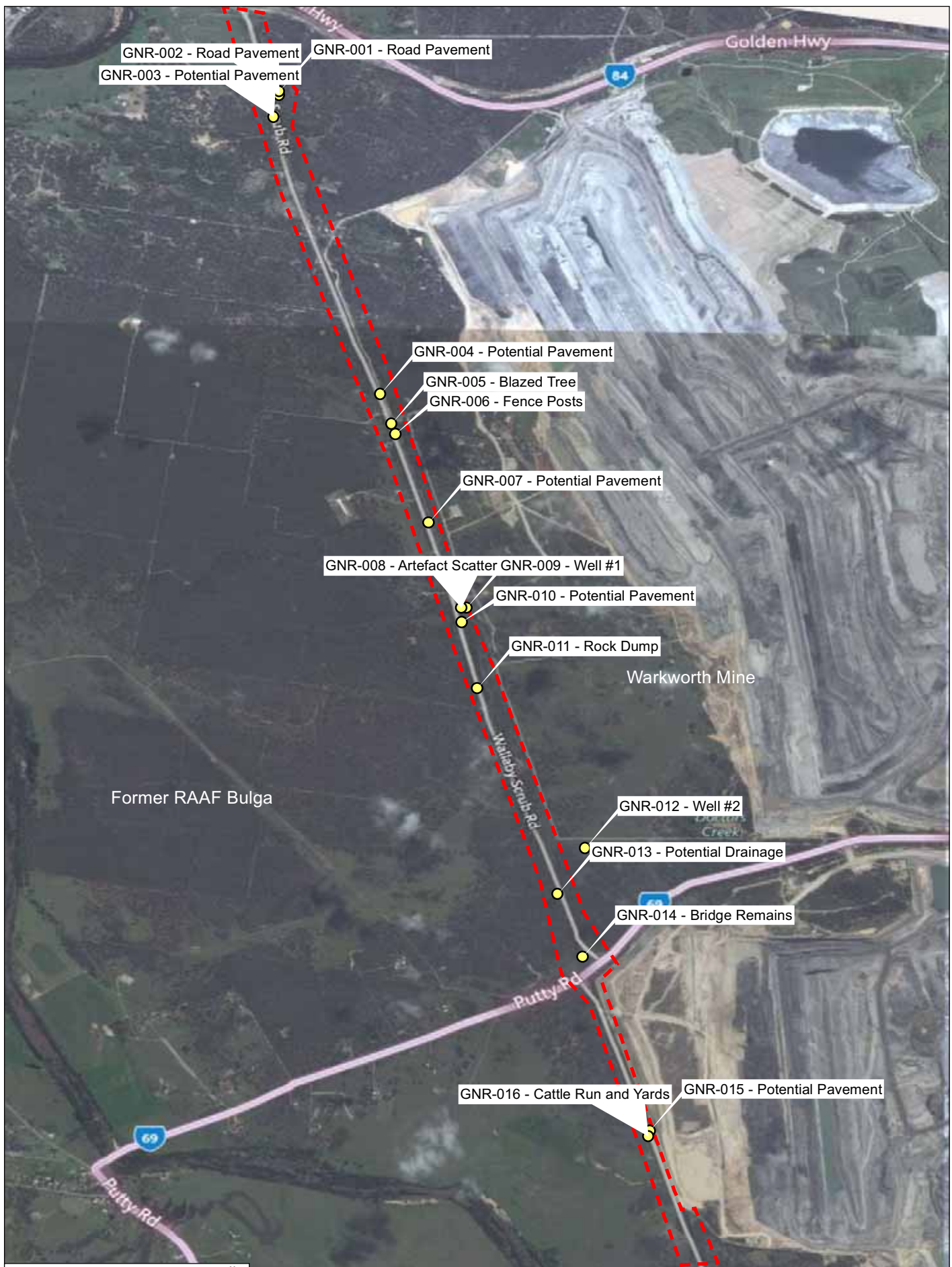
The survey identified eight sites that are likely to be associated with the construction of the original road, and a number of additional historic features were recorded as part of the survey. While not contemporary with the construction of the road, historic features such as fencelines and blazed trees were observed and are important in demonstrating road reserve boundaries and changes in realignment that contribute to the history of the road.

Features such as wells and artefact scatters were also observed and these also have some historical importance in providing an indication of past historical occupation of the surrounding area. The locations of these features are shown at *Figure 4.1* and discussed in more detail below.

4.1**GNR-001 – ROAD PAVEMENT**

GNR-001 is situated at the northern end of the study area, on the eastern side of Wallaby Scrub Road. This location is where the road was originally aligned, curving to the east to avoid an incline in the road. In 1976, plans were made to straighten this section of road and a cutting was constructed through the rock, however the earlier alignment remains highly visible today (see *Figure 4.2*).

An uprooted tree in this location contains a layer of cut sandstone pieces that have been stacked together in a manner that the original road pavement was known to be constructed. This section of pavement measures 900 mm x 600 mm and is shown at *Figure 4.3*.



Legend

● Historic Features

--- GNR_Study Area

0 480 960 1,440m

N

Client:	Rio Tinto Coal Australia		
Drawing No:	0175782.4.1 GNR.mxd		
Date:	06/02/2013	Drawing	A4
Drawn By:	TK	Reviewed By:	JH
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

Figure 4.1 - Historic Features

Great North Road Conservation Management Plan

Environmental Resources Management Australia Pty Ltd

Adelaide, Brisbane, Canberra, Hunter Valley, Melbourne,

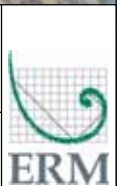




Figure 4.2 *Location of GNR-001 showing original road alignment*



Figure 4.3 *Uprooted tree showing remnant road pavement*

4.2

GNR-002 – ROAD PAVEMENT

GNR-002 is located 25 metres south of GNR-001 along the original road alignment east of the northern Wallaby Scrub Road cutting. The area is heavily grassed, and ground surface visibility poor (see *Figure 4.4*).

A small section of sandstone cobbles at a uniform level was identified in the centre of the former road alignment (see *Figure 4.5*). This section of road pavement measures approximately 500 x 500 mm, and it is likely that the pavement extends across this area beneath the cover of vegetation and debris.



Figure 4.4 *Location of GNR-002 showing original road alignment*



Figure 4.5 *Visible remains of road pavement GNR-002*

4.3

GNR-003 – POTENTIAL PAVEMENT

GNR-003 comprises an area of sandstone bedrock east of the current road alignment where the road originally curved to the east to avoid a steep incline. The surface of the stone has been heavily weathered and no drill or cut marks were easily identifiable. The exposed area is approximately four metres in length and one metre wide.

Sandstone bedrock was known to be used as road pavement along areas of the GNR to the south, and the location is consistent with the earlier alignment of the road, therefore this may be an example of original road pavement.



Figure 4.6 Location of GNR-003 Looking South



Figure 4.7 Visible remains of road pavement GNR-003

4.4

GNR-004 – POTENTIAL PAVEMENT

GNR-004 is located 3.3 km south of the Golden Highway on the eastern side of Wallaby Scrub Road. It is similar to GNR-003 in that it comprises an area of sandstone bedrock east of the current road alignment where the road appears to have been built up, and the adjacent area pushed up to allow for surface runoff (see *Figure 4.8*). The original alignment appears to have been situated further west where the modern road currently exists.

In this area the bedrock is partially exposed for approximately ten metres in length, and two metres in width (see *Figure 4.9*). The surface is partially covered with debris and has been heavily weathered and no drill or cut marks were easily identifiable.



Figure 4.8 Location of GNR-002 showing original road alignment



Figure 4.9 Visible remains of road pavement GNR-002

New South Wales Land and Property Information indicates that there are six State survey markers along this stretch of road. Five of these are located along the western side of Wallaby Scrub Road, and one on the south eastern corner of the Putty and Charlton Road intersection, indicating the original road alignment in this location.

One survey tree was identified on the eastern side of Wallaby Scrub Road. The tree is located approximately five metres east of the current road with the scar facing north (see *Figure 4.10*). The species of tree is unknown. The scar is located 900 mm from the base of the tree and measures 550 x 200 mm. There is evidence that it was previously painted white, and also indicates an axe mark and galvanised nail in the centre of the scar (see *Figure 4.11*). There are no arrows or numbers discernible.



Figure 4.10 Showing location of tree in relation to the road *Figure 4.11 Detail of blaze*

A number of fence posts exist adjacent to the road, particularly in the north eastern section including some remnant three-rail post and rail fencing (see *Figure 4.12*). Three-rail fences were rarely used on stations except for small paddocks and farms (Pickard 2009: 99), and are likely to have been constructed later as a boundary marker for the Warkworth Pastoral Company. These have largely been replaced with wire fencing along the road (see *Figure 4.13*).



Figure 4.12 Three rail post and rail fence



Figure 4.13 Star picket and wire fence

4.7

GNR-007 - POTENTIAL PAVEMENT

GNR-005 is situated halfway along Wallaby Scrub Road east of the current road alignment (see *Figure 4.14*). It comprises a large exposed area of bedrock approximately 1.5 m wide in a low lying drainage area adjacent to the road. There is evidence of modern machinery marks on stone (see *Figure 4.15*) which are likely the result of the area being graded to allow for surface water runoff from the road.

The original alignment appears to have been situated further west where the modern road currently exists.



Figure 4.14 Location of GNR-005



Figure 4.15 Grader marks on stone

4.8

GNR-008 – ARTEFACT SCATTER

An artefact scatter was located along the creek bed approximately 450 m north of GNR-006. The scatter contains a number of ceramic and glass fragments as shown at *Figures 4.16 and 4.17*.



Figure 4.16 Ceramic fragments associated with artefact scatter



Figure 4.17 Glass fragments associated with artefact scatter

4.9

GNR-009 – WELL #1

Well #1 had previously been located by RTCA, and the locational details were provided for inclusion in the survey. The well was noted as being timber lined, but has since been filled in.



Figure 4.18 Looking towards well #1 from south



Figure 4.19 Mound showing location of well #1

4.10

GNR-010 – POTENTIAL PAVEMENT

GNR-010 is located approximately 15 m east of the modern road and 150 m south of a creek towards the southern end of Wallaby Scrub Road. The surrounding area is heavily eroded (see *Figure 4.20*). Historical documents indicate that the road was realigned in this location in the early 1970s. LIDAR imagery, which uses remote sensing to map physical features to a high resolution, also clearly demonstrates this feature which connects to the creek in the north. The feature comprises an eroded gully with stone base. The stone has been subject to a great deal of weathering, and no markings of a cultural nature were identified (see *Figure 4.21*).



Figure 4.20 Eroded gully



Figure 4.21 Layer of bedrock

4.11

GNR-011 – ROCK DUMP

GNR-011 is located 550 m south of GNR-010, and is also part of the road that was subject to alterations in the early 1970s. It is a large gully containing large boulders (see *Figure 4.22*), which were likely dumped in this location during the realignment of the road in the 1970s. A number of rocks within the dump contain tool markings; some from modern backhoes, while others appear to have been made with chisel and hammer and potentially were used in the original road construction (see *Figure 4.23*).



Figure 4.22 Location of dump



Figure 4.23 Example of tool markings in stone

4.12

GNR-012 – WELL #2

Well#2 has previously been recorded by RTCA, and the locational details were provided for inclusion in the survey. Well #2 has been partially filled in and the timber lining remains visible (see *Figure 4.24*). It measures 800 x 800 mm and is 400 mm deep along the northern wall (see *Figure 4.25*).



Figure 4.24 Well #2 with timber lining visible



Figure 4.25 Well #2 showing depth at north western corner

4.13

GNR-013 – POTENTIAL DRAINAGE FEATURE

GNR-013 is located at the southern end of Wallaby Scrub Road, west of the modern road. It comprises a large piece of stone within a creek (see *Figure 4.26*). The stone has not been naturally formed, and appears to have been shaped to form a drainage channel.



Figure 4.26 Location of potential drainage feature *Figure 4.27 Close-up of cut stone*

4.14

GNR-014 - BRIDGE REMAINS

The bridge remains are located in a swampy area at the north western corner of the intersection with Wallaby Scrub Road and Putty Road. The remains comprise a number of circular sawn timber decking and girders with square head bolts concealed within vegetation (see *Figures 4.28* and *4.29*). The remains are in poor condition. The history of the surrounding region and physical remains indicate that the bridge was likely constructed during World War II when roads in the region were upgraded for defence training and evacuation routes. The bridge remains are similar to a bridge constructed at nearby RAAF Bulga c1942.



Figure 4.28 Location of GNR-014



Figure 4.29 Detail of bridge remains

4.15

GNR-015 – POTENTIAL ROAD PAVEMENT

On the eastern embankment opposite GNR-016 the stratigraphy indicates a layer which may be a former bitumen road in this location. The height of this is consistent with the cattle run on the western side of Charlton Road indicating that the road may have historically been at this height.



Figure 4.30 Location of GNR-015



Figure 4.31 Close-up of GNR-015

4.16

GNR-016 – YARDS AND CATTLE RUN

GNR-016 provides evidence of the former pastoral use of this area, and is located on a ~2.5 m embankment on the western side of Charlton Road. It comprises a cattle run and yards positioned to indicate that it previously

crossed the road in a north east direction in this location. This gives an indication of the extent of excavation in this location for the modern road.

Timber used has been circular sawn, and fencing uses wire twitches.



Figure 4.32 Remnant cattle run



Figure 4.33 View from run to road below

4.17 ARCHAEOLOGICAL POTENTIAL

Historical research and site survey allows for an assessment of the archaeological potential of the road. Areas have been assessed as having low, moderate and high archaeological potential (see *Figures 4.34-4.36*) and the justification for this assessment is shown at *Table 4.1*.

Table 4.1 Justification of Archaeological Assessment

Assessment	Justification
High	<p>Areas containing visible surface remains, and with high potential to yield further remains.</p> <p>Areas that have not been subject to significant ground disturbance including excavation, levelling and resurfacing of the original road.</p> <p>Areas where the road has been realigned and there is a high probability of the original road remaining in situ.</p>
Moderate	<p>No visible surface remains.</p> <p>Areas with some potential for subsurface remains.</p> <p>Areas where the modern road has been built up, and there remains some potential for remains of the original road to remain underneath.</p>
Low	<p>No visible surface remains.</p> <p>Areas that have been subject to significant ground disturbance, and there is little potential for remains of the original road to remain.</p> <p>Areas where the road appears to have been excavated and is lower than surrounding embankments.</p>
Nil	<p>Areas where the road has been realigned, and there is no potential for the original road to be in this particular location.</p>







5.1

COMPARATIVE ANALYSIS

Comparison with other related or similar sites and places assists in determining the heritage values of a particular item or feature. Comparative analysis can assist with identifying the appropriate level of heritage significance of a site, and is useful in the validation process of determining whether a heritage listing remains current.

When Governor Ralph Darling arrived in Sydney in 1820 he realised there were major communication issues in the colony, and no major road system. Coming from England at a time when a series of 'Great Roads' were being constructed out of London to improve communication and transportation, Governor Darling used these ideas to promote the building of roads to aid in developing the colony. He planned three 'Great Roads' to connect Sydney with regional areas to the north, south and west to be directed by surveyors and engineers also brought out from Great Britain.

While the Study Area comprises the northern component of the GNR, the southern portion is well known and has been used as part of the comparison in addition to the Great South and West Roads to aid in assessing rarity and representativeness. A fourth example, Old Illawarra Road was also chosen as it was constructed by convict labour during the same era.

The comparative examples are outlined at *Tables 5.1 to 5.4*, with a comparative discussion at *Section 5.1.1*.

Table 5.1 **Example 1: Great Southern Road**

NAME	GREAT SOUTHERN ROAD
Source	Great North Road National Heritage List Assessment, (SEWPaC 2007) The Great South Road Self-Guided Tour (RTA n.d)
Location:	Mittagong to Goulburn
Heritage Status	Nil
History	Mitchell's Great South Road was completed in 1843 providing access from Sydney through to Goulburn. In 1929 the Hume Highway was constructed as a two lane highway by the Main Roads Board. The road has been rerouted, had many improvements, and now comprises four lanes along its length.
Description	Development occurs along its length and it retains little of its character as a convict built road. The road gang convict built Towrang Bridge and its associated culverts however do provide evidence of the convict period.
Condition and Integrity	Very little of the original road remains, and the condition and integrity is considered to be low.
Significance	Historically significant as one of Mitchell's "Great Roads" built by the colonial administration and using convict labour.

Photograph:

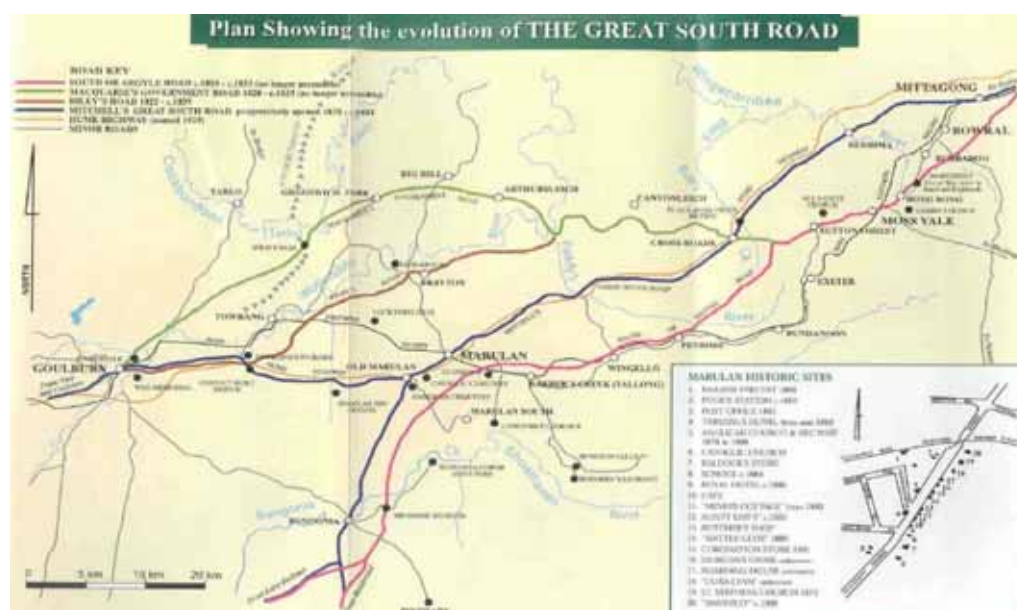


Table 5.2 **Example 2: Great Western Road**


NAME	GREAT WESTERN ROAD
Source	Great North Road National Heritage List Assessment (SEWPaC 2007) Crossing the Blue Mountains. The Great Western Road (RTA n.d)
Location:	Great Western Highway from Sydney across the Blue Mountains to Bathurst.
Heritage Status	Victoria Pass on State Heritage Register (#4301023)
History	In 1827 Governor Darling offered a reward to ‘any free person’ to find ‘a better route to Bathurst’ which avoided Mount York and Mount Bathurst. Although other routes were suggested, including one proposed by explorer Hamilton Hume, and another was partially built (Lockyers Road, see below), these were not constructed. Instead a direct route from Mount Victoria, as suggested by the Surveyor General Major Thomas Mitchell (1792–1855) in 1830, was adopted and has continued in use to the present day as the Great Western Highway.
Description	The Great Western Highway starts near the fringe of the Sydney CBD, continues as Parramatta Road to Parramatta itself, then heads due west to Penrith, where it crosses the Nepean River. It then crosses the Blue Mountains and after crossing Cox’s River climbs the Great Dividing Range before dropping into the Macquarie Valley to Bathurst. Horseshoe Bridge on Mitchell’s Pass near Lapstone was designed by David Lennox and built by convict road gangs and completed in 1834. Other important sites associated with the Great Western Road include the relics and archaeological remains of No 2 Stockade at Cox’s River, No. 1 Stockade at Mt Victoria and road party sites at Honeysuckle Hill, Meadow Flat, Stoney Range and Diamond Swamp.
Condition and Integrity	The integrity of the entire road is moderate - low, with little evidence of original construction remaining with the exception of Victoria Pass, and many realignments having occurred throughout the twentieth century.
Significance	The road itself has historical significance for its association with Mitchell, and for its use of convict labour. Horseshoe Bridge was the first scientifically designed stone arch bridge built on the Australian mainland. The Victoria Pass Causeway has exceptional heritage significance in its own right. It is an outstanding and rare reference site for colonial road engineering standards and practices in response to difficult terrain. It has the ability to tangibly demonstrate the early era of colonial road building in NSW, remains a physical record of the skills of engineers during this period and is an exemplar of road engineering of its time. It appears to be the only substantial stone causeway structure of its type from the early Colonial period in NSW (and possibly in Australia).
Photograph:	

Table 5.3 *Example 3: Old Great North Road*


NAME	OLD GREAT NORTH ROAD ¹
Source	National Heritage List Citation, SEWPaC 2008
Location:	The Old Great North Road is a 48 km portion within Dharug National Park named by the National Parks and Wildlife Service to distinguish this section from remaining modernised sections of the road.
Heritage Status	World Heritage List as part of the Australian Convict Sites (106209), and National Heritage List (#105961)
History	The Great North Road was built using convict layout between 1826 and 1836. In July 2010 the Great North Road and ten other Australian sites with a significant association with convict transportation were inscribed as a group on the World Heritage List as the Australian Convict Sites. These sites present “the best surviving examples of large-scale convict transportation and the colonial expansion of European powers through the presence and labour of convicts.”
Description	The most substantially intact part of the Old Great North Road comprises a 43 km section of the road between Wiseman’s Ferry and Mount Manning. It incorporates substantially intact sections including Devine’s Hill and Finch’s Line.
Condition and Integrity	The alignment of the road has been retained and there are preserved areas containing original stonework, buttresses, culverts, bridges and retaining walls. The condition and integrity of the Old Great North Road is high.
Significance	The Old Great North Road has tangible physical evidence of the use of convict labour in empire buildings. It was part of an ambitious road works program to expand settlement to the north, south and west of Sydney using several thousand convict labourers. The road system comprised a total of 500 kilometres of road and took 14 years to complete. Two surviving sections of the Old Great North Road are an exceptional testimony to the important role of convict labour in the development of infrastructure and the expansion of the colony of NSW.

Photograph:



¹ Heritage listed portion of the GNR

Table 5.4 *Old Illawarra Road*

NAME	OLD ILLAWARRA ROAD
Source	Holsworthy Barracks Heritage Impact Assessment, ERM, 2012
Location:	Holsworthy Barracks, NSW
Local Government	City of Liverpool
Heritage Status	Within CHL Area for Cubbitch Barta National Estate Area (#105405)
History	Old Illawarra Road was constructed between 1843 and 1845 and has historical significance as one of the earliest transport routes in the Liverpool region, and enables an understanding of the early development of the area. It has further historical significance through its construction by convicts, representing a phase in Australia's history which had an important role in the development of the nation.
Description	This road is believed to date to the early 19 th Century, and is evidence of the pre-Defence use of the area. Evidence of the Old Illawarra Road is extant in the form of sandstone kerbing alongside the present Illawarra Road (with later road surfacing) and sections of Macquarie Circuit. Historical mapping suggests alignment of the road has not been substantially altered since its original 1840s alignment, indicating that Defence have incorporated this road into the various development phases on site.
Condition and Integrity	There is evidence that the Old Illawarra Road is extant and in reasonable condition. It is clearly visible along parts of the road, but has been covered with modern bitumen in other parts. It is clear that original kerbing has also been retained and incorporated into later road building developments.
Significance	The Old Illawarra Road has significant associational and historical value as it was originally surveyed by notable early surveyors Major Sir Thomas Mitchell and William Govett. Constructed in c1840 by convict labour, the road represents a type of labour that was a significant part of Australia's early development. The original sandstone kerbing is evident along the road and the road remains relatively intact, and has historical and research value for its ability to provide information about the early development of the Liverpool area.
Photograph:	

All the convict roads discussed above have historical significance as roads constructed by the colonial administration using convict labour. The great roads were a result of Governor Darling's "Great Roads" concept and surveyed by and generally constructed in accordance with Sir Thomas Mitchell's designs.

Development and changed land use patterns have impacted on all these roads, and have resulted in realignments and rerouting of the original roads. Therefore, the comparative examples are not considered to be as well defined as elements of the OGNR component of the GNR. Within the context of Australian convict road construction, the Devine's Hill section of the OGNR is considered to be the most substantial road engineering undertaking, and the best expression of convict road gang labour and it is also the best physical example of construction in the examples above.

Of the remaining roads compared, the Great Western Road is considered to have the highest degree of integrity with a number of extant historical features including bridges, causeways and culverts. It is also the only example to have a component of the road (Victoria Pass) entered in the State Heritage Register.

When compared with the four examples, the Study Area contains the least amount of physical evidence of original convict road construction. However, similar to the comparative examples, there remains archaeological potential for original road pavement, retaining walls or culverts to remain either beneath sections of the modern road, or in areas where the road has been diverted from its original alignment. Like the OGNR, Great Western Road and Great Southern Road, the GNR has a degree of historical significance and association with Darling, Mitchell and Finch. However, the association is not considered to be as strong due to the lack of tangible evidence.

Overall when compared with examples of the Old Illawarra Road and the other Great Roads, the Study Area is not considered to be a rare feature, or highly representative of a road constructed by convict labour. It is considered to be historically and socially significant and potentially an important archaeological resource.

Table 5.5 *Assessment against State Heritage Register Criteria*

SHR Criteria	ERM Assessment	Threshold Justification
(a) Historical significance	<p>The Great North Road was the first of the 'Great Roads' to be established in Australia and was important in connecting Sydney and the Hunter Valley. The road was modelled on the 'Great Roads' of England and is significant in demonstrating an early convict road that resulted in opening up the Hunter Valley to trade and settlement. While not retaining as much physical evidence as other sections of the GNR, this section retains much of the original alignment and is historically significant at State level.</p> <p>This criterion is met.</p>	<ul style="list-style-type: none"> • shows evidence of a significant human activity • is associated with a significant activity or historical phase • maintains or shows the continuity of a historical process or activity
(b) Historical associational significance	<p>The road has a special association with Governor Darling who was responsible for the 'Great Roads' concept in Australia and assistant surveyor, Heneage Finch and Sir Thomas Mitchell who were responsible for surveying this section of road. While not much original fabric is thought to survive, much of the original road alignment has been retained in the modern Wallaby Scrub Road, therefore meeting threshold requirements for this criterion.</p> <p>This criterion is met.</p>	<ul style="list-style-type: none"> • is associated with a significant event, person, or group of persons
(c) Aesthetic significance	<p>The Wallaby Scrub Road portion of the Great North Road does not demonstrate highly visible or aesthetic features found on southern sections of the road. It is not considered a landmark and is not considered to be aesthetically distinctive.</p> <p>This criterion is not met.</p>	<ul style="list-style-type: none"> • is not a major work by an important designer or artist • its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded
(d) Social significance	<p>The Great North Road has a special association with the Convict Trail Group. The Convict Trail Project is an initiative begun by people living close to the road, who value it as a crucial part of the history of their district. The initiative has been nationally recognised as one of the most successful community-based heritage organisations (CMP 2005:3-6). While the Convict Trail Group has been involved in undertaking research and publishing papers and undertaking conservation works on the road for many years, very little has been done on this section of the road, and therefore the extent of association is not considered to meet the threshold requirements.</p> <p>This criterion is not met.</p>	<ul style="list-style-type: none"> • Is retained only in preference to a proposed alternative

SHR Criteria	ERM Assessment	Threshold Justification
(e) Technical significance/research potential	<p>A number of areas along the road have a degree of archaeological potential, and information yielded has the potential to contribute to knowledge of New South Wales history.</p> <p>This criterion is met.</p>	<ul style="list-style-type: none"> • has the potential to yield new or further substantial scientific and/or archaeological information • is an important benchmark or reference site or type
(f) Rarity	<p>While the road alignment in this location is in danger of being lost through extension of the Warkworth Mine, this section of road does not demonstrate techniques or designs of exceptional interest, and is not the only example of its type.</p> <p>This criterion is not met.</p>	<ul style="list-style-type: none"> • is not rare • is numerous but under threat
(g) Representative ness	<p>Comparative analysis with similar roads in NSW has found that while this section of the GNR is representative of the standards and practice of road engineering in the colony during the 'Great Roads' period of the late 1820s and through the 1830s, better examples exist.</p> <p>This criterion is not met.</p>	<ul style="list-style-type: none"> • is a poor example of its type • does not include or has lost the range of characteristics of a type • does not represent well the characteristics that make up a significant variation of a type

5.3

STATEMENT OF SIGNIFICANCE

The Study Area demonstrates historical and associational significance and a degree of archaeological potential that is important to the history of New South Wales.

The Study Area comprises the northern section of the Great North Road that was originally constructed by convict labour to connect Sydney to the Hunter Valley in the early 1830s. The modern day alignment of Wallaby Scrub Road is largely the same as that surveyed by Sir Thomas Mitchell, demonstrating an important historical association with Mitchell.

The Wallaby Scrub Road section of the Great North Road has historical significance in being modelled on the 'Great Roads' of England in demonstrating a large infrastructure project using convict labour that was intended to open up the Hunter Valley for trade and development.

While physical remnants of the original road are not highly visible, there is archaeological potential in areas, particularly in the northern section of the road where the modern road has been realigned to the west. The archaeological record has the potential to yield valuable information that would contribute to knowledge of New South Wales history.

The proposed extension of the mine requires the closure and subsequent demolition of the majority of the road within the study area. At this stage, the northern section is likely to remain intact. The following management recommendations have been made to ensure as much information about the GNR in this location is yielded prior to changes being made in future.

6.1 COMPREHENSIVE SURVEY

Due to safety risk associated with operating within a road reserve, the road was not comprehensively surveyed, and it is likely that historic features in this location have not been adequately identified and recorded.

Recommendation #1: Once the road has been closed to traffic a comprehensive survey of the road should be undertaken to assess all historic features within the road reserve.

6.2 ARCHAEOLOGICAL POTENTIAL

As outlined in Section 4.3, the survey identified areas of archaeological potential. In particular areas of high archaeological potential are located at areas such as:

- Northern section where the road has been straightened and the original alignment remains to the east of the current road;
- Middle area where road has been realigned; and
- Area surrounding Putty Road intersection where road has been realigned.

There is also moderate archaeological potential in areas where the road appears to have been built up, and the original road may remain in situ underneath the existing modern road.

Prior to the demolition of the road it is recommended that areas of moderate and high potential be investigated, and the original road uncovered and revealed in this location. This will allow for the road to be recorded

Recommendation #2: An archaeological program should be implemented in future to record intact areas of the GNR, and should focus on areas of moderate and high potential as demonstrated in Figure 4.34-4.36.

There is potential for the northern section of the Study Area to remain undisturbed by the proposed mine extension. Where this occurs, a program of maintenance and conservation should be implemented to ensure the future preservation of the GNR in this location. This may involve repositioning of stones and removal of vegetation impacting on road features.

Recommendation #3: Where areas containing remnant road remain undisturbed by the proposed extension, a program of maintenance and conservation should be implemented to ensure the future preservation of the GNR in this location.

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