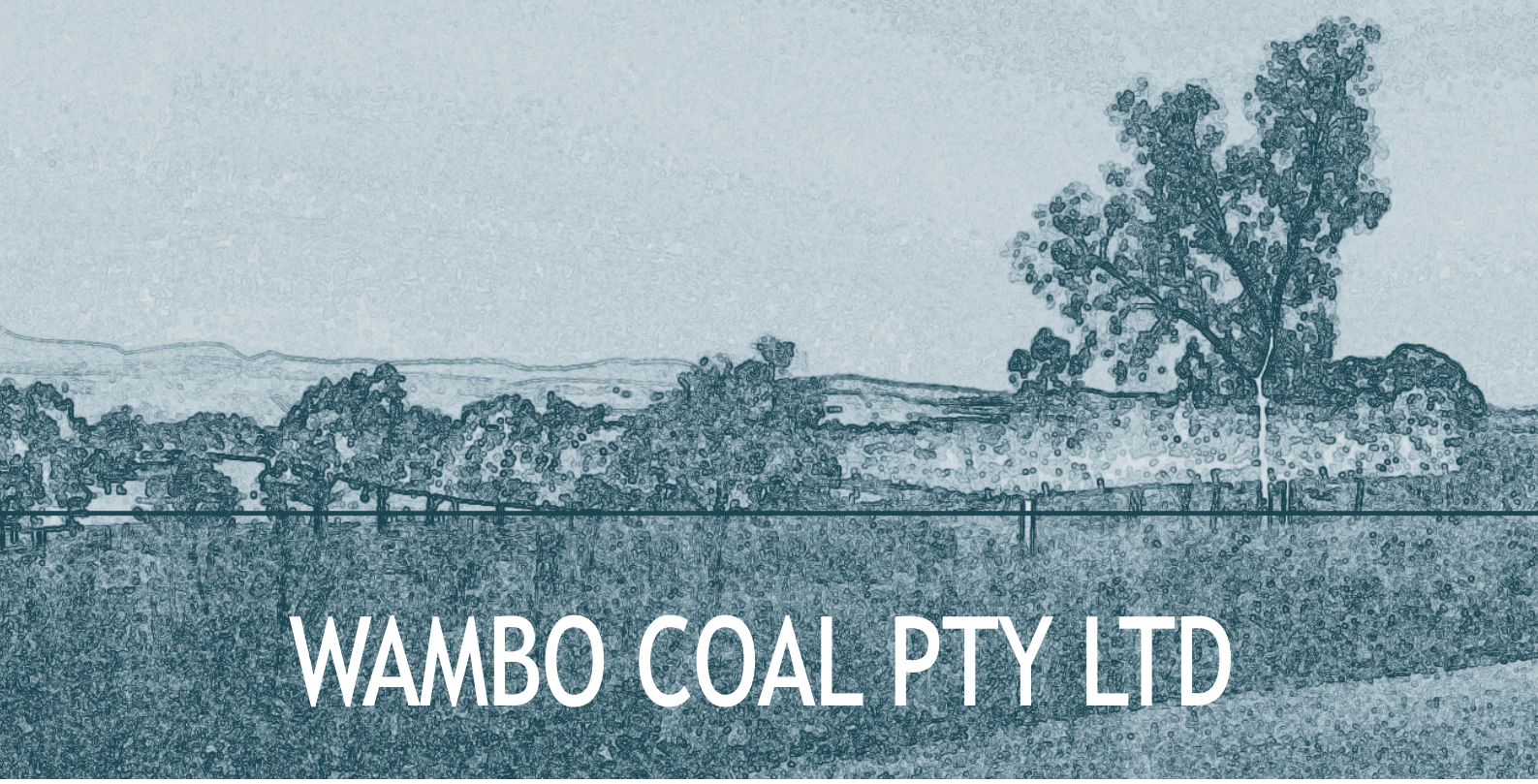

WAMBO COAL PTY LTD

NORTH WAMBO UNDERGROUND MINE MODIFICATION

ENVIRONMENTAL ASSESSMENT

APPENDIX C

CULTURAL HERITAGE IMPACT ASSESSMENT

Peabody ENERGY

Cultural Heritage Impact Assessment

North Wambo Underground Mine Modification

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Report Number: 108453-2
Version / Date: October 2012

IMPORTANT NOTE

We have prepared this report for the sole purposes of Wambo Coal Pty Ltd ("**Client**") for the specific purpose of only for which it is supplied ("**Purpose**"). This report is strictly limited to the purpose and the facts and matters stated in it and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter.

In preparing this report we have made certain assumptions. We have assumed that all information and documents provided to us by the Client or as a result of a specific request or enquiry were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

This report is presented without the assumption of a duty of care to any other person (other than the Client) ("**Third Party**"). The report may not contain sufficient information for the purposes of a Third Party or for other uses. Without the prior written consent of RPS Australia East Pty Ltd:

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In this note, a reference to loss and damage includes past and prospective economic loss, loss of profits, damage to property, injury to any person (including death) costs and expenses incurred in taking measures to prevent, mitigate or rectify any harm, loss of opportunity, legal costs, compensation, interest and any other direct, indirect, consequential or financial or other loss.

Document Status

Version	Purpose of Document	Orig	Review	Review Date
Draft A	Draft for Client Review	GG	AB	20.12.2011
Final Revised Draft B	Revised Draft for Review by Aboriginal Community Stakeholders	GG	TBM	09.08.2012
Final Draft C		GG	DF	08.10.2012
Final	Final for Client	GG	AB	08.11.2012

Approval for Issue

Name	Signature	Date
Darrell Rigby		09.11.2012

Contents

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Summary

RPS Australia East Pty Ltd (RPS) has been commissioned by Wambo Coal Pty Ltd (Wambo Coal) to undertake an Aboriginal and non-Indigenous Cultural Heritage Impact Assessment (CHIA) for an Environmental Assessment (EA) as part of a Section 75W modification (the Modification) to Development Consent (DA 305-7-2003) for the Wambo Coal Mine which was granted by the Minister for Planning on 4 February 2004.

This report has been prepared in order to meet the requirements for an application by Wambo Coal to the Minister for Planning under Section 75W of the *Environmental Planning and Assessment Act 1979* (New South Wales [NSW]) and clause 8J(8)(b) of the *Environmental Planning and Assessment Regulation 2000* (NSW) for a proposed modification to Development Consent (DA 305-7-2003).

The Modification would include the development of two additional longwall panels in the Wambo Seam adjacent to the existing North Wambo Underground Mine (NWUM) (Longwalls 9 and 10) (Figure 1-2). Access to the modified longwall panels would be via the existing NWUM. The Modification would use the existing surface infrastructure of the NWUM. Further detail regarding the Modification description is provided in Section 3 in the Main Report of the Environmental Assessment. For the purpose of this report, the Modification is referred to as the North Wambo Underground Mine Modification (NWUMM). The NWUMM and its surrounds are hereafter referred to as the project area (refer Figure 1-1). The project area is situated to the west of Wollombi Brook, south of North Wambo Creek, with Stony Creek traversing the southern boundary. The project area is located within the Wambo Mining and Coal Lease Boundary (WMCLB). The extent of subsidence impact referred to as the Modification Area (MA) is shown on Figure 1-2. The project area incorporated the MA and a buffer of more than 70 metres (m) around the outside of the MA boundary to ensure that adequate survey coverage had been undertaken.

This Aboriginal and non-Indigenous CHIA report has been prepared to meet the requirements for the application by Wambo Coal for a 75W modification to an existing Part 4 approval. The report considers the environmental and archaeological context of the project area, results from a search of the Aboriginal Heritage Information Management System (AHIMS) database, the provision of a predictive model; comments from the Aboriginal community regarding cultural heritage significance and the results of the archaeological and cultural surveys of the project area which were undertaken in May, July and August 2011 and April 2012.

The project area generally has a southerly aspect and covers an area of approximately 2 kilometres (km) long by 1 km wide. The project area is one of rolling hills and is gently sloping, encompassing flood plain, creek banks, lower and mid slope areas. Wambo mine owned land (MOL) and private land is bordered by Wambo and Jerrys Plains Ridges and adjoins Wollemi National Park.

The project area has been disturbed by previous farming practices including, but not limited to, land clearing, installation of fencing, dams and pipelines, livestock grazing, formed tracks, dirt access roads and fire trails. Much of the surrounding area has also been previously undermined by approved longwall mining.

The preliminary archaeological field survey was conducted by RPS Senior Archaeologist Gillian Goode, Ali Byrne and Cultural Heritage Manager Darrell Rigby in May 2011. Following implementation of the Aboriginal Cultural Heritage Consultation Requirements (ACHCRs), and ensuing consultation with the relevant Aboriginal groups, an archaeological and cultural heritage field survey was conducted in July, August 2011 and April 2012 by Senior Archaeologist Gillian Goode and Archaeologist Ali Byrne both of RPS, in partnership with representatives from a number of registered Aboriginal parties. Rostered groups who participated in the survey included Wanaruah Local Aboriginal Land Council (WLALC), Giwiirr Consultants, Hunter Valley Aboriginal Corporation, Ungooroo Aboriginal Corporation, Upper Hunter Wonnarua Council

Incorporated, Yinaar Cultural Services, Widescope Indigenous Group, Buudang and Cacatua Culture Consultants. Troy Favell, Environment & Community Manager and David Rankin, Environment & Community Coordinator both from Wambo Coal Mine also attended the survey.

Two polygon searches of the AHIMS database were undertaken, identifying a total of 54 sites in the area. However, due to overlap in the search results, the actual number of sites previously recorded in the project area and its environs was found to be 41 sites (see Section 4.3.2). This included 28 artefact scatters, ten isolated finds, one potential archaeological deposit (PAD) and one possible scar tree. One of the artefact scatter sites had been previously salvaged under Permit #2222 (Wambo Site 62). There were 11 artefact scatters and seven isolated finds that had been previously recorded on the AHIMS database that lay within the actual boundaries of the NWUMM project area, comprising the MA and buffer. The subsequent Aboriginal cultural heritage survey identified 16 new sites. A total of 24 artefact scatters, nine isolated finds and one possible scar tree were therefore identified within the NWUMM project area (refer Table 14).

The desktop study revealed that a number of major archaeological field surveys had previously been undertaken in the area, including but not limited to an Aboriginal Heritage Assessment in 2003 (White 2003) and an Archaeological Survey for the Proposed Open Cut and Underground Mine area (Rich 1991a). These studies identified a number of sites in both the local and regional area (refer Figure 4-1).

During the course of the 2011 and 2012 Aboriginal cultural heritage field survey, sites previously identified by White (2003) and those recorded on the AHIMS database were ground truthed. In addition, any newly identified sites were recorded and a site card generated for inclusion on the AHIMS database. The majority of sites within the project area were located along crests, upper and mid slope areas of the rolling hills and on the lower slope areas above the flood plain.

Several new artefact scatters and isolated finds were identified during the field survey. These sites were recorded and site cards were generated for registration on the AHIMS database. One possible scar tree Wambo Site 360 was also identified during the course of the field survey. The tree was a narrow leaved red ironbark in fair condition which showed evidence of both probable cultural scarring (on the west side of the trunk) and wounding resulting from mechanical damage in the recent past on the east side of the trunk. A site card has been submitted for registration with the Office of Environment and Heritage (OEH).

The registered Aboriginal parties present inspected a number of trees with a similar girth and of similar type in an adjacent area which had been previously undermined by longwall mining with similar predictive subsidence modelling and found that the previously undermined trees had not been adversely affected. They therefore determined that regular monitoring by Wambo Coal be maintained to determine that the tree experienced no adverse effects from the proposed mining works. If any impact to the possible scar tree is considered likely then immediate remediation measures should be instigated.

An inspection was also made of areas that had previously been mined by longwall mining in order to view the impact of potential subsidence artefact sites in the current project area. On the basis of subsidence effects viewed in the area, it was determined by the registered Aboriginal parties present, that if subsidence impacts were minimal then it was unlikely that artefact sites would suffer impact. However, where subsidence predictions were moderate to high then the artefact sites could be impacted on by downward movement due to vertical subsidence (whereby the land surface moves downwards as a whole). As such, an Aboriginal Heritage Impact Permit (AHIP) would be required for Aboriginal sites that were likely to suffer impact. The registered Aboriginal Parties recommended that artefact scatters and isolated finds not be moved unless required. They considered that if impact to specific sites was likely, then those sites should be salvaged under an appropriate permit. It was also recommended that periodic monitoring of the sites be maintained by Wambo Coal to mitigate against potential site damage from subsidence impacts. If any impact to the Aboriginal objects is considered likely then immediate remediation measures should be instigated.

While impacts to archaeological and cultural heritage within the MA are predicted to be negligible to low (MSEC 2012), it is recommended that, if required, Wambo Coal seek an AHIP under Section 90 of the NSW *National Parks and Wildlife Act, 1974* (NPW Act) to allow for the salvage of registered and unregistered sites (should they be uncovered) in consultation with the relevant registered Aboriginal parties. If salvage is required it is recommended that artefacts be transferred to the temporary keeping place under the existing Care and Control Permit (#3130) in consultation with the relevant registered Aboriginal parties.

Subsidence estimates for the project area (including specific predictions for Aboriginal sites) have been provided by MSEC (2012). Much of the surrounding area has also been previously undermined (Wollemi and Homestead workings in the Whybrow Seam), or approved to be undermined, including North Wambo Underground Mine in the Wambo Seam, the Arrowfield and the Bowfield Seams.

The NWUMM longwall area will be subject to a Subsidence Management Plan or Extraction Plan which will be implemented prior to the proposed works being undertaken.

MSEC (2012:58-60) calculated the maximum predicted total conventional subsidence parameters for the archaeological sites in the MA for approved mining of the Wambo, Arrowfield and Bowfield Seams (Approved Layout) and compared them to the predicted values for the proposed NWUMM (Modified Layout). The predicted maximum incremental changes in subsidence resulting from the proposed modification at any Aboriginal site ranged from 0 millimetres (mm) to 2400mm; in tilt ranged from 0mm/m to 35 mm/m; in hogging curvature ranged from 0.0 km^{-1} to 1.50 km^{-1}; and in sagging curvature ranged from 0.0 km^{-1} to 1.90 km^{-1} MSEC (2012:58-60, Table D01). Further MSEC (2012: Table D01) predicted that although the maximum subsidence effects in the vicinity of known Aboriginal sites resulting from subsidence relating to the Modified Layout could vary between 350 mm and 6400 mm (35 centimetres (cm) and 640 cm) the actual incremental change between the Modified Layout and the previously Approved Layout varied between 0 mm and 2400 mm (0 cm and 240 cm). This increment would be an even smaller proportion of approved subsidence impacts if the historic workings (Whybrow Seam) were also included in the subsidence model.

As such, MSEC (2012) predicted that the subsidence effects in the vicinity of known Aboriginal sites would not exceed 2400 mm and was significantly lower for the majority of Aboriginal sites ranging from 0 mm to 2400 mm (0 cm to 240 cm). MSEC (2012:59) considered that the artefact sites in the Modification Area could potentially be affected by cracking of the surface soils. It is unlikely that the Aboriginal objects at these sites would be destroyed by the surface cracking but could be impacted on or harmed by downward movement due to vertical subsidence (whereby the land surface moves downwards as a whole). However, compared to the existing and approved mining in this area, the NWUMM would not increase the risk of impacts to these sites.

The Wollemi National Park escarpment cliff lines and steep talus slopes are more than one kilometre from the NWUMM area and are outside of the predicted subsidence impact area (MSEC 2012). As such, the proposed modification will not impact on the Wollemi National Park or the associated escarpment. Wollombi Brook lies approximately 500 metres to the east of the project area and one kilometre from any Aboriginal sites within the NWUMM area. Wollombi Brook will not be impacted by the proposed NWUMM (MSEC, 2012).

Proposed mitigation measures are outlined in Section 8 of this report and management recommendations are in Section 9 of this report and are shown below.

The following management recommendations have been formulated with consideration of the significance of Aboriginal heritage, as well as potential impacts, and have been prepared in accordance with the relevant legislation.

Aboriginal Cultural Heritage

Recommendation 1

It is recommended that the artefacts remain *in situ* unless impact to the sites is unavoidable. It is further recommended that Wambo Coal undertakes subsidence monitoring to ensure impacts are as predicted.

Recommendation 2

It is recommended that Wambo Coal seek an AHIP for the MA (excluding the portion covered by the existing Consent #2222) under Section 90 of the *National Parks and Wildlife Act 1974* (NPW Act) to allow for subsidence and the salvage (if required) of registered and unregistered sites (should they be uncovered) in the MA; such works should be undertaken in consultation with the registered Aboriginal parties. If salvage is required, it is recommended that artefacts be transferred to the temporary keeping place under the existing Care and Control Permit (#3130) in consultation with the registered Aboriginal parties.

Recommendation 3

The location of any Aboriginal cultural heritage sites in the project area should be included in the Wambo Coal environmental management framework for the project area, so that all relevant staff members are aware that these areas will require management.

In General during the course of Wambo Coal Pty Ltd works

Recommendation 4

If any previously unrecorded Aboriginal sites are identified during the course of surface works in the project area, the area should be cordoned off and surface works cease until the site has been adequately recorded. Any newly identified sites should be managed in accordance with management measures for similar site/artefact types previously identified within the project area or across the wider Wambo Mine area, in consultation with the registered Aboriginal parties.

Recommendation 5

In the event that skeletal remains are uncovered, work must cease immediately in that area and Wambo Coal will need to contact the NSW Police Coroner to determine if the material is of Aboriginal origin. If determined to be Aboriginal, they must then contact the OEH Enviroline 131 555 and the registered Aboriginal parties in order to determine an action plan for the management of the skeletal remains prior to works re-commencing.

Indigenous and non-Indigenous Cultural Heritage

Recommendation 6

All relevant Wambo Coal staff should be made aware of their statutory obligations for heritage under *NPW Act* and the *Heritage Act 1977*, which may be implemented as a heritage induction. If during the course of surface site works significant European cultural heritage material is uncovered, surface work should cease in that area immediately. OEH should be notified and works only recommenced when an appropriate and approved management strategy has been instigated.

Terms and Abbreviations

Abbreviation	Description
ACHCRs	Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010) were released by DECCW on 12 April, 2010. These consultation requirements are triggered for assessments under Part 3A for the EP&A Act, or if an AHIP is required under part 4 or 5 of the EP&A Act, or if archaeological investigations are required in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (2010).
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
BP	Before present (as in years before present)
cal. years BP	Calibrated years before present, indicates a radiocarbon date has been calibrated using the dendochronology curves, making the date more accurate than an uncalibrated date
CHIA	Cultural Heritage Impact Assessment
DA	Development Application
DGPS	Differential Global Positioning System
DECCW	Department of Environment, Climate Change and Water
EA	Environmental Assessment
EPRG	Environment Protection Regulation Group
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EoI	Expression of Interest
LEP	Local Environment Plan
MA	Modification Area
MOL	Mine Owned Land
NSW	New South Wales
NWUM	North Wambo Underground Mine
NWUMM	North Wambo Underground Mine Modification
OEH	Office of Heritage and Environment
PAD	Potential Archaeological Deposit
ROM	Run of Mine
SHR	State Heritage Register
SU	Survey Unit
Wambo Coal	Wambo Coal Pty Ltd
WLALC	Wanaruah Local Aboriginal Land Council
WMCLB	Wambo Mining and Coal Lease Boundary

1.0 Introduction

RPS Australia East Pty Ltd (RPS) has been commissioned by Wambo Coal Pty Limited (Wambo Coal) to prepare an Aboriginal and non-Indigenous Cultural Heritage Impact Assessment (CHIA) as a part of an Environmental Assessment (EA) for the proposed North Wambo Underground Mine Modification (NWUMM). The proposed NWUMM comprises the addition of two longwall panels (Longwalls 9 and 10) and the related surface facilities. The longwall panels, will be located in the southern portion of the existing approved underground mine.

The project area is shown in Figure 1-1. The underground mine extension would be accessed via the existing North Wambo Underground mine (NWUM). The proposed NWUMM is wholly within the Wambo Mining and Coal Lease Boundary (WMCLB). The NWUMM would produce additional run-of-mine (ROM) coal and would be mined within the currently approved mine life.

This report has considered the environmental and archaeological context of the project area, developed a predictive model and reported on the results of an archaeological survey of the project area.

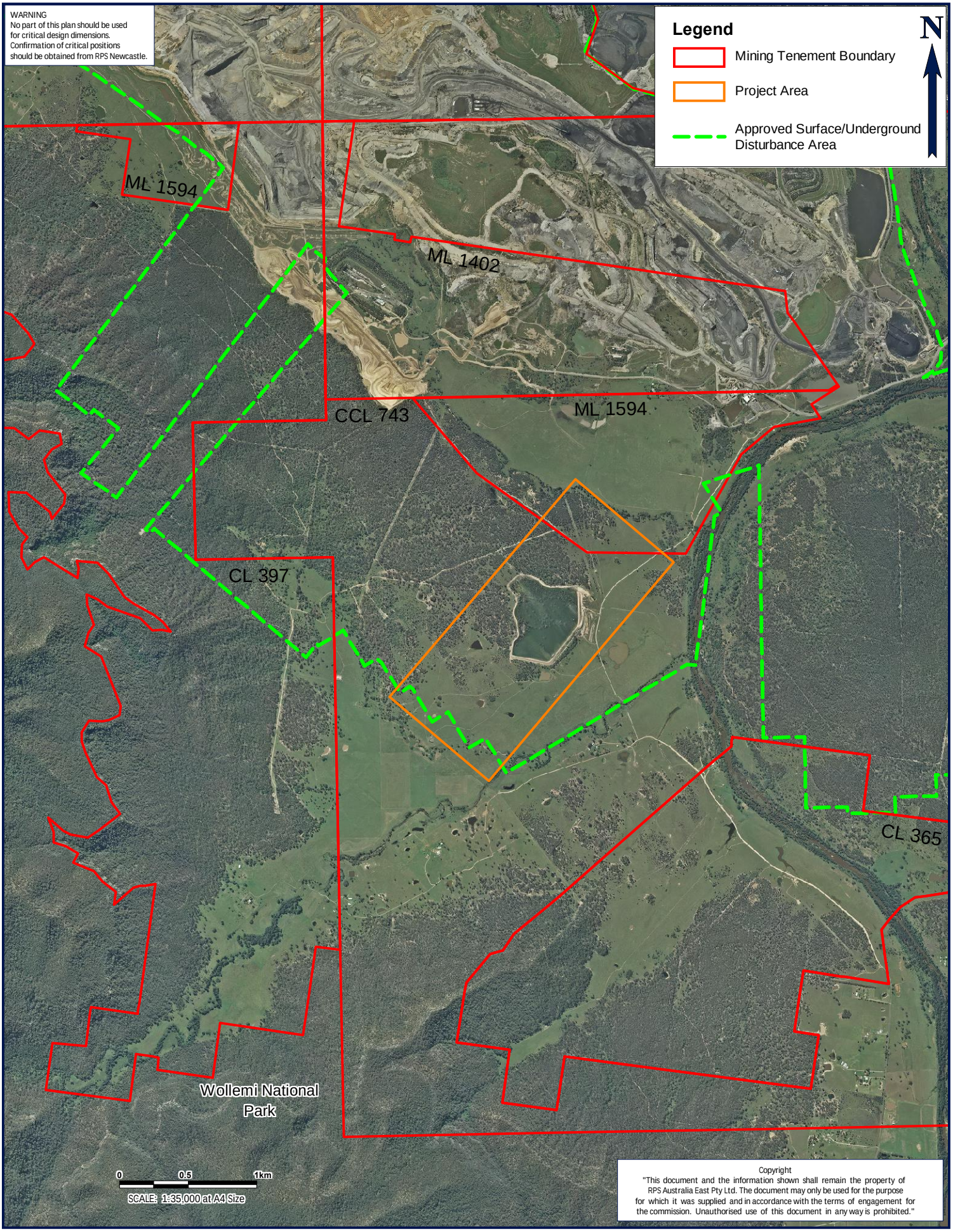
Management recommendations have been formulated with consideration to the archaeological and cultural significance of Aboriginal heritage and potential impacts of the works and have been prepared in accordance with the relevant legislation.

1.1 The Project Area

Wambo Coal Mine is situated at Warkworth in the Singleton Local Government Area (LGA). Wambo Coal Mine is located approximately 15 kilometres (km) west of the township of Singleton and adjacent to Wollemi National Park – refer Figure 1-1.

The NWUMM and its surrounds are hereafter referred to as the project area (refer Figure 1-1). The project area is situated to the west of Wollombi Brook, south of North Wambo Creek, with Stony Creek traversing the southern boundary. The project area is located within the WMCLB.

The project area is located to the west of Wollombi Brook and to the south of North Wambo Creek; Stony Creek and its associated flood plain traverses the southern section of the project area. The area is gently sloping and encompasses the south-west facing slopes and floodplain areas associated with the major creek lines that traverse the project area.



TITLE: FIGURE 1-1: PROJECT AREA

LOCATION: WAMBO

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 27/08/2012
PURPOSE: HERITAGE

LAYOUT REF: J:\JOBS\Wambo\Wambo Mapping Database\Archaeology\108453-2 Report Figures
VERSION (PLAN BY): B A4 (AB-GG-NW)

CLIENT: WAMBO COAL PTY LTD
JOB REF: 108453-2

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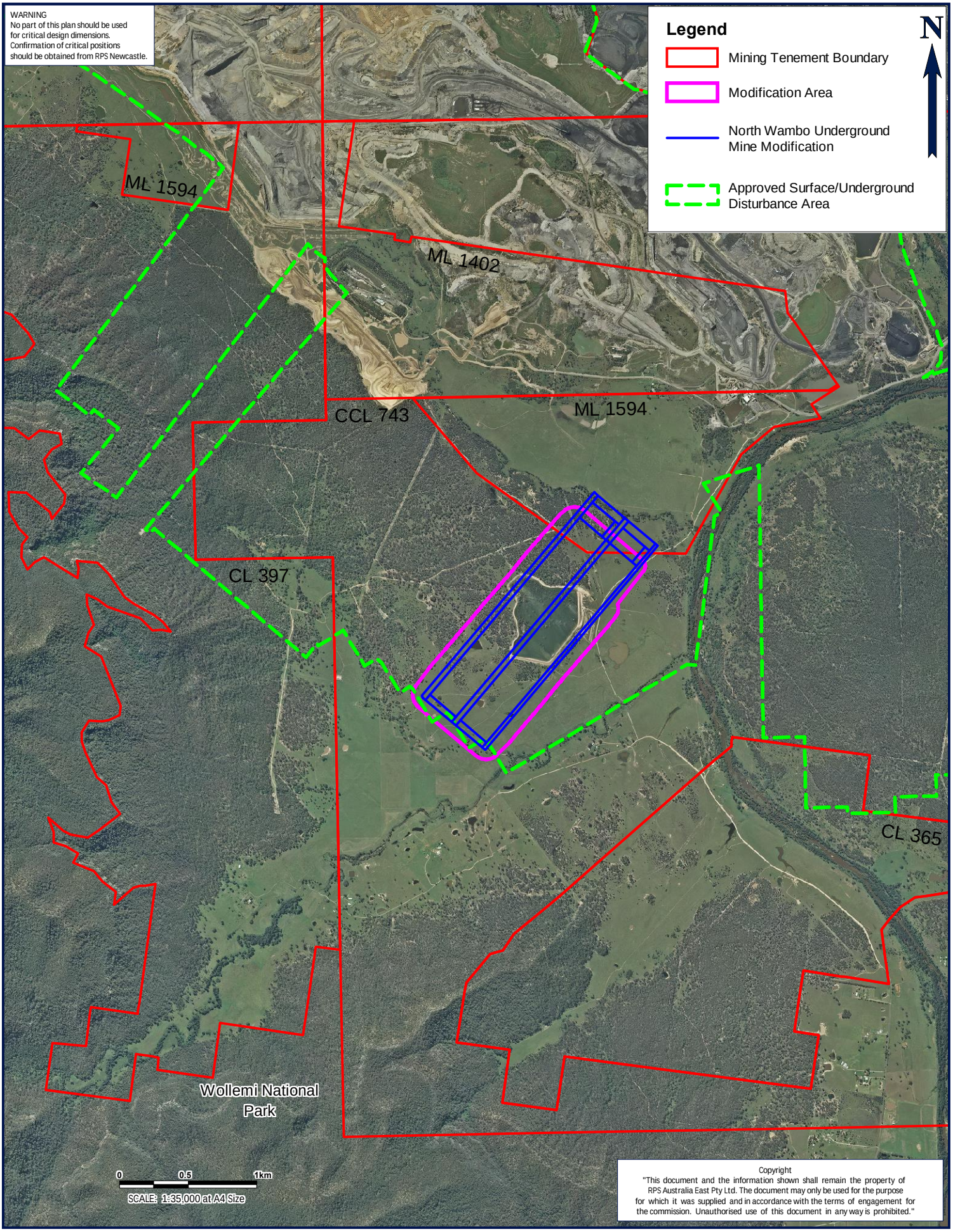

TITLE: FIGURE 1-2: PROPOSED NORTH WAMBO UNDERGROUND MINE MODIFICATION AREA

LOCATION: WAMBO

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 28/08/2012
PURPOSE: HERITAGE

LAYOUT REF: J:\JOBS\Wambo\Wambo Mapping Database\Archaeology\108453-2 Report Figures
VERSION (PLAN BY): B A4 (AB-GG-NW)

CLIENT: WAMBO COAL PTY LTD
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RPS

The Modification would include the development of two additional longwall panels in the Wambo Seam adjacent to the existing NWUM (Longwalls 9 and 10) (Figure 1-2). Access to the modified longwall panels would be via the existing North Wambo Underground Mine (NWUM). The Modification would use the existing surface infrastructure of the NWUM. Further detail regarding the Modification description is provided in Section 3 in the Main Report of the Environmental Assessment. For the purpose of this report, the Modification is referred to as the NWUMM. The extent of subsidence impact referred to as the Modification Area (MA) is shown on Figure 1-2.

The project area does not include any part of the Wollemi National Park or associated escarpment and does not impact on Wollombi Brook or North Wambo Creek.

1.2 Background

RPS has been commissioned by Wambo Coal to undertake an Aboriginal (CHIA) as part of an application to modify Development Consent (DA 305-7-2003) for the Wambo Coal Mine, under Section 75W of the New South Wales (NSW) Environmental Planning and Assessment Act, 1979 (EP&A Act).

The modification will include an additional two longwall panels in the NWUM, as well as associated surface facilities.

The original Development Consent was granted by the Minister for Planning on 4 February 2004. Wambo Coal is lodging an application with the Minister for Planning under Section 75W of the EP&A Act and clause 8J(8)(b) of the Environmental Planning and Assessment Regulation 2000 (NSW) for the proposed modification.

The project area is highly disturbed from previous farming practices including, though not limited to, the installation of fencing and dams, livestock grazing, land clearing, formed tracks, dirt access roads and fire trails. Much of the area has also been previously undermined by historic bord and pillar and longwall mining. The archaeological and Aboriginal cultural heritage survey was undertaken on 23 to 25 May 2011, 31 July 2011, 2 August 2011 and 4 April 2012.

The project area generally has a southerly aspect and covers an area of approximately 2 km long by 1 km wide. The project area is one of rolling hills and is gently sloping, encompassing flood plain, creek banks, lower and mid slope areas. Wambo mine owned land (MOL) and private land is bordered by Wambo and Jerrys Plains Ridges and adjoins Wollemi National Park.

This Aboriginal and non-Indigenous CHIA report has been prepared to meet the requirements for the application by Wambo Coal for a 75W modification to an existing Part 4 approval. The report considers the environmental and archaeological context of the project area, results from a search of the Aboriginal Heritage Information Management System (AHIMS) database, the provision of a predictive model; comments from the Aboriginal community regarding cultural heritage significance and the results of the archaeological and cultural surveys of the project area which were undertaken in May, July and August 2011 and April 2012.

1.3 Legislative Context

The following overview of the legal framework is provided solely for information purposes for the client, it should not be interpreted as legal advice. RPS will not be liable for any actions taken by any person, body or group as a result of this general overview, and recommends that specific legal advice be obtained from a qualified legal practitioner prior to any action being taken as a result of the summary below.

Aboriginal heritage (places, sites and objects) in NSW are protected by the *National Parks and Wildlife Act (1974, as amended),* which is overseen by the Office of Environment and Heritage (OEH). In some cases,

Aboriginal heritage may also be protected under the *Heritage Act 1977*, which is overseen by the NSW Heritage Branch of the Office of Environment & Heritage. The EP&A Act, along with other environmental planning instruments, requires the investigation and assessment of Aboriginal heritage as part of the development approval process. For Crown land, provisions under the *Aboriginal Land Rights Act 1983* and the *Native Title Act 1993* (overseen by the *Office of the Registrar of the Aboriginal Land Rights Act 1983*) may also apply.

1.3.1 National Parks and Wildlife Act 1974, as amended

The primary state legislation relating to Aboriginal cultural heritage in NSW is the *National Parks and Wildlife Act (1974, as amended)*. The NSW Government is working toward standalone legislation to protect Aboriginal cultural heritage which will be a significant reform for NSW. The first stage of this work has been completed and includes significant changes in relation to this commission.

Changes to the NPWS legislation made effective on 1 October 2010 include:

- increased penalties for Aboriginal heritage offences, in some cases from $22,000 to up to $1.1 million in the case of companies who do not comply with the legislation;
- ensuring companies or individuals cannot claim 'no knowledge' in cases of serious harm to Aboriginal heritage places and objects by creating new strict liability offences under the Act;
- introducing remediation provisions to ensure people who illegally harm significant Aboriginal sites are forced to repair the damage, without need for a court order; and
- unification of Aboriginal heritage permits into a single, more flexible permit and strengthened offences around breaches of Aboriginal heritage permit conditions.

1.3.2 Heritage Act 1977

Historical archaeological relics, buildings, structures, archaeological deposits and features are protected under the *Heritage Act 1977* (as amended 1999) and may be identified on the State Heritage Register (SHR) or by an active Interim Heritage Order in which they are protected under the *Heritage Act 1977* and may require approvals or excavation permits from the NSW Heritage Branch.

1.3.3 The Burra Charter

The Burra Charter is a set of best practice principles and procedures for heritage conservation. It was developed by Australia ICOMOS (International Council for Monuments and Sites), the Australian group of the international professional organisation for conservation. Although not cited formally in any act the Burra Charter underpins heritage management in NSW and Australia. The policies and guidelines of the Heritage Council of NSW and the NSW Heritage Office are consistent with and guided by the Burra Charter.

1.3.4 Environmental Planning & Assessment Act 1979

The EP&A Act regulates the system of environmental planning and assessment for NSW. Land use planning requires that environmental impacts are considered, including the impact on cultural heritage and specifically Aboriginal heritage. Assessment documents prepared to meet the requirements of the EP&A Act should address Aboriginal heritage, as well as relevant requirements of planning documents such as Local Environment Plans (LEP) and Regional Environmental Plans (REP).

1.3.5 Aboriginal Land Rights Act 1983

The purpose of this legislation is to provide land rights for Aboriginal people within NSW and to establish Local Aboriginal Land Councils (LALCs). The land able to be claimed by Aboriginal Land Councils on behalf of Aboriginal people is certain Crown land that (s36):

(a) Is able to be lawfully sold, leased, reserved or dedicated;

(b) Is not lawfully used or occupied;

(c) Will not, or not likely, in the opinion of the Crown Lands minister, be needed for residential purposes;

(d) Will not, or not likely, be needed for public purposes;

(e) Does not comprise land under determination by a claim for native title; and

(f) Is not the subject of an approved determination under native title.

Claims for land are by application to the Office of the Registrar, *Aboriginal Land Rights Act 1983*.

1.3.6 Native Title Act 1993

The Commonwealth Government enacted the *Native Title Act 1993* to formally recognise and protect native title rights in Australia following the decision of the High Court of Australia in Mabo & Ors v Queensland (No. 2) (1992) 175 CLR 1 ("Mabo").

Although there is a presumption of native title in any area where an Aboriginal community or group can establish a traditional or customary connection with that area, there are a number of ways that native title is taken to have been extinguished. For example, land that was designated as having freehold title prior to 1 January 1994 extinguishes native title, as does any commercial, agricultural, pastoral or residential lease. Land that has been utilised for the construction or establishment of public works also extinguishes any native title rights and interests for as long as they are used for that purpose. Other land tenure, such as mining leases, may be subject to native title, depending on when the lease was granted.

Further details on the relevant legislative Acts are provided in Appendix 1.

1.4 Authorship and Acknowledgements

This report was prepared by Gillian Goode, RPS Senior Archaeologist with assistance from Ali Byrne, RPS Archaeologist and reviewed by Darrell Rigby, RPS Cultural Heritage Manager.

The study team acknowledges the assistance in preparing this report of various organisations and individuals and the registered Aboriginal parties participating in the Wambo works.

2.0 Aboriginal Consultation

The purpose of Aboriginal community consultation is to provide an opportunity for the relevant Aboriginal stakeholders to have input into the heritage management process. The OEH encourages consultation with Aboriginal people for matters relating to Aboriginal heritage. If an Aboriginal Heritage Impact Permit (AHIP) is required, then the Department of Environment Climate Change and Water (DECCW) guidelines (managed by the OEH) are triggered in respect to Aboriginal consultation. In some circumstances the consultation guidelines are also used as a framework for Aboriginal consultation, even if not specifically triggered by the preparation of an AHIP application.

Wambo Mine is applying for modification to an existing approval under Section 75W of the EP&A Act for the NWUMM. As such, Aboriginal consultation is required to be undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010) (ACHCRs).

The ACHCRs include a four stage Aboriginal consultation process which stipulates specific timeframes for components of each stage. Stage 1 requires that Aboriginal people who hold cultural information are identified, notified and invited to register an expression of interest (EoI) in the assessment. This identification process should draw on reasonable sources of information including: the Registrar (*Aboriginal Land Rights Act,* 1983), the relevant OEH Environment Protection Regulation Group (EPRG) Regional Office, the Local Aboriginal Land Council(s), the National Native Title Tribunal, the Native Title Services Corporation Limited, the relevant Catchment Management Authority and the relevant local council(s). The identification process should also include an advertisement placed in a local newspaper circulating in the general location of the project area. Aboriginal organisations and/or individuals identified should be notified of the project and invited to register an EoI for Aboriginal consultation (Table 1). Once a list of Aboriginal stakeholders has been compiled from the EoI process, they need to be consulted in accordance with stages 2, 3 and 4 of the ACHCRs. Stages 2 and 3 require the preparation of information about the proposed project and the gathering of information about cultural significance. These stages include the provision of a proposed assessment methodology to the registered Aboriginal stakeholders for their review. Stage 4 requires that the assessment report (CHIA) be provided to registered Aboriginal parties for review and comment.

As regards gathering information about cultural significance, this report presents relevant comments from the Aboriginal community from previous studies, monitoring and field surveys undertaken at the Wambo Mine, as well as comments received during the review of the proposed methodology, July/August 2011 fieldwork, April 2012 fieldwork for the NWUMM area and during the review of draft CHIA. It is noted that the views documented below and in Section 7.1 are based on feedback received from representatives of the registered Aboriginal parties and may not reflect the views of the Aboriginal community as a whole.

Letters were sent on 13 May 2011 to the OEH EPRG Regional Office, Coffs Harbour, the Wanaruah Local Aboriginal Land Council (WLALC), the Registrar of Aboriginal Owners, the Native Title Tribunal, Native Title Services Corporation Limited, the Singleton Shire Council and the Hunter-Central Rivers Catchment Management Authority requesting the identification of interested Aboriginal groups (Refer Appendix 3). As a result of contacting these organisations, the following registered Aboriginal parties groups were identified as potentially having an interest in the project and an expression of interest invitation letter was sent out to each group on 31 May 2011 (Table 1):

Table 1 Recipients of the Expression of Interest Letters

Organisation	Name of Representative	Date EoI sent 31/05/2011
Aboriginal Native Title Consultants	John & Margaret Matthews	31/05/2011
Bullem Bullem Heritage Consultants	Lloyd Matthews	31/05/2011
Cacatua Culture Consultants	Donna & George Sampson	31/05/2011
Carrawonga Consultants	Justin Matthews	31/05/2011
Culturally Aware	Tracey Skene	31/05/2011
Ellielewis	Jean Hands	31/05/2011
Gidawaa Walang Cultural Heritage Consultancy	Annie Hickey	31/05/2011
Giwiirr Consultants	Michele Stair	31/05/2011
HTO Environmental Management Services	Paulette Ryan	31/05/2011
Hunter Valley Aboriginal Corporation	Nicole Smith	31/05/2011
Hunter Valley Cultural Consultants	Christine Archbold	31/05/2011
Hunter Valley Cultural Surveying	Luke Hickey	31/05/2011
Hunter Valley Natural & Cultural Resource Management	David French	31/05/2011
Kayaway Eco-Cultural and Heritage Services	Mark Hickey	31/05/2011
Lower Hunter Wonnarua Council Inc	Tom Miller	31/05/2011
Lower Wonnarua Tribal Consultancy P/L	Barry Anderson	31/05/2011
Mingga Consultants	Clifford Matthews	31/05/2011
Buudang*	Larry and Debbie Fowley	31/05/2011
Muswellbrook Cultural Consultants	Brian Horton	31/05/2011
St Clair Singleton Aboriginal Corporation	Rene Molineaux	31/05/2011
Ungooroo Aboriginal Corporation	Taasha Layer	31/05/2011
Ungooroo Cultural & Community Services	Rhonda Ward	31/05/2011
Upper Hunter Heritage Consultants	Darryl and Melissa Matthews	31/05/2011
Upper Hunter Wonnarua Council Inc	Victor Perry	31/05/2011
Valley Culture	Larry Van Vliet	31/05/2011
Wanaruah Custodians Aboriginal Corporation	Reginald Eveleigh	31/05/2011
Wanaruah Local Aboriginal Land Council	Suzie Worth	31/05/2011
Wattaka Wonnarua Cultural Consultants	Des Hickey	31/05/2011
Widescope Indigenous Group Pty Ltd	Amanda Hickey	31/05/2011
Wonn 1 Contracting	Arthur Fletcher	31/05/2011
Wonnarua Culture Heritage	Joseph Griffiths	31/05/2011
Wonnarua Elders Council	Rhoda Perry	31/05/2011
Wonnarua Nation Aboriginal Corporation	Laurie Perry	31/05/2011
Yarrawalk division of Tocomwall	Scott Franks	31/05/2011
Yinaar Cultural Services	Kathleen Steward-Kinchela	31/05/2011

*Previously known as Muronga Gialinga.

In response to the expression of interest letters and the advertisement placed in the Singleton Argus (Appendix 2), the following registered Aboriginal parties registered their interest in the project (Table 2). A number of groups registered prior to the distribution of the EoI letters and may have received information regarding the project from one of the recipients of the Stage 1 letters.

Table 2 Aboriginal Parties who Registered their Interest

Organisation	Name of Representative	Date of Registration
Muswellbrook Cultural Consultants	Brian Horton	26/05/2011
Upper Hunter Heritage Consultants	Darryl & Melissa Matthews	26/05/2011
Hunter Valley Cultural Consultants	Christine Archbold	26/05/2011
Mingga Consultants	Clifford Matthews	26/05/2011
Valley Culture	Larry Van Vliet	26/05/2011
Aboriginal Native Title Consultants	John & Margaret Matthews	26/05/2011
Bullem Bullem Heritage Consultants	Lloyd Matthews	26/05/2011
Hunter Valley Cultural Surveying	Luke Hickey	26/05/2011
Carrawonga Consultants	Justin Matthews	26/05/2011
Hunter Valley Natural & Cultural Resource Management	David French	26/05/2011
Kayaway Eco-Cultural and Heritage Services	Mark Hickey	26/05/2011
Upper Hunter Wonnarua Council Incorporated	Victor & Rhoda Perry	26/05/2011
Wanaruah Custodians Aboriginal Corporation	Reginald Eveleigh	26/05/2011
Giwirr Consultants	Michele Stair	26/05/2011
Ungooroo Aboriginal Corporation	Taasha Layer	26/05/2011
Wanaruah Local Aboriginal Land Council	Noel Downs	30/05/2011
Yarrawalk	Scott Franks	30/05/2011
Ungooroo Cultural & Community Services	Rhonda Ward	30/05/2011
Wattaka Wonnarua Cultural Consultants	Des Hickey	03/06/2011
Culturally Aware	Tracey Skene	03/06/2011
HTO Environmental Management Services	Paulette Ryan	05/06/2011
Lower Hunter Wonnarua Council Incorporated	Thomas Miller	06/06/2011
Wonnarua Nation Aboriginal Corporation	Laurie Perry	07/06/2011
Wonnarua Culture Heritage	Shannon Griffiths	08/06/2011
Yinarr Cultural Services	Kathleen Kinchela	10/06/2011
Widescope Indigenous Group Pty Ltd	Amanda Hickey	14/06/2011
Buudang*	Debbie Fowley	14/06/2011
Hunter Valley Aboriginal Corporation	Ellaine Freihaut	14/06/2011
Wonn 1 Contracting	Arthur Fletcher	15/06/2011
Gidawaa Walang Cultural Heritage Consultancy	Ann Hickey	15/06/2011
Cacatua Culture Consultants	Tegan McCormack	12/07/2011

*Previously known as Muronga Gialinga.

Information regarding the proposed heritage assessment methodology and strategy for collecting information on cultural heritage significance was provided in writing to all registered Aboriginal parties groups on 16 June 2011. As part of the assessment methodology, copies of OEH site cards relevant to the project area were provided on disc and were taken onsite during the course of the survey works.

Six Aboriginal stakeholder groups provided comments on the methodology (Table 3).

Cacatua Culture Consultants specified that they "...would like to have the opportunity to survey other areas that stakeholders feel might be potentially cultural significant within the survey area along with the field survey that is listed in the information supplied." Wambo Coal responded by clarifying that the survey would be undertaken within the study area to the satisfaction of the Aboriginal Community Stakeholders.

Yinaar Cultural Services agreed with the methodology.

WLALC expressed their concerns regarding "mining disturbance within 2km of the Wollombi Brook area (whether it be open-cut or underground)" and the potential relationship of sites within the immediate project area to other sites beyond the spatial extent of the project area. They were also concerned about the potential impact on Aboriginal culture and heritage values with respect to the Bora Ground (AHIMS #37-6-0056) located on the eastern side of Wollombi Brook approximately 2km to the south east of the eastern boundary of the project area, and approximately 3km from the Aboriginal cultural heritage sites identified in the project area.

Wonnarua Culture Heritage expressed their support of the methodology "but would like to see the Groups involved in this project come together for a meeting to discuss the project". The consult process for NWUMM is described in Section 2 of this report

Wonnarua Nation Aboriginal Corporation expressed their support of the methodology but were concerned about protection of the Bora Ground and considered the area to be of "high Aboriginal Cultural Significance".

Yarrawalk were concerned about the proximity of the project area to the Bora Ground.

The Bora Ground is located approximately 2km from the eastern boundary of the project area and will not be impacted by the NWUMM.

Table 3 Registered Aboriginal parties responses to assessment methodology information

Organisation	Name of Representative	Date of Comment
Yarrawalk	Scott Franks	24/06/2011
Wonnarua Culture Heritage	Gordon & Shannon Griffiths	07/07/2011
Wonnarua Nation Aboriginal Corporation	Laurie Perry	07/07/2011
Cacatua Culture Consultants	Tegan McCormack	12/07/2011
Wanaruah Local Aboriginal Land Council	Suzie Worth	18/07/2011
Yinarr Cultural Services	Kathleen Kinchela	18/07/2011

Participation by Aboriginal stakeholders in the NWUMM field surveys occurred in accordance with the roster system established at the Wambo Mine on 12 February 2009. This roster system provides for the equitable distribution of fieldwork between the various Aboriginal community stakeholder groups registered for fieldwork at the Wambo Mine. It was determined that the next twelve groups in line on the roster would be invited out for the site inspection and would be divided into six groups per day. The twelve groups next in line were: Hunter Valley Aboriginal Corporation; Yinaar Cultural Services; Ungooroo Aboriginal Corporation; Giwiirr Consultants; Wonnarua Culture Heritage; Upper Hunter Wonnarua Council Incorporated; Ungooroo Cultural & Community Services; Wonnarua Elders Council; Wonn1 Contracting; Hunter Valley Cultural Surveying; WLALC; and HTO Environment Management Services.

Rhoda Perry advised verbally that Wonnarua Elders Council would be withdrawing their registration from Wambo works and from the roster system. The next rostered group was Wanaruah Custodians Aboriginal Corporation.

RPS sent out invitations to these twelve groups by mail, email, fax and telephone. Hunter Valley Cultural Surveying could not be reached. The other eleven groups were contacted; however Ungooroo Cultural & Community Services, HTO Environment Management Services, Wonn1 Contracting, Wonnarua Culture Heritage and Wanaruah Custodians Aboriginal Corporation were unable to attend. Attempts were made to contact Carrawonga Consultants and Hunter Valley Natural & Cultural Resource Management however they were also unable to attend.

The following Aboriginal stakeholders attended the field survey investigation of the project area on Friday 29 July and Tuesday 2 August 2011 (Table 4).

Table 4 Registered Aboriginal parties who participated in the field survey July/August 2011

Organisation	Name of Representative	Date attended
Wanaruah Local Aboriginal Land Council	Suzie Worth	29/07/2011
Hunter Valley Aboriginal Corporation	Rhonda Griffiths	02/08/2011
Yinaar Cultural Services	Kathleen Kinchela	02/08/2011
Ungooroo Aboriginal Corporation	Allen Paget	02/08/2011
Giwiirr Consultants	Barry Stair	02/08/2011
Upper Hunter Wonnarua Council Incorporated	Georgina Berry	02/08/2011

In accordance with the ACHCRs, a first draft of this CHIA was provided to all registered stakeholders listed in Table 2 (copies sent 23 December 2011) for review and comment. Comments on the draft CHIA were requested (either verbally or in writing) by 27 January 2012.

Due to changes in the mine layout, additional surveys were undertaken on 4 April 2012. Refinements to the layout (since December 2011) resulted in a reduction of subsidence extent by approximately 800 metres (m) in the south-west, 530 m in the south, 215 m in the east and an extension of subsidence extent by 430 m in the north.

A number of groups were contacted regarding the April 2012 field work but were unable to attend due to illness, injury, family reasons or because they had no available sites officer, including: Ungooroo Culture & Community Services; Kayaway Eco-Cultural & Heritage Services; Wonnarua Nation Aboriginal Corporation; Muswellbrook Cultural Consultants; Upper Hunter Heritage Consultants; Mingga Consultants; and Culturally Aware. Furthermore, Tocomwall was contacted but declined to participate. Sites Officers from three groups attended the April 2012 field survey (Table 5).

Table 5 Registered Aboriginal parties who participated in the field survey April 2012

Organisation	Name of Representative	Date attended
Widescope Indigenous Group	Steven Hickey	04/04/2012
Buudang	Larry Foley (formerly of Muronga Gialinga)	04/04/2012
Cacatua Culture Consultants	George Sampson	04/04/2012

The updated draft CHIA was sent out to all registered stakeholders listed in Table 2 for review and comment. Copies of all relevant correspondence received in relation to this draft CHIA are provided in Appendix 3 of this report. This report will support the AHIP application and as such all issues raised by the registered Aboriginal stakeholders have been addressed below.The following comments were received:

- Brian Horton on behalf of Muswellbrook Cultural Consultants agreed with the content of the updated draft CHIA.
- Larry Foley on behalf of Buudang agreed with the methodology of the field surveys.
- Arthur Fletcher on behalf of Wonn 1 Contracting stated he was concerned that Aboriginal heritage sites would be disturbed during the construction or widening of vehicle tracks in the Modification area.

With the exception of water bores to drain the voids of previous underground workings above the proposed longwalls, no surface disturbance is proposed as part of the Modification. Vehicular movements within the proposed MA would be limited to those required for monitoring and general maintenance activities. Vehicle access would be via existing vehicle tracks.

- Arthur Fletcher agreed with the management measured proposed for sites within the MA.

A summary of the issues raised by Cacatua Culture Consultants as a result of their review of the updateddraft CHIA and how they have been addressed in this report is detailed in Table 6.

Table 6 Summary of the Issues Raised by Cacatua Culture Consultants and How They Have Been Addressed in the CHIA

Issue	Response
The draft CHIA does not contain an assessment of the cultural values (social, scientific, historic and aesthetic) of the MA.	The assessment of significance provided in Section 7.2 is based on (scientific) archaeological significance only. The registered Aboriginal parties have been asked to provide input regarding the cultural significance of the recorded Aboriginal heritage sites throughout the consultation process. Section 7.1 documents the comments received from the registered Aboriginal parties regarding the cultural significance of the area and recorded Aboriginal heritage sites to date.
Lack of consultation with the registered Aboriginal parties regarding the cultural significance of the MA.	The registered Aboriginal parties have been asked to provide input regarding the cultural significance of the MA throughout the consultation process for the Project including during the proposed methodology review period, field surveys and during the review of the draft CHIA. Section 7.1 documents the comments received to date from the registered Aboriginal parties regarding the cultural significance of the area.
Concerns that the views of some Aboriginal people were considered to reflect the views of the Aboriginal community as a whole.	In response to this comment, Section 2 has been revised to state that the views expressed by individuals may not necessarily reflect the views of the Aboriginal community as a whole.
The draft CHIA contains limited ethno-historical information (including detail on burial practices) on the Aboriginal history of the MA.	The ethno-historic and cultural information that has been included in the CHIA is based on the information that is publically available in addition to information provided by the Aboriginal parties to date through the consultation process for the Modification.
Section 4.3.1 describes previous archaeological surveys that have been conducted in the local area but does not identify the previous archaeological surveys that have been undertaken within the MA.	White (2003) conducted an Aboriginal Cultural Heritage Assessment for the Wambo Development project. The field surveys for this assessment covered the North Wambo Underground Mine MA. Further detail is provided in Section 4.3.1.

Issue	Response
Request that only AHIMS sites within the MA are shown on Figure 4-1.	The Wambo lease area has a complex archaeological resource and known Aboriginal sites in the surrounding area provide context to the Aboriginal sites recorded in the MA. Therefore it was deemed pertinent that AHIMS sites recorded outside of the MA be shown on Figure 4-1.
Further clarification of the coverage of the field surveys.	Section 6 details the methods employed during the field surveys. This includes targeting landforms associated with previously recorded Aboriginal heritage sites (i.e. landforms of archaeological potential) and areas of higher surface visibility. Survey coverage is documented in Table 6-2.
Registered Aboriginal stakeholders should be involved in all stages of the cultural heritage assessment including preliminary cultural heritage surveys.	Consultation for the Modification has been undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010). As detailed in Section 2, a preliminary cultural heritage survey was undertaken by the RPS archaeologists in May 2011. Subsequent cultural heritage field surveys of the MA were undertaken with the registered Aboriginal stakeholders.
Request that previously recorded sites (Wambo 45 and Wambo 56) be reinspected prior to undermining.	Wambo 45 and 56 are isolated finds that could not be re-identified during the field surveys. As described in Section 8 impacts to Aboriginal heritage within the MA would be negligible to low. As such inspection of these two sites prior to undermining is not considered to be warranted.
Clarification as to whether the scar tree recorded within the MA is of Aboriginal origin.	In response to this comment, at this stage it has not been confirmed whether the scar tree is a result of cultural modification, and therefore this report has been modified so that the tree is referred to as a possible scar tree throughout.
The CHIA does not include an assessment of the archaeological sensitivity of the MA.	Due to the level of erosion and disturbances no areas of archaeological sensitivity were identified. This has been clarified in Section 6.3.1.
Request that an Aboriginal Heritage Management Plan be developed for the MA.	Known Aboriginal heritage sites within the MA are currently managed in accordance with the Section 90 permit. Prior to mining, an Extraction Plan would be developed for Longwalls 9 and 10. The Extraction Plan would include a Heritage Management Plan which would detail proposed management measures for Aboriginal heritage sites within the MA.
Reference to “Aboriginal community stakeholder groups” and “ACS Aboriginal Community Stakeholders” should be amended to “registered Aboriginal parties” throughout the report to reflect the input of the Aboriginal groups that registered an interest in the Modification in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010* (DECCW, 2010).	In response to this comment, reference to “Aboriginal community stakeholder groups” and “ACS Aboriginal Community Stakeholders” should be amended to “registered Aboriginal parties” throughout the report.

A full consultation log has been provided in Appendix 4 of this report and will also be updated following review of this draft by the registered stakeholders.

3.0 Environmental Context

An understanding of environmental context is important for the predictive modelling of Aboriginal sites, as well as for their interpretation. The local environment provided natural resources for Aboriginal people, such as stone (for manufacturing stone tools), food and medicines, wood and bark (for implements such as shields, spears, canoes, bowls, shelters, amongst others), in addition to areas for camping and other activities. The nature of Aboriginal occupation and resource procurement is related to the local environment and it therefore needs to be considered as part of the cultural heritage assessment process. The reporting of environmental context is required under the Code of Practice.

3.1 Geology

Aboriginal people often made stone tools using siliceous, metamorphic or igneous rocks and therefore understanding the local geology can provide important information regarding resources in a project area. The nature of stone exploitation by Aboriginal people depends on the characteristics of the source, for example whether it outcrops on the surface (a primary source), or whether it occurs as gravels (a secondary source) (Doelman, Torrence et al. 2008).

Most of the project area is characterised by the Late Permian Singleton Supergroup which is part of the Permian Singleton Coal Measures (sandstone, shale, mudstone, conglomerate and coal seams) (Department of Mines 1969). The surface geology of the project area is predominantly the Wollombi Coal Measures in the south-west and Denman Formation of the Wittingham Coal Measures in the north. Quaternary alluvial silt and sand deposits dominate most of the eastern part of the project area, along the flats of Wollombi Brook. The Wollombi Coal Measures comprise coal seams in association with carbonaceous shale, siltstone, sandstone and tuffaceous claystone (Department of Mines 1969). The Denman Formation of the Wittingham Coal Measures also consists of coal seams and claystone, tuff, siltstone, sandstone, conglomerate and sandstone siltstone laminate (Sniffin, McIlveen et al. 1988).

Generally, the late Permian Wollombi Coal Measures overlie the Wittingham Coal Measures, which in turn overlie the mid to early Permian Maitland Group. The Maitland Group in turn overlies the early Permian Greta Coal Measures which are underlain by the Dalwood Group. These strata layers form the Singleton Super Group. There is evidence of volcanic activity in the area including felsic volcanics, fault lines and a number of dykes (Sniffin, McIlveen et al. 1988).

The presence of sandstone in the project area is important for Aboriginal occupation as sandstone was commonly used for grinding stone artefacts. Overhangs and caves in sandstone cliffs and boulders below the cliff line were sometimes used for shelter and may be found in the sandstone escarpment to the south west of the project area. Rock engravings and grinding grooves may be found in areas of exposed sandstone and sandstone outcrops particularly along creek beds in nearby creek lines such as Wollombi Brook or North Wambo Creek. Raw materials in the local area including silcrete, indurated mudstone and silicified tuff, as well as chert, basalt, rhyolite and petrified wood were commonly used by Aboriginal people for manufacturing flaked stone tools. The softer shales and claystones are highly susceptible to water erosion processes and are generally unsuitable for the manufacture of stone tools.

3.2 Soils

The predominant soil landscape in the immediate project area is consistent with the Bulga soil landscape, which consists of smooth slopes forming undulating rises. The Bulga soil landscape is characterised by sandstone colluviums, yellow and brown solodic soils and brown earths on the lower slopes, with yellow soloths on the mid slope and upper slopes. Minor to moderate sheet erosion is common (Kovac and Lawrie 1991:125-128). Aboriginal objects may be found in these gently sloping areas.

Some small areas in the south-west of the project area are consistent with the Benjang soil landscape, which consists of rounded rolling hills with frequent outcrops of sandstone or conglomerate on the summits. The Benjang soil landscape is characterised by black, yellow and red solodic soils and non-calcic brown soils on the lower and mid slopes, in addition to brown podzolic soils above rock outcrops (Kovac and Lawrie 1991:91-96). Aboriginal objects may be found on the lower and mid slopes in this area.

The soils along the narrow strip in the north-east of the project area, covering valley flats and levees of Wollombi Brook and tributaries are consistent with the Wollombi soil landscape. The Wollombi soil landscape is characterised by alluvial soils, mainly sands and earthy sands (Kovac and Lawrie 1991:425-427). Artefacts may occur associated with the banks of creeks in these areas dominated by alluvial deposits.

The project area is characterised by duplex soils with clear to sharp horizon boundaries. The A horizon soils are generally moderately deep, approximately 120 millimetres (mm) up to 600mm deep. The presence of potential stratified archaeological material is, therefore, possible. Where B Horizon soils are exposed, they are generally severely eroded and have been affected by water runoff and sheet wash erosion. A horizon soils can also be redeposited in the lower slope areas on a previously eroded B horizon (Kovac and Lawrie 1991:449). Artefacts may occur *in situ* within the moderately deep A horizon soils or redeposited atop the areas of exposed B Horizon.

3.3 Topography and Hydrology

The project area has a generally south-west facing aspect and is situated to the west of Wollombi Brook, south of North Wambo Creek, with Stony Creek traversing the southern boundary. The project area is predominantly consistent with the Bulga landscape, which is characterised by undulating rises formed by smooth slopes and covered by sandstone colluviums. Slopes are up to 10% gradient and local relief is 20 - 40 m. Lengths of slopes are up 200 m with drainage lines at 200-500 m intervals (Kovac and Lawrie 1991:125).

The area adjacent to Stony Creek in the lower part of the immediate project area is consistent with the Benjang Landscape, which is characterised by rolling hills ranging in elevation from 240 – 440 m which are generally rounded with frequent outcrops of sandstone or conglomerate on the summits. Slopes are of 10-25% gradient and local relief is from 80-120 m (Kovac and Lawrie 1991:91-93).

The project area is situated within the Wollombi Brook water catchment, and is drained by a number of first and second order streams or creek lines.

The project area lies in close proximity to Stony Creek, South Wambo Creek and approximately a kilometre away from Wollombi Brook, all of which would have been permanent water sources. However, water availability on the upper slopes, mid slopes and foot slopes is dependent on the first and second order ephemeral tributaries of these larger waterways (Sniffin, McIlveen et al. 1988).

3.4 Climate

Approximately 18,000 years ago, climatic conditions began to alter which affected the movement and behaviour of past populations within their environs. During this time, notably at the start of the Holocene (more than 11,000 years ago), the melting of the ice sheets in the Northern Hemisphere and Antarctica caused the sea levels to rise, with a corresponding increase in rainfall and temperature. The change in climatic conditions reached its peak about 6,000 years ago (Short 2000-21). Up until 1,500 years ago, temperatures decreased slightly, stabilising about 1,000 years ago to temperatures similar to those currently experienced. Consequently, the climate in the locality of the study area for the past 1,000 years would be much the same as present day, providing a year round habitable environment.

The Project is located in the Singleton area which is situated in the Hunter region. The Project Area has a temperate climate that is affected by its proximity to the mountain ranges to the south west. Summer and autumn are the wettest seasons with an average rainfall of approximately 720 mm and the temperatures averaging between 12 degrees and 24 degrees Celsius (Australian Bureau of Meteorology 2010). The temperate climate would be suitable for occupation for the majority of the year providing suitable shelter could be obtained during the wet periods.

3.5 Flora and Fauna

The historic settlement of the Hunter Valley included modification of the original vegetation communities, particularly through clearing for pastoral land uses. Broad scale vegetation mapping for NSW (Keith 2002) indicates that, prior to such modifications, the project area was dominated by two vegetation communities, the Hunter-Macleay Dry Sclerophyll Forests and the Sydney Hinterland Dry Sclerophyll Forests.

The Hunter-Macleay Dry Sclerophyll Forests are characterised by an open canopy with trees up to 30 m tall, including spotted gums, iron barks, grey gums, boxes and turpentine. The understorey consists of a sparse layer of shrubs and a semi-continuous cover of grasses (Keith 2006:124). The Sydney Hinterland Dry Sclerophyll Forests occur throughout the Sydney sandstone basin below elevations of 600 m. The trees vary in size from 10 m tall on ridges and dry slopes, up to 25 m tall in gorges and sheltered slopes. The shrub understorey is more open and less diverse than that of the coastal dry sclerophyll forests (Keith 2006: 148).

The large array of resource plant species available in the area indicates that the region could have also supported a rich variety of fauna species (National Parks and Wildlife Service NSW 2003) which Aboriginal people may have used for sustenance, tools, and clothing. In the past, these vegetation communities would likely have supported a range of fauna such as macropods, koalas, possums, gliders and a range of reptile and bird species. Evidence for the consumption of such faunal species has been recovered from Aboriginal archaeological excavations in the Sydney basin region (Attenbrow 2006:72-73).

It is considered that the area would have been well resourced in terms of water and food with a wide diversity of fauna and flora available in the local and regional area, although today the landscape has been highly disturbed by extensive clearing and previous farming practices.

3.6 Synthesis

A review of the environmental context of the region indicates that the probability of identifying sites in the project area is high. The geology underlying the project area would have provided raw materials suitable for the manufacture of stone tools and the proximity of the project area to Wollombi Brook, Stony Creek and South Wambo Creek suggests that the area would have been largely suitable for occupation.

Previous disturbances in the area include farming related practices such as clearing, grazing and slashing. Despite these modifications to the land, the soil landscape suggests that the project area has the potential to contain *in situ* subsurface artefact deposits where the soils remain deep. Additionally, the vegetation (where not completely cleared) may possibly contain scarred trees.

An overview of the environmental context of the project area indicates that there are rich food and raw material sources available. It would, therefore, have been a favourable area for Aboriginal occupation.

4.0 Aboriginal Heritage Context

The Aboriginal heritage assessment process requires that the significance of Aboriginal sites is assessed within a project area. Cultural significance is gathered by way of consultation with the Aboriginal community. In order to develop a predictive model for Aboriginal cultural heritage in the project area, it is important for the local and regional context to be taken into account. Historical records also provide additional information for the interpretation of archaeological sites.

4.1 Historic Records of Aboriginal Occupation

It is necessary to acknowledge that early historical documents were produced for a number of reasons and may contain inaccuracies and/or bias in their reporting of events or other aspects of Aboriginal culture (L'Oste-Brown, Godwin et al. 1998). Nonetheless, some historical documents provide important information and insights into local Aboriginal customs and material culture at the time of non-Indigenous settlement and occupation of the region.

In the late nineteenth century a number of writers described the Aboriginal peoples of the Hunter Valley. J W Fawcett (1898:152) described the "Wonnah-ruah [*sic*]" tribal district as that area drained by the Hunter River and its tributaries which covered some 2,000 square miles. He estimated the population in 1848 to have numbered between 500-600 peoples and provides details of some of their customs and dialect. This estimate of the population is similar to that reported by Robert Miller (1886:352) who quotes an informant from the Hunter River district as estimating the Wonnarua population in 1841 as being around 500 individuals. Miller also noted that by 1886 the population was almost extinct (1886:353).

According to Moore (1970:28) the Wonnarua territory was bounded by the Worimi who occupied the estuarine Hunter River and coastal land in the east, the Gamilaroi to the south-west, the Gewegal to the north-west and the Darkinjung to the south.

4.1.1 Aboriginal Implements

Fawcett (1898:152) provided a detailed description of the Wonnarua weapons and implements including the spear, woomera or throwing stick, shield, boomerang (both returning and non-returning), tomahawk or hatchet, flint knife, chip of flint or shell for skinning animals, club, yam stick for digging, bags of plaited swamp grass, wooden bowls, nets for catching fish and bark canoes.

4.1.2 Food and Useful Plants

Miller (1886:352) recorded that kangaroos, emus and reptiles were used as sources of protein and described how a variety of roots, most importantly that of the water lily, were roasted and eaten. Fawcett (1898:152) stated that wallabies, bandicoots, kangaroo rats, opossums [*sic*], rats, snakes, lizards, fish, shellfish, caterpillars, grubs, larvae of wasps, other insects and birds were used by the Aboriginal people as food resources.

W.J. Needham (1981) conducted interviews and research which resulted in a comprehensive study of Aboriginal sites in the Cessnock - Wollombi area. He describes Xanthorrhea australis (grass tree), which is found in the Singleton area, as being an important resource (Needham 1981). Various parts of the grass tree were useful to make spear shafts, for sealing cracks in canoes and for securing stone tips in hunting spears (Needham 1981). It was also used to produce fire when two pieces of the dried flower stem were rubbed together (Needham 1981).

4.1.3 Campsites and Shelters

J.W. Fawcett (1898:152) described the preferred campsites of the "Wonnah-ruah [*sic*]" tribal district in the Hunter River catchment area as being located close to fresh water and food resources. A vantage ground was also favourable as a precaution against attacks on the camp.

The materials used to construct the campsites and shelters were made from organic matter which is highly unlikely to have been preserved in the archaeological record.

Fawcett (1898:153) also provided a description of the huts constructed for shelter. These huts were generally erected using forked sticks planted in the ground with straight sticks laid in the forks and covered over with sheets of bark sourced from local trees.

4.1.4 Clothing

Summer weather and the milder days of autumn and spring required little in the way of protective clothing; winter however, saw the use of animal skins for both clothing and as blankets (Heath n.d.:43). Miller (1886:352) describes Aboriginal people using possum skin cloaks with an ornamental nautilus shell suspended around the neck on a string.

4.1.5 Burials and Post Contact Phase

There are various reports concerning burial practices of Aboriginal people (Threlkeld in Gunson 1974). Burials appeared to be the most common form of internment with a well-documented preference for burials in sandy or loose soils, most likely resulting from the ease of digging a grave (Threlkeld in Gunson 1974).

4.2 Regional Archaeological Heritage Context

Archaeological evidence suggests that Aboriginal occupation of the Hunter Valley region began at least 35,000 years ago (Koettig 1987). Additional chronological evidence was recovered from the Hunter Valley's northeast mountains for which the following dates were assigned 34,580±650 (Beta-17009), >20,000 (Beta-20056) and 13,020±360 years before present (BP) (Beta-17271) (Koettig 1987, as cited in Attenbrow 2006). Kuskie (2000:215) identified artefacts at Wollombi Brook located in a clay horizon that have been dated to between 18,000 and 30,000 years BP. At Glennies Creek, approximately 50km north-west of the project area, Koettig and Hughes (1983) excavated a hearth on an alluvial terrace where the radiocarbon-dated charcoal and geomorphological evidence provided a date of between 10,000 to 13,000 years BP. These archaeological sites show that the Hunter Valley region was occupied during the Pleistocene, dated up to 11,000 years ago (Short 2000); Pleistocene sites are generally rare and therefore contain significant archaeological/scientific information as well as demonstrating the long occupation of Aboriginal people in the region.

The majority of Aboriginal sites in the region, however, are dated to the more recent Holocene (<11,000 years ago). This may reflect Aboriginal occupation patterns, but may also be influenced by the inaccessibility of potential coastal Pleistocene sites which were inundated when sea levels rose and reached present levels approximately 6000 years ago (Mulvaney and Kamminga 1999:223). Evidence for Holocene Aboriginal occupation has been recovered from Bobadeen (7,760 calibrated years before present [cal. years BP]), as well as Milbrodale (1,420 cal. years BP) and Sandy Hollow (1,310 cal. years BP) (Moore 1970:58).

Ongoing archaeological investigations in the Hunter Valley have provided a basis for the development of predictive models of site distribution within this region. Studies completed by ERM (2004) and Koettig and Hughes (1983) have demonstrated that open artefact scatters are common throughout the Hunter Valley, with large open sites generally located in proximity to large creeks that provided a more reliable source of

potable water, with smaller open sites distributed through a variety of landforms including large and small creeks, slopes and crests.

Certain typological temporal markers such as backed blades and eloueras are present within the Hunter Valley assemblages. Whilst these provide only a gross indication of time scale, based on the age of the soils and the presence of backed artefacts, the majority of sites in the Hunter Valley are considered to date to the late Holocene period.

The majority of archaeological sites for the Singleton area are dated within the Holocene period (between 11,000 BP and present time). Wheeler (2006:5) believed the large number of sites in the area which date to this period is the result of increased Aboriginal populations and 'intensification' of site usage during the Holocene. Alternately, the high frequency of recorded sites dating to the Holocene in the Singleton LGA may be due to the rise in sea levels around 6,000 BP erasing evidence of older sites located on the coastal margins.

4.2.1 Regional Archaeological Studies

Using colonial records Brayshaw (1986) conducted extensive research of the landscape and the known Aboriginal communities in the broader Hunter Valley area. Although the ethnographic literature refers to ceremonial grounds and carved trees, these represent only a small portion of the sites which would have occurred in the Hunter Valley. Camp sites would have occurred more commonly, but little is recorded regarding the locations of such sites. The literature does indicate that in the Hunter Valley as elsewhere Aboriginal numbers were quickly and greatly reduced by European diseases.

Brayshaw's research into the ethnographic record also showed the distinction between the material culture and goods manufactured in inland and coastal areas, dependent on the resources available. The exchange of goods between inland and coastal inhabitants was also evident. Bark was probably the most commonly utilised raw material, associated with the construction of huts, canoes, cords, nets, drinking vessels, baskets, shields, clubs, boomerangs and spears. Being an organic material, very few such artefacts survive today. Scarred Trees, carved trees, burial sites, ceremonial or Bora Grounds, cave paintings, rock engravings, axe grinding grooves, quarries and wells have all been recorded in the Hunter region. The distribution of these sites would generally have been reliant on environmental and cultural factors such as resource availability.

The colonial records describe the Hunter Valley as having tall cedar trees in the Paterson and Wallis Plains, in addition to lagoons, silted flood channels and open swamps. The clearance of the vine forests below Maitland changed the landscape dramatically. The Hunter Valley region was prone to both drought and flooding.

Surveys undertaken in the surrounding Warkworth and Jerry's Plains areas include, but are not limited to, those by Dyall (September 1979), Dyall (November 1979), Brayshaw (1981), Brayshaw and Haglund (1984), Koettig and Hughes (1983) and Australian Museum Business Service (AMBS 2002).

4.3 Local Archaeological Heritage Context

The local Aboriginal heritage context provides a review of previous archaeological work conducted in the local landscape, identifies whether Aboriginal sites have been previously identified in the project area (using the Aboriginal Heritage Information Management System [AHIMS]) database and informs the predictive model of Aboriginal sites for the project area. The review of previous archaeological work includes relevant local research publications as well as archaeological consultancy reports. Two types of archaeological investigation are generally undertaken; excavation and survey. Archaeological excavations can provide high resolution data regarding specific sites, such as the dates or chronology of Aboriginal occupation and information on stone tool technology (reduction sequences, raw material use, tool production, use wear and

retouch). Archaeological surveys generally cover wider areas than excavations and can provide important information on the spatial distribution of sites. The detection of sites during survey can be influenced by the amount of disturbance or erosion and therefore sensitivity mapping is sometimes also required to interpret survey results. The local Aboriginal heritage context also provides a framework for assessing local significance.

4.3.1 Local Archaeological Studies

A number of archaeological surveys have been undertaken in the Hunter Valley, including some in areas relevant to the project area. The investigations most pertinent to the current project area are summarised below. The information from the previous work will assist with predictive modelling by identifying potential archaeological sites and allowing for planning and management recommendations to be formulated with confidence.

A comprehensive study covering the area to the east of the Wambo and Jerrys Plains ridgelines (including the project area) was undertaken by White (2003). The results of the Environmental Impact Assessment (EIA) (White 2003) showed that there were a large number of artefact scatters and isolated finds in the area, together with evidence of raw materials for making stone tools, ochre and an abundant supply of fauna and flora, all of which would have been useful resources.

Occupation areas or open camp sites were generally located on the gently sloping areas in close proximity to water. In particular, they were identified along major creek lines and at the confluence of major tributaries of North Wambo Creek, Wambo Creek (known locally as South Wambo Creek), Waterfall Creek and Stony Creek. These creeks and their tributaries drain into Wollombi Brook and the Hunter River. The Hunter River lies to the north and north east of the project area, Wollombi Brook lies directly to the east and South Wambo Creek and Stony Creek lie to the south and south west.

Wambo and Jerrys Plains Ridges bound the project area to the west and the upper slopes comprise vertical sandstone cliffs with very steep screed and talus slopes. These north east facing ridgelines are difficult to access and were unlikely to have been used for regular access through the mountains. The upper slope areas are covered in conglomerate sandstone boulders and stony scree, the mid slope areas are moderately sloping and are incised by a number of ephemeral creek lines. These areas are densely treed. The foot and toe slope areas are gently sloping and easily accessible and are generally cleared lands from previous farming practices. There is evidence of extensive flooding of the major creek lines in the region and the major waterways, the Hunter River, Wollombi Brook and North Wambo Creek, have extensive flood plains on either side. As substantiated by the density of artefact scatters and open camp sites in the foot slope and toe slope areas, it is considered likely that occupation was generally on the easily accessible sloped areas and on either side of the major creek lines outside of the flood area or above the flood line. These locations would have provided convenient access to food and raw material resources.

The results of other archaeological studies undertaken in the local area show that the north eastern bank of North Wambo Creek has a higher density of artefact scatters and isolated finds than the south western bank. As such this area appears to have been more densely occupied or used in the past than the south western area (i.e. the project area).

Dyall, L.K 1980. Report on Aboriginal Relics on Wambo Coal Lease, Warkworth

Dyall was commissioned to undertake an archaeological survey for further development works incorporating an extension of the existing open cut and pit mining at Wambo Mine. Dyall conducted further survey work on the northern and western banks of Wollombi Brook to the west of Warkworth and on the opposite side of the creek to the 12 previously recorded artefact scatter sites A – L and grinding groove Site M (Dyall November 1979). The survey area was bounded to the south west by North Wambo Creek.

The archaeological survey identified six artefact scatter sites and an axe grinding groove site with two grinding grooves. Three "Bulga Knives" were identified at an artefact scatter site on the northern bank of North Wambo Creek, an edge-ground axe, several edge-scrapers, flaked cobbles, a backed blade (Bondi Point) and a scraper of bottle glass. No rock engravings or scar trees were located and no rock outcrop suitable for containing a rock shelter or overhang was identified. Dyall noted that sandstone and other sedimentary rock types were evident with lenticular limestone cobbles as well as basalt pebbles.

An artefact site with around 20 flakes and flaking cores and a number of basalt axes was identified on a neighbouring vineyard at Greenhault Farm on the west bank of Wollombi Brook. According to the ethnographic record this was a "meeting place" for the local Aboriginal people and coastal tribes. Dyall recorded that sites were generally located close to creek lines.

Dyall, L.K (1981) Report on the Aboriginal Relics on Wambo Coal Lease, Warkworth

Dyall (1981) carried out an archaeological survey of the northern part of the Wambo Coal Lease area. This survey extended from the north bank of North Wambo Creek to the northern boundary of the Lease and eastwards to Wollombi Brook. He recorded seven sites, six being open camp sites and one an axe grinding groove site.

The open sites were small to medium in size. Four of the sites consisted of 20 – 50 flakes along minor tributary gullies. Of these, site #37-5-0032 consisted of three 'bulga knives' on the northern bank of North Wambo Creek, site #37–5-0034, located at the confluence of North Wambo Creek and Wollombi Brook, had over twenty artefacts, mostly heavy flaking cores and the axe grinding groove site consisted of a small sandstone boulder with two axe grinding grooves and three small circular pits.

Brayshaw, H. 1984. Archaeological survey at Wambo near Warkworth, NSW.

Brayshaw (1984) undertook an archaeological survey at Wambo to the south of Redbank Creek and to the west of Wollombi Brook. The survey included the entire central creek line including the area to the north, a small flow line and a number of exposed ground surface areas. Accessible ridge lines and slopes were surveyed where possible. The investigation was conducted by vehicle and on foot. Stone artefacts were found at three locations along the central watercourse. Although the numbers of artefacts found at these locations were very small it was concluded that they conformed to patterns identified in larger Hunter Valley investigations. It was recommended that consent to destroy the sites be obtained with the exception of Site #37–6–0135, at which test excavations should be undertaken prior to consent to destroy being granted (1984).

Corkill 1990. Preliminary Survey for Archaeological Sites at South Wambo, near Warkworth, NSW

Corkill (1990) was engaged to conduct an archaeological survey along South Wambo Creek and Stony Creek. The total area surveyed was approximately 5.5 kilometres. Six artefact scatters and nine isolated finds were identified, including an isolated find on the Project Area (37-5-0293). Corkill then conducted a test excavation in the area which identified several hundred artefacts. Retouched, backed blades and scrapers were identified amongst the assemblage (Corkill 1990).

ERM. 1991. Proposed Open Cut and Underground Mining at Wambo, near Warkworth in the Hunter Valley, NSW: Archaeological Survey for Aboriginal sites.

Enviros ciences Pty Ltd (Rich 1991a) was commissioned by Wambo Mining Corporation in regard to their proposed extension of their existing open cut and underground mines at Wambo, located on the west side of Wollombi Brook at Warkworth in the Hunter Valley. A survey was conducted along Stony Creek which is

approximately 1.5 kilometres long and varies from 250 metres to 460 metres wide. This area was selected by Envirosciences Pty Ltd for the survey in order to determine whether sites were likely to occur within the project area, as sites commonly occur along creeks.

Two isolated finds and 17 artefact scatters were found within the survey area along North Wambo Creek. A possible scarred ironbark tree was observed adjacent to Wollombi Brook, 600 metres east of the survey area. Three artefact scatters and four isolated finds were found along Stony Creek. Most of the sites were open sites, consisting of stone artefacts eroding out of Unit A deposits or lying on eroded Unit B clays. Eroding hearths were seen at two sites and the possible remains of a destroyed hearth at a third site. A stone structure which was considered to be a possible heat treatment oven was found at another site. An axe grinding groove site with at least seven grooves and a boulder with two grooves was also identified. The sites were considered archaeologically significant as they displayed considerable variation in their contents.

Environsciences Pty Ltd recommended that an archaeological test excavation be carried out at Site 1, adjacent sites #37–5-0030, #37–5-0031, #37–5–0033 and Isolated Find 1 to determine their significance. It was recommended that if mining were to proceed the route of the North Wambo Creek diversion channel should be retained in or near its present location to avoid Site 3 and that a management plan be developed for the area of the Group 2 sites along North Wambo Creek to address erosion of the sites and future land use. Programmes to monitor subsidence in A298 which are required by the Department of Minerals and Energy should be designed to incorporate monitoring of Aboriginal sites already known for the area (Rich 1991a).

Rich E. 1991b Investigation of Aboriginal Sites SW3 and SC4 at South Wambo, near Bulga, NSW.

Rich (1991b) undertook test excavations at two sites on Wambo Creek, (known locally as South Wambo Creek); both sites were located on spurs above creek flats. Artefact densities were recorded to be low to moderate. Site SW3 was on a colluvial terrace with sediments 70 centimetres (cm) deep and the possibility of stratified soil was indicated (Rich 1991b).

Rich E. 1991c Aboriginal Sites at Wambo, near Bulga in the Hunter Valley.

Archaeological survey and test excavation were carried out along Wambo Creek (Rich 1991c) (known locally as South Wambo Creek), Stony Creek and North Wambo Creek. These creeks drain from the Wollemi escarpment and flow into Wollombi Brook north of Bulga. The investigations were carried out for Wambo Mining Corporation as part of environmental impact studies for proposed open cut and underground mining.

A total of 29 sites were recorded. Four were found along South Wambo Creek, four along Stony Creek and 21 were located on the banks of North Wambo Creek. The sites varied from small camp sites with a few artefacts to very extensive camp sites with hundreds of artefacts. Hearths and grinding grooves were also recorded.

Rich stated that some of the sites along North Wambo Creek were of considerable archaeological significance as a variety of stone artefacts and a knapping floor were present. The sites along South Wambo Creek were also considered by Rich to be of archaeological interest as she identified a number of backed blades and noted a number of differences to the sites found along North Wambo Creek. Rich considered that the sites along all three creeks had the potential to provide archaeological information on changing Aboriginal land use through time. Rich stated that the underground mining works were unlikely to harm the Aboriginal sites along South Wambo Creek and Stony Creek. The 16 sites along North Wambo Creek were located away from the open cut mining area and these sites included the axe grinding grooves, hearths, knapping floors, bulga knives, scrapers and other tools which she considered were sites of archaeological significance and should not be impacted upon by the proposed works (Rich 1991c).

Kuskie, P. J. 1998. An Archaeological Assessment of the Proposed Wambo Mine Conveyor and Haul Road, near Warkworth, Hunter Valley, New South Wales.

Kuskie (1998) conducted an archaeological survey for a proposed mine conveyor and haul road. The main artefact types recorded included cores and core fragments and flakes and flake fragments of rhyolitic tuff and silcrete (Kuskie 1998).

Kuskie, P. J. 2000. Jerrys Plains coal terminal and rail line: an Aboriginal assessment of several haul road options at United and Lemington Collieries, Hunter Valley, New South Wales.

Kuskie (2000) conducted an archaeological assessment for proposed haul road routes from United and Wambo leases to Lemington colliery as part of the proposed Jerry's Plains Coal Terminal and Rail Line. Six sites which included five artefact scatters and one isolated find were identified by the survey within United Colliery's lease boundary (Kuskie 2000).

White, E. 2003. Aboriginal Heritage Assessment for Resource Strategies Pty Ltd. Wambo Development Project – (Environmental Impact Statement).

White (2003) conducted an archaeological Aboriginal heritage assessment of the proposed Wambo Development Project. The existing Wambo open–cut and underground mines are located on the west side of the Wollombi Brook and south of the Hunter River. This study was part of an Environmental Impact Statement (EIS) being prepared by Wambo Coal (White 2003). The study area was relatively large, covering approximately 60 square kilometres (km^2). It was located on the eastern edge of high sandstone country, adjoining Wollemi National Park. The primary objective of the study was to assess the impact which the project would have on Aboriginal heritage.

The study identified a total of 292 sites in the project area or in proximity to the proposed rail line. From historical records, a carved tree site was identified on the eastern edge of the area. While the trees have been destroyed since the site was recorded in 1918 the site is still of considerable value as a ceremonial area to the Aboriginal community and additional research by Brayshaw (2003) was carried out to locate the site more accurately.

Other site types identified in the project area include grinding grooves, a probable scarred tree, two sites with glass artefacts and two other sites which included historical materials indicating they may have been contact sites. Two locations have been identified as potential dateable geomorphic contexts, a red sand body on which two sites were identified and a yellow sand dune east of Wollombi Brook. The remaining sites are open artefact scatters and isolated finds. One hundred and ten isolated finds were identified along with 69 artefact scatters of only two to four visible artefacts. Only 18 sites had more than 50 artefacts. Based on the analysis of artefact distribution White identified a total of 20 potential Aboriginal site locations. The analysis undertaken by White of the artefact assemblages found variation in the distribution of stone raw materials across the study area, particularly silcrete (White 2003).

In addition to the above described archaeological studies, several other relevant studies were reviewed and their findings considered as part of this study. These additional studies include: Effenberger (1992), ERM Mitchell McCotter (1999), Silcox (1998) and Sutton (2002).

4.3.2 Aboriginal Heritage Information Management System

A search of the OEH AHIMS database was undertaken on the 30 May 2011 and checked on 20 August 2012 using two separate sets of co-ordinates in order to effectively cover the project area and its environs. These were Polygon 1 Zone 56 Eastings 308708-310860 and Northings 6389731-6391743 and Polygon 2 Zone 56 Eastings 309916-312002 and Northings 6390397-6392806. These searches (refer Appendix 5) revealed that there were 54 registered sites listed altogether within the two polygon searches, but when duplications had been eliminated, the count was reduced to 41. The AHIMS results showed that the recorded site types occurring in this area were artefact sites including artefact scatters and isolated finds (n=39), Potential Archaeological Deposit (PAD) (n=1) and a possible scarred tree (n=1). As such the majority of the site types were those containing stone artefacts. The possible scarred tree (AHIMS #37-2-0188) is erroneously listed in the extensive search as an artefact site and one site (AHIMS #37-5-0305) has previously been salvaged under Permit #2222.

It was found that 18 sites of those recorded on the AHIMS database occurred within the NWUMM project area boundary. These included 11 artefact scatters (AS) and seven isolated finds (IF) (refer Figure 4-1 and Table 7). The AHIMS results were reviewed against the work undertaken in 2002/2003 by White across a portion of the project area (White 2003) (refer Section 4.3.3). The AHIMS results and findings of White (2003) were correlated, and Figure 4-1 shows all previously recorded sites in the region.

Table 7 Summary of AHIMS Results ordered by site types and frequency within the immediate project area

Site Type	Frequency	Percent
Artefact Scatter	11	61%
Isolated Find	7	39%
Possible Scarred Tree	0	0%
PAD	0	0%
Total	**18**	**100%**

Stone artefacts generally are found in flat or gently sloping, open regions and on level, well drained land features in close proximity to water courses. Scar trees are usually found in close proximity to water or on easily accessible slopes.

WARNING
No part of this plan should be used for critical design dimensions. Confirmation of critical positions should be obtained from RPS Newcastle.

Legend

- Modification Area
- Project Area

Artefact Site Types

- Artefact Scatter
- Isolated Find
- Scar Tree

N

PAD F
PAD E
PAD A

3 92 93 95 94 96 97 115 107 106 101 99 98a 102 104 100 98b 103 105 82 81 75 74 72 67 66 63 65 64 71 68 73 70 69 53 61 60 54 55 59 52 56 57 58 50 48 46 51 49 333 47 45 43 44 40 41 42 32 9

0 250 500m
SCALE: 1:10,000 AT A3 SIZE

TITLE: FIGURE 4-1: AHIMS & RECORDED ABORIGINAL SITES
LOCATION: WAMBO
DATUM: (GDA 94)
PROJECTION: MGA ZONE 56
DATE: 27/08/2012
PURPOSE: HERITAGE
LAYOUT REF: J:\JOBS\Wambo\Wambo Mapping Database\Archaeology\108453-2 Report Figures
VERSION (PLAN BY): B A3 (AB-GG-NW)

CLIENT: WAMBO COAL PTY LTD
JOB REF: 108453-2

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

In the regional area artefact scatters and isolated finds make up the majority of site types (Table 8). A bora ground and grinding grooves have also been recorded in the region but these sites are some distance from the project area (one to two kilometres to the east) with no potential impacts from the NWUMM and therefore are not assessed further. The bora ground is located on the eastern bank of Wollombi Brook to the south-east of the project area. Grinding grooves are often found on large open and relatively flat areas of sandstone shelving and outcrops in close proximity to water, such as the exposed sandstone along rivers and other tributary drainage lines and swamps. No grinding groove sites have been found in the creek lines within the boundary of the proposed longwall mining extension area. A glossary of site types has been included in Appendix 6 of this report.

Table 8 Summary of AHIMS Results ordered by site types and frequency

Site Type	Frequency	Percent
Artefact Scatter	28	68.29%
Isolated Find	10	24.39%
Possible Scarred Tree	1	2.44%
PAD	1	2.44%
Salvaged	1	2.44
Total	**41**	**100%**

The results of the AHIMS searches show that the area would most likely have been used for camping and resource procurement, particularly with relation to Wollombi Brook to the east, North Wambo Creek to the north and Wambo Creek (South Wambo Creek) and Stony Creek to the south/south east. The project area is characterised by gently sloping toe slopes and moderately sloping foot slopes with a low lying hilly area in the west, north and north east of the study area. To the west of the project area are the steeper sloping mid slopes and upper slopes of rolling hills and the very steeply sloping screed and talus slopes with vertical sandstone cliffs which form the Wambo and Jerrys Plains Ridgelines that trend from the north west to the south east. These north east facing ridgelines are generally inaccessible and were unlikely to have been utilised as trading routes as there are more accessible passes through the mountains to the north-west and south-west of the project area.

4.4 Predictive Model for Archaeology in the Project Area

A predictive model is created to give an indication of Aboriginal sites likely to occur within the project area. It draws on the review of the existing information from the regional and local archaeological context and the environmental context. The predictive model is necessary to formulate appropriate field methodologies in addition to providing information for the assessment of archaeological significance.

There are a number of factors which influence Aboriginal occupation of an area. These include essential subsistence resources such as food (flora and fauna), and fresh water. Additionally, floral and faunal resources were used for clothing, medicines, shelter and baskets and shields. Raw stone materials were utilised for the manufacture of tools and weapons. Ridges, flat elevated areas and rock shelters would have been favoured as places for occupation. Cultural or spiritual sites, such as corroboree sites, mythological places and initiation sites, may have been associated with certain landforms or specific sites or areas in the landscape.

4.5 Site Predictions

The following site predictions for the project area have been made on the basis of the environmental context, available historic observations of Aboriginal people in the region, archaeological studies and analysis of the AHIMS data.

4.5.1 Site Type

The project area is located inland in an area which has been extensively mined. On the basis of the AHIMS data and the information available from previous archaeological investigations, it is considered that artefact sites (scatters and isolated finds) would be the most likely site type to be present in the project area.

4.5.2 Site Locations

The majority of artefact scatters and isolated finds in the vicinity of the project area have previously been identified within 50 m of a watercourse. This indicates that the locations in the project area with the highest potential to contain artefact sites would be those near watercourses or drainage lines, generally above the floodplain.

4.5.3 Site Contents

A review of previous archaeological investigations in the local area indicated that artefact scatters and isolated finds generally comprise flaked stone artefacts manufactured predominantly from mudstone and silcrete, with minor representations of tuff, quartz and quartzite and occasionally basalt, chert, chalcedony, petrified wood and felsic volcanics. It was therefore predicted that sites with artefacts within the project area would be characterised by flaked stone tools, cores and flakes largely manufactured from mudstone and silcrete.

4.5.4 Site Condition

Due to the effects of previous land use, such as extensive clearing, sheet wash erosion, grazing livestock and previous farming practices and the highly disturbed nature of the project area, it was predicted that the area would be unlikely to contain any deep sub-surface archaeological deposits and that any deposits that may be present were unlikely to retain spatial or stratigraphic integrity.

5.0 Historic Heritage Context

5.1 Historical overview

Initial contact between Aboriginal and non-Aboriginal people in the Upper Hunter Valley was in 1797. Permanent settlement of the Hunter Valley was established in 1804 with a penal colony for the convicts who had been deemed unsuitable to remain in Sydney (generally, re-offenders). While the lower Hunter was developed on a foundation of industrial production the Upper Hunter maintained a predominantly agrarian purpose. An important figure in the early exploration of the Upper Hunter was John Howe, who first commented on the suitability of the land for agricultural use. The narrow floodplain between Aberdeen and Patrick's Plains was declared to be *"...The finest sheep land I have seen since I left England...The grass on the low ground is equal to a meadow in England (Wood 1972)".*

The town of Singleton was named after Benjamin Singleton, who had taken part in the navigation of an overland route between the Hawkesbury and Hunter Rivers. He was granted land on the site of what is presently the town of Singleton by Governor Brisbane in 1823 (Wood 1972). Singleton settled on this land and established a residence. In 1827 Singleton set up the first inn in the area, called The Barley Mow, which was followed by the establishment of a flour mill in 1829 and a post office. The railway arrived in Singleton in 1863 and assisted in the further development and economic prosperity of the town (Appleton 1963).

5.2 Local history

5.2.1 Warkworth

The Cockfighter Creek was the first name given to the Warkworth area in 1820. By 1840 there were three hotels and it was the stopping place for the coaches from Sydney. In general, land in the Warkworth area was leased by crown grants and used as grazing land. There was little significant construction undertaken on this land (Weir and Phillips 2007:4).

In January 1863, the *Real Property Act 1862* was introduced and many larger leases were divided into smaller lots. This was the beginning of the dairy industry of the Hunter Valley, which was subsequently strengthened by the completion of the Hawkesbury River Railway Bridge in 1888 (Weir and Phillips 2007:4). Until World War II, dairy farming, timber felling and grazing remained the most dominant industries in the Upper Hunter.

5.2.2 Jerrys Plains

In November 1819, John Howe reached Jerrys Plains via Windsor (Brayshaw 1987:9) along a route which later became known as the "Bulga Tack" and is the present day Putty Road. The name Jerrys Plains was taken from the name of one of Howe's men, a convict named Jerry Butler, who died in the area during the course of their exploration. The first printed use of the name Jerrys Plains appears in the newspaper *The Australian* on the 4th February 1827 and subsequently in the 1828 census.

Throughout the 1820s, Jerrys Plains was populated sparsely, with approximately 500 people living in the Paterson Plain and Patrick Plain districts. This small population may have been a result of a drought, which was observed by Reverend J. D. Lang upon his arrival in the Hunter in 1828. Once the Putty Track and the Great North Road were established during the late 1820s to early 1830s, growth in rural commerce and local industries saw an associated increase in the population of the area.

Constable J. Needham became the first Police Officer in Jerrys Plains in 1827. By 1831 government officials had decided to establish a mounted police station in the town due to the increased number of burglaries in

the district and to assist in the dealings between Europeans and Aboriginal Peoples. Barracks and officers quarters were constructed in the official village reserve in 1832. In March 1833, the headquarters of the Hunter River division of the Mounted Police was transferred to Jerrys Plains from Maitland.

A Post Office was established in 1837 and an ex-convict, Robert Thomas Capp, was the first Postmaster. By this time, Jerry's Plains had become an important junction between Maitland and Cassilis on the Gammon Plains near Merton, and further to Bathurst. In 1844, the first school was established in the town by the Church of England. The residents of the town petitioned the government for a public school in 1847, however, it was not established until 1881.

5.2.3 Wambo Homestead

James Hale, a former convict, began acquiring the property of Wambo during the 1830s, in individual parcels eventually amounting to about eight thousand acres. The first buildings of the Wambo Homestead were constructed in 1832, with major extensions made in the mid-1840s. In 1850, James Hale's stepson, William Durham, settled at Wambo with his family and property became known for its Durham cattle. A coal seam was discovered in 1863 during the sinking of a well, though the property remained pastoral land for another one hundred years. In 1891, after the death of William Durham, the property was inherited by his sons William and Charles, who sold it to Benjamin Richards in 1894. It was sold again in 1898 to the Ridge-Badgery partnership and then resold in 1905 to the Allen-Macdonald partnership and established as a thoroughbred horse stud.

The property was then subdivided in 1908, with the Homestead and South Wambo retained by the Allen-Macdonald partnership until 1915 when ownership of the Homestead passed solely to the Macdonald family. Between this time and 1971, the primary uses of the remaining Wambo land were grazing and dairying. The Macdonald family then sold the majority of their land to the Wambo Mining Corporation in 1971, maintaining possession of the Homestead block until it was sold to John Birks in 1983. Birks resold the Homestead to the Wambo Mining Corporation in 1987 (EJE Heritage 2006:5).

5.3 Historic Registers

Historic registers are used to record items of significance at the National, State and Local government level. There are no items registered in the National Heritage Database for the project area. However, there is one item listed on the NSW Heritage Inventory at both State and Local Government level, the Wambo Homestead.

5.3.1 National Heritage Database

The Australian Heritage Database incorporates: the National Heritage List; the Register of the National Estate and the Commonwealth Heritage List.

The National Heritage List is now the lead statutory document for the protection of heritage places considered to have national importance. This list comprises Aboriginal, natural and historic places that are of outstanding national heritage significance to Australia. Listed places are protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). There are no items within Wambo MOL on the National Heritage List.

Prior to this the Register of the National Estate was the primary document. While the Register of the National Estate still exists it is now frozen and from 2012 will no longer have statutory status. The Minister is required to consider the Register when making some decisions under the EPBC Act. The Register of the National Estate does not include any heritage sites within Wambo MOL.

The Commonwealth Heritage List comprises natural, Aboriginal and historic heritage places owned or controlled by the Commonwealth. Places on this list are also protected under the EPBC Act. No items within the boundaries of Wambo MOL are listed on the Commonwealth Heritage List.

5.3.2 The NSW Heritage Inventory

The NSW Heritage Inventory lists items at the NSW (State) level and/or at the local level. Items of State significance are registered by the NSW Heritage Council under the NSW Heritage Act 1977. Those items are listed on the SHR as being under an Interim Heritage Order or protected under Section 136 of the NSW Heritage Act.

The Inventory also includes some heritage places of heritage significance within a local government area. These places are listed by local council under their LEP and additionally may be included on the NSW Heritage Inventory database.

There is one item listed at State Significance level for the Singleton LGA located on Wambo MOL (Table 9). The Wambo Homestead boundary is 62 metres from the current project area; the Homestead and associated structures are approximately 960 m distant.

Table 9 Items Listed on the NSW Heritage Inventory

Name of Item	Address	Level of Significance
Wambo Homestead	Wambo Mine, Warkworth	NSW Heritage Act

5.3.3 Hunter Regional Environmental Plan 1989 (Heritage)

The Hunter REP applies to land within the local government areas comprising part of the region that is known as the Hunter and declared under section 4(6) of the EP&A Act .

A search of the Hunter REP did not reveal any item listed for the project area.

5.3.4 Local Government Heritage Registers

Items of significance at the local government level are included in the LEP as Heritage Schedules. These are a list of non-Indigenous and some Aboriginal items which have been listed with council as having heritage value.

A search of the Singleton LEP has indicated that there is one item listed which is situated within Wambo MOL (Table 10).

Table 10 Items listed in the Singleton Local Environment Plan

Item Name	Address	Heritage Listing
Wambo Homestead	Wambo Mine, Warkworth	Local Government

5.4 Discussion

Research of the various heritage databases has shown that there is one Heritage listed item in the area. A desktop investigation for the location of the Wambo Homestead has shown that it is positioned in such a way that it will not be affected by the proposed works.

5.5 Conclusion

It is considered that the project area is well removed from the Wambo Homestead and therefore the proposed works will have no impact upon the Homestead or associated structures.

6.0 Archaeological Field Survey

6.1 Survey Methodology

This heritage assessment has been undertaken in accordance with OEH guidelines for survey reporting in the *Code of Practice of Archaeological Investigation of Aboriginal Objects in New South Wales* (2010) and included the following components:

- documentation of survey coverage;
- documentation of results; and
- documentation of significance of sites/areas to the Aboriginal community.

6.1.1 Survey Aims

The survey was undertaken in order to ground truth sites previously recorded within the project area in addition to identifying new sites and determining the visible extent of artefact scatter sites. The survey methodology was formulated with these aims in mind and focused on landforms associated with previously identified sites, exposed ground surfaces and targeting the various landforms and vegetated areas within the project area.

6.1.2 Field Methods

The survey was conducted on foot (pedestrian) with teams walking approximately five to ten metre transects over landforms associated with previously identified sites, although transects were altered according to landform. The area surveyed was recorded in survey units with each survey unit mapped and recorded in accordance with landforms, project area boundaries, impact area boundaries, changes in survey conditions (such as visibility or ground surface exposure) and/or other relevant considerations.

The mapping of survey units was undertaken on the basis of GPS recorded data and with reference to aerial and topographic information. The recording of survey units was undertaken using representative digital photographs and field notes which included observations of soils, ground surface exposure and visibility, vegetation cover, rock outcrops, levels of ground surface disturbance and erosion.

The field notes provide a basis for the reporting of survey coverage and calculating survey effectiveness as presented in the survey results section. It is required that any new Aboriginal sites identified are recorded and submitted for registration on the AHIMS database. Such recording involves the documentation of the material traces of past Aboriginal land use, including the spatial extent of sites and any other obvious physical boundaries. Aboriginal cultural sites identified by Aboriginal stakeholders may not always involve material traces and boundaries of such sites need to be mapped on the basis of information provided by the Aboriginal stakeholders. Sites were recorded by Differential Global Positioning System (DGPS) and mapped accordingly.

6.2 Survey Units

Preliminary archaeological field survey was conducted by RPS Archaeologists Gillian Goode, Ali Byrne and Darrell Rigby in May 2011. Archaeological and Aboriginal cultural heritage field survey was conducted by Senior Archaeologist Gillian Goode and Archaeologist Ali Byrne, both of RPS, in partnership with representatives from WLALC, Hunter Valley Aboriginal Corporation, Yinarr Cultural Services, Upper Hunter Wonnarua Council Inc., Ungooroo Aboriginal Corporation and Giwirr Consultants and accompanied by Senior Environment and Community Advisor Wambo Coal Mine, Troy Favell of Wambo Coal on Thursday 28 July and Tuesday 2 August 2011. Additional archaeological and Aboriginal cultural heritage field survey was

undertaken on Wednesday 4 April 2012 by Gillian Goode and Ali Byrne, in partnership with representatives from Buudang, Cacatua Culture Consultants and Widescope Indigenous Group and accompanied by David Rankin, Environment and Community Co-ordinator Wambo Coal Mine.

Survey units were described for each survey area (Figure 6-1). In particular, exposure and ground surface visibility were reported to ensure comparability of survey results between different areas of the local landscape and to contextualise survey results. Areas with high visibility and exposure generally have extensive land surface disturbance, generating higher quantities of exposed archaeological material that is not *in situ*. Conversely, areas with low visibility and minimal exposure, particularly due to undisturbed native vegetation coverage, are generally more intact landscapes and thus more likely to contain *in situ* archaeological deposits but such sites may not be as easy to identify.

Six survey units were identified in the project area (SU1 to SU6) (Figure 6-1). Ground surface exposure and ground surface visibility were recorded and analysed for each survey unit. Ground surface visibility was recorded as a percentage range (refer Table 11) and sample fractions for the survey units and landforms were also calculated (as shown in Tables 12 and 13). A summary of the Aboriginal cultural heritage sites identified in the project area is shown in Table 14. Site co-ordinates were recorded with a hand held DGPS. Site cards were generated for all newly identified sites for registration on the AHIMS database.

WARNING
No part of this plan should be used for critical design dimensions. Confirmation of critical positions should be obtained from RPS Newcastle.

Legend

- Modification Area
- Project Area

Artefact Site Types

- Artefact Scatter
- Isolated Find
- Scar Tree

Survey Units

- SU 1
- SU 2
- SU 3
- SU 4
- SU 5
- SU 6

N

PAD A
PAD E
PAD F

0 250 500m
SCALE: 1:10,000 AT A3 SIZE

TITLE: FIGURE 6-1: SURVEY UNITS AND WAMBO RECORDED SITES
LOCATION: WAMBO
DATUM: (GDA 94)
PROJECTION: MGA ZONE 56
DATE: 27/08/2012
PURPOSE: HERITAGE
LAYOUT REF: J:\JOBS\Wambo\Wambo Mapping Database\Archaeology\108453-2 Report Figures
VERSION (PLAN BY): B A3 (AB-GG-NW)

CLIENT: WAMBO COAL PTY LTD
JOB REF: 108453-2

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

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Table 11 Ground Surface Visibility (GSV) Rating

GSV Rating	Description
0 – 9%	Heavy vegetation with scrub foliage, debris cover and/or dense tree cover. Ground surface not clearly visible.
10 – 29%	Moderate level of vegetation, scrub or tree cover. Small patches of soil surface visible resulting from animal tracks, erosion or blowouts. Patches of ground surface visible.
30 – 49%	Moderate levels of vegetation, scrub and/or tree cover. Moderate sized patches of soil surface visible possibly associated with animal tracks, walking tracks and erosion surfaces. Moderate to small patches across a larger section of the project area.
50 – 59%	Moderate to low level of vegetation, tree and/or scrub. Greater amounts of areas of ground surface visible in the form of erosion scalds, recent ploughing, grading or clearing.
60 – 79%	Low levels of vegetation and scrub cover. High incidence of ground surface visible due to recent or past land–use practices such as ploughing, grading and mining. Moderate level of ground surface visibility due to sheet wash erosion, erosion scalds and erosion scours.
80 – 100%	Very low to nonexistent levels of vegetation and scrub cover. High incidence of ground surface visible due to past or recent land use practices, such as ploughing, grading and mining. Extensive erosion such as rill erosion, gilgai, sheet wash, erosion scours and scalds.

Table 12 Survey Coverage Data

Survey Unit	Survey Unit Area (m^2)	Area Surveyed (m^2)	Exposure (%)	Visibility (%) GSV Rating	Sample Fraction (%)
Stony Creek banks and south facing slopes	715534	65	60	465097	65
South Wambo Creek floodplain and east facing slopes	271818	60	60	163091	60
Rolling hills, mid slopes	196099	70	70	127464	65
Disturbed floodplain with dam	765757	50	50	382879	50

Table 13 Landform Summary

Landform	Landform Area (Square metres)	Area Effectively Surveyed	Percent of Landform Effectively Surveyed	Number of Sites
Stony Creek banks and west facing slopes	715534	465097	65	9
South Wambo Creek floodplain and south east facing slopes	271818	163091	60	8
Rolling hills, mid slopes	196099	127464	65	15
Disturbed floodplain with dam	765757	382879	50	1 (salvaged)

Table 14 Summary of sites, locations recorded in the NWUMM project area (GDA94/MGA, Zone 56)

Site ID Code	Site Name	Eastings	Northings	Site Type
37-5-0293	Wambo Site 45	310235	6390690	Isolated find
37-5-0294	Wambo Site 46	310363	6390898	Artefact scatter
37-5-0192	Wambo Site 47	309985	6390820	Isolated find
37-5-0192	Wambo Site 48	310035	6390900	Isolated find
37-5-0192	Wambo Site 49	309835	6390880	Artefact scatter
37-5-0192	Wambo Site 50	309855	6390940	Artefact scatter
37-5-0295	Wambo Site 52	309919	6391108	Isolated find
37-5-0297	Wambo Site 54	310025	6391253	Artefact scatter
37-5-0298	Wambo Site 55	310138	6391234	Artefact scatter
37-5-0299	Wambo Site 56	310041	6391124	Isolated find
37-5-0300	Wambo Site 57	310155	6391153	Artefact scatter
37-5-0301	Wambo Site 58	310202	6391067	Isolated find
37-5-0302	Wambo Site 59	310334	6391249	Isolated find
37-5-0303	Wambo Site 60	310268	6391275	Artefact scatter
37-5-0304	Wambo Site 61	310259	6391325	Artefact scatter
37-5-0186	Wambo Site 98a	311135	6392350	Artefact scatter
37-5-0187	Wambo Site 98b	311165	6392160	Artefact scatter
37-5-0273	Wambo Site 333 (HV52)	310215	6390881	Artefact scatter
AS G	Wambo Site 338	310241	6390950	Artefact scatter
AS H	Wambo Site 347	310227	6391465	Artefact scatter
AS E	Wambo Site 348	310071	6391222	Artefact scatter
AS J	Wambo Site 349	309858	6390815	Artefact scatter
AS A	Wambo Site 351	310178	6391231	Artefact scatter
AS B	Wambo Site 352	310502	6391292	Artefact scatter
AS C	Wambo Site 353	310338	6391371	Artefact scatter
AS D	Wambo Site 354	310001	6390780	Artefact scatter
AS P	Wambo Site 356	310230	6391171	Artefact scatter
AS Z	Wambo Site 357	310385	6391356	Artefact scatter
IFY	Wambo Site 358	310603	6391034	Isolated find
AS M	Wambo Site 359	310903	6392328	Artefact scatter
ST3	Wambo Site 360	310149	6391159	Scar tree
IF AA	Wambo Site 361	310993	6392054	Isolated find
AS AB	Wambo Site 362	311165	6391957	Artefact scatter
AS AC	Wambo Site 363	310423	6390528	Artefact scatter

* Please note the sites are shown on Figures 4-1 and 6-1 by Wambo Site Number only.

Survey Unit 1

This survey unit was in the south western part of the project area and focused on the lower slopes directly above the terraced area along the northern banks of Stony Creek, upstream from its convergence with South Wambo Creek to the south of the project area. The north-eastern creek bank was terraced with a south westerly aspect while the south western bank extended into a flood plain and gently sloping toe slopes.

The terrace lay just outside the project area boundary and there was evidence of repeated flood events in the sediments along the creek bank. The area was inspected as part of a buffer zone around the project area boundary. Wambo Site 349, an artefact scatter, was identified to the north west of the fence line and was associated with a dirt access track. This site was within the project area but outside of the MA. Other artefact sites within the project area but outside of the MA on the elevated banks on the northern side of Stony Creek included Wambo Sites 49 and 50, which had all been previously registered on the AHIMS database with the same AHIMS number (#37-5-0192). These sites were not within the MA and therefore would not be affected by any potential subsidence impacts (MSEC 2012). Wambo Site 51 (also AHIMS #37-5-0192) was situated just south west of the project area boundary along a creek bank. Two recorded sites, Wambo Site 350 an artefact scatter located northwest of a fenceline and existing farm track, and Wambo Site 355 an isolated find located on the creek bank were also outside of the project area and would not be impacted by the proposed NWUMM. All these sites had been disturbed by previous farming practices including fencing and dam construction works. There was also extensive sheet wash and gully erosion in this area.

Survey Unit 2

This survey unit encompassed the low lying, open, cleared land on northern bank of Stony Creek close to the confluence of Stony Creek with South Wambo Creek and the gently sloping toe slopes and the lower to mid slope areas. No Aboriginal cultural heritage sites were identified in the low lying part of the survey unit probably due to the high levels of disturbance associated with extensive land clearing and previous farming practices, in addition to the marshy characteristics of the low lying ground. It was considered that there was a low potential for subsurface artefacts to occur in this area. This extensive floodplain was marshy and was intersected by a number of ephemeral drainage lines which flow into the high order creeks.

However, a number of sites were identified on gently sloping toe slopes and the lower to mid slope areas to the north of Stony Creek and to the north of the flood plain. Sites identified included previously recorded sites: Wambo Sites 45 (AHIMS#37-5-0293), 46 (AHIMS#37-5-0294), 47 (AHIMS#37-5-0192), 48 (AHIMS#37-5-0192) and Wambo Site 333 also known as HV 52 (AHIMS#37-5-0273). In addition to the previously recorded sites, three additional sites were identified in the area, Wambo Site 354 (AS D) in the disturbed soils associated with a small dam, Wambo Site 338 (AS G) in an erosion scour to the north of an access track and Wambo Site 358 (IF Y) on the edge of an access track. These areas had been highly disturbed by livestock, vehicles and works associated with fencing and dam construction and maintenance. The majority of this survey unit comprised eroded, exposed soils.

Survey Unit 3

Survey unit 3 comprised the hilly, low lying crests, mid and upper slope areas in the central part of the project area. The area has high archaeological potential due to its proximity to Stony Creek and South Wambo Creek for procurement of resources and elevation above the flood plain. A number of previously recorded sites were identified in this area: Wambo Sites 54 (AHIMS #37-5-0297) and newly recorded site Wambo Site 347 (AS H) (within the project area outside of the MA), together with Wambo Sites 57 (AHIMS #37-5-0300), 58 (AHIMS #37-5-0301), 59 (AHIMS#37-5-0302), 60 (AHIMS#37-5-0303) and newly recorded sites Wambo Site 348 (AS E), Wambo Site 351 (AS A) and Wambo Site 356 (AS P) in the MA. Other sites in this area

located close to access roads and tracks in this survey unit included previously recorded sites Wambo Site 55 (AHIMS #37-5-0298), Wambo Site 56 (AHIMS #37-5-0299), Wambo Site 61 (AHIMS #37-5-0304). In addition newly recorded sites Wambo Site 352 (AS B), Wambo Site 353 (AS C) and Wambo Site 357 (AS Z) were identified on the south facing slope above a small dam. A tree was identified to the north of Wambo Site 347 (AS H) which showed evidence of wounding from lightning strike. It was considered by the registered Aboriginal parties present that the tree had not been culturally modified.

One possible scar tree was identified in this area and was a narrow leaved red ironbark. Wambo Site 360 (ST3) was located close to an extensive artefact scatter Wambo Site 57. The tree also shows evidence of mechanical wounding. The tree was located on a gentle slope and was situated close to the crest. A number of other artefact sites in addition to Wambo Site 57 may also have been associated with the scar tree including Wambo Sites 55, 348, 351, 356 and 58. These artefact sites were all situated in close proximity to the tree just below the crest of the hill.

Survey Unit 4

This survey unit encompassed the area that had been modified by a large dam. A large artefact scatter (Wambo Site 62) had been salvaged under Consent to Salvage Permit #2222 prior to the construction of the dam. The artefact scatter had been situated on the banks of an unnamed tributary of South Wambo Creek. The remainder of this survey unit was flood plain associated with South Wambo Creek. No Aboriginal cultural heritage sites were identified in this area.

Survey Unit 5

This survey unit was situated in the northernmost section of the project area and consisted of the southern bank of North Wambo Creek, the marshy flood plain areas between North Wambo Creek and Wollombi Brook and the slightly more elevated lower slopes above the dam in Survey Unit 4. Most of the area exhibits evidence of repeated periods of inundation in addition to disturbances by farming practices such as vegetation clearing and animal grazing, the installation of an electricity easement and the construction and use of access roads. It was considered that there was a low potential for subsurface artefacts to occur in this area.

Two previously recorded sites were ground truthed during the survey work, Wambo Sites 98a (37-5-0186) and 98b (37-5-0187). Three new sites were also recorded, Wambo Site 359 (AS M), 361 (IF AA) and 362 (AS AB). These new artefact sites were identified in areas of exposed, eroded soil and were likely to have washed down over time from further up slope.

Survey Unit 6

This survey unit was the southern corner of the project area and included a portion of Stony Creek immediately prior to its confluence with South Wambo Creek. The area includes the creek, creek banks and flood plain landforms.

There were no previously registered AHIMS sites in this survey unit. One new artefact site was identified, Wambo Site 363 (AS AC). This artefact site was identified in the dry creek bed and it is considered that the artefacts may have been washed downstream during high rainfall periods.

The project area was characterised by rolling hills to the north of the confluence of two creeks with extensive floodplains (Figure 1-1). Stony Creek is a tributary of South Wambo Creek. The floodplain at the confluence of these two creeks extends along both sides of the South Wambo Creek and along the western bank of Stony Creek. South Wambo Creek is in turn a tributary of Wollombi Brook which is situated to the east of the project area. The confluence of these two waterways is also outside of the immediate project area; however

the resultant floodplain occurring from the meeting of these two creeks, is the dominant landform in the eastern part of the project area.

The project area was divided into four distinct landform areas: Stony Creek and its associated floodplain, creek banks, gently sloping toe slopes and moderately sloping foot slopes with a low lying hilly area in the west, and lower and mid slopes of a small ridgeline; South Wambo Creek and associated creek banks and floodplain; rolling hills to the north east of the creek lines in the central part of the project area; an extensive tract of flat lying floodplain associated with the confluence of South Wambo Creek and Wollombi Brook; and the lower slopes, floodplain and south bank of North Wambo Creek.

Stony Creek, a major tributary of South Wambo Creek, was located in the western part of the project area and would have provided permanent water. A flood plain extended from the western side of the creek to some low lying foothills to the immediate west of the project area. Incised river terraces occurred along the eastern bank of the creek. These west facing slopes were fairly steep and severely affected by extensive sheet wash erosion. They formed the toe and foot slopes of a major ridge line and spur which leads down from the Wollemi escarpment in the north west. The creek line, terraces and floodplain all showed evidence of repeated inundation events. The confluence of Stony Creek and South Wambo Creek was in a low lying marshy area. The small rolling hills to the north of these two creeks would likely have provided excellent resources for the procurement of food and raw materials for the manufacture of stone tools.

With the exception of one isolated find in the flood plain area close to the northern bank of Stony Creek close to the confluence with South Wambo Creek, identified sites were located above the floodplain in the toe and foot slope areas or on the easily accessible slopes of the hills. One isolated find was situated on the surface of the west facing terrace area and two isolated finds were on the east facing toe slope on the opposite side of the creek above the flood line in the western part of the project area. Several isolated finds and small artefact scatters were on the lower south east facing slope areas close to the flood plain. The larger artefact scatters were on the lower south and south east facing slopes of a large spur which formed part of a ridgeline that extended from Wollemi escarpment and on gentle sloped areas and the crest of the hills in the northern part of the project area.

The project area was highly disturbed through previous farming practices, vehicle access and livestock grazing. In general, ground surface visibility ranged between 50 and 70%, with moderate to low levels of vegetation coverage and a high incidence of ground surface exposure due to disturbances. Artefact sites were generally located on the slopes and crests. Site patterning in this part of the Stony Creek catchment was restricted to the foot slopes to the west of the flood plain and the toe of spur that formed part of the Wollemi ridgeline in the west. Artefact sites were concentrated on the elevated banks of the spur on the north eastern side of Stony Creek, and in the gently rolling foothills to the east.

6.3 Survey Results

6.3.1 Aboriginal Sites and Archaeological Sensitivity

During the course of the May 2011, July/August 2011 and April 2012 field surveys the previously identified sites were ground truthed and new sites were identified. While there were some sites which could not be re-identified, most were relocated and found to be more extensive than previously recorded. This would likely be due to the effects of erosion processes. A number of sites were located on, or very close to, the vehicle access ways. The majority of the artefact sites in the area were on the surface of the exposed B horizon and had been affected by sheet wash erosion, trampling by cattle and disturbed by the passage of vehicles. The area had also been heavily disturbed by previous farming practices. On the basis of the extent of erosion and disturbances, no areas of archaeological sensitivity were identified.

6.3.2 Wambo Site 45 (AHIMS #37-5-0293)

This isolated find site was originally located on a broad gentle slope about 100 m to the north of Stony Creek (Plate 1). The artefact was identified as an indurated mudstone flake piece, with a red cortex and yellow body measuring 2cm x 1.5cm. The ground truth survey conducted in August 2011 was unable to locate this artefact.

6.3.3 Wambo Site 46 (AHIMS #37-5-0294)

This artefact scatter was originally located on a broad very gentle slope about 300 metres from the northern bank of Stony Creek (Plate 2). One tuff flake measuring approximately 4.5cm, plain platform and with 20% cortex and one silcrete flake approximately 3.5cm, no cortex and with a focal platform were identified. This site was re-located during the cultural heritage survey and was found to extend to and around the small dam.

6.3.4 Wambo Site 47 (AHIMS #37-5-0192); Wambo Site 48 (AHIMS #37-5-0192); Wambo Site 49 (AHIMS #37-5-0192); Wambo Site 50 (AHIMS #37-5-0192);

Wambo Sites 47 (SC4/4); 48 (SC4/3); 49 (SC4/1); 50 (SC4/2); 51 (SC4/5) were all listed on the same site card AHIMS #37-5-0192. There were five separate locations recorded under this site card. The various sites were located on the east side of Stony Creek about 1.3km up from the confluence of Stony and South Wambo Creeks on and around a gently sloping south east facing spur. Location 1 consisted of 72 artefacts along a track over a distance of about 150m. Five artefacts were identified at location 2 on eroded stock tracks. A single artefact was identified at location 3 near a small dam and stock track and location 4 close to a gate and track. At location 5, three artefacts were identified on a farm track on the toe of the western part of the spur.

Wambo Site 47 (close to a small dam and stock track – location 4) and Wambo Site 48 (at a gateway close to two large trees – location 3) were originally identified as isolated finds. The survey identified a red mudstone flake at Wambo Site 47 (Plate 3) and several mudstone and silcrete artefacts at Wambo Site 48 (Plate 4) on the surface of the soil close to the two large trees.

Wambo Site 49 was identified as an artefact scatter on a stock track and at an ants' nest and Wambo Site 50 on a second stock track (location 2). The survey identified a basalt flake on the surface of a gentle slope on the eastern side of a cattle track leading to a small dam as Wambo Site 49, but Wambo Site 50 was not located. These two sites were within the project area but outside of the MA.

Wambo Site 349 (within the project area but outside the MA) and Wambo Site 350 (outside the project area) were identified as being the area described as location 1 where a large number of artefacts were identified along the edges of the track and down slope to the west (see additional information in Section 6.3.20 and 6.3.21 below).

6.3.5 Wambo Site 52 (AHIMS #37-5-0295)

This isolated artefact was located on a crest above a first order creek line. The artefact was a fine grained siliceous, bifacially flaked, cobble tool approximately 5-6cm in length with 60% cortex. The site was identified during the survey and the artefact was identified as being on the surface of the soil in an area eroded by sheet wash. This site was within the project area but outside of the MA.

6.3.6 Wambo Site 54 (AHIMS #37-5-0297)

This artefact scatter was located on a crest above a first order creek line. There were two tuff artefacts with no cortex, one of which had a plain platform and one was a flake fragment. The site was relocated during the survey and the artefacts were identified as being on the surface of the soil in an erosion scour. This site was within the project area but outside of the MA.

6.3.7 Wambo Site 55 (AHIMS #37-5-0298)

Wambo Site 55 AHIMS #37-5-0298 was identified as an artefact scatter on an east facing slope below a low crest, 40m from a first order creek line (Plate 5). Eleven artefacts were found on an ants' nest and along a nearby vehicle track. This site was identified during the survey. It was a large artefact scatter located on a gently sloping north east facing mid slope. The artefacts extended from one side of the road to the other and included a number yellow, red and grey mudstone flakes, red and yellow silcrete flakes, and several cores. Most of the artefacts were manufactured from mudstone or silcrete, with some tuff and quartz.

6.3.8 Wambo Site 56 (AHIMS #37-5-0299)

Wambo Site 56 AHIMS #37-5-0299 was recorded as an isolated find located on broad crest 170m from a first order creek line (Plate 6). The single artefact was a broken quartz tool, 2-3cm in length with no cortex. The site was not identified during the survey in August 2011.

6.3.9 Wambo Site 57 (AHIMS #37-5-0300)

Wambo Site 57 AHIMS #37-5-0300 was identified as an artefact scatter located on a crest, 120m from a first order creek line (Plate 7). Three artefacts were found: one tuff flake measuring 2-3cm with cortical platform; one tuff tool, 5-6cm in length with 25% cortex; and one silcrete rotated core, 9-10cm long with cortex. This site was relocated during the survey and a number of additional artefacts were found close by. In addition, a possible scar tree was identified down slope from the artefact scatter.

6.3.10 Wambo Site 58 (AHIMS #37-5-0301)

Wambo Site 58 AHIMS #: 37-5-0301 was originally identified as an isolated find. The single quartz flake fragment, measuring 2-3cm in size with no cortex was relocated during the survey in August 2011. A red silcrete flake and a yellow mudstone flake were also identified in the site area. The site was located on a south facing slope below the spur, just above creek flats, 210m from a first order creek line (Plate 8).

6.3.11 Wambo Site 59 (AHIMS #37-5-0302)

Wambo Site 59 AHIMS #37-5-0302 was originally identified as an isolated find site being a single broken tuff flake, 4.5cm in size with no cortex. The site was on an east facing slope located just below a fence and crest

and just above a dam which was 80m from a first order creek line (Plate 9). An isolated red silcrete flake was identified at the site area but the broken tuff flake was not found.

6.3.12 Wambo Site 60 (AHIMS #37-5-0303)

Wambo Site 60 AHIMS #37-5-0303 was located in grassy gully, just upstream of a dam, in a first order creek line (Plate 10). Three artefacts were found, being: one quartz broken flake measuring 2-3cm with no cortex; one silcrete flake, 2-3cm long, faceted platform with no cortex; one silcrete core, measuring 5-6cm with 20% cortex. During ground truthing, a number of red, yellow and grey silcrete flakes, a cream tuff core and yellow and red mudstone flakes were identified on the eroded surface along the ephemeral drainage line.

6.3.13 Wambo Site 61 (AHIMS #37-5-0304)

Wambo Site 61 AHIMS #37-5-0304 was originally identified as an artefact scatter located on a grassy track, 50m upslope from a first order creek line (Plate 11). Three artefacts were identified, being: one broken flake 2-3cm in length with no cortex and plain platform; one flake, 4-5cm long, plain platform and 20% cortex; and one tool, 7-8cm long and 10% cortex. Only one artefact was located in this area during the ground truth survey, being a grey tuff core.

6.3.14 Wambo Site 98a (AHIMS #37-5-0186)

Wambo Site 98a AHIMS #37-5-0186 was described as an artefact scatter composed of six artefacts on a formed but disused access track. During ground truthing, a number of artefacts were identified including one tuff reduced core, two yellow mudstone flakes, on grey silcrete flake, and two tuff flakes. The site was located along the disused access track as described but artefacts were also found a little further down slope toward the south bank of North Wambo Creek. The artefacts were all generally found on surfaces where erosion had exposed the B horizon soils and visibility was limited by grasses and leaf litter. This site was within the project area but outside of the MA.

6.3.15 Wambo Site 98b (AHIMS #37-5-0187)

Wambo Site 98b AHIMS #37-5-0187 was described as artefact scatter situated on the same disused access road as Wambo Site 98a. The site, as originally recorded, consisted of nine artefacts recorded over a distance of approximately 50 m. When ground truthed, seven artefacts were identified, including three tuff flakes, two mudstone flakes, one quartz flake and one grey silcrete core. As with Site 98a, the artefacts were situated in areas of exposed B horizon soil (Plate 12).

6.3.16 Wambo Site 333 (HV 52; AHIMS #37-5-0273)

This artefact scatter was situated on a gentle slope in a grassed paddock on a stock trail near to a dam (Plate 13). One artefact was relocated during the survey.

6.3.17 Wambo Site 338 (AS G)

This artefact scatter site was located on the northern side of an access track. The artefacts were associated with an erosion scour that had formed on the edge of the track (Plate 14). The artefacts were predominantly mudstone and silcrete.

6.3.18 Wambo Site 347 (AS H)

Wambo Site 347 was located on a small crest of a hill and extended across a dirt access track. The artefact scatter comprised a number of mudstone and silcrete flakes, an elouera and a red mudstone core. This site was within the project area but outside of the MA.

6.3.19 Wambo Site 348 (AS E)

Wambo Site 348 (Plate 15) was an artefact scatter located on a crest above and to the west of Wambo Site 55. The scatter comprised mudstone and silcrete artefacts.

6.3.20 Wambo Site 349 (AS J)

Wambo Site 349 and Wambo Site 350 were identified as being the area described as location 1 associated with Wambo Sites 47 to 51. A large number of artefacts were situated along the edges of the track and down slope to the west (see additional information at 6.3.4 above and 6.3.21 below). The artefacts were predominantly mudstone, silcrete and quartz flakes. This site was within the project area but outside of the MA.

6.3.21 Wambo Site 351 (AS A)

This artefact scatter was located on a west facing slope that had been severely eroded and was highly disturbed (Plate 16). A number of artefacts were identified in a rutted area along a stock track.

6.3.22 Wambo Site 352 (AS B)

Wambo Site 352 (Plate 17) was identified on a generally north facing slope above a small drainage gully. The site was scattered on the surface of the B horizon and included a number of red, grey and yellow silcrete flakes and cores and several yellow and red mudstone flakes.

6.3.23 Wambo Site 353 (AS C)

Wambo Site 353 (Artefact Scatter C) was located on a south facing slope near a grove of trees. A small pink silcrete flake and two small red mudstone flakes were identified in a erosion scour in an area that had been severely affected by sheet wash and cattle trampling (Plate 18).

6.3.24 Wambo Site 354 (AS D)

This artefact scatter was located on the surface of a dam wall (Plate 19). The area was heavily disturbed by cattle and erosion. The artefacts included a quartzite pebble core and mudstone and silcrete flakes. The artefacts extended to the south west along a stock trail. Sandstone boulders were close to the artefacts.

6.3.25 Wambo Site 356 (AS P)

This artefact scatter was located on a simple slope in a highly disturbed area. The paddock was used for grazing cattle, and other disturbances included sheet wash erosion and fencing works. The artefacts were on the surface of the B horizon in the vicinity of outcropping sandstone (Plate 20).

6.3.26 Wambo Site 357 (AS Z)

This artefact scatter was located on an ephemeral creek line to the north of a small dam. The area had been eroded by water runoff (Plate 21). The artefacts were on the exposed surface of the B horizon and disturbances included trampling by cattle, erosion and fencing works.

6.3.27 Wambo Site 358 (IF Y)

This isolated artefact site was located on the northern side of a dirt access track (Plate 22). The artefact appeared to have been washed down by the heavy rain and was on the exposed surface of the B horizon. Disturbances included fencing works, rabbit burrows and vehicle access.

6.3.28 Wambo Site 359 (AS M)

This artefact scatter was identified along an existing dirt track in an area vegetated by casuarinas. The artefacts were identified in an erosion scald which consisted of redeposited A horizon soils atop cracked B horizon. Disturbances included sheet wash erosion, previous tree clearing and farming practices. This site was within the project area but outside of the MA.

6.3.29 Wambo Site 360 (ST3)

A possible scar tree was identified on a south east facing slope close to a large artefact scatter, Wambo Site 57. The narrow leaved red ironbark tree was considered to have both Aboriginal cultural scarring as well as evidence of wounding from having been struck by a nearby tree falling from the north west. The cultural scarring was in the lower part of the trunk facing north east (Plates 23 and 24).

6.3.30 Wambo Site 361 (IF AA)

This site was a newly identified isolated find situated in grass adjacent to a gravel access road. The artefact was a red mudstone flake. The area showed evidence of previous inundation (Plate 25).

6.3.31 Wambo Site 362 (AS AB)

This artefact scatter was identified during the survey work near the intersection of a gravel access road and another disused vehicle track. The artefacts included three mudstone flakes, one of which was in two pieces; one tuff flake; one tuff core; and one silcrete core. All the artefacts were scattered along the edges of the disused track, which was highly eroded as a result of regular inundation (Plate 25).

6.3.32 Wambo Site 363 (AS AC)

This site was located in the creek bed of Stony Creek, a tributary of South Wambo Creek, immediately prior to the confluence of the two streams. The creek bed was dry and sandy with some pebbles and cobbles. Three yellow mudstone flakes were identified and recorded during the survey (Plate 26).

Site cards for all sites within the MA are included in Appendix 7. Sites identified in the survey area are tabled below:

6.4 Discussion of Survey Results

Review of previous archaeological investigations in the region of the project area and Aboriginal site predictive modelling are used to interpret the regional archaeological record. The analysis of this data indicated that both artefact scatters and isolated finds were the most likely site types to be present in the project area.

Research conducted for the Warkworth area (i.e. the wider local area) prior to field survey found that the area was rich in stone artefact sites, with previous archaeological information indicating the dominant raw material as mudstone and silcrete with minor occurrences of quartz, quartzite, basalt, chert, tuff, sandstone and felsic volcanics. This research also found that stone artefact sites generally occur on the mid to lower slopes, saddles, crests of small hills and the foot and toe slopes within 50m of perennial creeks and rivers.

Consideration of the existing land modifications in the project area and the results of the field surveys illustrated that the predicted connection between an artefact and its environment had been somewhat compromised in the highly disturbed parts of the project area such as tilled paddocks, dams and formed dirt tracks. There were no areas identified as likely to have intact deposit.

One culturally scarred tree Wambo Site 360 (ST3) was identified close to a previously identified artefact scatter (Wambo Site 57). The survey revealed that the tree was in fair condition showed evidence of mechanical wounding in addition to the potential cultural scar. It was located in an open paddock area that had been highly disturbed by previous farming practices. A number of similar sized ironbark eucalypts were inspected in an area currently mined directly to the north east of the project area. These trees showed no adverse effects from any recent or historic underground mining works.

7.0 Significance Assessment

In order to develop appropriate heritage management outcomes, it is necessary for the significance of Aboriginal sites or areas of archaeological sensitivity to be assessed. Aboriginal heritage can be significant for cultural and/or scientific reasons. Aboriginal people are the best placed to assess cultural significance and are therefore consulted in the Aboriginal heritage management process. Scientific (archaeological) significance is assessed according to scientific criteria outlined in OEH heritage guidelines.

7.1 Cultural Significance Criteria and Assessment

An assessment of cultural significance incorporates a range of values which may vary for different individual groups and may relate to both the natural and cultural characteristics of places or sites. Cultural significance and Aboriginal cultural views can only be determined by the Aboriginal community using their own knowledge of the sites and their own value system.

As the cultural significance is a criterion that only Aboriginal people can assess, a detailed appraisal of cultural significance for the project area has not been included as part of this study. However, response and comment on the project area was discussed with Aboriginal representatives during the August 2011 survey. The Aboriginal stakeholders stated that the isolated finds and artefact scatters were of some cultural significance in relation to the other sites in the Stony Creek area. The Aboriginal stakeholders did not consider the flood plain area to have any specific cultural heritage significance as this area was not suitable to have been used for shelter and there was no evidence of any cultural heritage material in the area other than three isolated finds. The possible scar tree Wambo Site 360 (ST3) was considered to be culturally significant and was thought to be a good example of the method used for extracting bark from such trees. Another tree was inspected with a long wound high up in the tree. The Aboriginal stakeholders agreed that the tree had been damaged and was likely not a culturally scarred tree because the elongated scar was very high up in the tree and the tree had been damaged by lightning.

The Aboriginal stakeholders indicated they were satisfied with the extent of the survey, the ground truthing of previously identified sites and the methodology used to record newly identified sites. They expressed their wishes that any artefact scatters or isolated finds that might be impacted on by vehicular access or by potential subsidence be salvaged and placed in the temporary keeping place for repatriation in the future. Further details are included in the Aboriginal consultation log (Refer Appendix 3 & Appendix 4).

7.2 Archaeological Significance Criteria

Archaeological significance, also referred to as scientific significance, is determined by assessing an Aboriginal heritage site or area according to archaeological criteria. The assessment of archaeological significance is used to develop appropriate heritage management and impact mitigation strategies. Criteria for archaeological significance have been developed in accordance with the principals of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010), managed by OEH. The following archaeological significance criteria have been used: rarity, representativeness, integrity, connectedness, complexity and research potential and are defined in Table 15.

Table 15 Archaeological Significance Criteria

Criteria	Description
Rarity	This criterion examines the frequency of the identified site types with others previously recorded in the local or regional landscape
Representativeness	All sites are representative of a site type, however, some sites may be in better condition, or demonstrate more clearly a particular site type. Representativeness is based on the understanding of extant sites in the local or regional landscape and the purpose of this criteria is to ensure a representative sample of sites area conserved for future generations
Integrity	This refers to site intactness. A site with contextual integrity can provide information relating to chronology, social systems, tool technology, site formation processes, habitation, frequency of use as well as other occupation indicators. Moderate to high levels of disturbance will generally result in low integrity.
Connectedness	Relates to inter-site relationships, that is, whether a site can be linked to an archaeological complex, or where sequence of activities can be discerned. For example, a quarry (stone extractions site), may be linked to an adjacent heat treatment pit and knapping floor, these site thus could be linked as part of a stone tool production sequence.
Complexity	Refers to the contents of the site, such as, the variety and nature of features and/or of artefacts present. For example, rock art sites with many motifs may be ranked highly in terms of complexity, or artefact scatters with a wide variety of raw materials and/or or tool types may be more complex than surrounding sites.
Research Potential	This criteria is used to identify whether a site has the potential to contribute new information which to the interpretation of Aboriginal occupation in the area.

The archaeological significance criteria are usually assessed on two scales: local and regional. In exceptional circumstances however, state significance may also be identified. Archaeological significance criteria is assessed in three levels to which scores are assigned; low (score=1), moderate (score=2) and high (score=3).

A combination of these scores then provides enables an overall significance ranking of the site to be determined.

- Low significance 6-10
- Moderate significance 11-14
- High significance 15-18

7.3 Assessment of Archaeological Significance

The archaeological significance of the identified Aboriginal sites has been assessed and is summarised in Table 16.

Table 16 Assessed Levels of Significance for Aboriginal Sites

Site	Significance scale	Rarity	Representativeness	Integrity	Connectedness	Complexity	Research Potential	Overall Significance
Wambo Site 45	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 46	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 47	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 48	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 49	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 50	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 52	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 54	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 55	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 56	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 57	Local	2	2	2	2	2	2	Moderate
	Regional	1	1	1	1	1	1	Low
Wambo Site 58	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 59	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 60	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 61	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 98a	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 98b	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 333	Local	1	1	1	1	1	1	Low

Site	Significance scale	Rarity	Representativeness	Integrity	Connectedness	Complexity	Research Potential	Overall Significance
(HV 52)	Regional	1	1	1	1	1	1	Low
Wambo Site 338	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 347	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 348	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 349	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 351	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 352	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 353	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 354	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 356	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 357	Local	1	1	1	2	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 358	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 359	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 360 ST 3	Local	2	2	2	2	2	2	Moderate
	Regional	1	1	1	1	1	1	Low
Wambo Site 361	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 362	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low
Wambo Site 363	Local	1	1	1	1	1	1	Low
	Regional	1	1	1	1	1	1	Low

Wambo Site 360 (ST3) and Wambo Site 57 were two sites in close proximity to the crest of the hill and may well be associated. There were a number of formal tools identified at Wambo Site 57 and Wambo Site 360 was a culturally scarred tree. For this reason they were ranked as moderately significant at a local level. The remainder of the Aboriginal cultural heritage sites in the project area were ranked as having low archaeological significance.

8.0 Impact Assessment and Mitigation

This section provides an assessment of the proposed project in relation to Aboriginal heritage. Conservation of Aboriginal sites and areas of archaeological sensitivity is the preferred heritage outcome. However, other mitigation options have been developed in case this is unfeasible as part of the proposed project.

Potential impacts of the NWUMM on Aboriginal cultural heritage include subsidence effects and direct disturbance. Direct disturbance to the project area would be limited to impacts associated with installation and operation of dewatering bores, (although the location of the boreholes and associated minor infrastructure is flexible and would be located to avoid impact to known Aboriginal sites), vehicle movements and subsidence mitigation works (e.g. modification of existing contour bunds). Vehicular movements would be limited to those required for monitoring and general site maintenance activities. If required, the minor subsidence mitigation works would be located to minimise impacts on Aboriginal cultural heritage and would be subject to relevant permits being obtained.

Table 17 provides the predicted subsidence movements at each site within the study area discussed in MSEC (2012), which does not include all sites in the project area. Based upon the subsidence predictions in MSEC (2012) (Extract provided in Appendix 8), and as provided in Table 17 below, it is considered that the whole of surface movement and potential soil cracking has the propensity for minor to moderate impacts to Aboriginal cultural heritage to occur in some parts of the NWUMM project area. The overall risk from all historic and approved subsidence is therefore assessed as low to moderate. However, when the historic and approved subsidence impacts are considered, the incremental subsidence from the NWUMM would result in a negligible to low additional risk.

Considering the nature and scale of historic and ongoing land disturbance processes in the region, predominantly due to agricultural activities; the nature and extent of identified and likely Aboriginal sites in the subject area; and the nature and scale of impacts associated with the project; it is considered that the project would not substantially increase cumulative impacts to Aboriginal heritage in the region.

Table 17 Maximum Predicted Subsidence at Aboriginal Sites within the Modification Area (MSEC 2012)

Site ID Code	Site Name	Predicted total subsidence based on the approved layout (mm)	Incremental change in subsidence due to the proposed modification (millimetres [mm])	Incremental change in tilt due to the proposed modification (mm/m)
37-5-0293	Wambo Site 45	750	50	1
37-5-0294	Wambo Site 46	3500	1300	20
37-5-0192	Wambo Site 47	500	0	1
37-5-0192	Wambo Site 48	1700	100	0
37-5-0298	Wambo Site 55	3800	0	-5
37-5-0299	Wambo Site 56	4000	0	0
37-5-0300	Wambo Site 57	3100	400	5
37-5-0301	Wambo Site 58	4300	2100	25
37-5-0302	Wambo Site 59	3200	2000	20
37-5-0303	Wambo Site 60	2800	400	5
37-5-0304	Wambo Site 61	3700	0	0
37-5-0187	Wambo Site 98b	1800	0	0
37-5-0273	Wambo Site 333 (HV52)	1900	1200	20

Site ID Code	Site Name	Predicted total subsidence based on the approved layout (mm)	Incremental change in subsidence due to the proposed modification (millimetres [mm])	Incremental change in tilt due to the proposed modification (mm/m)
AS G	Wambo Site 338	3000	2100	15
AS E	Wambo Site 348	5100	0	-5
AS A	Wambo Site 351	3100	0	0
AS B	Wambo Site 352	4400	1800	-5
AS C	Wambo Site 353	3000	100	0
AS F	Wambo Site 354	350	0	0
AS P	Wambo Site 356	3600	900	25
AS Z	Wambo Site 357	2300	800	20
IFY	Wambo Site 358	4000	2400	10
ST3	Wambo Site 360	3000	300	10
IF AA	Wambo Site 361	1700	1800	35
AS AB	Wambo Site 362	5300	700	10
AS AC	Wambo Site 363	500	0	0

The identified risks to heritage, as well as, proposed conservation and mitigation strategies have been summarised in Table 18.

There were a number of formal tools identified at Wambo Site 57 and Wambo Site 360 was a culturally scarred tree. Wambo Site 360 (ST3) and Wambo Site 57 were in close proximity to the crest of the hill and each other and may well be connected. For this reason they were ranked as moderately significant at a local level. The remainder of the Aboriginal cultural heritage sites in the project area were ranked as having low archaeological significance. A number of trees of a similar size and type were inspected in areas that had been previously undermined and it was determined by the Aboriginal stakeholders present, that if the predicted subsidence is similar to that experienced in other underground mining area then the tree should be left *in situ* and that regular monitoring of the site should be undertaken to monitor health of the tree.

The registered Aboriginal parties inspected a number of trees with a similar girth and of similar type in an adjacent area which had been previously undermined by longwall mining with similar predictive subsidence modelling and found that the previously undermined trees had not been adversely affected.

An inspection was also made of areas that had previously been mined by longwall mining in order to view the impact of potential subsidence on artefact sites in the current project area. On the basis of subsidence effects viewed in the area, it was determined by the registered Aboriginal parties present, that if subsidence impacts were minimal then it was unlikely that artefact sites would suffer impact. However, where subsidence predictions were moderate to high then the artefact sites could be impacted on by downward movement due to vertical subsidence (whereby the land surface moves downwards as a whole). As such an Aboriginal Heritage Impact Permit (AHIP) would be required for Aboriginal sites that were likely to suffer impact. The registered Aboriginal parties recommended that artefact scatters and isolated finds not be moved unless required. They considered that if impact to specific sites was likely, then those sites should be salvaged under an appropriate permit. It was also recommended that periodic monitoring of the sites be maintained by Wambo Coal to mitigate against potential site damage from subsidence impacts. If any impact to the Aboriginal objects is considered likely then immediate remediation measures should be instigated.

While impacts to archaeological and cultural heritage within the MA are predicted to be negligible to low (MSEC 2012), it is recommended that, if required, Wambo Coal seek an AHIP under Section 90 of the NSW *National Parks and Wildlife Act, 1974* (NPW Act) to allow for subsidence movements and the salvage of registered and unregistered sites (should they be uncovered) in consultation with the relevant Aboriginal parties. If salvage is required it is recommended that artefacts be transferred to the temporary keeping place under the existing Care and Control Permit (#3130) in consultation with the relevant Aboriginal parties.

Subsidence estimates for the project area (including specific predictions for Aboriginal sites) have been provided by MSEC (2012). Much of the surrounding area has also been previously undermined (Wollemi and Homestead workings in the Whybrow Seam), or approved to be undermined, including NWUM in the Wambo Seam, the Arrowfield and the Bowfield Seams.

The NWUMM longwall area will be subject to a Subsidence Management Plan or Extraction Plan which will be implemented prior to the proposed works being undertaken.

MSEC (2012:58-60) calculated the maximum predicted total conventional subsidence parameters for the archaeological sites in the MA for approved mining of the Wambo, Arrowfield and Bowfield Seams (Approved Layout) and compared them to the predicted values for the proposed NWUMM (Modified Layout). The predicted maximum incremental changes in subsidence resulting from the proposed modification at any Aboriginal site ranged from 0mm to 2400mm; in tilt ranged from 0mm/m to 35 mm/m; in hogging curvature ranged from 0 km^{-1} to 1.50 km^{-1}; and in sagging curvature ranged from 0 km^{-1} to 1.90 km^{-1} (MSEC [2012:58-60, Table D01]). Further MSEC (2012: Table D01) predicted that although the maximum subsidence effects in the vicinity of known Aboriginal sites resulting from subsidence relating to the Modified Layout could vary between 350 mm and 6400 mm (35 cm and 640 cm) the actual incremental change between the Modified Layout and the previously Approved Layout varied between 0 mm and 2400 mm (0 cm and 240 cm). This increment would be an even smaller proportion of approved subsidence impacts if the historic workings (Whybrow Seam) were also included in the subsidence model.

As such, MSEC (2012) predicted that the subsidence effects in the vicinity of known Aboriginal sites would not exceed 2400 mm and was significantly lower for the majority of Aboriginal sites ranging from 0 mm to 2400 mm (0 cm to 240 cm). MSEC (2012:59) considered that the artefact sites in the MA could potentially be affected by cracking of the surface soils. It is unlikely that the Aboriginal objects at these sites would be destroyed by the surface cracking but could be impacted on or harmed by downward movement due to vertical subsidence (whereby the land surface moves downwards as a whole). However, compared to the existing and approved mining in this area, the NWUMM would not increase the risk of impacts to these sites.

The Wollemi National Park escarpment cliff lines and steep talus slopes are more than one kilometre from the NWUMM area and are outside of the predicted subsidence impact area (MSEC 2012). As such, the proposed modification will not impact on the Wollemi National Park or the associated escarpment. Wollombi Brook lies approximately 500 m to the east of the project area and 1 km from any Aboriginal sites within the NWUMM area. Wollombi Brook will not be impacted by the proposed NWUMM (MSEC 2012).

The existing Consent #2222 (Consent to Destroy with Salvage) covers the vast majority of the MA. It is therefore recommended that either the existing Consent be slightly expended or a new AHIP be applied for to cover the southern extent of the MA.

Table 18 Summary of potential impacts, risks to heritage and mitigation options

Impact	Risk to Heritage	Mitigation Option 1	Mitigation Option 2	Mitigation Option 3
Mine Subsidence	Based on the subsidence predictions for surface movement and potential soil cracking in MSEC (2012) (and provided in Table 17), risk of substantial impacts to Aboriginal heritage is considered negligible to low.	Subsidence monitoring to ensure subsidence movements are as predicted (details to be included in a Subsidence Management Plan)	Move artefacts under an AHIP to location outside impact area if subsidence monitoring identifies cracking or erosion proximal to a site.	NA
Vehicle Movement/ Subsidence Mitigation Works	Direct disturbance/ damage to cultural heritage sites.	Avoid; ensure relevant Wambo Coal Environmental Officer and personnel are given site locations. Avoid; locate subsidence mitigation works to prevent impacts on Aboriginal cultural heritage.	Cordon off site area or prevent vehicular access to site.	Move artefacts under an AHIP to location outside impact area.
Surface Infrastructure	Direct disturbance/ damage to cultural heritage sites.	Locate required surface infrastructure within limit of existing approved disturbance areas. Avoid impact to known heritage sites; ensure Wambo Coal Environmental Officer and relevant personnel.	Cordon off site area to prevent accidental damage.	Move artefacts under an AHIP to location outside impact area.
Vandalism	Direct disturbance/ damage to cultural heritage sites.	Avoid; ensure Wambo Coal Environmental Officer and relevant personnel are given site locations.	Cordon off site area and block access route to restrict vehicular access to sites.	Site awareness and sensitivity education programme.

8.2 Principles of Ecologically Sustainable Development

The principles of ecologically sustainable development need to be considered under Section 2A of the NPW Act. Inter-generational equity is part of these principles, which allows future generations to access the cultural and environmental diversity of the present generation.

Inter-generational equity has been considered as part of the assessment of significance. State significant Aboriginal sites should be considered for blanket protection for future generations, as these sites have been assessed as having highest significance within NSW.

No Aboriginal sites of state significance were identified in this assessment.

9.0 Conclusions and Recommendations

This report has considered the environmental and archaeological context of the project area, developed a predictive model and reported on the results of an archaeological survey of the project area. The following management recommendations have been formulated with consideration to the significance of Aboriginal cultural heritage, as well as potential impacts, and have been prepared in accordance with the relevant legislation.

Aboriginal Cultural Heritage

Recommendation 1

It is recommended that the artefacts remain *in situ* unless impact to the sites is unavoidable. It is further recommended that Wambo Coal undertakes subsidence monitoring to ensure impacts are as predicted.

Recommendation 2

It is recommended that Wambo Coal seek an AHIP for the MA (excluding the portion covered by the existing Consent #2222) under Section 90 of the *National Parks and Wildlife Act 1974* (NPW Act) to allow for subsidence and the salvage (if required) of registered and unregistered sites (should they be uncovered) in the MA; such works should be undertaken in consultation with the registered Aboriginal parties. If salvage is required, it is recommended that artefacts be transferred to the temporary keeping place under the existing Care and Control Permit (#3130) in consultation with the registered Aboriginal parties.

Recommendation 3

The location of any Aboriginal cultural heritage sites in the project area should be included in the Wambo Coal environmental management framework for the project area, so that all relevant staff members are aware that these areas will require management.

In General during the course of Wambo Coal works.

Recommendation 4

If any previously unrecorded Aboriginal sites are identified during the course of surface works in the project area, the area should be cordoned off and surface works cease until the site has been adequately recorded. Any newly identified sites should be managed in accordance with management measures for similar site/artefact types previously identified within the project area or across the wider Wambo Mine area, in consultation with the registered Aboriginal parties.

Recommendation 5

In the event that skeletal remains are uncovered, work must cease immediately in that area and Wambo Coal will need to contact the NSW Police Coroner to determine if the material is of Aboriginal origin. If determined to be Aboriginal, they must then contact the OEH Enviroline 131 555 and the registered Aboriginal parties in order to determine an action plan for the management of the skeletal remains prior to works re-commencing.

Indigenous and non-Indigenous Cultural Heritage

Recommendation 6

All relevant Wambo Coal staff should be made aware of their statutory obligations for heritage under NPW Act and the *Heritage Act 1977*, which may be implemented as a heritage induction. If during the course of surface site works significant non-Indigenous cultural heritage material is uncovered, work should cease in that area immediately. OEH should be notified and surface works only recommenced when an appropriate and approved management strategy has been instigated.

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11.0 Plates

Plate 1 Wambo Site 45 facing south

Plate 2 Wambo Site 46 facing south east

Plate 3 Wambo Site 47 facing north east

Plate 4 Wambo Site 48 facing north east

Plate 5 Wambo Site 55 facing north east

Plate 6 Wambo Site 56 facing south west

Plate 7 Wambo Site 57 facing north

Plate 8 Wambo Site 58 facing north east

Plate 9 Wambo Site 59 facing south west

Plate 10 Wambo Site 60 facing north east

Plate 11 Wambo Site 61 facing north east

Plate 12 Wambo Site 98b facing south east

Plate 13 Wambo Site 333 (HV 52) facing east

Plate 14 Wambo Site 338 (AS G) facing east

Plate 15 Wambo Site 348 (AS E) facing west

Plate 16 Wambo Site 351 (AS A) facing south east

Plate 17 Wambo Site 352 (AS B) facing east

Plate 18 View to north showing Wambo Sites 353 (AS C) and 357 (AS Z) on far side of dam

Plate 19 Wambo Site 354 (AS D) view south east

Plate 20 Wambo Site 356 (AS P) view facing north east

Plate 21 View to north showing Wambo Site 357 (AS Z) on far side of dam

Plate 22 Wambo Site 358 (IF Y) facing east

Plate 23 Wambo Site 360 (ST 3) facing east

Plate 24 Wambo Site 360 (ST 3) facing south west

Plate 25 Wambo Sites 361 & 362 facing south toward site location

Plate 26 Wambo Site 363 facing south east into Stony Creek

Appendix 1

Legislative Requirements

Summary of Statutory Controls

The following overview of the legal framework is provided solely for information purposes for the client, it should not be interpreted as legal advice. RPS will not be liable for any actions taken by any person, body or group as a result of this general overview and recommend that specific legal advice be obtained from a qualified legal practitioner prior to any action being taken as a result of the summary below.

COMMONWEALTH

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHP Act), Amendment 2006

The purpose of this Act is to preserve and protect all heritage places of particular significance to Aboriginal and Torres Strait Islander people. This Act applies to all sites and objects across Australia and in Australian waters (s4).

It would appear that the intention of this Act is to provide national baseline protection for Aboriginal places and objects where State legislation is absent. It is not to exclude or limit State laws (s7(1)). Should State legislation cover a matter already covered in the Commonwealth legislation and a person contravenes that matter, that person may be prosecuted under either Act, but not both (s7(3)).

The Act provides for the preservation and protection of all Aboriginal objects and places from injury and/or desecration. A place is construed to be injured or desecrated if it is not treated consistently with the manner of Aboriginal tradition or is or likely to be adversely affected (s3).

Australian Heritage Commission Act 1975 (repealed)

The *Australian Heritage Commission Act 1975* established the Australian Heritage Commission which assessed places to be included in the Register of National Estate (RNE) . Places maintained in the RNE were those which were significant in terms of their association with particular community or social groups and they may be included for social, cultural or spiritual reasons. However, owing to extensive overlaps between the RNE and national, state, territory and local government heritage lists, the RNE was closed in 2007 and ceased to provide statutory protection for listed items on 19 February 2012. It is still maintained on a non-statutory basis as an archive and educational resource.

Australian Heritage Council Act 2003

The Australian Heritage Council Act 2003 repealed the Australian Heritage Commission Act 1975 and created the Australian Heritage Council. Together with the Environment Protection & Biodiversity Conservation Act 1999 it sought to provide stronger protection for items of national significance, whilst devolving responsibility for state and locally significant items to State and Local Government bodies. The Australian Heritage Database is maintained by the Department of Sustainability, Environment, Water, Population and Communities and includes the National Heritage List of places of National heritage significance, the Commonwealth Heritage List of heritage places owned or managed by the Commonwealth and the archived Register of the National Estate. The Australian Heritage Council assesses potential items for both the National Heritage List and the Commonwealth Heritage List.

Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act)

The Significant Impact Guidelines for *Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies*, provides guidance on the management of Commonwealth Heritage Places. These guidelines require that a heritage impact assessment is undertaken where an action has, will have, or is likely to have a significant impact on a Commonwealth Heritage Place.

STATE

It is incumbent on any land manager to adhere to state legislative requirements that protect Aboriginal Cultural heritage. The relevant legislation in NSW includes but is not limited to:

National Parks & Wildlife Act 1974 (NPW Act)

The *NPW Act (1974)* provides statutory protection for all Aboriginal heritage, places and objects (not being a handicraft made for sale), with penalties levied for breaches of the Act. This legislation is overseen by the Office of Environment & Heritage (OEH, formerly the Department of Environment, Climate Change and Water (DECCW). Part 6 of this Act is the relevant part concerned Aboriginal objects and places, with the Section 86 and Section 90 being the most pertinent. In 2010, this Act was substantially amended, particularly with respect to Aboriginal cultural heritage requirements. Relevant sections include:

Section 86

This section now lists four major offences:

(a) A person must not harm an object that the person knows is an Aboriginal object;

(b) A person must not harm an Aboriginal object;

(c) For the purposes of s86, “circumstances of aggravation” include (a) the offence being committed during the course of a commercial activity; or (b) that the offence was the second or subsequent offence committed by the person.

(d) A person must not harm or desecrate an Aboriginal place.

Offences under s86 (2) and (4) are now strict liability offences, i.e., knowledge that the object or place harmed was an Aboriginal object or place needs to be proven. Penalties for all offences under Part 6 of this Act have also been substantially increased, depending on the nature and severity of the offence.

Section 87

This section now provides defences to the offences of s86. These offences chiefly consist of having an appropriate Aboriginal Heritage Impact Permit (AHIP), not contravening the conditions of the AHIP or demonstrating that due diligence was exercised prior to the alleged offence.

Section 87A & 87B

These sections provide exemptions from the operation of s86: Section 87A for authorities such as the Rural Fire Service, State Emergency Services and offices of the National Parks & Wildlife Service in the performance of their duties and s87B for Aboriginal people performing traditional activities.

Section 89A

This section provides that a person who knows of an Aboriginal object or place and does not advise the Director-General of that object or place within a reasonable period of time, is guilty of an offence.

Section 90

This section authorises the Director-General to issue an AHIP.

Section 90A-90R

These sections govern the requirements relating to applying for an AHIP. In addition to the amendments to the Act, DECCW have issued three new policy documents clarifying DECCW's requirements with regards to Aboriginal archaeological investigations: *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* and *Code of Practice for Archaeological Investigations in NSW*. The Consultation Requirements formalise the consultation with Aboriginal community groups into four main stages and include details regarding the parties required to be consulted and the methods of establishing the necessary stakeholders to be consulted, advertisements inviting Aboriginal community groups to participate in the consultation process, requirements regarding the provision of methodologies, draft and final reports to the Aboriginal stakeholders and timetables for the four stages. The Due Diligence Code of Practice sets out the minimum requirements for investigation, with particular regard as to whether an AHIP is required. The Code of Practice for Archaeological Investigation sets out the minimum requirements for archaeological investigation of Aboriginal sites.

Aboriginal Heritage Impact Permits (AHIP)

DECCW encourages consultation with relevant Aboriginal stakeholders for all Aboriginal Heritage assessments. However, if an Aboriginal Heritage Impact Permit (AHIP) is required for an Aboriginal site, then specific DECCW guidelines are triggered for Aboriginal consultation.

Aboriginal Cultural Heritage Consultation Requirements for Proponents

In 2010, the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (ACHCRs) were issued by DECCW (12th of April, 2010). These consultation requirements replace the previously issued *Interim Community Consultation Requirements* (ICCR) for Applicants (DEC 2004). These guidelines apply to all AHIP applications prepared after April 12, 2010; for projects commenced prior to April 12, 2010 transitionary arrangements have been stipulated in a supporting document, Questions and Answers 2: Transitional Arrangements.

The ACH Consultation Requirements 2010, include a four stage Aboriginal consultation process and stipulates specific timeframes for each stage. Stage 1 requires that Aboriginal people who hold cultural information are identified, notified and invited to register an expression of interest in the assessment. Stage 1 includes the identification of Aboriginal people who may have an interest in the project area and hold information relevant to determining the cultural significance of Aboriginal objects or places. This identification process should draw on reasonable sources of information including: the relevant OEH EPRG regional office, the relevant Local Aboriginal Land Council(s), the registrar, Aboriginal Land Rights Act 1983, the Native Title Tribunal, Native Title Services Corporation Limited, the relevant local council(s) and the relevant catchment management authority. The identification process should also include an advertisement placed in a local newspaper circulating in the general location of the project area. Aboriginal organisations and/or individuals identified should be notified of the project and invited to register an expression of interest (EoI) for Aboriginal consultation. Once a list of Aboriginal stakeholders has been compiled from the EoIs, they need to be consulted in accordance with ACH Consultation Requirements Stages 2, 3 and 4.

For projects commenced before the 12th of April, 2010, Section 1 (Q1) of the transitional arrangements indicates that if Aboriginal consultation was commenced prior to the 12th of April 2010 (including advertising and notification of stakeholders) then consultation is to be continued under the previous ICCR guidelines.

*Interim Community Consultation Requirements (ICCR) for Applicant*s (DEC 2004) required a three stage process of which timeframes were stipulated for specific components. Stage 1 required the notification and registration of interests. Notification included an advertisement in a local print media, as well as, as contacting the Local Aboriginal Land Council(s), the registrar of Aboriginal Owners, Native Title Services, local council(s) and the Department of Environment and Conservation. Stage 1 also required the invitation for expressions of interest (EoI) to be sent to interested Aboriginal parties and an Aboriginal stakeholder list compiled. Stage 2 required the preparation of an assessment design to be sent to the Aboriginal stakeholders for comment and review. Stage 3 required that the assessment report be provided to registered Aboriginal stakeholders for review and comment.

Environmental Planning & Assessment Act 1979 (EP&A ACT)

This Act regulates a system of environmental planning and assessment for New South Wales. Land use planning requires that environmental impacts are considered, including the impact on cultural heritage and specifically Aboriginal heritage. Within the EP&A Act , Parts 3, 4 and 5 relate to Aboriginal heritage.

Part 3 regulates the preparation of environmental planning instruments, such as State Environmental Planning Policies (SEPPs) and Local Environment Plans (LEPs), both of which address the management of Aboriginal heritage. Part 4 sets out matters relating to a development assessment and Part 5 governs the manner in which determining authorities determine Environmental Assessments and outlines those that require an environmental impact statement. Part 5.1 sets out the State Significant Infrastructure regime, which retains many of the features of the repealed Part 3A (Major Development) scheme..

Under 5.1 of EP&A Act a development may be declared a state significant development if it meets specific criteria. The consent authority for a state significant development is the Minister, although under Section 23 the minister may delegate consent authority function to the Planning Assessment Commission, the Director-General or to any other public authority. Provisions under Part 5.1 effectively replace Part 3A which was repealed in March 2011.

In brief, the NPW Act provides protection for Aboriginal objects or places, while the EP&A Act ensures that Aboriginal cultural heritage is properly assessed in land use planning and development.

Heritage Act 1977

This 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. Although Aboriginal heritage sites and objects are primarily protected by the NPW Act , if an Aboriginal site, object or place is of great significance, it may be protected by a heritage order issued by the Minister subject to advice by the Heritage Council.

Other legislation of relevance to Aboriginal cultural heritage in NSW includes the NSW *Local Government Act 1993*. Local planning instruments also contain provisions relating to indigenous heritage and development conditions of consent.

Appendix 2

Aboriginal Consultation – Published Advertisement

The Singleton Argus
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Email: sales.singletonargus@ruralpress.com
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Web: www.singleton.yourguide.com.au

PHONE: (02) 6572 2611 **FAX: (02) 6572 2795**

Funerals

OLDKNOW: Gladys Nellie

Passed away in Singleton Hospital 29th May 2011
Aged 84 years.

Loved wife of Ian (dec'd), loving mother & mother-in-law of David (dec'd), Mark & Sandra, Steve & Debra, Jen & Tony (dec'd), a loving grandmother and great grandmother to their families, a loved sister, sister-in-law & aunt to the Oldknow and Woods families.

Family and friends are warmly invited to attend Nellie's Funeral Service to be held in All Saints Anglican Church Singleton, TOMORROW, Wednesday 1st June 2011 commencing at 12.30pm followed by a private cremation.

In the care of Chapmans Funerals Singleton 6572 1089 A.F.D.A.

ROSS Robert (Bob)

Formerly of Singleton
Passed away 20th May 2011
Aged 86 years

Much loved husband, father and grandfather of Thelma (dec), Ross family, Motbey family, Scicluna family, Davidson family, O'Brien family and Merengo family.

Bob's funeral will be held on Thursday 2nd June at St Patricks Catholic Church, Singleton at 11am.

In Gods care but in our hearts forever more.

ALEXANDER GEORGE THOMAS "A.G.Thomas" Aged 90 Years of Branxton

Beloved husband of the late KATHLEEN THOMAS, loving father and father-in law of MARGARET and RICHARD KOSTELIZ, BRIAN and JILL (dec), NEIL and MARIANNE, KEITH and JENNIFER, MARIE and MICHAEL STREET, DESMOND and MARY, KATHY and BRUCE STEVENSON, GERARD and JAYNE. A dearly loved Poppa of his grandchildren and great grandson and a loved brother, brother-in-law and uncle of the THOMAS and MACKENZIE families.

Family and friends are invited to attend Requiem Mass to be celebrated at St Brigids Catholic Church, Station St, Branxton on **FRIDAY**, 3rd June, 2011 at 10:30am.

Rosary for the happy repose of his soul will be recited in the church on Thursday at 7pm.

FRY BROS TONY & LINDSAY 120 Years

49336155

Funerals

BUTLER: Colin James

Of Mirannie, passed away at Cessnock Hospital on the 28th May 2011.
Aged 73 years.

Loving husband of June, loved father of Warren, Jenny and Darren, father-in-law and grandfather to their families, a brother, brother-in-law and uncle to the Butler and Beckett families.

Family and friends of Col are warmly invited to attend his Funeral to be held in the Singleton Uniting Church, Thursday the 2nd June 2011 commencing at 11.00am followed by a private family burial.

By request no flowers, a donation may be left at the Church to aid the Singleton Cancer Appeal.

In the care of Chapmans Funerals Singleton 6572 1089 A.F.D.A.

In Memoriam

Elaine Miriam LIGHEZZOLO

26.7.33 - 30.5.2010

In loving memory of my dear wife Elaine, passed away 30.5.2010.

Always loved
Never forgotten
Olly

Stephen (BEAR) Mark SMITH

1960 - 2006

We thought of you today
But that was nothing new,
We thought of you yesterday and will tomorrow too.

We think of you in silence and make no outward show,
For what it meant to lose you
Only those who love you know.

Remembering you is easy
We do it everyday,
It's the heartache of losing you
That will never go away.

Always remembered and loved Janette, Julie, Tammy & David.

Stephen SMITH (Bear)

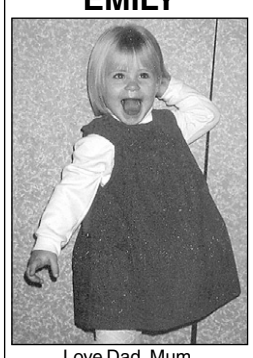
30.5.2006

As we remember you today,
Tomorrow and forever,
We will think of you as always,
Forget you we will never,
Until we meet again.

Love Danny, Tammy, Tyson, Jasmine & Jayden

Congratulations

HAPPY 21ST EMILY



Love Dad, Mum,
Sophie and Isabella

Congratulations

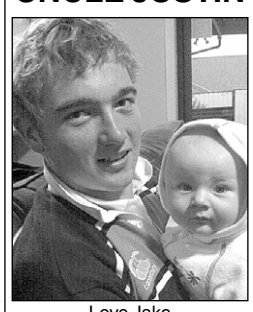
Happy 50th Birthday
Pat / Nanny
Love from all the family

HAPPY 18TH GRACE

1 June 1993

Love you lots!
Mum, Dad,
Drew and Cameron

HAPPY 18TH BIRTHDAY UNCLE JUSTIN



Love Jake
and your family

Pets

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Long haired, purebred, caramel/white & black/white, vet checked, m/chipped, vacc., view parents. $400 ea.
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Black & white, 2 F, 1 M, fully wormed, microchipped and vaccinated, ready to go now

$250 each

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Lost & Found

LOST: Female Dalmatian

On Sat night
from Town Area
Call 0411 616 405

Business Opportunities

Existing Bakery in Singleton

Brumby's Bakery is currently closed - however is available for purchase on a walk in - walk out basis.

No baking experience is required as comprehensive l training is provided.

This store is offered to the market at a very competitive price.

Call Mark Collins
0401 787 752

Health & Beauty

CHINESE MASSAGE

Call now for RR remedial massage, Singleton, 7 days.
Phone 6571 2322

Wanted to Buy

OLD CARAVANS WANTED
Cash Paid!
Phone 0433 477 993

Legal Notices

NOTICE OF INTENDED DISTRIBUTION. ESTATE OF GWENETH MARGARET CRAWFORD. NSW GRANT MADE 06/05/2011. Any person having any claim upon the estate of Gweneth Margaret Crawford, late of Singleton Heights, who died on 4 March 2011, must send particulars of the claim to the legal representative for the estate care of Curtis Delaney Gray, 12 Pitt Street, Singleton NSW 2330 DX 7062 Singleton, phone (02) 6572 2911, ref TW:KR:101567, not more than 30 days after publication of this notice. After that time the legal representative intends to distribute the property in the estate having regard only to the claims of which the legal representative had notice at the time of distribution.

NOTICE OF INTENDED DISTRIBUTION OF ESTATE. Any person having any claim upon the estate of TETJE DAMSTRA late of Singleton, who died on 4 March 2011 must send particulars of the claim to the Executors, Teresa Fong, Robert Damstra, Anya Stewart and Peter Damstra, care of Cragg Braye and Thornton, PO Box 166, Singleton NSW 2330, telephone (02) 6572 1166, ref BT:JN:90931, within one calendar month from publication of this notice. After that time the Executors may distribute the assets of the estate having regard only to the claims of which at the time of distribution the Executors have notice. Probate was granted in New South Wales on 19 May 2011.

Notices

PENTECOST

A special time of
• Thanksgiving
• Praise
• Spiritual Renewal

Members of the Christian Israelite Church invite you to join our celebration
Saturday June 11 - 7.30pm
at our Church Hall, Goulburn Street, Singleton

Singleton United Greyhounds R.L.F.C

OLD DOGS DAY

Sunday 5th June 2011
Wear your old dogs jersey
Memberships for 'Old Boys Association' being taken

SINGLETON SCOUT GROUP LEADER NEEDED

This is a voluntary adult Leader position with the Scout Association of Australia NSW Branch. The position is to help run Joey Scouts for 6-8 year old boys and girls. Meetings are for one hour per week in school terms and some weekend activities. If you are interested please call Scott Cook Phone 6573 2417 Apex Park Edward St.
www.nsw.scouts.com.au

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Just show up or call
Dave on 0420 236 484

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Authorised service agent: Fisher & Paykel, LG, Whirlpool, Maytag, Asko & Haier. Ph Ian 0401 659 037

AshtonCoal

PUBLIC NOTICE Temporary Road Closure

Ashton Coal advises that the New England Highway and Glennies Creek Road may be closed on **Monday - Saturday** at approximately 12noon for the purposes of blasting. The roads will be closed in the area from Glennies Creek Road, Brunkers Land and Rail crossing Closure is likely to be less than 10 minutes.
Ashton Coal apologises for any inconvenience. For further information please phone 6576 1111

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Notices

Environmental Planning and Assessment Act 1979 (NSW) National Parks and Wildlife Act 1974 (NSW) - Sections 87 and 90

Wambo Coal Pty Ltd (WCPL) owns and operates the Wambo Coal Mine, an open cut and underground mining operation located approximately 15 km west of Singleton in the Hunter Valley, NSW.

WCPL proposes to lodge a request with the Minister for Planning under the *Environmental Planning & Assessment Act 1979* (NSW) and the *Environmental Planning and Assessment Regulation 2000* (NSW) to modify Development Consent (DA 305-7-2003) for the Wambo Coal Mine, which was granted by the Minister for Planning on 4 February 2004. The proposed modification is an underground mine which consists of an extension to three approved longwall panels and an additional three longwall panels, which will be located in the southern portion of the existing approved underground mine. The proposed longwall panels are referred to as North Wambo Underground Mine Extension and are shown as the "Area of Interest" on the plan below (**"Area of Interest"**).

As part of the application process, WCPL will be preparing an Aboriginal Cultural Heritage Impact Assessment and therefore may seek a permit and/or a consent under sections 87 and/or 90 of the *National Parks and Wildlife Act 1974* (NSW) respectively to move and/or destroy Aboriginal objects (i.e. an Aboriginal Heritage Impact Permit (**AHIP**)). The subject area of any such application is depicted by the "Area of Interest".

In accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010) (**ACHC Requirements**), WCPL is required to conduct community consultation with the relevant Aboriginal people and the purpose of which is to assist WCPL in the preparation of its application for an AHIP under Part 6 of the *National Parks and Wildlife Act 1974* (NSW) and to assist the Director General of the NSW Office of Environment and Heritage in his or her consideration and determination of the application.

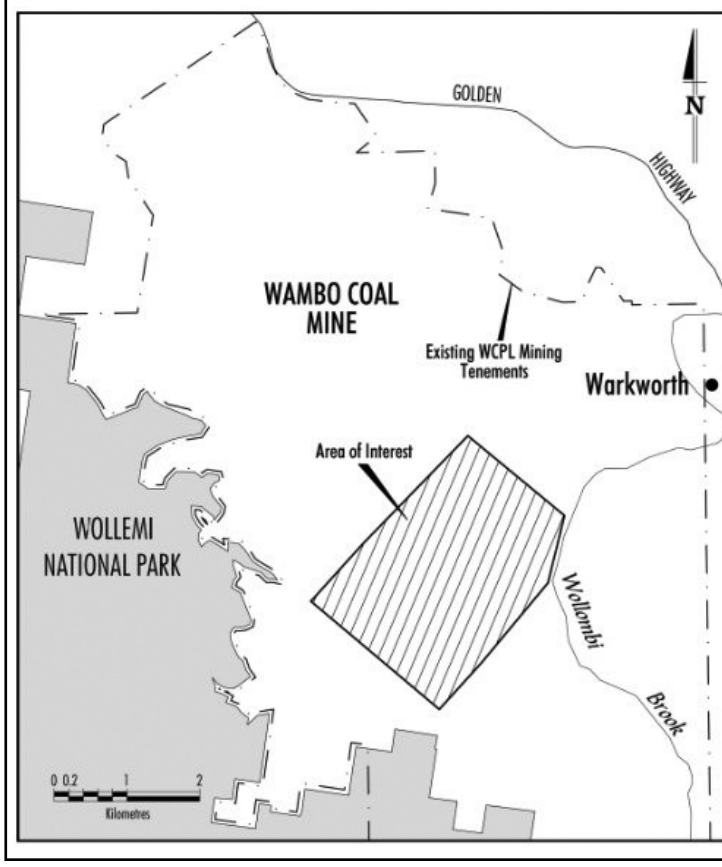
Also in accordance with the ACHC Requirements, WCPL invites by way of this public notice any Aboriginal persons or groups who hold cultural knowledge relevant to determining the significance of Aboriginal object(s) and/or places(s) in the "Area of Interest" to register an interest in a process of community consultation with WCPL regarding the North Wambo Underground Mine Extension by **15 June 2011** in writing.

WCPL advises that the details of the Aboriginal people who are registering an interest in accordance with this notice will be forwarded to the NSW Office of Environment and Heritage and the Wanaruah Local Aboriginal Land Council unless they specify at registration that they do not want their details released.

Please note that any opportunities for employment would be separate to the consultation process.

Contact details are as follows:

Lachlan Crawford
Manager Environment and Community
Wambo Coal Pty. Ltd.
PMB1, Singleton NSW 2330
Telephone: (02) 6570 2206
Facsimile: (02) 6570 2290
Email: lcrawford@peabodyenergy.com



Appendix 3

Aboriginal Consultation – Written Responses from the Aboriginal Community Stakeholders

BUUDANG
9 Inglis Street
Mudgee
2850 NSW
PH 0263720859
Email dfoley2850 @ hotmail.com

3/10/12

To

Whom it may concern

I Larry Foley am writing to you with my reply to the Methodology that has/will take place at South Wambo Coal. I agree with the Methodology as the mining will be underground I have discussed this with the Archeologist during the Aboriginal Cultural Survey. If you have any further information please contact me on the above details.

Regards

Larry Foley

Cacatua General Services
Entity of Carcatchua Pty Ltd
ABN: 87 145 082 480 ACN: 145 082 480

28 September 2012

Jillian Goode and Ali Byrne
RPS Group
PO Box 428
Hamilton NSW 2303

RE: North Wambo Underground Mine Modification, Cultural Heritage Impact Assessment

Jillian Goode and Ali Byrnes

Thank you for the supply of information in regards to the above. Cacatua has read and discussed all information supplied, we would like to make the following comments:

Assessment Requirements

The draft CHIA provided identifies that Wambo Coal should need an approved AHIP from OEH for the proposed Project, given than subsidence will affect (although minimally) a number of known archaeological sites; and as future archaeological salvage may be required if monitoring identifies that subsidence impacts are greater than assessed.

Current OEH requirements for AHIP applications are outlined in the *Applying for an Aboriginal Heritage Impact Permit: Guide for Applicants* (OEH 2011), which identify that proponents are required to provide an Aboriginal Cultural Heritage Assessment (ACHA) report prepared in accordance with the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011). This guideline itself refers to the *Code of Practice for Archaeological Investigation in NSW* (DECCW 2010), which identifies the standard of work required for archaeological assessments, and how this is informs the overall ACHA report.

As Wambo Coal are required to comply with the above guidelines in order to seek an AHIP for the proposed modification, it is noted that the draft CHIA provided does not fully meet the standards of the above guidelines, with the following limitations:

- The absence of an assessment of the social, historic and aesthetic values of the Project area, with only the scientific values of the area and known sites assessed. This does not reflect the principles of the Burra Charter which are adopted in OEH (2011) guidelines – which require AHIP applicants to assess all four aspects of cultural significance.

- Limited ethno historical research on the Aboriginal history of the Project area, spanning life ways before European contact and also the historical experiences of Aboriginal people in the area. This is specifically required by OEH guidelines to inform both the Aboriginal cultural heritage assessment process, but the draft CHIA presents a limited understanding of past Aboriginal associations within the Project area
- Detailed information about the level of archaeological survey coverage, which is questioned in this response below; and
- An assessment of the archaeological potential of the landforms of the Project area, which is not currently considered in the assessment of Project impact or the management strategy provided.
- The finalised CHIA should include this additional information, which may require further consultation with Aboriginal registrants, ethno historic research and significance assessment to inform the assessment process.

Documenting Aboriginal cultural significance

Section 2 states that in relation to cultural significance, the draft presents input from Aboriginal registrants during previous studies and field surveys conducted for the Project being assessed; and will include any additional input provided in response to the draft in the final report.

The draft CHIA is viewed as providing an inadequate process for the assessment of the Aboriginal cultural values of the Project area, as there was no specific engagement with Aboriginal registrants to seek an understanding of the cultural significance of the area; and there is an absence of information on the historic and aesthetic values of the Project area.

OEH guidelines adopt the Burra Charter (Australia ICOMOS 1999) approach to assessing cultural significance, and OEH (2011) specifically requires that Aboriginal cultural heritage assessments in NSW assess the social, historic, scientific and aesthetic values of a place. Currently, the CHIA only provides an assessment of scientific significance, which means that the management strategy proposed does not consider three of the four OEH significance requirements.

Completing the cultural significance assessment to OEH standards will require further consultation with Aboriginal registrants, in accordance with OEH guidelines which state that: "*Social or cultural value can only be identified through consultation with Aboriginal people*" as it "*refers to the spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them*" (OEH 2011).

OEH (2011) further identify that assessing social or cultural value can only be done through consultation with Aboriginal people, but this could also involve approaches such as cultural mapping, oral histories and archival documentation.

Although a small number of Aboriginal registrants had opportunity to make some comment during the archaeological survey – with 9 registrant representatives involved in three days of survey in 2011 and 2012 – OEH guidelines clearly identify that participation in archaeological survey does not constitute a cultural values assessment, as stated below:

> *"Such participation should not be construed as 'consultation'. It is not a substitute for an assessment of Aboriginal cultural interests or values in a particular area of land or particular sites, such assessments being separate from archaeological assessments"* (NPWS 1997).

OEH guidelines also identify that the views of some Aboriginal people should not be construed as being representative of all Aboriginal people, and that the role of the ACHA process is to document the range of cultural values associated with a place to inform the management outcome. As stated in OEH (2011):

> *"There is not always consensus about a place's social or cultural value. Because people experience places and events differently, expressions of social or cultural value do vary and in some instances will be in direct conflict. When identifying values, it is not necessary to agree with or acknowledge the validity of each other's values but it is necessary to document the range of values identified".*

In this context, the draft CHIA is viewed as not prepared to professional standards and Wambo Coal should continue to engage with Aboriginal registrants to complete the assessment of social, historic and aesthetic values before an AHIP is sought from OEH.

Understanding of past Aboriginal associations and life ways

Section 4.1 'Historic Records of Aboriginal Occupation' provides a brief introduction identifying the Hunter Valley as Wonnarua country, and then discusses some aspects of Wonnarua material culture of relevance to the archaeological assessment.

OEH (2011) identifies that one of the key aims of Aboriginal cultural heritage assessment in NSW is to gain an understanding of the history of the peoples who have lived on the land in question; through developing a historic narrative of the past, and by identifying and mapping important places in the landscape used in the past. OEH (2011) also identify the importance of the historical experiences of Aboriginal people in the region, and the importance of involving Aboriginal people in identifying historic values and obtaining oral histories, given that documented histories often contain little information on the Aboriginal experience since contact.

In this context, the CHIA should be revised to include additional historical information on the life of Wonnarua people at the time of contact, and the historic experiences of Aboriginal people in the region since contact – ie, to present a broader discussion of and meaning of Aboriginal life ways in the Project area, and how this relates to land beyond the Project area. This information is needed to both inform the archaeological assessment, but also the social and cultural assessment.

Post contact burials

Section 4.1.5 is titled 'Burials and Post Contact Phase'. This section does not include details on the understanding of burial practices, and how this may have changed in the post-contact phase. The final CHIA should be revised to include this information.

Past archaeological studies

Section 4.3.1 describes a number of archaeological studies that have been conducted within the local area – but this section does not clearly identify which studies investigated lands within the current Project area, and the extent of the current Project area that has been previously inspected. This information should be included in the final report.

We also requested that the final report include a map showing the locations of the past archaeological investigations listed in Section 4.3.1 in relation to the Project area.

Mapping of AHIMS sites

Section 4.3.2 states that AHIMS site searches identified 18 archaeological sites within the Project area, which included 10 artefact scatters and 8 isolated finds. However, the accompanying Figure 4-1 shows all sites recorded which creates confusion. It is requested that Figure 4-1 in the final CHIA be revised to only show the AHIMS sites discussed in that Section for clarity.

Predictive Archaeological Model

Section 4.4 presents a predictive archaeological model for the Project area, but this does not integrate ethno historic information as required by the OEH Code of Practice. This should be included in the finalised CHIA.

Historic heritage context

Section 5 presents the 'Historic Heritage Context' for the Project area. Given the shared history of Aboriginal and settler Australians since contact, this chapter should be revised to reflect the historic experiences of Aboriginal people in the Hunter Valley since contact, and not to discuss Aboriginal and European histories within Australia as separate.

Preliminary archaeological survey

Section 6.2 of the draft CHIA states that three RPS archaeologists undertook preliminary survey in May 2011 with no Aboriginal registrants present.

We strongly believe that Aboriginal registrants should have been involved in all stages of cultural heritage assessment, including any reconnaissance survey activities.

Archaeological survey coverage

Section 6.2 describes that the archaeological survey was conducted over three days by a small team (of 3 people on 29 July 2011, 7 people on 2 August 2011 and 5 people on 4 April 2012). Section 6 also describes that the team surveyed in transects 5m to 10m wide within 6 survey units mapped on Figure 6-1. This figure and Table 6-2 identify that all of the survey area was inspected – or 100% survey was conducted. Section 6 also describes that 35 archaeological sites were recorded as part of the survey, as listed in Table 6-4

Although the size of the Project area (hectares) is not stated, it is understood to be approximately 200 hectares. This area was inspected over three days of archaeological survey

by a small team conducting transects no wider than 10m, as stated by the draft CHIA. As 100% coverage would require an average of 66 hectares be inspected each day – plus time for the identification and recording of 35 archaeological sites – it is questioned how this could have been achieved by a small team of no greater than 7 persons walking in 10m wide transects. For example, if this team walked 15km each day in a 10m wide transect, this would cover only 45 of the 200 hectares.

As the draft CHIA currently describes 100% survey coverage, this should be further explained and justified in the final CHIA. It is also requested that as the survey team undertook survey in 10m wide transects, that the locations of these transects be mapped within each survey unit – to clearly describe and map which parts of the Project area were inspected and which were not. This approach is also required by the OEH Code of Practice for Archaeological Investigation in NSW (DECCW 2010) which requires that detailed information on survey coverage is provided in assessment reports.

> Updated survey coverage information should be reflected throughout Section 6, including the analysis of effective survey coverage.

Inspection of previously recorded AHIMS sites

Section 6.3 states that two of the previously registered AHIMS sites could not be relocated during survey – Wambo Site 45 and Wambo Site 56. Although no artefacts were observed at the registered site locations, the draft CHIA does not discuss whether the site described in the AHIMS site card is consistent with the registered location; ie, the likelihood the site may occur elsewhere just not at the registered MGA coordinates. This should be included in the final CHIA, and if further inspection is required to locate the two sites, this should be reflected in the CHIA management strategy.

Scarred tree assessment

The archaeological survey of the Project area identified a scarred tree, which is described as a 'culturally modified scar tree' in Section 6.2, but is described in later sections of the report as a 'probable scarred tree'.

The OEH Code of Practice identifies that scarred tree identification is often subject to uncertainty, and that the advice of an arborist should be sought prior to a 'possible' scarred tree being registered in the AHIMS database.

Assessment of Archaeological Sensitivity / Landform Potential

Section 6.3.1 is titled 'Archaeological Sites and Archaeological Sensitivity', and presents archaeological survey results in the form of descriptions of all known sites of the Project area.

However, this section – or any other section of the draft report provided – does not assess the archaeological sensitivity of the broader landforms of the Project area, or the potential for known archaeological sites to contain additional buried deposit. This is particularly important given the landscape of the Project area, which contains creek lines of the Wollombi Brook catchment, as well as landforms such as valley flats and levees. The archaeological potential of these landforms, and others within the Project area, should be assessed as part of the CHIA;

especially as this assessment would influence how any later Project works in the area (such as subsidence remediation if needed) would be conducted.

Significance Assessment approach

As previously noted, the draft CHIA provided assesses the scientific significance of known archaeological sites within the Project area, but it does not provide an assessment of the social, historic or aesthetic significance of the locality and specific sites within the Project area. Given that OEH guidelines specifically require this to inform AHIP applications (see OEH 2011), this information should be included in the final CHIA. Collating this information should involve Aboriginal registrant consultation to seek an understanding of the cultural significance of the Project area, and additional historical research.

Management framework

The draft CHIA provides a management framework for the Project based on the assessed low harm to known archaeological sites from subsidence, although management options for subsidence impacts are provided should they occur; as are strategies for the management of surface infrastructure and activity. Management strategies proposed include:

- Known archaeological sites are to remain in situ unless impact is unavoidable
- Known archaeological sites are to be monitored to ensure that subsidence impacts are as described
- Wambo Coal seek an AHIP for the proposed modification, to allow for the undermining of known archaeological sites, and to allow for their future salvage if required
- The locations of known archaeological sites should be made known to Wambo Coal staff
- If new finds (archaeological sites) are located, they should be cordoned off to allow for assessment and management, which would be consistent with management for similar site types within Wambo Mine areas
- If skeletal remains are located, works are to cease and the NSW Police Coroner will be notified to determine whether remains are Aboriginal, and if so, they would be managed in consultation with OEH and Aboriginal registrants
- All Wambo Coal staff should be made aware of their legal obligations towards cultural heritage, which may be implemented as a cultural heritage induction

As previously noted, the draft CHIA does not currently assess the social, historic or aesthetic cultural significance of the Project area, and it has been requested that this be included in the final CHIA in accordance with OEH requirements for AHIP applications. This process may identify additional Aboriginal cultural heritage places of significance within the Project area, and these would need to be included in the final CHIA management strategy.

It is also requested that the Project's management strategy include the following, which are not currently included but which are identified here are needed and s reflecting professional standards of practice:

- Preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) for the North Wambo Project, including all approved works and this proposed expansion. AHCMPs are a

standard requirement of government agencies as a condition of approach, and should be in place for all Projects to clearly identify all cultural heritage management obligations, and how these will be met (timing, roles and responsibilities of all parties, and methodologies for fieldwork tasks). If the North Wambo Project does not currently have a ACHMP, it is requested that Wambo Coal commit to preparing one as part of this modification, in consultation with registered Aboriginal parties. If an ACHMP is already in place, it should be reviewed and amended to reflect additional obligations created by this proposed expansion, if approved.

- Known archaeological sites should be fenced for their ongoing protection, with fencing to be installed under the supervision of cultural heritage personnel (ie, Aboriginal registrants and an archaeologist) so that fences are placed at appropriate site boundaries. Stock proof fences may be required if stock are to remain in the paddocks.
- The timing of the site monitoring program should be specified within the Project ACHMP, and this should be linked to the timing of works (ie, regular 12 month inspections plus additional inspections following extraction works, when subsidence may reasonably be expected to occur)
- As future archaeological salvage may be conducted under the recommended AHIP, the AHIP should include a protocol for how this would occur and methodologies for the types of archaeological salvage works that may reasonably be required, such as collection of surface artefacts, archaeological test pitting and archaeological salvage. As methodologies will need to be tailored for each individual site if salvage is required, the salvage methodology should include development of a site specific methodology which should be provided to OEH and Aboriginal registrants as part of the AHIP protocol prior to the commencement of works.
- It is currently recommended that Wambo Coal staff should be made aware of site locations and their legal obligations – which may be implemented as a cultural heritage induction. This recommendation should be changed to state that cultural heritage induction content will be developed in consultation with Aboriginal registrants – and that this will be provided to all Wambo Coal staff and subcontractors involved in managing or conducting any Project activity that could impact on Aboriginal cultural heritage, and that this will be provided prior to the commencement of Project modification works.
- It is currently recommended that any new sites located be cordoned off to allow for assessment and management, but this should be amended to identify how any new sites will be assessed – to ensure that this process involves Aboriginal registrants and archaeologists to fully record and assess the cultural significance of new sites prior to decision making about their management.
- The CHIA should also provide the framework for the ongoing involvement of Aboriginal registrants in the assessment and management of Aboriginal cultural heritage for the North Wambo Project, for example, include commitments to Project meetings at key stages of the Project to discuss the progress of cultural heritage obligations.
- Section 8 states that there will be surface impacts resulting from surface infrastructure and activity, but that the placement of this infrastructure is flexible and would be located to avoid impacting known sites. However, a management protocol is needed on how the

possible impacts of surface infrastructure will be identified and management, for example, a due diligence inspection process involving Aboriginal registrants and considering impacts to known archaeological sites, other surface sites not recorded due to survey coverage and low visibility, areas of archaeological potential (including subsurface deposits) and areas of cultural significance identified by Aboriginal registrants.

It is requested that the above management strategies are included in the final CHIA, and reflected in the Project's AHIP application.

Aboriginal Heritage Impact Permit preparation

RPS has recommended that Wambo Coal seek an approved AHIP as part of the North Wambo modification, and that this AHIP allow for undermining of known archaeological sites and the potential future salvage of archaeological sites should subsidence impacts be greater than expected.

As this AHIP will need to include management protocols and methodologies for archaeological salvage not included in the draft CHIA, these protocols and methodologies should be developed as a draft methodology and provided Aboriginal registrants for review prior to AHIP submission to OEH.

Terminology

Throughout the draft CHIA, RPS refer to "Aboriginal community stakeholder groups", and glossary includes: 'ACS Aboriginal Community Stakeholders' as term used in report. This should be amended to 'Aboriginal registrants' or 'registered Aboriginal parties' throughout, reflecting the status of those Aboriginal people or organisations who have registered an interest in accordance with the DECCW (2010) guidelines. This would also reflect contemporary approaches in NSW cultural heritage practice, as reflected in the following OEH statement:

> "*Importantly, as discussed in the APEC principles, we recognise that Aboriginal people are rights-holders and not merely stakeholders*" (Operational Policy: Protecting Aboriginal Heritage, State of NSW and OEH 2009).

Yours truly

Tegan McCormack
Assistant Manager

RPS

RECORD OF TELEPHONE CONVERSATION/PERSONAL INTERVIEWS

NAME: JEREMY HILL DATE 02.10.12

SPEAKING TO:

NAME Arthur Fletcher / Kawurd TIME: 2:30

OF: WONNI CONTRACTING JOB No. 108453

PHONE 99547751 / 0407146193

PROJECT: NTH WAMBO UNDERGROUND MINE MODIFICATION

LEFT MESSAGE

2/10/12 2.45pm - AB spoke to Arthur Fletcher / Kawurd Arthur said that he was concerned that during the construction of any new roads or widening of any vehicle tracks, artefact sites would be uncovered. As such he requested that monitoring take place during any such works. He is comfortable with the methods relating to sites in subsidence areas.

Appendix 4

Aboriginal Consultation Log

Date	Consultation Description	Method of Contact	Outcomes
13/05/2011	Letters sent out to Office of the Registrar (Aboriginal Land Rights Act 1983), Native Title Services Corporation Limited, National Native Title Tribunal, Newcastle Office of Environment and Heritage (Planning and Aboriginal Heritage Section), Singleton Shire Council, Wanaruah Local Aboriginal Land Council (LALC), Hunter-Central Rivers Catchment Management Authority.	Mail	Letters sent requesting the names of Aboriginal stakeholders that may have an interest in registering in the consultation process for the North Wambo Underground Mine Extension (the Project). Responses due by 30/05/2011.
19/05/2011	Response received from National Native Title Tribunal.	Mail	The National Native Title Tribunal advised that there were no Native Title claims, unregistered claimant applications and/or Indigenous land use agreements on their register for the Project area.
26/05/2011	Response received from Yarrawalk (a division of Tocomwall Pty Ltd).	Email	Expression of Interest (EoI) in the consultation process for the Project. EoI noted.
26/05/2011	Response received from Ungooroo Aboriginal Corporation.	Email	EoI in the consultation process for the Project. EoI noted.
31/05/2011	Response received from Wanaruah LALC. Wanaruah LALC also submitted an EoI to be involved in the consultation process for the Project.	Fax	The Wanaruah provided a list of current stakeholders within the Wanaruah LALC boundary. The stakeholders on this list were sent letters seeking EoI's in the consultation process for the Project. Wanaruah LALC also submitted an EoI to be involved in the consultation process for the Project. EoI was also noted.
31/05/2011	Response received from Ungooroo Cultural & Community Services Inc.	Fax	EoI in the consultation process for the Project. EoI noted.
31/05/2011	Notice seeking EoI's in the consultation process for the Project published in Singleton Argus.	Newspaper	Responses due 15/06/2011
31/05/2011	Letter sent to Aboriginal Native Title Consultants, Bullem Bullem Heritage Consultants, Cacatua Culture Consultants, Carrawonga Consultants, Culturally Aware, Ellielewis, Gidawaa Waland Cultural Heritage Consultancy, Giwiirr Consultants, HTO Environmental Management Services, Hunter Valley Aboriginal Corporation, Hunter Valley Cultural Consultants, Hunter Valley Cultural Surveying, Hunter Valley Natural & Cultural Resources Mangement, Kayaway Eco-Cultural and Heritage Services, Lower Hunter Wonnarua Council Inc, Lower Wonnarua Tribal Consultancy Pty Ltd, Mingaa Consultants, Muronga Gialinga, Muswellbrook Cultural Consultants, St Clair Singleton Aboriginal Corporation, Ungooroo Aboriginal Corporation, Ungooroo Cultural & Community Services,Upper Hunter Heritage Consultants, Upper Hunter Wonnarua Council Inc, Valley Culture, Wanaruah Custodians Aboriginal Corporation, Wararuah Local Aboriginal Land Council, Wattaka Wonnarua Cultural Consultants, Widescope Indigenous Group Pty Ltd, Wonn 1 Contracting, Wonnarua Cultural Heritage, Wonnarua Elders Council, Wonnarua Nation Aboriginal Corporation, Yarrawalk division of Tocomwall, Yinaar Cultural Services.	Letter	Letter sent seeking EoI's in the consultation process for the Project. Responses due 15/06/2011
3/06/2011	Response received from Des Hickey of Wattaka Wonnarua.	Email	EoI in the consultation process for the Project. EoI noted.
5/06/2011	Reponse recieved from Tracey Skene of Culturally Aware.	Email	EoI in the consultation process for the Project. EoI noted.
6/06/2011	Response received from Paulette Ryan of HTO Environmental Management Services.	Email	EoI in the consultation process for the Project. EoI noted.
6/06/2011	EoI response received from Jess Garland of Ungooroo Aboriginal Corporation.	Email	EoI in the consultation process for the Project. EoI noted.
7/06/2011	Response received from Tom Miller of Lower Hunter Wonnarua Council Inc.	Email	EoI in the consultation process for the Project. EoI noted.
8/06/2011	Response received from Laurie Perry of Wonnarua Nation Aboriginal Corporation.	Email	EoI in the consultation process for the Project. EoI noted.
10/06/2011	Response recieved from Shannon Griffiths of Wonnarua Culture Heritage.	Email	EoI in the consultation process for the Project. EoI noted.
14/06/2011	Response received from Kathie Kinchela of Yinarr Cultural Services.	Email	EoI in the consultation process for the Project. EoI noted.
14/06/2011	Response received from Amanda Hickey of Widescope Indigenous Group.	Email	EoI in the consultation process for the Project. EoI noted.
14/06/2011	Response received from Debbie Foley of Murong Gialinga	Email	EoI in the consultation process for the Project. EoI noted.
15/06/2011	Response recieved from Ellaine Freihaut of Hunter Valley Aboriginal Corporation	Email	EoI in the consultation process for the Project. EoI noted.
15/06/2011	Response received from Arthur Fletcher of Wonn1 Contracting	Fax	EoI in the consultation process for the Project. EoI noted.
16/06/2011	Response received from Annie Hickey of Gidawaa Walang Cultural Heritage Consultancy.	Mail	EoI in the consultation process for the Project. EoI noted.

Date	Consultation Description	Method of Contact	Outcomes
17/06/2011	Proposed methodology mailed to Aboriginal Native Title Consultants, Bullem Bullem Heritage Consultants, Cacatua Culture Consultants, Carrawonga Consultants, Culturally Aware, Gidawaa Waland Cultural Heritage Consultancy, Giwiirr Consultants, HTO Environmental Management Services, Hunter Valley Aboriginal Corporation, Hunter Valley Cultural Consultants, Hunter Valley Cultural Surveying, Hunter Valley Natural & Cultural Resources Mangement, Kayaway Eco-Cultural and Heritage Services, Lower Hunter Wonnarua Council Inc, Mingaa Consultants, Muronga Gialinga, Muswellbrook Cultural Consultants, Ungooroo Aboriginal Corporation, Ungooroo Cultural & Community Services,Upper Hunter Heritage Consultants, Upper Hunter Wonnarua Council Inc, Valley Culture, Wanaruah Custodians Aboriginal Corporation, Wararuah Local Aboriginal Land Council, Wattaka Wonnarua Cultural Consultants, Widescope Indigenous Group Pty Ltd, Wonn 1 Contracting, Wonnarua Cultural Heritage, Wonnarua Elders Council, Wonnarua Nation Aboriginal Corporation, Yarrawalk division of Tocomwall, Yinaar Cultural Services.	Mail	Proposed methodology provided to registered stakeholder groups for their comment. Comments on the proposed methodology due 15/07/2011
30/06/2011	Response recived from Donna Sampson of Cacatua Cultural Consulting.	Phone	Donna Sampson said Cacatua Culture Consultants would provide comments on the proposed methodology in writing by 06/06/2011.
5/07/2011	Response received from Donna Sampson of Cacatua Culture Consultants.	Email	Donna Sampson requested that Cacatua Culture Consultants be provided with a copy of the proposed methodology.Donna Sampson was contacted and she confirmed that Cacatua Culture Consultants had changed postal address. She also advised that the proposed methodology had been fowarded from the old postal address and she no longer required a copy. The change of address was noted for all future correspondence.
7/07/2011	Response received from Laurie Perry of Wonnarua Nation Aboriginal Corporation	Fax	Wonnarua Nation Aboriginal Corporation was in agreement with the methodology however raised concerns about impact of the Project on the Bora Ground and the cultural significance of the area. Their response to the methodology was noted and their concerns have been addressed in the ACHA.
7/07/2011	Response received from Gordon Griffiths of Wonnarua Cultural Heritage.	Phone	Gordon Griffiths confirmed that Wonnarua Cultural Heritage was a registered stakeholder group. Gordon Griffiths also said Wonnarua Cultural Heritage would provide comments on the proposed methodology.
12/07/2011	Response received from Shannon Griffiths of Wonnarua Culture Heritage	Fax	Wonnarua Nation Aboriginal Corporation was in agreement with the methodology and requested that meeting to be held with alll groups involved to discuss the project.
18/07/2011	Response received from Kathie Steward Kinchela of Yinarr Cultural Services	Email	Yinarr Cultural Services requested that they be provided with a copy of the proposed methodology. Kathie Steward Kinchela confirmed that they had changed postal address. A copy of the methodology was emailed to Yinarr Cultural Services and the change of postal address was noted for future correspondence.
19/07/2011	Response received from Tegan McCormack of Cacatua Culture Consultants	Fax	Cacatua Culture Consultants agreed with the methodology and requested that they be given the opportunity to survey all areas considered to be culturally significant.Response to methodology noted.
19/07/2011	Response received from Suzie Worth of Wanaruah LALC	Phone	Response to methodology noted. Wanaruah LALC had concerns regarding the proximity of the project to the Bora Ground and the potential impacts on Aboriginal culture and heritage values.Their response to methodology was noted and their concerns have been addressed in the ACHA.
21/07/2011	Letters sent out to Hunter Valley Aboriginal Corporation, Yinaar Cultural Services, Ungooroo Aboriginal Corporation, Giwiirr Consultants, Wonnarua Cultural Heritage, Upper Hunter Wonnarua Council Inc, Ungooroo Cultural & Community Services, Wonn 1 Contracting, Hunter Valley Cultural Surveying, Wararuah Local Aboriginal Land Council, HTO Environmental Management Services, Wonnarua Nation Aboriginal Corporation.	Email	Invitation to attend field survey.
21/07/2011	Emails sent out to Hunter Valley Aboriginal Corporation, Yinaar Cultural Services, Ungooroo Aboriginal Corporation, Giwiirr Consultants, Wonnarua Cultural Heritage, Upper Hunter Wonnarua Council Inc, Ungooroo Cultural & Community Services, Wonn 1 Contracting, Hunter Valley Cultural Surveying, Wararuah Local Aboriginal Land Council, HTO Environmental Management Services, Wonnarua Nation Aboriginal Corporation.	Email/Fax	Invitation to attend field survey.
21/07/2011	Response received from Taasha Layer of Ungooroo Aboriginal Corporation	Email	Taasha Layer confirmed a representative from Ungooroo Aboriginal Corporation would be attending the field surveys.
21/07/2011	Response received from Paulette Ryan of HTO Environmental Management Services.	Mail	Paulette Ryan confirmed a representative from HTO Environmental Management Services would be attending the field surveys. Insurance details sent for HTO Environmental Management Services were out of date and renewed insurances were requested.
23/07/2011	Response received from Kathie Steward Kinchela of Yinarr Cultural Services.	Email	Yinarr Cultural Services agreed with the proposed methodology. Their response was noted.

Date	Consultation Description	Method of Contact	Outcomes
25/07/2011	Letters sent out to Muronga Gialinga, Widescope Indigenous Group Pty Ltd, Wonnarua Nation Aboriginal Corporation, Kayaway Eco-cultural & heritage services, Gidawaa Walang Cultural Heritage Consultancy, Hunter Valley natural and cultural resource management, Carrawonga consultants, Bullem Bullem heritage consultants, Aboriginal Native Title Consultants, Valley Culture, Lower Hunter Wonnarua Council Inc, Cacatua Culture Consultants, Wattaka Wonnarua Cultural Consultants, Culturally Aware, Mingga Consultants, Hunter Valley Cultural Consultants, Upper Hunter Heritage Consultants and Muswellbrook Cultural Consultants	Email	Email sent to inform of field surveys and roster system.
25/07/2011	Response received from Kathleen Kinchela of Yinarr Cultural Services	Phone	Kathleen Kinchela confirmed a representative from Yinarr Cultural Services would be attending the field surveys.
25/07/2011	Call made to Rhonda Ward of Ungooroo Cultural & Community Services	Phone	Rhonda Ward confirmed a representative of Ungooroo Cultural & Community Services would not be able to participate in the survey
25/07/2011	Call made to Paulette Ryan of HTO Environmental Management Services	Phone	No answer. Message left voicemail.
25/07/2011	Call made to Luke Hickey of Hunter Valley Cultural Surveying	Phone	No answer.
25/07/2011	Call made to Suzie Worth of Wanaruah LALC	Phone	Suzie Worth confirmed that she was still trying to get in contact with the sites officer. She said she would confirm the sites officers attendence at the field surveys as soon as possible.
26/07/2011	Call made to Gordon Griffiths of Wonnarua Culture Heritage	Phone	Gordon Griffiths confirmed that Shannon Griffiths would be attending as a representative of Wonnarua Culture Heritage and that they would bring a copy of the relevant insurances.
26/07/2011	Call made to Val Eveleigh of the Wanaruah Custodians Aboriginal Corporation	Phone/Email/Fax	Val Eveleigh confirmed a representative of Wanaruah Custodians Aboriginal Corporation would not be able to participate in the survey.
27/07/2011	Calls made to Giwiirr Consultants, Ungooroo Aboriginal Corporation, Upper Hunter Wonnarua Council Inc and Yinaar Cultural Services	Phone	Call made to inform of a change of survey date from Thursday 28/7/2011 to Tuesday 2/8/2011.
29/07/2011	Response by Suzie Worth of Wanaruah Local Aboriginal Land Council.	Mail	Suzie Worth confirmed that she would be attending the field survey as a representative of Wanaruah Local Aboriginal Land Council.
29/07/2011	Field surveys with representative (Suzie Worth) from Wanaruah Local Aboriginal Land Council.	Field survey	Field survey.
2/08/2011	Response received from Scott Franks of Yarrawalk.	Phone	Scott Franks of Yarrawalk had a number of issues with the proposed methodology which he requested remain confidential. These were noted and consistent with Scott Franks request have not been included in the ACHA.
28/07/2011	Calls made to Giwiirr Consultants, Ungooroo Aboriginal Corporation, Upper Hunter Wonnarua Council Inc and Yinaar Cultural Services	Phone	Directions to Wambo Coal Mine provided.
29/07/2011	Field surveys with representatives from Giwiirr Consultants, Ungooroo Aboriginal Corporation, Upper Hunter Wonnarua Council Inc and Yinaar Cultural Services.	Field survey	Field survey.
1/08/2011	Letter returned from Kayaway Eco-Cultural and Heritage Services.	Letter/Phone	Letter returned from postal address. Mark Hickey of Kayaway Eco-Cultural and Heritage Services was contacted and he confirmed that he had changed address. The change of postal address was noted for future correspondence.
19/09/2011	OEH was contacted regarding Scott Franks as Native Title Claimant.	Phone	OEH advised that everyone has equal opportuniy to demonstrate cultural knowledge.
20/09/2011	Call made to Gidawaa Walang Cultural Heritage Consultancy.	Phone	Invitation to attend field surveys. Gidawaa Walang Cultural Heritage Consultancy would provide updated insurances.
20/09/2011	Call made to Kayaway Eco-Cultural and Heritage Services.	Phone	Invitation to attend field surveys. Phone number had been disconnected
20/09/2011	Call made to Widescope Indigenous Group Pty Ltd.	Phone	Invitation to attend field surveys. No answer and no voice message could be left.
20/09/2011	Call made to Muronga Gialinga.	Phone	Invitation to attend field surveys. Muronga Gialinga said they would provide their workers compensation and public liability insurances.
20/09/2011	Call made to Muswellbrook Cultural Consultants.	Phone	Invitation to attend field surveys. Disconnected number
21/09/2011	Call made to Upper Hunter Heritage Consultants.	Email	Invitation to attend field surveys. No answer.
21/09/2011	Call made to Widescope Indigenous Group Pty Ltd.	Phone	Invitation to attend field surveys. No answer.
22/09/2011	Call made to Widescope Indigenous Group Pty Ltd.	Phone	Invitation to attend field surveys. No answer.
22/09/2011	Call made to Widescope Indigenous Group Pty Ltd.	Phone	Invitation to attend field surveys. No answer.
22/09/2011	Call made to Muronga Gailinga.	Phone	Call made to request valid Workers Compensation and Public Liability certificates. No answer. A message was left on voicemail.
23/09/2011	Call made to Upper Hunter Heritage Consultants.	Phone	Invitation to attend field surveys. No answer.
23/09/2011	Call made to Gidawaa Walang Cultural Heritage Consultancy.	Phone	Call made to confirm a representative from Gidawaa Walang Cultural Heritage Consultancy would be attending the field surveys. Deb from Gidawaa Walang Cultural Heritage Consultancy said they were currently very busy and would confirm with Annie Hickey (Site Officer) about her availability to attend the field surveys.

Date	Consultation Description	Method of Contact	Outcomes
23/09/2011	Call made to Gidawaa Walang Cultural Heritage Consultancy.	Phone	Call made to confirm a representative from Gidawaa Walang Cultural Heritage Consultancy would be attending the field surveys. Annie Hickey said she is currently working on two jobs and will not be available for the field survey.
23/09/2011	Call made to Wonnarua Nation Aboriginal Corporation.	Phone	Call made to confirm a representative from Wonnarua Nation Aboriginal Corporation would be attending the field surveys. No answer. Message left on voicemail.
13/10/2011	Call made to Wonnarua Nation Aboriginal Corporation.	Phone	Call made to confirm a representative from Wonnarua Nation Aboriginal Corporation would be attending the field surveys. Laurie Perry of Wonnarua Nation Aboriginal Corporation was unsure whether a representative would be able to attend due to other work commitments.
13/10/2011	Call made to Muronga Gailinga.	Phone	Call made to confirm a representative from Wonnarua Nation Aboriginal Corporation would be attending the field surveys. Debbie Fowley from Wonnarua Nation Aboriginal Corporation said that they were waiting until after their board meeting to confirm their availability.
13/10/2011	Call made to Widescope Indigenous Group Pty Ltd.	Phone/email	Call made to confirm a representative from Widescope Indigenous Group Pty Ltd would be attending the field surveys. No answer. A message was left on voicemail. An email regarding the upcoming field surveys was also sent.
17/10/2011	Call made to Upper Hunter Heritage Consultants.	Phone	Call made to confirm a representative from Upper Hunter Heritage Consultants would be attending the field surveys. No answer. A message was left on voicemail.
5/12/2011	Response received from Carolyn Hickey of Widescope Indigenous Group Pty Ltd.	Phone	Confirmation fo Paperwork received, insurances valid until May 2012.
5/12/2011	Call made to Debbie Fowley from Muronga Gailinga	Phone	Call made to confirm a representative from Muronga Gailinga would be attending the field surveys. A voice message was left asking Debbie Fowley to call back.
5/12/2011	Contacted Upper Hunter Heritage Consultants regarding works	Phone	Tried both landline (invalid) and mobile (disconnected)
5/12/2011	Contacted Rosalie Neve from OEH.	Phone	Call made to request updated contact details for Upper Hunter Heritage Consultants. Spoke to Rosalie Neve and was informed that OEH had not received updated contact details for Muswellbrook Cultural Consultants. Received two new phone numbers for Upper Hunter Heritage Consultants.
5/12/2011	Contacted Upper Hunter Heritage Consultants by new contact number provided by OEH.	Mail	Landline invalid. Left voice message on mobile.
5/12/2011	Contacted Gidawaa Walang Cultural Heritage Consultancy, Muswellbrook Cultural Consultants, Widescope Indigenous Group Pty Ltd and Wonnarua Nation Aboriginal Corporation	Phone	Letter of invitation for site work on 19/12/2011.
6/12/2011	Contacted by Debbie Fowley of Muronga Gialinga	Phone	Debbie said she was still chasing a letter from an Elder regarding permission to work out of country and would get back to us.
12/12/2011	Contacted Gidawaa Walang Cultural Heritage Consultancy, Muswellbrook Cultural Consultants, Widescope Indigenous Group Pty Ltd and Wonnarua Nation Aboriginal Corporation	Mail	Requesting all current contact details and insurances certificates to be sent to RPS in preparation for upcoming works.
12/12/2011	Contacted Brian Horton of Muswellbrook Cultural Consultants	Fax	To confirm that a Sites Officer from Muswellbrook Cultural Consultants would be attending the site survey on 19/12/2011.
12/12/2011	Response received from Brian Horton of Muswellbrook Cultural Consultants.	Phone	Brian Horton provided insurance details for Muswellbrook Cultural Consultants. Insurance details provided were incomplete. Complete insurance details were requested. Brian Horton to provide.
12/12/2011	Call made to Gidawaa Walang Cultural Heritage Consultancy.	Phone	Regarding Site Officer for Wambo survey 19/12/2011. Spoke to Cathy who said Deb would get back to us. Later spoke to Deb to inform her that the works have been postponed.
12/12/2011	Call made to Widescope Indigenous Group Pty Ltd.	Phone	Regarding Site Officer for Wambo survey 19/12/2011. Left message on answering machine. Called again later to inform Widescope Indigenous Group Pty Ltd that works were postponed.
12/12/2011	Call made to Wonnarua Nation Aboriginal Corporation.	Phone	Regarding Sites Officer for Wambo survey 19/12/2011. Spoke to Laurie Perry said that his sites officer was unlikely to be available. Laurie Perry called back later to say that Wonnarua Nation Aboriginal Corporation would be unavailable for this round of works but would like to remain on the roster.
14/12/2011	Call made to Upper Hunter Heritage Consultants.	Phone	Call made to confirm a representative from Upper Hunter Heritage Consultants would be attending the field surveys. Spoke to Daryl Matthews who said they should have someone available. Another call was made to inform Upper Hunter Heritage Consultants that field surveys had postponed.
23/12/2011	Draft ACHA sent to Aboriginal Native Title Consultants, Bullem Bullem Heritage Consultants, Cacatua Culture Consultants, Carrawonga Consultants, Culturally Aware, Gidawaa Walang Cultural Heritage Consultancy, Giwiirr Consultants, HTO Environmental Management Services, Hunter Valley Aboriginal Corporation, Hunter Valley Cultural Consultants, Hunter Valley Cultural Surveying, Hunter Valley Natural & Cultural Resources Mangement, Kayaway Eco-Cultural and Heritage Services, Lower Hunter Wonnarua Council Inc, Mingaa Consultants, Muronga Gialinga, Muswellbrook Cultural Consultants, Ungooroo Aboriginal Corporation, Ungooroo Cultural & Community Services,Upper Hunter Heritage Consultants, Upper Hunter Wonnarua Council Inc, Valley Culture, Wanaruah Custodians Aboriginal Corporation, Wararuah Local Aboriginal Land Council, Wattaka Wonnarua Cultural Consultants, Widescope Indigenous Group Pty Ltd, Wonn 1 Contracting, Wonnarua Cultural Heritage, Wonnarua Elders Council, Wonnarua Nation Aboriginal Corporation, Yarrawalk division of Tocomwall, Yinaar Cultural Services	Mail	Draft ACHA sent to stakeholder groups for comment.

Date	Consultation Description	Method of Contact	Outcomes
27/03/2012	Call made to Rhonda Ward of Ungooroo Cultural & Community Services.	Phone	Call made to confirm a representative from Ungooroo Cultural & Community Services would be attending the field surveys on the 4 April 2012. Rhonda said that she would have someone available. Site invitation sent by email.
27/03/2012	Call made to Mark Hickey of Kayaway Eco-Cultural and Heritage Services.	Phone	Call made to confirm a representative from Kayaway Eco-Cultural and Heritage Services would be attending the field surveys on the 4 April 2012. Phone engaged.
27/03/2012	Call made to Debbie Foley of Muronga Gialinga regarding field survey Wednesday 4 April 2012	Phone	Call made to confirm a representative from Muronga Gialinga would be attending the field surveys on the 4 April 2012.
27/03/2012	Call made to Amanda Hickey of Widescope Indigenous Group regarding field surveys on Wednesday 4 April 2012	Phone	Call made to confirm a representative from Widescope Indigenous Group would be attending the field surveys on the 4 April 2012.Left voice message. Site invitation sent by email.
27/03/2012	Call made to Laurie Perry of Wonnarua Nation Aboriginal Corporation regarding field surveys on Wednesday 4 April 2012	Phone	Call made to confirm a representative from Wonnarua Nation Aboriginal Corporation would be attending the field surveys on the 4 April 2012. Laurie said he would probably have someone available and to send through the details. Site invitation sent by email.
27/03/2012	Call made to Brian Horton of Muswellbrook Cultural Consultants.	Phone	Call made to confirm a representative from Muswellbrook Cultural Consultants would be attending the field surveys on the 4 April 2012. Site invitation sent by email.
27/03/2012	Call made to Debbie Foley regarding field surveys.	Email/Fax	Call made to confirm a representative from Muronga Gialinga would be attending the field surveys on the 4 April 2012. Also stated that they would be working under the new organisation name of Buudang.
28/03/2012	Response received from Carolyn Hickey of Widescope Indigenous Group .	Email	Carolyn Hickey confirmed that Steven Hickey would be attending the field surveys on the 4 April 2012.
29/03/2012	Email sent to Widescope Indigenous Group and Buudang.	Email	With information relating to daily payment rates.
29/03/2012	Response received from Mark Hickey of Kayaway Eco-Cultural and Heritage Services.	Email	Mr Hickey stated that he would not be able to make it to the field survey due to illness.
29/03/2012	Call made to Darrell Matthews of Upper Hunter Heritage Consultants.	Phone	Left voice message
2/04/2012	Call made to Christine Matthews of Upper Hunter Cultural Consultants.	Phone	Call made to confirm a representative from Upper Hunter Heritage Consultants would be attending the field surveys on the 4 April 2012. Christine Matthews said she would be available for the field work and would send through her insurances this afternoon.
2/04/2012	Call made to Brian Horton of Muswellbrook Cultural Consultants.	Phone	Call made to confirm a representative from Muswellbrook Cultural Consultants would be attending the field surveys on the 4 April 2012.Left voice message.
2/04/2012	Call made to Rhonda Ward of Ungooroo Cultural & Community Services.	Phone	Call made to confirm a representative from Ungooroo Cultural & Community Services would be attending the field surveys on the 4 April 2012. Left voice message.
2/04/2012	Call made to Laurie Perry of Wonnarua Nation Aboriginal Corporation regarding field survey Wednesday 4 April 2012	Phone	Call made to confirm a representative from Wonnarua Nation Aboriginal Corporation would be attending the field surveys on the 4 April 2012.Left voice message.
3/04/2012	Call made to Rhonda Ward of Ungooroo Cultural & Community Services regarding field survey Wednesday 4 April 2012	Phone	Call made to confirm a representative from Ungooroo Cultural & Community Services would be attending the field surveys on the 4 April 2012. Rhonda said she unfortunately could no longer attend due to family issues.
3/04/2012	Call made to Laurie Perry of Wonnarua Nation Aboriginal Corporation.	Phone	Call made to confirm a representative from Wonnarua Nation Aboriginal Corporation would be attending the field surveys on the 4 April 2012.Laurie said that he was still trying to organise someone and that he would call back. Laurie called back and confirmed that Marie Waugh would be attending as Sites Officer for Wonnarua Nation Aboriginal Corporation.
3/04/2012	Call made to Brian Horton of Muswellbrook Cultural Consultants.	Phone	Call made to confirm a representative from Muswellbrook Cultural Consultants would be attending the field surveys on the 4 April 2012.Left voice message.
3/04/2012	Call made to Christine Matthews of Upper Hunter Cultural Consultants	Phone	Call made to confirm a representative from Upper Hunter Heritage Consultants would be attending the field surveys on the 4 April 2012. Christine said she had been unable to find an available sites officer.
3/04/2012	Call made to Brian Horton of Muswellbrook Cultural Consultants	Phone	Call made to confirm a representative from Muswellbrook Cultural Consultants would be attending the field surveys on the 4 April 2012. Brian said that he had injured his back and would be unable to attend the field work tomorrow.
3/04/2012	Call made to Clifford Matthews of Mingga Consultants	Phone	Call made to confirm a representative from Mingga Consultants would be attending the field surveys on the 4 April 2012. Unable to establish contact - land line was a fax and mobile was the wrong number.
3/04/2012	Call made to Scott Franks of Tocomwall	Phone	Call made to confirm a representative from Tocomwall would be attending the field surveys on the 4 April 2012. Scott Franks said that he had not been aware of upcoming works and that he was not in support because he believes there should have been consultation prior to this field work. It was explained that the field work was a part of the North Wambo Underground Mine Modification.
3/04/2012	Call made to Tracey Skene of Culturally Aware	Phone	Call made to confirm a representative from Culturally Aware would be attending the field surveys on the 4 April 2012. Tracey said she would call back to confirm that someone would be attending. Tracey called back to say that she was unable to find anyone at such short notice.
3/04/2012	Call made to George Sampson of Cacatua Culture Consultants	Phone	Call made to confirm a representative from Cacatua Culture Consultants would be attending the field surveys on the 4 April 2012. George said he would call back. George returned call to say that someone (most likely himself) would be in attendence.
16/04/2012	Comments received from Debbie Foley of Buudang	Email	Stated that Larry Foley would like the artefacts on the road moved to avoid impact. Any artefacts not on the road or in danger of any impact should be left as they are.

Date	Consultation Description	Method of Contact	Outcomes
30/08/2012	Draft ACHA sent to Aboriginal Native Title Consultants, Bullem Bullem Heritage Consultants, Cacatua Culture Consultants, Carrawonga Consultants, Culturally Aware, Gidawaa Walang Cultural Heritage Consultancy, Giwiirr Consultants, HTO Environmental Management Services, Hunter Valley Aboriginal Corporation, Hunter Valley Cultural Consultants, Hunter Valley Cultural Surveying, Hunter Valley Natural & Cultural Resources Mangement, Kayaway Eco-Cultural and Heritage Services, Lower Hunter Wonnarua Council Inc, Mingaa Consultants, Buudang, Muswellbrook Cultural Consultants, Ungooroo Aboriginal Corporation, Ungooroo Cultural & Community Services,Upper Hunter Heritage Consultants, Upper Hunter Wonnarua Council Inc, Valley Culture, Wanaruah Custodians Aboriginal Corporation, Wararuah Local Aboriginal Land Council, Wattaka Wonnarua Cultural Consultants, Widescope Indigenous Group Pty Ltd, Wonn 1 Contracting, Wonnarua Cultural Heritage, Wonnarua Elders Council, Wonnarua Nation Aboriginal Corporation, Yarrawalk division of Tocomwall, Yinaar Cultural Services	Mail	Draft ACHA sent to stakeholder groups for comment.
2/10/2012	Call made to Aboriginal Native Title Consultants	Phone	Call made to request comments on the revised Draft ACHA. Message was left on mobile.
2/10/2012	Call made to Lloyd Matthews of Bullem Bullem Heritage Consultants	Phone	Call made to request comments on the revised Draft ACHA. Lloyd Matthews had no comments on the draft ACHA.
2/10/2012	Call made to Donna Sampson of Cacatua Culture Consultants	Phone	Call made to request comments on the revised Draft ACHA. Donna Sampson said she would forward on comments.
2/10/2012	Call made to Carrawonga Consultants	Phone	Call made to request comments on the revised Draft ACHA. No answer.
2/10/2012	Call made to Culturally Aware	Phone	Call made to request comments on the revised Draft ACHA. Message was left on mobile.
2/10/2012	Call made to Gidawaa Walang Cultural heritage Consultancy	Phone	Call made to request comments on the revised Draft ACHA. Spoke to Annie Hickey who had no comments to add.
2/10/2012	Call made to Giwiir Consultants	Phone	Call made to request comments on the revised Draft ACHA. Both mobile and landline were 'invalid' numbers.
2/10/2012	Call made to HTO Environment Management Services	Phone	Call made to request comments on the revised Draft ACHA. Landline invalid.Unable to leave message as there was no storage space available on message bank.
2/10/2012	Call made to Hunter Valley Aboriginal Corporation	Phone	Call made to request comments on the revised Draft ACHA. Spoke to Elaine Freihaut. Said that Hunter Valley Aboriginal Corporation supports the comments made by the Wanaruah LALC.
2/10/2012	Call made to Hunter Valley Cultural Consultants	Phone	Call made to request comments on the revised Draft ACHA. Message left on landline, unable to leave message on mobile.
2/10/2012	Call made to Hunter Valley Cultural Surveying	Phone	Call made to request comments on the revised Draft ACHA. Wrong number supplied.
2/10/2012	Call made to Hunter Valley Natural & Cultural Surveying Resource management	Phone	Call made to request comments on the revised Draft ACHA. Left Message on mobile.
2/10/2012	Call made to Kayaway Eco-Cultural and Heritage Services	Phone	Call made to request comments on the revised Draft ACHA. Message was left on mobile.
2/10/2012	Call made to Lower Hunter Wonnaruah Council Inc	Phone	Call made to request comments on the revised Draft ACHA. Message was left on mobile.
2/10/2012	Call made to Minnga Consultants	Phone	Call made to request comments on the revised Draft ACHA. Wrong number supplied.
2/10/2012	Call made to Buudang	Phone	Call made to request comments on the revised Draft ACHA. Message was left on mobile.
2/10/2012	Debbie Foley from Buudang returned call.	Phone	Call made to request comments on the revised Draft ACHA. Debbie Foley believed that she sent throught the comments to a place in Muswellbrook. RPS does not have an office in Muswellbrook. Debbie Foley said she would provide her comments to RPS by either fax or email.
2/10/2012	Call made to Muswellbrook Cultural Consultants	Phone	Call made to request comments on the revised Draft ACHA. Brian Horton confirmed he was happy with the report and had no comments
2/10/2012	Call made to Ungooroo Aboriginal Corporation	Phone	Call made to request comments on the revised Draft ACHA. Office is not open until the third of October.
2/10/2012	Call made to Ungooroo Cultural and Community Services	Phone	Call made to request comments on the revised Draft ACHA. Left Message on mobile
2/10/2012	Call made to Upper Hunter Heritage Consultants	Phone	Call made to request comments on the revised Draft ACHA. Message was left on landline.
2/10/2012	Call made to Upper Hunter Wonnarua Council Inc	Phone	Call made to request comments on the revised Draft ACHA. Message was left.
2/10/2012	Rhoda Perry from Upper Hunter Wonnarua Council Inc. retuned call.	Phone	Call made to request comments on the revised Draft ACHA. Rhoda Perry requested that the Upper Hunter Wonnarua Council Inc be included and involved in all works related to the job and in other works at the mine.
2/10/2012	Call made to Valley Culture	Phone	Call made to request comments on the revised Draft ACHA. Left a message.
2/10/2012	Call made to Wanaruah Custodians Aboriginal Corporation	Phone	Call made to request comments on the revised Draft ACHA. The wrong number had been supplied.
2/10/2012	Call made to Wattaka Wonnaruah Cultural Consultants	Phone	Call made to request comments on the revised Draft ACHA. Des Hickey could not recall the job and would not comment.
2/10/2012	Call made to Widescope Indigenous Group Pty Ltd	Phone	Call made to request comments on the revised Draft ACHA. Message was left on mobile.
2/10/2012	Call made to Wonn1 Contracting	Phone	Call made to request comments on the revised Draft ACHA. A message was left on both the mobile and landline.

Date	Consultation Description	Method of Contact	Outcomes
2/10/2012	Arthur Fletcher from Wonn1 Contracting returned call.	Phone	Arthur Fletcher said that he was concerned that during the construction of any new roads or widening of any vehicle tracks artefact sites would be uncovered. He requested that monitoring take place during any such works. He is comfortable with the methods relating to sites in subsidence areas.
2/10/2012	Call made to Wonnarua Culture Heritage	Phone	Call made to request comments on the revised Draft ACHA. Gordon Griffiths had no comments regarding the revised Draft ACHA.
2/10/2012	Call made to Wonnarua Nation Aboriginal Council	Phone	Call made to request comments on the revised Draft ACHA. Laurie Perry said he would attempt to provide comments by COB 02/10/2012.
2/10/2012	Call made to Yinaar Cultural Services	Phone	Call made to request comments on the revised Draft ACHA. Left message on mobile
2/10/2012	Comments from Donna Sampson (Cacatua Culture Consultants)	Email	Cacatua Culture Consultants sent in response to draft ACHA. The comments from Cacatua have been addressed in the report and the document has been saved in Apppendix 3.
4/10/2012	Suzie Worth on behalf of WLALC called.	Phone	Suzie Worth enquired whether any further comment was required from the WLALC regarding the Project. Explained that the closing dates for responses to the draft report had passed and whether the WLALC had any further comments prepared in any case. Suzie Worth confirmed that they did not and requested that WLALC be contacted if anything further was needed.

Appendix 5

AHIMS Search

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : PR108453-1 poly1

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	SiteFeatures	SiteTypes	Reports
37-5-0296	Wambo site 53	AGD	56	309924	6391151	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0302	Wambo site 59	AGD	56	310229	6391059	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0311	Wambo site 68	AGD	56	309521	6391512	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0312	Wambo site 69	AGD	56	309524	6391344	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0313	Wambo site 70	AGD	56	309454	6391455	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0314	Wambo site 71	AGD	56	309408	6391543	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0192	SC 4 (Story Creek)	AGD	56	309550	6390840	Open site	Artefact	Open Camp Site	828,1831,1971,2001 ,2203
	Contact	**Recorders**	Elizabeth Rich					**Permits**	
37-5-0316	Wambo site 73	AGD	56	309273	6391464	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0295	Wambo site 52	AGD	56	309814	6390918	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0297	Wambo site 54	AGD	56	309920	6391063	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0299	Wambo site 56	AGD	56	309936	6390934	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0294	Wambo site 46	AGD	56	310258	6390708	Open site	Artefact		
	Contact	**Recorders**						**Permits** 2222	
37-5-0300	Wambo site 57	AGD	56	310050	6390963	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0301	Wambo site 58	AGD	56	310097	6390877	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0194	SW 2 (Story Creek)	AGD	56	309390	6389550	Open site	Artefact	Open Camp Site	828,1831,1971,2001 ,2203
	Contact	**Recorders**	Elizabeth Rich					**Permits**	
37-5-0298	Wambo site 55	AGD	56	310033	6391044	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0303	Wambo site 60	AGD	56	310163	6391085	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	

Report generated by AHIMS Web Service on 30/05/2011 for Ali Byrne for Datum :GDA, Zone : 56, Eastings : 308708 - 310860, Northings : 6389731 - 6391743 with a Buffer of 0 meters. Additional Info : Aboriginal cultural assessment. Number of Aboriginal sites and Aboriginal objects found is 21

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : PR108453-1 poly1

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	SiteFeatures	SiteTypes	Reports
37-5-0195	SW 3 (Story Creek)	AGD	56	310400	6390030	Open site	Artefact	Open Camp Site	828,1831,1971,2001,2203
	Contact	**Recorders**	Elizabeth Rich					**Permits**	
37-5-0273	HV 52	AGD	56	310110	6390691	Open site	Artefact	Open Camp Site	97857
	Contact	**Recorders**						**Permits**	2222
37-5-0293	Wambo site 45	AGD	56	310130	6390500	Open site	Artefact		
	Contact	**Recorders**	Ms.Tessa Corkill					**Permits**	2222,3130
37-5-0304	Wambo Site 61	AGD	56	310154	6391135	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits**	2222

Report generated by AHIMS Web Service on 30/05/2011 for Ali Byrne for Datum :GDA, Zone : 56, Eastings : 308708 - 310860, Northings : 6389731 - 6391743 with a Buffer of 0 meters. Additional Info : Aboriginal cultural assessment. Number of Aboriginal sites and Aboriginal objects found is 21

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : PR108453-1 poly2

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	SiteFeatures	SiteTypes	Reports
37-5-0183	NW 13; Wambo Site 102, 103 & 104	AGD	56	310270	6392100	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0185	NW 15;	AGD	56	310730	6392150	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0186	NW 16; Wambo Site 98	AGD	56	311030	6392160	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich,Elizabeth White					**Permits** 2222	
37-5-0296	Wambo site 53	AGD	56	309924	6391151	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0302	Wambo site 59	AGD	56	310229	6391059	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0176	NW 7;	AGD	56	310000	6392290	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0182	NW 12;	AGD	56	310500	6392210	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0184	NW 14;	AGD	56	310570	6392050	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0485	Wambo Site 105	GDA	56	310050	6391931	Open site	Artefact		
	Contact T Russell	**Recorders**	Elizabeth White					**Permits**	
37-5-0306	Wambo Site 63	AGD	56	309831	6391666	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0188	NW 18;	AGD	56	311720	6391680	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits**	
37-5-0175	NW 6;	AGD	56	310030	6392530	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0295	Wambo site 52	AGD	56	309814	6390918	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0297	Wambo site 54	AGD	56	309920	6391063	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0299	Wambo site 56	AGD	56	309936	6390934	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0177	NW 8;	AGD	56	310210	6392520	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0487	Wambo Site 116	GDA	56	309946	6392458	Open site	Artefact		
	Contact T Russell	**Recorders**	Elizabeth White					**Permits**	
37-5-0294	Wambo site 46	AGD	56	310258	6390708	Open site	Artefact		
	Contact	**Recorders**						**Permits** 2222	
37-5-0300	Wambo site 57	AGD	56	310050	6390963	Open site	Artefact		

Report generated by AHIMS Web Service on 30/05/2011 for Ali Byrne for Datum :GDA, Zone : 56, Eastings : 309916 - 312002, Northings : 6390397 - 6392806 with a Buffer of 0 meters. Additional Info : Aboriginal cultural assessment. Number of Aboriginal sites and Aboriginal objects found is 33

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : PR108453-1 poly2

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0301	Wambo site 58	AGD	56	310097	6390877	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0180	NW 10;	AGD	56	310380	6392420	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0181	NW 11;	AGD	56	310420	6392310	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0187	NW 17;	AGD	56	311060	6391970	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0298	Wambo site 55	AGD	56	310033	6391044	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0303	Wambo site 60	AGD	56	310163	6391085	Open site	Artefact		
	Contact	**Recorders**	Ms.Laila Haglund					**Permits** 2222	
37-5-0196	Harris House site	AGD	56	310830	6390230	Open site	Artefact	Open Camp Site	828,1831,1971,2001 ,2203
	Contact	**Recorders**	Elizabeth Rich					**Permits**	
37-5-0273	HV 52	AGD	56	310110	6390691	Open site	Artefact	Open Camp Site	97857
	Contact	**Recorders**						**Permits** 2222	
37-5-0305	Wambo Site 62	AGD	56	310800	6391300	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	
37-5-0178	NW 9;	AGD	56	310310	6392490	Open site	Artefact	Open Camp Site	1971,1972
	Contact	**Recorders**	Elizabeth Rich					**Permits** 2222	
37-5-0486	Wambo Site 107	GDA	56	310268	6392325	Open site	Artefact		
	Contact T Russell	**Recorders**	Elizabeth White					**Permits**	
37-5-0563	Wambo PAD E	GDA	56	309924	6392491	Open site	Potential Archaeological Deposit (PAD)		
	Contact	**Recorders**	Ms.Gillian Goode					**Permits**	
37-5-0293	Wambo site 45	AGD	56	310130	6390500	Open site	Artefact		
	Contact	**Recorders**	Ms.Tessa Corkill					**Permits** 2222,3130	
37-5-0304	Wambo Site 61	AGD	56	310154	6391135	Open site	Artefact		
	Contact	**Recorders**	Elizabeth White					**Permits** 2222	

Report generated by AHIMS Web Service on 30/05/2011 for Ali Byrne for Datum :GDA, Zone : 56, Eastings : 309916 - 312002, Northings : 6390397 - 6392806 with a Buffer of 0 meters. Additional Info : Aboriginal cultural assessment. Number of Aboriginal sites and Aboriginal objects found is 33

Appendix 6

Glossary of Site Types

Glossary of Site Types

The following is a brief description of most Aboriginal site types. Most of these do not occur in the immediate project area although are provided for regional context.

Artefact Scatters

Artefact scatters are defined by the presence of two or more stone artefacts in close association (i.e. within fifty metres of each other). An artefact scatter may consist solely of surface material exposed by erosion, or may contain sub-surface deposit of varying depth. Associated features may include hearths or stone-lined fireplaces, and heat treatment pits.

Artefact scatters may represent:

- camp sites: involving short or long-term habitation, manufacture and maintenance of stone or wooden tools, raw material management, tool storage and food preparation and consumption;
- hunting or gathering activities;
- activities spatially separated from camp sites (e.g. tool manufacture or maintenance); or
- transient movement through the landscape.

The detection of artefact scatters depends upon conditions of surface visibility, including vegetation cover, ground disturbance and recent sediment deposition. Unfavourable conditions obscure artefact scatters and prevent their detection during surface surveys.

Bora Grounds

Bora grounds are a ceremonial site associated with initiations. They are usually comprise two circular depressions in the earth, and may be edged with stone. Bora grounds generally occur on soft sediments in river valleys, although they may also be located on high, rocky ground in association with stone arrangements.

Burials

Human remains were often placed in hollow trees, caves or sand deposits and may have been marked by carved or scarred trees. Burials have been identified eroding out of sand deposits or creek banks, or when disturbed by development. The probability of detecting burials during archaeological fieldwork is extremely low.

Culturally Modified Trees

Culturally modified trees include scarred and carved trees. Scarred trees are caused by the removal of bark for use in manufacturing canoes, containers, shields or shelters. Notches were also carved in trees to permit easier climbing. Scarred trees are only likely to be present on mature trees remaining from original vegetation. Carved trees, the easiest to identify, are caused by the removal of bark to create a working surface on which engravings are incised. Carved trees were used as markers for ceremonial and symbolic purposes, including burials. Although, carved trees were relatively common in NSW in the early 20th century, vegetation removal has rendered this site type extremely rare. Modified trees, where bark was removed for often domestic use are less easily identified. Criteria for identifying modified trees include: the age of the tree; type of tree (the bark of many trees is not suitable, also introduced species would be unlikely subjects); axe marks (with the need to determine the type of axe - stone or steel – though Aborigines after

settlement did use steel); shape of the scar (natural or humanly scarred); height of the scar above the ground (reasonable working height with consideration given to subsequent growth).

Fish Traps

Fish traps comprised arrangements of stone, branches and/or wickerwork placed in watercourses, estuaries and along coasts to trap or permit the easier capture of sea-life.

Grinding Grooves

Grinding grooves are elongated narrow depressions in soft rocks (particularly sedimentary), generally associated with watercourses, that are created by the shaping and sharpening of ground-edge implements. To produce a sharp edge the axe blank (or re-worked axe) was honed on a natural stone surface near a source of water. The water was required for lubricating the grinding process. Axe grinding grooves can be identified by features such as a narrow short groove, with greatest depth near the groove centre. The grooves also display a patina developed through friction between stone surfaces. Generally a series of grooves are found as a result of the repetitive process.

Isolated Finds

Isolated finds occur where only one artefact is visible in a survey area. These finds are not found in apparent association with other evidence for prehistoric activity or occupation. Isolated finds occur anywhere and may represent loss, deliberate discard or abandonment of an artefact, or may be the remains of a dispersed artefact scatter. Numerous isolated finds have been recorded within the project area. An isolated find may flag the occurrence of other less visible artefacts in the vicinity or may indicate disturbance or relocation after the original discard.

Middens

Shell middens comprise deposits of shell remaining from consumption and are common in coastal regions and along watercourses. Middens vary in size, preservation and content, although they often contain artefacts made from stone, bone or shell, charcoal, and the remains of terrestrial or aquatic fauna that formed an additional component of Aboriginal diet. Middens can provide significant information on land-use patterns, diet, chronology of occupation and environmental conditions.

Mounds

Aboriginal mounds are places where people lived and reflect a record of that living space. Mounds may be places where Aboriginal people lived over long periods of time. Mounds often contain charcoal, burnt clay or stone heat retainers from cooking ovens, animal bones, shells, stone tools and occasionally Aboriginal burials.

Mythological / Traditional Sites

Mythological and traditional sites of significance to Aboriginal people may occur in any location, although they are often associated with natural landscape features. They include sites associated with dreaming stories, massacre sites, traditional camp sites and contact sites. Consultation with the local Aboriginal community is essential for identifying these sites.

Rock Shelters with Art and / or Occupation Deposit

Rock shelters occur where geological formations suitable for habitation or use are present, such as rock overhangs, shelters or caves. Rock shelter sites generally contain artefacts, food remains and/or rock art and may include sites with areas of potential archaeological deposit, where evidence of rock-art or human occupation is expected but not visible. The geological composition of the project area greatly increases the likelihood for rock shelters to occur.

Stone Arrangements

Stone arrangements include lines, circles, mounds, or other patterns of stone arranged by Aboriginal people. These may be associated with bora grounds, ceremonial sites, mythological or sacred sites. Stone arrangements are more likely to occur on hill tops and ridge crests that contain stone outcrops or surface stone, where impact from recent land use practices has been minimal.

Stone Quarries

A stone quarry is a place at which stone resource exploitation has occurred. Quarry sites are only located where the exposed stone material is suitable for use either for ceremonial purposes (e.g. ochre) or for artefact manufacture.

Appendix 7

Site Cards

[✓] New recording [ ] Additional Info

National Parks and Wildlife Service

Box 1967, Hurstville NSW 2220. Tel: (02) 585 6444.

Standard Site Recording Form Revised 5/88

37-5-0186

NPWS Code 13.7

1:250,000 map sheet: SINGLETON

AMG Grid reference (Full reference - please include leading digits): 250K 3 1 1 0 3 0 mE (25K) 250K 6 3 9 2 1 6 0 mN (5/8, 25K)

Scale of map used for grid reference (Please use largest scale available): [✓] 25K, 50K (preferred) [ ] 100K [ ] 250K

1:25K, 50K, 100K map name: Doyles Creek

HEAD OFFICE USE ONLY:

NPWS Site no: 37-5-186

Site types: 2 open site

Accessioned by: Stephen Fields Date: 17-4-91

Data entered by: Stephen Fields Date: 23-4-91

Owner/Manager: Wambo Mining Corp.

Address: Warkworth NSW

Site name: NW16

Locality/property name: North Wambo Ck

NPWS District:

Region: Central

Reason for investigation

Archaeological Survey & Proposed Mining

Portion no: 9

Parish: ~~Lemington~~ Whybrow

Photos taken?

How many attached?

How to get to the site (refer to permanent features, give best approach to site eg. from above, below, along cliff. (Draw diagram on separate sheet.)

From the confluence of North Wambo Ck + Wollombi Brook drive west along the South side of the Creek for 700m. Go though gate. Drive north along se another track towards Creek for 250 m. The site is exposed on the track

Other sites in locality? yes

Are sites in NPWS Register? yes

Site Types include: open

Have artefacts been removed from site?

By whom?

When?

Deposited where?

Is site important to local Aborigines?

Give contact(s) name(s) + address(es) Phillip Hall + John Mathews

Contacted for this recording? Wanarua local Aboriginal Land Council

(Attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report).

NPWS Report Catalogue #

Rich, E. 1991 Proposed Open Cut + Underground Mining at WAMBO, NEAR WARKWORTH IN THE HUNTER VALLEY, N.S.W. ARCHAEOLOGICAL SURVEY FOR ABORIGINAL SITES. C4471

Checklist: surface visibility, damage/disturbance/ threat to site

Condition of site: THE SITE HAS BEEN DAMAGED BY CONSTRUCTION AND USE OF THE ROAD, LAND CLEARANCE AND CATTLE GRAZING. AREAS ADJACENT TO THE ROAD ARE VEGETATED AND STABLE

Recommendations for management & protection (attach separate sheet if necessary):

SITE NOT WITHIN AREA OF PRESENT DEVELOPMENT PROJECT.

Site recorded by: E. RICH.

Date: 29/8/90.

Address/Institution: 14 ANGEL RD, STRATHFIELD 2137

[ ] New recording [X] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644

Standard Site Recording Form

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:

NPWS Site no: 37-5-0186+0187

AMG Grid reference 311030 mE 6392100 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: Date:

Owner/Manager:
Address:

Site name:
Wambo Site 98
NW 16 + 17

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd.

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Site disturbed by use of tracks, land clearing, erosion

Recommendations for management & protection (attach separate sheet if necessary): Underground mining zone A

Site recorded by: E. White

Address/institution: 12B Heathcote St, Picton, NSW, 2571.

Date: Nov 2002

0

SITE POSITION & ENVIRONMENT

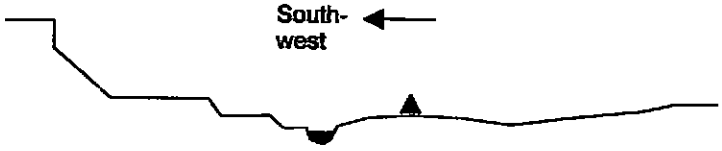
OFFICE USE ONLY: NPWS site no:

1. Landform a. beach/hillslope/ridge top, etc: Depression

b. site aspect:

c. slope: Gentle

d. mark on diagram provided or on your own sketch the position of the site



e. describe briefly: Site located on low crest, south of North Wambo Creek, at c.68m AHD

f. Local rock type: Pswj

g. Land use/effect Grazing

2. Distance from drinking water: 60m to North Wambo Creek

3. Resource zone associated with site (estuarine, riverine, forest etc): Regenerating forest

4. Vegetation: Casuarina regrowth

5. Edible plants noted:

6. Faunal resources (including shellfish):

7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Open site

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

31 artefacts found on two parallel tracks 1-6m wide, over a distance of 300m. Visibility on the tracks was 20-80%. Artefacts were found at both locations previously recorded as sites NW16 and NW17, and between these two locations, indicating one extensive scatter across the spur. The site is likely to be more extensive than the surface artefacts indicate.

Count	Raw Material	Size	Artefact Type	Cortex	Platform	Comments
1	Quartzite	7-8	Cobble Hammerstone	90%		
1	S Tuff	1-2	Broken flake	0	Plain	
1	S Tuff	1-2	Broken flake	0	Ridged	
4	S Tuff	1-2	Crenated fracture	0		
1	S Tuff	1-2	Crenated fracture	1%		
1	S Tuff	1-2	Crenated fracture remnant flaked	0		
1	S Tuff	1-2	CSBF	0		
2	S Tuff	1-2	Flake fragment	0		
1	S Tuff	2-3	Broken flake	0	Scarred	
1	S Tuff	2-3	Broken flake	30%	Cortex	
2	S Tuff	2-3	Crenated fracture	0		
2	S Tuff	2-3	Crenated fracture remnant flaked	0		
1	S Tuff	2-3	Flaked piece	60		Conjoins with #3
1	S Tuff	3-4	Broken flake	0	Plain	
1	S Tuff	3-4	Broken flake	70%	Plain	
1	S Tuff	3-4	Flake fragment	10%		
1	S Tuff	3-4	Flake fragment	50%		
1	S Tuff	3-4	Core broken	30%		Indeterminate core body, asymmetric alternating platform
1	S Tuff	4-5	Broken flake	0	Scar(s)	In 3 pieces
1	S Tuff	4-5	Flake	0	Scar(s)	
1	S Tuff	5-6	Flake	10	Ridge	
1	Silcrete	2-3	Flake fragment	1%		
1	Silcrete	2-3	Flake	0	Ridge	
1	Silcrete	4-5	Broken flake	0	Plain	
1	Silcrete	4-5	Flake fragment	0		

NW Site 16

Location: Doyles Creek grid ref. 3/1103 63/9216

The site is exposed on a vehicle track 200m from the east edge of the survey area, and about 50m south of North Wambo Creek. The site is located back from the high bank of the Creek, though access to the creek is relatively easy here.

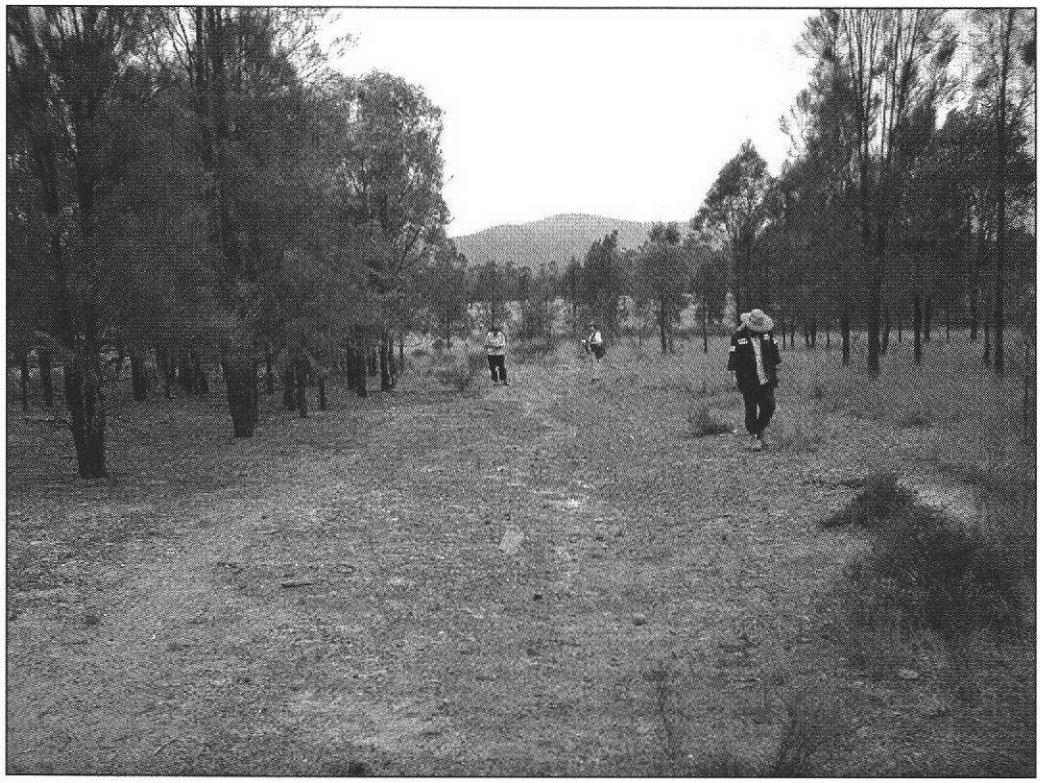
Description: About six artefacts were seen on a formed, but now disused, gravel road about 2m wide. The artefacts were scattered over a distance of about 30m. Ground visibility on the road varies from 30-80%. Average artefact density is therefore about 1 artefact/10m^2. The soils appear to be thin without substantial archaeological deposit.

Physical condition: The site has been damaged by construction and use of the road, land clearance and cattle grazing. Areas adjacent to the road are vegetated and stable.

Relation to Proposed Development: The site is located above the existing Homestead Underground mine which does not appear to be having any adverse effects on the site.

Photo 29: Site 16, looking north-west along the road.

Wambo Site 98



Camera facing south

[X] New recording [ ] Additional Information

National Parks and Wildlife S

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644
Standard Site Recording Form

37-5-0295

37-5-0295

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 8/9/2003

AMG Grid reference 309814 mE 6390918 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VK Date: 8/9/03

Owner/Manager:
Address:

Site name:
Wambo Site 52

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

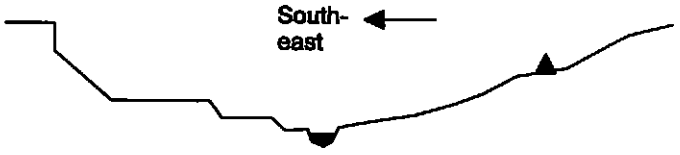
Condition of site: Cleared, erosion.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: E. White
Address/institution: 12B Heathcote St, Picton, NSW 2571..

Date: Nov 2002

0

SITE POSITION & ENVIRONMENT	OFFICE USE ONLY: NPWS site no:
1. Landform a. beach/hillslope/ridge top, etc: Waning mid-slope	b. site aspect: c. slope: Moderate
d. mark on diagram provided or on your own sketch the position of the site 	e. describe briefly: On slightly more gentle slope in overall moderate terrain, at c.101m AHD.
f. Local rock type: Pslz	g. Land use/effect Cleared, erosion

2. Distance from drinking water: 250m to 1st order gully, 380m to Stony Ck

3. Resource zone associated with site (estuarine, riverine, forest etc):

4. Vegetation: Regenerating woodland, with grasses.

5. Edible plants noted:

6. Faunal resources (including shellfish):

7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Isolated find

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

1 artefact found on erosion area, frequented by wallabies. Total exposure 20 x 8m, visibility 0-80%.

The artefact is
Fine grained siliceous (chalcedony?) cobble tool, 5-6cm in size, 60% cortex, with bifacial flaking and battering.

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644

Standard Site Recording Form

37-5-0297

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY

NPWS Site no: 37-5-0297

AMG Grid reference 309920 mE 6391063 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VIC Date: 8/9/03

Owner/Manager:
Address:

Site name:
Wambo Site 54

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no:
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer to permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?

Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Cleared, track.

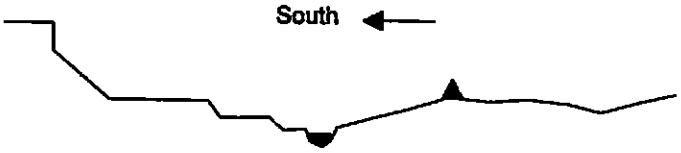
Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: L. Haglund

Address/institution: 1 Cameron St, Balmain, NSW, 2041.

Date: Nov 2002

0

SITE POSITION & ENVIRONMENT	OFFICE USE ONLY: NPWS site no:
1. Landform a. beach/hillslope/ridge top, etc: Crest d. mark on diagram provided or on your own sketch the position of the site South ←  f. Local rock type: Pslz	b. site aspect: c. slope: Gentle e. describe briefly: Artefacts on crest, at c.93m AHD g. Land use/effect Cleared, track

2. Distance from drinking water: 70m to 1st order gully

3. Resource zone associated with site (estuarine, riverine, forest etc):

4. Vegetation: Regenerating woodland, with grasses.

5. Edible plants noted:

6. Faunal resources (including shellfish):

7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Open site

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.
DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.
ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.
BURIALS: number & condition of bone, position, age, sex, associated artefacts.
TREES: number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth
QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.
OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

2 artefacts found in area 3x2m on grassy track, visibility 0-20%. The artefacts are both S Tuff 1-2cm, no cortex, one a flake with plain platform, the other a flake fragment.

0

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644

Standard Site Recording Form

37-5-0293

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0293

AMG Grid reference 310130 mE 6390500 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK

Site types:
Accessioned by: Date:

Data entered by: VK Date: 8/9/03

Owner/Manager:
Address:

Site name:
Wambo Site 45

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no:
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer to permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) Wanaruah LALC

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) Corkill, T. 1990 Preliminary survey for archaeological sites at South Wambo, near Warkworth, NSW. Report prepared for Enviroscences Pty Ltd and Wambo Mining Corporation

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

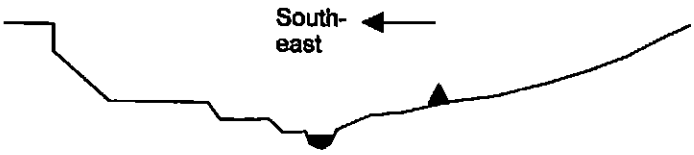
Condition of site: Cultivated

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: Tessa Corkill
Address/institution: 72 Cairnes Road, Glenorie, NSW 2157.

Date: 1990

0

SITE POSITION & ENVIRONMENT	OFFICE USE ONLY: NPWS site no:
1. Landform a. beach/hillslope/ridge top, etc: Waning lower slope d. mark on diagram provided or on your own sketch the position of the site  f. Local rock type: Pslz	b. site aspect: c. slope: Gentle e. describe briefly: On broad gentle slope about 100m from Stony Ck, at c.72m AHD g. Land use/effect Cultivated
2. Distance from drinking water: 100m to Stony Ck	
3. Resource zone associated with site (estuarine, riverine, forest etc):	
4. Vegetation: Cleared grassland.	
5. Edible plants noted: 6. Faunal resources (including shellfish): 7. Other exploitable resources (river pebbles, ochre etc)	

Site type:
Isolated find

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

Artefact reported by Tessa Corkill as indurated mudstone flaked piece, 2cm x 1.5cm, red cortex, yellow body.

Grid reference taken from map provided by Corkill. Referred to by White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644
Standard Site Recording Form

37-5-0294

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0294.

AMG Grid reference 310258 mE 6390708 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: Date:

Owner/Manager:
Address:

Site name:
Wambo Site 46

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?

Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Disturbed by excavation for dam

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: L. Haglund
Address/institution: 1 Cameron St, Balmain, NSW 2041.

Date: Nov 2002

0

SITE POSITION & ENVIRONMENT

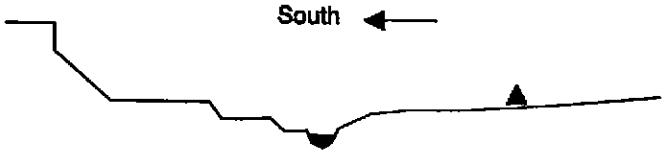
OFFICE USE ONLY: NPWS site no:

1. Landform a. beach/hillslope/ridge top, etc: Flat

b. site aspect:

c. slope: Gentle

d. mark on diagram provided or on your own sketch the position of the site



e. describe briefly: On broad very gentle slope / flat about 300m from Stony Ck, at c.72m AHD

f. Local rock type: Pslz

g. Land use/effect Cleared, dam

2. Distance from drinking water: 300m to Stony Ck

3. Resource zone associated with site (estuarine, riverine, forest etc):

4. Vegetation: Cleared grassland.

5. Edible plants noted:

6. Faunal resources (including shellfish):

7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Open site

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

2 artefacts found on dam wall. Total exposure <50m x <15m, visibility 0-60%.

Artefacts are
(1) S Tuff flake, 4-5cm, 20% cortex, plain platform
(2) Silcrete flake 3-4cm, no cortex, focal platform.

Wambo Site 46 2002 (LH)

0

[✓] New recording [ ] Additional Info

National Parks and Wildlife Service

Box 1967, Hurstville NSW 2220. Tel: (02) 585 6444

Standard Site Recording Form Revised 5/88

37-5-0192

NPWS Code

1:250,000 map sheet: SINGLETON 13,7

AMG Grid reference (Full reference - please include leading digits)

250K 250K

3 0 9 5 5 0 mE (25K) 6 3 9 0 8 4 0 mN (5/8 25K)

Scale of map used for grid reference (Please use largest scale available) [✓] 25K, 50K (preferred) [ ] 100K [ ] 250K

1:25K, 50K, 100K map name: Dayles Ck

HEAD OFFICE USE ONLY:

NPWS Site no: 37-5-192

Site types: 2 open site

Accessioned by: [illegible] Date: 17-6-91

Data entered by: [illegible] Date: 23-4-91

Owner/Manager: Mr S Harris

Address: South Wambo Bulga

Site name: SC 4 Locality/property name: Stony Ck

NPWS District: Upper Hunter Region: Central

Reason for investigation

Recording and investigation for underground mining.

Portion no: 12

Parish: Whybrow

Photos taken? yes

How many attached?

How to get to the site (refer to permanent features, give best approach to site eg. from above, below, along cliff. (Draw diagram on separate sheet.)

From the Harris House, take the track just west of the house + drive north, over South Wambo Ck, for 600m. Go through gate. Drive west for 700m. Go through gate. Turn west + drive for 400m. This is location 1.

Other sites in locality? yes Site Types Include: open sites

Are sites in NPWS Register? yes

Have artefacts been removed from site? yes When? This project

By whom? Deposited where?

Is site important to local Aborigines? Wanaruah LALC agreed to test excavations.

Give contact(s) name(s) + address(es) Phillip Hone + Barry French

Contacted for this recording? yes

(Attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report). NPWS Report Catalogue #

E Rich 1991 Investigation of Aboriginal Sites SW3 + SC4 at South Wambo near Bulga, NSW (C-200)

Also Corkill, T. 1990 Preliminary AIS (C-185)

Checklist: surface visibility, damage/disturbance/ threat to site

Condition of site: Site has very thin soils, and virtually no depth of archaeological deposit. Site has been damaged by land clearance, cracking of basal clays, stock hooves + trampling; use of track

Recommendations for management & protection (attach separate sheet if necessary):

Condition of the site should be monitored during, and up to 12 months after, underground mining.

Site recorded by: E Rich Date: 24/10/90

Address/Institution: 1A Angel Rd Strathfield 2135.

8.0 STONY CREEK SITE 4

This section of the report sets out a description of this site, outlines the excavations carried out here, and sets out the results of the excavations. Note that this site was previously named as site 5 by Corkill (1990), but has been re-named SC 4 [Stony Creek] to follow on from three other sites found further upstream along Stony Creek (Rich *in prep*).

8.1 Description of SC 4

Location: Doyles Creek grid refs. 3/0955 63/9084 to 3/0980 63/9075

This site is located on a spur on the east side of Stony Creek, about 1.3km upstream of the confluence with South Wambo Creek. The spur has a south-easterly aspect. A steep-sided intermittent gully drains down the 'front' of the spur, and to the west of the main part of the site [see Map 8].

The spur is actually the toe of a major ridge line which leads down from the Wollemi escarpment. The ridge would have provided an excellent access route to the foot of the steep escarpment [though the possibility of access up the escarpment has not been checked]. It should be noted that SC1 and SC2 are also on the side of this ridgeline, but more than 1km further upstream.

Description: Most of the artefacts occur on a flattish part of the spur between about 65m - 150m east of Stony Creek and about 10m above the Creek. A total of 82 artefacts were recorded in five locations. These are along a farm track [location 1], along stock tracks north of this [location 2], at a gateway about 160m to the east [location 3], on a stock track leading to a dam [location 4] about 150m east of location 1, and on a farm track [location 5] on the west side of the gully about 100m west of location 1.

LOCATION 1

Seventy-two artefacts were recorded along a track over a distance of about 150m. The track appears to have been graded and had since partly revegetated. The track was about 3m wide with ground visibility estimated at 30-70%. Most of the artefacts were seen over a distance of about 40m, 65m from the Creek. The maximum density was 9/m^2 within square 1 of Area C [see section 8.4]. The average density on the spur was 1/2m^2.

LOCATION 2

Five artefacts were found around an ants' nest and on 2 stock tracks/pads which cross the spur, and which parallel the track [location 1] but about 70m further uphill [to the north]. These stock tracks were about 100m long and 20cm wide. At the west end of these stock tracks, above the intermittent gully, there is an eroded area about 10m square but no artefacts were seen here.

LOCATION 3

One silcrete flake was seen at the gate. This location has been very disturbed by use of the track and construction of fences. River pebbles have been laid at the gateway - presumably to stop the gateway from getting too boggy. Other artefacts could be present here which could not be seen because of the poor ground visibility.

LOCATION 4

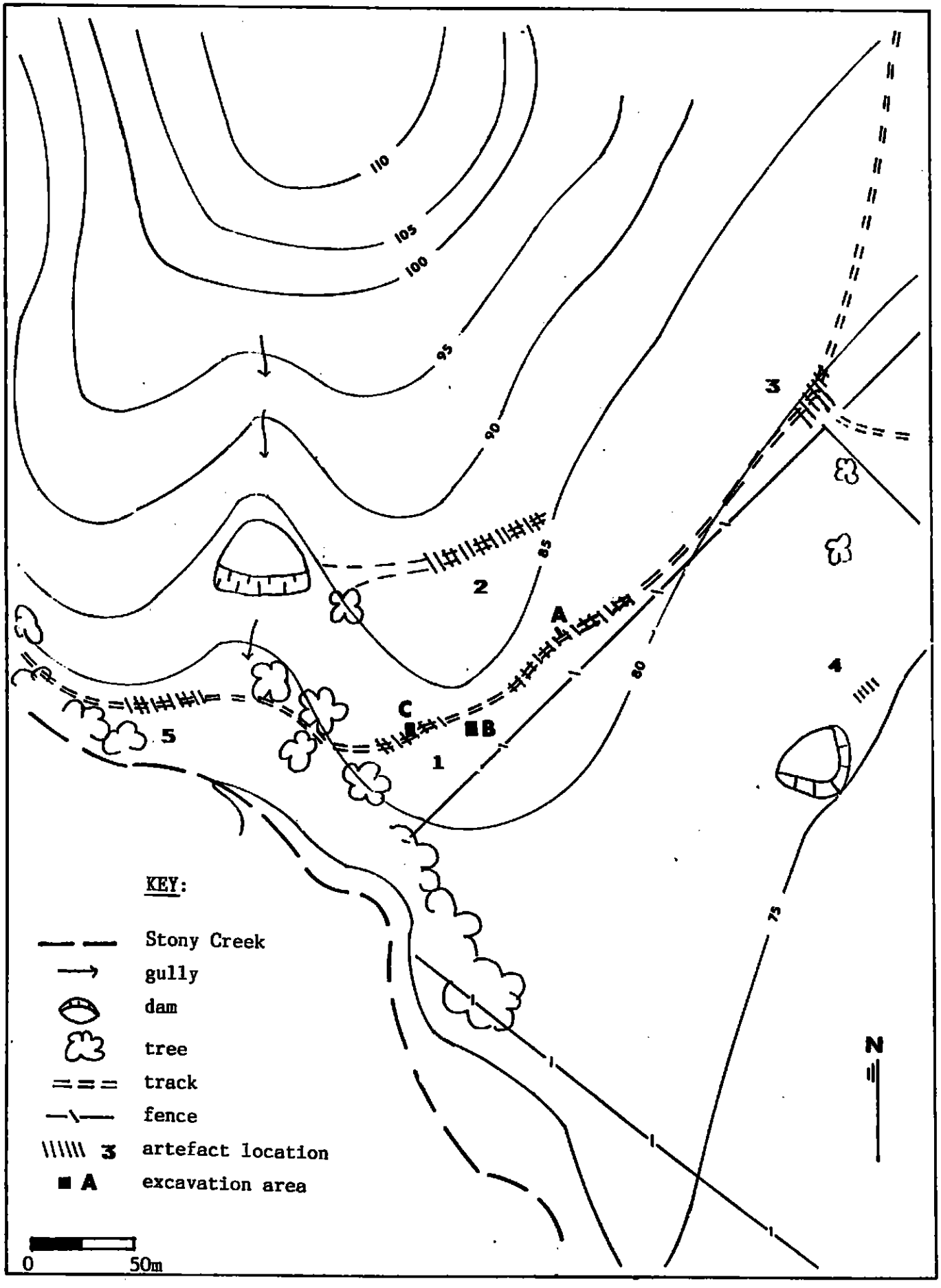
One artefact was found on a stock track 20m from a farm dam. The track is 20cm wide with ground visibility of about 80%. If a moderate or high density of artefacts was present here, more artefacts would probably have been found.

LOCATION 5

Three artefacts were seen on the farm track on the west side of the intermittent gully, on the toe of the western part of the spur. These were spread over a distance of 20m on a track 2m wide with about 60-80% visibility. This spur is much steeper than that on which the main part of the site occurs; few other artefacts would probably be present here.

37-5-192

Map 8: SC4



8.3 Conclusions

SC4 is an extensive site which has very thin soils, and virtually no depth of archaeological deposit. Essentially, the artefacts are lagging on the basal clay, covered over and mixed in with shallow loamy soil.

A substantial number of artefacts [72] were found along the track. However, a number of these are recognizable as broken flakes, so originally there were probably fewer artefacts. The excavations have demonstrated that the soils and underlying clay have been disturbed by cattle, and by natural cracking of the clays. A number of the flakes would have been broken by vehicles using the track.

Many of the artefacts were probably the result of a small number of knapping events. If the site had been used repeatedly over time, then a more continuous and/or more dense scatter of artefacts would probably have been present.

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644
Standard Site Recording Form

37-5-0298

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0298

AMG Grid reference 310033 mE 6391044 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VK Date: 8/8/03

Owner/Manager:
Address:

Site name:
Wambo Site 55

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Cleared, track.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: E. White
Address/Institution: 12B Heathcote St, Picton, NSW, 2571.

Date: Nov 2002

SITE POSITION & ENVIRONMENT

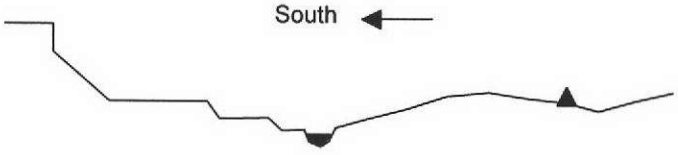
OFFICE USE ONLY: NPWS site no:

1. Landform a. beach/hillslope/ridge top, etc: Simple slope

b. site aspect:

c. slope: Gentle

d. mark on diagram provided or on your own sketch the position of the site



e. describe briefly: Artefacts on side of crest, at c.87m AHD

f. Local rock type: Pslz

g. Land use/effect Cleared, track, ants nest

2. Distance from drinking water: 40m to 1st order gully

3. Resource zone associated with site (estuarine, riverine, forest etc):

4. Vegetation: Regenerating woodland, with ironbarks, grasses.

5. Edible plants noted:
6. Faunal resources (including shellfish):
7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Open site

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

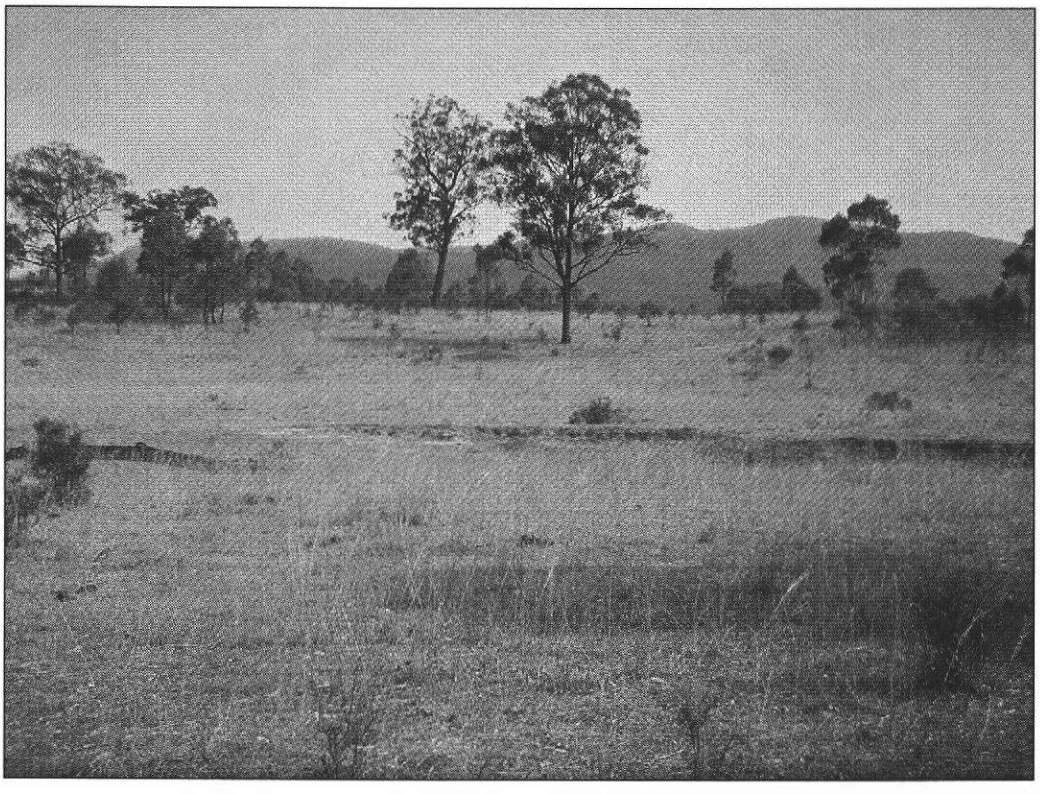
TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

A total of 11 artefacts were found around an ants nest 8x5m, and along a vehicle track 2-3m wide extending for a distance of 50m; the artefacts being less extensive than the exposure along the track. Visibility generally was 0-40%.



Artefacts are clustered around the ants nest and on the track in the mid-ground of the photo, just in front of the closer of the two large trees. Camera facing south, with gully in fore-ground.

6

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644
Standard Site Recording Form

37-5-0299

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0299

AMG Grid reference 309936 mE 6390934 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VK Date: 8/9/03

Owner/Manager:
Address:

Site name:
Wambo Site 56

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Cleared.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: L. Haglund
Address/institution: 1 Cameron St, Balmain, NSW, 2041.

Date: Nov 2002

6

SITE POSITION & ENVIRONMENT

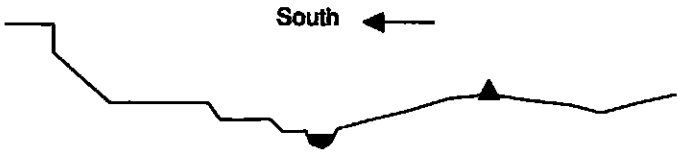
OFFICE USE ONLY: NPWS site no:

1. Landform a. beach/hillslope/ridge top, etc: Crest

b. site aspect:

c. slope: Gentle

d. mark on diagram provided or on your own sketch the position of the site



e. describe briefly: Artefact on broad crest, at c.87m AHD

f. Local rock type: Pslz

g. Land use/effect Cleared

2. Distance from drinking water: 170m to 1st order gully

3. Resource zone associated with site (estuarine, riverine, forest etc):

4. Vegetation:

6. Edible plants noted:
6. Faunal resources (including shellfish):
7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Isolated find

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour, texture, estimated, depth, stratigraphy, contents-shell, bone, stone, charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead, likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

A single artefact was found in a grassy area with 0-20% visibility, no defined exposure. The artefact is a quartz broken tool, 2-3cm in size, no cortex.

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644
Standard Site Recording Form

37-5-0300

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY: 0300
NPWS Site no: 37-5-~~0298~~

AMG Grid reference 310050 mE 6390963 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VK Date: 8/9/03

Owner/Manager:
Address:

Site name:
Wambo Site 57

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

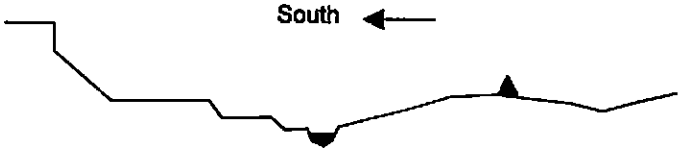
Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Cleared.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: L. Haglund
Address/institution: 1 Cameron St, Balmain, NSW, 2041.

Date: Nov 2002

SITE POSITION & ENVIRONMENT	OFFICE USE ONLY: NPWS site no:
1. Landform a. beach/hillslope/ridge top, etc: Crest d. mark on diagram provided or on your own sketch the position of the site South ←  f. Local rock type: Pslz	b. site aspect: c. slope: Gentle e. describe briefly: Artefacts on crest, at c.83m AHD g. Land use/effect Cleared
2. Distance from drinking water: 120m to 1st order gully	
3. Resource zone associated with site (estuarine, riverine, forest etc):	
4. Vegetation: Regenerating woodland, with shrubs and grasses.	
5. Edible plants noted: 6. Faunal resources (including shellfish): 7. Other exploitable resources (river pebbles, ochre etc)	

Site type:
Open site

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour, texture, estimated, depth, stratigraphy, contents-shell, bone, stone, charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead, likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

3 artefacts found in 10x5m area, visibility 0-30%. The artefacts are:

(1) S Tuff flake, 2-3cm with cortical platform
(2) S Tuff tool, 5-6cm with 25% cortex
(3) Silcrete rotated core, 9-10cm with cortex.

0

Wambo Site 57 2002 (LH)

0

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644

Standard Site Recording Form

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0301

AMG Grid reference 310097 mE 6390877 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VK Date: 8/9/03

Owner/Manager:
Address:

Site name:
Wambo Site 58

Locality/property name:

NPWS District:

Region: Central

37-5-0301

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?

Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

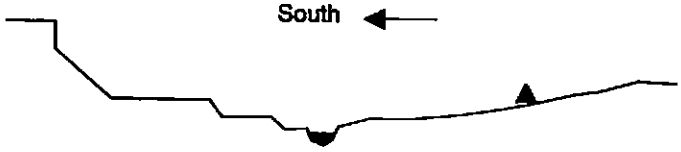
Condition of site: Cleared.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: L. Haglund

Address/Institution: 1 Cameron St, Balmain, NSW, 2041.

Date: Nov 2002

SITE POSITION & ENVIRONMENT	OFFICE USE ONLY: NPWS site no:
1. Landform a. beach/hillslope/ridge top, etc: Simple slope d. mark on diagram provided or on your own sketch the position of the site South ←  f. Local rock type: Pslz	b. site aspect: c. slope: Gentle e. describe briefly: Artefacts slope below tip of spur, just above creek flats. At c.78m AHD g. Land use/effect Cleared
2. Distance from drinking water: 210m to 1st order gully	
3. Resource zone associated with site (estuarine, riverine, forest etc):	
4. Vegetation:	
5. Edible plants noted: 6. Faunal resources (including shellfish): 7. Other exploitable resources (river pebbles, ochre etc)	

Site type:
Isolated find

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

Single artefact found on eroded patch 5x3m area, visibility 0-30%. The artefact is a quartz flake fragment, 2-3cm in size, no cortex

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644

Standard Site Recording Form

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0302

AMG Grid reference 310229 mE 6391059 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VK Date: 17/9/03

Owner/Manager:
Address:

37-5-0302

Site name:
Wambo Site 59

Locality/property name:

NPWS District:

Region: Central

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Cleared.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: L. Haglund
Address/Institution: 1 Cameron St, Balmain, NSW, 2041.

Date: Nov 2002

SITE POSITION & ENVIRONMENT

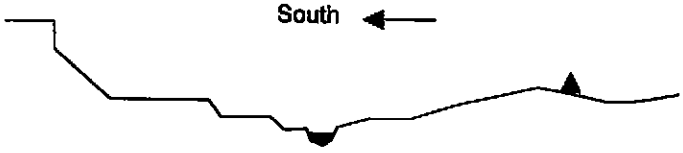
OFFICE USE ONLY: NPWS site no:

1. Landform a. beach/hillslope/ridge top, etc: Simple slope

b. site aspect:

c. slope: Gentle

d. mark on diagram provided or on your own sketch the position of the site



e. describe briefly: Artefact just below fence and crest, and just above dam, at c.80m AHD

f. Local rock type: Pslz

g. Land use/effect Cleared

2. Distance from drinking water: 80m to 1st order gully

3. Resource zone associated with site (estuarine, riverine, forest etc):

4. Vegetation: Cleared grassland

5. Edible plants noted:

6. Faunal resources (including shellfish):

7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Isolated find

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.

ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth

QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

Single artefact found on eroded patch 3x2m area, visibility 0-20%. The artefact is a S Tuff broken flake, 4-5cm in size, no cortex.

Wambo Site 59 2002 (LH)

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644

Standard Site Recording Form

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0303

AMG Grid reference 310163 mE 6391085 mN

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Site types:
Accessioned by: Date:

Data entered by: VK Date: 7/9/03

Owner/Manager:
Address:

Site name: Wambo Site 60

Locality/property name:

NPWS District:

Region: Central

37-5-0303

Reason for investigation EIS for Wambo Development Project

Portion no;
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes
Site Types include: Open, IF

Have artefacts been removed from site? By whom?
When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

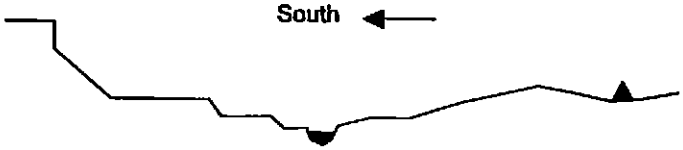
NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

Condition of site: Cleared.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: L. Haglund Date: Nov 2002
Address/institution: 1 Cameron St, Balmain, NSW, 2041.

SITE POSITION & ENVIRONMENT	OFFICE USE ONLY: NPWS site no:
1. Landform a. beach/hillslope/ridge top, etc: Depression d. mark on diagram provided or on your own sketch the position of the site South ←  f. Local rock type: Pslz	b. site aspect: c. slope: Gentle e. describe briefly: Artefacts in grassy gully, just upstream of dam, at c.79m AHD g. Land use/effect Cleared
2. Distance from drinking water: in 1st order gully	
3. Resource zone associated with site (estuarine, riverine, forest etc):	
4. Vegetation: Cleared grassland	
5. Edible plants noted: 6. Faunal resources (including shellfish): 7. Other exploitable resources (river pebbles, ochre etc)	

Site type:
Open site

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.
DEPOSIT: colour, texture, estimated, depth, stratigraphy, contents-shell, bone, stone, charcoal, density & distribution of these, stone types, artefact types.
ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.
BURIALS: number & condition of bone, position, age, sex, associated artefacts.
TREES; number, alive, dead, likely age, scar shape, position, size, patterns, axe marks, regrowth
QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.
OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

3 artefacts found, no exposure, visibility 0-10%. The artefacts are:
(1) Quartz broken flake, 2-3cm, no cortex
(2) Silcrete flake, 2-3cm, scarred platform, no cortex
(3) Silcrete core, 5-6cm, 20% cortex.

10

[X] New recording [ ] Additional Information

National Parks and Wildlife Service

PO Box 1967, Hurstville, NSW, 2220. Tel: (02) 9585 644

Standard Site Recording Form

1:250,000 map sheet: SINGLETON NPWS Code 37

HEAD OFFICE USE ONLY:
NPWS Site no: 37-5-0304

AMG Grid reference 310154 mE 6391135 mN

Site types: Artefact
Accessioned by: R.S. mon Date: 18/9/03

Scale of map used (or grid reference [X] 25K.50K [ ] 100K [ ] 250K
Please use largest scale available (preferred)

Data entered by: R. Simon Date: 18/9/03

1:25K. 50K. 100K map name: DOYLES CK (GPS)

Owner/Manager:
Address:

Site name: Wambo Site 61

Locality/property name:

NPWS District:

Region: Central

37-5-0304

Reason for investigation EIS for Wambo Development Project

Portion no:
Parish: Whybrow

Photos taken?
How many attached?

How to get to the site (refer t0 permanent features, give best approach to site eg. from above, below, along cliff
(Draw diagram on separate sheet.)

Other sites in locality? Yes
Are sites in NPWS Register? Yes

Site Types include: Open, IF

Have artefacts been removed from site? By whom?

When?
Deposited where?

Is site important to local Aborigines?
Give contact(s) name(s) + address(es) The Wanaruah LALC, the Upper Hunter Wonnarua Council, the Lower Wonnarua Tribal Council, and the Ungoroo Aboriginal Corporation

Contacted for this recording? Yes
(attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) White, E. 2003 Wambo Development Project, Aboriginal Heritage Assessment. Prepared for Resource Strategies Pty Ltd and Wambo Coal Pty Ltd

NPWS Report Catalogue

Checklist:
surface visibility
damage/disturbance/
threat to site

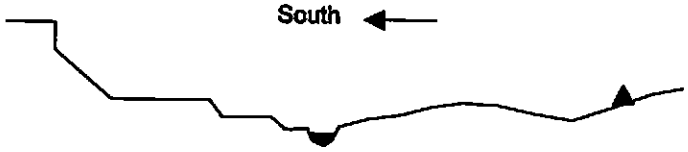
Condition of site: Cleared.

Recommendations for management & protection (attach separate sheet if necessary): Above underground mining zone B1.

Site recorded by: E. White

Address/institution: 12B Heathcote St, Picton, NSW, 2571.

Date: Nov 2002

SITE POSITION & ENVIRONMENT	OFFICE USE ONLY: NPWS site no: 37-5-0304
1. Landform a. beach/hillslope/ridge top, etc: Simple slope d. mark on diagram provided or on your own sketch the position of the site South ←  f. Local rock type: Pslz	b. site aspect: c. slope: Gentle e. describe briefly: Artefacts on grassy track, just upslope from gully, at c.81m AHD g. Land use/effect Cleared

2. Distance from drinking water: 50m to 1st order gully

3. Resource zone associated with site (estuarine, riverine, forest etc):

4. Vegetation: Cleared grassland, regenerating woodland

5. Edible plants noted:

6. Faunal resources (including shellfish):

7. Other exploitable resources (river pebbles, ochre etc)

Site type:
Open site

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.
DEPOSIT: colour. texture, estimated, depth, stratigraphy, contents-shell, bone, stone. charcoal, density & distribution of these, stone types, artefact types.
ART area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.
BURIALS: number & condition of bone, position, age, sex, associated artefacts.
TREES; number, alive, dead. likely age, scar shape, position, size, patterns, axe marks, regrowth
QUARRIES, rock type, debris, recognizable artefacts, percentage quarried.
OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove, channels, contact sites (missions massacres, cemeteries) as appropriate.

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

3 artefacts on track, 3m wide, artefacts found over a distance of c.30m. Overall track has some exposure over a total distance of 80m. Visibility on track 0-30%. The artefacts are all of silicifed tuff and are
(1) Broken flake, 2-3cm, no cortex, plain platform
(2) Flake, 4-5cm, plain platform, 20% cortex
(3) Tool, 7-8cm, 10% cortex.

[✓] New recording [ ] Additional Info

National Parks and Wildlife Service

Box 1967, Hurstville NSW 2220. Tel: (02) 585 6444

Standard Site Recording Form Revised 5/88

37-5-0187

1:250,000 map sheet: SINGLETON. NPWS Code 3,7

AMG Grid reference (Full reference - please include leading digits)

250K 3 1 1 0 6 0 mE (25K)

250K 6 3 9 1 9 7 0 mN (5/6 | 25K)

Scale of map used for grid reference (Please use largest scale available) [✓] 25K, 50K (preferred) [ ] 100K [ ] 250K

1:25K, 50K, 100K map name: DOYLES CREEK.

HEAD OFFICE USE ONLY:

NPWS Site no: 37-5-187

Site types: 2 open site

Accessioned by: stephen fields Date: 17-4-91

Data entered by: stephen fields Date: 23-4-91

Owner/Manager: WAMBO MINING CORP.

Address: WARKWORTH N.S.W.

Site name: NW 17 Locality/property name: NORTH WAMBO CREEK.

NPWS District: Region: CENTRAL.

Reason for investigation

ARCHAEOLOGICAL SURVEY FOR PROPOSED MINING.

Portion no: ~~137~~ 9

Parish: ~~LEMINGTON~~ Whybrow

Photos taken?

How many attached?

How to get to the site (refer to permanent features, give best approach to site eg. from above, below, along cliff. (Draw diagram on separate sheet.)

From the confluence of North Wambo Creek + Wollombi Brook drive west along the south side of the Creek for 700m. Go through gate. Drive north along another track towards Creek for 100m. The site is exposed along a track, north of a slight gully.

Other sites in locality? YES Site Types include: OPEN

Are sites in NPWS Register? YES

Have artefacts been removed from site? When?

By whom? Deposited where?

Is site important to local Aborigines? PHILLIP MANE & JOHN MATTHEWS

Give contact(s) name(s) + address(es) WANARUAH LOCAL ABORIGINAL LAND COUNCIL.

Contacted for this recording?

(Attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report) NPWS Report Catalogue #

RICH. E. 1991. PROPOSED OPEN CUT AND MINING (UNDERGROUND) AT WAMBO, NEAR WARKWORTH IN THE HUNTER VALLEY N.S.W. ARCHAEOLOGICAL SURVEY FOR ABORIGINAL SITES. C-1971

Checklist: surface visibility, damage/disturbance/ threat to site

Condition of site: THE SITE HAS BEEN DAMAGED BY LAND CLEARANCE AND CONSTRUCTION AND USE OF THE ROAD. AT THE SOUTH END OF THE SITE THE TRACK HAS ERODED OUT, THOUGH NO ARTEFACTS WERE FOUND HERE.

Recommendations for management & protection (attach separate sheet if necessary):

SITE NOT WITHIN AREA OF PRESENT DEVELOPMENT PROJECT.

Site recorded by: E. RICH Date: 29/8/90.

Address/Institution: 14. ANGEL RD, STRATHFIELD.

Site No: NW 17 Project: Wambo Mine Extension Locality: North Wambo Creek recorded by: E Rich & D Crew

Map: Doyles Creek Scale: 1:25,000 Grid reference: 3111010 6319197 date: 1-9-90

artefact no.	raw material	size in mm l x b x w	core	flaked piece amo	flaked piece lam	flake fo	flake brd	cortex	comments
1	White IM	39 x 45 x 15				✓			
2	Yellow IM	16 x 41 x 18				✓		1 surface 30%	usewear 2 edges
3	Brown Silc	40 x 25 x 9				✓			usewear both laterals tip broken off
4	White IM	15 x 16 x 8				✓			
5	Cream/Yellow IM	20 x 10 x 6				✓			R/U one lateral
6	Grey IM	21 x 42 x 5				✓			Broken laterally
7	Yellow IM	28 x 31 x 11					✓	Dorsal 40%	R/U Both laterals a distal, a platform
8	Milky Quartz	29 x 14 x 5				Bi-polar		Dorsal 50%	
9	Grey/Cream IM	26 x 35 x 19		✓				Pebble - 1 Surface 20%	

37-5-187

amo - amorphous flaked piece; lam - lamellate flaked piece
fo - focal platform flake brd - broad platform flake

37-5-187

NW Site 17

Location: Doyles Creek grid ref. 3/1106 63/9197

The site is located on the same road as site 16. It is 100m from the eastern edge of the survey area, and 200m south of North Wambo Creek. It is on a low rise/hill above the creek.

Description: The site consists of a low density scatter of flaked artefacts along a formed, but since disused, road which is about 2-3m wide. Nine artefacts were recorded over a distance of 50m. Ironstone gravels reduced the ground visibility on the road to about 20%. Thick grass adjacent to the road reduced visibility to 0%.

The artefacts are predominantly of indurated mudstone. Seven are flakes and one is a quartz bipolar piece; the other artefact is an amorphous flaked piece. Four of the artefacts have pebble cortex making up 20-40% of the artefact surface. Four of the artefacts have retouch and/or usewear.

Physical Condition: The site has been damaged by land clearance, and construction and use of the road. At the south end of the site the track has eroded out; though no artefacts were found here.

Relation to Proposed Development: The site is located well beyond the proposed develepment. It overlies the existing Homestead Underground mine, which does not appear to have caused any damage to the site.

Photo 30: Site 17, camera facing south-east.

Aboriginal Sites Register of NSW

NPWS, PO Box 1967, Hurstville NSW 2220
Standard Site Recording Form

37-5-0273

New Recording ☑

Information ☐

Site name	HV 52	NPWS Site Number	37-5-273
Owner/manager	COAL & ALLIED Pty LTD		
Owner Address	PO BOX 315 SINGLETON 2330		
Location	Hunter VALLEY NSW		
How to get to the site	SITE LOCATED IN OPEN PADDOCK NEAR JERRYS PLAINS RD.		
1:250,000 map name		NPWS map code	
AMG Zone	AMG Easting 310110	AMG Northing	6390691
Method for grid reference	Map scale (if method = map) 1:25,000	Map name	DOYLES CREEK.
NPWS District Name (see map)	Hunter	NPWS Zone (see map)	
Portion no.	PORTION 59/98	Parish	LENNGTON
Site type(s)	OPEN - SITE	Site type code (NPWS use only)	

Description of site and contents
CHECKLIST: eg. length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.
DEPOSIT: colour, texture, estimated depth, stratigraphy, contents-shell, bone, stone, charcoal, density & distribution of these, stone types, artefact types.
ART: area of decorated surface, motifs, colours, wet/dry pigment, engraving technique, no. of figures, sizes, patination.
BURIALS: number & condition of bone, position, age, sex, associated artefacts.
TREES: number, alive, dead, likely age, scar shape, position, size, patterns, axe marks, regrowth.
QUARRIES: rock type, debris, recognisable artefacts, percentage quarried

SITE IS LOCATED IN OPEN PADDOCK NEXT TO A DAM IN THE CONTOUR DRAIN THAT RUNS INTO THE DAM.

DESCRIPTION 7 ARTEFACTS WERE FOUND IN THE DRAIN 6 MUDSTONE AND 1 SILTCRETE FLAKED PIECE.

DIMENSION - 20m IN length
2m IN WIDTH

Attach photographs and sketches, eg. plan & section of shelter.
Do NOT dig, disturb or damage site or contents.

Version: June 1998 | Data entered by: | Date entered:

E

Aboriginal Sites Register of NSW

NPWS, PO Box 1967, Hurstville NSW 2220

Standard Site Recording Form

Land form	Sloping Forest	Aspect	NORTH	Slope	
Mark position of the site					
Local rock type	IRON - Stone	Land use/effect		Cattle Grazing	
Distance from drinking water	5 Km	Source		Hunter River	
Resource zone (eg. estuarine, river, forest)	Forest	Vegetation		Grassland	
Edible plants	NIL	Faunal resources (include shellfish)			
Other exploitable resources (eg. ochre)	NIL				
Are there other sites in the locality	Yes	Are they in the Sites Register	Yes	Other site types include	Open Camping

Site condition	Eroading on Surface		
Management recommendations	Collection & monitoring Grader Scraping		
Have artefacts been removed from site	NO	When	
By whom		Deposited at	
Consent applied for	☐	Consent issued	☐
Date of issue		Consent number	

Reason for investigation			
Were local Aborigines contacted or present for the recording	☐ Not contacted ☑ Contacted and present ☐ Contacted but not present	Names and addresses	R. Perry (W.T.C.) PO Box 184 Singleton 2330
Is the site important to local Aborigines	Yes, local Wonnarua People		
Verbal/written reference sources		ASR report number(s) (or title)	C- C-
Photographs taken	NO	No. of Photos attached	1
Site recorded by	Junburra ACS	Date of recording	17-7-00
Address/institution	14 Kent Street Singleton 2330		

Version: June 1998	Data entered by:	Date entered:

SITE HV 52

AHIMS
Aboriginal Heritage Information Management System

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

NSW GOVERNMENT | Office of Environment & Heritage

Office Use Only

Site Number ___ - ___ - ___

Date received __/__/__ Date entered into system __/__/__ Date catalogued __/__/__

Entered by (I.D.) ____________

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title	Surname	First Name	Initials

Organisation ____________

Address ____________

Phone number ____________ Fax ____________

Client on system ☐

☐ **Knowledge Holder**

Title	Surname	First Name	Initials

Organisation ____________

Address ____________

Phone number ____________ Fax ____________

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

____

Geographic Location

Site Name: WAMBO SITE 338

Easting: 310241 Northing: 6390950 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone: 56 Location Method: Differential GPS

Other Registration: ____________

Primary Recorder

Title	Surname	First Name	Initials
MS	GOODE	GILLIAN	

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [x] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

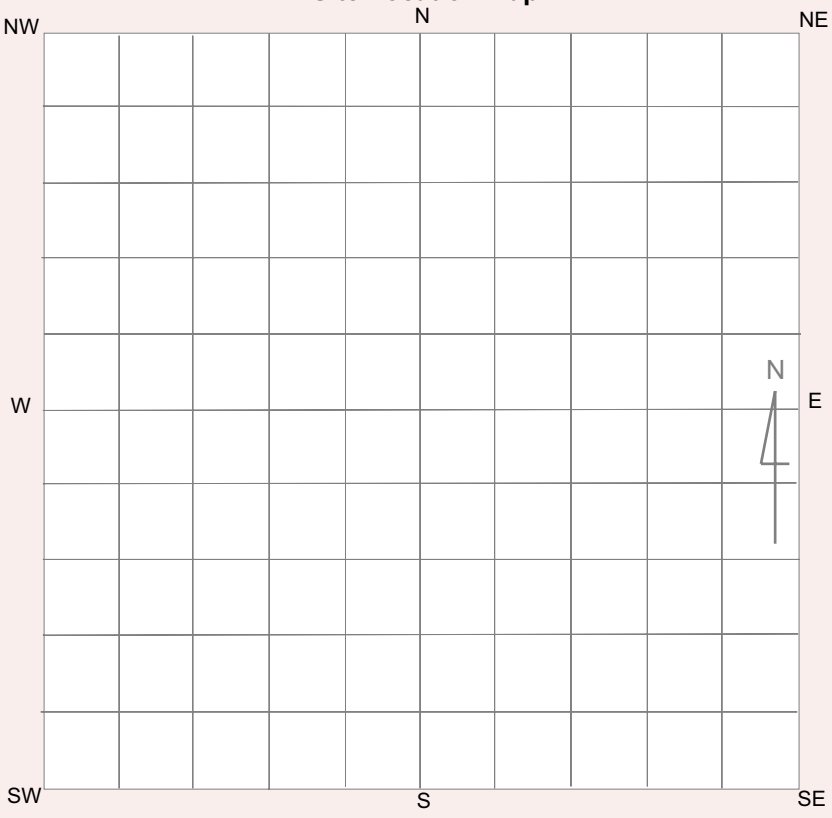
Water

Distance to permanent water source	400 metres
Distance to temporary water source	400 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See map and GPS coordinates.

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report I.D.

(I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

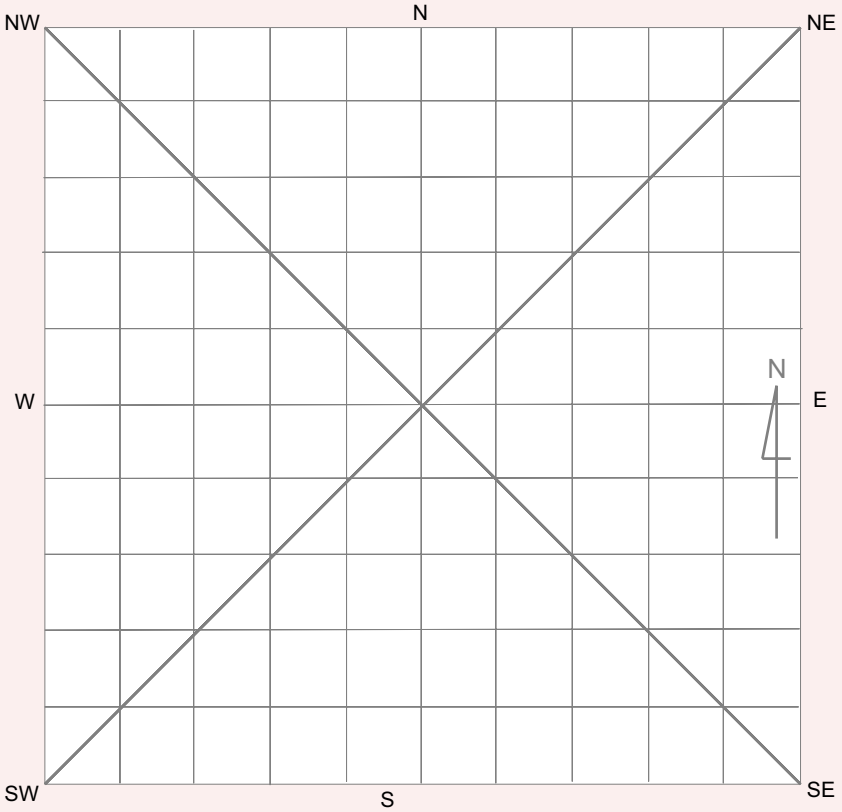
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [30m] Total length of visible site
- [5m] Average width of visible site
- [150sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This artefact scatter site was located on the northern side of an access track. The artefacts were associated with an erosion scour that had formed on the edge of the track. The artefacts were predominantly mudstone and silcrete.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title	Surname	First Name	Initials

Organisation

Address

Phone number Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name WAMBO SITE 338

First recorded date

Importance

No. of instances 3

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre) 1

Dimensions 1 Length (m) 1 Width (m) Depth (m)

	Yes	No
In situ		
Stratified		No

Feature Condition

- [ ] Very good
- [x] Good
- [ ] Poor

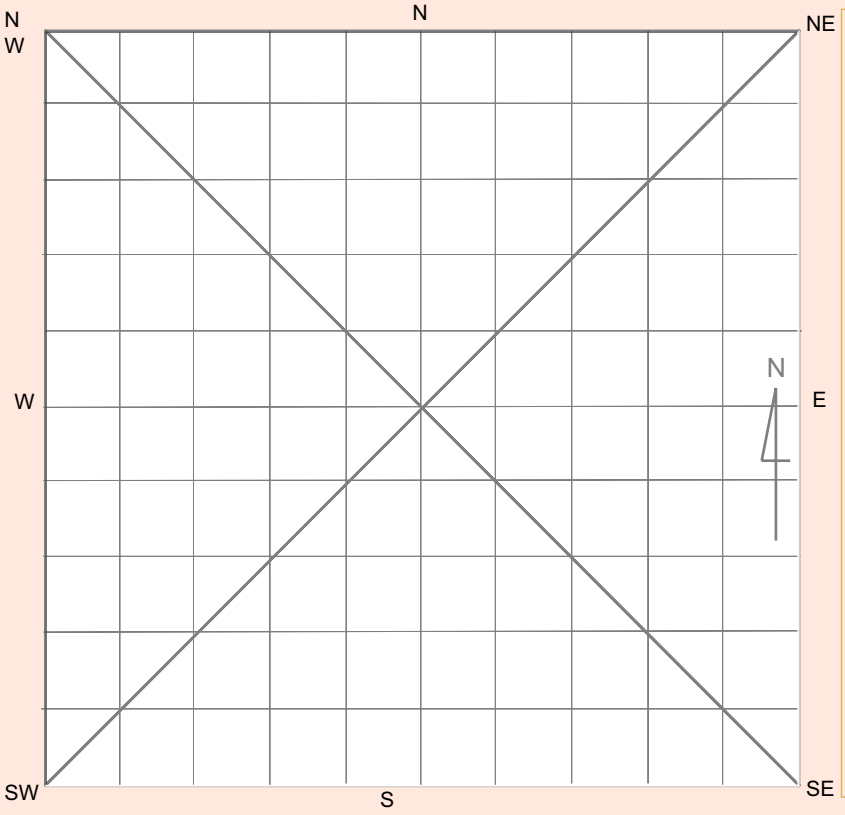
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

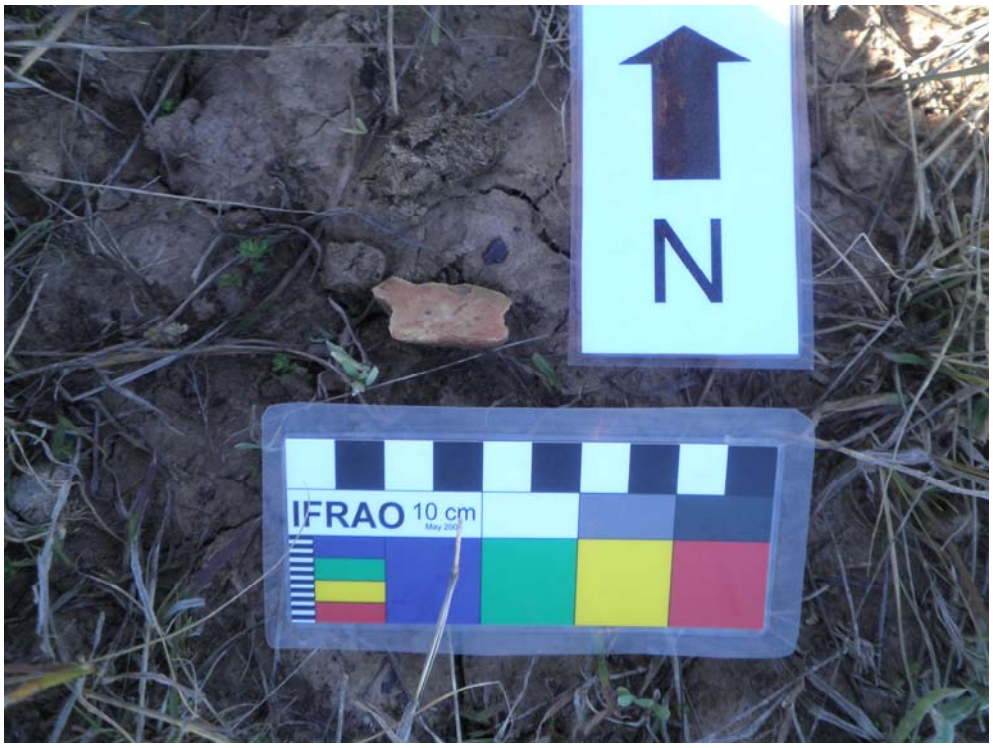
Table: Artefact Attributes

ID	Artefact Type	Complete-ness	Raw Material	Colour	Length (mm)	Width (mm)	Thick-ness (mm)	Weight (grams)	Notes	Location Specified
1	Flake	Complete	Silcrete	Pink	40	20	5	-		
2	Flake	Complete	Silcrete	Pink	38	25	3	-		
3	Angular fragment	N/A	Mudstone	Red	28	10	5	-		

Site Description

This artefact scatter site was located on the northern side of an access track. The artefacts were associated with an erosion scour that had formed on the edge of the track. The artefacts were predominantly mudstone and silcrete.

Photos


N
IFRAO 10 cm

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 347

Easting: 310227 Northing: 6391465 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title: MS | Surname: GOODE | First Name: GILLIAN | Initials:

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE: Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Slope

[ ] degrees

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [ ] Lower slope
- [x] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [x] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

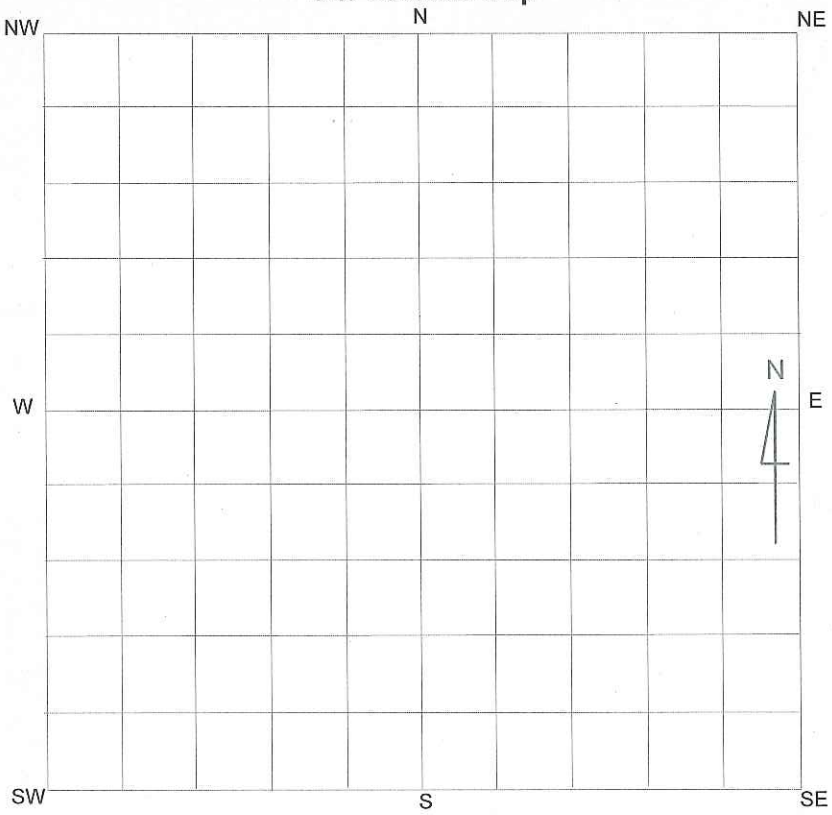
Water

Distance to permanent water source	900 metres
Distance to temporary water source	150 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See map and GPS co-ordinates

Site Location Map



Current Land Tenure

- [ ] Public — National Park / other Government Dept.
- [x] Private

Primary report I.D. [ ] (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

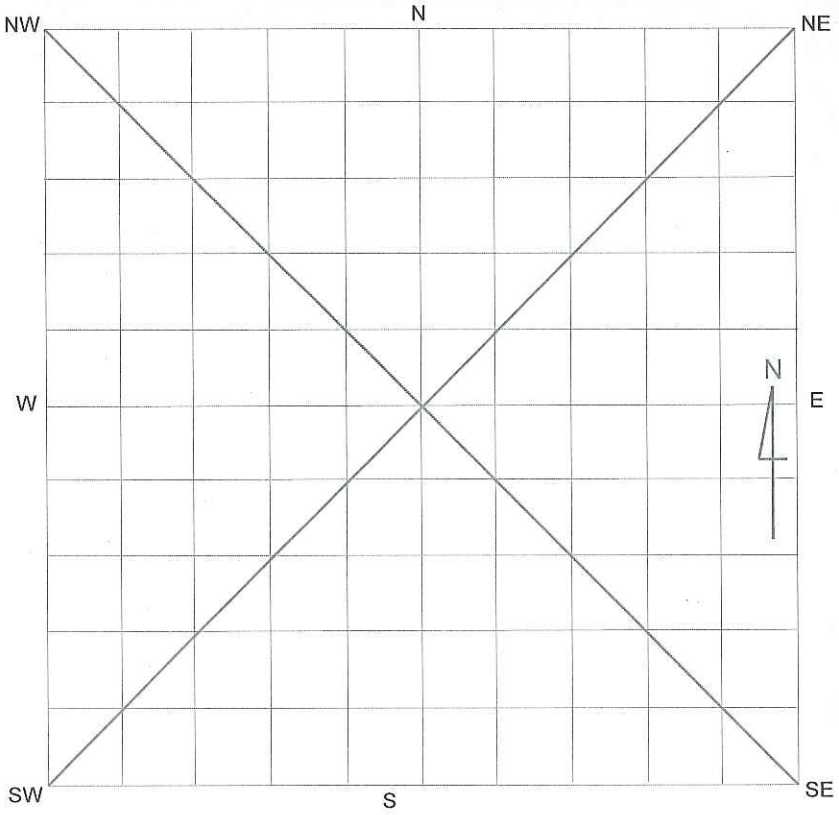
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [30m] Total length of visible site
- [10m] Average width of visible site
- [300sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

The scatter was located on a small crest of a hill and extended across a dirt access track. The artefact scatter comprised a number of mudstone and silcrete flakes, an elouera and a red mudstone core.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D. | Site Name: Wambo Site 347

Importance

First recorded date

No. of instances: 5

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% | 10-19% | 20-29% | 30-39% | 40-49% | 50-59% | 60-69% | 70-79% | 80-89% | 90-100%

Feature Context & Condition

Scatter No. 1 | Easting | Northing

Density (Artefact count per square metre)

Dimensions Length (m) | Width (m) | Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- [ ] Very good
- [ ] Good
- [ ] Poor

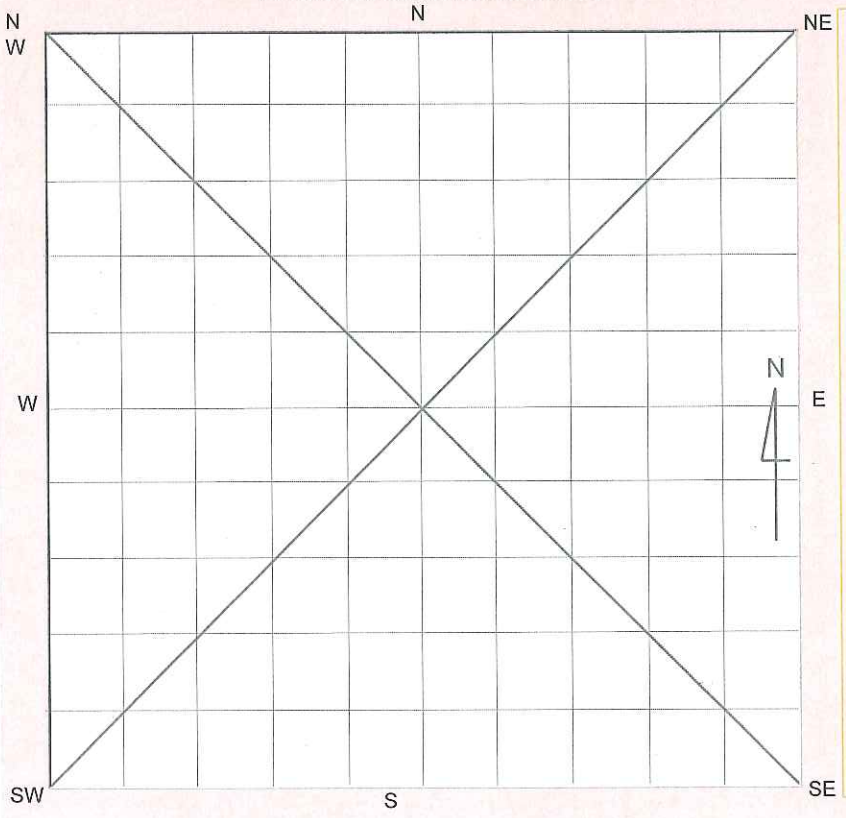
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

Distance to permanent water source ____ metres

Distance to temporary water source ____ metres

Name of nearest permanent water source

Name of nearest temporary water

Site Description

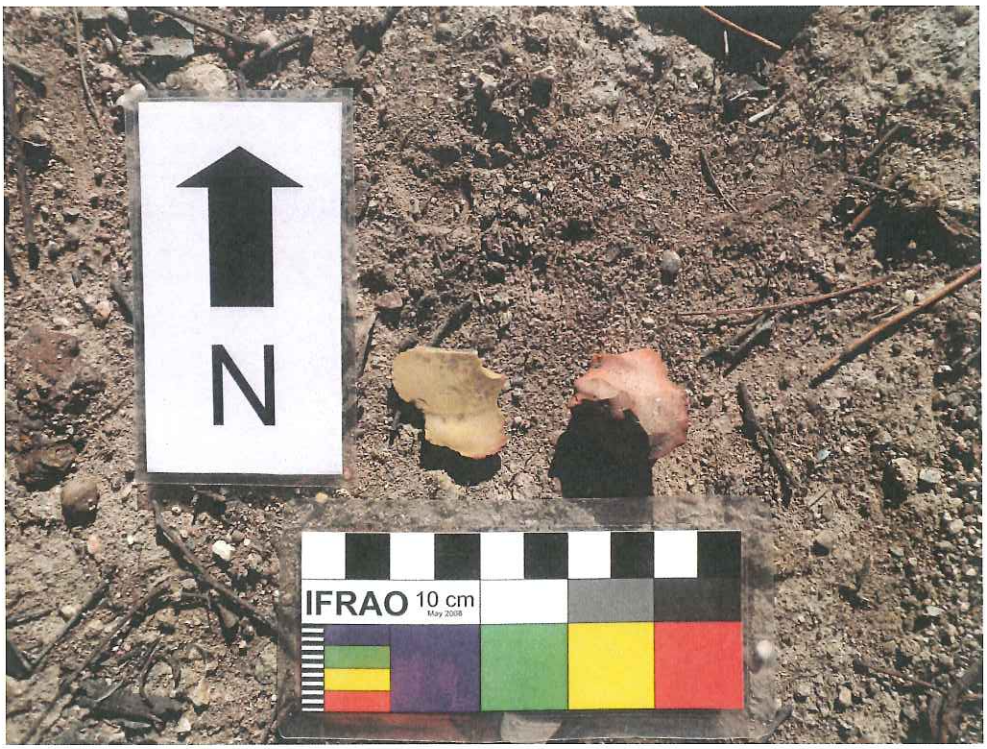
Wambo Site 347 (Artefact Scatter H) was located on a small crest of a hill and extended across a dirt access track. The artefact scatter comprised a number of mudstone and silcrete flakes, an elouera and a red mudstone core.

Photos

Wambo Site 347 facing south west.

Mudstone Flake.

One mudstone flake and one silcrete flake found at Wambo Site 347.



One yellow mudstone flake and one red mudstone core.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

NSW GOVERNMENT Office of Environment & Heritage

Office Use Only

Site Number | | | – | | – | | | | |

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

Office Use Only

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 348

Easting: 310071 Northing: 6391222 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone: 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

MS | Goode | Gillian

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [ ] Lower slope
- [x] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [x] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

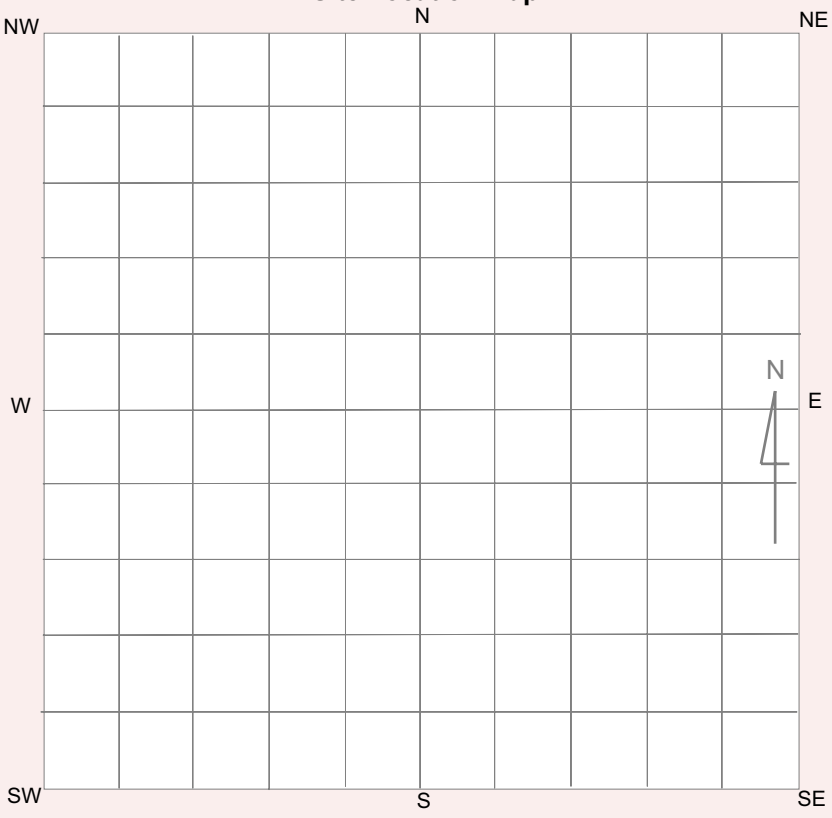
Water

Distance to permanent water source	700 metres
Distance to temporary water source	100 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See map and GPS coordinates.

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

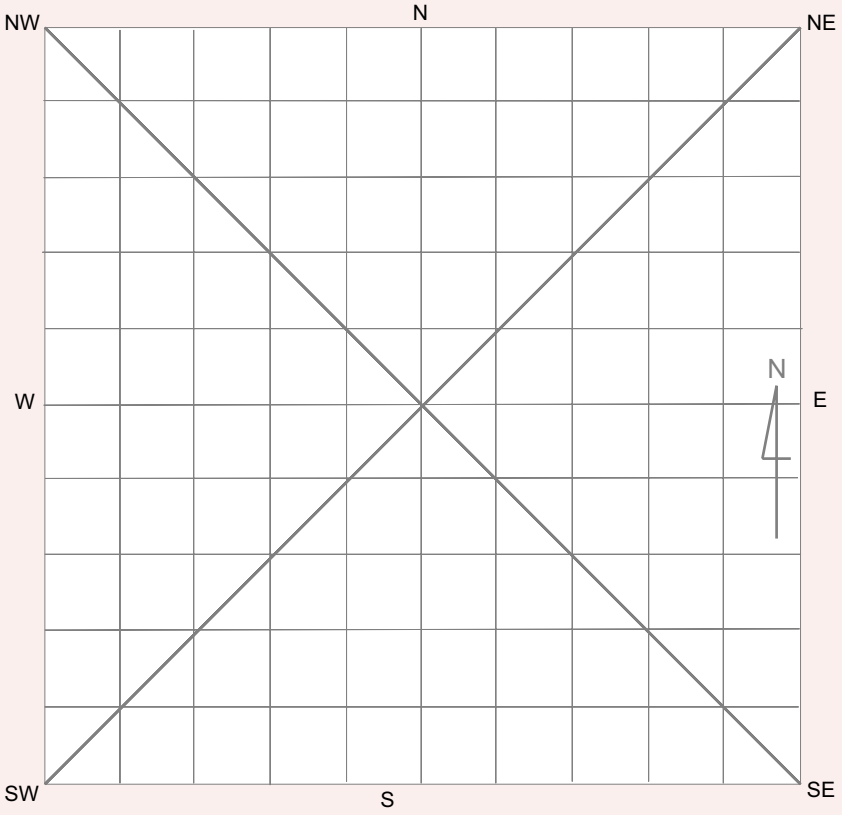
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [10m] Total length of visible site
- [10m] Average width of visible site
- [100sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

Wambo Site 348 (AS E) was an artefact scatter located on a crest above and to the west of Wambo Site 55. The scatter comprised mudstone and silcrete artefacts.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: Wambo Site 348

Importance

First recorded date

No. of instances: 3

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre)

Dimensions Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- [ ] Very good
- [x] Good
- [ ] Poor

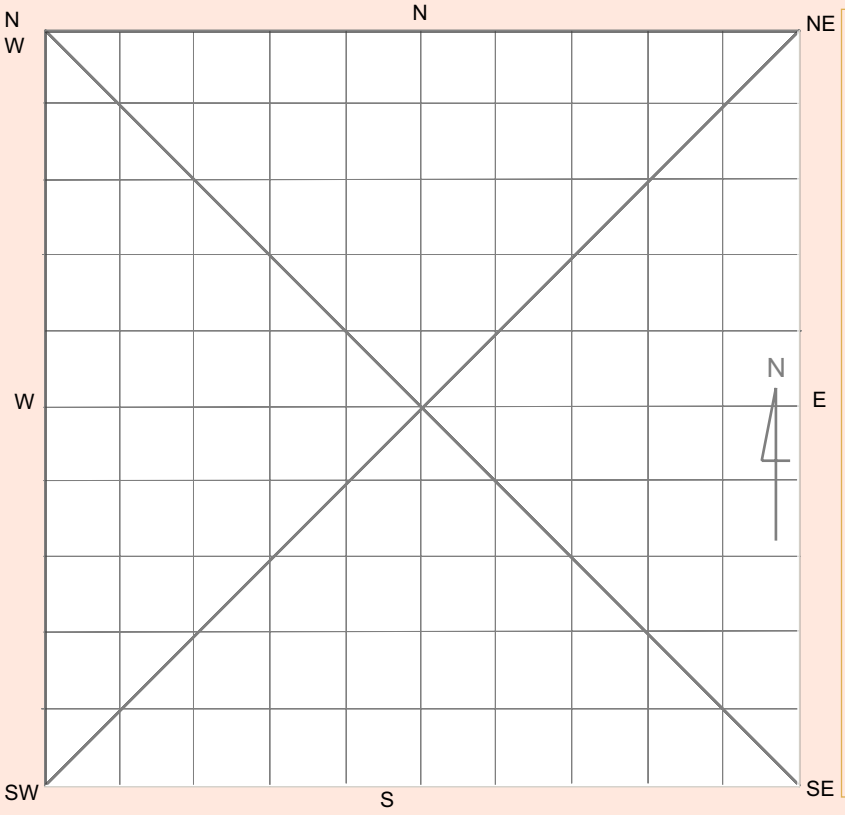
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

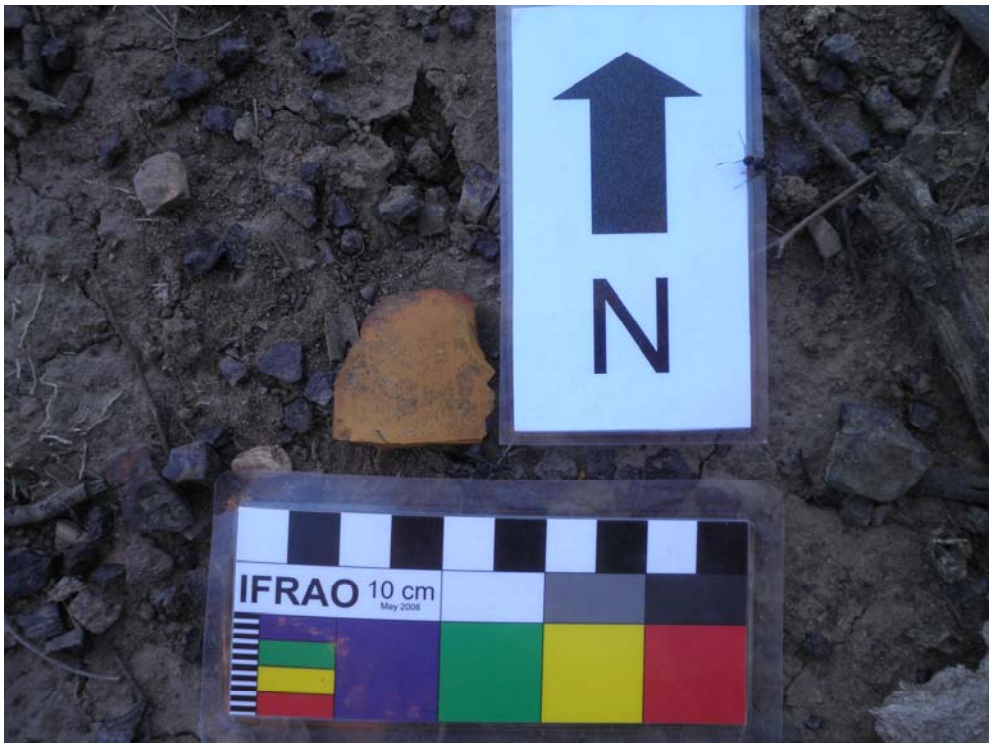
Please see attached information

Site Description

Wambo Site 348 (AS E) was an artefact scatter located on a crest above and to the west of Wambo Site 55. The scatter comprised mudstone and silcrete artefacts.

Photos

Wambo Site 348 facing west.



A mudstone flake found at Wambo Site 348.

One red mudstone flake and one silcrete flake.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 349

Easting: 309858 Northing: 6390815 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian |

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE: Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [ ] Lower slope
- [x] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [x] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [ ] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

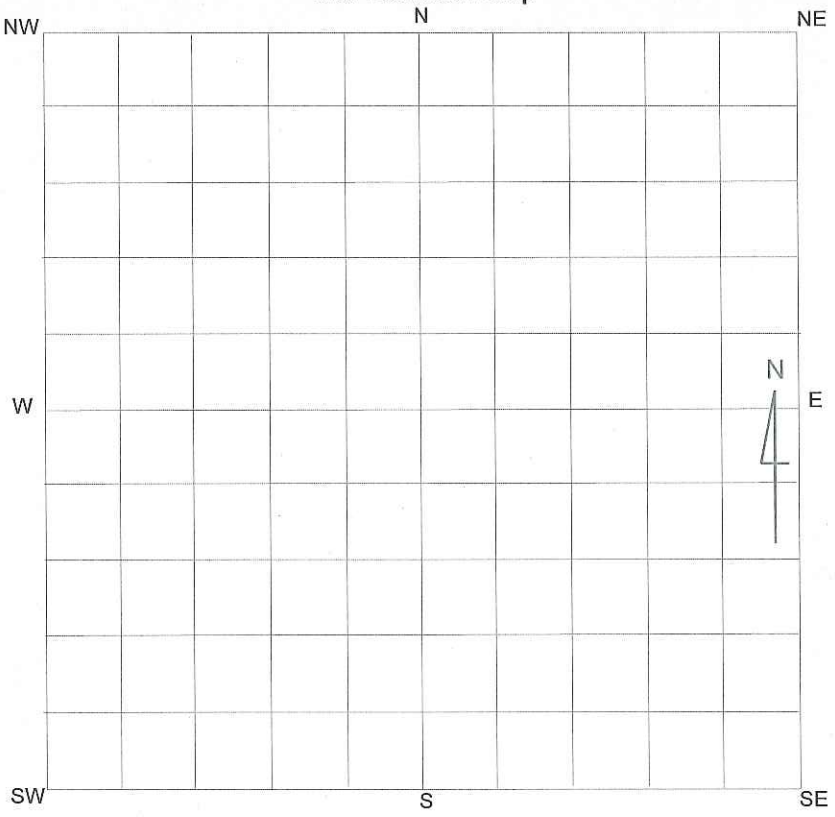
Water

Distance to permanent water source	100 metres
Distance to temporary water source	600 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See map and GPS coordinates.

Site Location Map



Current Land Tenure

- [ ] Public — National Park / other Government Dept.
- [x] Private

Primary report I.D. [ ] (I.D. Office Use only)

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

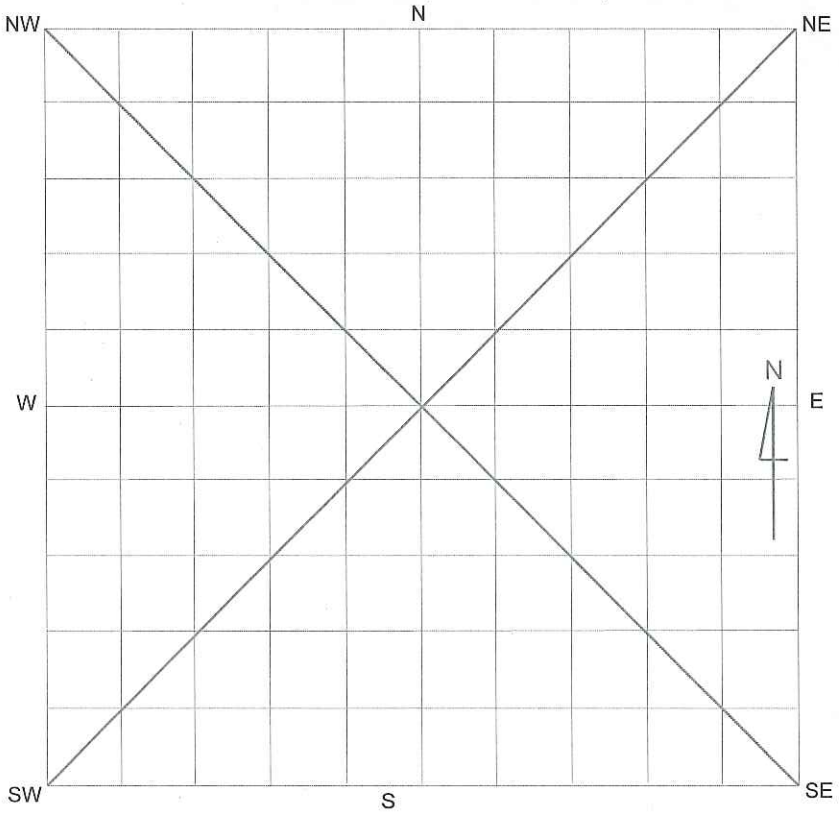
- [ ] N-S
- [ ] NE-SW
- [ ] E-W
- [x] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [10] Total length of visible site
- [10] Average width of visible site
- [100sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

Wambo Site 349 and Wambo Site 350 (Plate x) were identified as being the area described as location 1 associated with Wambo Sites 47 to 51. A large number of artefacts were situated along the edges of the track and down slope to the west (see additional information at 7.3.3 above and 7.3.21 below). The artefacts were predominantly mudstone, silcrete and quartz flakes.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: Wambo Site 349

Importance

First recorded date

No. of instances: 6

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% | 10-19% | 20-29% | 30-39% | 40-49% | 50-59% | 60-69% | 70-79% | 80-89% | 90-100%

Feature Context & Condition

Scatter No.: 1

Easting

Northing

Density (Artefact count per square metre)

Dimensions

Length (m)

Width (m)

Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- [ ] Very good
- [x] Good
- [ ] Poor

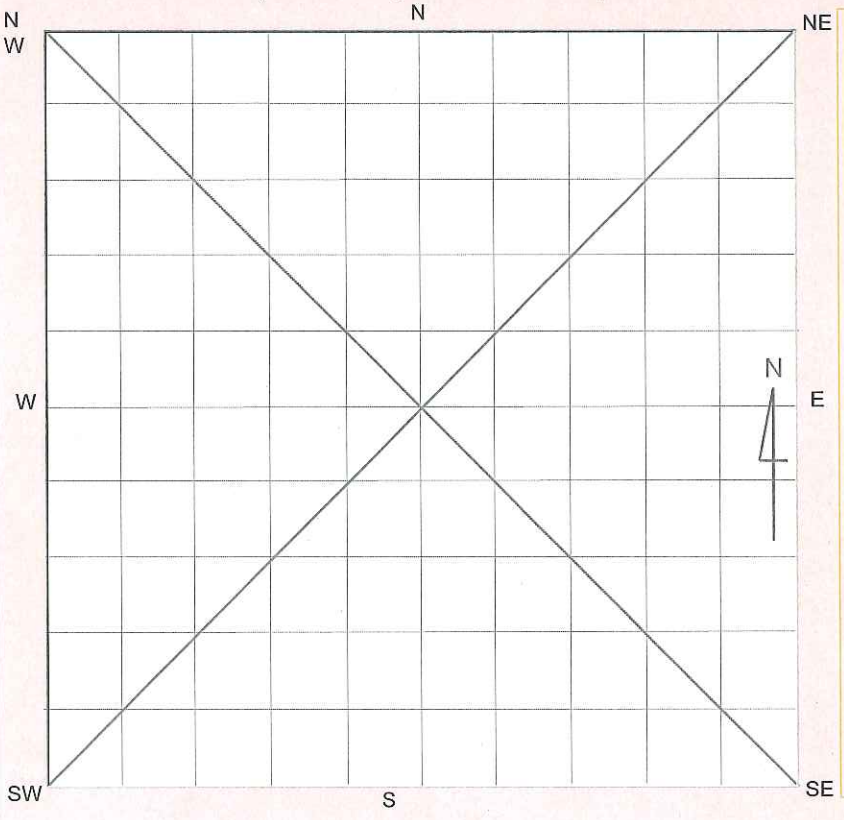
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

Distance to permanent water source: metres

Distance to temporary water source: metres

Name of nearest permanent water source

Name of nearest temporary water

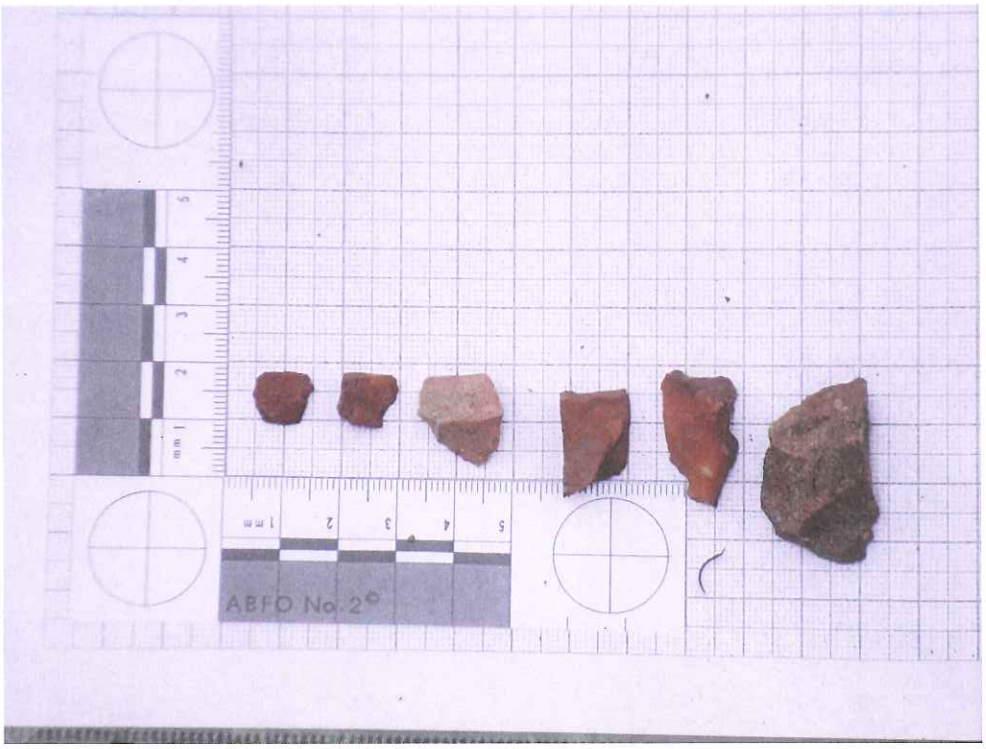
Site Description

Wambo Site 349 and Wambo Site 350 were identified as being the area described as location 1 associated with Wambo Sites 47 to 51. A large number of artefacts were situated along the edges of the track and down slope to the west (see additional information at 7.3.3 above and 7.3.21 below). The artefacts were predominantly mudstone, silcrete and quartz flakes.

Photos

South East view of Wambo site 349.

.



Artefacts identified at Wambo Site 349. The artefacts were predominantly mudstone, silcrete and quartz flakes.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number _ _ _ _ _ _

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

Office Use Only

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 351

Easting: 310178 Northing: 6391231 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 24940420 0 Fax: 24961679 4

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [x] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

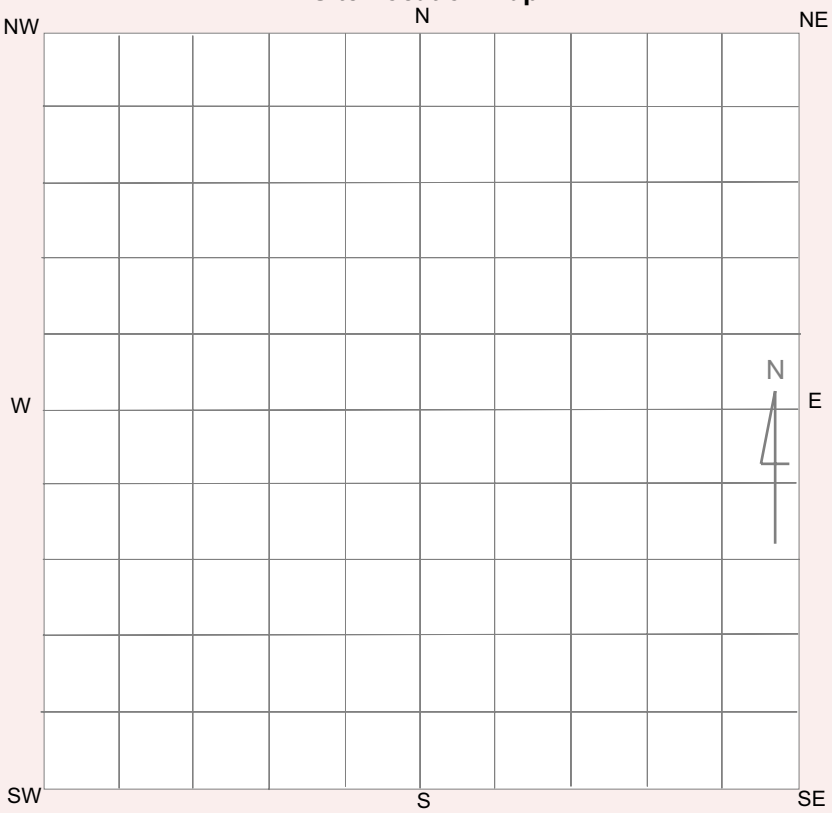
Water

Distance to permanent water source	600 metres
Distance to temporary water source	10 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See attached map and GPS coordinates.

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

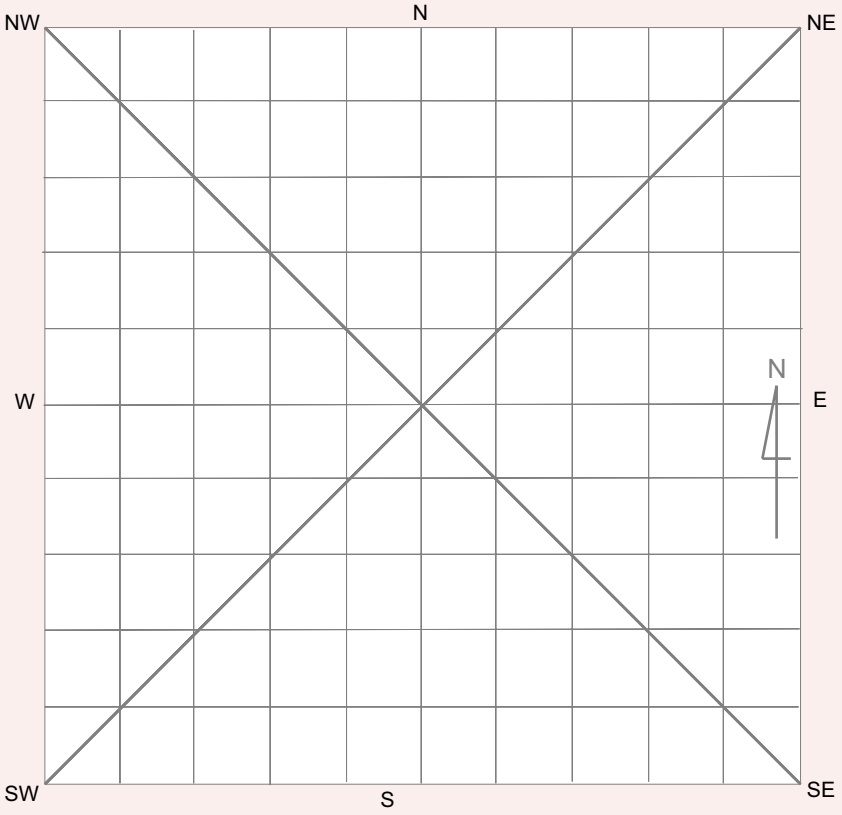
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [10m] Total length of visible site
- [10m] Average width of visible site
- [100sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This artefact scatter (Artefact Scatter A) was located on a west facing slope that had been severely eroded and was highly disturbed. A number of artefacts were identified in a rutted area along a stock track.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name Wambo Site 351

Importance

First recorded date

No. of instances 5

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre)

Dimensions Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- [ ] Very good
- [x] Good
- [ ] Poor

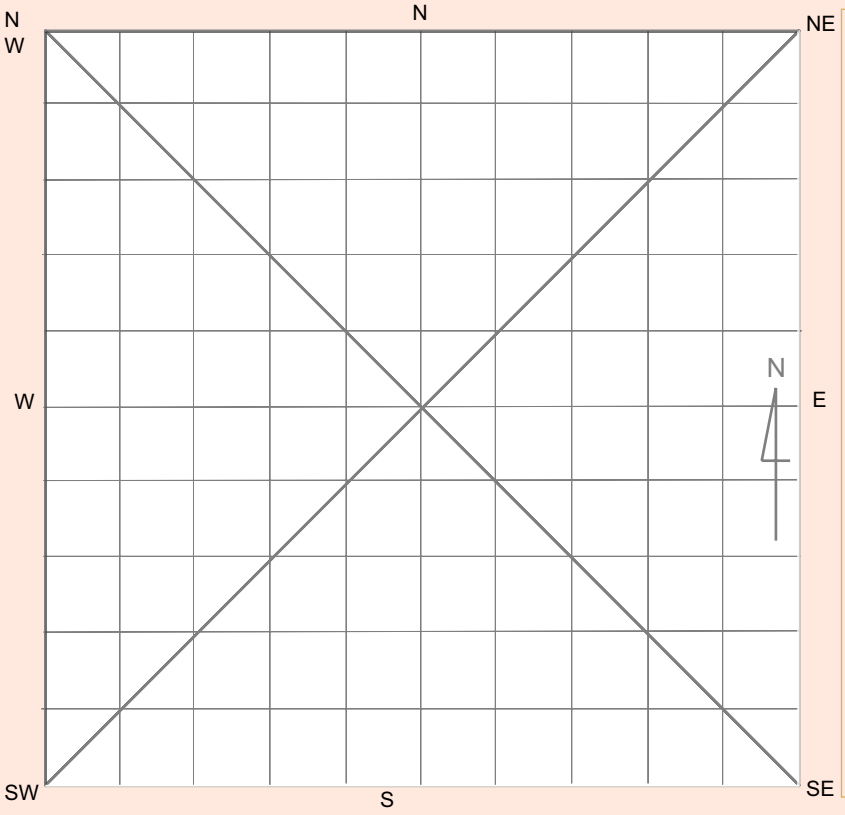
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

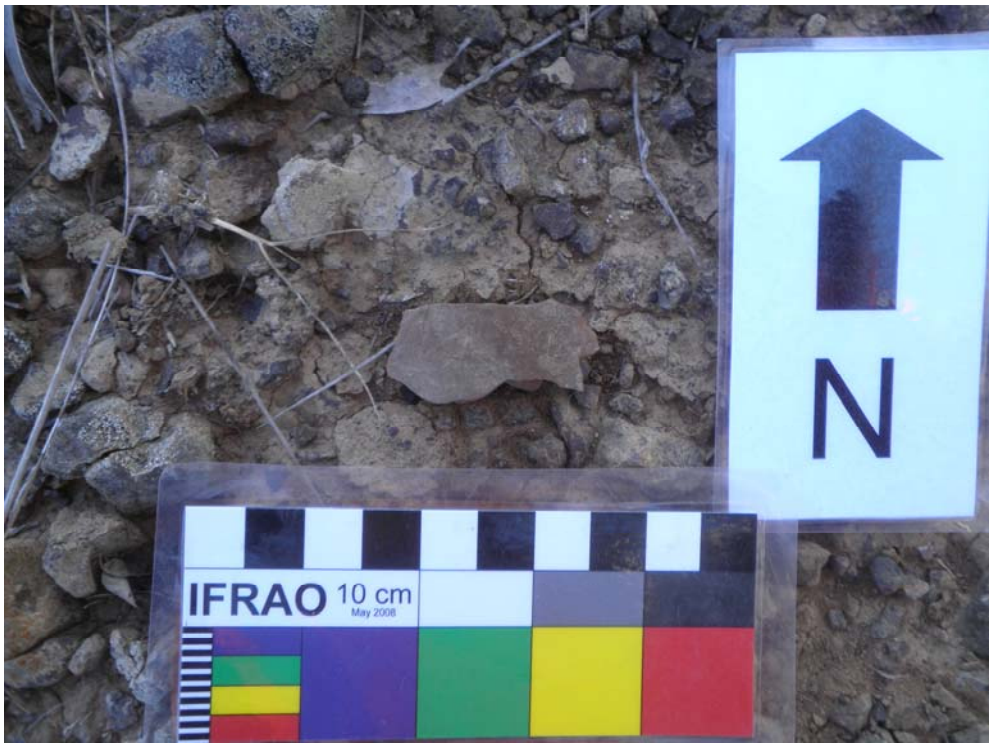
Please see attached information

Site Description

This artefact scatter (Artefact Scatter A) was located on a west facing slope that had been severely eroded and was highly disturbed. A number of artefacts were identified in a rutted area along a stock track.

Photos

Wambo Site 351 view to the East.



Wambo site 351 artefact.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number _ _ _ _ _ _

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 352

Easting: 310502 Northing: 6391292 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 24940420 0 Fax: 24961679 4

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [x] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [x] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

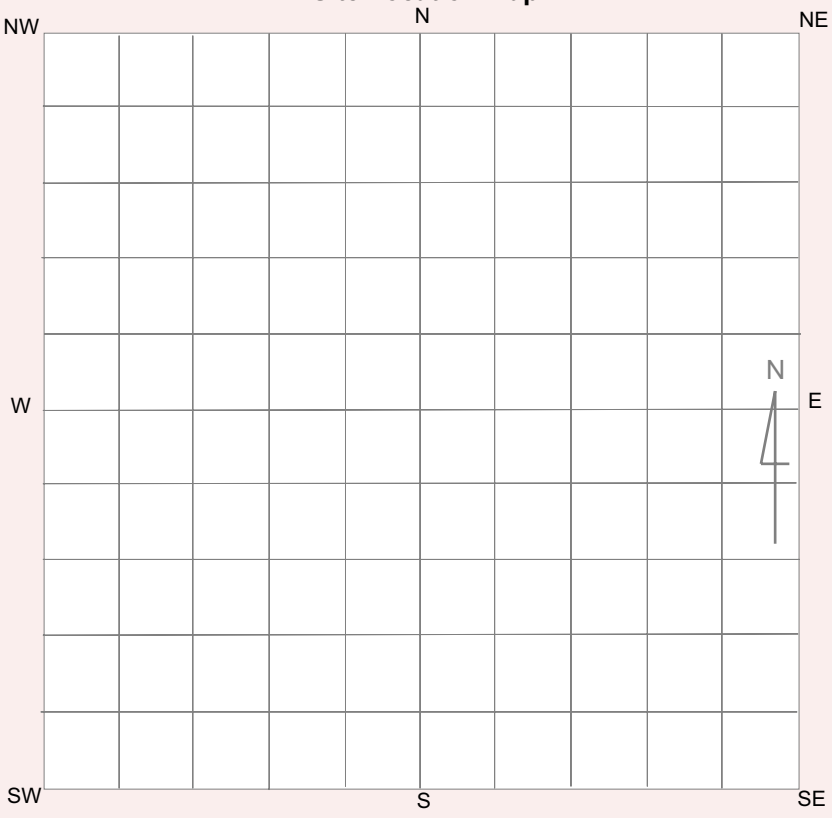
Water

Distance to permanent water source	700 metres
Distance to temporary water source	300 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See attached map and GPS coordinates.

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

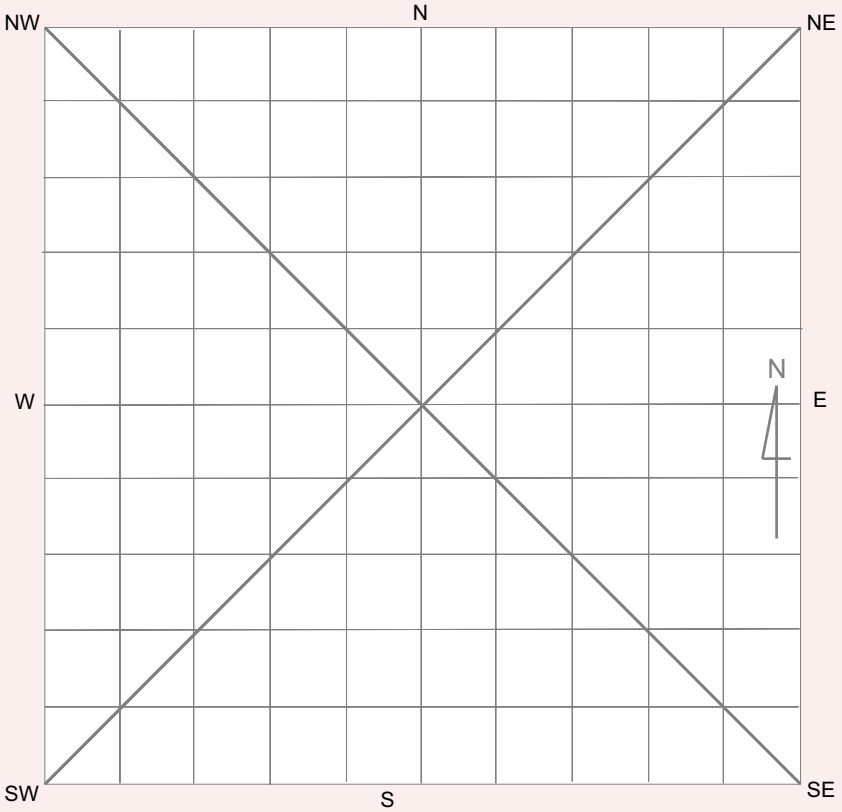
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [30m] Total length of visible site
- [10m] Average width of visible site
- [300sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

Wambo Site 352 (Artefact Scatter B) was identified on a generally north facing slope above a small drainage gully. The site was scattered on the surface of the B horizon and included a number of red, grey and yellow silcrete flakes and cores and several yellow and red mudstone flakes.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: Wambo Site 352

Importance

First recorded date

No. of instances: 7

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre)

Dimensions Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- [ ] Very good
- [x] Good
- [ ] Poor

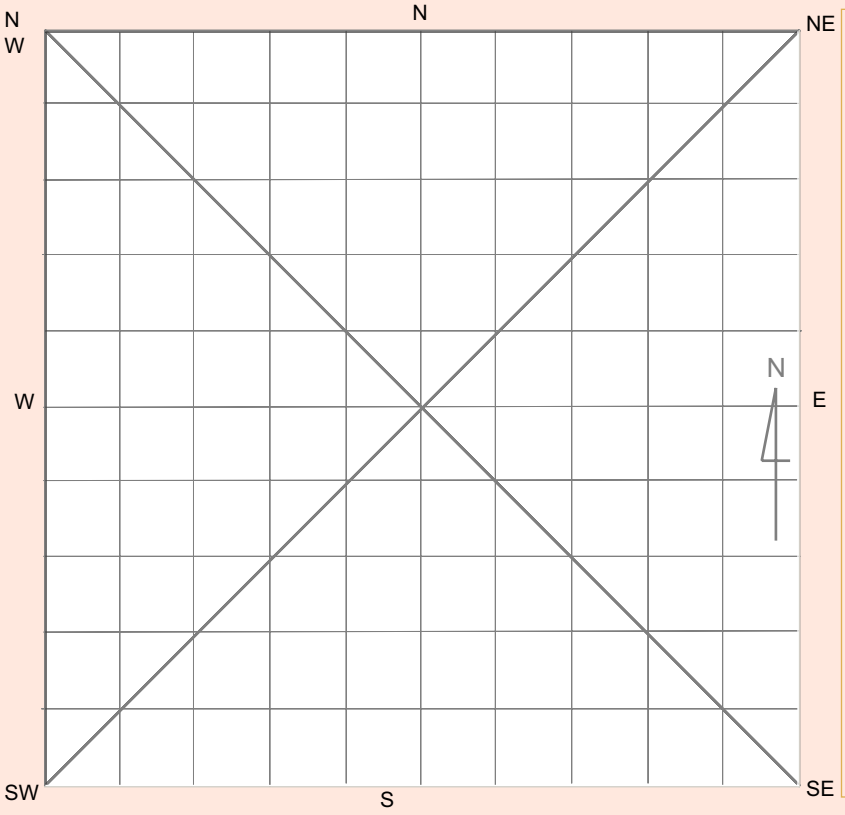
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Site Description

Wambo Site 352 (Artefact Scatter B) was identified on a generally north facing slope above a small drainage gully. The site was scattered on the surface of the B horizon and included a number of red, grey and yellow silcrete flakes and cores and several yellow and red mudstone flakes.

Photos

Wambo Site 352 facing North.

Artefact scatter at Wambo site 352. The scatter included a number of red, grey and yellow silcrete flakes and cores and several yellow and red mudstone flakes.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

NSW GOVERNMENT Office of Environment & Heritage

Office Use Only

Site Number _ _ _ _ _ _

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

Office Use Only

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 353

Easting: 310338 Northing: 6391371 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 24940420 0 Fax: 24961679 4

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [x] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

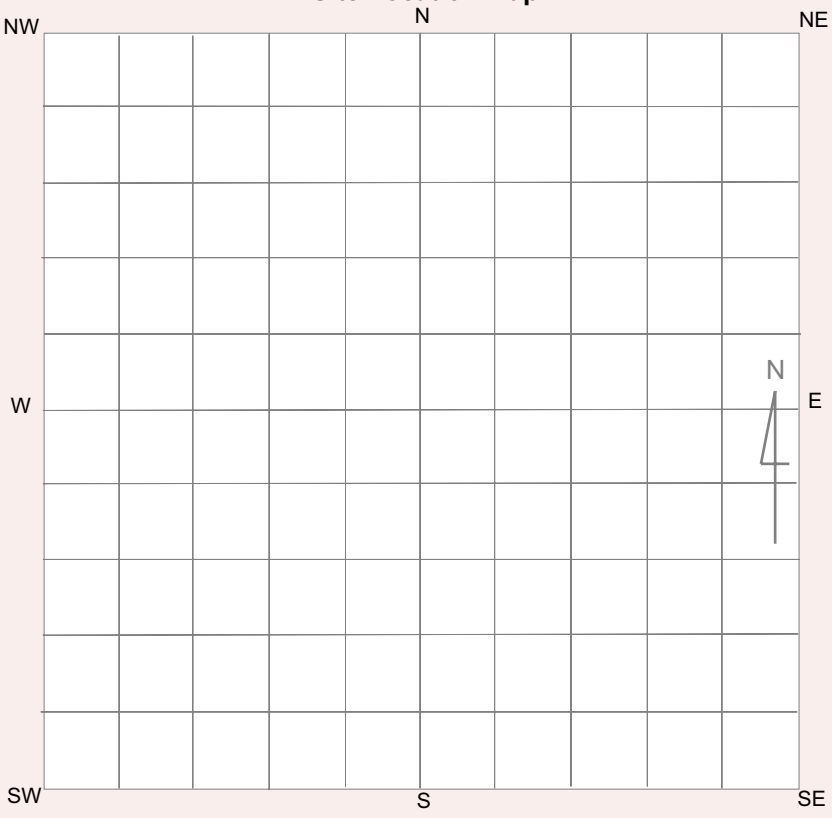
Water

Distance to permanent water source	800 metres
Distance to temporary water source	100 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See attached map and GPS coordinates.

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

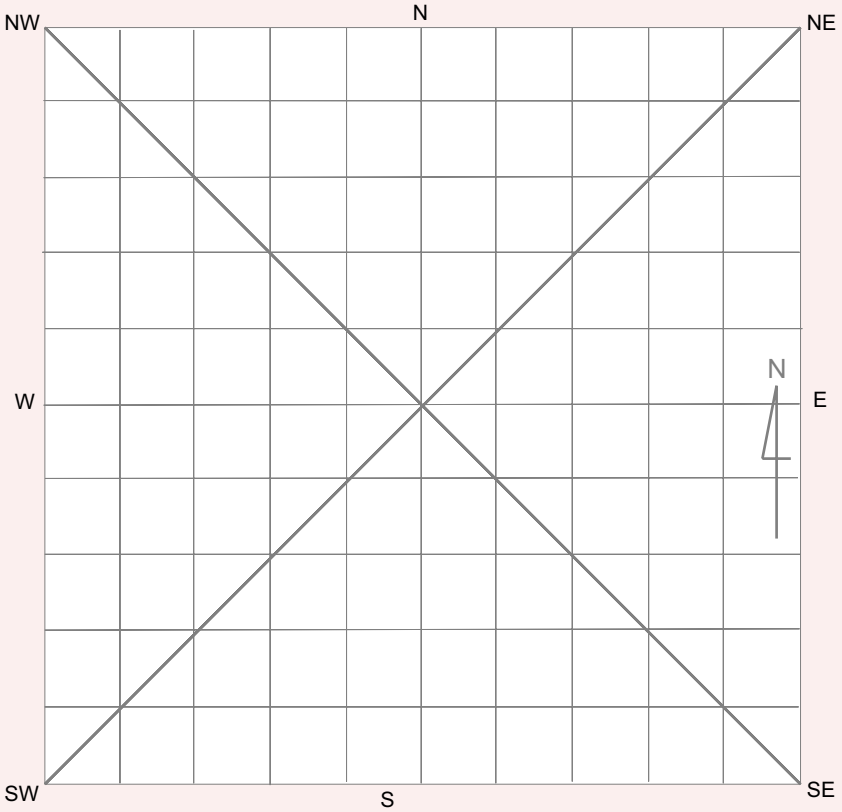
- [ ] N-S
- [x] NE-SW
- [ ] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [5m] Total length of visible site
- [5m] Average width of visible site
- [25 sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

Wambo Site 353 (Artefact Scatter C) was located on a south facing slope near a grove of trees. A small pink silcrete flake and two small red mudstone flakes were identified in a erosion scour in an area that had been severely affected by sheet wash and cattle trampling.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name Wambo Site 353

Importance

First recorded date

No. of instances 4

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre)

Dimensions Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- [ ] Very good
- [x] Good
- [ ] Poor

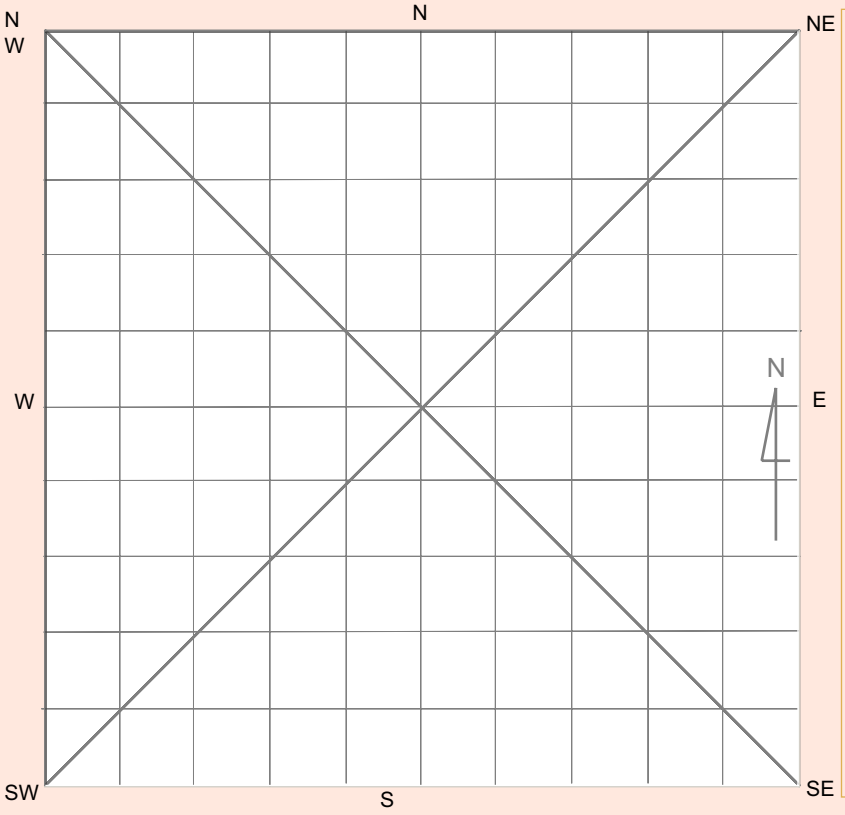
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Site Description

Wambo Site 353 (Artefact Scatter C) was located on a south facing slope near a grove of trees. A small pink silcrete flake and two small red mudstone flakes were identified in a erosion scour in an area that had been severely affected by sheet wash and cattle trampling.

Photos

Wambo site 353. Artefact scatter is located on far side of the dam.

.Silcrete flake at Wambo Site 353.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number ___ ___

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 354

Easting: 310001 Northing: 6390780 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title: Ms | Surname: Goode | First Name: Gillian | Initials:

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Client on system ☐

Date recorded: 07/07/2011

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [x] Flat
- [ ] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

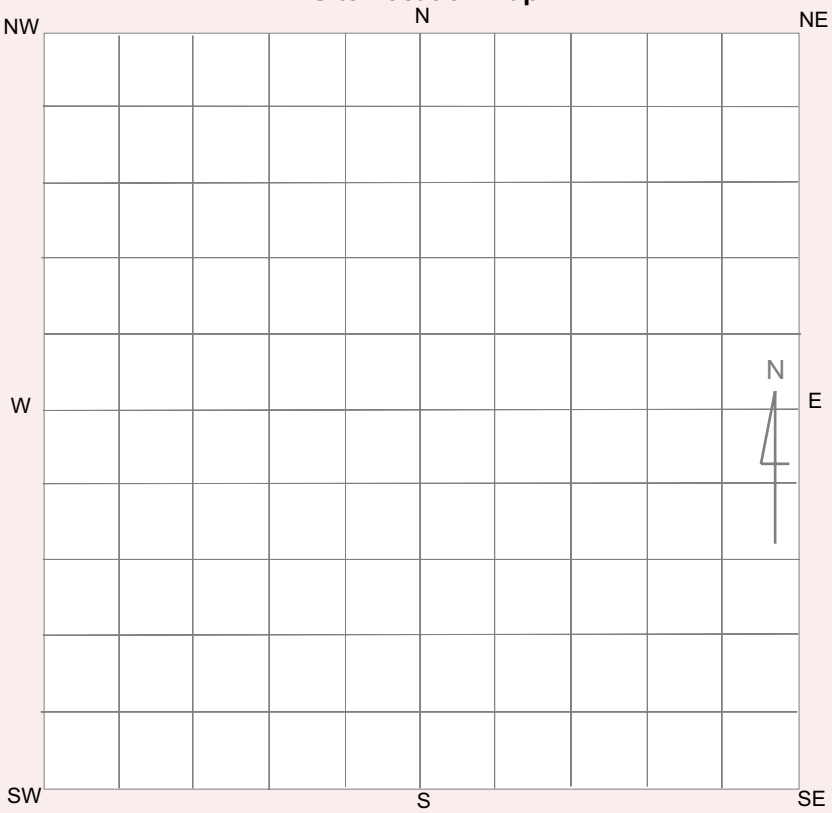
Water

Distance to permanent water source	200 metres
Distance to temporary water source	600 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1sr order tributary

Directions for Relocation

See attached map and GPS coordinates.

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

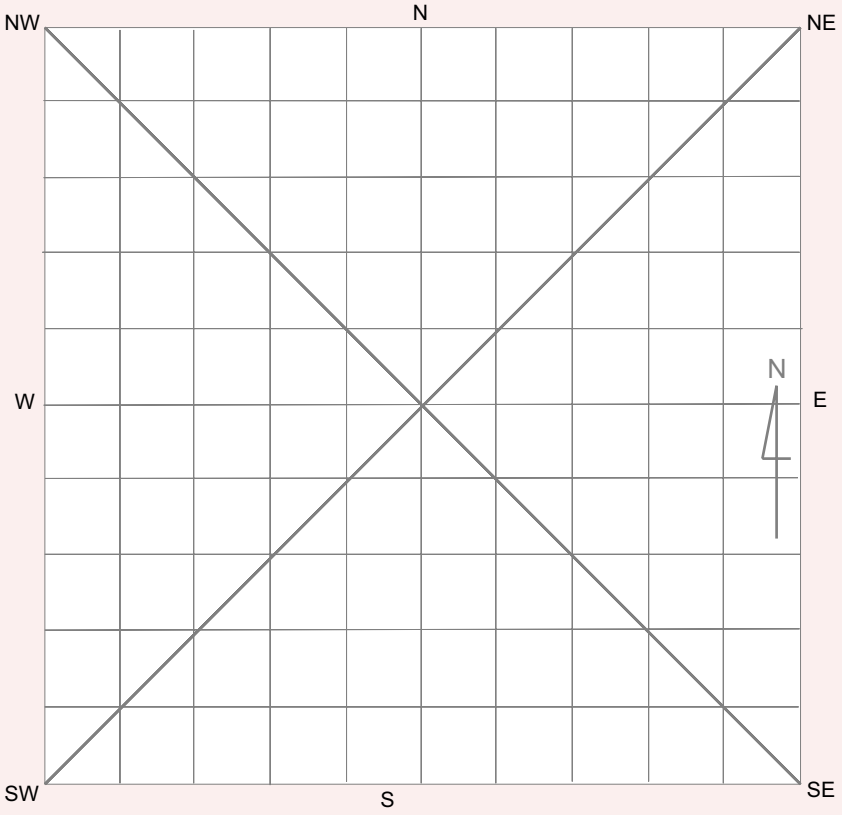
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [20m] Total length of visible site
- [20m] Average width of visible site
- [400sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This artefact scatter was located on the surface of a dam wall. The area was heavily disturbed by cattle and erosion. The artefacts included a quartzite pebble core and mudstone and silcrete flakes. The artefacts extended to the south west along a stock trail. Sandstone boulders were close to the artefacts.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: Wambo Site 354

Importance

First recorded date

No. of instances: 5

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No.: 1

Easting

Northing

Density

(Artefact count per square metre)

Dimensions

Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- [ ] Very good
- [x] Good
- [ ] Poor

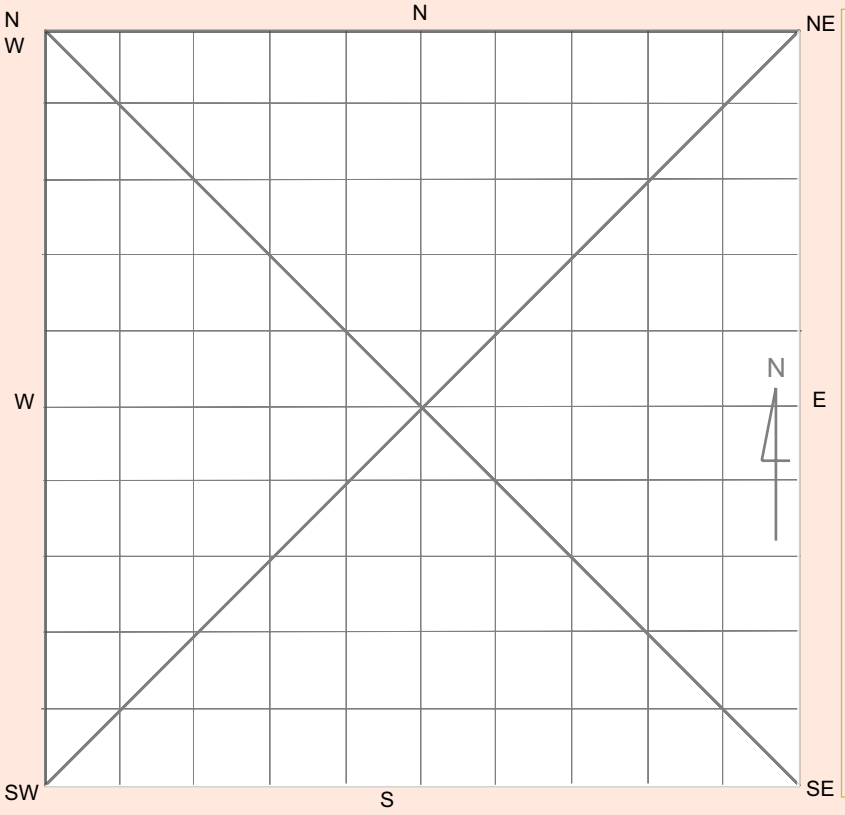
General Condition

- [ ] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [ ] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [ ] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Site Description

This artefact scatter was located on the surface of a dam wall. The area was heavily disturbed by cattle and erosion. The artefacts included a quartzite pebble core and mudstone and silcrete flakes. The artefacts extended to the south west along a stock trail. Sandstone boulders were close to the artefacts.

Photos

Wambo Site 354 facing South East.

Artefact at Wambo Site 354.

Artefact at Wambo Site 354- quartzite pebble core.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

NSW GOVERNMENT Office of Environment & Heritage

Office Use Only

Site Number _ _ _ _ _ _

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

Office Use Only

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 356

Easting: 310230 Northing: 6391171 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone: 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 24940420 0 Fax: 24961679 4

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [ ] Lower slope
- [x] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [x] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

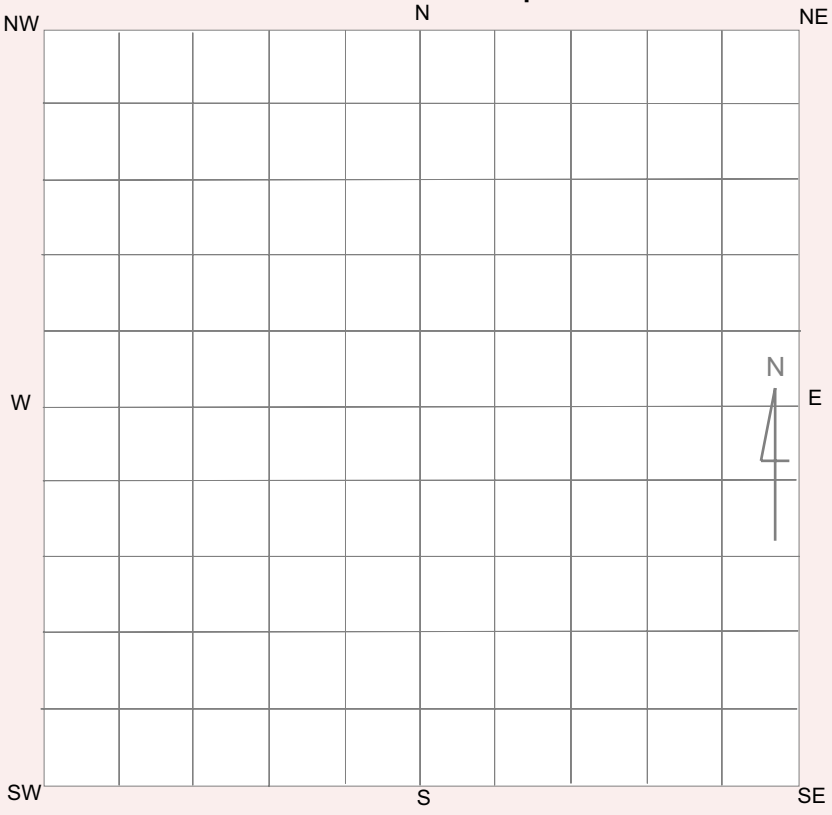
Water

Distance to permanent water source	600 metres
Distance to temporary water source	200 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributar

Directions for Relocation

See map and GPS co-ordinates

Site Location Map



Current Land Tenure

- [ ] Public
- [ ] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

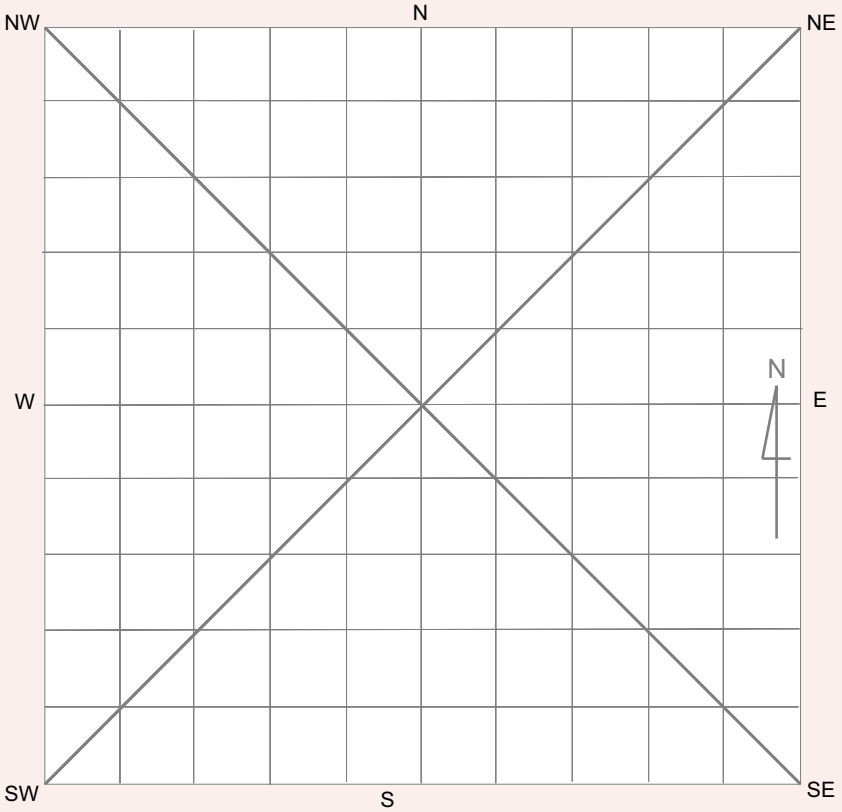
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [20m] Total length of visible site
- [5m] Average width of visible site
- [100sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This artefact scatter was located on a simple slope in a highly disturbed area. The paddock was used for grazing cattle, and other disturbances included sheet wash erosion and fencing works. The artefacts were in an area of sandstone outcrop.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name Wambo Site 356

Importance

First recorded date

No. of instances 2

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre)

Dimensions Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- Very good
- Good
- Poor

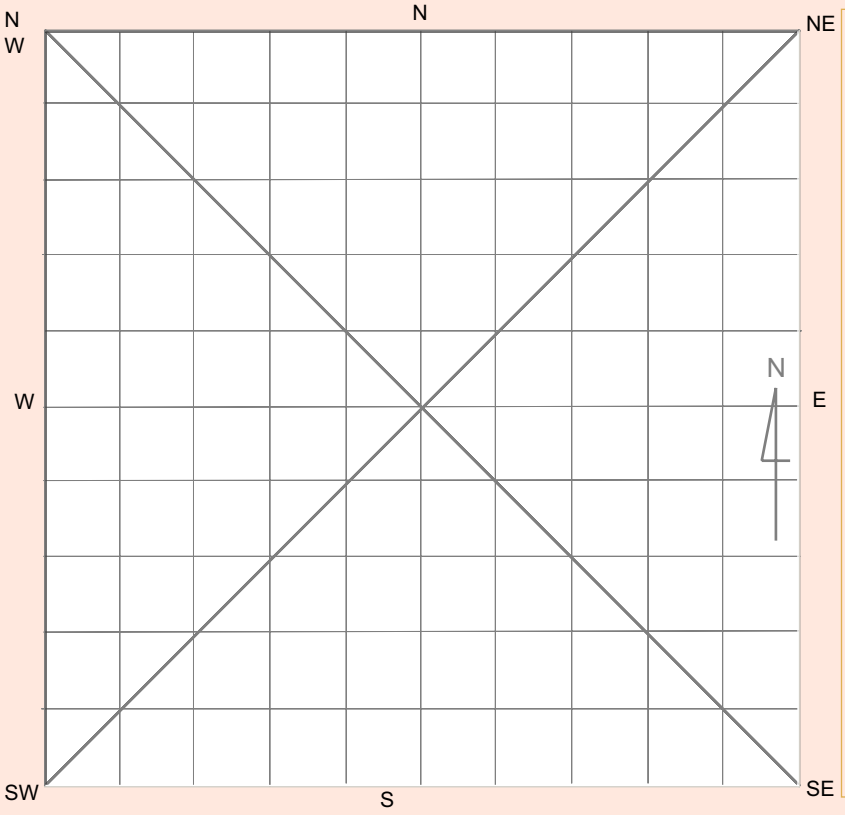
General Condition

- Weathered
- Vehicle damage
- Surface water wash
- Fire damage
- Erosion
- Stock damage
- Exposed archaeological material

Recommended Action

- Boardwalk
- Fencing
- Closure to public
- Continued inspection
- Fire hazard reduction
- Expert assessment
- Meeting with land manager
- Revegetation
- Signage
- Soil erosion control
- Track closure/re-routing
- Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Site Description

This artefact scatter was located on a simple slope in a highly disturbed area. The paddock was used for grazing cattle, and other disturbances included sheet wash erosion and fencing works. The artefacts were in an area of sandstone outcrop.

Photos

Wambo Site 356 facing north east

Wambo Site 356 (AS P) silcrete flake

Wambo Site 356 (AS P) mudstone flake

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number _ _ _ _ _ _

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

Office Use Only

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 357

Easting: 310385 Northing: 6391356 AGD/GDA: GDA

Mapsheet: DOYLES CREEK 1:25000

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 24940420 0 Fax: 24961679 4

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [x] Flat
- [ ] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

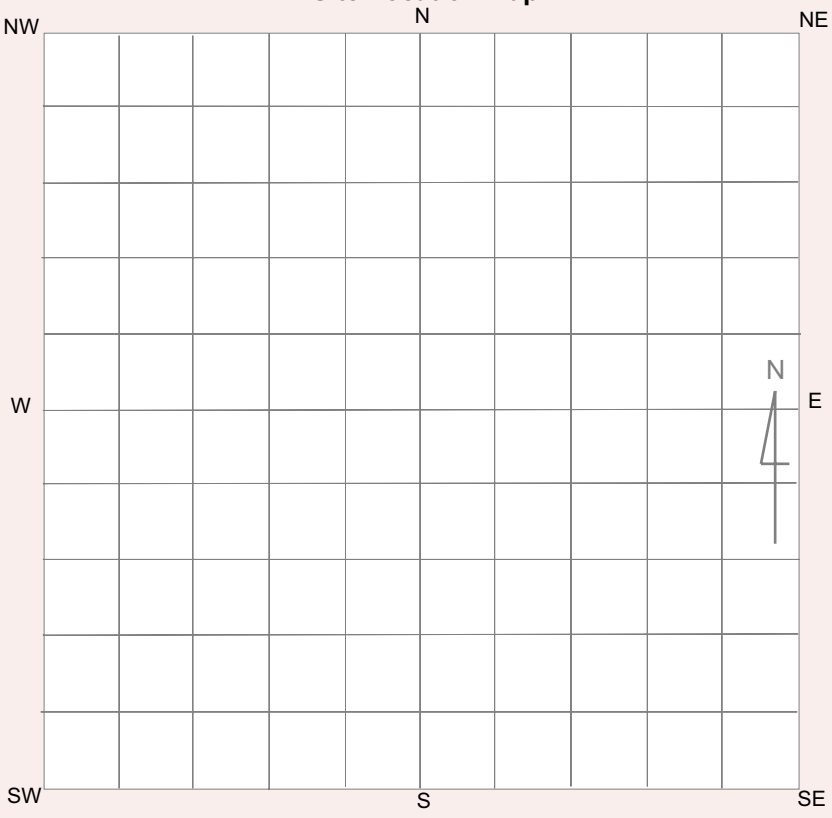
Water

Distance to permanent water source	800 metres
Distance to temporary water source	10 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See map and GPS co-ordinates

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

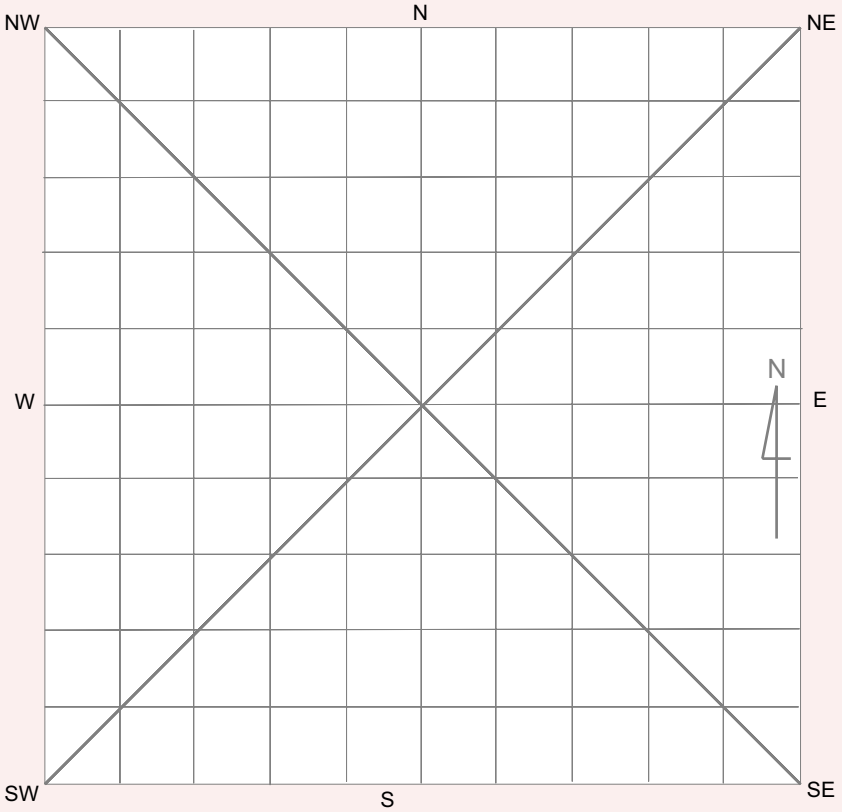
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [5m] Total length of visible site
- [5m] Average width of visible site
- [25 sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This artefact scatter was located in an area that had been eroded by water runoff. The artefacts were on the exposed surface of the B horizon.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name Wambo Site 357

Importance

First recorded date

No. of instances 3

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre)

Dimensions Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- Very good
- Good
- Poor

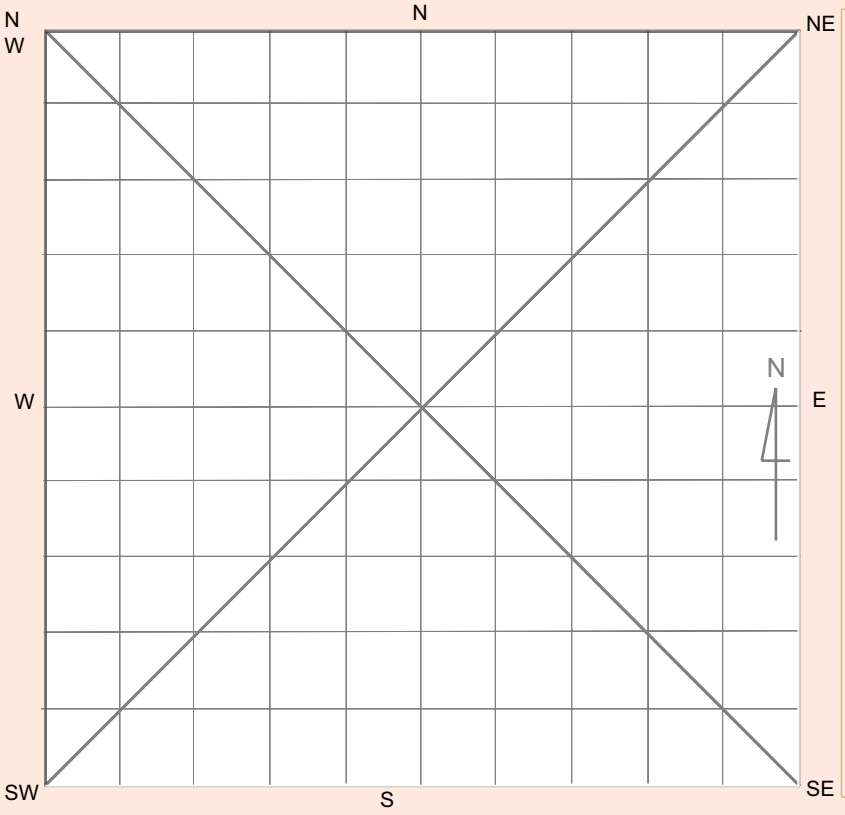
General Condition

- Weathered
- Vehicle damage
- Surface water wash
- Fire damage
- Erosion
- Stock damage
- Exposed archaeological material

Recommended Action

- Boardwalk
- Fencing
- Closure to public
- Continued inspection
- Fire hazard reduction
- Expert assessment
- Meeting with land manager
- Revegetation
- Signage
- Soil erosion control
- Track closure/re-routing
- Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Site Description

This artefact scatter was located in an area that had been eroded by water runoff. The artefacts were on the exposed surface of the B horizon.

Photos

Wambo Site 357 (AS Z) is located on far side of dam. View to east.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number _ _ _ _ _ _

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

Office Use Only

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 358

Easting: 310603 Northing: 6391034 AGD/GDA: GDA

Mapsheet: DOYLES CREEK 1:25000

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 24940420 0 Fax: 24961679 4

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [x] Flat
- [ ] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [x] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

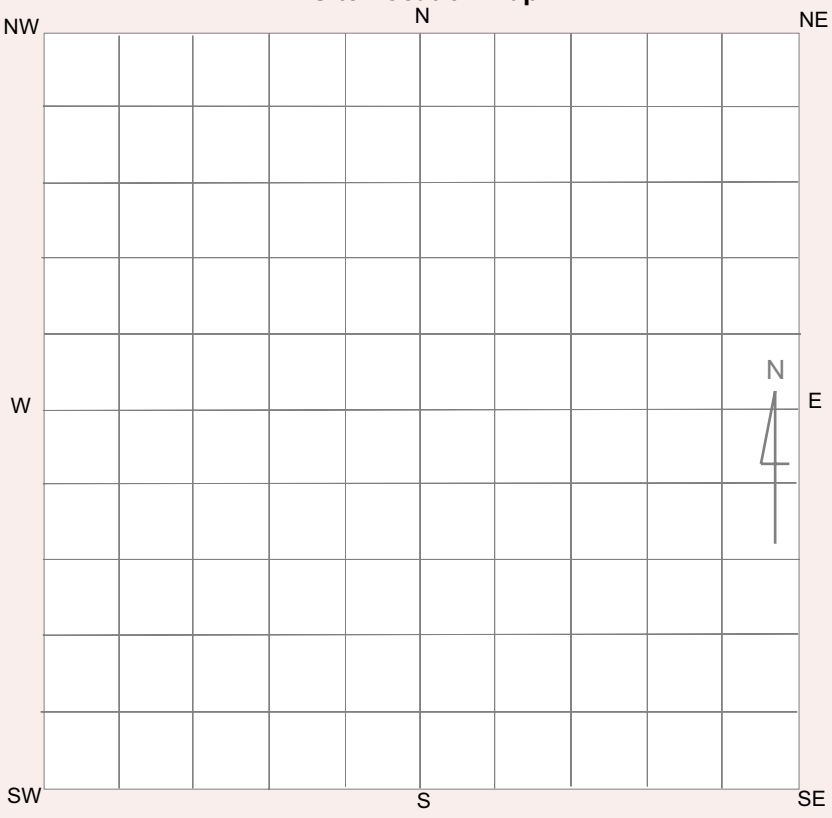
Water

Distance to permanent water source	500 metres
Distance to temporary water source	300 metres
Name of nearest permanent water source	South Wambo Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See map and GPS co-ordinates

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report I.D.

(I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

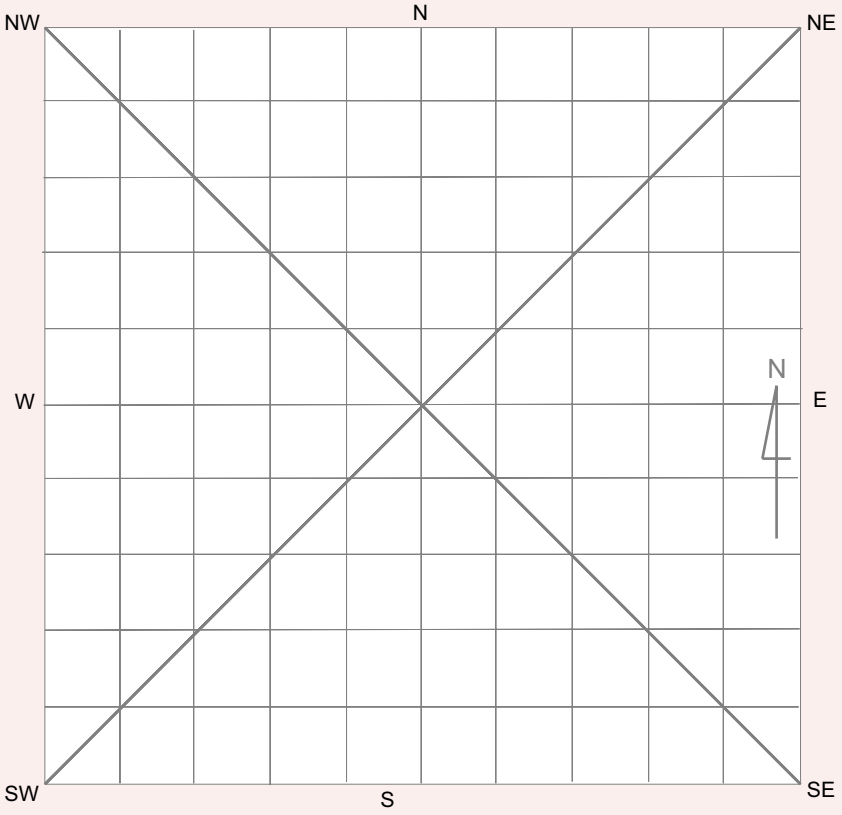
- [ ] N-S
- [x] NE-SW
- [ ] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [1m] Total length of visible site
- [1m] Average width of visible site
- [1m] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This isolated artefact site was located on the northern side of a dirt access track. The artefact appeared to have been washed down by the heavy rain and was on the surface of the B horizon. Disturbances included fencing works, rabbit burrows and vehicle access.

If proposed or existing mine activities are likely to impact on the Aboriginal archaeological site, then the site should be salvaged (subject to an appropriate permit being in force) and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name Wambo Site 358

Importance

First recorded date

No. of instances 1

Recorded by

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 Easting Northing

Density (Artefact count per square metre)

Dimensions Length (m) Width (m) Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- Very good
- Good
- Poor

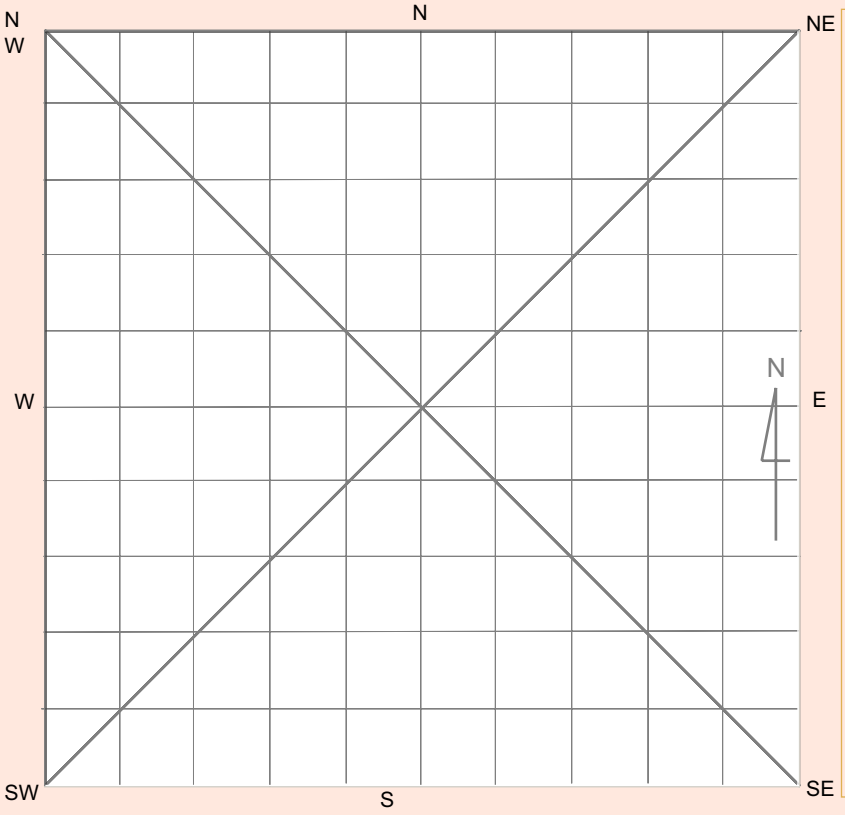
General Condition

- Weathered
- Vehicle damage
- Surface water wash
- Fire damage
- Erosion
- Stock damage
- Exposed archaeological material

Recommended Action

- Boardwalk
- Fencing
- Closure to public
- Continued inspection
- Fire hazard reduction
- Expert assessment
- Meeting with land manager
- Revegetation
- Signage
- Soil erosion control
- Track closure/re-routing
- Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Site Description

This isolated artefact site was located on the northern side of a dirt access track. The artefact appeared to have been washed down by the heavy rain and was on the surface of the B horizon. Disturbances included fencing works, rabbit burrows and vehicle access.

Photos

Wambo Site 358 facing east

Wambo Site 358 isolated find pink mudstone flake

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office of Environment & Heritage

Office Use Only

Site Number

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 359

Easting: 310903 Northing: 6392328 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title: Ms | Surname: Goode | First Name: Gillian | Initials:

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 24940420 0 Fax: 24961679 4

Date recorded

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE: Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [x] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [x] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [x] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

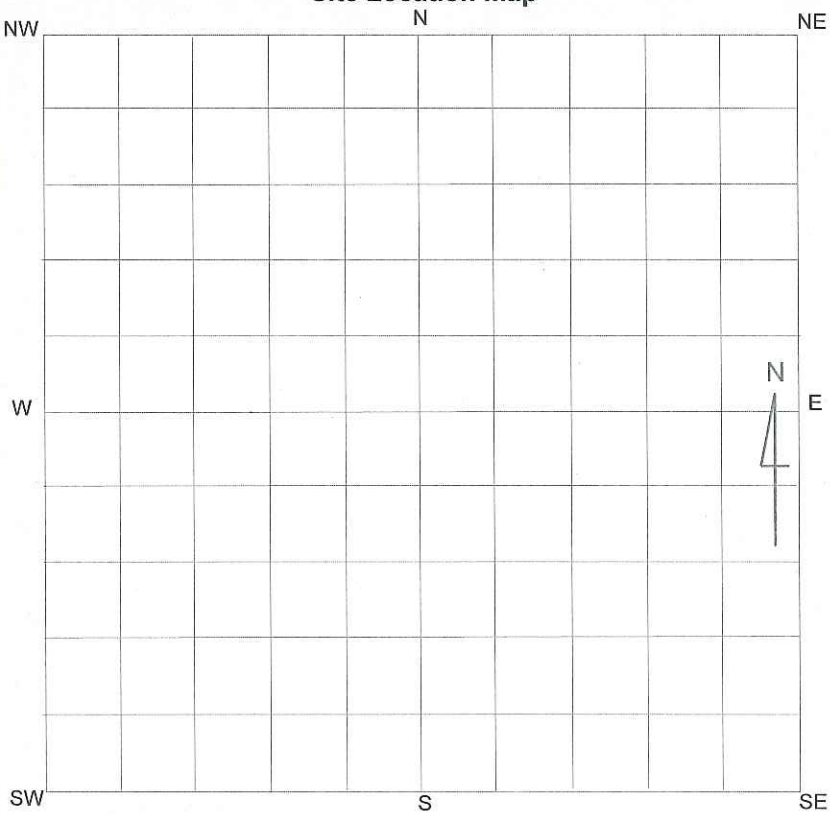
Water

Distance to permanent water source	60 metres
Distance to temporary water source	metres
Name of nearest permanent water source	North Wambo Creek
Name of nearest temporary water	

Directions for Relocation

See map and DGPS coordinates

Site Location Map



Current Land Tenure

- [ ] Public — National Park / other Government Dept.
- [x] Private

Primary report I.D.

(I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

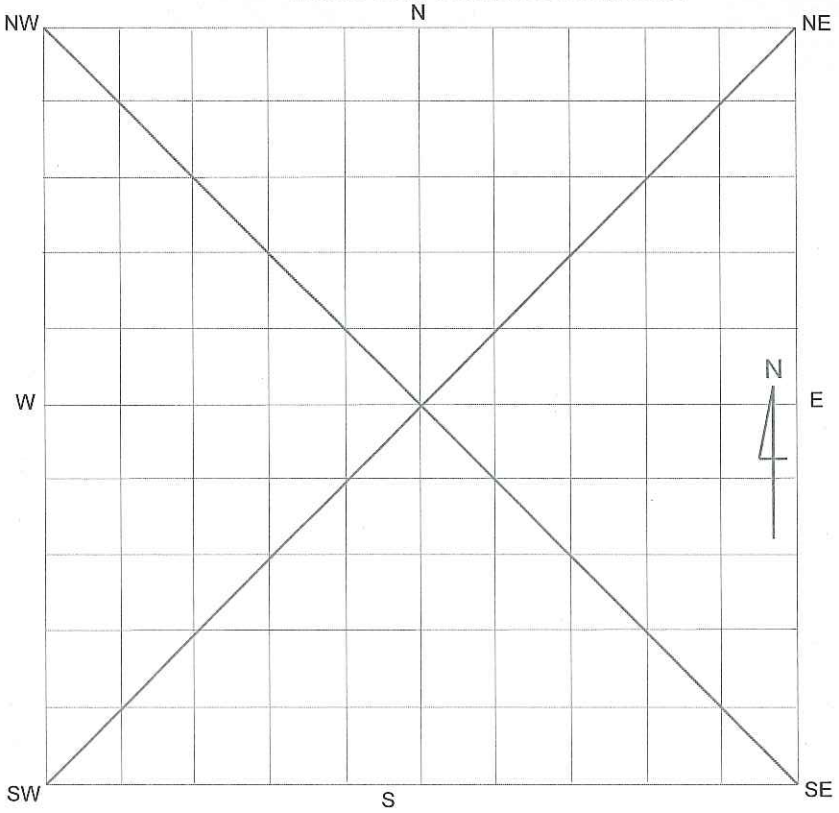
- [x] N-S
- [ ] NE-SW
- [ ] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [10] Total length of visible site
- [10] Average width of visible site
- [100sqm] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

Wambo Site 359 was identified alongside an existing dirt track in an area revegetated with casuarinas. The artefacts were identified on the surface of an erosion scald which had exposed the clayey B horizon. Disturbances included sheet wash, tree clearing, erosion, cattle grazing, motor vehicle access and previous farming practices.

If proposed or existing mine activities are likely to impact on the objects at Wambo Site 359 then the site should be salvaged subject to an appropriate permit being in force, and the artefacts relocated to the temporary keeping place under Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title	Surname	First Name	Initials

Organisation

Address

Phone number Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: Wambo Site 359

First recorded date: 7/7/2012

Importance: Cannot be presently determined

No. of instances: 4

Recorded by:

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% | 10-19% | 20-29% | 30-39% | 40-49% | 50-59% | 60-69% | 70-79% | 80-89% | 90-100%

0-9%

Feature Context & Condition

Scatter No. 1

Easting 310903

Northing 6392328

Density (Artefact count per square metre):

Dimensions: 10 Length (m) × 10 Width (m) × Depth (m)

	Yes	No
In situ		No
Stratified		No

Feature Condition

- [ ] Very good
- [ ] Good
- [x] Poor

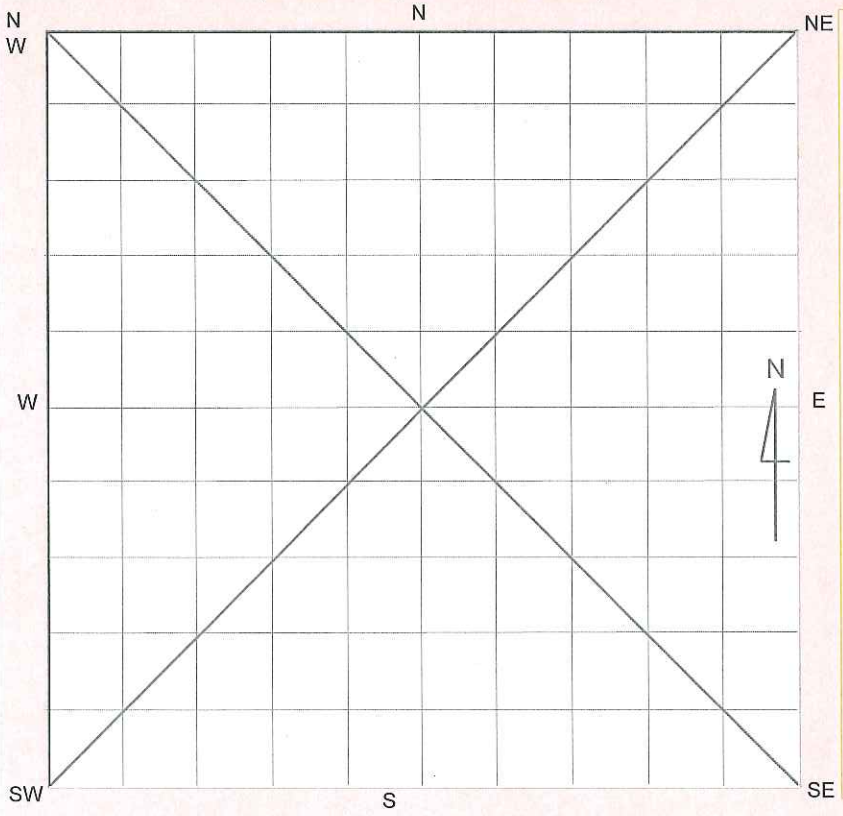
General Condition

- [x] Weathered
- [ ] Vehicle damage
- [ ] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [x] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [x] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [x] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Slope	Land form
Rolling Hills	Land form unit
Lower	Slope
Revegetate	Vegetation
Mining	Land use

Water

Distance to permanent water source: 60 metres

Distance to temporary water source: metres

Name of nearest permanent water source: North Wambo Creek

Name of nearest temporary water:

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

NSW GOVERNMENT Office of Environment & Heritage

Office Use Only

Site Number | | | – | | – | | | | |

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

Office Use Only

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 360

Easting: 310149 Northing: 6391159 AGD/GDA: GDA

Mapsheet: DOYLES CREEK 1:25000

Zone: 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

Ms | Goode | Gillian |

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 07/07/2011

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [ ] Lower slope
- [x] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [x] Open woodland
- [ ] Scrub
- [ ] Woodland
- [ ] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [ ] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [ ] Mining
- [x] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

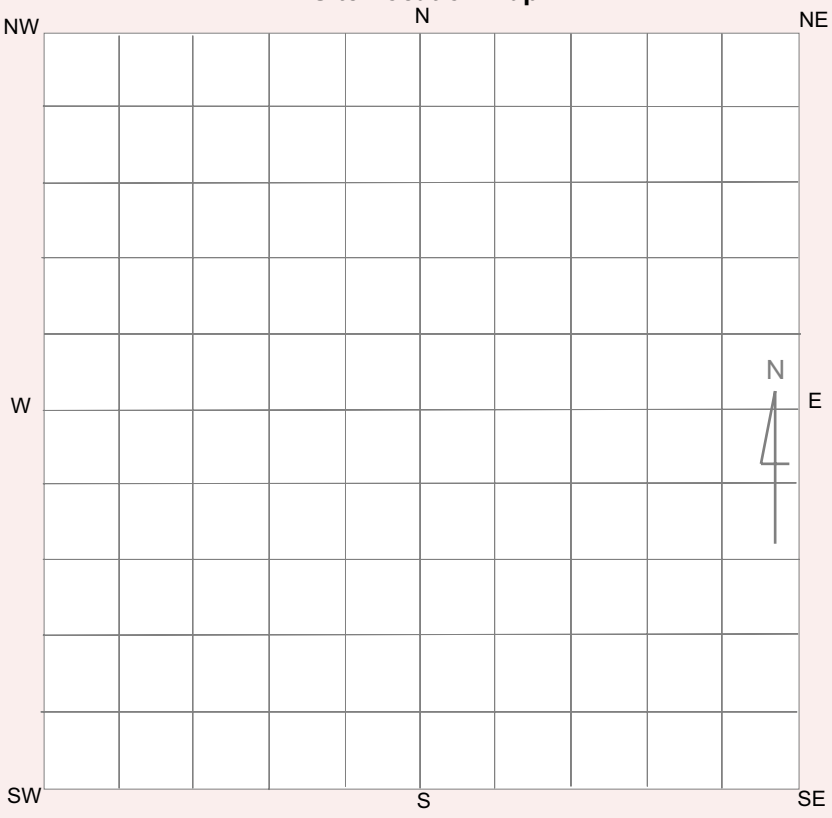
Water

Distance to permanent water source	300 metres
Distance to temporary water source	250 metres
Name of nearest permanent water source	Stony Creek
Name of nearest temporary water	1st order tributary

Directions for Relocation

See map and GPS co-ordinates.

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

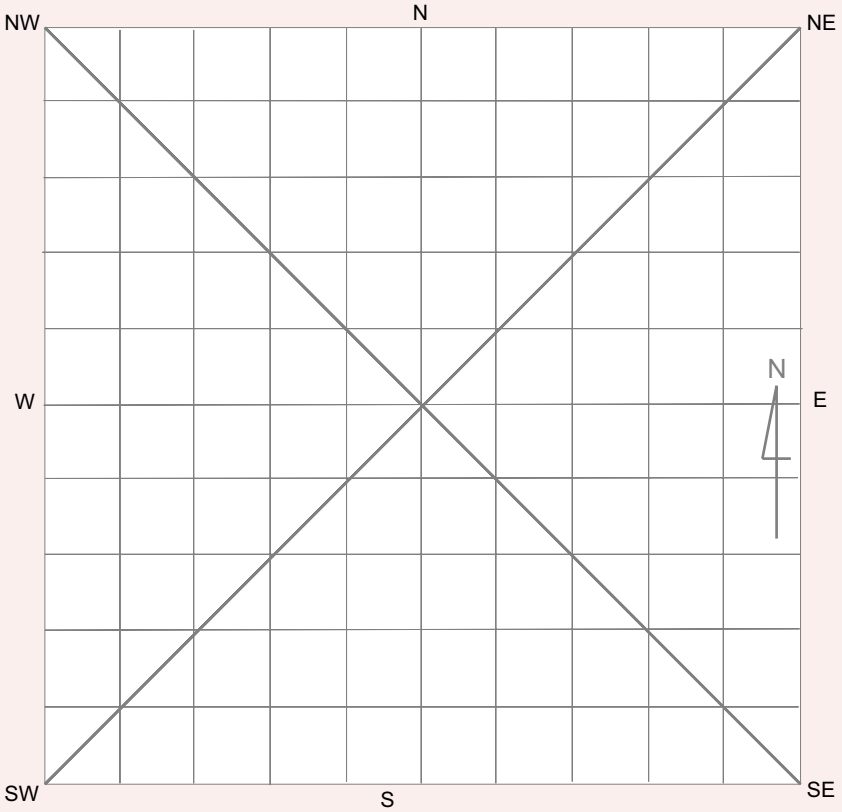
- [x] N-S
- [ ] NE-SW
- [ ] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [ ] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [x] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [ ] Total length of visible site
- [ ] Average width of visible site
- [ ] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

Wambo Site 360 (ST3) was identified on a south east facing slope close to Wambo Site 57, which was an artefact scatter. The tree was considered to have both Aboriginal cultural scarring as well as evidence of wounding from having been struck by a nearby tree falling from the north west.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D. | Site Name | **Importance**

First recorded date

No. of instances

Recorded by

	Yes	No
Stone artefacts only		No
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

Feature Context & Condition

Scatter No. 1 | Easting | Northing

Density (Artefact count per square metre)

Dimensions Length (m) | Width (m) | Depth (m)

	Yes	No
In situ		
Stratified		

Feature Condition

- Very good
- Good
- Poor

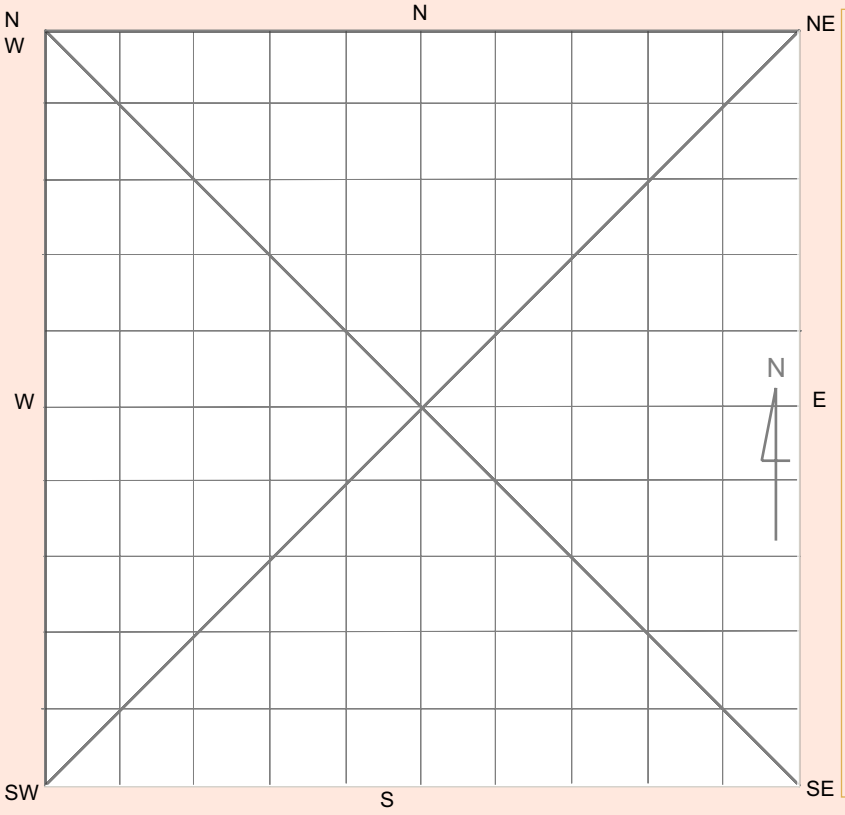
General Condition

- Weathered
- Vehicle damage
- Surface water wash
- Fire damage
- Erosion
- Stock damage
- Exposed archaeological material

Recommended Action

- Boardwalk
- Fencing
- Closure to public
- Continued inspection
- Fire hazard reduction
- Expert assessment
- Meeting with land manager
- Revegetation
- Signage
- Soil erosion control
- Track closure/re-routing
- Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

NPWS FEATURE RECORDING FORM - MODIFIED TREE

Site I.D.

Site Name Wambo Site 360

First recorded date

Importance

Aboriginal Information Recorded?

No. of instances 1

Recorded by

Feature description

Easting

Northing

No. of scars 1

No. of carved panels

Feature Condition

- ☐ Very good
- ☐ Good
- ☐ Poor

Condition

- ☑ Weathered
- ☐ Ringbarked
- ☐ Fire damage
- ☐ Vehicle damage
- ☐ Insects/termites
- ☐ Rot
- ☐ Limb fall
- ☐ Stock damage

Recommended Action

- ☐ Fencing
- ☐ Closure to public
- ☐ Continued inspection
- ☐ Expert assessment
- ☐ Fire hazard reduction
- ☐ Insect removal
- ☐ Meeting with land manager
- ☐ Rubbish removal
- ☐ Signage
- ☐ Tree health assessment
- ☐ Track closure/re-routing
- ☐ Additional recording

Feature environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, page 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

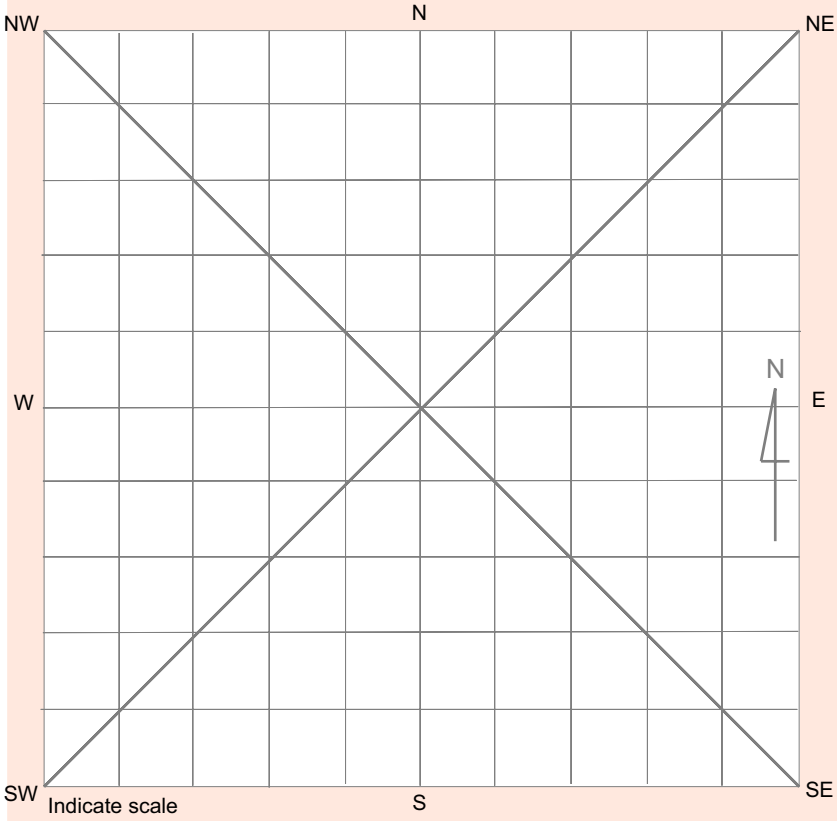
Distance to permanent water source metres

Distance to temporary water source metres

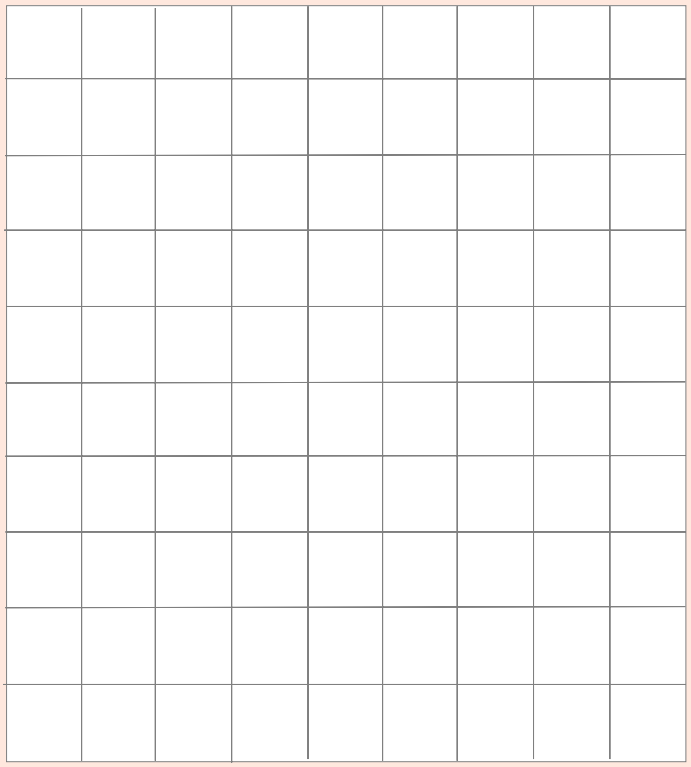
Name of nearest permanent water source

Name of nearest temporary water

Feature Location Plan



Scar/Carved Panel Drawing



Attach additional drawings

NPWS FEATURE RECORDING TABLE - MODIFIED TREE

Instance No.	Recording Date	Type	Species	Living Status	Tree Status	Regrowth	Length of Scar	Width of Scar	Depth	Height Above Ground	No. of Scars	Shape	No. of Carved Panels	Carving Type	Orientation	Axe Marks
1	07/07/201	Scarred	Eucalypt	Alive	Standing											

Type of Tree
Carved Tree
Scarred Tree
Carved/Scarred Tree

Tree Species
Eucalypt
Red Gum
Angotha

L iving Status
Dead
Alive
Dying

Tree Status
Standing
Lying down
Partially felled
Subject to salinity
Not *in situ*

Regrowth
Yes
No

Scar Shape
Oval
Rectangular
Square
Round
Other

Carving Type
Linear
Geometric
Pictorial

Axe Marks
Metal
Stone
Indeterminate

Orientation
North East
East
South East
South
South West
West
North West
North

Comments:

Site Description

PST 9 (ST3) was identified on a south east facing slope close to Wambo Site 57, which was an artefact scatter. The tree was considered to have both Aboriginal cultural scarring as well as evidence of wounding from having been struck by a nearby tree falling from the north west.

Photos

Site PST 9 Scar can be seen at base, view facing south.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

NSW GOVERNMENT Office of Environment & Heritage

Office Use Only

Site Number | | | – | | – | | | | |

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 361

Easting: 310993 Northing: 6392054 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone: 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title: MS | Surname: GILLIAN | First Name: GOODE | Initials:

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 4/4/2012

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [x] Plain
- [ ] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [x] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [x] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [x] Mining
- [ ] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

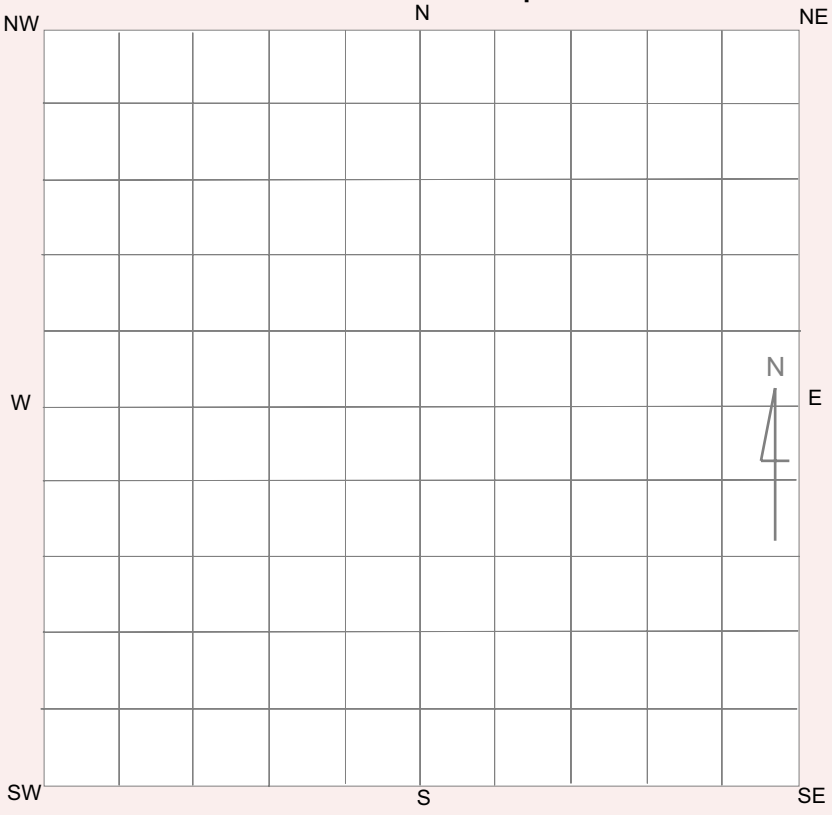
Water

Distance to permanent water source	350 metres
Distance to temporary water source	500 metres
Name of nearest permanent water source	North Wambo Creek
Name of nearest temporary water	Trib South Wambo Ck

Directions for Relocation

See map and GPS co-ordinates

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

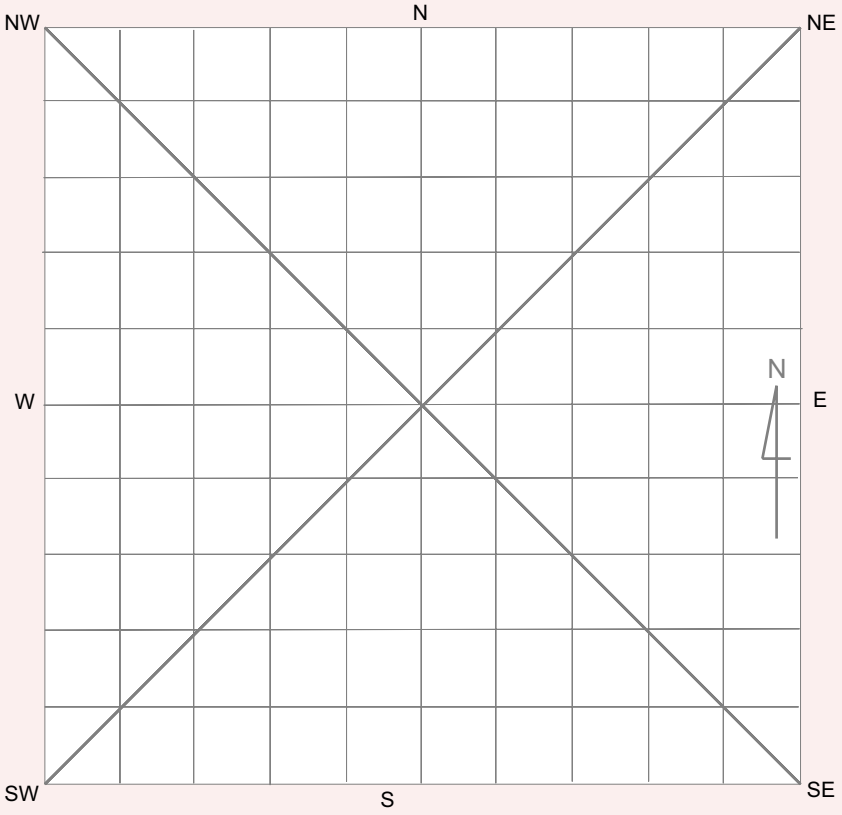
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [1] Total length of visible site
- [1] Average width of visible site
- [1 sq m] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This isolated find site was located on the surface of an erosion scald close to the main access track between North Wambo Creek and a minor tributary of South Wambo Creek. The single mudstone flake was lying on the surface of the B horizon soils. There was no evidence of any other artefacts and there was evidence of extensive sheet wash erosion across this area. As such it is considered unlikely that there are any in situ artefacts in the vicinity of the artefact scatter.

If proposed or existing farming or mining activities are likely to impact on the site or cause harm to the Aboriginal objects, it is recommended that the site should be salvaged (subject to an appropriate permit being in force), and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: WAMBO SITE 361

First recorded date: 4/4/2012

Importance: Cannot be presently determined

No. of instances: 1

Recorded by: RPS

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% | 10-19% | 20-29% | 30-39% | 40-49% | 50-59% | 60-69% | 70-79% | 80-89% | 90-100%

0-9%

Feature Context & Condition

Scatter No. 1

Easting: 3 1 0 9 9 3

Northing: 6 3 9 2 0 5 4

Density (Artefact count per square metre): 1

Dimensions: 1 Length (m) 1 Width (m) 0 Depth (m)

	Yes	No
In situ		No
Stratified		No

Feature Condition

- [ ] Very good
- [ ] Good
- [x] Poor

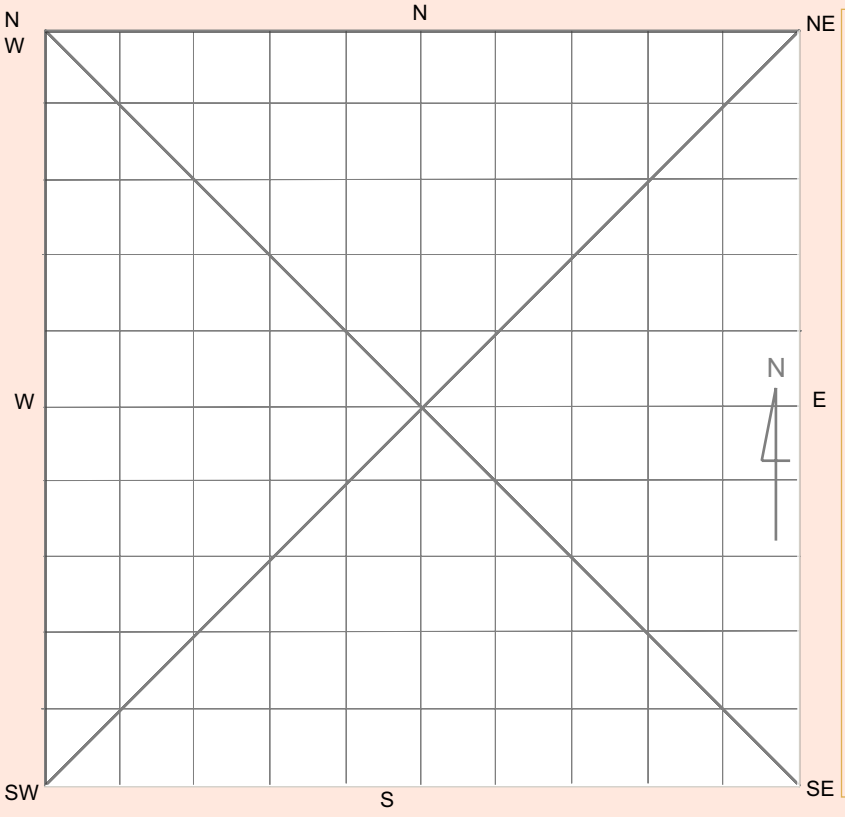
General Condition

- [x] Weathered
- [ ] Vehicle damage
- [x] Surface water wash
- [ ] Fire damage
- [x] Erosion
- [x] Stock damage
- [x] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [x] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

- Land form
- Land form unit
- Slope
- Vegetation
- Land use

Water

Distance to permanent water source metres

Distance to temporary water source metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Table: Artefact Attributes Wambo Site 361

ID	Artefact Type	Complete-ness	Raw Material	Colour	Length (mm)	Width (mm)	Thick-ness (mm)	Weight (grams)	Notes	Location Specified
1	Flake	complete	mudstone	red	15.85	7.60	4.38	0.4	Usewear LL & RL	

Site Description

This isolated find site was located to the south west of a main access road. The artefact was situated in a small erosion scour surrounded by long grass.

Photos

Photo: Wambo Site 361 - Isolated find, red mudstone flake

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

NSW GOVERNMENT Office of Environment & Heritage

Office Use Only

Site Number | | | – | | – | | | | |

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 362

Easting: 311165 Northing: 6391957 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone: 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

MS | GOODE | GILLIAN

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 4/4/2012

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [x] Plain
- [ ] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [x] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [ ] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [x] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [x] Mining
- [ ] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

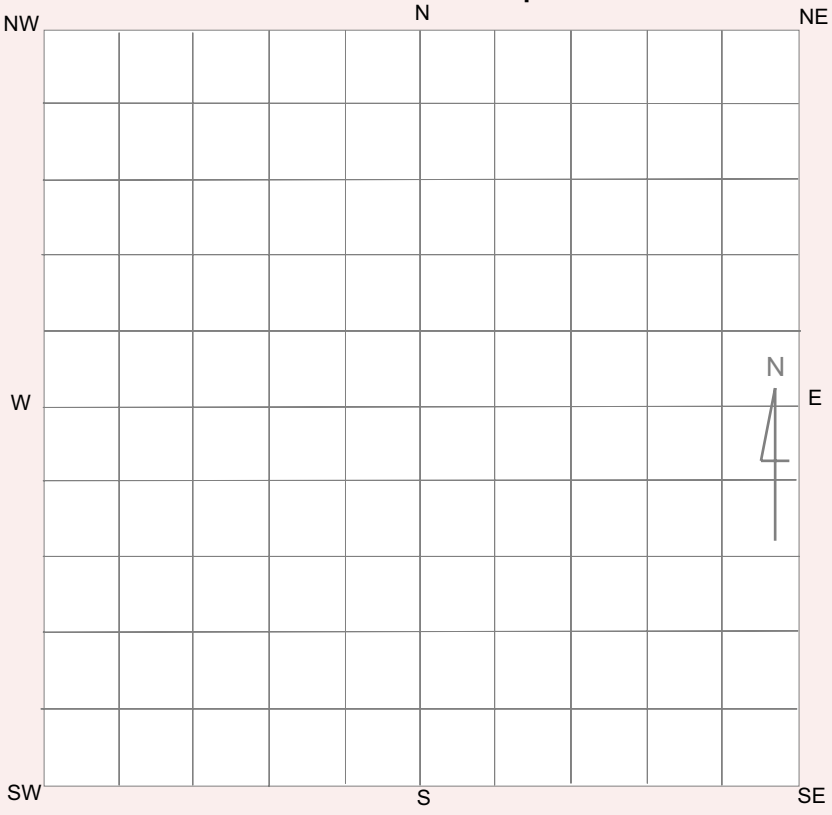
Water

Distance to permanent water source	350 metres
Distance to temporary water source	500 metres
Name of nearest permanent water source	North Wambo Creek
Name of nearest temporary water	Trib South Wambo Ck

Directions for Relocation

See map and GPS co-ordinates

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

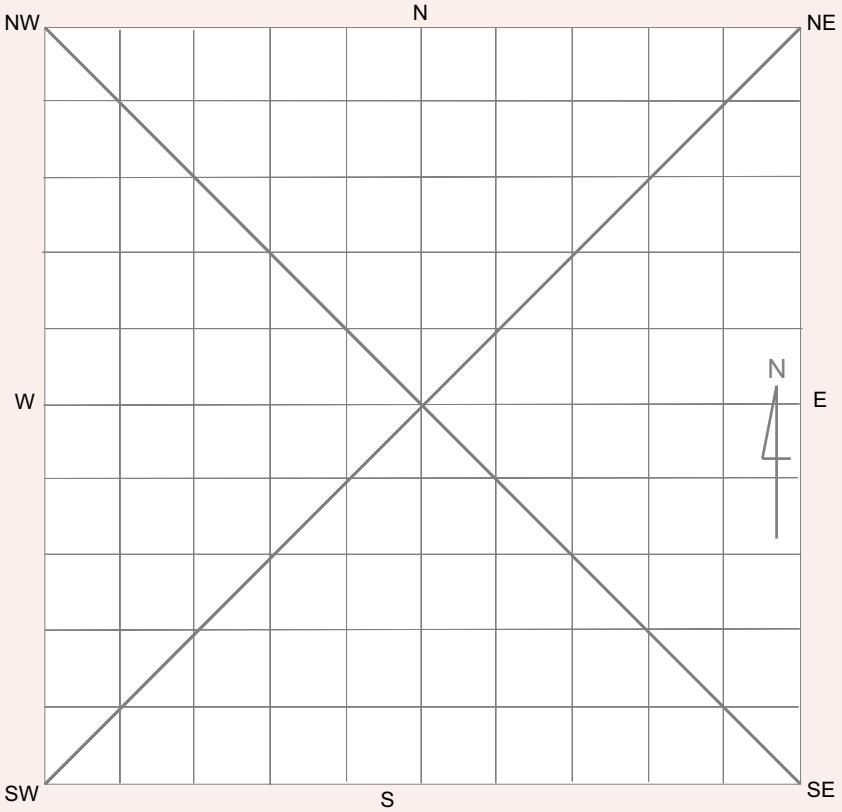
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [20m] Total length of visible site
- [5m] Average width of visible site
- [100sq m] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This artefact scatter was located on the surface of an erosion scald close to a dirt access track between North Wambo Creek and a minor tributary of South Wambo Creek. The eight stone artefacts were lying on the surface of the B horizon soils. There was no evidence of any artefacts in the soil profiles on either side of the track and there was evidence of sheet wash erosion across this area. As such it is considered unlikely that there are any in situ artefacts in the vicinity of the artefact scatter.

If proposed or existing farming or mining activities are likely to impact on the site or cause harm to the Aboriginal objects, it is recommended that the site should be salvaged (subject to an appropriate permit being in force), and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: WAMBO SITE 362

First recorded date: 4/4/2012

Importance: Cannot be presently determined

No. of instances: 8

Recorded by: RPS

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% | 10-19% | 20-29% | 30-39% | 40-49% | 50-59% | 60-69% | 70-79% | 80-89% | 90-100%

0-9%

Feature Context & Condition

Scatter No. 1

Easting 311165

Northing 6391957

Density (Artefact count per square metre): 1

Dimensions: 20 Length (m) × 5 Width (m) × 0 Depth (m)

	Yes	No
In situ		No
Stratified		No

Feature Condition

- [ ] Very good
- [ ] Good
- [x] Poor

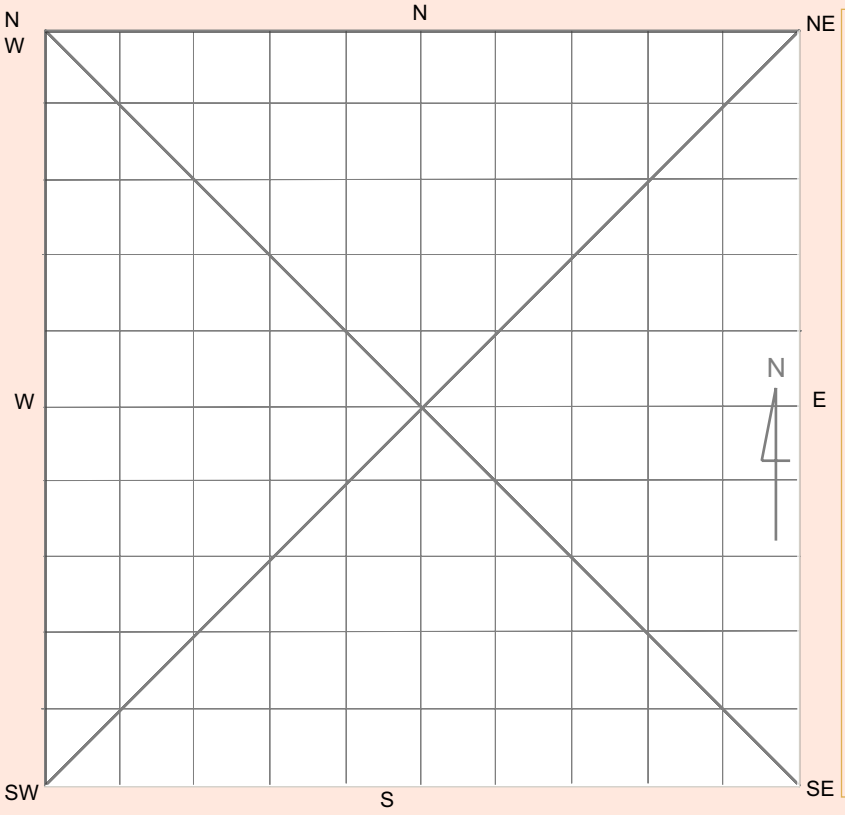
General Condition

- [x] Weathered
- [ ] Vehicle damage
- [x] Surface water wash
- [ ] Fire damage
- [x] Erosion
- [x] Stock damage
- [x] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [x] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source ____ metres

Distance to temporary water source ____ metres

Name of nearest permanent water source

Name of nearest temporary water

Stone Artefact

Instance No.	Recording Date	Artefact Material	Artefact Type	Platform Surface	Platform Type	Termination	Cross Section	Length (mm)	Width (mm)	Thickness (mm)

Other Artefact Type

Instance No.	Recording Date	Artefact Material	Artefact Type	Description	Length (mm)	Width (mm)	Thickness (mm)

Material

Basalt
Chert
Fine grained siliceous
Granite
Quartz
Quartzite
Sandstone
Silcrete
Green glass
Amber glass
Amethyst glass
Clear glass
Ceramic
Porcelain
Tin can
Wire
Nail
Button
Shell
Bone
Wood
Resin

Artefact Description

Adze
Anvil
Axe
Backed blade
Blade
Core
Core tool
Cyclon
Distal fragment
Eloura
Flake
Flake tool
Flaked piece
Hammerstone
Manuport
Milling slab
Mortar
Muller
Nuclear tool
Pirri
Proximal fragment
Tula
Other diagnostic type
Modified
Unworked

Platform Surface

Cortex
Flake scar
More than one flake scar
Faceted
Ground
Indeterminate
Bipolar

Termination

Feather
Hinge
Step
Outrepasse
Bipolar

Platform Type

W
Focal
Shattered
Indeterminate
Bipolar

Cross Section

High/strong
High/weak
Low/weak
Irregular

Comments:

Please see attached information

Table: Artefact Attributes Wambo Site 362

ID	Artefact Type	Complete-ness	Raw Material	Colour	Length (mm)	Width (mm)	Thick-ness (mm)	Weight (grams)	Notes	Location Specified
1	Core		silcrete	pink/grey	42.68	21.93	31.21	50.8		
2	Flake	complete	tuff	cream	31.58	37.43	12.41	13.8	Primary flake	
3	Flake	complete	mudstone	yellow	28.58	33.80	11.54	10.5	40% cortex	
4	Flake	complete	petrified wood	grey	26.16	23.12	7.49	5.9		
5	Flake	complete	mudstone	pink	30.18	8.48	8.02	3.6		
6	Flake	complete	mudstone	pink	11.18	9.5	4.0	8.2	20% cortex	
7	Flake	two conjoining pieces	mudstone	red	26.21	26.60	6.56	5.4	two conjoining pieces, third piece missing	
8	Non-artefact fragment	-	mudstone	yellow	-	-	-	-	Machine crushed piece of mudstone	

Site Description

This artefact scatter site was located on a disused access track and adjacent to a main access road. The artefacts were associated with an erosion scour that had formed on the edge of the track. The artefacts were predominantly mudstone.

Photos

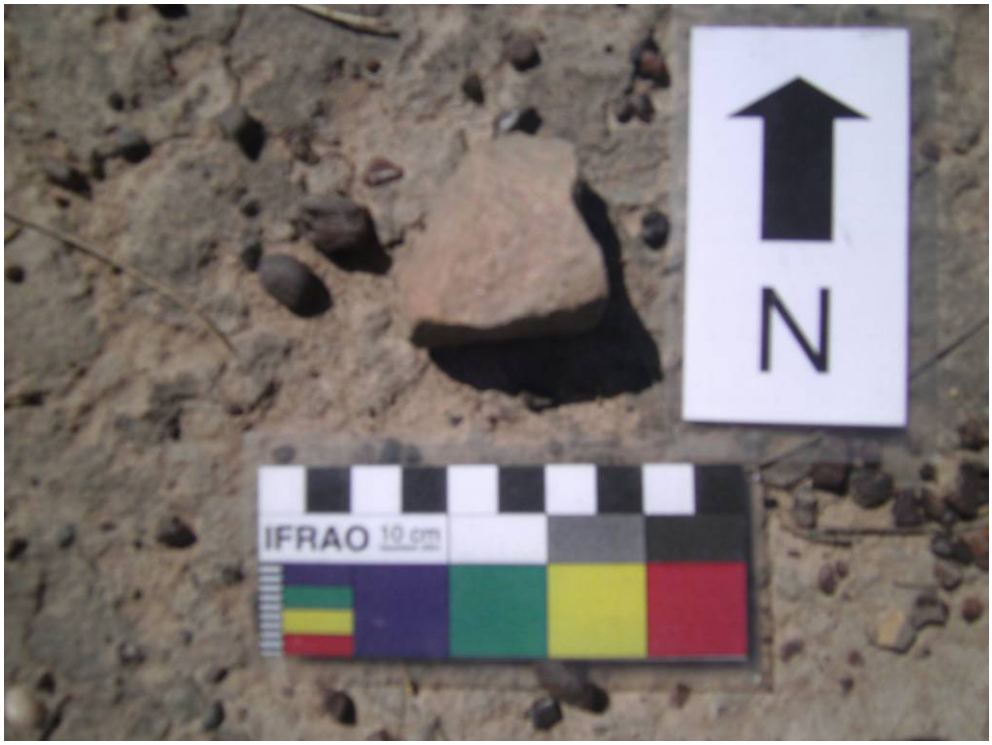


Photo: Wambo Site 362 - Artefact 1 pink/grey silcrete core

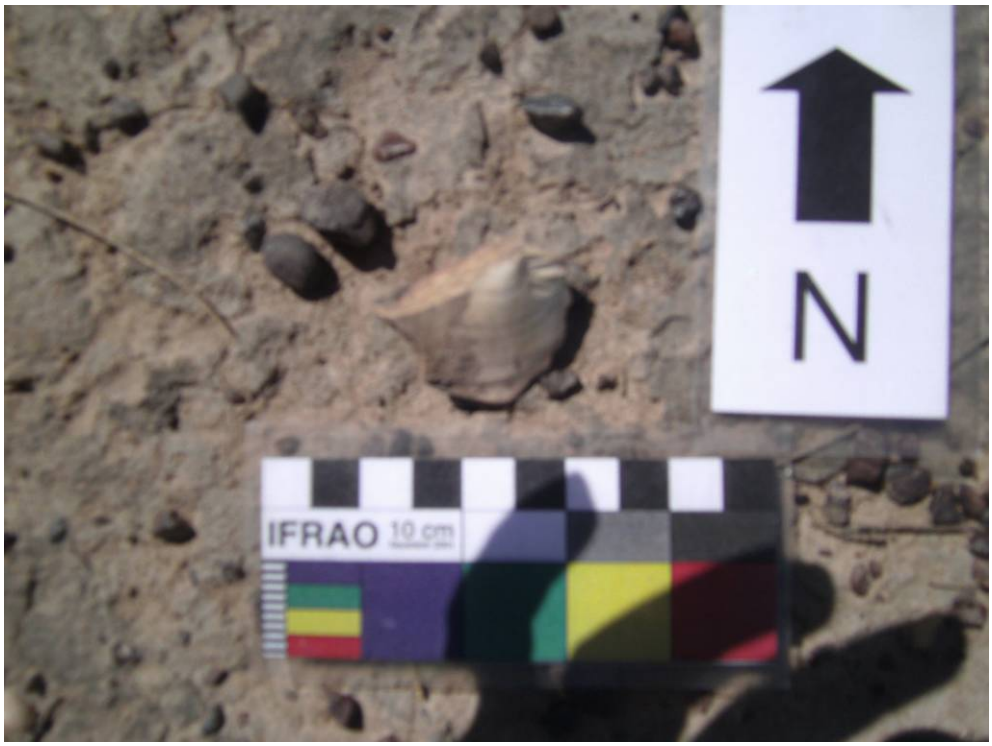


Photo: Wambo Site 362 - Artefact 2 cream tuff flake (primary)

Photo: Wambo Site 362 - Artefact 3 yellow mudstone flake

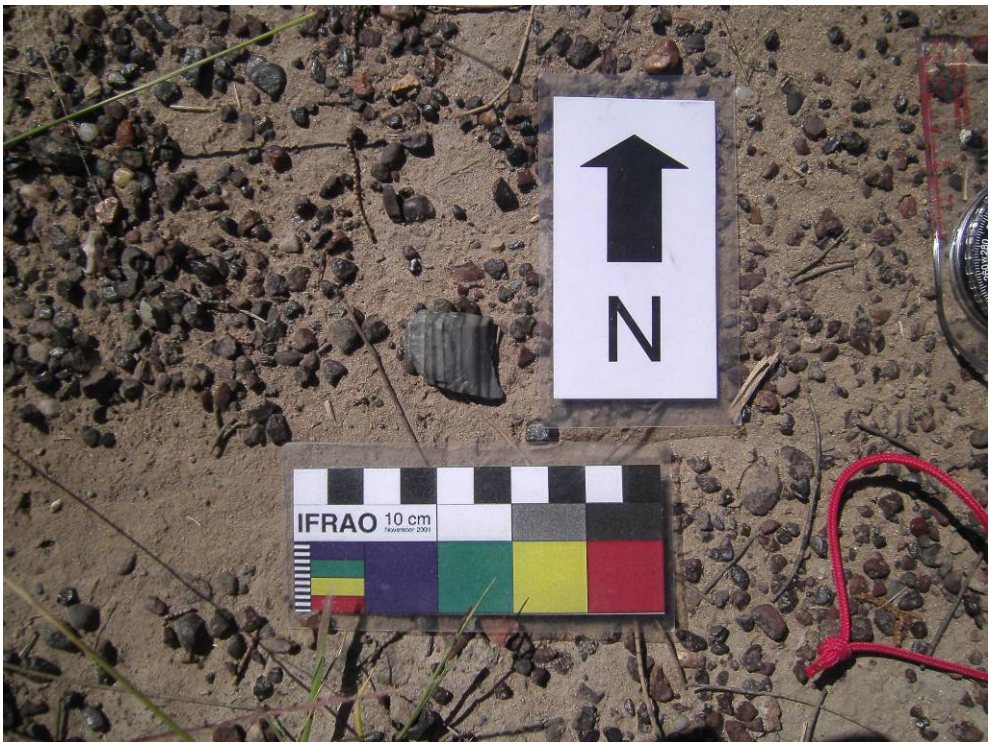


Photo: Wambo Site 362 - Artefact 4 petrified wood flake

Photo: Wambo Site 362 - Artefact 5 pink mudstone flake

Photo: Wambo Site 362 - Artefact 6 pink mudstone flake

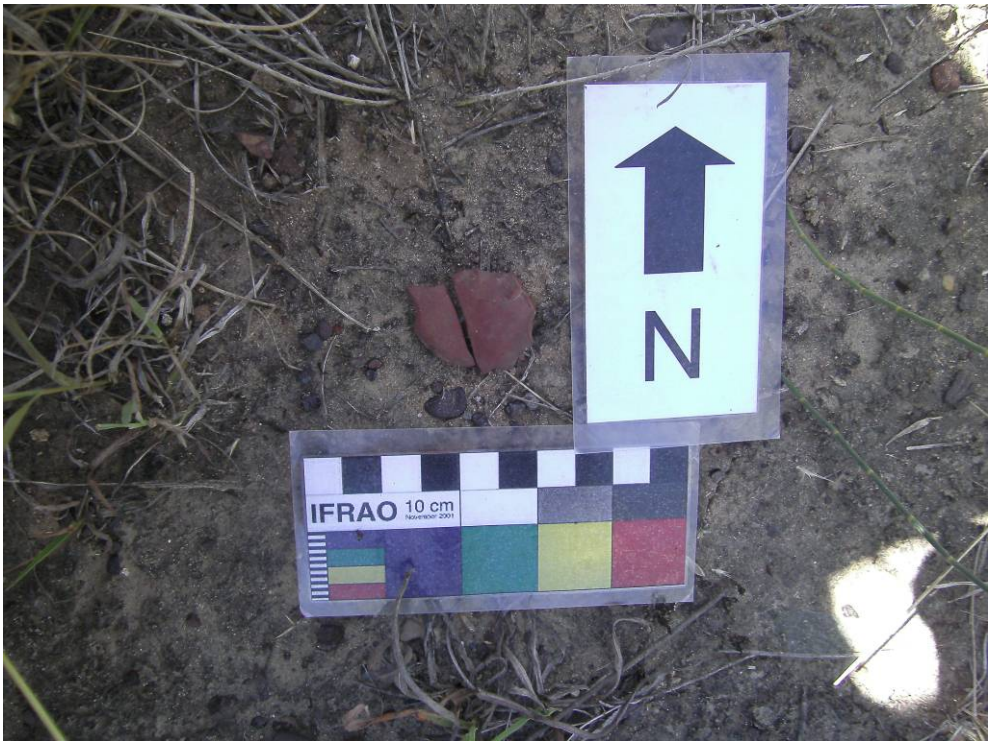


Photo: Wambo Site 362 - Artefact 7 red mudstone flake (two conjoining pieces)

Photo: Wambo Site 362 - Non-artefact fragment, yellow mudstone machine crushed

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220

Office Use Only

Site Number | | | – | | – | | | | |

Date received / / Date entered into system / / Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

Office Use Only

For Further Information Contact:

☐ **Nominated Trustee**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

☐ **Knowledge Holder**

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Client on system ☐

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name: WAMBO SITE 363

Easting: 310423 Northing: 6390528 AGD/GDA: GDA

Mapsheet: DOYLES CREEK

Zone 56 Location Method: Differential GPS

Other Registration

Primary Recorder

Title | Surname | First Name | Initials

MS | GOODE | GILLIAN

Organisation: RPS

Address: PO BOX 428 HAMILTON NSW 2303

Phone number: 249404200 Fax: 249616794

Date recorded: 04/4/2012

Client on system ☐

NPWS Aboriginal Site Recording Form - Site Information

OPEN/CLOSE SITE Open Site

Site Context

Landform

- [ ] Mountainous
- [ ] Plain
- [x] Rolling hills
- [ ] Steep hills
- [ ] Undulating plain

Landform Unit

- [ ] Beach
- [ ] Coastal rock platform
- [ ] Dune
- [ ] Intertidal flat
- [ ] Lagoon
- [ ] Tidal Creek
- [ ] Tidal Flat
- [ ] Cliff
- [ ] Crest
- [ ] Flat
- [ ] Lower slope
- [ ] Mid slope
- [ ] Upper slope
- [ ] Plain
- [ ] Ridge
- [ ] Tor
- [ ] Valley flat
- [ ] Levy
- [ ] Stream bank
- [x] Stream channel
- [ ] Swamp
- [ ] Terrace
- [ ] Terrace flat

Slope

[ ] degrees

Vegetation

- [ ] Closed forest
- [ ] Grasslands
- [ ] Isolated clumps of trees
- [ ] Open forest
- [ ] Open woodland
- [ ] Scrub
- [ ] Woodland
- [x] Cleared
- [ ] Revegetated
- [ ] N/A

Land use

- [ ] Conservation
- [ ] Established urban
- [ ] Farming-intensive
- [x] Farming-low intensity
- [ ] Forestry
- [ ] Industrial
- [x] Mining
- [ ] Pastoral/grazing
- [ ] Recreation
- [ ] Semi-rural
- [ ] Service corridor
- [ ] Transport corridor
- [ ] Urban expansion
- [ ] Residential

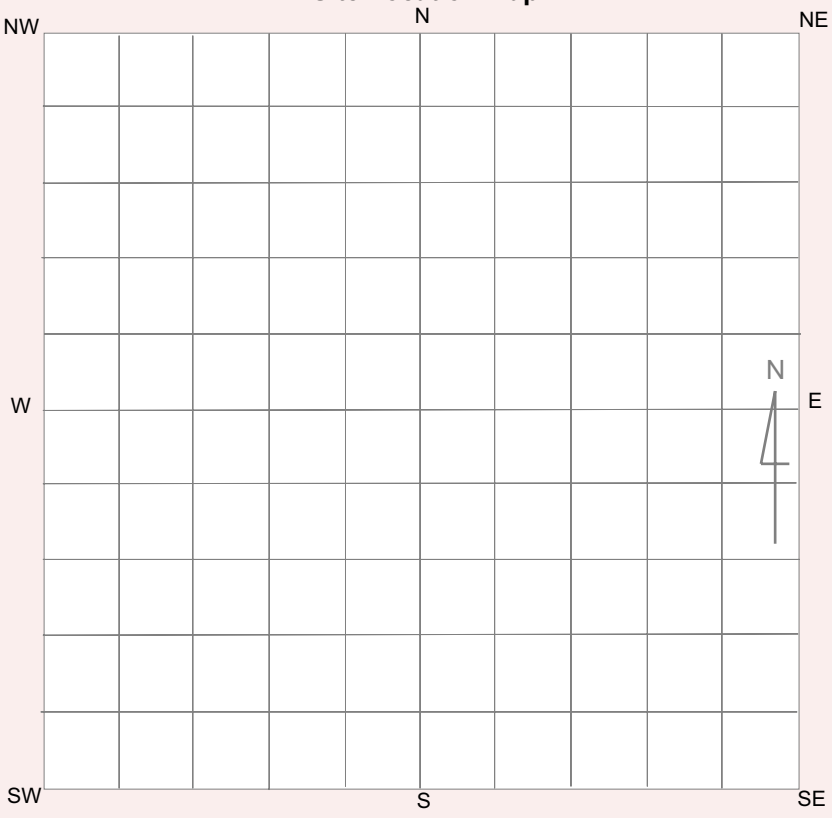
Water

Distance to permanent water source	50 metres
Distance to temporary water source	0 metres
Name of nearest permanent water source	South Wambo Creek
Name of nearest temporary water	Stony Creek

Directions for Relocation

see map and GPS co-ordinates

Site Location Map



Current Land Tenure

- [ ] Public
- [x] Private

National Park / other Government Dept.

Primary report **I.D.** (I.D. Office Use only)

NPWS Aboriginal Site Recording Form - Site Information

General Site Information

Closed Site

Shelter/Cave Formation

- [ ] Boulder
- [ ] Wind erosion
- [ ] Water erosion
- [ ] Rock collapse

Rock Surface Condition

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Condition of Ceiling

- [ ] Boulder
- [ ] Sandstone platform
- [ ] Silica gloss
- [ ] Tessellated
- [ ] Weathered
- [ ] Other platform

Shelter Aspect

- [ ] North
- [ ] North East
- [ ] East
- [ ] South East
- [ ] South
- [ ] South West
- [ ] West
- [ ] North West

Open Site

Site Orientation

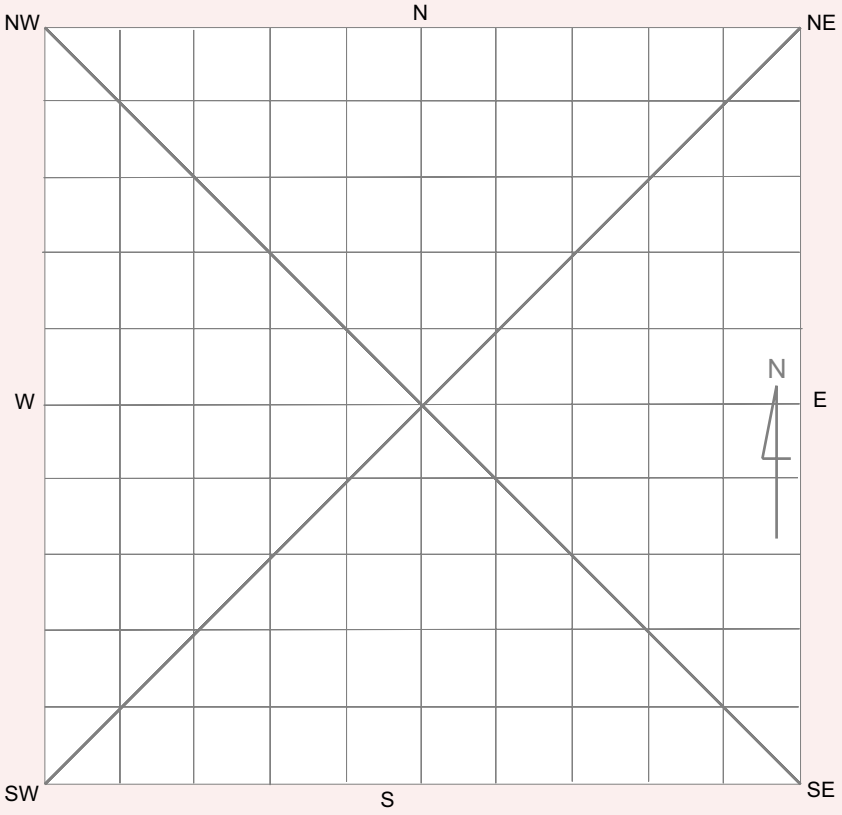
- [ ] N-S
- [ ] NE-SW
- [x] E-W
- [ ] SE-NW
- [ ] N/A

Features

- [ ] 1. Aboriginal Ceremony & Dreaming
- [ ] 2. Aboriginal Resource & Gathering
- [ ] 3. Art
- [x] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial Ring
- [ ] 7. Conflict
- [ ] 8. Earth Mound
- [ ] 9. Fish Trap
- [ ] 10. Grinding Groove
- [ ] 11. Habitation Structure
- [ ] 12. Hearth
- [ ] 13. Non Human Bone & Organic Material
- [ ] 14. Ochre quarry
- [ ] 15. Potential Archaeological Deposit
- [ ] 16. Stone Quarry
- [ ] 17. Shell
- [ ] 18. Stone Arrangement
- [ ] 19. Modified Tree
- [ ] 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- [ ] Internal length
- [ ] Internal width
- [ ] Shelter height
- [ ] Shelter floor area

Open Site Dimensions (m)

- [20] Total length of visible site
- [5] Average width of visible site
- [100 sq m] Estimated area of visible site
- [ ] Length of assessed site area

Aboriginal Community Interpretation and Management Recommendations

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This artefact scatter was located in the sandy bed of Stony Creek which is a tributary of South Wambo Creek. The three mudstone flake artefacts were lying on the surface of the creek bed and appeared to have been washed from an upstream area. There was no evidence of any artefacts in the soil profiles on either side of Stony Creek and there is evidence of large scale flooding events across this area. As such it is considered unlikely that there are any in situ artefacts in the vicinity of the artefact scatter.

If proposed or existing farming or mining activities are likely to impact on the site or cause harm to the Aboriginal objects, it is recommended that the site should be salvaged (subject to an appropriate permit being in force), and the artefacts or objects relocated to the temporary keeping place under the Wambo Care and Control Permit #3130.

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title | Surname | First Name | Initials

Organisation

Address

Phone number | Fax

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No. ☐

Comments

NPWS FEATURE RECORDING FORM - ARTEFACT

Site I.D.

Site Name: WAMBO SITE 363

Importance

First recorded date: 4/4/2012

No. of instances: 3

Recorded by: RPS

	Yes	No
Stone artefacts only	Yes	
Artefacts collected		No
Permit issued		No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% | 10-19% | 20-29% | 30-39% | 40-49% | 50-59% | 60-69% | 70-79% | 80-89% | 90-100%

0-9%

Feature Context & Condition

Scatter No. 1

Easting 310423

Northing 6390528

Density (Artefact count per square metre): 1

Dimensions: 20 Length (m) × 5 Width (m) × 0 Depth (m)

	Yes	No
In situ		No
Stratified		No

Feature Condition

- [ ] Very good
- [ ] Good
- [x] Poor

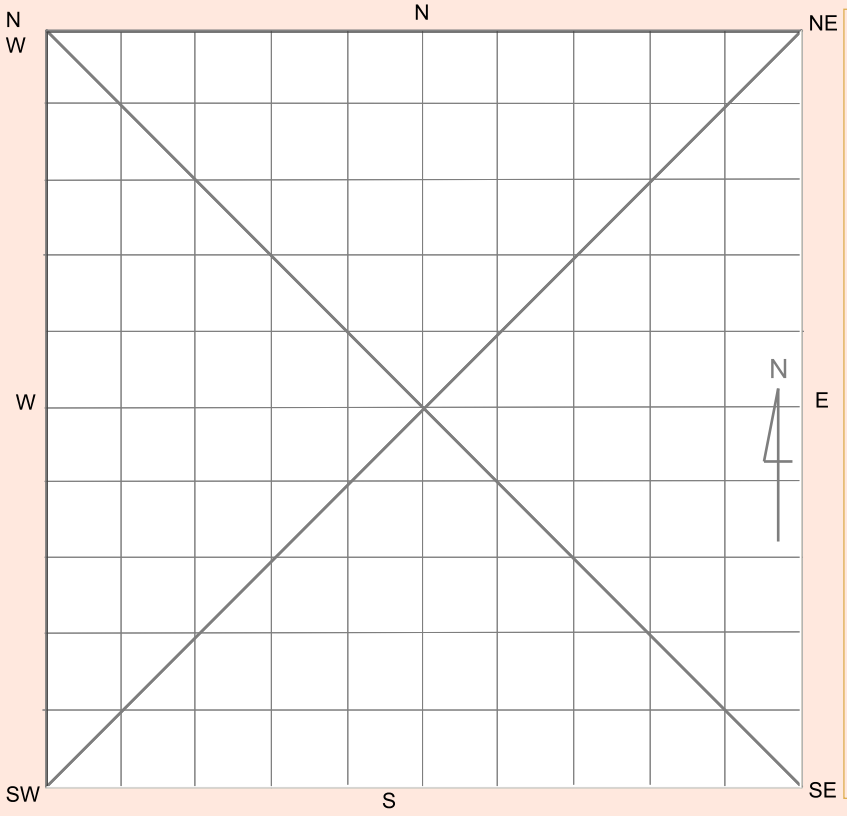
General Condition

- [x] Weathered
- [ ] Vehicle damage
- [x] Surface water wash
- [ ] Fire damage
- [ ] Erosion
- [ ] Stock damage
- [x] Exposed archaeological material

Recommended Action

- [ ] Boardwalk
- [ ] Fencing
- [ ] Closure to public
- [x] Continued inspection
- [ ] Fire hazard reduction
- [ ] Expert assessment
- [ ] Meeting with land manager
- [ ] Revegetation
- [ ] Signage
- [ ] Soil erosion control
- [ ] Track closure/re-routing
- [ ] Additional recording

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Land form

Land form unit

Slope

Vegetation

Land use

Water

Distance to permanent water source ____ metres

Distance to temporary water source ____ metres

Name of nearest permanent water source

Name of nearest temporary water

Table: Artefact Attributes Wambo Site 363

ID	Artefact Type	Complete-ness	Raw Material	Colour	Length (mm)	Width (mm)	Thick-ness (mm)	Weight (grams)	Notes	Location Specified
1	Flake	complete	mudstone	yellow/red	26.08	26.31	7.20	3.7	Retouch/usewear RL. Heat treated.	
2	Flake	complete	mudstone	cream/yellow	54.54	22.97	4.69	7.7	Retouch RL/usewear RL, LL, D. Hinge termination	
3	Flake	complete	mudstone	yellow	27.84	24.34	7.51	4.5	25% cortex. Feather temination	

Site Description

This artefact scatter site was located in the sandy bed of South Wambo Creek. The artefacts would most likely have been washed down from sites further up the creek line. The artefacts were all mudstone.

Photos

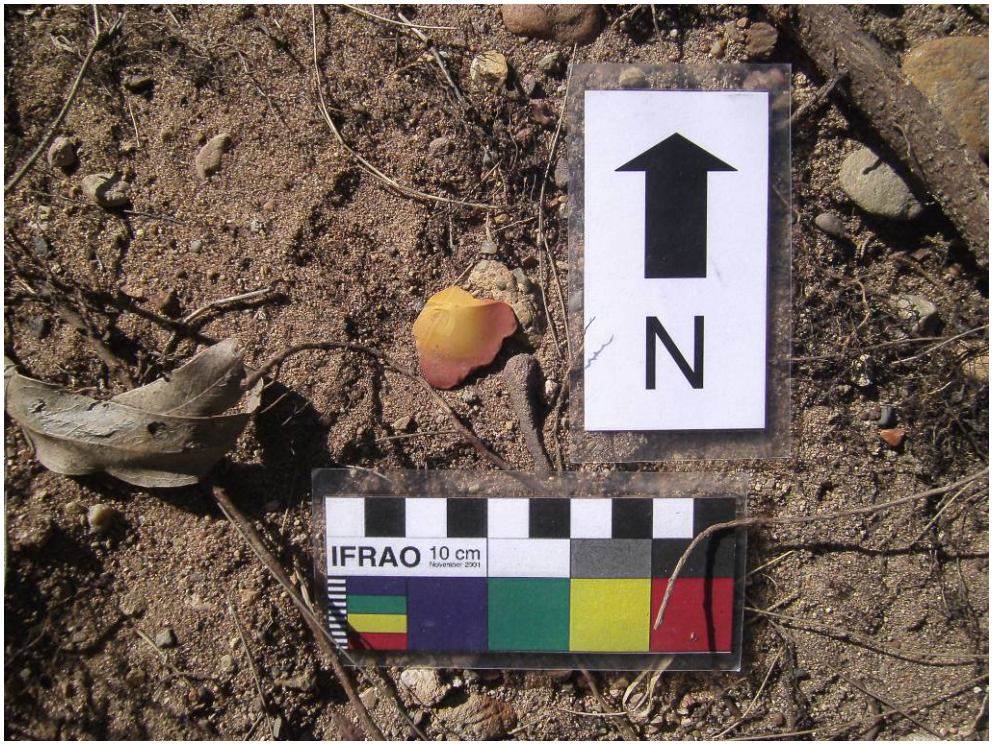


Photo: Wambo Site 363 - Artefact 1 yellow/red mudstone flake

Photo: Wambo Site 363 - Artefact 2 cream/yellow mudstone flake

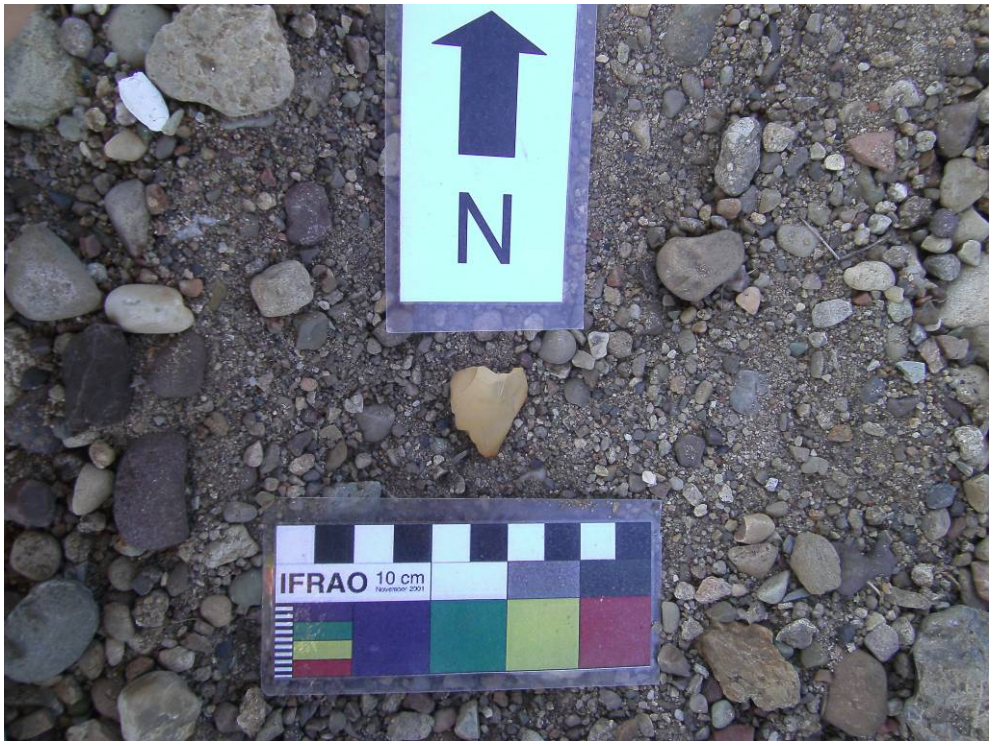


Photo: Wambo Site 363 - Artefact 3 yellow mudstone flake

Appendix 8

Extract of Aboriginal Assessment Section from the Subsidence Assessment (MSEC, 2012)

6.14. Archaeological Sites

6.14.1. Descriptions of the Archaeological Sites

There are no lands within the Study Area declared as an Aboriginal Place under the *National Parks and Wildlife Act 1974*. There are a number of archaeological sites which have been identified within the Study Area which are shown in Drawing No. MSEC495-12. A summary of these archaeological sites is provided in Table 6.12 below.

Table 6.12 Archaeological Sites within the Study Area

Site Name	Location	Description
Wambo Site 45	South-west of proposed WMLW10	Isolated find
Wambo Site 46	Directly above proposed WMLW10	Artefact scatter
Wambo Site 47	South-west of proposed WMLW 9	Isolated find
Wambo Site 48	Directly above proposed WMLW9	Isolated find
Wambo Site 55	Directly above approved WMLW8	Artefact scatter
Wambo Site 56	Directly above approved WMLW8	Isolated find
Wambo Site 57	Above proposed WMLW9 chain pillar	Artefact scatter
Wambo Site 58	Directly above proposed WMLW9	Isolated find
Wambo Site 59	Directly above proposed WMLW9	Isolated find
Wambo Site 60	Directly above proposed WMLW9	Artefact scatter
Wambo Site 61	Directly above approved WMLW8	Artefact scatter
Wambo Site 98b	Above north-eastern end of WMLW9	Artefact scatter
Wambo Site 333	Directly above proposed WMLW9	Artefact scatter
Wambo Site 338	Directly above proposed WMLW9	Artefact scatter
Wambo Site 348	Directly above approved WMLW8	Artefact scatter
Wambo Site 351	Directly above approved WMLW8	Artefact scatter
Wambo Site 352	Directly above proposed WMLW9	Artefact scatter
Wambo Site 353	Above proposed WMLW9 chain pillar	Artefact scatter
Wambo Site 354	South-west of proposed WMLW9	Artefact scatter
Wambo Site 356	Directly above proposed WMLW9	Artefact scatter
Wambo Site 357	Directly above proposed WMLW9	Artefact scatter
Wambo Site 358	Directly above proposed WMLW10	Isolated find
Wambo Site 360	Above proposed WMLW9 chain pillar	Scar tree
Wambo Site 361	Directly above proposed WMLW9	Isolated find
Wambo Site 362	Directly above proposed WMLW9	Artefact scatter
Wambo Site 363	South of proposed WMLW10	Artefact scatter

The archaeological sites comprise artefact scatters, isolated finds, and a scarred tree. Detailed descriptions of the archaeological sites within the Study Area are provided by *RPS* (2012).

6.14.2. Predictions for the Archaeological Sites

The predicted total conventional subsidence, tilts and curvatures for the archaeological sites within the Study Area, based on the *Approved Layout* and the *Modified Layout*, are provided in Table D.01, in Appendix D. The predicted tilts are the maxima after the completion the longwalls in the Wambo, Arrowfield and Bowfield Seams. The predicted curvatures are the maxima at any time during or after the extraction of the longwalls.

It is noted, that specific subsidence predictions for the archaeological sites were not provided in the subsidence report by Holt (2005) which supported the 2005 SEE. For this reason, the predicted subsidence parameters for these sites based on the *Approved Layout* have been determined using the calibrated Incremental Profile Method, as described in Section 3.3.

Summaries of the maximum predicted total conventional subsidence parameters for the archaeological sites within the Study Area due to mining in the Wambo, Arrowfield and Bowfield Seams, based on the *Approved Layout* and the *Modified Layout*, are provided in Table 6.13 and Table 6.14, respectively.

Table 6.13 Maximum Predicted Total Conventional Subsidence Parameters for the Archaeological Sites due to Mining in the Wambo, Arrowfield and Bowfield Seams Based on the Approved Layout

Type	Maximum Predicted Total Conventional Subsidence (mm)	Maximum Predicted Total Conventional Tilt (mm/m)	Maximum Predicted Total Conventional Hogging Curvature (km^{-1})	Maximum Predicted Total Conventional Sagging Curvature (km^{-1})
Artefact Scatters	5300	40	0.7	1.0
Isolated Finds	4300	25	0.5	0.4
Scarred Tree	3000	15	0.5	0.1

Table 6.14 Maximum Predicted Total Conventional Subsidence Parameters for the Archaeological Sites due to Mining in the Wambo, Arrowfield and Bowfield Seams Based on the Modified Layout

Type	Maximum Predicted Total Conventional Subsidence (mm)	Maximum Predicted Total Conventional Tilt (mm/m)	Maximum Predicted Total Conventional Hogging Curvature (km^{-1})	Maximum Predicted Total Conventional Sagging Curvature (km^{-1})
Artefact Scatters	6200	50	1.0	1.0
Isolated Finds	6400	50	2.0	2.0
Scarred Tree	3300	25	0.6	0.1

The archaeological sites are located across the Study Area and, therefore, could experience the full range of predicted strains. The analysis of strains measured in the Hunter Coalfield, for previously extracted longwalls having similar width-to-depth ratios as the proposed longwalls, is provided in Section 4.4.

Non-conventional movements can also occur and have occurred in the NSW Coalfields as a result of, amongst other things, anomalous movements. The analysis of strains provided in Chapter 4 includes those resulting from both conventional and non-conventional anomalous movements.

6.14.3. Comparisons of Predictions for the Archaeological Sites

The comparisons of the maximum predicted total conventional subsidence parameters for the archaeological sites within the Study Area, based on the *Approved Layout* and the *Modified Layout*, are provided in Table 6.15, Table 6.16 and Table 6.17.

Table 6.15 Comparison of the Maximum Predicted Subsidence Parameters for the Artefact Scatters due to Mining in Wambo, Arrowfield and Bowfield Seams

Layout	Maximum Predicted Total Conventional Subsidence (mm)	Maximum Predicted Total Conventional Tilt (mm/m)	Maximum Predicted Total Conventional Hogging Curvature (km^{-1})	Maximum Predicted Total Conventional Sagging Curvature (km^{-1})
Approved Layout	5300	40	0.7	1.0
Modified Layout	6200	50	1.0	1.0

Table 6.16 Comparison of the Maximum Predicted Subsidence Parameters for the Isolated Finds due to Mining in Wambo, Arrowfield and Bowfield Seams

Layout	Maximum Predicted Total Conventional Subsidence (mm)	Maximum Predicted Total Conventional Tilt (mm/m)	Maximum Predicted Total Conventional Hogging Curvature (km^{-1})	Maximum Predicted Total Conventional Sagging Curvature (km^{-1})
Approved Layout	4300	25	0.5	0.4
Modified Layout	6400	50	2.0	2.0

Table 6.17 Comparison of the Maximum Predicted Subsidence Parameters for the Scarred Tree due to Mining in Wambo, Arrowfield and Bowfield Seams

Layout	Maximum Predicted Total Conventional Subsidence (mm)	Maximum Predicted Total Conventional Tilt (mm/m)	Maximum Predicted Total Conventional Hogging Curvature (km^{-1})	Maximum Predicted Total Conventional Sagging Curvature (km^{-1})
Approved Layout	3000	15	0.5	0.1
Modified Layout	3300	25	0.6	0.1

It can be seen from the above tables, that the maximum predicted vertical subsidence for the archaeological sites within the Study Area, based on the *Modified Layout*, are between 10 % and 50 % greater than those predicted based on the *Approved Layout*. Also, the maximum predicted tilts for these sites, based on the *Modified Layout*, are between 25 % and 100 % greater than those predicted based on the *Approved Layout*. It is noted, however, that vertical subsidence and tilt do not result in adverse impacts on these types of archaeological sites.

The maximum predicted curvatures for the artefact scatters and the scarred tree, based on the *Modified Layout*, are similar to those predicted based on the *Approved Layout*. Whilst the predicted maxima are similar for these sites, the predicted curvatures at individual sites increase as a result of the proposed modification. Also, the maximum predicted curvatures for the isolated finds, based on the *Modified Layout*, are greater than those predicted based on the *Approved Layout*.

It is also noted, that the predicted subsidence parameters for the archaeological sites, based on the *Approved Layout*, have been obtained using the calibrated Incremental Profile Method, as described in Section 3.3, which provides greater predictions than those previously provided in the report by Holt (2005) which supported the 2005 SEE. For this reason, the impact assessments for the archaeological sites have been provided in the following sections based on the predictions obtained using the calibrated Incremental Profile Method for the *Modified Layout*.

6.14.4. Impact Assessments for the Artefact Scatters and Isolated Finds

There are 17 sites comprising artefact scatters within the Study Area, being Wambo Sites 46, 55, 57, 60, 61, 98b, 333, 338, 348, 351, 352, 353, 354, 356, 357, 362 and 363. There are eight sites comprising isolated finds within the Study Area, being Wambo Sites 45, 47, 48, 56, 58, 59, 358 and 361.

The maximum predicted total tilt due to mining in the Wambo, Arrowfield and Bowfield Seams, based on the *Modified Layout*, is 50 mm/m (i.e. 5 %), which represents a change in grade of 1 in 20. The maximum predicted additional tilt for these sites, due to the proposed modification, is 10 mm/m (i.e. 1 %), which represents a change in grade of 1 in 100. It is unlikely that these sites would experience any adverse impacts resulting from the mining induced tilts.

The maximum predicted total curvature for the artefact scatters and isolated finds due to mining in the Wambo, Arrowfield and Bowfield Seams, based on the *Modified Layout*, is 2.0 km^{-1} hogging and sagging, which represents a minimum radius of curvature of 0.5 kilometres. The maximum predicted additional curvature for these sites, due to the proposed modification, are 1.5 km^{-1} hogging and 1.9 km^{-1} sagging, which represent minimum radii of curvature of 0.7 kilometre and 0.5 kilometres, respectively.

These sites can potentially be affected by cracking of the surface soils as a result of mine subsidence movements. It is unlikely, however, that the scattered artefacts or isolated finds themselves would be impacted by surface cracking. It is possible, however, that if remediation of the surface was required after mining, that these works could potentially impact these sites.

It is recommended that WCPL seek the required approvals from the appropriate authorities, in the event that remediation of the surface is required in the locations of the artefact scatters and isolated finds.

Further assessments of the potential impacts on the open sites are provided in a report by *RPS* (2012).

6.14.5. Impact Assessments for the Scarred Tree

There is one scarred tree within the Study Area, being Wambo Site 360, which is located above the chain pillar between the approved WMLW8 and the proposed WMLW9 in the Wambo Seam.

It has been found, from past longwall mining experience, that the incidence of impacts on trees is extremely rare. Impacts on trees have only been previously observed where the depths of cover were extremely shallow, in the order of 50 metres or less, or on very steeply sloping terrain, in the order of 1 in 1 or greater.

In the location of the scarred tree, the depths of cover are 125 metres to the existing workings in the Whybrow Seam, 210 metres to the proposed longwalls in the Wambo Seam, 380 metres to the future longwalls in the Arrowfield Seam, and 410 metres to the future longwalls in the Bowfield Seam. The natural surface in this location is relatively flat, with the natural gradient being less than 1 in 3. It is unlikely, therefore, that the scarred tree would be adversely impacted as a result of the extraction of the proposed and future longwalls.

Large surface cracking or ground heaving could occur as a result of the multi-seam mining, which is described in Section 4.7. The incidence of the larger surface deformations being coincident with the scarred tree is considered low.

Further assessments of the potential impacts on the scarred tree are provided in a report by *RPS* (2012).

6.14.6. Impact Assessments for the Archaeological Sites Based on Increased Predictions

If the actual mine subsidence at the archaeological sites exceeded those predicted by a factor of 2 times, the likelihoods and extents of cracking in the surface soils would also increase. It would still be unlikely that the artefacts scatters or isolated finds themselves would be impacted by the surface cracking and the methods of remediation, if required, would not be expected to change. It would also be unlikely that the scarred tree would be impacted by the surface cracking, as mining induced impacts have not been observed on trees in the NSW Coalfields where the depths of cover have been greater than 50 metres, such as the case within the Study Area.

6.15. State Survey Control Marks

The locations and details of the state survey control marks were obtained from the *Land and Property Management Authority* using the *Six Viewer* (2012). There were no state survey control marks identified within or in the immediate vicinity of the Study Area. There were state survey control marks identified further afield, outside the extents of Drawing No. MSEC495-12, which are located at distances greater than 1.5 kilometres from the proposed longwalls.

The survey control marks located in the area could be affected by far-field horizontal movements, up to 3 kilometres outside the extents of the proposed longwalls. Far-field horizontal movements and the methods used to predict such movements are described further in Sections 4.5 and B.4.

It will be necessary on the completion of the longwalls, when the ground has stabilised, to re-establish any survey control marks that are required for future use. Consultation between WCPL and the Department of Lands will be required to ensure that these survey control marks are reinstated at the appropriate time, as required.

Table D.01 - Maximum Predicted Subsidence Parameters for the Archaeological Sites within the Study Area due to Mining in the Wambo, Arrowfield and Bowfield Seams Based on the Approved and Modified Layouts

Site Name	Type	Predicted Total Subsidence Based on the Approved Layout (mm)	Predicted Total Subsidence Based on the Modified Layout (mm)	Incremental Change in Subsidence due to the Proposed Modification (mm)	Predicted Total Tilt Based on the Approved Layout (mm/m)	Predicted Total Tilt Based on the Modified Layout (mm/m)	Incremental Change in Tilt due to the Proposed Modification (mm/m)	Predicted Total Hogging Curvature Based on the Approved Layout (1/km)	Predicted Total Hogging Curvature Based on the Modified Layout (1/km)	Incremental Change in Hogging Curvature due to the Proposed Modification (1/km)	Predicted Total Sagging Curvature Based on the Approved Layout (1/km)	Predicted Total Sagging Curvature Based on the Modified Layout (1/km)	Incremental Change in Sagging Curvature due to the Proposed Modification (1/km)
Wambo Site 45	Isolated find	750	800	50	9	10	1	0.10	0.20	0.10	0.03	0.03	0.00
Wambo Site 46	Artefact scatter	3500	4800	1300	20	40	20	0.30	0.60	0.30	0.10	0.40	0.30
Wambo Site 47	Isolated find	500	500	0	6	7	1	0.10	0.10	0.00	0.01	0.01	0.00
Wambo Site 48	Isolated find	1700	1800	100	25	25	0	0.30	0.30	0.00	0.10	0.10	0.00
Wambo Site 55	Artefact scatter	3800	3800	0	40	35	-5	0.70	0.70	0.00	0.30	0.30	0.00
Wambo Site 56	Isolated find	4000	4000	0	20	20	0	0.40	0.50	0.10	0.40	0.40	0.00
Wambo Site 57	Artefact scatter	3100	3500	400	20	25	5	0.50	0.60	0.10	0.10	0.10	0.00
Wambo Site 58	Isolated find	4300	6400	2100	10	35	25	0.10	0.60	0.50	0.40	0.80	0.40
Wambo Site 59	Isolated find	3200	5200	2000	20	40	20	0.30	0.70	0.40	0.10	0.70	0.60
Wambo Site 60	Artefact scatter	2800	3200	400	15	20	5	0.50	0.70	0.20	0.10	0.30	0.20
Wambo Site 61	Artefact scatter	3700	3700	0	30	30	0	0.40	0.60	0.20	0.30	0.30	0.00
Wambo Site 98b	Artefact scatter	1800	1800	0	15	15	0	0.60	0.70	0.10	0.10	0.02	-0.08
Wambo Site 333	Artefact scatter	1900	3100	1200	15	35	20	0.30	0.50	0.20	0.05	0.50	0.45
Wambo Site 338	Artefact scatter	3000	5100	2100	20	35	15	0.30	0.60	0.30	0.10	0.60	0.50
Wambo Site 348	Artefact scatter	5100	5100	0	40	35	-5	0.60	0.60	0.00	0.80	0.70	-0.10
Wambo Site 351	Artefact scatter	3100	3100	0	20	20	0	0.60	0.70	0.10	0.20	0.20	0.00
Wambo Site 352	Artefact scatter	4400	6200	1800	25	20	-5	0.10	0.90	0.80	0.40	1.00	0.60
Wambo Site 353	Artefact scatter	3000	3100	100	20	20	0	0.40	0.60	0.20	0.10	0.10	0.00
Wambo Site 354	Artefact scatter	350	350	0	5	5	0	0.10	0.10	0.00	< 0.01	< 0.01	0.00
Wambo Site 356	Artefact scatter	3600	4500	900	20	45	25	0.30	0.60	0.30	0.10	0.30	0.20
Wambo Site 357	Artefact scatter	2300	3100	800	10	30	20	0.40	0.90	0.50	0.04	0.30	0.26
Wambo Site 358	Isolated find	4000	6400	2400	20	30	10	0.20	0.90	0.70	0.20	0.90	0.70
Wambo Site 360	Scar tree	3000	3300	300	15	25	10	0.50	0.60	0.10	0.10	0.10	0.00
Wambo Site 361	Isolated find	1700	3500	1800	15	50	35	0.50	2.00	1.50	0.10	2.00	1.90
Wambo Site 362	Artefact scatter	5300	6000	700	40	50	10	0.30	1.00	0.70	1.00	0.80	-0.20
Wambo Site 363	Artefact scatter	500	500	0	6	6	0	0.10	0.10	0.00	< 0.01	< 0.01	0.00
	Maximum	**5300**	**6400**	**2400**	**40**	**50**	**35**	**0.70**	**2.00**	**1.50**	**1.00**	**2.00**	**1.90**