

# Origins of Linguistic Zonation in the Australian Alps. Part 1 – Huygens’ Principle

REFERENCE 1

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**ABSTRACT** *The hitherto poorly recorded boundaries of extinct traditional south-east-Australian Aboriginal languages can now be redetermined with greatly improved precision using an entropy-maximizing phonetic-signature calculated from existing data sources, including old word-lists and census forms, that have, until now, largely been considered informationally worthless. Having thus determined traditional Aboriginal language zones to a previously unimaginable degree of geographical precision, it is argued that these boundaries should not be viewed merely as a static ‘snapshot’ but, instead, as the end-product of a knowable dynamic process (Gillieron wave propagation) governed by well-known physical rules (such as Huygens’ principle and Snell’s Law) and operating over ‘deep’ time-scales more familiar to the archaeologist than the linguist. Although this initial study is limited to south-eastern Australia, the new methodology provides the first real hope of obtaining a detailed understanding of language dispersal throughout the entire continent over the past 60,000 years.*

**KEY WORDS:** Lexical signature, deep linguistics, Gillieron wave propagation, Huygens’ Principle

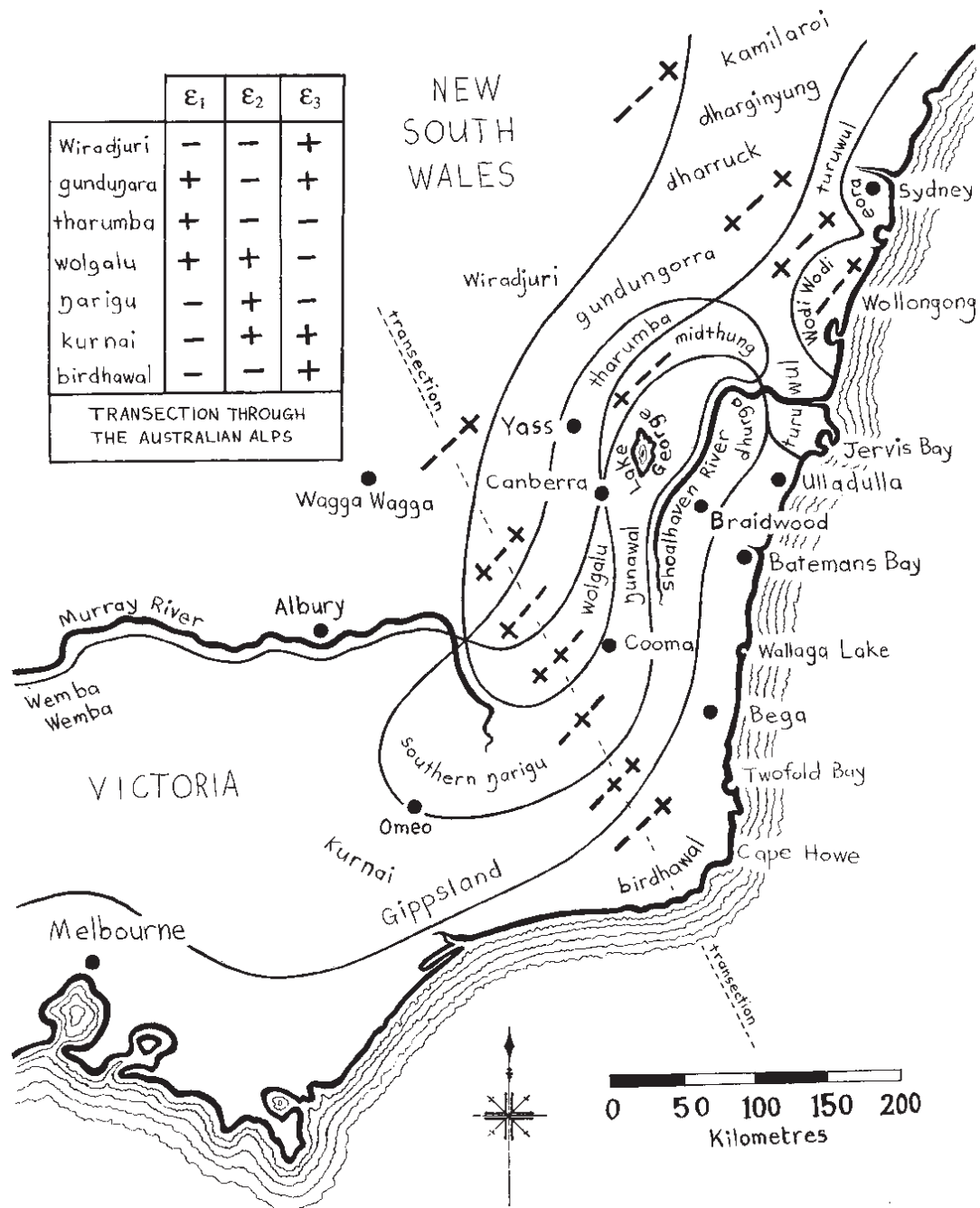
## Introduction

It is clear that there were different Aboriginal languages throughout south-eastern-Australia two centuries ago. Charles MacAlister (1907), for example, told how ‘... inland people found it hard to understand the Tablelanders or the coastal tribes’. But throughout this entire region indigenous language was extinguished so rapidly – before studies of appropriate scientific calibre were made – that today we have only fragmentary information about traditional linguistic boundaries. Accordingly, Terry Crowley (1997: 289–291) complained

*... one serious problem that faces us in reconstructing the linguistic history of northern New South Wales is the nature of the data that we are forced to operate with ... the descriptive materials range from moderately good in some cases ... , fragmentary in others ... , appalling in other areas ... , to completely non-existent ... [there are] areas for which we have names but no information ... languages that have disappeared without trace. ... Even the best described languages ... may well represent very poor shadows of their former selves ... much of the lexical richness has disappeared without trace. In Bundjalang, I was unable to*

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**Figure 1.** These south-east Australian language zones arise as an empirical ‘brute fact’ from the respective signatures of the 46 historic word/name lists assembled in Appendix 1. Interpolation of the above boundaries was accomplished manually to an accuracy of approximately  $\pm 25$  km

*Native Tribes*’ supplied in the preface of his 1892 compilation of Rev. L.E. Threlkeld’s works. Fraser’s map is so wrong, in places, that many scholars still avoid citing it – though it is clear that they have actually studied this 1892 map, often faithfully parroting its errors.

Fraser’s map shows the Blue Mountains ‘Original-A’ language, in Zone VIII (‘Kurigai’), correctly linking up with Zone I (‘Kamalarai’). And William Albert Cuneo (1860–1942), writing in the *Picton Post and Advocate* newspaper in 1893, even referred

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# Three Sisters Dreaming

- or did Katoomba get its legend  
from Kangaroo Valley?

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by **Chris ILLERT**,  
School of Languages & Linguistics,  
University of Western Sydney.

ISBN 0 949357 26 X



These artefacts were drawn by Louisa Atkinson, in about 1853, for an article that was never published. [Mitchell Library, Sydney]

- 1) "woman's [string net] bag" = "gur:b.maru:i:d:" deriving from gur(a)-b(ulo):muru: (gon):i-d(ula:n-ηara) = net-thing (= bag) [for] gently-dropping (= putting) [items] into.
- 2) "bark vessel" = "ba:ngakee" deriving from bu(lu):gul(u):i = curled/folded bailer. It is a container made from a single piece of bark, folded in a U-shape, bound at both ends and sealed with "yellow gum" (= resin from the grass-tree *Xanthorrhoea*), in order to carry liquids such as water or honey. David Collins [1798] spelled it "be:ngall:e", whilst Samuel Bennett [1867] said that Botany Bay Aboriginal people referred to Captain James Cook's cocked hat as a "be:ngala:". Sir Joseph Banks [1770] recorded "bag" as "char:ngala:" = gur(a):gul(u):i = folded container (into [thing]).
- 3) "boo:mera::ng" = bu(lu)-mora:i:η(ara) = high spiraller (1.3.36-37). Also Joseph Mason [1838] recorded the darug version of this word as "bu:mr:i:ng" ("wooden sword").
- 4) "head-band ... whitened for mourning".
- 5) "club" = "foo:n:da:i" deriving from bu(lo)-n:do(la)-i = hitting/falling thing (1.3.9).
- 6) "[a device] used in throwing spears" = "wa:mmerrah" deriving from wu(rula):mora = lots of arm(ature) (= leverage).
- 7) "shield" = "mela:::tho:n" deriving from malo-(i-dara:ηuru)-do(la):n = shielding-hopping /parrying-thing.





Aboriginal grave-mound with carved funerary trees, *Illustrated Sydney News*, 26th November 1853.

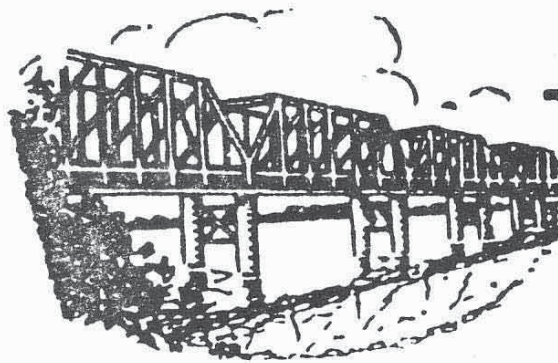
But perhaps the greatest challenge to traditional Aboriginal stewardship of the valley came in the form of the Robertson Land Acts of 1861 - producing an influx of free selectors and increasing the non-Aboriginal population from 200 to 1400 over the following two decades. These new arrivals brought with them hard attitudes, not unlike those of earlier settlers such as James Atkinson who had settled at Oldbury Estate at Sutton Forest, in the lee of Mount Gingenbullen, and died young from sheer obesity - but not before poisoning and disposing of an entire tribe of Aborigines. The mound of their mass-grave, on a natural rise just above his Oldbury Estate, reached 50 feet in height in the early 1820's. Atkinson also had a hut along Bugong Creek. To get there he passed through the valley, coming from Sutton Forest down Meryla Pass.

His daughter Louisa Atkinson published a sketch of this mass-grave (*Illustrated Sydney News*, 26th November 1853), noting that the interments dated back to the time of her father's arrival and that "*... the formerly large tribe in the district of Berrima is nearly, or quite, extinct: and so too it is throughout the settled districts ... said one sensible man to the writer ... 'lots of blackfellows die every year' ... strong sugar mixed with water; the washings of a sugar bag is sufficient*". She continued on to note a 10 foot slump in the mound, down to a height of only 40 feet over the decades to 1863, but failed to make obvious connections, apparently in a state of denial, opining that: "*... this has given rise to the supposition that the flat has been the scene of a battle, the dead being carried up the hill, and the mound erected by ... survivors ... But beyond supposition, nothing can be ascertained. The blacks themselves either cannot, or will not, give any information*" (*Sydney Mail*, 19th Sept. 1863).

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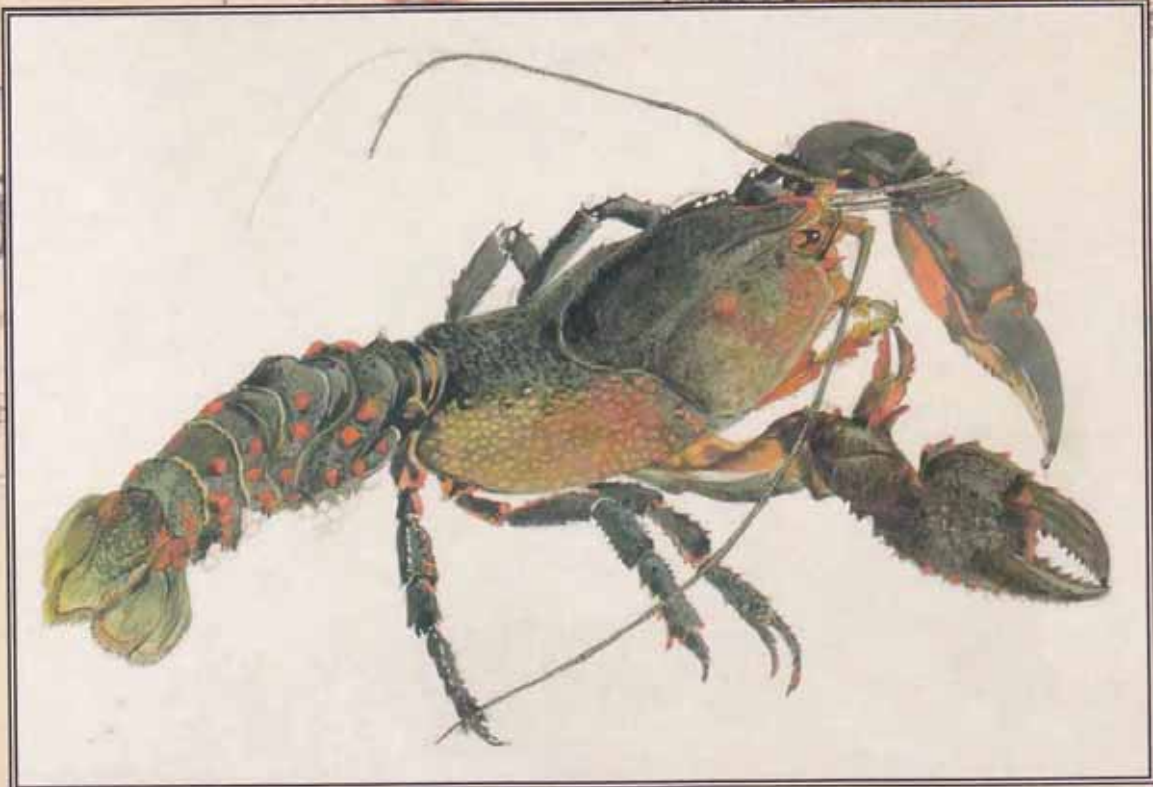
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REFERENCE 3

*The Natural Art of*  
**LOUISA  
ATKINSON**

Elizabeth Lawson





The Natural Art of Louisa Atkinson  
State Library of New South Wales  
Press, 1995 ©  
Macquarie Street Sydney 2000,  
Australia. (02) 230 1514  
Edited by Helen Bongiorno  
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### Illustrations

Cover: [*Euastacus armatus*,  
Murray River Crayfish]  
PXA 4499  
[Shells] attributed to members of  
the Atkinson family  
PXA 579  
Half title: [Fungi]  
PXA 4500

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2. Natural history illustration -  
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New South Wales. III. Title.

759.994

Frontispiece: *Platycerium alaicorne*.  
[*Platycerium* probably *bifurcatum*.  
Elkhorn]  
PXA4498

Title page: (miniature of Louisa  
Atkinson)

Imprint: [*Petauroides volans*.  
Greater Glider]  
PXA 4500



## FERNHURST

Nor but in merriment begin a chase...

*William Butler Yeats*

By the time Louisa Atkinson began publishing in the *Illustrated Sydney News* in 1853 at nineteen years of age, she had lived half her lifetime. There must have been happy celebration at Oldbury in October that year when Louisa's second sister, Emily, married just three days before Louisa's first publication, titled "Notes of the Months: October"; with drawing of magpies".<sup>36</sup>

The *Illustrated Sydney News* also published two articles by Louisa called 'The Native Arts' at about this time.<sup>37</sup> The first of these is illustrated by her historically important drawing of the Aboriginal grave-mound with carved funeral trees on Gingenbullen mountain above Oldbury. Here it is clear that the Aborigine reclining on the right is an embellishment worked by the engraver, since the point of Louisa's article is the desolation of a site lost in all senses to its people. The second 'Native Arts' essay describes the making and ochred carving of possum skin cloaks and the headband, cloak and long necklace worn by an Aboriginal girl. The unattributed drawing of Aboriginal artifacts in the Charlotte Barton folio in the



*Above*  
Aboriginal grave-mound  
with carved funeral trees  
*Illustrated Sydney News*



*Left*  
Ring-tailed possums  
*Illustrated Sydney News*

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6 ~~Wammarah~~, used in throwing spears  
7 ~~Melethon~~ shield  
Kale 29.



1 ~~Yakmarah~~ - women's bag  
2 ~~Kapalae~~ - bark vessel  
3 ~~Wammarah~~  
4 ~~Melethon~~ - whitened for throwing  
5 ~~Goondai~~ - club



Mitchell Library, reproduced here, is certainly a sketch by Louisa, probably intended to illustrate a third article on Aboriginal weapons. The drawing has notes written and scored out in Louisa's hand both above and below. Moreover, the final sentence of the second article gives notice of the author's intention to provide 'future' sketches of the artifacts she has just described. As it happened, neither this 'artifacts' sketch nor the third proposed article ever appeared, as the 'Native Arts' series was abruptly abandoned.

Louisa's youthful illustrations to her 'Notes of the Months' in the *Illustrated Sydney News* included, along with her merry summer possums for January 1854 engraved by Walter Mason, magpies, a sparrow-hawk, plover, flying 'squirrel', ring-tailed possum and koala. Her 'Note' to this plate highlights the active play of the possums which:

on warm nights...skip from branch to branch  
with a truly tropical celerity...whisking their  
long and bushy tails, fan like, through the  
air...

Her experience at home with several pet possums, as much as her cool eye for the lower possum in her sketch, produces her comment on their easy progress to 'an unfashionable obesity'.<sup>38</sup> Louisa, with dark and ringletted hair, was a generous, happy person famous for taking her merry heart about with her. More than anywhere else in her work, she infused this merriness and affectionate amusement into her many drawings of possums and parrots.

With a new world of work just beginning, set with 'treasures at every step', and where 'pleasure' is 'the search', a merry heart might, after all, go all the way. But, after just ten months of marriage, Emily, Louisa's closest and favourite sister, died in childbirth. She was twenty-four years old.

Begun with such enthusiasm, all the promising early work for the *Illustrated Sydney News* seems to have faltered with this family tragedy in 1854 — and was then closed off with the demise of the *Illustrated Sydney News* in 1855. Devastated by the death of Emily, Louisa and Charlotte must have suffered further distress throughout

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## Ryan Desic

**From:** NIAC  
**Sent:** Monday, 30 May 2016 4:01 PM  
**To:** Ryan Desic  
**Subject:** RE: Aboriginal burial mound Gingen Bullen  
**Attachments:** To R Desic page 1.pdf; To R Desic page 2.pdf; To R Desic page 3.pdf

Hi Ryan,

You need to view things in context. I have attached (pages 1, 2 & 3) some information for your reference. It would have been nice if people's comments had been included before the final version.

The documents are instructions to Sgt Broadfoot, which was not public at the time but rather a private letter to a soldier from Government House itself, 8th May 1816.

Then on 11th May 1816 is a public letter.

Then on the 8th June 1816, a formal letter to England explaining the attempts to "apprehend or destroy", Aboriginal people, and to the massacre of 14 of them taking 5 as prisoners. But that wasn't all.

On the 20 July 1816 a copy of the Sydney Gazette with 20 Aboriginals still needing capture each for ten pounds.

You note that as recently as 3rd August 1816 the native Dewal, captured at Appin, was shipped to Tasmania as part of an ongoing relevant response. He was living at the Tharumba tribe which extended all the way to River Murray, and had nothing to do with Sydney's problems, but nevertheless this tribe was brought to account in the matter as well. The Governor simply didn't know who belonged to which tribe and saw all "darkies" as the same.

Then five years later the bulk of the tribe at gin.gen.bulla.n is poisoned and buried on mass (after many thousands of years of previous successful occupancy). Behind the show and newsworthiness of material is the military action that is behind it. This is what is supplied here, as opposed to half known truths in the public media. There is much that could be said about this, but this is sufficient.

Yours sincerely

Daniela Reverberi (NIAC volunteer technical assistant)

Phoebe Sajkovic - Elder

Jenny Sajkovic - Elder

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**From:** Ryan Desic [<mailto:rdesic@emmconsulting.com.au>]  
**Sent:** Thursday, 26 May 2016 3:06 PM

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### Governor Macquarie's Report to England

8 June 1816: Governor Macquarie to Earl Bathurst re measures to address Native unrest {HRA, Sydney, 1917, series I, volume IX, pp.139-140}:

....I have the honor to inform Your Lordship that, in consequence of the hostile and sanguinary disposition manifested for a considerable time past by the Aborigines of this country, I had determined to send out some Military Detachments into the interior, either to apprehend or destroy them.

Pursuant to this determinations and in consequence of various subsequent acts of atrocity being committed by the natives in the remote parts of the Settlement, I found it necessary on the 10th of April to order three detachments of the 46th Regiment under the several commands of Captains Schaw and Wallis, and Lieutenant Dawes of that Corps, to proceed to those districts most infested and annoyed by them on the Banks and in the neighbourhood of the rivers Nepean, Hawkesbury and Grose, giving them instructions to make as many Prisoners as possible; this Service occupied a period of 23 days, during which time the Military Parties very rarely met with any hostile tribes; the occurrence of most importance which took place was under Captain Wallis's direction, who, having surprized one of the native encampments and meeting with some resistance, killed 14 of them and made 5 prisoners; amongst the killed there is every reason to believe that Two of the most ferocious and sanguinary of the Natives were included, same few other prisoners were taken in the course of this route and have been lodged in Gaol. This necessary but painful duty was conducted by the Officers in Command of the Detachments perfectly in conformity to the instructions I had furnished them.

Previous to the return of the Military Party, I issued a Proclamation dated the 4th ulto. a copy of which I do Myself the honor to transmit herewith for Your Lordship's information, stating in the first

instance the causes which had led to the necessity of resorting to Military Force, and holding out to the Natives various encouragements with a view to invite and induce them to relinquish their wandering predatory habits and to avail themselves of the indulgences offered to them as **Settlers** in degrees suitable to their circumstances and situations. It is scarcely possible to calculate with any degree of precision on the result that this Proclamation may eventually have on so rude and unenlightened a race; but it has already produced the good effect of bringing in some of the most troublesome of the Natives, who have promised to cease from their hostility and to avail themselves of the protection of this Government by becoming Settlers, or engaging themselves as Servants, as circumstances may suit; and upon the whole there is reason to hope that the examples, which have been made on the one hand, and the encouragements held out on the other, will preserve the Colony from the further recurrence of such Cruelties....

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### Rewards Offered for Outlawed Aborigines

20 July 1816: {*Sydney Gazette*} Governor Macquarie issues a Proclamation naming ten specific Aborigines as outlaws and offering rewards of £10 each for their capture. The ten outlawed Aborigines included:

- 1 Murreh
- 2 Myles
- 3 Walah, alias Warren
- 4 Carbone Jack, alias Kurringy
- 5 Narrang Jack
- 6 Bunduck
- 7 Kongate
- 8 Wooltan
- 9 Rachel
- 10 Yallaman

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### Dewal Banished to Tasmania



3 August 1816: {*Sydney Gazette*} General Order issued by Governor Macquarie re the banishment of the native Dewal (Duel), captured near Appin, to Van Dieman's Land, in remittance of the death sentence imposed upon him.

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**To:** NIAC;  
**Subject:** Aboriginal burial mound Gingen Bullen

Hi Daniella,

I am just chasing up some information after our recent chat regarding the burial mound that NIAC believes is on the Oldbury Farm. The two articles quoted by Chris Illert do not appear to give a specific reference to Oldbury Farm as the burial mound location. The closest reference is "On a high hill, a few miles from Berrima, is situated a tumuli, forty-four years since an old man was buried there" (Atkinson 1863, p.2).

Is there any further information that you could give EMM that places the burial mound at the location (eg cultural knowledge) that may not be in historic text?

---

**Ryan Desic | Senior Archaeologist**

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### Public Report on Punitive Expeditions

11 May 1816: (*Sydney Gazette*) Report on retaliatory military expeditions against the Aborigines in areas west and south-west of Sydney:

The three military detachments, dispatched on the 10th ult. under Captains Schaw and Wallis, and Lieut. Dawe, of the 46th Regt. in pursuit of the hostile natives, returned to Head Quarters on the 4th inst. In the performance of this service the military encountered many difficulties, and underwent considerable fatigue and privations, having to traverse a widely extended range of Country on both sides of the River Nepean, from the Banks of the Grose, and the second Ridge of the Blue Mountains on the North, to that tract of Country on the Eastern Coast, called "The Five Islands."

Captain Schaw, with his party, scoured the Country on the Banks of the Hawkesbury, making digression East and West, but observing a general course to the Southward; whilst Captain Wallis, proceeding by Liverpool to the Districts of Airs and Appin, and thence into the Cow Pastures; made his digressions East and West of the Nepean, taking his course generally Northwards, with a view either to fall in with the Natives, or by forcing them to flight, to drive them within the reach of the central party under Lieut. Dawe, stationed at Mrs. McArthur's farm in the Cow Pastures, or if they should elude his vigilance, that they might fall in with Captain Schaw, who was advancing from the second Ridge of the Blue Mountains, and the Banks of the Grose.

It appears that the party under Capt. Wallis fell in with a number of the natives on the 17th ult, near Mr. Broughton's farm, in the Airs District, and killed fourteen of them, taking two women and three children prisoners. Amongst the killed were found the bodies of two of the most hostile of the natives, called Durelle and Conibigal.

We are also informed that Lieut. Dawe has, on the 12th ultimo, nearly surprised a small encampment, but having been discovered, the natives suddenly took to flight, leaving only a boy about 14 years old, whom he took prisoner; and there is every reason to believe that two of them had been mortally wounded.

Without being enabled to trace more particularly the progress of the military parties on this expedition, we learn generally that several of the natives were taken prisoners and have since been brought to Sydney and lodged in the gaol.

The humanity with which this necessary but unpleasant duty has been conducted throughout, by the Officers appointed to this command, claims our warmest commendations and although the result has not been altogether so successful as might have been wished, yet there is little doubt but it will ultimately tend to restrain similar outrages, and a recurrence of those barbarities which the natives have of late so frequently committed on the unprotected Settlers and their Families.

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### Instructions for Sergeant Broadfoot

8 May 1816: Governor Macquarie issues instructions to Serjeant Broadfoot of the 46th Regiment, to proceed to Bringelly to reinforce the military stationed in the area (AONSW, Reel 6045, 4/1735, pp.44-49):

Instructions for Sergt. Broadfoot of the 46th Regt. comd. a Detachment of said Corps ordered on a particular service.

1. The Hostile Black Natives having within these few days renewed their barbarous acts of cruelty, murder, and Robbery on the Peaceable White Inhabitants in the remote parts of the Colony, and particularly along the Banks of the Nepean River, the Bringelly and Cook Districts, I have deemed it necessary for the Punishment of the said Hostile Natives and for the protection of the said White Inhabitants and their Property to detach the Party under your command, consisting of 1 Corpl. & 15 Privates; and you are therefore hereby required to be guided generally by the following Instructions during the period of your being employed on the intended Service, namely:

1st You are to march early tomorrow morning from Sydney for Parramatta, and from thence by easy stages to the Farm of Mr John Blaxland in the District of Bringelly on the East Bank of the River Nepean with your Detachment and the Guides whose names are specified in the margin

Jno. Jackson & Wm. Parson  
Creek Jemmy, Colbee & Tindal

who are to remain with your Detachment till the Service it is sent for is executed.

2nd On your arrival at Mr Blaxland's Farm, you will inquire from his overseer Alexr. Everitt, and receive from him such information relative to the Hostile Natives as he can give you; and in case it should appear that they are in that neighbourhood, on either side of the River, you are instantly to proceed to attack them, and to compell them by Force of Arms to surrender themselves as Prisoners of War, sparing the lives of all the Women & Children if possible, when you have occasion to fire upon the Natives.

3rd Such Prisoners as you may be able to take, you are to secure the best way you can, and send them in to the Jail at Parramatta, Hand-cuffed or tied with Ropes, under a small Escort of 3 or 4 Soldiers of your Party.

4th You are to scour the whole of the Country along the Banks of the Nepean on the western side. Thereof, from opposite to Mr Blaxland's Farm, till you arrive at the Govt. Stock yard nearly

opposite to Mr Hassall's Farm called Macquarie Grove, in pursuit of the Natives, and from thence return by a further distance from the Bank of the Warragombie, if you can penetrate so far, killing or taking Prisoners all the Natives whom you may see or be able to come up with in your route to the southward as far as the Govt. Stock-yard already named, and as far to the northward as the River Warragombie.

5. Failing of coming up with or meeting with the Hostile Natives on the western side of the River Nepean, you will recross it to the east side, and scour the Country on that side of it lying between Mulgoa on the north to Mr Oxley's Farm on the south, so as to clear the whole of the intermediate Country of the Hostile Natives.

6. Having performed the whole of this Service, you are to return with your Party again to Mr John Blaxland's Farm, and there remain till you receive further orders from me, but affording all the Protection in your power to that and the neighbouring Farms.

After returning to Mr Blaxland's Farm you may discharge your Guides, and send them back to Sydney with a written Report of your Proceedings to me.

L.M.

Govt. House Sydney 8th May 1816

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## Hume Coal Project

Registered Aboriginal party consultation meeting 1 – Aboriginal cultural heritage assessment: 27 August 2015



## Acknowledgment

Before we begin the proceedings I would like to acknowledge and pay respect to the traditional owners of the land on which we meet.

I invite a community-nominated person to offer a welcome to country...

## Agenda

- Introductions (All)
- Purpose of this meeting
- Roles, functions and responsibilities (All)
- Hume Coal Project description (AP)
- Aboriginal heritage assessment method (RD)
- Summary of results to date (RD)
- Proposed further investigations (survey and test excavation) (RD)
- Request for cultural information (RD)
- Assessment timeline (RD)
- Topics to be discussed at a later date (RD)
- Questions (All)

## Introductions

## Roles, functions and responsibilities

- **EMM on behalf of Hume Coal**
  - Undertake the Aboriginal cultural heritage assessment
  - Facilitate the Aboriginal consultation process
  - Consider the cultural perspectives, views, knowledge and advice of the registered Aboriginal parties (RAPs) in assessing cultural significance and developing management measures

## Roles, functions and responsibilities

- **Registered Aboriginal Parties (RAPs)**
  - Provide cultural perspectives, views knowledge and advice to EMM
  - Indicate areas of cultural significance (if known)
  - Provide Aboriginal site officers for archaeological fieldwork
  - Have an awareness and understanding of the commercial environment and constraints in which Hume Coal operate
  - Demonstrate awareness and understanding of the opportunities to input into the ACHA and management recommendations
- **All stakeholders**
  - Communicate with professional code of conduct
  - Mutual respect (each member has the right to have a say and be heard)



## Project description

- HUME TO INSERT SLIDES

## Project description

- HUME TO INSERT MAPS & SLIDES

## Aboriginal heritage assessment method

- Assessment guidelines
  - The project will be assessed as a State Significant Development (SSD)
  - Secretary's Environmental Assessments Requirements (SEARs) must be followed
  - The assessment is in accordance with:
    - *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC 2005)
    - *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010) where relevant
    - *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010)
    - *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW 2011)

## Aboriginal consultation

- Completed
  - Identification and registration of stakeholders (first round completed in September 2012 and second round in July 2013)
  - Presentation of preliminary project information, the proposed assessment method and request for cultural information (May 2014)
  - Notifying RAPs of archaeological surveys in May 2014, October 2014 and February 2015

## Aboriginal consultation

- Ongoing
  - Request for cultural information
  - Request feedback on new investigation methods including test excavation
  - Ongoing meetings and correspondence to discuss cultural information and management recommendations
  - Review of draft Aboriginal cultural heritage assessment (ACHA)

## Archaeological background

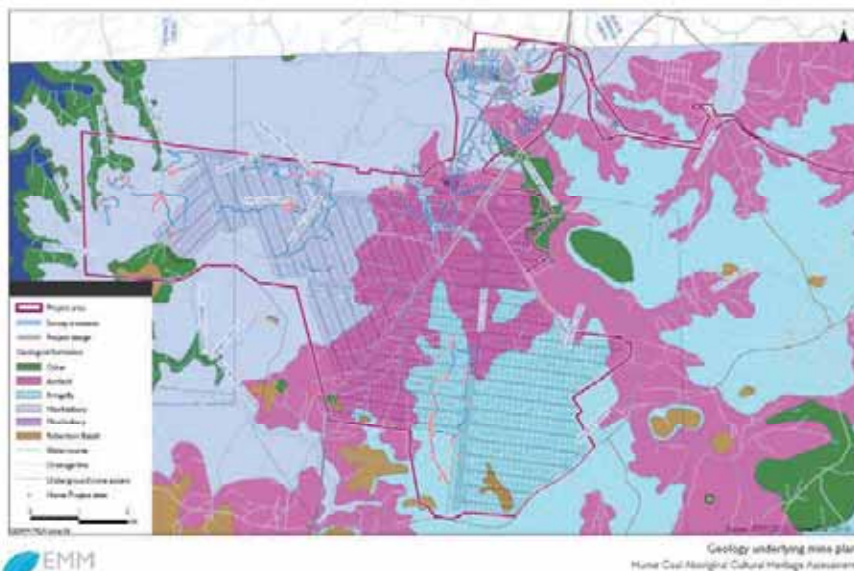
- Pre-survey findings
  - Site types of the surrounding landscape include grinding grooves, modified trees (one including a burial), open artefact sites and rock shelters (some containing art and artefact deposit)
  - AHIMS register identified only two sites in the project area: one grinding groove site and one rock shelter with art
  - Predictive model of site location (key points):
    - Rock shelters and art sites are likely to be present in areas of cliffs and scarp on sandstone geology
    - art sites and grinding grooves are likely to be present along large expanses of sandstone
    - stone artefact sites are most likely to occur close to watercourses on well-drained, elevated landforms
    - scarred or carved trees are rare, but may be present where mature native trees remain
    - burial sites are rare but may occur in conjunction with carved trees

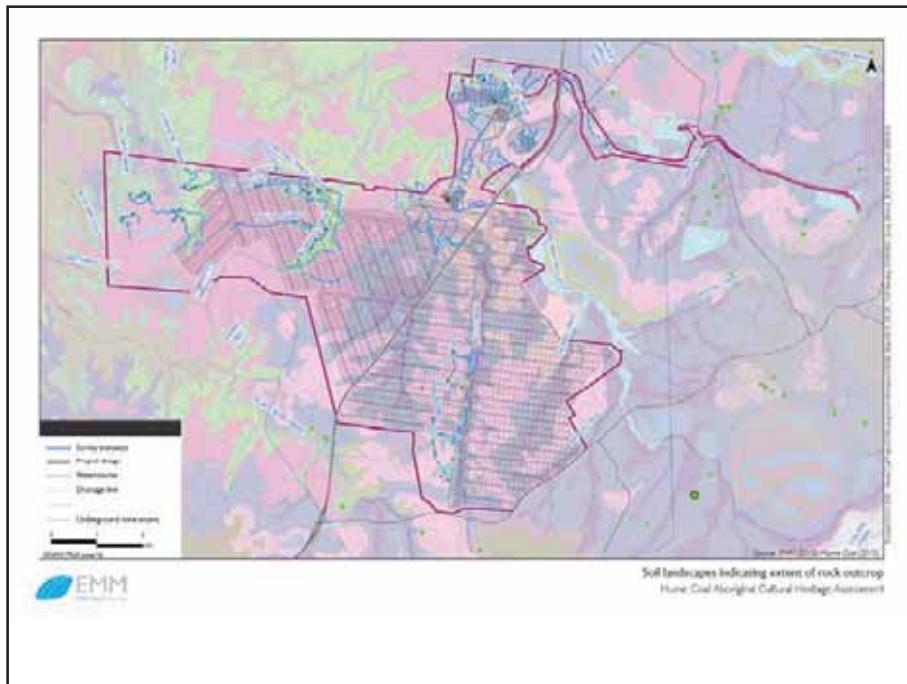


## Archaeological survey

- Survey strategy

- Survey effort divided into *the surface investigation area* and *the underground investigation area*
- *Surface investigation area*: Focus on identifying all site types within the ground disturbance boundary
- Areas targeted: landforms adjacent to watercourses, vegetated areas and rock outcrops
- *Underground investigation area*: Focus on identifying site types potentially susceptible to subsidence impacts: eg rock shelters and grinding groove sites
- Areas targeted: All areas of outcropping sandstone
- Areas not likely to have outcropping sandstone also inspected to test reliability of our predictions (portions of Wongonbra and Evandale)





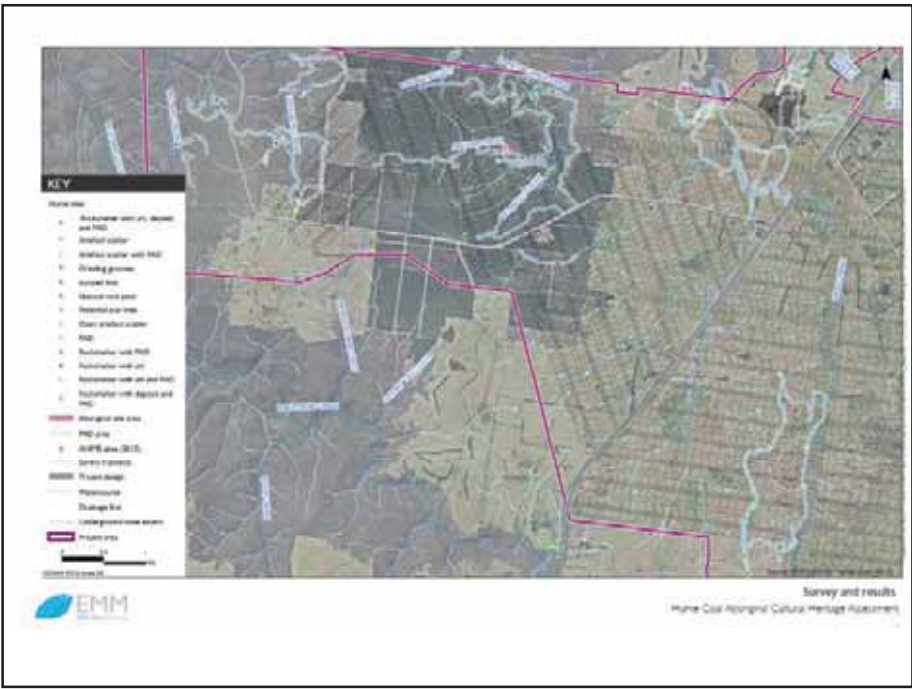
Planning + Environment + Acoustics

EMM  
ENGA, Market Research

## Survey results to date

Site type	Count
Rockshelter with PAD	55
Artefact scatter	33
Isolated find	16
Artefact scatter with PAD	16
PAD	10
Rockshelter with deposit and PAD	10
Potential scar tree	8
Isolated find with PAD	2
Grinding grooves	3
Rockshelter with art and PAD	1
Isolated find (axe head)	1
Rockshelter with art, deposit and PAD	1
Grinding grooves with artefact scatter and PAD	1
Rockshelter with art	1
Open artefact scatter	1
<b>Total</b>	<b>159</b>





## Rockshelters in Belanglo State Forest



## Rockshelters in Belanglo State Forest



## Rock art

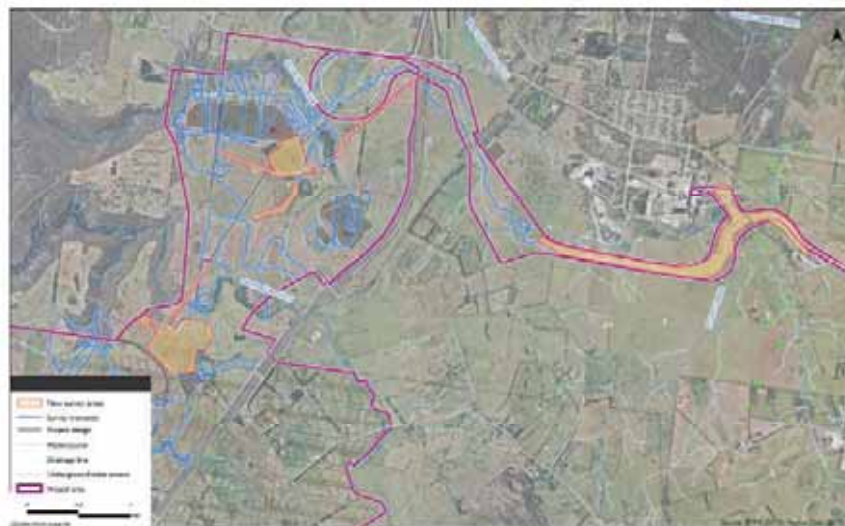


## Grinding groove sites



## Further investigation: Survey

- Areas suggested for survey:
  - Mining infrastructure area
  - Portions of the coal conveyor
  - RDM stockpile, mine water dam and main mine substation
  - Portions of proposed access roads
  - Remaining portion of rail corridor

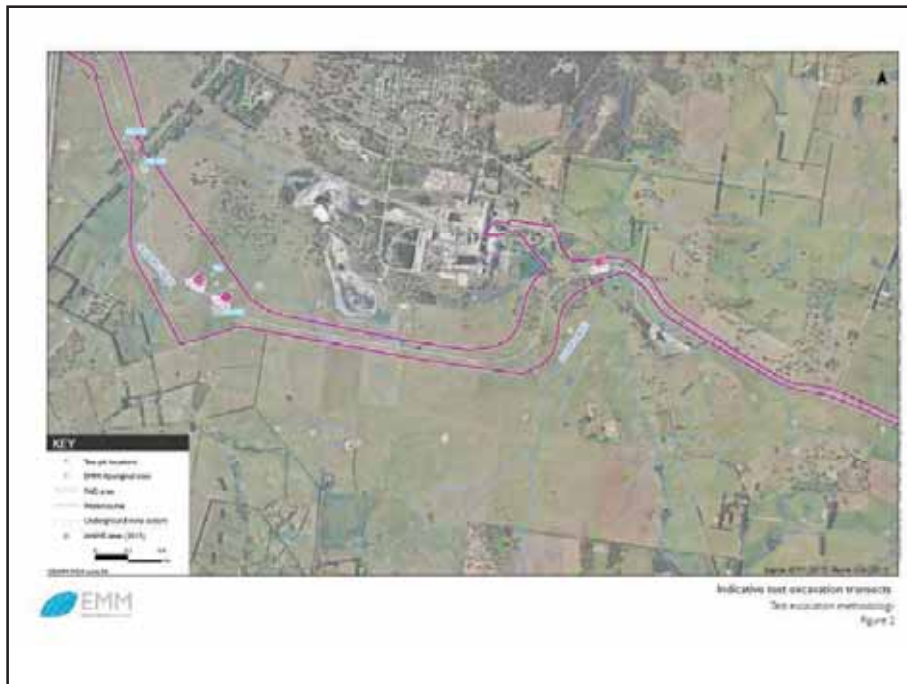




## Further investigation: Test excavation

- Test excavation proposed in surface infrastructure area
  - the mining infrastructure area
  - rail corridor
  - mine access drift
  - ventilation shafts in alignment with mine access drifts
- Proposed method includes:
  - Two and a half weeks of manual excavation in 14 locations
  - Testing landforms predicted to contain subsurface deposit
  - Digging 1 m x 1 m pits spaced at 20 m intervals
  - Recording and analysing recovered artefacts
  - Incorporating results into the assessment
  - Please refer to the proposed test excavation method letter for detailed information
  - We welcome your review and comments for this method





## Request for cultural information

- Knowledge of areas of cultural significance may include, but are not limited to:
  - sites or places associated with ceremonies, spiritual/mythological beliefs and traditional knowledge, which date from pre-contact period and have persisted until the present time;
  - sites or places associated with historical associations, which date from the post-contact period and are remembered today (eg plant and animal resource use areas and known camp sites); and
  - sites or places of contemporary significance (apart from those areas for which Aboriginal objects remain), for which the significance has been acquired in recent times.

## Indicative assessment timeline

Task	Time frame
RAP review of test excavation method	26 August to 25 September
Additional survey fieldwork	Week of 28 September
Test excavation fieldwork	5 to 21 October
Draft report preparation	22 October to end of December 2015
RAP review of report & RAP Meeting 2	Mid-January to end of February 2016
Finalisation of report	March 2016

## What's next?

- Please review the test excavation method by 25 September
- We will contact you shortly regarding the upcoming fieldwork
- We will hold another meeting after during the review period of the draft report early next year



## Questions or advice?

## Contacts

- Ryan Desic
  - 02 9493 9541
  - [rdesic@emgamm.com](mailto:rdesic@emgamm.com)
- EMGA Mitchell McLennan office:
  - 02 9493 9500 (general office number)
  - 02 9493 9599 (fax)
  - PO Box 21, St Leonards, NSW 1590
  - Suite 1, 20 Chandos St, St Leonards, NSW

Thank you for your time today

# Memorandum



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3 September 2015

To Registered Aboriginal Party  
From Ryan Desic

Subject Hume Coal Aboriginal Consultation Meeting 1: 26 August 2015

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Dear Registered Party

## 1 Introduction

The following presents the meeting minutes of the first Aboriginal Consultation Meeting for the Hume Coal Project (the project) on 26 August 2015. Table 3 presents the topics raised by registered Aboriginal parties (RAPs) and the discussion outcomes. Please refer to the attached presentation slides for further information on the agenda topics listed in Section 2.

## 2 Attendees

**Table 1: Members present**

Registered Aboriginal Parties (RAPs)	Hume Coal	EMM
Glen Chalker (GC) (Cubbitch Barta)	Alex Pauza (AP)	Ryan Desic (RD)
Wally Bell (WB) (Buru Ngunawal Aboriginal Corporation)	Luke Edminson (LE)	Pamela Kottaras (PBK)
Glen Freeman (GF) (Koomurri Ngunawal Aboriginal Corporation)	Marco Behischek (MB)	
Daniela Reverberi (DR) (Northern Illawarra Aboriginal Collective)	Joshua Reid (JR)	
	Greig Duncan (GD)	
	Claudia Farrer (CF)	
	Nicole Scally (NS)	
	Emma Humann (EH) - Haystac	

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**Table 2: Registered Aboriginal Parties not present**

Party	Comment
Peter Falk Consultancy	Apologies received
Illawarra Local Aboriginal Land Council	Apologies received
Gundungurra Aboriginal Heritage Association Inc.	Apologies received
Yamanda Aboriginal Association	No apologies received

### 3 Agenda discussed at meeting

- Welcome to country (GF)
- Introductions (All)
- Roles, functions and responsibilities (All)
- Hume Coal Project description (AP)
- Aboriginal heritage assessment method (RD)
- Summary of results to date (RD)
- Proposed further investigations (survey and test excavation) (RD)
- Request for cultural information (RD)
- Assessment timeline (RD)
- Topics to be discussed at a later date (RD)
- Questions (All)

### 4 Proceedings

- Meeting start time: 10:20 am
- Meeting finish time: 1:10 pm
- Aboriginal cultural heritage matters presented by Ryan Desic (senior archaeologist)
- Hume Coal Project information presented by Alex Pauza (manager, mine planning)
- Minutes taken by Pamela Kottaras (heritage services manager)
- Welcome to country presented by Glen Freeman in Ngunawal

**Table 3: Discussion Topics**

Topic	Description	Outcome
Indigenous employment	WB asked if there would be employment opportunities specifically allocated for Indigenous people	Further discussion required (AP)
Coal seam gas	DR asked if coal seam gas would be extracted from the project area.	AP explained that coal seam gas extraction is a misconception about the project and that it will not be extracted.
Waste Deposition	GC noted that underground coal reject emplacement was a good environmental practice	Noted
Subsidence	GC asked about the predicted levels of subsidence (relating to potential impacts of Aboriginal sites)	AP explained that mining method is expected to result in negligible subsidence. RD explained that impacts to Aboriginal sites will be assessed once the subsidence report is available.
Land rehabilitation	WB and GF asked what type of vegetation would be used in the rehabilitation of the surface infrastructure area. Suggested to use native endemic species.	LE explained that surface infrastructure will be designated to cleared paddocks where very few remnant native trees remain. As per regulations, the paddocks will be revegetated with endemic grasses.
Protection for grinding grooves	WB stated that protective fencing needs to be adequate and permanent. Concerns for conveying spiritual significance to contractors.	Further discussion about specific methods is required (RD).
Protection of unknown sites identified during project construction	RAPs raised the concern of Aboriginal sites not being identified by contractors and appropriately managed. GC suggested cultural heritage workshops to be held periodically. GF suggested taking inductees out to Aboriginal sites in the landscape as an educational exercise.	Further discussion needed on what to be included in the management recommendations. RD asked for RAPs to contact EMM with details of their suggestions.
Surface infrastructure impacts	GC asked what the likelihood of additional surface infrastructure would be on the underground mining area, and if so, would this be surveyed.	AP explained that there is the possibility of one or two shafts but unlikely at this stage. RD explained that they would be surveyed if assessed to be in archaeologically sensitive areas.
Test excavation of rock shelters	GF asked if it would be more scientifically rigorous to test inside rock shelters with potential archaeological deposit (PAD)	RD explained that the impacts of excavation would not be justified given that project impacts are not likely to occur on these sites. PBK also said regulator is unlikely to approve testing in areas that are proposed.
Management of existing rock shelters	Rock shelters with art and deposit are potentially being used by rock climbers – RAPs suggest that the area is protected and closed off to climbers.	LE and RD stated that the rock shelter in question is within the state forest and cannot be managed by Hume Coal. RD said that the responsible people could be notified that it is an Aboriginal site. PBK suggested that rock climbers can be consulted for management, but RAPs opposed this suggestion.
Proposed Test excavation	GC noted that clear maps of the proposed test excavation are necessary.	RD explained that we have attached maps in the handout sheet and that we can provide more zoomed in maps on

**Table 3: Discussion Topics**

<b>Topic</b>	<b>Description</b>	<b>Outcome</b>
	GC requested that soil should be sieved using the wet-sieving technique as opposed to dry-sieving	request. The proposed method indicates that the dry sieving technique will be used for the excavation. Dry sieving is appropriate in dry to damp weather, however this method becomes ineffective during prolonged rain. In this instance, a water truck may be requested to wet-sieve the excavated soil.
Project timeline	GC asked to be issued with timeline	RD advised that copies of the presentation slides have been provided at the meeting
Payment for consultation meetings and cultural information	GF raised the concern that RAPs must take time off regular work for consultation meetings and should be paid for their attendance and contribution. GF also stated that RAPs should be acknowledged for their contribution of cultural information and paid for such advice.	Concern acknowledged. RD explained that payment was not offered in the meeting notification letter, but mileage was. RD explained that payment could be discussed for reports providing cultural information that is relevant to the project area.
Concluding comments	GF was impressed with the effort made to reduce the environmental footprint including avoidance of Aboriginal sites.	Acknowledged

*Attached: Presentation Slides*

27 August 2015

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Re: Hume Coal Project Aboriginal cultural heritage assessment: test excavation method

Dear Registered party

## 1 Introduction

This letter contains information regarding the proposed method for archaeological test excavations as part of the Hume Coal Project and invites your feedback on the proposed method in accordance with our consultation approach. A separate letter will be sent providing further information about fieldwork arrangements. Your comment on the draft method is invited by 25 September 2015. Please note that the scope of the test excavation may need to be revised based on consultation with the Department of Planning and Environment (DP&E) and the Office of Environment and Heritage (OEH). If so, we will update you on the changes before test excavation commences.

## 2 Scope

The test excavation will contribute to the Aboriginal cultural heritage assessment (ACHA) by characterising the archaeological landscape that will be impacted by the Project. The test excavation will be undertaken in the following areas where ground disturbance is proposed in the surface infrastructure area:

- the mining infrastructure area;
- rail corridor;
- mine access drift; and
- ventilation shafts in alignment with mine access drifts.

No ground disturbance areas in the underground mining domain have been indicated and therefore this area does not require test excavation. The scope of text excavation may need to be revised if the additional areas of ground disturbance are planned in archaeologically sensitive areas.

## 3 Test excavation method

### 3.1 Strategy

The purpose of the archaeological test excavation will be to characterise the integrity, extent, distribution, nature and overall significance of the archaeological record in areas planned for ground disturbance, and by



extension, the wider project area. A greater understanding of the archaeological resource in the project area will assist in formulating appropriate management recommendations.

The strategy has been guided by the survey results, environmental context and previous subsurface investigations in the region. The aims of the test excavation will be to:

- Characterise the subsurface archaeological deposit in areas of known surface sites with potential archaeological deposit (PAD);
- Verify the presence of subsurface Aboriginal objects in areas of PAD where surface sites have not been identified, (possibly because of low ground surface exposure and visibility conditions; and
- Identify areas of low archaeological potential, indicated by drop-off of artefact densities along transects.

The test excavation locations and test pit transect layouts have been designed to best sample the extensive landscapes that the surface infrastructure covers. The primary aim of the test excavation will be to verify the presence of sub-surface Aboriginal objects in the disturbance areas and relate it to the predictive model, which indicates that these areas are likely to contain Aboriginal objects. Considering the extensive project area, the excavation will aim to recover an artefact sample that will contribute to a baseline description of the local archaeology.

The test excavation will be centred on Medway Rivulet and Oldbury Creek which are the two main watercourses dividing the disturbance areas. Stony Creek will be tested to a lesser extent as only a small section of the railway corridor will fall within its proximity. The excavation will target areas identified during survey as being archaeologically sensitive but also extend beyond these areas to characterise the limits of identified archaeological deposits. The test excavation will sample a number of landform elements within the archaeologically sensitive areas, comprising:

- hillcrests/spurs;
- hill slopes;
- flats; and
- low rises/footslopes.

### 3.2 Excavation method

The proposed test excavation method conforms to standard investigation models and will be as follows:

- Linear transects made up of approximately five 1 m x 1 m test pits will be excavated in 14 locations of the disturbance area (a total of 70 test pits).
- The test pits will be spaced at 20 m intervals to sample a distance of 80 m across landforms from the watercourse in each location. This method will identify the variation in artefact numbers to test the working hypothesis that artefacts occur in higher numbers closer to reliable water sources. The results will inform the extent of the archaeological distribution in areas not tested.
- The first test pit in each tested area will be dug manually with hand tools in 10 cm levels termed 'spits' to identify the nature of the soils and to identify any stratigraphic sequence. All subsequent test pits will be excavated in 20 cm spits or in stratigraphic sequence. Previous excavations in the local area indicate that mixed duplex soils will be encountered and no stratigraphic sequence will be identified, but if such is found, the test pits will be dug stratigraphically.

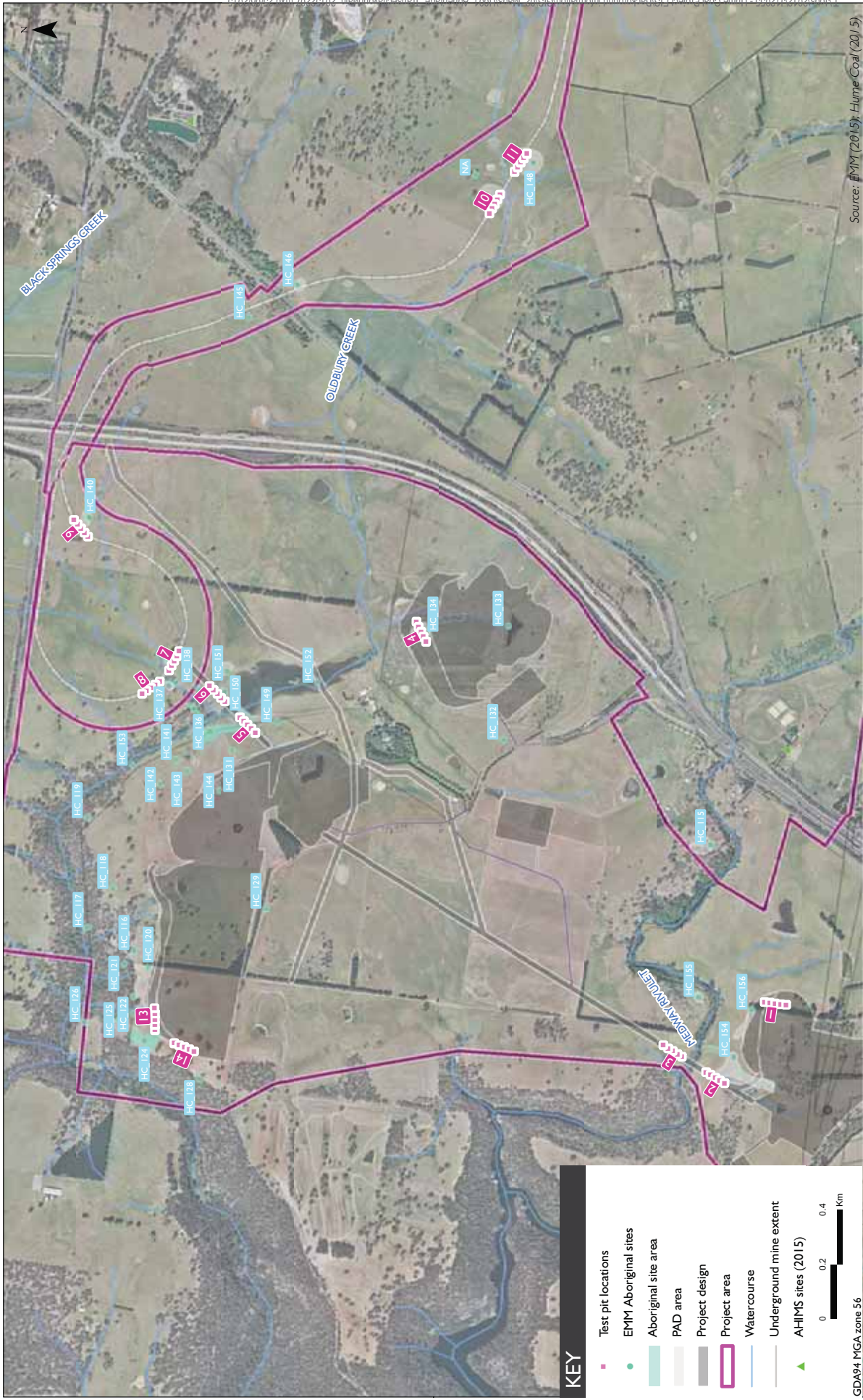
- Each pit will be excavated until basal clay is reached, or at least one 20 cm spit below the artefact bearing level identified at each transect. Test pits are not anticipated to reach 80 cm, but will not exceed this level if encountered (as per advice from Hume Coal).
- All excavated soil will be dry-sieved on site during the excavation program using 5 mm aperture mesh.
- All pits will be backfilled by Hume Coal after recording, and may be done so with light machinery that will not disturb the adjacent ground surface.

The excavation supervisor will determine the specific number and location of test pits depending on results gathered during excavation (eg encountering high levels of subsurface disturbance that would make further excavation pointless). Test pits marked along transects may be terminated if conditions warrant such change. Additional test pits may be dug to clarify the local artefact distribution (but not to exceed the length of the excavation program). These decisions will be made by the supervising archaeologist in the field based on the archaeological results as they come to hand; however such deviations from the intended work-plan will only be adopted in compelling circumstances.

The decision to reduce test pit numbers in certain transects will be informed by which landform unit it covers and its representativeness of similar landforms in the project footprint. For example, the results from one comprehensively tested landform in one area are likely to represent subsequent test areas with the same landform type. Therefore less test pitting may be required in the subsequent areas to adequately characterise the Aboriginal objects in the area.

Artefacts will be retained temporarily by EMM, at our offices for the required analysis of technological attributes and eventually stored with the salvaged site material in the agreed keeping place or returned to country as agreed by all Aboriginal groups. All excavated artefacts will be transferred back to the general area at the earliest reasonable opportunity.

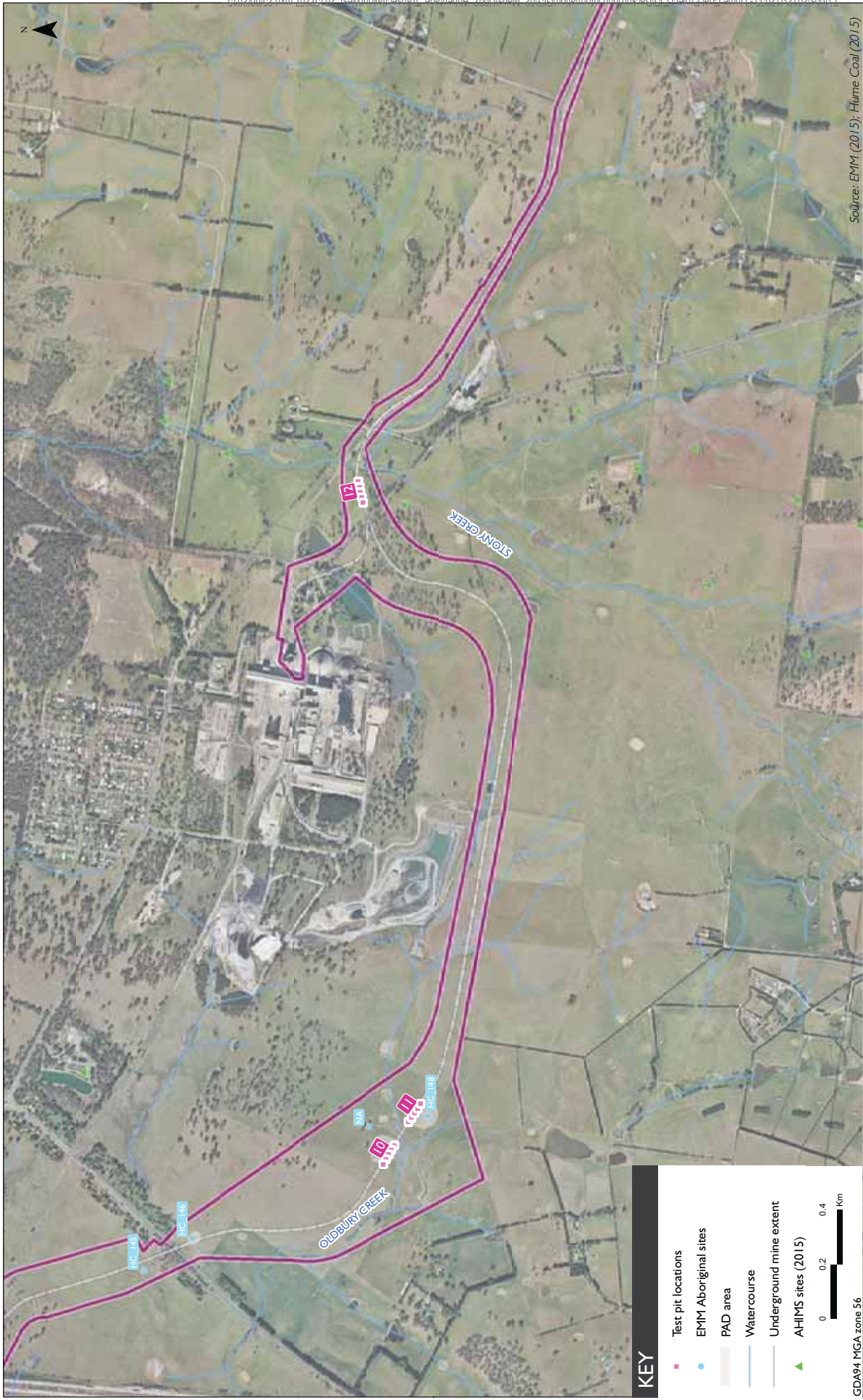
Test pit details are provided in Table 1 and their locations and layout are present in Figures 1 and 2.



**Indicative test excavation transects**  
 Test excavation methodology  
 Figure 1







Source: EMM (2015); Hume Coal (2015)

**Indicative test excavation transects**  
 Test excavation methodology  
 Figure 2

**KEY**

- Test pit locations
- EMM Aboriginal sites
- PAD area
- Watercourse
- Underground mine extent
- ▲ AHMS sites (2015)

0 0.2 0.4 km

GDA94 MGA zone 56





**Table 1 Test pit transect descriptions**

Transect No.	Property Location	Impact Type	Landform tested	Soil landscape	Underlying geology	Disturbance noted during survey	Comment
1	Evandale	MIA	Low hill rise	Soapy Flat	Hawkesbury sandstone	Cleared paddock	Near site HC_156 which included a PAD on an east-west axis
2	Evandale	Conveyor and infrastructure corridor	Hill crest/spur	Soapy Flat	Hawkesbury sandstone	Cleared paddock	Near site HC_154 and close to Medway Rivulet
3	Evandale	Conveyor and infrastructure corridor	River flat	Lower Mittagong	Hawkesbury sandstone	Cleared paddock	Near site HC_154 and close to Medway Rivulet
4	Mereworth	Dam wall	Hill crest/spur	Moss Vale and Kangaloon	Hawkesbury sandstone	Cleared paddock/ploughing visible	On PAD HC_134
5	Mereworth	Conveyor and infrastructure corridor	Drainage depression	Nattai Tablelands	Hawkesbury sandstone	Cleared paddock with vehicle track exposures	Crosses through artefact scatter with PAD HC_135
6	Mereworth	Conveyor and infrastructure corridor	Hill slope	Kangaloon and Moss Vale	Hawkesbury sandstone	Cleared paddock with vehicle track exposures	Near HC 135, HC_150 and HC_151
7	Mereworth	Rail Loop	Flat	Kangaloon and Moss Vale	Hawkesbury sandstone	Cleared paddock	Near PAD HC_137
8	Mereworth	Rail Loop	Hill slope	Moss Vale	Hawkesbury sandstone	Cleared paddock	Near HC_139
9	Mereworth	Rail Loop	Rise crest	Kangaloon	Hawkesbury sandstone	Cleared paddock	Near PAD HC_140
10	Stonington	Rail corridor	Lower hill slope	Moss Vale	Hawkesbury sandstone	Cleared paddock	Cuts through PAD HC_147
11	Stonington	Rail corridor	Lower hill slope	Moss Vale	Ashfield shale	Cleared paddock	Cuts through PAD HC_148
12	Boral Property	Rail corridor	Hill slope	Kangaloon	Hawkesbury sandstone	Cleared paddock	Adjacent to Stony Creek
13	Evandale	Water dam/dam wall	Flat hill crest	Soapy Flat	Hawkesbury sandstone	Cleared paddock/ploughing visible	Adjacent Oldbury creek and tributary and HC_124
14	Evandale	Water dam/dam wall	Flat hill crest	Soapy Flat	Hawkesbury sandstone	Cleared paddock/ploughing visible	Near Oldbury creek and HC_127

### 3.3 Post-fieldwork analysis

#### 3.3.1 Artefact analysis

Basic recording and analysis will be undertaken for the artefact assemblage recovered from the test excavation with the aim to form a baseline characterisation of the local archaeological record. Analysis of excavated stone artefacts includes:

- initial sorting and cleaning of excavated material;
- establishment of a computer database using Microsoft Access to record all provenance locations;

- measuring and recording the attributes of stone artefacts; and
- statistical analysis of the data to explore the frequency, distribution, raw material type, implement type and size of the of the artefacts in the assemblage.

### 3.3.2 Provenance analysis

Landscape and soils information is important in understanding the integrity, nature, and distribution of the archaeology. Provenance analysis includes the recording, drawing and analysis of soil profiles to inform the integrity and potentially the date of the archaeological record.

### 3.3.3 Research questions

The test excavation program aims to address the broad research questions set out in Table 2 which will contribute to a baseline characterisation of the local archaeological record.

**Table 2** Research questions and methods

Question	Analysis method
What is the makeup of Aboriginal sites in key landform contexts?	<ul style="list-style-type: none"> <li>• Size and technological tabulation</li> <li>• Descriptive statistics of artefacts by attribute and landform</li> </ul>
Can connections with other areas be identified?	<ul style="list-style-type: none"> <li>• Review of regional raw material sources and artefact characteristics for each raw material</li> </ul>
What is the extent of archaeological evidence in each key landform and in relation to watercourses?	<ul style="list-style-type: none"> <li>• Tabulation of artefact densities over area</li> </ul>
How old is the archaeological evidence?	<ul style="list-style-type: none"> <li>• Radiocarbon dating of suitable charcoal samples (if hearths are encountered)</li> </ul>
What plant resources existed in the prehistoric landscape?	<ul style="list-style-type: none"> <li>• Pollen analysis of suitable soil samples</li> </ul>
How does the assemblage vary across the project area?	<ul style="list-style-type: none"> <li>• Analysis of frequency and variability of artefact attributes (eg core size, implement forms)</li> </ul>
Is there any indication of different site activities being undertaken at different locations?	<ul style="list-style-type: none"> <li>• Functional analysis of artefact and implement forms to determine eg knapping floors, hunting areas, ceremonial areas, camping areas.</li> </ul>

## 4 Closing

Thank you for your time. Once again, your comment on the proposed method is invited by 25 September 2015. We will be contacting you shortly regarding the upcoming fieldwork. Furthermore, we will keep you updated if any changes to the test excavation scope or method are proposed.

If you have any queries in regard to don't hesitate to contact me on my details below.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Desic', with a stylized flourish at the end.

Ryan Desic  
Senior Archaeologist  
[rdesic@emgamm.com](mailto:rdesic@emgamm.com)

Cubbitch Barta Native Title Claimants  
Aboriginal Corporation

10<sup>th</sup> September, 2015.

EMM,  
P.O. Box 21,  
ST. LEONARDS. N.S.W. 1590.

Dear Ryan,

HUME COAL.

Thank you for the opportunity of commenting on the proposed methodology for the proposed Hume Coal project test excavations.

I do not have many problems with the proposed methodology except for two issues, one of which I raised in the consultation meeting, that is:

1. **THE EXCAVATED MATERIAL SHOULD BE WET SIEVED ONLY..**
2. The sieve size should be 3mm not 5mm.
3. The reasoning for dry sieving is inappropriate. The property is well serviced by good tracks, many are covered in road base material.
4. There is always an alternative way to get water to sieves, and one being take the dirt to sieves that are placed where water is readily accessible.
5. The other can be to pump water from dams, or run long pipes from a water source.
6. Dry sieving is time consuming, taking up to four or five times longer to sieve, and much harder to work with.
7. All smaller artefacts are lost in the dry sieving process.
8. The answers to your research questions will be lost through the dry sieving process, with only larger artefacts visible in the sieves.
9. Why do 1 metre x 1 metre every 20 metres, when you could get a more complete outcome with 50 x 50 every 10 metres?

The locations of the test pits look to be okay on the map, however is there scope to change the locations out on site if stakeholders agree.

Yours faithfully,



Glenda Chalker



## Ryan Desic

---

**From:** Ryan Desic  
**Sent:** Friday, 2 October 2015 12:51 PM  
**To:** Peter Falk  
**Subject:** Re: Hume Coal Excavations

Hi Peter,

Yes we are changing the excavation to suit your previous comments and the new survey results.

Sent from my iPhone

On 2 Oct 2015, at 12:24 pm, Peter Falk wrote:

Ryan,  
With all the NEW finds for Hume are these sites included in the excavation or are they to be done seperately??

Note: any road works and service installations with soil removal will require Aboriginal representation to MONITOR for Aboriginal Artefacts Salvage.

Also any Aboriginal sites outside of the company footprint to be FENCED and POSTED copy of signs will be sent to you.

The above will be in my report of your DRAFT report

Regards

Peter

Peter Falk Consultancy



13 October 2015

Cubbitch Barta Native Title Claimants  
Aboriginal Corporation  
Glenda Chalker  
Via email

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Re: Hume Coal Project: Response to draft test excavation method feedback

Dear Glenda,

Thank you for taking the time to review and respond to the draft test excavation method for the Hume Coal Project presented to registered Aboriginal parties (RAPs) on 27 August 2015. I would like to take the opportunity to respond to your comments directly before the test excavation proceeds.

1. *Request for wet sieving only.*

We have looked into a number of options to accommodate wet sieving and we understand that some areas would definitely benefit from this method (especially in some of the recently added test pit areas identified during the Stage 4 survey).

Hume Coal is currently organising to have wet sieving for the duration of the test excavation. At present, we can make the commitment that all soil will be sieved on site using wet sieving or dry sieving where required. Hume is arranging wet sieving facilities to accommodate compact or clayey soils. The soil will be sieved through a mix of 3 mm and 5 mm aperture mesh. It will be documented which sieve was used when sieving each pit. The effectiveness of each sieve size will be reviewed post-excavation by comparing average artefact size retrieved from each sieve size. Ideally, all material will be sieved using the wet sieving method, however if logistical or work health safety issues arise in the field, there is capacity for sieving to continue using the dry sieving method if it is clear that the results of the excavation will not be compromised.

2. *Request for revision of test pit size and layout.*

We have also incorporated your request to have the test pits as 50 cm by 50 cm squares spaced at 10 m intervals instead of 1 m by 1 m pits at every 20 metres. The revised test pit layout will be provided shortly in the revised test excavation method letter.

3. *Request for scope to change test locations in the field.*

There is scope to change test pit locations as stated in Section 4.3 of the revised test excavation method. This will be decided by the excavation director who will take RAP suggestions into consideration.

I hope that this information assists you. If you have any further queries please do not hesitate to contact me on the details provided below.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Desic', with a stylized flourish at the end.

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15 October 2015

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Re: Hume Coal Project Aboriginal cultural heritage assessment: revised test excavation method

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Dear Registered party

## 1 Introduction

The review period for the draft test excavation method for the Hume Coal Project has now ended. We would like to thank all registered Aboriginal parties (RAPs) that took the time to respond to the method. We also provided the draft test excavation method to the Office of Environment and Heritage (OEH) Wollongong Office and received their review and comments.

Section 2 of this letter provides a summary of the changes made to the test excavation method and the reasoning behind these changes. As explained in the first RAP meeting on 26 August 2015 and the draft test excavation method letter dated 27 August 2015, changes to the draft test excavation method would potentially be made based on:

- the results of Stage 4 of the archaeological survey;
- review and comments provided by RAPs; and
- review and comments provided by OEH.

More detailed correspondence between stakeholders will be issued in the draft Aboriginal cultural heritage assessment report.

The remainder of this letter (Section 3 onwards) presents the revised test excavation method in detail which will be undertaken from 19 October to 4 November 2015.

## 2 Summary of changes to the test excavation method

The test excavation method has been revised as a result of the following:

1. The Stage 4 archaeological survey (completed from 28 to 30 September 2015) identified fifteen Aboriginal stone artefact sites and one area of potential archaeological deposit (PAD). Subsequently, the test excavation layout was revised to incorporate more suitable areas than originally marked in the draft test excavation method; either because of newly identified Aboriginal sites and PAD that warranted testing, or certain areas being identified as better examples of the landforms targeted for



excavation. For example, some test pit locations along transects were identified to encroach on damp drainage depressions or low-lying swampy areas which are not suitable for test excavation.

2. There was concern by one RAP that the length of the test pit transects and number of test pits along each transect were inadequate and that there should be a minimum of 20 pits per transect. There was also specific reference that the Rail Loop area of the proposed surface infrastructure area would benefit from more testing. It was also recommended that the first test pit should be excavated in 5 cm spits and subsequently 10 cm spits.

To respond to these requests while still addressing the original scope and aims of the draft test excavation method, the following changes were made:

- a) The test pit size and layout was changed from placing 1 m x 1 m test pits spaced at 20 m intervals along transects up to 80 m in length (up to five test pits) to instead placing 50 cm x 50 cm test pits spaced at 10 m intervals along transects up to 190 m in length (up to 20 test pits).

Note that no changes to the excavation units (known as 'spits') have been incorporated into the test excavation. Our experience in the region indicates that, because of the duplex nature of the soils and previous land use disturbance any reduction in the size of the excavation units will not affect the results.

3. There was concern by one RAP that the excavated material should be wet sieved only. The main reasoning was that the proposed dry sieving method was considered inappropriate and that smaller artefacts are potentially not identified from dry sieving. There was also a request that the sieve aperture should be 3 mm not 5 mm.

To respond to these requests while still addressing the original scope and aims of the draft test excavation method, the following changes were made:

- a) All excavated soil will be sieved on site using wet sieving or dry sieving where required. Hume is arranging wet sieving facilities to accommodate compact or clayey soils. The soil will be sieved through a mix of 3 mm and 5 mm aperture mesh. It will be documented which sieve was used when sieving each pit. The effectiveness of each sieve size will be reviewed post-excavation by comparing average artefact size retrieved from each sieve size. Ideally, all material will be sieved using the wet sieving method, however if logistical or work health safety issues arise in the field, there is capacity for sieving to continue using the dry sieving method if it is clear that the results of the excavation will not be compromised.

We would like to remind RAPs that, as per Section 4.3 of the test excavation method letter, there is flexibility to terminate and/or add test pits and to decide the depth of particular test pits at the discretion of the excavation director.

These changes will be applied depending on the results observed in the field and the time available. This level of flexibility is necessary to gather the information required efficiently and allocate available resources where needed.

### 3 Scope

The test excavation will contribute to the Aboriginal cultural heritage assessment (ACHA) by characterising the archaeological landscape that will be impacted by the Project. The test excavation will be undertaken in the following areas where ground disturbance is proposed in the surface infrastructure area:

- the mining infrastructure area;

- rail corridor;
- mine access drift; and
- ventilation shafts in alignment with mine access drifts.

No ground disturbance areas in the underground mining domain have been indicated and therefore this area does not require test excavation. The scope of test excavation may need to be revised if the additional areas of ground disturbance are planned in archaeologically sensitive areas.

## 4 Test excavation method

### 4.1 Strategy

The purpose of the archaeological test excavation will be to characterise the integrity, extent, distribution, nature and overall significance of the archaeological record in areas planned for ground disturbance, and by extension, the wider project area. A greater understanding of the archaeological resource in the project area will assist in formulating appropriate management recommendations.

The strategy has been guided by the survey results, environmental context and previous subsurface investigations in the region. The aims of the test excavation will be to:

- Characterise the subsurface archaeological deposit in areas of known surface sites with potential archaeological deposit (PAD);
- Verify the presence of subsurface Aboriginal objects in areas of PAD where surface sites have not been identified, (possibly because of low ground surface exposure and visibility conditions; and
- Identify areas of low archaeological potential, indicated by drop-off of artefact densities along transects and testing landforms and areas not necessarily attributed as having PAD until verified through test excavation.

The test excavation locations and test pit transect layouts have been designed to best sample the extensive landscapes that the surface infrastructure covers. The primary aim of the test excavation will be to verify the presence of sub-surface Aboriginal objects in the proposed disturbance areas and relate it to the predictive model. Considering the extensive project area, the excavation will aim to recover an artefact sample that will contribute to a baseline description of the local archaeology.

The test excavation will be centred on Medway Rivulet and Oldbury Creek which are the two main watercourses dividing the disturbance areas. Land near Stony Creek will be tested to a lesser extent as only a small section of the railway corridor will fall within its proximity. The excavation will target areas identified during survey as being archaeologically sensitive but also extend beyond these areas to characterise the limits of identified archaeological deposits. The test excavation will sample a number of landform elements within the archaeologically sensitive areas, comprising:

- hillcrests/spurs;
- hill slopes;
- flats; and
- low rises/footslopes.

## 4.2 Excavation method

The proposed test excavation method conforms to standard investigation models and will be as follows:

- Linear transects made of up to twenty 50 cm by 50 cm test pits will be excavated in up to 17 locations of the disturbance area.
- The test pits will be spaced at 10 m intervals across landforms within the disturbance boundary. This method will identify the variation in artefact numbers to test the working hypothesis that artefacts occur in higher numbers closer to reliable water sources. The results will inform the extent of the archaeological distribution in areas not tested.
- The first test pit in each tested area will be dug manually with hand tools in 10 cm levels termed 'spits' to identify the nature of the soils and to identify any stratigraphic sequence. All subsequent test pits will be excavated in 20 cm spits or in stratigraphic sequence. Previous excavations in the local area indicate that mixed duplex soils will be encountered and no stratigraphic sequence will be identified, but if such is found, the test pits will be dug stratigraphically.
- Each pit will be excavated until basal clay is reached, or to 10 cm below the artefact bearing level identified at each transect. Test pits are not anticipated to reach 80 cm, but will not exceed this level if encountered (as per advice from Hume Coal).
- All excavated soil will be sieved on site using wet sieving or dry sieving where required. Hume is arranging wet sieving facilities to accommodate compact or clayey soils. The soil will be sieved through a mix of 3 mm and 5 mm aperture mesh. It will be documented which sieve was used when sieving each pit. The effectiveness of each sieve size will be reviewed post-excavation by comparing average artefact size retrieved from each sieve size.
- All pits will be backfilled by Hume Coal after recording, and may be done so with light machinery that will not disturb the adjacent ground surface.

## 4.3 Changes to the method during fieldwork

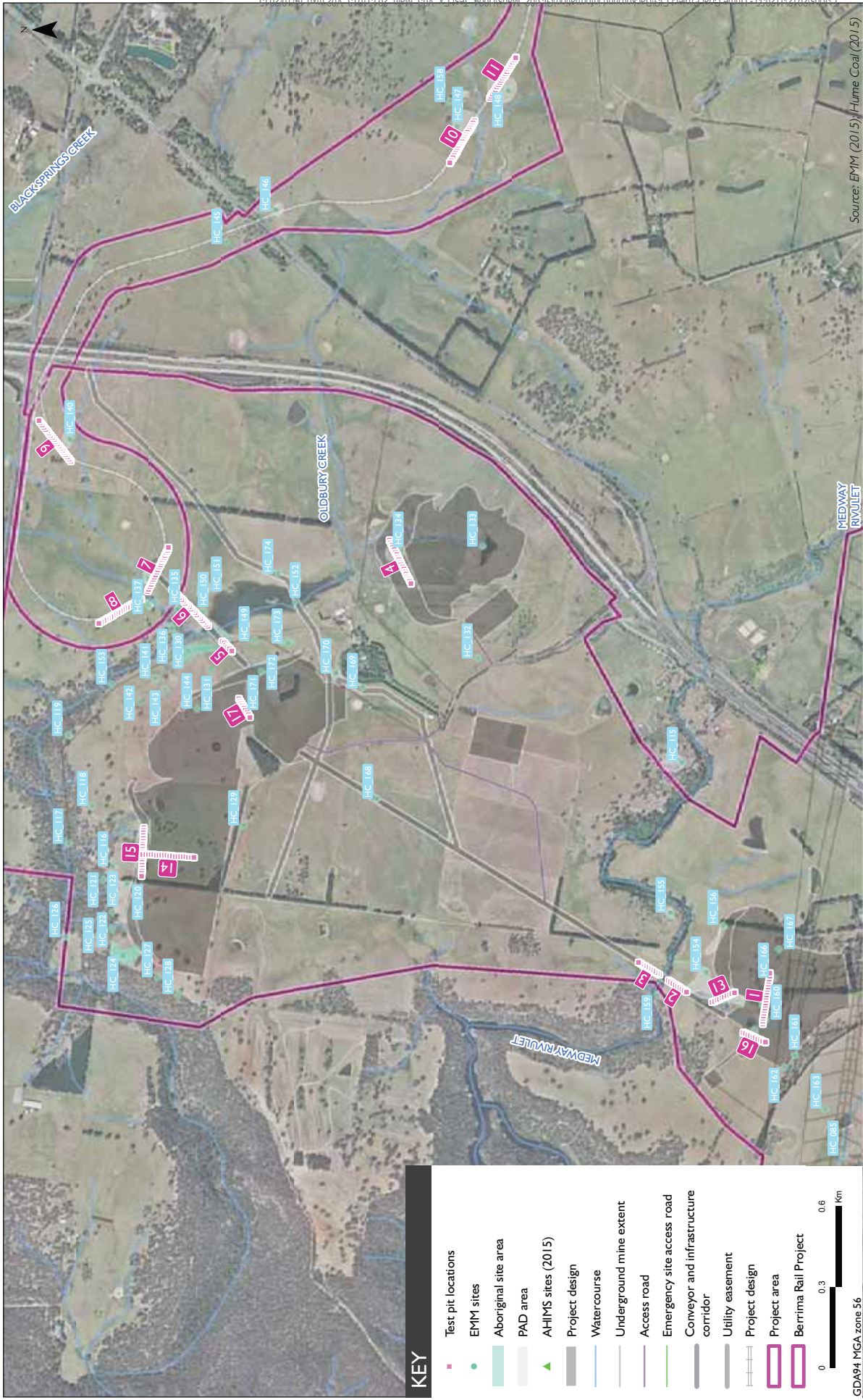
- The excavation supervisor will determine the specific number and location of test pits depending on results gathered during excavation (eg encountering high levels of subsurface disturbance that would make further excavation unwarranted).
- Test pits marked along transects may be terminated if conditions warrant such change. Additional test pits may be dug to clarify the local artefact distribution (but not to exceed the length of the excavation program).
- The final depth of each test pit may be changed if there is sufficient evidence that the artefact bearing deposit only continues to a certain depth and that further excavation would be time consuming and unwarranted.

These decisions will be made by the supervising archaeologist based on the archaeological results as they come to hand; however such deviations from the intended work-plan will only be adopted in compelling circumstances.

## 4.4 Storing recovered material

Artefacts will be retained temporarily by EMM, at our offices for the required analysis of technological attributes and eventually stored with the salvaged site material in the agreed keeping place or returned to country as agreed by all Aboriginal groups. All excavated artefacts will be transferred back to the general area at the earliest reasonable opportunity.

Test pit details are provided in Table 1 and their locations and layout are present in Figures 1 and 2.



Source: EMM (2015), Hume Coal (2015)

**Indicative test excavation transects**  
 Revised test excavation layout: Hume Coal Project  
 Figure 1

**KEY**

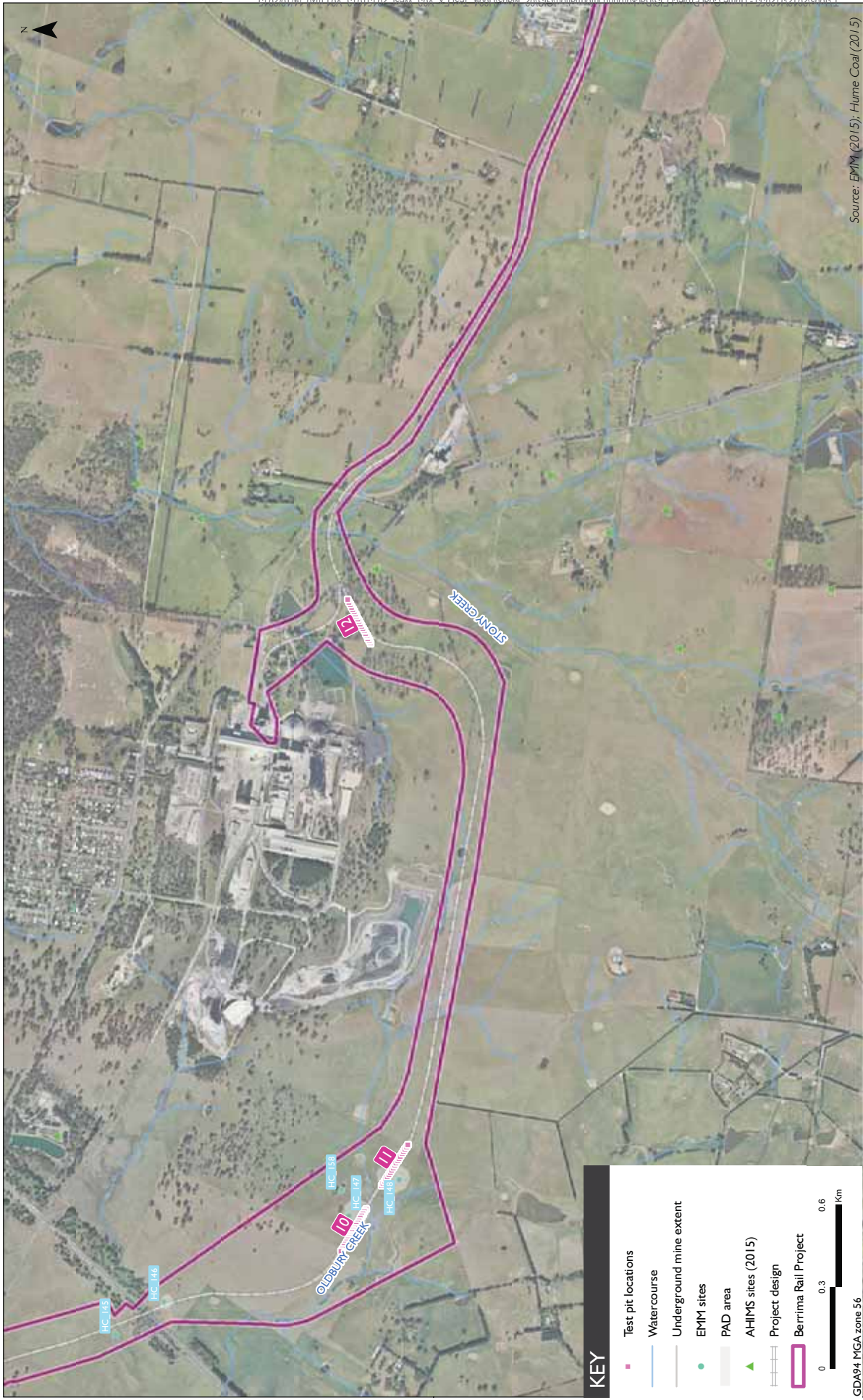
- Test pit locations
- EMM sites
- Aboriginal site area
- PAD area
- AHIMS sites (2015)
- Project design
- Watercourse
- Underground mine extent
- Access road
- Emergency site access road
- Conveyor and infrastructure corridor
- Utility easement
- Project design
- Project area
- Berrima Rail Project

0 0.3 0.6 1km

GDA94 MGA zone 56







**KEY**

- Test pit locations
  - Watercourse
  - Underground mine extent
  - EMM sites
  - PAD area
  - ▲ AHIMS sites (2015)
  - Project design
  - ▭ Berrima Rail Project
- 0 0.3 0.6 Km

GDA94 MGA zone 56



**Indicative test excavation transects**  
 Revised test excavation layout: Hume Coal Project  
 Figure 2

**Table 1 Test pit transect descriptions**

Transect No.	Property Location	Impact Type	Landform tested	Soil landscape	Underlying geology	Disturbance noted during survey	Comment
1	Evandale	MIA	Flat area on hill crest	Soapy Flat	Hawkesbury sandstone	Cleared paddock	Adjacent to ephemeral watercourse and sites HC_160, HC_165 and HC_166.
2	Evandale	Conveyor and infrastructure corridor	Hill crest/spur	Soapy Flat	Hawkesbury sandstone	Cleared paddock	Near site HC_154 and close to Medway Rivulet
3	Evandale	Conveyor and infrastructure corridor	River flat	Lower Mittagong	Hawkesbury sandstone	Cleared paddock	Near site HC_154 and close to Medway Rivulet
4	Mereworth	Dam wall	Hill crest/spur	Moss Vale and Kangaloon	Hawkesbury sandstone	Cleared paddock/ploughing visible	On PAD HC_134
5	Mereworth	Conveyor and infrastructure corridor	Drainage depression	Nattai Tablelands	Hawkesbury sandstone	Cleared paddock with vehicle track exposures	Crosses through artefact scatter with PAD HC_130
6	Mereworth	Conveyor and infrastructure corridor	Hill slope	Kangaloon and Moss Vale	Hawkesbury sandstone	Cleared paddock with vehicle track exposures	Near HC 135, HC_150 and HC_151
7	Mereworth	Rail Loop	Flat	Kangaloon and Moss Vale	Hawkesbury sandstone	Cleared paddock	Near PAD HC_ 139
8	Mereworth	Rail Loop	Hill slope	Moss Vale	Hawkesbury sandstone	Cleared paddock	Near HC_137
9	Mereworth	Rail Loop	Rise crest	Kangaloon	Hawkesbury sandstone	Cleared paddock	Near PAD HC_140
10	Stonington	Rail corridor	Lower hill slope	Moss Vale	Hawkesbury sandstone	Cleared paddock	Cuts through PAD HC_147
11	Stonington	Rail corridor	Lower hill slope	Moss Vale	Ashfield shale	Cleared paddock	Cuts through PAD HC_148
12	Boral Property	Rail corridor	Hill crest	Kangaloon	Hawkesbury sandstone	Cleared paddock	On hill crest
13	Evandale	MIA and road	Hill crest/spur	Nattai Tablelands	Hawkesbury sandstone	Cleared paddock	Passes through HC_154
14	Mereworth	Water dam/dam wall	Flat hill crest	Soapy Flat	Hawkesbury sandstone	Cleared paddock/ploughing visible	Adjacent to a tributary of HC_120
15	Mereworth	Water dam/dam wall	Flat hill crest	Soapy Flat	Hawkesbury sandstone	Cleared paddock/ploughing visible	Near Oldbury creek, its tributary and HC_120
16	Evandale	MIA	Flat area on hill crest	Soapy Flat	Hawkesbury sandstone	Cleared paddock	Tests PAD HC_164
17	Mereworth	Water dam/dam wall	Hill crest/spur crest	Moss Vale/ Kangaloon	Hawkesbury sandstone	Cleared paddock/ploughing visible	Tests HC_171

## 4.5 Post-fieldwork analysis

### 4.5.1 Artefact analysis

Basic recording and analysis will be undertaken for the artefact assemblage recovered from the test excavation with the aim to form a baseline characterisation of the local archaeological record. Analysis of excavated stone artefacts includes:

- initial sorting and cleaning of excavated material;
- establishment of a computer database using Microsoft Access to record all provenance locations;
- measuring and recording the attributes of stone artefacts; and
- statistical analysis of the data to explore the frequency, distribution, raw material type, implement type and size of the of the artefacts in the assemblage.

### 4.5.2 Provenance analysis

Landscape and soils information is important in understanding the integrity, nature, and distribution of the archaeology. Provenance analysis includes the recording, drawing and analysis of soil profiles to inform the integrity and potentially the date of the archaeological record.

### 4.5.3 Research questions

The test excavation program aims to address the broad research questions set out in Table 2 which will contribute to a baseline characterisation of the local archaeological record.

**Table 2 Research questions and methods**

Question	Analysis method
What is the makeup of Aboriginal sites in key landform contexts?	<ul style="list-style-type: none"><li>• Size and technological tabulation</li><li>• Descriptive statistics of artefacts by attribute and landform</li></ul>
Can connections with other areas be identified?	<ul style="list-style-type: none"><li>• Review of regional raw material sources and artefact characteristics for each raw material</li></ul>
What is the extent of archaeological evidence in each key landform and in relation to watercourses?	<ul style="list-style-type: none"><li>• Tabulation of artefact densities over area</li></ul>
How old is the archaeological evidence?	<ul style="list-style-type: none"><li>• Radiocarbon dating of suitable charcoal samples (if hearths are encountered)</li></ul>
What plant resources existed in the prehistoric landscape?	<ul style="list-style-type: none"><li>• Pollen analysis of suitable soil samples</li></ul>
How does the assemblage vary across the project area?	<ul style="list-style-type: none"><li>• Analysis of frequency and variability of artefact attributes (eg core size, implement forms)</li></ul>
Is there any indication of different site activities being undertaken at different locations?	<ul style="list-style-type: none"><li>• Functional analysis of artefact and implement forms to determine eg knapping floors, hunting areas, ceremonial areas, camping areas.</li></ul>

## 5 Closing

Thank you for your time. We appreciate the opportunity to consult with Aboriginal parties to decide on the most appropriate assessment methods. If you have any queries in regard to don't hesitate to contact me on my details below.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Desic', with a stylized flourish at the end.

Ryan Desic  
Senior Archaeologist  
[rdesic@emgamm.com](mailto:rdesic@emgamm.com)  
0411 319 712

---

## Ryan Desic

**From:** Ryan Desic  
**Sent:** Monday, 29 August 2016 1:49 PM  
**To:**

**Subject:** Hume Coal Project: cultural information near the project area.  
**Attachments:** NIAC Attachment.pdf

Dear registered party,

EMM has been asked by NIAC to provide you with information related to a possible burial site at the base of Mount Gingenbullen outside the project area. The excerpt from the Hume Coal ACHA is below and I have attached the relevant excerpt of Chris Illert's publication, *Three Sisters Dreaming* (2003) which has been requested by NIAC to be provided for your information. This information was intended to be issued earlier with the draft Hume Coal ACHA, but because of some slight delays with the ACHA we have decided to provide this information now.

NIAC have suggested that Aboriginal burial mound exists on a natural rise above Oldbury Farm at the base of Mount Gingenbullen. NIAC provided EMM with an excerpt of Chris Illert's publication, *Three Sisters Dreaming* (2003), which places the burial ground at this location. Illert references Louisa Atkinson's accounts of a burial mound in her newspaper publications in 1853 and 1863 (Atkinson 1853; 1863). Atkinson describes the mound as 100 feet long and 40–50 feet high and conical in shape. She also noted a number of carved trees in proximity to the mound. Atkinson also made the supposition that a 'occurred near the mound on a flat area below (Atkinson 1863, p.2). However, NIAC indicated that there are Aboriginal knowledge holders who know of this location.

EMM was aware of Atkinson's writings and had included them in the Aboriginal and historical heritage reports, but no specific location of the burial mound was given. Louisa Atkinson's texts as well as those of her father, John, were reviewed for this report and the historical assessment but the location of any burial is not indicated in these texts. The closest reference is "On a high hill, a few miles from Berrima, is situated a tumuli, forty-four years since an old man was buried there" (Atkinson 1863, p.2). The general area identified for the location of the burial mound is approximately 200 m east of the project area's eastern boundary. This area is on private property outside the project area and was not accessible for inspection as it does not form part of the project. This area has not been demarcated on any figures as the location is unverified, although Atkinson describes it as "rising abruptly from the hanging level on the mountain side" (Atkinson in Lawson 1989, p. 60; *Sydney Mail*, 26 September 1863, p.2).

This information is also in the ACHA for your review.

On a further note, we intend to issue the draft Hume Coal ACHA within the following weeks. This will include a 28 days period for your review and meeting during that period to discuss the project in person. I hope you will be able to spare the time to review the draft report and attend the meeting. Could you please indicate if you will require a hard copy of the draft report so that we can incorporate it into our plans.

Yours sincerely,



---

**Ryan Desic | Senior Archaeologist**

T 02 9493 9500 | D 02 9493 9541 | M 0411 329 712 | F 02 9493 9599

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PO Box 21, St Leonards NSW 1590



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Please note that EMGA Mitchell McLennan Pty Limited has changed its name to EMM Consulting Pty Limited (simply refer to us as EMM). Email and website addresses have been changed to reflect this. All other details including ABN, bank details etc remain unchanged.

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# Memorandum



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20 July 2016

To  
From

Subject Additional meeting with Yamanda 18 July 2016

---

## 1 Introduction

The following presents the meeting minutes of an Aboriginal consultation meeting for the Hume Coal and Berrima Rail projects. The meeting was held at the Wingecarribee Aboriginal Community Cultural Centre on Monday 18 July. The topics discussed and areas of further discussion are presented in Table 3.

## 2 Attendees

**Table 1 Meeting attendees**

Name	Organisation	Position on projects
Aunty Val Mulcahy (VM)	Yamanda	Registered Aboriginal party
Aunty Annie Warren (AW)		Registered Aboriginal party
Ray Stevenson (RS)		Registered Aboriginal party
Kate Stevenson (KS)		Registered Aboriginal party
Jo Albany (JA)	Moyengully	Registered Aboriginal party
Cinnamon Johnson		Registered Aboriginal party
Larry Whipper (LW)	Mayor	Council representative
Melissa Wiya (MW)		Council representative
Pamela Kottaras (PK)	EMM Consulting	Heritage services manager

## 3 Agenda

1. Consulting with Yamanda and Moyengully representatives;
2. Consulting with Registered stakeholders;
3. Location of Hume Coal mining areas; and
4. Aboriginal protocols, beliefs and lore

## 4 Meeting minutes

**Table 3 Meeting minutes**

Topic	Discussion	Response/outcome
<b>Consultation with Yamanda and Moyengully representatives</b>	<p><b>PK</b> informed that Hume Coal has an Exploration lease and that underground mining will take place as part of the proposed works.</p> <p><b>PS</b> asked whether Hume plan to consult with the community.</p> <p><b>PK</b> informed that consultation has taken place with registered stakeholders, which includes Yamanda. Furthermore, project information has been supplied through newspaper advertisements and through OEH guidelines.</p> <p><b>JA</b> stated that a site officer that is trained in ILUA needs to be present to explain to Hume Coal the methods necessary to protect the land.</p> <p><b>JA</b> and <b>PS</b> expressed concerns with advertising methods and stated that advertising to the Aboriginal community needs to be more culturally appropriate (i.e. longer timeframes).</p>	<p>Yamanda to follow up with OEH to discuss their concerns about the consultation requirements as stipulated by the guidelines.</p>
<b>Consultation with registered stakeholders</b>	<p><b>PK</b> informed that EMM has consulted with other groups that registered for the project, as per the stakeholder list provided by OEH.</p> <p><b>VM</b> expressed concern that consultation had been undertaken with the wrong people.</p> <p><b>PK</b> reiterated that the meeting was called in order to consult as widely as possible.</p> <p><b>PK</b> stated that project information was emailed and phone calls made to Aunty Merle Williams and Aunty Sharon yet never received responses. Furthermore, Kieran McNally is a RP and has been involved in the fieldwork.</p> <p><b>VM</b> asked whether the groups will be paid for consultation.</p> <p><b>PK</b> informed <b>VM</b> that payment would not be made for consultation. Payment is made if RAPs engage in fieldwork or labour such as survey and excavation. To date groups have been paid for excavations, supervised by archaeologist, registered Aboriginal RAPs.</p>	<p>Site meeting to be organised for Aunties to visit Mereworth.</p> <p>Attempts were made but the availabilities of the Aunties meant the site visit was eventually cancelled.</p>
<b>Location of Hume Coal mining areas</b>	<p><b>MV</b> informed of the registration of the Aboriginal Place known as Jubilee as of February 2015. Stressed that this place is not to be damaged.</p> <p><b>PK</b> stated that Hume Coal is definitively not entering Bundanoon.</p> <p><b>JA</b> requested that <b>PK</b> define the areas in Sutton Forest and parts of Belanglo to <b>MV</b>.</p> <p><b>PK</b> informed that no surface impacts will be happening on Evandale, there will only be underground mining. Furthermore, no subsidence impacts are identified for the Evandale property.</p>	

**Table 3 Meeting minutes**

Topic	Discussion	Response/outcome
	<p><b>PS</b> expressed concerns for cultural connections such as water attachments of the Wingecarribee, rivers, 'under bed land' and swamps. Peter requested to know the specific areas for underground mining and affects on underground water flow.</p> <p><b>PK</b> provided data pertaining to Aboriginal archaeological sites identified during the archaeological investigation of the project areas. The group was requested to comment and identify any areas not identified</p> <p><b>MV</b> requested a map, PK was unable to leave maps with groups or individuals, and if there are any changes Hume Coal/EMM will update the stakeholders. PK supplied maps for all present to view. Also, maps of the project area have previously been given during the presentation of the project during the first consultation meeting. And in meeting minutes issued to all RAPs and late registrants.</p> <p><b>PK</b> expresses that the reason she is at the meeting is for the attendees to tell her where there are possible sites and burials, understanding that some sites are confidential, in order to best protect them.</p> <p>The importance of local connection to land and country was stressed by the RAPs present.</p>	
<p><b>Aboriginal protocols, beliefs and lore</b></p>	<p><b>MV</b> stated that on Aboriginal land there is lore and that the Wingecarribee Shire is a location where Aboriginal people lived and were massacred. She stressed the importance of the dreamtime (Gurangatch and Mirragan).</p> <p><b>PS</b> stated that there are aspects of country that are applicable to every mob as everyone's song line came through the Gundungurra country.</p>	





## A.4 Stage 4 – issue of draft ACHA and responses

This section contains the following documents:

- letter detailing draft ACHA review process;
- letter inviting RAPs to a consultation meeting regarding the draft ACHA;
- letter inviting RAPs to provide a statement of significance;
- provision of meeting minutes and presentation slides from 26 October 2016; and
- RAP feedback from draft report (including statements of cultural significance where relevant) and EMM responses.



---

**Ryan Desic**

**From:** Ryan Desic  
**Sent:** Friday, 30 September 2016 5:54 PM  
**To:**

**Subject:** Draft Hume Coal Project and Berrima Rail Project Reports  
**Attachments:** ACHA036\_LocalSetting\_20160930\_03.pdf

Dear Registered Party,

**Overview**

Thank you for your continued consultation for the Hume Coal Project. Hume Coal and EMM really do appreciate the time each party has given for your help with fieldwork, cultural knowledge, attendance at meetings and day to day contact.

We are now up to Stage 4 of the Aboriginal consultation project which is review of the draft cultural heritage assessment report. However, before you read the attached draft reports please note that the Berrima Rail line will be assessed as a separate project (see attached figure). This area was previously presented as part of the Hume Coal Project but it is now separate because other parties along with Hume Coal will be using the rail line. The attached figure shows how the separation of the Hume Coal Project and Berrima Rail Project boundaries, and where there is overlap.

This means that two reports are provided for your review and comment: the Hume Coal Project ACHA and the Berrima Rail Project Aboriginal heritage chapter. The Hume Coal Project ACHA should be seen as the overarching document from which the Berrima Rail Project chapter is based upon. Importantly, the impact assessment and management recommendations for the sites within each of the project boundaries are addressed in their respective documents. However, each document also has a cumulative impact assessment section which identifies the total impacts from both projects combined.

**Downloading the documents**

The Hume Coal Project ACHA is available to download using the following link:

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The Berrima Rail Project chapter is available to download using the following link:

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### Notes for your review and comment

If you have specific comments for either document, please identify which one (the Berrima Rail Project or the Hume Coal Project), the section heading and page number so that we know specifically which part of the document to address. Our preference is for you to provide your comments in writing via email or letter.

We have provided the drafts via email and sent hard copies only when requested. The appendices (excluding site cards) have been added to the digital copy but have not been added to the hard copies to reduce excessive printing. If you need specific appendices in hard copy please let me know.

### Notes on confidentiality

Please note that the attached documents are intended for registered Aboriginal parties (RAPs) only. These documents should not be distributed to external (third) parties.

### When to respond by

Please provide all comments by **28 October 2016**. If you are having trouble responding within this timeframe please let us know early so that we can consider alternative options.

### What's next?

In addition to the draft documents, we will be holding a consultation meeting to present the ACHA and cover any matters you wish to raise. We will be in touch shortly with a time and a date.

### Close

Please do not hesitate to contact me on my details below for any matters regarding the projects or if you have any difficulties in downloading or reading the documents.

I hope you have a great weekend.

Regards,

---

**Ryan Desic** | Senior Archaeologist

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---

## Ryan Desic

**From:** Ryan Desic  
**Sent:** Tuesday, 18 October 2016 1:10 PM  
**To:** Ryan Desic  
**Subject:** RE: Hume Coal Project: Aboriginal consultation meeting: draft ACHA review and comment period

Dear Registered Party,

This is just a friendly reminder for your party to RSVP to the invite below for next Tuesday 25 October.

Please respond to this email by informing me if you are able to attend the meeting. Please indicate how many people from your party will be attending and their names if possible.

Regards,

---

**Ryan Desic | Senior Archaeologist**

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

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**From:** Ryan Desic  
**Sent:** Friday, 14 October 2016 11:45 AM



**Cc:** 'Marco Benischek'; 'Luke Edminson'

**Subject:** RE: Hume Coal Project: Aboriginal consultation meeting: draft ACHA review and comment period

Dear Registered Party,

Overview

Thank you for your continued consultation for the Hume Coal Project and Berrima Rail Project. Hopefully by this stage you have had a chance to start your review of the draft Hume Coal Project Aboriginal cultural heritage assessment (ACHA) and draft Berrima Rail Project ACHA which was issued on 30 September 2016. Thank you for those who have already responded.

As noted in the email dated 30 September 2016, EMIM and Hume Coal plan to host an Aboriginal consultation meeting to discuss the draft report and its implications. The meeting is intended to supplement the draft report and to present and discuss the projects in plain English.

The key aims of the meeting will be for RAPs to actively contribute to the development of management options for the Aboriginal sites within the project area. This will involve seeking the views of RAPs on the potential management options presented in the draft ACHAs. During your review, you should consider how Aboriginal people can continue their association with the identified Aboriginal heritage values and how best to address this.

Although we have set out the roles, functions and responsibilities of RAPs and all stakeholders during the first consultation meeting, I have attached the consultation requirements we are following for the projects. This should remind RAPs of how their input falls into the regulatory process to contribute to decision making by Hume Coal and government authorities.

Meeting details

**Date:** 25 October 2016

**Time:** 11 am to 2 pm (duration of meeting is dependent on the length of discussions)

**Location:** Moss Vale RSL Argyle St, Moss Vale NSW 2577 (see map)



**RSVP**

Please RSVP at your earliest convenience. However, we will need to confirm numbers by 21 October 2016 to allow for catering and venue requirements.

**Travel expenses**

Hume Coal appreciate that you may have to take time out of your day to attend the meeting. Hume Coal offer to reimburse travel expenses (ie travel kilometres) at the current ATO standard rates.

**Closing**

Thank you for your time and consideration. Please do not hesitate to contact me on my details below if you have any questions about the meeting or reviewing the draft ACHA.

Regards,

---

**Ryan Desic | Senior Archaeologist**

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

Ground Floor, Suite 01, 20 Chandos Street, St Leonards NSW 2065  
PO Box 21, St Leonards NSW 1590



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-----Safe Stamp-----

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From: Ryan Desic  
To: [Ryan Desic](#)  
Bcc: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Subject: RE: Hume Coal Project: Aboriginal consultation meeting: draft ACHA review and comment period  
Date: Tuesday, 18 October 2016 1:10:00 PM  
Attachments: [image002.png](#)

---

Dear Registered Party,

This is just a friendly reminder for your party to RSVP to the invite below for next Tuesday 25 October.

Please respond to this email by informing me if you are able to attend the meeting. Please indicate how many people from your party will be attending and their names if possible.

Regards,

---

**Ryan Desic | Senior Archaeologist**

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

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---

From: Ryan Desic  
Sent: Friday, 14 October 2016 11:45 AM  
Cc: 'Marco Benischek'; 'Luke Edminson'  
Subject: RE: Hume Coal Project: Aboriginal consultation meeting: draft ACHA review and comment period

Dear Registered Party,

### Overview

Thank you for your continued consultation for the Hume Coal Project and Berrima Rail Project. Hopefully by this stage you have had a chance to start your review of the draft Hume Coal Project Aboriginal cultural heritage assessment (ACHA) and draft Berrima Rail Project ACHA

---

## Ryan Desic

**From:** Ryan Desic  
**Sent:** Wednesday, 26 October 2016 4:20 PM  
**To:**

**Cc:** Ryan Desic  
**Subject:** Outcomes from Aboriginal consultation meeting  
**Attachments:** RAPmeeting2slides\_PDF.pdf

Dear registered party,

Thank you for those who could attend yesterday's consultation meeting, I hope it was informative. We appreciate your comments and point of view on the issues that were raised. For those who did not attend, attached are the meeting slides used during the meeting. Additionally, The meeting minutes and actions relating to those issues raised will be issued to all RAPs shortly.

One of the main points that was raised at the meeting is that the Aboriginal community wishes to have the intangible aspects of Aboriginal cultural heritage conveyed more explicitly in the report.

Registered parties expressed that Aboriginal cultural values extend beyond what is defined as an Aboriginal object or place under Part 6 of the *National Parks and Wildlife Act 1974*, and identified the need for intangible values about the overarching landscape to be conveyed (which is not limited to the boundary of the Hume Coal and Berrima Rail project boundaries), even though we have not received Aboriginal socio-cultural or historic information about specific sites, objects or places in the project areas. For example, registered parties expressed an attachment to the broader environment which encompasses not only Aboriginal sites and/or places but other elements such as water systems and ecology.

The meeting attendees proposed that the report would benefit from an opening statement, or statements, of the intangible connections Aboriginal people have to the land. As such, the Aboriginal community meeting attendees have offered to provide a general statement of significance on this matter. We acknowledge that some RAPs have already provided information along these lines and this will also be incorporated into the report. We will issue this information as soon as possible once received.

**Furthermore, an important reminder:** please note that we request your feedback from the draft report by November 1 2016. Please call me if you are having trouble with this timeframe.

Regards,

---

Ryan Desic | Senior Archaeologist



---

## Ryan Desic

**From:** Ryan Desic  
**Sent:** Wednesday, 26 October 2016 4:26 PM  
**To:**  
**Subject:** Emails to RAPs regarding meeting outcomes

Dear Registered Party,

As mentioned in yesterday's meeting and the email just issued, we invite you to provide an opening statement, or statements, of the intangible connections Aboriginal people have to the land. Depending on the extent of the statement, it may be included in full or summarised in the main body of the report and included in full in an Appendix. We request that the statements be as concise as possible to convey the meaning your party intends. EMM will then combine and edit the final version for inclusion of the document. Furthermore, we understand that this may be difficult considering the extent of knowledge held by parties (which we only touched the surface of at the meeting), but feel free to discuss with me if needed.

I hope that you can respond to this as soon as possible given that there are technically six more days in the review period. However, I am willing to discuss if a bit more time is needed.

Regards,

---

**Ryan Desic** | Senior Archaeologist

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

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**From:** Ryan Desic  
**To:**

**Subject:** Hume Coal and Berrima Rail Project : Meeting slides and minutes from second consultation meeting.  
**Date:** Friday, 28 October 2016 4:55:00 PM  
**Attachments:** [Hume Coal RAP meeting 2\\_20161026\\_RD.pdf](#)  
[RAPmeeting2slides\\_PDF.pdf](#)  
[image001.png](#)

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Dear registered party,

For your consideration, attached are the meeting minutes and slides from the second consultation meeting held this week.

Notably, you may find that the slides reflect a minor change to the draft assessment. The management measure for fencing sites outside the project footprint has changed from 100 m to 25 m. This was primarily because many of the sites originally marked for fencing within 100 m of the footprint were in fact in native vegetation that are at no risk of being inadvertently impacted. Hume Coal have informed that they are committed to make sure that this change will not result in any additional impacts to Aboriginal sites.

Thank you and have a good weekend,

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**Ryan Desic | Senior Archaeologist**

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# Memorandum



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28 October 2016

To Registered Aboriginal Parties  
From Ryan Desic  
Subject Hume Coal RAP meeting 2: 26 October 2016

---

## 1 Introduction

The following presents the meeting minutes of the second Aboriginal consultation meeting for the Hume Coal and Berrima Rail projects. The meeting was held at the Moss Vale RSL on Tuesday 25 October 2016. The topics discussed are presented in the attached meeting slides and areas of further discussion are presented in Table 3.

## 2 Attendees

**Table 1 Meeting attendees**

Name	Organisation	Position on projects
Wally Bell (WB)	Buru Ngunawal Aboriginal Corporation	Registered Aboriginal party
Glen Freeman (GF)	Koomurri Ngunawal Aboriginal Corporation	Registered Aboriginal party
Virginia Falk (VF)		
Duncan Falk (DF)	Peter Falk Consultancy	Registered Aboriginal party
Luke Edminson (LE)	Hume Coal	Environmental Manager
Greig Duncan (GD)	Hume Coal	Project Director
Alex Pauza (AP)	Hume Coal	Mine Planning Manager
Marco Benischek (MB)	Hume Coal	
Claudia Farrar (CF)	Hume Coal	
Ryan Desic (RD)	EMM Consulting	Lead archaeologist
Pamela Kottaras (PK)	EMM Consulting	Heritage services manager

**Table 2 Apologies**

Name	Organisation
Jo Albany	Moyengully
Auntie Val	Yamanda
Glenda Chalker	Cubbitch Barta Native Title Claimants
Sharyn Halls	Gundungurra Aboriginal Heritage Association

### 3 Agenda

1. Introduction and aims
2. Project update
3. Summary of results from archaeological investigation
4. Summary of cultural information
5. Summary of significance
6. Impact assessment
7. Proposed management measures
8. Questions

### 4 General proceedings

- Meeting start time 11.12 am.
- Welcome to Country.
- Introductions.
- Alex Pauza and Luke Edminson explained why the Hume Coal Project and Berrima Rail Project are two separate development applications.
- Ryan Desic explained that the meeting would present the assessments for Hume Coal Project and Berrima Rail Project conjointly to emphasise that both projects are considered holistically and the impacts and management measures considered cumulatively.
- Approval process explained by Luke Edminson.
- Issues related to the management of Aboriginal cultural values in NSW raised by all registered Aboriginal parties (RAPs).
- Hume Coal Project information presented by Alex Pauza.
- Ryan Desic presented Aboriginal cultural heritage matters and management recommendations.
- Minutes taken by Pamela Kottaras (heritage services manager).
- Break 12.40 pm – 1.20 pm.
- Meeting finish time: 2.30 pm.

## 5 Meeting minutes

**Table 3 Meeting minutes**

Topic	Discussion	Response/outcome
<b>Welcome to Country</b>	<p>Presented by <b>VF</b>. The meeting attendees were welcomed to Gundungurra Country.</p> <p><b>GF</b> also provided welcome in Ngunawal language.</p>	<b>LE</b> thanked the RAPs for the welcome and their attendance.
<b>Intangible values &amp; Cultural information</b>	<p><b>WB</b> stated that often too much of a focus of Aboriginal cultural heritage assessments is on the scientific aspects; the intangible is not given enough emphasis.</p> <p><b>GF</b> agreed with <b>WB</b>. <b>GF</b> stated that the Southern Highlands is on a massive crossover area with gendered and communal ceremonial areas.</p> <p><b>GF</b> stated that often the intangible elements of assessments go unrecognised. <b>GF</b> used examples such as spiritual pathways guiding animals and people and the use Aboriginal constellations for guidance.</p> <p><b>EMM</b> acknowledged that RAPs believe that there needs to be more emphasis of the intangible significance of Aboriginal cultural heritage. It was acknowledged that the Aboriginal community have broader connections to the land that may not necessarily relate to specific socio-cultural or historic information about an Aboriginal site or place.</p> <p><b>GF</b> and <b>VF</b> suggested that an opening statement of cultural significance is prepared in response to the issue identified above.</p>	All attendees agreed that an opening statement of cultural significance be provided by RAPs for the inclusion in the report. All RAP members present agreed that this would be an appropriate way to convey the broader intangible significance that the Aboriginal community have with the land.
<b>Intangible values &amp; Cultural information</b>	<b>WB</b> explained that Aboriginal laws and customs mean that often the Aboriginal community does not divulge cultural information. This is to protect sites and places of cultural significance.	<p><b>RD</b> acknowledged that the Aboriginal community has the right to withhold information. <b>RD</b> reiterated that the request for cultural information has been made throughout the assessment phase.</p> <p><b>RD</b> acknowledged that hypothetically there may be culturally significant areas in the project area that RAPs have not informed EMM/Hume Coal about if they are not going to be impacted.</p> <p><b>RD</b> expressed that he hoped that RAPs would identify areas of cultural significance to EMM/Hume Coal if they were to be impacted so that it could be managed or avoided.</p>
<b>Test excavation program</b>	<b>GF</b> raised that he felt RAP field officers were not given the opportunity to test areas they felt were of high potential onsite during the test excavation program.	<p><b>RD</b> clarified that the areas suggested were outside the project disturbance footprint and therefore further testing was not warranted.</p> <p><b>GF</b> acknowledged this but maintained that it</p>



**Table 3 Meeting minutes**

Topic	Discussion	Response/outcome
<b>RAP involvement beyond the ACHA process</b>	<p><b>GF</b> stated that Aboriginal people do not have enough of an involvement in developments beyond the EIS and pre-construction phase of a project. <b>GF</b> noted that Aboriginal people are well-placed to provide land care especially because of their extensive implementation of effective land care for tens of thousands of years.</p> <p><b>VF</b> stated that biodiversity offsets need to be thought out and that Aboriginal people should be involved. There are many people in the RAPs who can do Land care and who can contribute to the biodiversity offset and rehabilitation exercises.</p> <p><b>GF</b> pointed out that <b>WB</b> works for Land care in the ACT.</p> <p><b>(All)</b> Discussion ensued on cultural plantings and the correct pre-European landscape and utilising Aboriginal knowledge.</p>	<p>could have contributed to the overall knowledge of the area.</p> <p>Hume Coal will explore avenues for Aboriginal community involvement in future land management, specifically relating to areas that may be available for cultural plantings.</p>
<b>Cultural information/suggested burial site</b>	<p><b>RD</b> discussed the suggested burial site at the base of Mount Gingenbullen outside the project area. This area was identified by NIAC.</p> <p><b>GF</b> confirmed that NIAC wished for the meeting attendees to be notified about the suggested burial site.</p> <p><b>VF</b> wanted to know why the topic of the suggested burial was included in the assessment if it was outside the project area.</p> <p><b>RD</b> explained that NIAC had specifically asked RAPs to be informed about this area.</p> <p><b>VF</b> and <b>GF</b> stated that there are likely to be a number of massacre sites in the Southern Highlands.</p>	<p><b>RD</b> reiterated that the suggested location is outside the project area and not at risk of project impacts. The site has not been verified.</p> <p>It was acknowledge that the suggested burial site is accepted by some of the Aboriginal community but not by all.</p> <p>No information has been provided about Aboriginal burial sites or massacre sites existing in the project area.</p>
<b>Environmental issues (general)</b>	<p><b>Paraphrase of RAP discussion:</b></p> <p>The RAP meeting attendees expressed that the Aboriginal community believe that they should have more of a role in commenting on the overall environmental impacts of the project and not just what falls into the category of Aboriginal cultural heritage within the current heritage legislation.</p> <p>This relates to the Aboriginal community’s connection to the entire environment and their desire to input into other environmental issues (such as ecology and hydrology), regardless of if no specific socio-cultural or historic information about these aspects has been disclosed about the project area.</p> <p>RAP attendees went on to ask specific environmental issues.</p>	<p>It was acknowledged that RAPs have expressed connections to broader environmental aspects that may not necessarily relate to specific socio-cultural or historic information about an Aboriginal site or area.</p> <p>It was acknowledged that broader environmental impacts are of concern to the Aboriginal community. It has been a primary aim for the project to minimise environmental impacts.</p> <p><b>RD</b> informed RAPs that they will have the opportunity to review and make submissions about various technical studies as Aboriginal party members or as individuals (eg ecology and hydrology) during public exhibition of the EIS.</p>

**Table 3 Meeting minutes**

Topic	Discussion	Response/outcome
<b>Environmental issues (specific)</b>	<p><b>VF</b> and <b>GF</b> asked how biodiversity would be impacted. Also how the groundwater impacts would affect above-ground ecology.</p> <p><b>VF</b> asked how ground water and aquifers would be impacted. <b>VF</b> stated that ground water is a concern for many in the community and asked how is this going to be managed so that it doesn't affect the water table and the above-ground ecology.</p> <p><b>VF</b> asked if the ground water will be impacted and asked for a rating on a scale of one to ten.</p>	<p><b>LE</b> explained that biodiversity, including groundwater dependant ecosystems is being considered in a separate technical report. Furthermore, groundwater is being considered in a separate technical report.</p> <p><b>LE</b> stated that he biodiversity report will address the ecological concerns raised by <b>GF</b>. Hume Coal has designed its mine and infrastructure to minimise its impacts on the flora, fauna and water ways by largely avoiding these areas.</p> <p>. When the project goes on public exhibition, all will have the opportunity to review all the technical reports.</p> <p><b>LE</b> explained that ground water dependent ecosystems are being assessed and a referral has been sent to the Federal government.</p> <p><b>GD</b> stated that the upper aquifers will not be impacted; but lower aquifers will be impacted. Farming bores may need to be moved and this will be done proactively by identifying which bores are most likely to be impacted. Once identified, Hume Coal will move those bores to a suitable location.</p> <p><b>AP</b> stated that the mine has been designed to minimise impact on the environment including groundwater. Each panel will be sealed off with water-retaining bulkheads. Bulkheads will allow water to collect and reinjection will be used to ensure that groundwater is replenished. <b>AP</b> named other aspects, such as ground water and ecological issues that required assessment and how that influenced the design. Preliminary environmental studies were completed and then the project was designed by engineers.</p> <p><b>AP</b> continued to describe the project design. Stormwater retention basins to avoid surface waters don't get released.</p> <p><b>LE</b> stated that the monitoring has demonstrated the variability of the water table across the sandstone. Some areas hold a high volume of water, while others do not. This information will inform the re-location of farm bores.</p> <p><b>AP</b> stated that ground water will be impacted but the aim is to minimise it as much as possible.</p>

**Table 3 Meeting minutes**

Topic	Discussion	Response/outcome
	<p><b>VF</b> asked where will water be sourced and if it will be ground water or recycled?</p>	<p><b>AP</b> explained that both will occur. Groundwater in the mine will be used and recycled.</p>
	<p><b>VF</b> asked if contaminated water can be taken off site</p>	<p><b>AP</b> explained that the water treatment plant is for contaminated water, which will need to be used only in the event that high rainfall creates the need.</p>
	<p><b>VF</b> asked what the process for washing the coal was.</p>	<p><b>AP</b> explained that lots of effort has been put into addressing this. At the beginning a small emplacement will be outside until room is made underground by extraction. As soon as room underground is available, the rejects will be placed underground</p>
<b>Land ownership</b>	<p><b>VF</b> asked who the land belonged to.</p> <p><b>GF</b> expressed discomfort that the land is foreign-owned. Discussion of ownership of the land in foreign hands and the driver for this. There is dissatisfaction with foreign ownership.</p>	<p><b>GD</b> explained that the land is owned by Hume Coal, which is owned by Posco, which is a Korean company. Foreign ownership is not an unusual arrangement especially in the Southern Highlands.</p> <p>The discussion regarding foreign ownership of land is separate to the cultural heritage meeting. This was agreed by all.</p>
<b>Review period</b>	<p><b>GF</b> and <b>VF</b> discussed the possibility interim final draft report being provided to the RAPs after the current review period. This would aim to address any outstanding issues.</p>	<p><b>RD</b> expressed that an aim of the meeting was to serve the function of an interim report, ie RAPs have had time to review the report followed by the opportunity to raise comments during the meeting.</p> <p>EMM and Hume Coal aim to resolve any outstanding issues before the report is finalised. This will include discussing, clarifying and addressing any significant outstanding issues that RAPs have with the report before it is finalised.</p> <p>Unfortunately the timeframe for the project application cannot accommodate an additional review period.</p>
<b>Rehabilitation</b>	<p><b>VF</b> asked what considerations were made for rehabilitation and whether it considered rehabilitating the land with culturally appropriate plantings.</p>	<p><b>GD</b> explained that it is a government requirement to return the land to as close to its current use as possible.</p> <p>At the completion of the project, infrastructure will be removed and the landscape will be returned to farmland.</p>
<b>Discussion of the project</b>	<p><b>AP</b> Described the two projects; underground mining; infrastructure; non-caving method; removing about 35% of coal and leaving 65% to comply with the non-caving technique. Explained how a void will be avoided. No form of coal mining results in zero subsidence but the method that the HCP will employ has a predicted level of less than 20 mm which is categorised as negligible.</p>	

**Table 3 Meeting minutes**

Topic	Discussion	Response/outcome
<p><b>Discussion of the ACHA</b></p>	<p><b>RD</b> described the assessment process and the stages of survey and excavation and results.</p> <p>In response to <b>RD's</b> explanation of 'potential scar trees' <b>GF</b> said that one is definitely a scar tree and is associated with an ant nest.</p> <p><b>RD</b> presented management recommendations.</p> <p><b>RAP attendees</b> raised that sites outside the project disturbance footprint need to be protected and fencing needs to be appropriate to prevent impacts.</p>	<p><b>RD</b> stated that Any scar or potential scar trees within the project area will not be impacted. Further investigation would be warranted if impacts were proposed.</p> <p><b>RD</b> explained that the sites closest to the project footprint within 25 m will be fenced and avoided. The details of this measure would be devised in an Aboriginal cultural heritage management plan (ACHMP).</p> <p>No further comments were made about the proposed management recommendations.</p> <p><b>RD</b> asked whether <b>RAPs</b> would prefer collected artefacts to be stored in a keeping place or subject to reburial.</p> <p><b>RAPs</b> said that this should be decided at a later time, and agreed that the ACHMP would be appropriate. <b>RD</b> noted that the ACHA will allow for both options.</p>
<p><b>Closing comments</b></p>		<p><b>LE</b> stated that the minutes will be provided to all attendees by the end of the week</p> <p><b>LE</b> reiterated that a cultural statement can be added to the report.</p>

## Acknowledgment

Before we begin the proceedings we would like to acknowledge and pay respect to the traditional owners of the land on which we meet.

I invite a community-nominated person to offer a welcome to Country...



Hume Coal Project and Berrima Rail Project  
Registered Aboriginal party consultation meeting 2 – draft Aboriginal cultural heritage assessment (ACHA) report review and feedback information session  
25 October 2016





## Agenda

- Introduction and aims
- Project update
- Summary of results from archaeological investigation
- Summary of cultural information
- Summary of significance
- Impact assessment
- Proposed management measures
- Questions



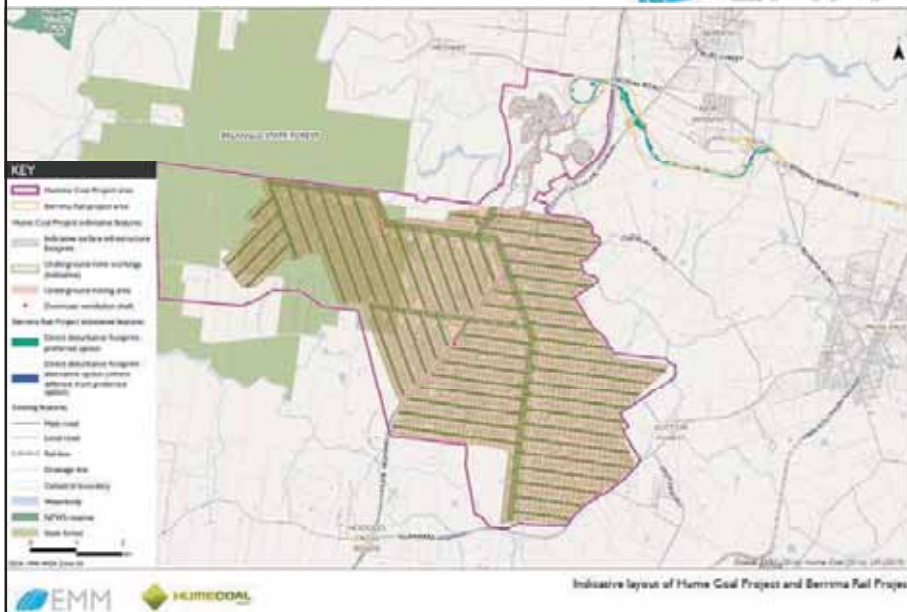
## Introductions

- **Hume Coal**
  - Greig Duncan (Project Director)
  - Alex Pauza (Mine Manager)
  - Luke Edminson (Environmental Manager)
  - Claudia Farrar (External Affairs Coordinator)
- **EMM**
  - Ryan Desic (Senior Archaeologist) is preparing the Aboriginal cultural heritage assessment
  - Pamela Kottaras (Associate Archaeologist)

## Aims

- To provide an update on the projects since the last meeting
- We are looking for your feedback on the draft report and to answer any questions you may have
- We will acknowledge all feedback given today, however we may not be able to confirm all responses to the feedback today
- All feedback and comments will be addressed in the final report

## Project overview



# Project overview



Indicative surface infrastructure layout of the Hume Coal Project and Berrima Rail Project

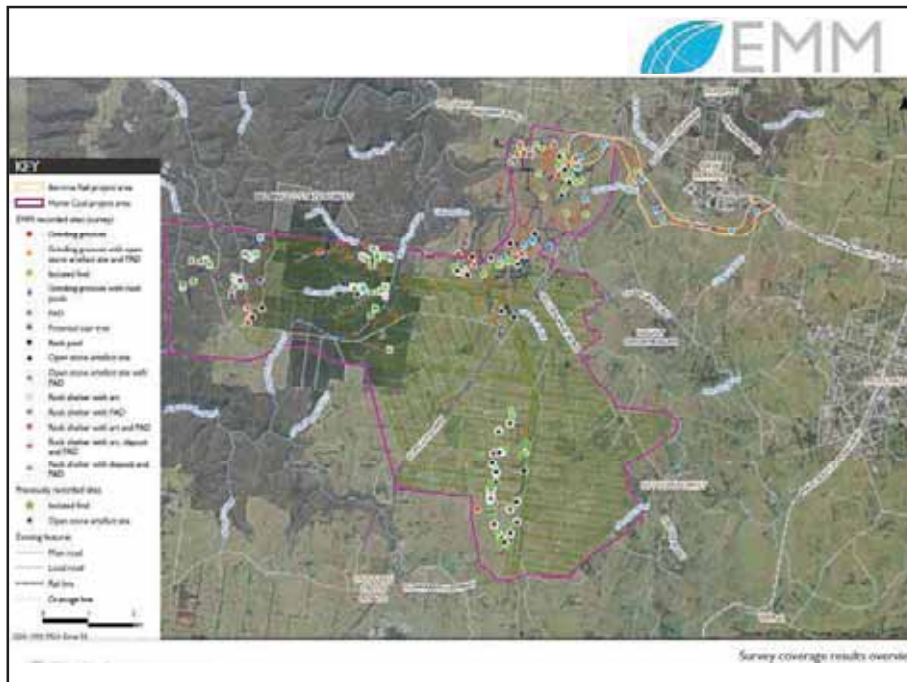
# Project overview



Indicative surface infrastructure layout of the Hume Coal Project and Berrima Rail Project

## Results - archaeological survey

- 16 days between May 2014 and September 2015
- Stages 1 and 2 sampled the underground mine
- Stages 3 and 4 sampled the surface infrastructure area and the Berrima Rail project area
- 142 walking transects adding up to 124 km.



## Survey results

- 181 sites recorded during survey:
  - 177 newly recorded sites across both project areas
  - Two newly recorded sites outside both project areas
  - Two sites on already on AHIMS
- 37 sites were previously recorded on Wongonbra by Therin in 2007



Site: HC\_154



Site: HC\_157

Aboriginal site type	Count of sites
Grinding grooves	3
Grinding grooves with open stone artefact site and PAD	1
Grinding grooves with rock pools	1
Isolated find	39
Open stone artefact site	30
Open stone artefact site with PAD	16
PAD	14
Potential scar tree	8
Rock pool	1
Rock shelter with art	1
Rock shelter with art and PAD	1
Rock shelter with art, deposit and PAD	1
Rock shelter with deposit and PAD	10
Rock shelter with PAD	55
<b>Total</b>	<b>181</b>

## Rock shelter and art (site HC\_002)





Rock art (site Compartment 157)



Grinding grooves (sites HC\_034, HC\_136 and HC\_138)



## Results - test excavation

- Test excavation in the proposed disturbance footprint
- Three weeks of excavation in October and November 2015
- 16 transects spread out over the landscape
- 160 hand dug 50 cm by 50 cm test pits



## Test excavation – summary of results

- 281 artefacts recovered from the 160 test pits
- Most artefacts next to reliable streams (Oldbury Creek, Medway Rivulet and Stony Creek)
- 11 'tools', including scrapers and backed artefacts
- No stratigraphic deposits identified



## Scientific significance

- 10 sites of high significance (rock shelter and grinding grooves only)
- 39 sites of moderate significance
- 170 sites of low significance



## Cultural significance

- We acknowledge that the Aboriginal community considers Aboriginal objects and sites as culturally significant items
- We have requested cultural, social or historic information specific to project area
- Potential burial site outside the project area:
  - At the base of Mount Gingenbullen on the Oldbury Farm Estate
  - Access was not possible but it will be avoided

## Impact assessment

### Measures to minimise impacts

- Two phases of constraints assessments to avoid the most archaeologically sensitive areas
- The surface infrastructure footprint set back beyond 200 m of the main water systems
- The use of a no subsidence mining method. No subsidence impacts are predicted to occur to sites.

## Potential types of impacts

### Direct impacts:

- Surface ground disturbance activities resulting from the construction of the surface infrastructure area and Berrima Rail

### Indirect impacts:

- Assessment of possible impacts to the ground surface through underground mining
- There are no predicted subsidence impacts to any sites
- Maximum predicted subsidence above mining panels is 20mm. But near the rock shelters is closer to 5-10mm subsidence.
- Subsidence impacts considered to be imperceptible for ground features such as rock shelters and grinding groove sites

## Impact assessment: Hume Coal Project and Berrima Rail Project combined

### Impact assessment:

- 20 sites will be directly impacted by the Hume Coal Project surface infrastructure area. This comprises:
  - no sites of high significance;
  - six sites of moderate significance, two of which are of higher moderate significance (HC\_135 and HC\_151); and
  - 14 sites of low significance.
- 8 sites will be directly impacted by the Berrima Rail Project. This comprises:
  - no sites of high significance;
  - two sites of moderate significance (HC\_176 and HC\_177); and
  - six sites of low significance.
- 89 sites are above the Hume Coal Project underground mine area. There are no predicted subsidence impacts to these sites. 36 of these sites are made of sandstone (rock shelters and two grinding groove sites).
- 102 sites are outside both the surface infrastructure and underground mining footprint
- 191 of the 219 sites (87%) assessed as part of this ACHA will not be impacted.

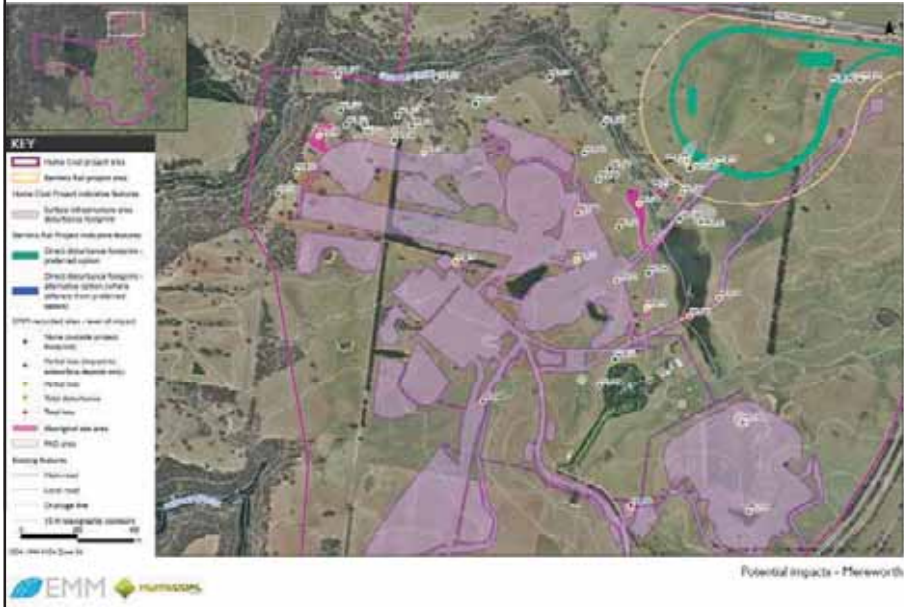




Forested impacts - Belanglo State Forest (west)  
Hume Coal Project



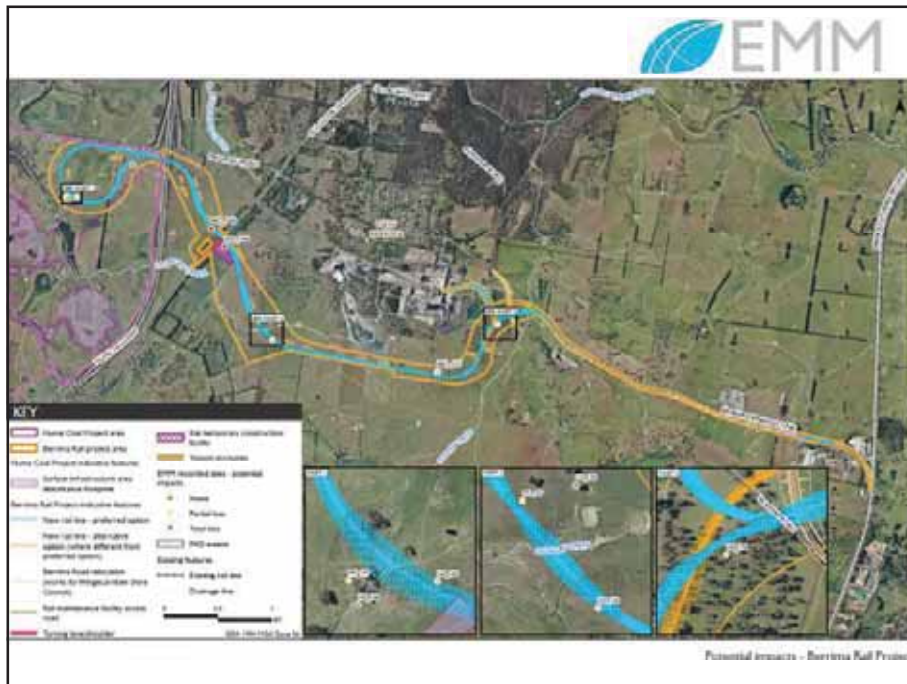

Forested impacts - Belanglo State Forest (east)  
Hume Coal Project  
Aboriginal Cultural Heritage Assessment



Potential impacts - Mereworth



Potential impacts - Evesham

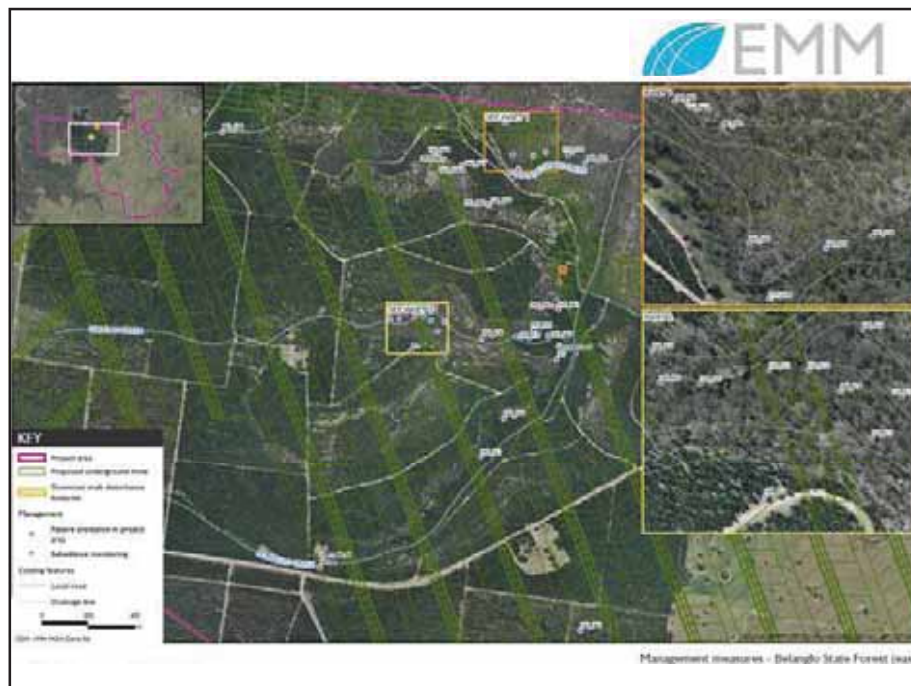
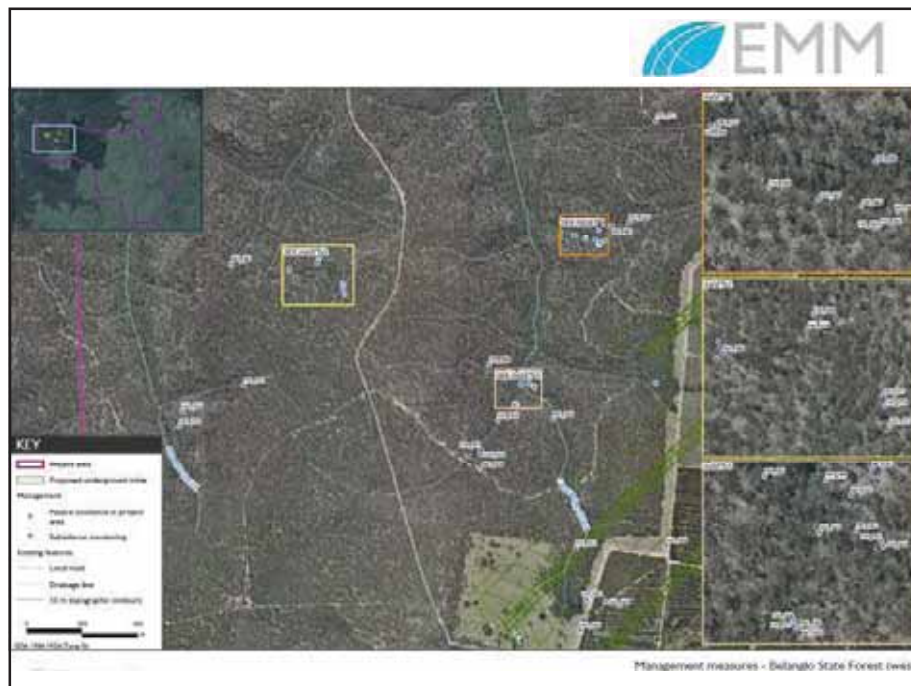



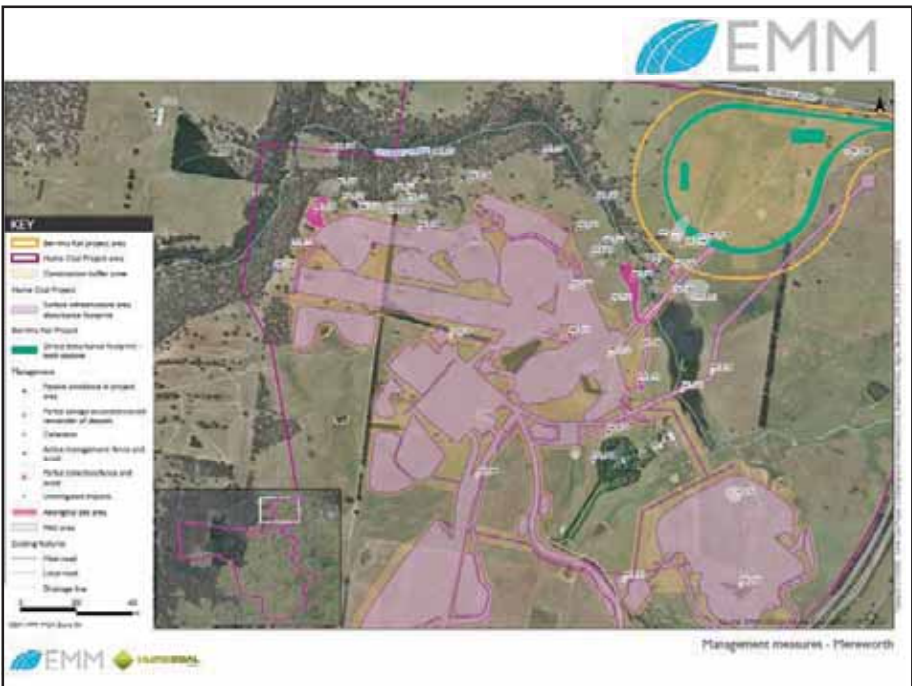
## Management measures

- All sites relating to the projects will be managed in an Aboriginal cultural heritage management plan (ACHMP)
- The ACHMP will detail the following management measures:

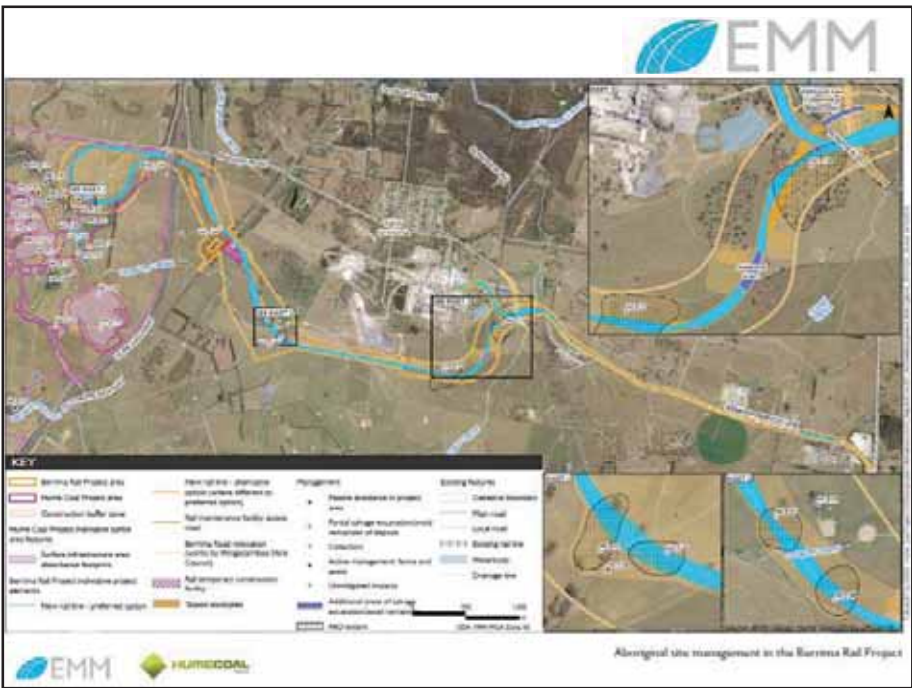
Management measure	Count of sites
Passive avoidance	163
Active management: fence and avoid	12
Partial collection/fence and avoid	4
Collection	11
Unmitigated impacts	7
Subsidence monitoring	16
Partial salvage excavation/avoid remainder of deposit	6
<b>Total</b>	<b>219</b>



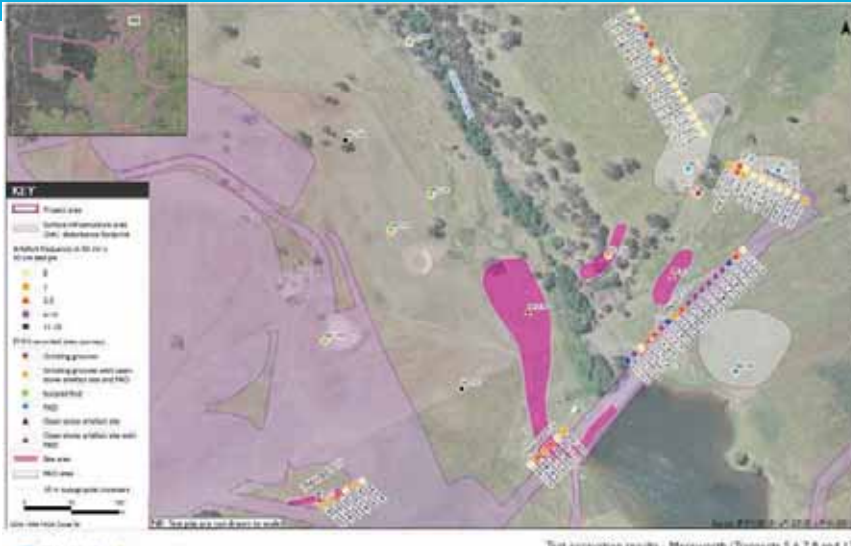








## Example of where to salvage



## Post-fieldwork management of sites

- A 'keeping place' is a secure area with the purpose of storing Aboriginal cultural materials and their associated documentation.
- With agreement of RAPs, a dedicated storage facility will be established within the on-site offices of the project as a keeping place
- Interpretation and access to materials can be set out during the development of the ACHMP

## Main aims of feedback

- Review of management options
- Any cultural protocols that should be implemented
- Cultural/historic information about the project areas and how this should affect the proposed management of the sites.
- Feedback is requested by 1 November.



## Questions?



## Contacts

- Ryan Desic
  
- EMM Consulting Office:
  - 02 9493 9500 (general office number)
  - 02 9493 9599 (fax)
  - PO Box 21, St Leonards, NSW 1590
  - Suite 1, 20 Chandos St, St Leonards, NSW

Thank you for your time today



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**Ryan Desic**

**From:** Koomurri Ngunawal Aboriginal Corporation ]  
**Sent:** Wednesday, 12 October 2016 6:15 PM  
**To:** Ryan Desic  
**Subject:** Re: Draft Hume Coal Project and Berrima Rail Project Reports

Dear Ryan,

Having read this comprehensive report for the Hume Coal Project and Berrima Rail Project KNAC have no issues in regards to either.

However as to the map of country, it should be noted that Tumut is Wyradjuri country and not Ngunawal country as stated a minor issue I know, also as to the information on language groups, as you may not be aware by now the Ngunawal language is recognized as it's own distinct dialect (2016) although it has relationships with the Gandangurra, Narigo and possibly the Dharawal (Wodi Wodi), and Yuin peoples owing to the fact that we engaged in regular Ceremony with each of them in our past.

I just thought it might be good to have a more modern context in regards to language added in the future.

Kind Regards,

Glen Freeman,  
Director/ Contact  
KNAC.



## **Ryan Desic**

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**From:** Ryan Desic  
**Sent:** Wednesday, 12 October 2016 9:28 PM  
**To:** Koomurri Ngunawal Aboriginal Corporation  
**Subject:** Re: Draft Hume Coal Project and Berrima Rail Project Reports

Hi Glen,

Thanks for your email. I understand that you are on the forefront of linguistics with your recent projects, so thank you, I will aim to rectify this information in the final report.

Is there any publication that I can reference to support your findings for inclusion in the report?

I hope you're feeling better,

Cheers,

Ryan

Sent from my iPhone

On 12 Oct 2016, at 6:15 PM, Koomurri Ngunawal Aboriginal Corporation \_\_\_\_\_

Dear Ryan,

Having read this comprehensive report for the Hume Coal Project and Berrima Rail Project KNAC have no issues in regards to either.

However as to the map of country, it should be noted that Tumut is Wyradjuri country and not Ngunawal country as stated a minor issue I know, also as to the information on language groups, as you may not be aware by now the Ngunawal language is recognized as

**From:** [Wally Bell](#)  
**To:** [Ryan Desic](#)  
**Subject:** Draft Hume Coal Project and Berrima Rail Project Reports - Comment  
**Date:** Monday, 31 October 2016 10:15:15 PM  
**Attachments:** [Hume Coal Project and Berrima Rail Project Reports - Comments - Oct"16.docx](#)

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Hi Ryan,

Following on from the discussions at the Moss Vale meeting regarding the Draft Hume Coal Project and Berrima Rail Project Reports, I have made a statement regarding intangible cultural heritage and what it is to BNAC.

The reports are quite comprehensive and sets out adequate protection measures for the impacts that will occur across the project footprint.

Cheers,

Wally Bell



Traditional Custodian Group  
[www.buru-ngunawal.com](http://www.buru-ngunawal.com)

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31 October 2016

EMGA Mitchell McLennan  
PO Box 21  
St Leonards NSW 1590

Attention: Ryan Desic

### **Draft Hume Coal Project and Berrima Rail Project Reports - Review/Comments**

Thank you for providing a copy of the above reports for which a request was made for comment from Buru Ngunawal Aboriginal Corporation (BNAC) as the Traditional Custodian group.

Accordingly, BNAC wish to state that we consider all Aboriginal sites to be of significance to us as the Traditional Carers for this area. BNAC also consider all sites to be of value to us socially, culturally and spiritually.

It is a concern BNAC have with any Aboriginal Cultural Heritage Assessments that too much emphasis is placed on the scientific archaeological values. This in turn diminishes the cultural significance that we as Aboriginal people hold for both tangible and intangible objects/places within the natural cultural landscape.

The Australia ICOMOS Burra Charter 2013, defines cultural significance as follows:

*"Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups." (ICOMOS 2013).*

This definition should motivate all archaeologists to develop a better understanding of the Aboriginal culture they are assessing. A more sensitive and understanding approach may encourage more dialogue between archaeologists and the Aboriginal peoples whose culture is being scrutinised.

Archaeology is a way of revealing human history by studying the artefacts and other remains left behind by people in the past. Archaeology is a part of a development assessment process because it is a method used to identify Aboriginal objects that may not be known to living Aboriginal people. For example, archaeologists investigate old campsites which may have buried objects such as stone tools, animal bone remains and the remains of cooking fires. This method of archaeology can be used to date an old campsite or describe the activities (e.g. hunting) that took place there in the past. Archaeology has a role in telling the story of the Aboriginal history.

Place, memory, meaning: preserving intangible values in landscapes and sites is also of utmost importance.

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Aboriginal intangible cultural heritage that is not generally legally protected includes Aboriginal cultural knowledge and practices (such as language and knowledge of food plants), cultural landscapes or broad areas with important cultural values (for example, story lines, travel routes, and areas connecting sites).

The intangible cultural heritage is transmitted from generation to generation, and is constantly recreated by communities and groups, in response to the environment, the interaction with nature, and our history. It provides people with a sense of identity and continuity, and promotes respect for cultural diversity and human creativity.

Intangible Cultural Heritage can be defined as the practices, representations, expressions, as well as the knowledge and skills (including instruments, objects, artefacts, cultural spaces), that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. It is sometimes called living cultural heritage, and can be in the following domains:

- Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
- Performing arts;
- Social practices, rituals and festive events;
- Knowledge and practices concerning nature and the universe; and
- Traditional craftsmanship.

Knowledge and practices concerning nature and the universe include knowledge, knowhow, skills, practices and representations developed by communities by interacting with the natural environment. These ways of thinking about the universe are expressed through language, oral traditions, feelings of attachment towards a place, memories, spirituality and worldview. They also strongly influence values and beliefs and underlie many social practices and cultural traditions. They, in turn, are shaped by the natural environment and the community's wider world.

This domain includes numerous areas such as traditional ecological wisdom, indigenous knowledge, knowledge about local fauna and flora, traditional healing systems, rituals, beliefs, initiatory rites, cosmologies, social organisations, festivals, languages and visual arts.

Traditional knowledge and practices lie at the heart of a community's culture and identity but are not fully understood. Even though some aspects of traditional knowledge, such as medicinal uses of local plant species, may be of interest to scientists and corporations, many traditional practices are nevertheless disappearing resulting in the decline of traditional craftsmanship and herbal medicine as raw materials and plant species disappear.

Protecting the natural environment is often closely linked to a community's cosmology, as well as other examples which includes the instruments, objects, artefacts and cultural spaces associated with intangible cultural heritage.

BNAC has highlighted in previous correspondence that there appears to be an apparent lack of sensitivity for the Aboriginal person providing evidence of a spiritual place through a developed cultural connection that is on a level that makes it hard to explain to non-Aboriginal persons. Compassion and a willingness to understand a viewpoint that differs from the scientific being displayed may lead to an inclination to divulge relevant information. It must also be understood that under Aboriginal lore the imparting of some information is strictly forbidden and must be respected.

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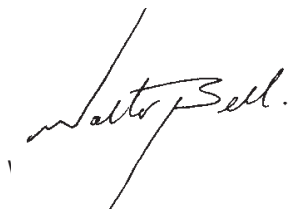
BNAC has reviewed both reports and have agreed with the proposed Management Recommendations made from a scientific archaeological viewpoint for the Aboriginal Cultural Heritage Assessment and the Management Measures to be utilised to protect and preserve sites and minimise impacts.

BNAC would suggest that if there are to be any changes made to the recommendations as proposed that may impact on any of the sites detailed as non or partial impact that we be consulted immediately.

Thank you for the opportunity to provide comment and we look forward to working with you collaboratively on this project.

If you have any queries, please contact me.

Yours faithfully

A handwritten signature in black ink, appearing to read "Lester Sell". The signature is written in a cursive style with a large initial 'L' and a long horizontal stroke.

Director/Chair





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**Ryan Desic**

**From:** Ryan Desic  
**Sent:** Tuesday, 1 November 2016 8:57 AM  
**To:** 'Wally Bell'  
**Subject:** RE: Draft Hume Coal Project and Berrima Rail Project Reports - Comment

Hi Wally,

Thank you so much for taking the time to write the letter. It is very insightful and reiterates for me that at the core of intangible significance is respect for the environment in general. That is why I understand the Aboriginal community's sphere of interest also extends into other environmental issues. Therefore, with the help of Hume, we will try to demonstrate that avoiding environmental impacts (eg ecology, water etc) is also a key aim for the project.

I note that you mentioned previous correspondence the 'apparent lack of sensitivity for the Aboriginal person providing evidence of a spiritual place'. I can only assume that this relates to another project (correct me if I am wrong). Notwithstanding, it is a valid point for moving forward with similar circumstances in the future. I believe it is important to set up cultural protocols before this process is undertaken so that culturally-based misunderstandings are avoided and people's views are respected.

We are currently trying to figure out the best way for your information to be incorporated into the report. I will try my best to capture the spirit of your letter and not misrepresent your intentions in the main report, which may mean quoting certain sections of your letter, but of course it will be included in full in the consultation documentation.

Thank you again,

If you have any further questions please give me a call.

Yours sincerely,

---

**Ryan Desic | Senior Archaeologist**

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

Ground Floor, Suite 01, 20 Chandos Street, St Leonards NSW 2065  
PO Box 21, St Leonards NSW 1590



EMM  
Ground Floor Suite 01,  
20 Chandos Street,  
ST. LEONARDS. N.S.W. 2065.



Dear Ryan,

RE; HUME COAL PROJECT.

Thank you for the opportunity of commenting on the above project. I would like to make several comments as follows;

1. The 37 sites previously recorded by Therin, were they recorded because of this project or an other project? If they were all given a low scientific significance, because of the "disturbance", there must have been other sites recorded. Were RAP's given the opportunity to comment on their cultural significance?
2. Why do artefact scatters not get the same high significance as an art site? Is it because of the visual affect in some cases? An artefact scatter can contain beautiful artefacts and should be able to afford the same level of significance, based on visual affect.
3. Artefact scatters that have been "disturbed" hold just as high a cultural significance as an "undisturbed" artefact scatter.
4. I do not believe that the phrase "common type" should be used anymore. That is because those "common" sites are becoming less and less "common" with the massive developments that are taking place in the Sydney Basin, and fast moving outwards towards the Southern Highlands.
5. Rock shelters should not be excavated for this project, the predictions for subsidence damage according to this document are low.
6. The shelters recorded either with or without art should come under future Plan Of Management, which should include baseline recording of all, shelters and future monitoring , after mining. There has been a lot more work done on subsidence in the Southern coalfields, since Sefton (2000).
7. All excavated material should be wet sieved either on a 2.5mm or 3mm sieve. There is too much small material lost on a 5mm sieve. All you get is large artefacts, and not a true count of numbers.
8. It is not appropriate for Hume Coal, a Korean owned entity to have Care and Control of any artefacts at any time. I will not support this recommendation in any way. The artefacts should either be reburied of a competent Aboriginal organisation should seek Care and Control.
9. Any artefacts recovered belong to Aboriginal people and they should be the decision makes as to their whereabouts in the future.

Yours faithfully,

Glenda Chalker



EMM  
Ground Floor Suite 01,  
20 Chandos Street,  
ST. LEONARDS. N.S.W. 2065



Dear Ryan,

RE: BERRIMA RAIL PROJECT

Thank you for the opportunity of commenting on the above project. I would like to make several comments that I do not agree with as follows;

1. Transects 10 and 11 were only tested on either side of the corridor. There was no testing on the corridor itself or on the other side. I believe that this section needs more testing to properly ascertain the potential of the area.
2. I do not believe that the value of any site is reduced because of widespread historic ploughing. Even your own documentation previously disputes that comment. To a scientist it may have reduced the scientific and research value, but does not reduce the cultural value or their place in the landscape.
3. Transects 7 and 8 you say revealed low artefact densities. I note in Figure 10.5 that there were as many as 10 possibly in some pits, while others had one or nil. However transect 6 had high numbers, less than 50 metres away. If the whole of this PAD, around the area of these transects is to be impacted then it should all be tested and or salvaged.
4. All salvaged material should be wet sieved either on a 2.5mm or 3mm sieve. There is too much small material lost on a 5mm sieve. All you will get is large artefacts, and not a true count of numbers.
5. It is not appropriate for Hume Coal, a Korean owned entity to have Care and Control of any artefacts at any time. I will not support this recommendation in any way. The artefacts should either be reburied or a competent Aboriginal organisation should seek their Care and Control.
6. Any artefacts recovered belong to Aboriginal people, and they should be the decision makers as to their whereabouts in the future.

Yours faithfully,

*G. Chalker*

Glenda Chalker





21 November 2016

Cubbitch Barta Native Title Claimants

Ground Floor, Suite 01, 20 Chandos Street  
St Leonards, NSW, 2065  
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St Leonards, NSW, 1590

T +61 2 9493 9500  
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[www.emmconsulting.com.au](http://www.emmconsulting.com.au)

Re: Response to RAP comments for Hume Coal Project and Berrima Rail Project

Dear Glenda,

Please find in Tables 1 and 2 the draft response to your draft ACHA review comments on behalf of Hume Coal. These comments and responses will be included in the final Hume Coal ACHA report and Berrima Rail project report.

#### Table 1 Hume Coal Project comments

Comment	Response
(1) "The 37 sites previously recorded by Therin, were they recorded because of this project or another project? If they were all given a low scientific significance, because of the "disturbance", there must have been other sites recorded. Were RAP's given the opportunity to comment on their cultural significance?"	Refer to Section 4.4 of the EMM ACHA report. These sites were recorded as part of an assessment for a proposal to sub-divide the Wongonbra property into rural-residential lots (Therin 2007, p.1). The 37 sites were the only sites identified as part of this assessment. Aboriginal consultation was undertaken with five organisations. The report was sent to these parties for review. The report did not identify any Aboriginal socio-cultural or historic values specific to the 37 sites recorded.
(2) Why do artefact scatters not get the same high significance as an art site? Is it because of the visual affect in some cases? An artefact scatter can contain beautiful artefacts and should be able to afford the same level of significance, based on visual affect.	As described in Section 9.3 of the EMM ACHA report, the criteria for scientific significance and educational value is based on research potential, rarity and representatives, integrity, the ability to address pertinent research themes and also educational potential. Theoretically artefact scatters may be of high scientific significance, depending on how it relates to the assessment criteria.
(3) Artefact scatters that have been "disturbed" hold just as high a cultural significance as an "undisturbed" artefact scatter.	It is acknowledged that the Aboriginal community consider Aboriginal objects as culturally significant items regardless of their scientific significance. The rationale behind attributing different levels of scientific significance to each site is this: if all sites are assigned as having high significance, then nothing stands out as deserving management priority. As such, the finite resources available for management are weighted towards sites of higher significance.
(4) I do not believe that the phrase "common type" should be used anymore. That is because those "common" sites are becoming less and less "common" with the massive developments that are taking place in the Sydney Basin, and fast moving outwards towards the Southern Highlands.	This term is used irrespectively of how many sites have been destroyed; it is used to identify how commonly the site type has been recorded locally or regionally. Notwithstanding, the cumulative impact of development must be assessed to determine whether such site types are becoming rarer with the increase in development. Section 10.8 addresses the cumulative impacts of the project.
(5) Rock shelters should not be excavated for this project; the predictions for subsidence damage according to this document are low.	No rock shelters are designated for excavation. A sample of the rock shelters will be monitored which is a nonintrusive method (refer to section 11.2.7).
(6) The shelters recorded either with or without art should come under future Plan Of Management, which should include baseline recording of all,	All rock shelters have been recorded to a baseline standard as described in Section 6.2.1. This has included site sketches (but not measured planning). The details of further monitoring and recording will be devised during the

**Table 1 Hume Coal Project comments**

Comment	Response
shelters and future monitoring, after mining. There has been a lot more work done on subsidence in the Southern coalfields, since Sefton (2000).	preparation of the ACHMP. This may include further research into the most appropriate monitoring method with regard to more recent subsidence monitoring studies. These matters will be decided in consultation with RAPs.  It would be unfeasible to monitor all rock shelter sites, particularly because there are no predicted subsidence impacts on any surface features. As such, the impetus is to monitor a selection of the most significance and largest rock shelters above the underground mine area (refer to section 11.2.7).
(7) All excavated material should be wet sieved either on a 2.5 mm or 3 mm sieve. There is too much small material lost on a 5 mm sieve. All you get is large artefacts, and not a true count of numbers.	Section 11.2.5 previously stated that during salvage excavation, soil will be wet sieved through a 5 mm aperture mesh. A 3 mm sieve was used for a selection of test pits during the test excavation program but no discernible trend in artefact size was found when comparing the results to a pit sieved using 5 mm mesh. Notwithstanding, the section has been updated to include the provision for the use of smaller sieves in warranted situations which will be devised during the ACHMP.
(8) It is not appropriate for Hume Coal, a Korean owned entity to have Care and Control of any artefacts at any time. I will not support this recommendation in any way. The artefacts should either be reburied of a competent Aboriginal organisation should seek Care and Control.	During the review period, Yamanda Aboriginal Association requested for salvaged objects to be retained in the local Aboriginal community centre in Mittagong. This would involve applying for a care agreement with OEH to allow Yamanda to be a custodian of the recovered objects. This will be confirmed during the development of the ACHMP.
(9) Any artefacts recovered belong to Aboriginal people and they should be the decision makers as to their whereabouts in the future."	This statement is acknowledged. Yamanda have expressed their interest in being custodians of the recovered artefacts (refer to response to comment 8 above)

**Table 2 Berrima Rail project comments**

Comment	Response
"(1)[Test excavation] Transects 10 and 11 were only tested on either side of the corridor. There was no testing on the corridor itself or on the other side. I believe that this section needs more testing to properly ascertain the potential of the area.	The placement of Transects 10 and 11 was based on the design of the rail alignment at the time. The final design only varies slightly from the tested area. The current alignment represents a continuation of the tested landforms nearby. Therefore, the results are indicative of the archaeological potential in the current rail alignment which is predicted to be very low (average <5 artefacts per square metre). Only seven artefacts were retrieved from 21 test pits, 15 of which did not contain artefacts. As such, further testing or salvage is not considered warranted in this area, as salvage resources would be better allocated towards areas with moderate subsurface artefact densities (average 11–20 artefacts per square metre) such as those predicted at sites HC_176 and HC_177.
(2) I do not believe that the value of any site is reduced because of widespread historic ploughing. Even your own documentation previously disputes that comment. To a scientist it may have reduced the scientific and research value, but does not reduce the cultural value or their place in the landscape.	The Hume Coal Project ACHA report argues that widespread historic ploughing disturbs but does not necessarily remove all spatial context of open stone artefact sites since their deposition (refer Section 3.9 of the Hume Coal Project ACHA). Historic ploughing would inevitably reduce the scientific value of sites as it would move artefacts from their original depositional context. This would limit the potential for stratified sites and also affect the spatial patterning of sites.  Notwithstanding the above, all surface stone artefact sites within the project disturbance footprint will be salvaged regardless of whether or not they have been ploughed. Furthermore, the sites identified for salvage excavation have also been subject to historic ploughing, but warrant salvage as they provide a good representative sample of stone



**Table 2**      **Berrima Rail project comments**

Comment	Response
	<p>artefacts, raw materials and implements used in the local area.</p> <p>It is acknowledged that the Aboriginal community consider Aboriginal objects as culturally significant items regardless of their scientific significance.</p>
<p>(3) [Test excavation] "Transects 7 and 8 you say revealed low artefact densities. I note in Figure 10.5 that there were as many as 10 possibly in some pits, while others had one or nil. However transect 6 had high numbers, less than 50 metres away. If the whole of this PAD, around the area of these transects is to be impacted then it should all be tested and or salvaged.</p>	<p>One test pit in transect 8 had above average artefact frequencies (pit 031E 003N had eight artefacts) and its adjacent pits had from two to three artefacts. This suggests that this area has slightly more potential than the surrounding tested areas, but comparatively low when compared to the other sites designated for salvage.</p> <p>The nearby transect 6 has moderate artefact densities which is attributed to its proximity to Oldbury Creek whereas transects 7 and 8 represent lower artefact frequencies associated with areas over 200 m from perennial streams. Transect 6 is designated for salvage as part of the Hume Coal Project mitigation measures.</p> <p>Subsequently, transect 6 will be salvaged but transect 7 and 8 are not considered to warrant further testing or salvage because of the expected low to very low artefact densities <i>in these areas</i>.</p>
<p>(4) All salvaged material should be wet sieved either on a 2.5mm or 3mm sieve. There is too much small material lost on a 5mm sieve. All you will get is large artefacts, and not a true count of numbers.</p>	<p>A 3 mm sieve was used for a selection of test pits during the test excavation program but no discernible trend in artefact size was found when comparing the results to a pit sieved using 5 mm mesh.</p> <p>Section 10.19.2 of the Hume Coal Project ACHA previously stated that during salvage excavation, soil will be wet sieved through a 5 mm aperture mesh. Notwithstanding, it has been updated to include the provision for the use of smaller sieves where warranted, which will be determined during the ACHMP.</p>
<p>(5) It is not appropriate for Hume Coal, a Korean owned entity to have Care and Control of any artefacts at any time. I will not support this recommendation in any way. The artefacts should either be reburied or a competent Aboriginal organisation should seek their Care and Control.</p>	<p>During the review period, Yamanda Aboriginal Association requested for salvaged objects to be retained in the local Aboriginal community centre in Mittagong. This would involve applying for a care agreement with OEH to allow Yamanda to be a custodian of the recovered objects. This will be confirmed during the development of the ACHMP.</p>
<p>(6) Any artefacts recovered belong to Aboriginal people, and they should be the decision makers as to their whereabouts in the future."</p>	<p>This statement is acknowledged. Yamanda have expressed their interest in being custodians of the recovered artefacts (refer to response to comment 8 above).</p>

Please do not hesitate to contact me if you have any further questions about the responses.

Yours sincerely,



**Ryan Desic | Senior Archaeologist**

**T 02 9493 9500 | D 02 9493 9541 | M 0411 329 712 | F 02 9493 9599**

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**Ryan Desic**

**From:** NIAC []  
**Sent:** Thursday, 13 October 2016 10:59 AM  
**To:** Ryan Desic  
**Subject:** RE: Draft Hume Coal Project and Berrima Rail Project Reports

Dear Ryan,

We have concerns that comments of registered Party's may not have been shared at the outset, thus giving the groups a perspective on things. As we have said, unless we put confidential and or without prejudice we are happy to share our comments. After all we all want the best outcome for Aboriginal Heritage and Culture, however cosmetic and negligible these concessions may be in comparison to rights of corporations to take what they want. Aboriginal owners and custodians of this stolen Country have had little to no say over stolen resources and trashing of their land. One gets the impression that this is being micromanaged and that in the end a sanitised in order to avoid more open and public sharing and discussion, both intra Group and extra Group. We in fact have been threatened with law suits if we talk to people. This has a tendency to shut down open and free speech - not very scientific, compassionate, caring or fair to disadvantaged Original Australians.

Also it is difficult for disadvantaged and impoverished communities to sit in front of a computer screen and read a pdf file. Old people can't actually turn the pages over and see properly. It is not our job to subsidise a corporation by getting our own printouts - there is a problem with ink - and there is a problem going all the way to Officeworks - if one happens to be close enough to get a printout. It is not our job to be Girl/Boy Fridays for the mining bosses.

To sum up please give us a printout and  
much as we are.

allow free and open speech. This is not directed at Ryan Desic who is no doubt a slave of life as

Daniela Reverberi (volunteer NIAC technical officer)  
Jenny and Phoebe Sajkovic - Elders

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## Ryan Desic

**From:** Ryan Desic  
**Sent:** Friday, 14 October 2016 1:00 PM  
**To:** 'NIAC'  
**Subject:** Re: Draft Hume Coal Project and Berrima Rail Project Reports

Hi Daniela,

Thank you for your email and your time over the phone to discuss these matters in more detail. I have provided a response to the salient points but please let me know if you need anything else clarified.

1. We have concerns that comments of registered Party's may not have been shared at the outset, thus giving the groups a perspective on things.

Additional to your email, we discussed this matter over the phone on 14 October 2016. RAP comments provided to date are summarised in Chapter 2 of the draft Hume Coal ACHA and provided also provided in full in Appendix A of the same report. The information about the burial site you refer to has been issued previously to RAPs in early 2016 regarding the AHIP application for continued farming. This information was also issued as a separate letter on 29 August to all RAPs at your request.

The upcoming consultation meeting will also give RAPs the opportunity to share information, perspectives and recommendations in an open forum. Please note that it was never the intention to prevent the sharing of information between RAP groups, in fact it is encouraged. The confidentiality agreement does not prevent RAPs communicating between each other, so long as all parties are registered but this is left to the discretion of each RAP, as some value their privacy and prefer to use EMM/Hume Coal as the intermediary for sharing information.

You also raised concerns that the public would not be provided with this information. As a RAP, you are issued information before it will be made publicly available. This is because your party is involved in providing advice and knowledge that will influence the final decisions about the project. Notwithstanding, the ACHA will be publicly available after this stage. The following information summarises how the public can be involved:

As the project is State significant development (SSD), the EIS must be publicly exhibited for a minimum of 30 days (longer if the exhibition period overlaps with school holidays). This process comprises of Hume submitting the EIS electronically and in hard copy to the Department of Planning and Environment (DPE), which will:

- notify surrounding residents in writing (council is consulted on the notification area, which will vary depending on the scope of the proposal)
- place an advertisement in a State wide newspaper
- place electronic copies of the application and all supporting information on DPE's major projects website
- make hard copies of the application and all supporting information available at the relevant local council's office and DPE's main office (23-33 Bridge Street, Sydney 2000)

The public are able to make an online submission during the public exhibition period via the project's application page on the major projects website. The public can also send written submissions to DPE by post or email.

Hume has a community shop at the below address in Berrima, which the public can enter and discuss the project with Hume personnel.

Post Office Corner  
Shop 3/30 Old Hume Highway  
Berrima NSW 2577  
Phone 02 4877 2481

At this stage the EIS is likely to be publicly exhibited during the first quarter of 2017.

2. We in fact have been threatened with law suits if we talk to people.

Hume Coal have provided the following response to this concern:

A Confidentiality Agreement, also known as non-disclosure agreement, is simply a contract between two or more parties where the subject of the agreement is a promise that information conveyed will be maintained in secrecy. Therefore by signing the Confidentiality Agreement, you and all other parties are obligated to maintain concealment of the information provided.

The reason Hume Coal have requested that all Registered Aboriginal Parties (RAPs) sign a Confidentiality Agreement, is because the project development application is not currently in the public domain and therefore certain aspects of the project description may change between now and general public viewing. Therefore it is very important that all information provided to the RAPs is kept confidential and only intended for the RAPs only. All documents provided cannot be distributed to external (third) parties unless approved first by Hume Coal.

Once the final development application is released to the public by Hume Coal, all parties are free to discuss with anyone the information contained in the final version (but not the draft version that is being provided in advance).

Nobody is being threatened, Hume Coal is simply protecting information provided to the RAPs before it is officially made public. Hume Coal is concerned of confusion that will be caused if an outdated, draft version is out there with the final version.

Hume Coal is most thankful that the RAPs are able to share information with the project and review the projects assessment before any other group or stakeholder.

3. Also it is difficult for disadvantaged and impoverished communities to sit in front of a computer screen and read a pdf file. Old people can't actually turn the pages over and see properly. It is not our job to subsidise a corporation by getting our own printouts.... To sum up please give us a printout (PO Box 595, Moss Vale, 2577) and allow free and open speech.

We asked RAPs on 29 August 2016 (before the report was issued) if they would like printed versions. As such, I am happy to print these out and provide it to NIAC via express post. Please note that Hume Coal have no issue with RAPs discussing and sharing information as this is well within your rights and you all have been provided with the same information. However, please do not disseminate this information to third parties as discussed in point number 2.

Please do not hesitate to contact me if you have any other questions. We value your input and your diligence to make sure RAPs are kept informed about the project. Please let me know if you request for this email to be forwarded on to the other RAPs for the projects.

Regards,

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**Ryan Desic | Senior Archaeologist**

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

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PO Box 21, St Leonards NSW 1590



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Please note that EMGA Mitchell McLennan Pty Limited has changed its name to EMM Consulting Pty Limited (simply refer to us as EMM). Email and website addresses have been changed to reflect this. All other details including ABN, bank details etc remain unchanged.



*Please consider the environment before printing my email.*

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**From:** NIAC [redacted]  
**Sent:** Thursday, 13 October 2016 10:59 AM  
**To:** Ryan Desic  
**Subject:** RE: Draft Hume Coal Project and Berrima Rail Project Reports



Dear Ryan,

We have concerns that comments of registered Party's may not have been shared at the outset, thus giving the groups a perspective on things. As we have said, unless we put confidential and or without prejudice we are happy to share our comments. After all we all want the best outcome for Aboriginal Heritage and Culture, however cosmetic and negligible these concessions may be in comparison to rights of corporations to take what they want. Aboriginal owners and custodians of this stolen Country have had little to no say over stolen resources and trashing of their land. One gets the impression that this is being micromanaged and that in the end a sanitised in order to avoid more open and public sharing and discussion, both intra Group and extra Group. We in fact have been threatened with law suits if we talk to people. This has a tendency to shut down open and free speech - not very scientific, compassionate, caring or fair to disadvantaged Original Australians.

Also it is difficult for disadvantaged and impoverished communities to sit in front of a computer screen and read a pdf file. Old people can't actually turn the pages over and see properly. It is not our job to subsidise a corporation by getting our own printouts - there is a problem with ink - and there is a problem going all the way to Officeworks - if one happens to be close enough to get a printout. It is not our job to be Girl/Boy Fridays for the mining bosses.

To sum up please give us a printout (PO Box 595, Moss Vale, 2577) and allow free and open speech. This is not directed at Ryan Desic who is no doubt a slave of life as much as we are.

Daniela Reverberi (volunteer NIAC technical officer)  
Jenny and Phoebe Sajkovic - Elders

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## Ryan Desic

**From:** NIAC  
**Sent:** Monday, 24 October 2016 3:25 PM  
**To:** Ryan Desic  
**Cc:** m  
**Subject:** RE: Hume Coal Project: Aboriginal consultation meeting: draft ACHA review and comment period

Hello Ryan,

We will not be attending due to illness and having to care for people. We will be happy for Glen Freeman to also represent NIAC.

Some comments:

- (1) It would be better for Hume Coal to pay for each individual group to get an independent assessment from an expert of their own choosing who is to report directly to them.
- (2) Not all our comments have been included in the draft report.
- (3) A big point is that given the proximity to a major massacre site it is likely the more burial sites (probably mass burials) are within the study area itself, thus whilst not commenting on the quality of the archaeology, (a) the quantity is not reflective of the deep significance of the area and more test pits are needed.
- (4) The aboriginal groups should have been given a say in the location of the test pits and any future test pits, to remedy the inadequate number of test pits so far, given the serious significance of the area.
- (5) No mining should be within 1km buffer of rivers and dams and also not within 1km of massacre sites, or significant sites, eg, the Oldbury Estate, Oldbury Road, Moss Vale, boundary.
- (6) We remind you that landscape and water are also Traditional Cultural Materials and these are not to be disadvantaged nor damaged by any mining.
- (7) It would be nice for Hume Coal to pay the groups for attending meetings, given that they have to get baby sitters, sitters for the frail and elderly, get time off work, etc.
- (8) The 7 am starting hours of the field surveys, etc, was unreasonable, given that it is not the fault of disadvantaged communities which have been driven from their lands and scattered at gun point. You did not consider the hardship suffered by groups.

Regards

Daniela Reverberi (NIAC volunteer technical officer)  
Jenny and Phoebe Sajkovic (Elders)

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**From:** Ryan Desic  
**Sent:** Monday, 24 October 2016 9:49 AM  
**To:** NIAC  
**Subject:** RE: Hume Coal Project: Aboriginal consultation meeting: draft ACHA review and comment period

Hi Daniela,



11 November 2016

Ground Floor, Suite 01, 20 Chandos Street  
St Leonards, NSW, 2065  
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St Leonards, NSW, 1590  
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E info@emmconsulting.com.au  
[www.emmconsulting.com.au](http://www.emmconsulting.com.au)

Re: Hume Coal Project and Berrima Rail Project. Draft ACHA response clarifications

Dear NIAC,

As discussed during the phone call on 27 October 2016, I have clarified some of the comments received and provided responses on behalf of Hume Coal. Please review the clarification column to make sure it represents your comments. These comments and responses will be included in the Hume Coal Project ACHA report.

NIAC email of 24 October 2016.

Response to comment

EMM discussed these comments further on 26 and 27 October 2016 to clarify some of the points. Clarifications are provided in *Italics* beneath the original comment.

(1) It would be better for Hume Coal to pay for each individual group to get an independent assessment from an expert of their own choosing who is to report directly to them.

*The comment relates to the Aboriginal community's connection to the entire environment and their desire to input into other environmental issues (such as ecology and hydrology), regardless of if no specific socio-cultural or historic information about these aspects has been disclosed about the project area.*

*As such, NIAC stated that an independent assessment would provide RAPs with more confidence that the assessments that support the EIS are correct.*

*NIAC verified that this comment is not related to the adequacy of the ACHA itself.*

The main roles and responsibilities of RAPs under the consultation guidelines are to:

- provide cultural information to determine if there are Aboriginal objects or places of cultural value in the project area;
- have input into the proposed research, survey and test excavation methods with the aim of gathering information about cultural significance or respecting cultural protocols; and
- have input into developing appropriate ways to avoid or mitigate harm to Aboriginal objects.

It is acknowledged that broader environmental impacts are of concern to the Aboriginal community. It has been a primary aim for the project to minimise environmental impacts. RAPs or individuals will have the opportunity to review and make submissions about various technical studies (eg ecology and hydrology) during public exhibition of the EIS.

Hume Coal does not intend to engage other consultants to provide RAPs with independent assessments. Notwithstanding, other technical studies have been subject to peer reviews where considered necessary.

(2) Not all our comments have been included in the draft report.

*NIAC clarified that this may relate to some historical extracts provided in an email.*

These extracts have been included in Appendix A.

(3) A big point is that given the proximity to a major massacre site it is likely the more burial sites (probably mass burials) are within the study area itself, thus whilst not commenting on the quality of the archaeology, (a) the

As explained in section 11.2.5, the salvage excavation will involve further testing and open area excavation. The aim of this will not be to further characterise the archaeology, but rather to identify and target areas with higher artefact

quantity is not reflective of the deep significance of the area and more test pits are needed.

*NIAC clarified that this statement does not request for further testing to identify burial sites.*

*NIAC clarified that they are satisfied that their request for more test pits will be addressed post-project approval in line with the salvage measures proposed in this report.*

(4) The aboriginal groups should have been given a say in the location of the test pits and any future test pits, to remedy the inadequate number of test pits so far, given the serious significance of the area.

*NIAC clarified that this comment related to during the test excavation program where an Aboriginal site officer requested for a specific area to be tested.*

densities for salvage.

EMM wish to clarify that such areas were not tested because they were outside of the project disturbance footprint and additional impacts from the test pits were not warranted.

As addressed in the response to comment (3) above, further testing and salvage will be implemented post-project approval. The details of the salvage measures will be refined in the Aboriginal cultural heritage management plan (ACHMP). RAPs will be given the opportunity for input into the decisions for test pit locations at the sites identified for salvage excavation as set out in section 11.2.5.

(5) No mining should be within 1 km buffer of rivers and dams and also not within 1 km of massacre sites, or significant sites, eg the Oldbury Estate, Oldbury Road, Moss Vale, boundary.

No direct surface impacts will occur within approximately 2.5 km of the suggested burial site. Furthermore, no subsidence impacts are predicted to any surface features within or outside the underground mining area.

The underground mining area cannot be placed outside 1 km of the features listed by NIAC. The impact on other environmental features (such as ground water) is addressed in the EIS and separate technical reports. The community will have the opportunity to review and respond to other issues during public exhibition of the EIS.

(6) We remind you that landscape and water are also Traditional Cultural Materials and these are not to be disadvantaged nor damaged by any mining.

It has been a primary aim for the project to minimise environmental impacts.

The community will have the opportunity to review and respond to other environmental issues during public exhibition of the EIS.

Also, refer to comment (1) and (5).

(7) It would be nice for Hume Coal to pay the groups for attending meetings, given that they have to get baby sitters, sitters for the frail and elderly, get time off work, etc.

It was felt necessary to separate consultation from paid fieldwork opportunities as guided by section 3.4 of the consultation guidelines. Notwithstanding, RAPs were offered reimbursement for travel costs to attend the meetings.

(8) The 7 am starting hours of the field surveys, etc, was unreasonable, given that it is not the fault of disadvantaged communities which have been driven from their lands and scattered at gun point. You did not consider the hardship suffered by groups.

The fieldwork times were not raised as an issue during fieldwork. However, the start time of any future fieldwork will be discussed with RAPs to set out a suitable time.



**Ryan Desic | Senior Archaeologist**

**T 02 9493 9500 | D 02 9493 9541 | M 0411 329 712 | F 02 9493 9599**

## Ryan Desic

---

**From:** NIAC [jillert@sctelco.net.au]  
**Sent:** Thursday, 1 December 2016 6:37 AM  
**To:** Ryan Desic  
**Subject:** RE: Draft response/clarification to comments

### Without prejudice.

Hi Ryan,

You did not state a deadline. We do not wish to be verballed, as is the case with any such discussions, the outcome is invariably not a reflection of what is thought and felt. We deny permission to Hume Coal to publish any comment from us whatsoever that has been "clarified" or paraphrased by any other person whatsoever. We will write our own clarification. EG, point (1) We NEVER mentioned the word "ACHA", how did this creep in (rhetorical question - no reply required)? With point (1) the fact is that the "contract" for participation was not negotiated. It was clearly either our way or else leave. With point (7) we did say NIAC itself did not require payment for meeting attendance. It appears that Hume Coal wishes to portray itself in a favourable light but it will not do so at our expense.

Regards  
NIAC

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From: Ryan Desic [mailto:rdesic@emmconsulting.com.au]  
Sent: Tuesday, 15 November 2016 3:20 PM  
To: jillert@sctelco.net.au  
Subject: Draft response/clarification to comments

Hi Daniela,

Please find attached the draft response to your comments. As discussed, I hope the clarification of you comments is correct. Please advise if this is not the case.

Regards,

---

### Ryan Desic | Senior Archaeologist

T 02 9493 9500 | D 02 9493 9541 | M 0411 329 712 | F 02 9493 9599

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<p>NIAC's original comments in email 24 October 2016 in black. Clarifications by NIAC are in blue and clarifications with archaeologist are green, italic.</p> <p><u>10 February 2017</u></p>	<p>EMM's comments / response</p>
<p>(1) <u>Original comment</u>: It would be better for Hume Coal to pay for each individual group to get an independent assessment [<i>given the complexity of things</i>] from an expert of their own choosing who is to report directly to them.</p> <p><u>Clarification</u>: This could be rephrased as: It would be helpful if Hume Coal could pay a independent third party expert, chosen by the groups themselves, to assess Hume Coal's reports relating to the environmental aspects, such as engineering, hydrology, environmental impacts, etc; or at least to get an independent third party opinion. The environment, water, water table, flora, fauna, landscape, etc, are Traditional Cultural Materials and important to Traditional Custodians. <b>Note we do not have a problem with the archaeologists.</b> It is likely that the botanists have done a good job identifying and categorising the flora and the ecologists, zoologists have no doubt suggested that all animals such as wombats, reptiles, kangaroos, etc, not be bulldozed and buried alive but relocated to a safe suitable location by expert handlers - we strongly suggest this. We need to be careful about geological, engineering, hydrological modelling, predicting the probability of mining impacts on water, water table, or landscape, etc, which are Traditional Cultural Materials; in general, the science is not good enough to predict impacts of mining with certainty. <b>It can be safely stated that the probability of impact by mining on water, water table, landscape, and environment is not zero.</b></p> <p>We strongly suggest that a <b><u>suitable trust fund be set aside for future rehabilitation</u></b> and that this start immediately if mining proceeds and should be contingent for approvals being granted and continuing. Contributions should be made fortnightly or monthly. The amount needs to be assessed by independent experts and RAPs and the broader community must be involved in</p>	<p>The main roles and responsibilities of RAPs under the consultation guidelines are to:</p> <ul style="list-style-type: none"> <li>• provide cultural information to determine if there are Aboriginal objects or places of cultural value in the project area;</li> <li>• have input into the proposed research, survey and test excavation methods with the aim of gathering information about cultural significance or respecting cultural protocols; and</li> <li>• have input into developing appropriate ways to avoid or mitigate harm to Aboriginal objects.</li> </ul> <p>It is acknowledged that broader environmental impacts are of concern to the Aboriginal community. It has been a primary aim for the project to minimise environmental impacts. RAPs or individuals will have the opportunity to review and make submissions about various technical studies (eg ecology and hydrology) during public exhibition of the EIS. Hume Coal does not intend to engage other consultants to provide RAPs with independent assessments. Notwithstanding, other technical studies have been subject to peer reviews where considered necessary.</p>

<p>selection of these relevant experts and trustees. The trust fund is not to be spent for anything other than rehabilitation. This may have been discussed at meetings not attended by NIAC.</p> <p>In addition it needs noting that the contract for participation in the survey was not negotiated between the parties. <b>Note</b>, we do not disagree with things like health, safety, and common sense matters.</p>	
<p>(2) <u>Original comment</u>: Not all our comments have been included in the draft report.</p> <p><u>Clarification</u>: We are happy with what has been included, most importantly, information about the massacre and burial of Traditional Owners at Gin Gen Bullen. We must not detract from this.</p>	<p>These extracts have been included in AppendixA.</p>
<p>(3) <u>Original comment</u>: A big point is that given the proximity to a major massacre site it is likely the more burial sites (probably mass burials) are within the study area itself, thus whilst not commenting on the quality of the archaeology, (a) the quantity is not reflective of the deep significance of the area and more test pits are needed.</p> <p><u>Clarification with archaeologist</u>:  <i>NIAC clarified that this statement does not request for further testing to identify burial sites. NIAC clarified that they are satisfied that their request for more test pits will be addressed post-project approval in line with the salvage measures proposed in this report.</i></p>	<p>As explained in section 11.2.5, the salvage excavation will involve further testing and open area excavation. The aim of this will not be to further characterise the archaeology, but rather to identify and target areas with higher artefact densities for salvage.</p>
<p>(4) <u>Original comment</u>: The aboriginal groups should have been given a say in the location of the test pits and any future test pits, to remedy the inadequate number of test pits so far, given the serious significance of the area.</p> <p><u>Clarification with archaeologist</u>:  <i>NIAC clarified that this comment related to during the test excavation program where an Aboriginal site officer requested for a specific area to be tested.</i></p>	<p>EMM wish to clarify that such areas were not tested because they were outside of the project disturbance footprint and additional impacts from the test pits were not warranted.</p> <p>As addressed in the response to comment (3) above, further testing and salvage will be implemented post-project approval. The details of the salvage measures will be refined in the Aboriginal cultural heritage management plan (ACHMP). RAPs will be given the opportunity for input into the decisions for test pit locations at the sites identified for salvage excavation as set out in section 11.2.5.</p>

<p>(5) <u>Original comment:</u> No mining should be within 1 km buffer of rivers and dams and also not within 1 km of massacre sites, or significant sites, eg the Oldbury Estate, Oldbury Road, Moss Vale, boundary.</p> <p><b><u>Additional comment:</u> There must be no coal seam gas fracturing conducted. The damaging impacts of this would be catastrophic and completely unacceptable. We may not have stated this clearly enough previously.</b></p>	<p>No direct surface impacts will occur within approximately 2.5 km of the suggested burial site. Furthermore, no subsidence impacts are predicted to any surface features within or outside the underground mining area. The underground mining area cannot be placed outside 1 km of the features listed by NIAC. The impact on other environmental features (such as ground water) is addressed in the EIS and separate technical reports. The community will have the opportunity to review and respond to other issues during public exhibition of the EIS.</p>
<p>(6) <u>Original comment:</u> We remind you that landscape and water are also Traditional Cultural Materials and these are not to be disadvantaged nor damaged by any mining.</p> <p><u>Clarification:</u> Note that this has been expanded on in point (1), also additional comment in point (5).</p>	<p>It has been a primary aim for the project to minimise environmental impacts. The community will have the opportunity to review and respond to other environmental issues during public exhibition of the EIS. Also, refer to comment (1) and (5).</p>
<p>(7) can be deleted and addressed by point (8).</p>	
<p>(8) <u>Original comment:</u> The 7 am starting hours of the field surveys, etc, was unreasonable, given that it is not the fault of disadvantaged communities which have been driven from their lands and scattered [to other places] at gun point. You did not consider the hardship suffered by groups.</p> <p><u>Clarification:</u> In winter we need to rise in darkness to arrive at 7am. We suggest that it may be easier for some to start / finish one hour later; anyway it is only a suggestion.</p>	<p>The fieldwork times were not raised as an issue during fieldwork. However, the start time of any future fieldwork will be discussed with RAPS to set out a suitable time.</p>

# Yamanda Aboriginal Association.

Re EMM Hume Coal Consultation.

- Annty Val would like to see Hume Coal contribute to the establishment of a Permanent Keeping Place / Educational Facility at the Aboriginal Community Cultural Centre in Mittagong. We would like the artefacts which need to be stored/ removed to be stored in the Centre not at the Hume Site.
- Annty Val & Yamanda Association would ask that Hume Coal support an Archaeological Survey in the Wingecarribee to establish a baseline in partnership with OEH & Councils <sup>WSP</sup> has been put in place in the Hunter Valley.
- That hills with an area view should not be disturbed without a full archaeological survey. as remains are likely of Ancestors.
- That Hume Coal provide a scholarship through the Ted Kennedy Fund for a local Aboriginal person to undertake a Degree in Aboriginal Archaeological Studies at University. & Field Workers
- That Environmental Restoration work be carried out by Aboriginal Organisations
- That access to the Aboriginal Shelters and

Rock Art Sites be made available to RAPS and Traditional Owners ~~as~~ for Educational purposes and a Plan of Management for these sites be established with TO's and Native Title Holders under the ILUA Gundungurra and funds be allocated to this PoM.



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**Ryan Desic**

**From:** Ryan Desic  
**Sent:** Wednesday, 9 November 2016 9:49 AM  
**To:** Ryan Desic  
**Subject:** Re: Statment of cultural significance

Hi Ryan

For the Statement of Significance

The Gundungurra Aboriginal people are the traditional custodians of the land on which the proposed mine is Sited . The significant number and value of Aboriginal sites and Artefacts found ,demonstrate clearly the longstanding occupation and connection of the Gundungurra people to this Country . Aboriginal people respected and cared for these Sites, managing land and water resources sustainably for thousands of years and conducting their lives and ceremony ,in harmony with the environment.  
Aunty Val Mulcahy

Sent from my iPhone

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23 November 2016

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Re: Response to RAP comments for Hume Coal Project and Berrima Rail Project

Dear Yamanda Aboriginal Association,

Please find in Table 1 the draft response to your draft ACHA review comments on behalf of Hume Coal. These comments and responses will be included in the final Hume Coal ACHA report.

**Table 1 Yamanda Aboriginal Association**

Comment	Response
<p>Yamanda 's letter stated the following:</p> <p>(1) Aunty Val would like to see Hume Coal contribute to the establishment of a permanent Keeping Place/Educational Facility at the Aboriginal community cultural centre in Mittagong. We would like the artefacts which need to be stored/removed to be stored in the centre not at the Hume Site.</p>	<p>The request is acknowledged. Section 11.2.8 has been updated to reflect that Yamanda has nominated to be the custodians of the recovered artefacts which will be confirmed during the development of the ACHMP. This will involve applying for a care agreement with OEH.</p> <p>The details of the facility for the recovered objects will be determined during the development of the ACHMP.</p>
<p>(2) Aunty Val and Yamanda Association would ask that Hume Coal support an archaeological survey in the Wingecarribee to establish a baseline in partnership with OEH and Wingecarribee Shire Council as has been put in place in the Hunter Valley.</p>	<p>Hume Coal will use the information gathered during the preparation of this ACHA and the information gathered from the salvage measures outlined in Chapter 11 to prepare a salvage report. RAPs will have input as to what research questions the results will aim to address, which could include addressing baseline questions about the region. The archaeological investigation, including the existing results, will arguably be the largest in the local area.</p> <p>As such, Hume Coal are committed to increasing the baseline knowledge of the region, but will only use the information gathered in the project area from the assessment and salvage measures.</p> <p>Hume Coal will disseminate the information gathered to OEH and Wingecarribee Shire Council to inform any future studies in the region.</p>
<p>(3) Hills with an area view should not be disturbed without a full archaeological survey as remains are likley of ancestors.</p>	<p>Comment acknowledged. Yamanda verified during a subsequent meeting (31 October 2016) that the landscape feature/hill of concern was not inside the surface disturbance footprint. Furthermore, the hills in the project disturbance footprint have been surveyed and no features suggesting a burial have been identified.</p>
<p>(4) That Hume Coal provide a scholarship through the Ted Kennedy Fund for a local Aboriginal person to undertake a degree in Aboriginal studies at University and field workers.</p>	<p>Hume Coal currently have a charitable foundation. Each year the Foundation provides around \$400,000 in funding, in two funding rounds, closing on 30th July and 1st November. The funding focus is on education, Indigenous programs and not-for-profit pre-school child care.</p> <p>Hume Coal ask Yamanda to apply for any scholarship through</p>

**Table 1 Yamanda Aboriginal Association**

Comment	Response
	<p>this avenue.</p> <p>Additionally, Hume Coal will engage suitable RAP fieldworkers to assist with salvage measures, in line with fieldwork already completed for the ACHA.</p>
(5) That environmental restoration work be carried out by Aboriginal organisations.	<p>Hume Coal will explore opportunities to engage members of the Aboriginal community with relevant knowledge during rehabilitation activities for the project.</p>
(6) That access to the Aboriginal shelters and rock art sites be made available to RAPs and Traditional Owners for educational purposes and a plan of management for these sites be established with traditional owners and native title holders under the Indigenous Land Use Agreement Gundungurra and funds be allocated to this plan of management. "	<p>These sites are all within Belanglo State Forest which is owned by the Forestry Corporation of NSW (state-owned). Access to the rock shelters would mean that person(s) wanting to access these sites would need to follow the requirements for entering a state forest.</p> <p>Hume Coal are not authorised to grant access to the Belanglo State Forest., this must be done directly with Forestry Corporation of NSW, but could help facilitate access or provide information upon request.</p> <p>In reference to the requested plan of management:</p> <p>Sixteen of the most significant sites above the underground mine area (in the Belanglo State Forest) will be subject to monitoring as part of the ACHMP. The details of further monitoring and recording will be devised during the preparation of the ACHMP. This may include further research into the most appropriate monitoring method with regard to more recent subsidence monitoring studies. These matters will be decided in consultation with RAPs.</p>

Please do not hesitate to contact me if you have any further questions about the responses.

Yours sincerely,



**Ryan Desic | Senior Archaeologist**

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

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## Ryan Desic

**From:** m  
**Sent:** Wednesday, 16 November 2016 6:51 PM  
**To:** Ryan Desic  
**Subject:** Re: Statment of cultural significance

Hi Ryan  
Thanks very much I have read the comments and will distribute to Aunty Val and Yamanda. I have no need for further clarification  
Thanks very much  
Regards Jo Albany

Sent from my iPhone

On 15 Nov 2016, at 15:54, Ryan Desic <[\\_\\_\\_\\_\\_](#)>

Hi Jo,

Please find attached the draft responses to your comments regarding the draft ACHA.

These will be included in the final report. Please contact me if you would like any further clarification on the responses.

Regards,

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**Ryan Desic | Senior Archaeologist**

**T** 02 9493 9500 | **D** 02 9493 9541 | **M** 0411 329 712 | **F** 02 9493 9599

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PO Box 21, St Leonards NSW 1590

<[image001.png](#)>

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Please note that EMGA Mitchell McLennan Pty Limited has changed its name to EMM Consulting Pty Limited (simply refer to us as EMM). Email and website addresses have been changed to reflect this. All other details including ABN, bank details etc remain unchanged.



*Please consider the environment before printing my email.*





# Appendix B

## AHIMS search results

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## AHIMS Web Services (AWS)

Note: This Excel report shows the sites found in AHIMS on the 01/12/2015. If this date is not the same as the original date of the Search Results letter obtained during the Basic Search, then the search results might be different. The PDF version of this report will always coincide with the Basic Search Results letter.

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Primary contact	Site features	Site types	Recorders	Reports	Permits	Longitude GDA94	Latitude GDA94
52-4-0097	Compartiment 157;	AGD	56	247800	6175700	Closed sit/Valid	Open site Valid		Art (Pigment or Engraving Shelter with Art Grinding Groove :-	Open Camp Site	G Claiworthy			150.25	-34.53
52-4-0098	International House;	AGD	56	246800	6174800	Open site Valid	Open site Valid		Modified Tree (Carved c Burials, Carved Tree	Open Camp Site	Forests NSW-Northern Region (Graiton)			150.24	-34.54
52-4-0098	Kirby's Meadows;EkeleAGD	AGD	56	250700	6167701	Open site Valid	Open site Valid		Grinding Groove :- , Art Axe Grinding Groove, Rex Slicox	Open Camp Site	NPWS - Blackheath Office R Ethertidge, A.D Baugery			150.33	-34.60
52-4-0030	HCA1 A&B	AGD	56	248178	6169577	Open site Valid	Open site Valid		Grinding Groove :-	Open Camp Site	Rex Slicox	498		150.26	-34.58
52-4-0031	Bob's Creek	AGD	56	247781	6171124	Open site Valid	Open site Valid		Grinding Groove :-	Open Camp Site	Rex Slicox	498		150.25	-34.57
52-4-0032	Belanglo	AGD	56	251791	6176510	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	ASRSYS	498		150.30	-34.52
52-4-0033	HCA 2 Sutton Forest	AGD	56	248178	6169577	Open site Valid	Open site Valid		Modified Tree (Carved c Scarred) Tree	Open Camp Site	Rex Slicox	498		150.26	-34.58
52-4-0048	HR#81.ctd\Long Swamp	AGD	56	241900	6166570	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Elizabeth Rich			150.19	-34.62
52-4-0049	Lot 56\1 Lot 5\hanging	AGD	56	241970	6163880	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Elizabeth Rich			150.19	-34.63
52-4-0058	B3 (Berrima)	AGD	56	254100	6178700	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	376		150.32	-34.50
52-5-0193	Exeler Quarry	AGD	56	255380	6166243	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	ASRSYS	818,993,34		150.33	-34.61
52-2-1301	WR 3;	AGD	56	254770	6180780	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Elizabeth Rich, Laura-Ja 1428			150.33	-34.48
52-2-1302	WR 4;	AGD	56	254600	6180880	Closed sit/Valid	Open site Valid		Artifact :-	Shelter with Deposit	Elizabeth Rich, Laura-Ja 1428			150.33	-34.48
52-2-1303	WR 5;	AGD	56	254320	6180930	Closed sit/Valid	Open site Valid		Artifact :-	Shelter with Deposit	Elizabeth Rich, Laura-Ja 1428			150.32	-34.48
52-2-1304	WR 6;	AGD	56	254130	6181040	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Elizabeth Rich, Laura-Ja 1428			150.32	-34.48
52-2-1305	WR 7;	AGD	56	254200	6181630	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Elizabeth Rich, Laura-Ja 1428			150.32	-34.48
52-2-1306	WR 8;	AGD	56	254600	6181000	Open site Valid	Open site Valid		Modified Tree (Carved c Scarred) Tree	Open Camp Site	Elizabeth Rich, Laura-Ja 1428			150.33	-34.48
52-2-1307	WR 9;	AGD	56	254870	6180850	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Elizabeth Rich, Laura-Ja 1428			150.33	-34.48
52-2-1309	WR PAD;	AGD	56	255630	6180130	Closed sit/Valid	Open site Valid		Artifact :-	Open Camp Site	Elizabeth Rich, Laura-Ja 1428			150.34	-34.49
52-1-0033	Midway 1	AGD	56	248520	6181078	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Mr.R Taplin			150.24	-34.48
52-1-0050	Berrima, HCA07	AGD	56	253250	6181110	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	498		150.31	-34.48
52-4-0189	MVEnt Site 5	GDA	56	255736	6176238	Open site Valid	Open site Valid	Searle	Artifact :-	Open Camp Site	Total Earth Care Pty Ltd			150.34	-34.53
52-4-0190	MVEnt Site 4	GDA	56	255991	6176600	Open site Valid	Open site Valid	Searle	Artifact :-	Open Camp Site	Total Earth Care Pty Ltd			150.34	-34.52
52-2-1215	B 2;	AGD	56	254730	6179500	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	1220		150.33	-34.50
52-2-1216	B 1;	AGD	56	255440	6180240	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	1220		150.34	-34.49
52-1-0034	Midway 2	AGD	56	248678	6181297	Closed sit/Valid	Open site Valid		Artifact :-	Shelter with Deposit	Mr.R Taplin	98368		150.26	-34.48
52-4-0024	Bungalore Grinding	GDA	56	243874	6177894	Open site Valid	Open site Valid		Grinding Groove : 1		Mr.John Willoughby			150.21	-34.51
52-4-0324	Comfort Hill Grooves	GDA	56	247616	6171529	Open site Valid	Open site Valid		Grinding Groove : 7		Rod Wellington			150.25	-34.57
52-4-0329	HSP19	GDA	56	254948	6169393	Open site Valid	Open site Valid		Artifact : 1		Navin Officer Heritage Consultants Pty Ltd, Doctor, Rebecca Parkes			150.33	-34.59
52-4-0325	Comior Hill MT	GDA	56	245875	6171332	Open site Valid	Open site Valid		Modified Tree (Carved or Scarred) : 1		Rod Wellington			150.22	-34.57
52-4-0314	HSP 31	GDA	56	243037	6166340	Open site Destroyed	Open site Valid		Artifact : 1		Artefact Heritage Services, Mr.Josh Symons			150.20	-34.61
52-4-0316	SFO AS2	GDA	56	243344	6166253	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services			150.20	-34.61
52-4-0317	SFO AS3	GDA	56	243940	6166179	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services, Mr.Josh Symons			150.21	-34.61
52-4-0318	SFO AS4	GDA	56	244032	6166246	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services, Mr.Josh Symons			150.21	-34.61
52-4-0319	SFO AS5	GDA	56	244052	6166352	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services, Mr.Josh Symons			150.21	-34.61
52-4-0320	SFO AS6	GDA	56	244047	6166869	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services, Mr.Josh Symons			150.21	-34.61
52-4-0321	SFO AS7	GDA	56	244294	6166779	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services, Mr.Josh Symons			150.21	-34.61
52-4-0322	SFO AS8	GDA	56	242443	6166498	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services, Mr.Josh Symons			150.19	-34.61
52-4-0323	SFO SH1	GDA	56	249904	6168496	Open site Partially Destroyed	Open site Valid		Potential Archaeological Deposit (PAD) : 1, Artefact		Navin Officer Heritage Consultants Pty Ltd, Navin Officer Heritage Consu			150.27	-34.60
52-4-0286	HSP35	GDA	56	251295	6168817	Open site Partially Destroyed	Open site Valid		Artifact : 1, Potential Archaeological Deposit (P)		Navin Officer Heritage Consultants Pty Ltd, Navin Officer Heritage Consu			150.29	-34.59
52-4-0287	HSP36	GDA	56	243132	6166148	Open site Valid	Open site Valid		Artifact : 1		Artefact Heritage Services			150.20	-34.61
52-4-0290	SFO AS1	GDA	56	256560	6182650	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	498		150.34	-34.47
52-1-0053	Berrima, HCA10	AGD	56	252660	6179980	Open site Valid	Open site Valid		Grinding Groove :-	Open Camp Site	Margrit Koettig	498		150.31	-34.49
52-1-0048	Berrima, HCA05	AGD	56	253190	6180460	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	498		150.31	-34.49
52-1-0049	Berrima, HCA06	AGD	56	253190	6181360	Open site Valid	Open site Valid		Modified Tree (Carved c Scarred) Tree		Margrit Koettig	498		150.32	-34.48
52-1-0051	Berrima, HCA08	AGD	56	253580	6181360	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	498		150.32	-34.48
52-1-0052	Berrima, HCA09	AGD	56	255280	6182630	Open site Valid	Open site Valid		Artifact :-	Open Camp Site	Margrit Koettig	498		150.34	-34.47
52-4-0136	Sutton Forest Grooves	AGD	56	249921	6169007	Open site Valid	Open site Valid	Searle	Grinding Groove : 3		Mr.Wayne Williams			150.27	-34.59

Note: This Excel report shows the sites found in AHIMS on the 01/12/2015. If this date is not the same as the original date of the Search Results letter obtained during the Basic Search, then the search results might be different. The PDF version of this report will always coincide with the Basic Search Results letter.

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Primary contact	Site features	Site types	Recorders	Reports	Permits	Longitude GDA94	Latitude GDA94
52-4-0074	WR 10;	AGD	56	260720	6178200	Open site Valid			Artefact :-	Open Camp Site	Elizabeth Rich,Laura-Ja 1428			150.39	-34.51
52-4-0099	Site 1,Sutherland Park, AGD	AGD	56	264100	6177700	Open site Valid			Artefact :-	Open Camp Site	Doctor,Tim Stone			150.43	-34.51
52-4-0057	Throsby Park, AGD	AGD	56	261430	6173080	Open site Valid			Artefact :-	Open Camp Site	Laura-Jane Smith			150.40	-34.55
52-4-0109	Site 1,Sutherland Park, AGD	AGD	56	264100	6177700	Open site Valid			Artefact :-	Open Camp Site	Doctor,Tim Stone			150.43	-34.51
52-2-1300	WR 2;	AGD	56	266320	6179590	Open site Valid			Artefact :-	Open Camp Site	Elizabeth Rich,Laura-Ja 1428			150.35	-34.49
52-2-1308	WR 11;	AGD	56	266370	6179420	Open site Valid			Artefact :-	Open Camp Site	Elizabeth Rich,Laura-Ja 1428			150.35	-34.50
52-4-0193	Chelsea Gardens LocalGDA	GDA	56	259735	6171659	Open site Valid		Searle	Artefact : 8		Doctor Rebecca Parkes			150.37	-34.57
52-4-0194	Chelsea Gardens LocalGDA	GDA	56	260970	6171860	Open site Valid		Searle	Artefact : 11		Doctor Rebecca Parkes			150.36	-34.56
52-4-0171	MVSW A03	GDA	56	275552	6172443	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.36	-34.56
52-4-0172	MVSW A02	GDA	56	257452	6172480	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.36	-34.56
52-4-0173	MVSW A01	GDA	56	257742	6172648	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.36	-34.56
52-4-0174	MVSW 1	GDA	56	257686	6172345	Open site Valid		T Russell	Artefact :-		Total Earth Care Pty Ltd			150.36	-34.56
52-4-0175	MVEnt Site 1	GDA	56	266469	6178366	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.35	-34.51
52-4-0176	MVEnt Art 58	GDA	56	259622	6177233	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.38	-34.52
52-4-0177	MVEnt Art 57	GDA	56	259619	6177232	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.38	-34.52
52-4-0178	MVEnt Art 16	GDA	56	256298	6176275	Open site Valid		Searle	Artefact :-		Total Communications Infrastructure P/L			150.34	-34.53
52-4-0179	MVEnt Art 42	GDA	56	259388	6175784	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.37	-34.53
52-4-0180	MVEnt Art 43	GDA	56	258416	6176086	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.37	-34.53
52-4-0181	MVEnt Art 41	GDA	56	258379	6175782	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.37	-34.53
52-4-0182	MVEnt Art 34	GDA	56	258495	6176650	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.35	-34.52
52-4-0183	MVEnt Art 15	GDA	56	258624	6177078	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.35	-34.52
52-4-0184	MVEnt Art 14	GDA	56	256208	6176043	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.34	-34.53
52-4-0185	MVEnt Art 13	GDA	56	256353	6170449	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.34	-34.58
52-4-0186	MVEnt Art 12	GDA	56	256151	6177414	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.34	-34.52
52-4-0187	MVEnt Site 7	GDA	56	259399	6176087	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.38	-34.53
52-4-0188	MVEnt Site 6	GDA	56	256797	6174871	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.35	-34.54
52-4-0191	MVEnt Site 3	GDA	56	256413	6176860	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.35	-34.52
52-4-0192	MVEnt Site 2	GDA	56	266280	6177715	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.35	-34.51
52-4-0169	MVSW A18	GDA	56	275957	6172256	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.36	-34.56
52-4-0170	MVSW A04	GDA	56	275566	6172410	Open site Valid		Searle	Artefact :-		Total Earth Care Pty Ltd			150.36	-34.56
52-4-0196	Stoney Creek1	AGD	56	256635	6178392	Open site Valid		Searle	Grinding Groove : 3		Mr.Graham Moore			150.35	-34.51
52-4-0197	Stoney Creek2	AGD	56	256488	6178407	Open site Valid		Searle	Grinding Groove :-		Mr.Graham Moore			150.35	-34.51
52-4-0386	BR-IF1;	GDA	56	258925	6175904	Open site Valid		Searle	Artefact :-		Mr.Lance Syme			150.37	-34.53
52-4-0387	BR-IF2	GDA	56	258633	6175948	Open site Valid		Searle	Artefact :-		Mr.Lance Syme			150.37	-34.53
52-1-0054	Mount Misery, HCA11	AGD	56	256000	6182000	Open site Valid		Searle	Artefact :-	Open Camp Site	Margit Koestig	498		150.34	-34.47
52-1-0166	Centennial Park	AGD	56	262480	6182400	Open site Valid		Searle	Artefact :-	Open Camp Site	Doctor,Julie Dboden			150.42	-34.47
52-4-0122	Throsby Park	AGD	56	260500	6173520	Open site Valid		Searle	Artefact :-		Heritage Archaeology	102977		150.39	-34.55
52-1-0302	Little Minnows GrindingGDA	GDA	56	258964	6179830	Open site Valid		Searle	Grinding Groove :-		Mr.Brad Davies			150.37	-34.49
52-1-0329	DOLSH 1	GDA	56	262913	6182396	Open site Valid		Searle	Artefact :-		Ms.Clare Anderson			150.42	-34.47
52-1-0330	DOLSH 2	GDA	56	262759	6182316	Open site Valid		Searle	Modified Tree (Carved or Scarred) :-		Ms.Clare Anderson			150.42	-34.47
52-1-0331	DOLSH PAD1	GDA	56	262757	6182234	Open site Valid		Searle	Potential Archaeological Deposit (PAD) :-		Ms.Clare Anderson			150.42	-34.47

# Appendix C

## Survey data

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Survey Stage	Transect	Date	Property	Method	Landform pattern	Landform element	Length (m)	Width (m)	Area (m²)	Exposure2	Visibility2	Effective coverage	Effective coverage %	Soil landscape (main)	Underlying geology	Rock outcrop material	Rock outcrop form	Extent of rock outcrop %	Ground cover types	Exposure types	Vegetation
1	1	27/05/2014	Wongonbra	Pedestrian survey	Low Hills	Hill crest	5,919	50	295,931	80%	70%	165722	56.0	Lower Mittagong	Bringelly Shale	N/A	N/A	0	Grass/Imported and natural gravels	Vehicle track/easement	Grassed paddock
1	2	27/05/2014	Wongonbra	Pedestrian survey	Low Hills	Drainage depression	245	50	12,262	5%	50%	307	2.5	Lower Mittagong	Bringelly Shale	N/A	N/A	0	Grass/Imported and natural gravels	Vehicle track/easement	Grassed paddock
1	3	27/05/2014	Wongonbra	Pedestrian survey	Low Hills	Hill slope	779	50	38,965	5%	50%	974	2.5	Moss Vale	Bringelly Shale	N/A	N/A	0	Grass/Imported and natural gravels	Vehicle track/easement	Grassed paddock
1	4	27/05/2014	Wongonbra	Pedestrian survey	Low Hills	Foot slope	2,857	50	142,851	10%	90%	12857	9.0	Kangaloon	Bringelly Shale, Ashfield shale	N/A	N/A	0	Grass	Cattle track/ploughed field	Grassed paddock
1	5	27/05/2014	Wongonbra	Pedestrian survey	Low Hills	Drainage depression	636	50	31,818	80%	40%	10182	32.0	Moss Vale	Bringelly Shale	N/A	N/A	0	Grass	Ploughed field	Grassed paddock
1	6	27/05/2014	Wongonbra	Pedestrian survey	Low Hills	Hill crest	785	50	39,251	80%	60%	18841	48.0	Lower Mittagong	Bringelly Shale	N/A	N/A	0	Grass	Ploughed field	Grassed paddock
1	7	28/05/2014	Evandale	Pedestrian survey	Low Hills	Drainage depression	398	50	19,895	10%	80%	1592	8.0	Kangaloon	Ashfield Shale, Hawkesbury Sandstone	Sandstone	outcrop	5	Grass	Rock outcrop/erosion	Grassed paddock
1	8	28/05/2014	Evandale	Pedestrian survey	Low Hills	Stream bank	2,052	50	102,610	20%	90%	18470	18.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	20	Grass	Rock outcrop/erosion	Grassed paddock
1	9	28/05/2014	Evandale	Pedestrian survey	Low Hills	Hill crest	1,626	50	81,304	80%	50%	32522	40.0	Soapy Flat	Ashfield Shale	N/A	N/A	0	Grass	Ploughed field	Grassed paddock
1	10	28/05/2014	Evandale	Pedestrian survey	Low Hills	Foot slope	558	50	27,906	30%	80%	6698	24.0	Nattai Tablelands	Hawkesbury sandstone	N/A	scarp	40	bush, foliage	Erosion	Native bushland
1	11	28/05/2014	Evandale	Pedestrian survey	Low Hills	Scarp	479	50	23,950	30%	80%	5748	24.0	Nattai Tablelands	Hawkesbury sandstone	N/A					
1	12	28/05/2014	Evandale	Pedestrian survey	Low Hills	Hill crest	372	50	18,591	20%	30%	1115	6.0	Nattai Tablelands	Ashfield Shale, Hawkesbury Sandstone	Sandstone/conglomerate	outcrop	5	Grass	Ploughed field/cattle track	Grassed paddock
1	13	28/05/2014	Evandale	Pedestrian survey	Low Hills	Drainage depression	624	50	31,175	20%	70%	4365	14.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone, shale, quartz	outcrop	<5	Grass	Bank, vehicle track, erosion	Grassed paddock
1	14	28/05/2014	Evandale	Pedestrian survey	Low Hills	Hill crest	1,484	50	74,200	30%	70%	15582	21.0	Soapy Flat	Hawkesbury sandstone	Sandstone, shale, quartz	outcrop, boulder	5	Rocks, Grass, foliage	Erosion, ploughed field	Grassed paddock, native bushland
1	15	28/05/2014	Evandale	Pedestrian survey	Low Hills	Scarp	356	50	17,777	10%	70%	1244	7.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone, shale, quartz	outcrop	<5	Grass	Erosion	Native bushland
1	16	28/05/2014	Evandale	Pedestrian survey	Low Hills	Stream bank	393	50	19,647	20%	60%	2358	12.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	0	Grass	Vehicle track/erosion	Grassed paddock
1	17	28/05/2014	Evandale	Pedestrian survey	Low Hills	Hill crest	898	50	44,878	20%	70%	6283	14.0	Soapy Flat	Ashfield Shale	N/A	N/A	0	Grass	Vehicle track/erosion	Grassed paddock
1	18	28/05/2014	Evandale	Pedestrian survey	Low Hills	Drainage depression	174	50	8,691	20%	70%	1217	14.0	Kangaloon	Ashfield Shale	N/A	N/A		Grass	Vehicle track/erosion	Grassed paddock
1	19	28/05/2014	Evandale	Pedestrian survey	Low Hills	Hill crest	513	50	25,649	20%	70%	3591	14.0	Moss Vale	Ashfield Shale	N/A	N/A		Grass	Vehicle track/erosion	Grassed paddock
1	20	28/05/2014	Evandale	Pedestrian survey	Low Hills	Stream bank	1,031	50	51,548	20%	70%	7217	14.0	Nattai Tablelands	Hawkesbury sandstone	N/A	outcrop	10	Grass	Vehicle track/erosion	Grassed paddock
1	21	28/05/2014	Evandale	Pedestrian survey	Low Hills	Scarp	269	50	13,434	40%	70%	3761	28.0	Nattai Tablelands	Hawkesbury sandstone	N/A	outcrop	30	Rocks, Grass, foliage	Erosion	Grassed paddock
1	22	28/05/2014	Evandale	Pedestrian survey	Low Hills	Hill crest	723	50	36,125	40%	70%	10115	28.0	Soapy Flat	Ashfield Shale	N/A	N/A		Grass	Vehicle track/erosion	Grassed paddock
1	23	28/05/2014	Evandale	Pedestrian survey	Low Hills	Drainage depression	365	50	18,259	5%	80%	730	4.0	Soapy Flat	Ashfield Shale	N/A	N/A		Grass	Erosion	Grassed paddock

Survey Stage	Transect	Date	Property	Method	Landform pattern	Landform element	Length (m)	Width (m)	Area (m²)	Exposure2	Visibility2	Effective coverage	Effective coverage %	Soil landscape (main)	Underlying geology	Rock outcrop material	Rock outcrop form	Extent of rock outcrop %	Ground cover types	Exposure types	Vegetation
1	24	29/05/2014	BSF	Pedestrian survey	Low Hills	Hill crest	227	50	11,370	70%	80%	6367	56.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A		Shrubs, grass	Erosion, clearing, vehicle track	sparse grass
1	25	29/05/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	1,255	50	62,734	20%	60%	7528	12.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop, boulder	70	Vegetation, foliage.	Erosion	Native bushland
1	26	29/05/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	873	25	21,829	20%	60%	2620	12.0	Hawkesbury	Hawkesbury sandstone	Sandstone	scarp, outcrop, boulder	60	Vegetation, foliage.	Erosion	Native bushland
1	27	29/05/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	272	50	13,611	20%	60%	1633	12.0	Hawkesbury	Hawkesbury sandstone	Sandstone	scarp, outcrop, boulder	40	Vegetation, foliage.	Erosion	Native bushland
1	28	29/05/2014	BSF	Pedestrian survey	Low Hills	Scarp and stream channel	505	25	12,617	20%	60%	1514	12.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	5	Vegetation, foliage.	Erosion	Native bushland
1	29	29/05/2014	BSF	Pedestrian survey	Low Hills	Hill crest	1,004	50	50,179	20%	80%	8029	16.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Shrubs, grass	Erosion, clearing, vehicle track	Grassed paddock
1	30	29/05/2014	BSF	Pedestrian survey	Low Hills	Drainage depression	1,665	50	83,236	5%	80%	3329	4.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Shrubs, grass	Erosion, clearing, vehicle track	Pine forest
1	31	29/05/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	820	50	41,015	10%	50%	2051	5.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop, boulder	60	Shrubs, grass	Erosion	Native bushland
1	32	29/05/2014	BSF	Pedestrian survey	Escarpment	Scarp	129	50	6,466	50%	80%	2586	40.0	Nattai Tablelands	Hawkesbury sandstone	N/A	N/A	0	Vegetation, foliage.	Erosion, clearing, vehicle track	Pine forest, native bushland
1	33	30/05/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	1,780	50	89,021	10%	50%	4451	5.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop, boulder	60	Vegetation, foliage.	Erosion	Native bushland
1	34	30/05/2014	BSF	Pedestrian survey	Escarpment	Scarp	1,611	50	80,547	10%	70%	5638	7.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop, boulder	40	Vegetation, foliage.	Erosion, clearing	Pine forest, native bushland
1	35	30/05/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	462	50	23,077	10%	70%	1615	7.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	30	Vegetation, foliage.	Erosion, clearing	Pine forest, native bushland
1	36	30/05/2014	BSF	Pedestrian survey	Escarpment	Scarp	636	50	31,822	10%	70%	2228	7.0	Nattai Tablelands	Hawkesbury sandstone	N/A	N/A	0	Vegetation, foliage.	Erosion, clearing	Pine forest
1	37	30/05/2014	BSF	Pedestrian survey	Escarpment	Scarp	1,100	50	54,986	20%	50%	5499	10.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	10	Vegetation, foliage.	Erosion, clearing	Pine forest, native bushland
1	38	30/05/2014	BSF	Pedestrian survey	Escarpment	Scarp	1,599	50	79,926	20%	50%	7993	10.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	20	Vegetation, foliage.	Erosion	Native bushland
1	39	30/05/2014	BSF	Pedestrian survey	Escarpment	Stream bank	186	50	9,301	20%	50%	930	10.0	Nattai Tablelands	Hawkesbury sandstone	N/A	N/A	0	Vegetation, foliage.	Erosion	Native bushland
1	40	30/05/2014	BSF	Pedestrian survey	Escarpment	Scarp	738	50	36,912	20%	70%	5168	14.0	Nattai Tablelands	Hawkesbury sandstone	sandstone	N/A	20	Vegetation, foliage.	Erosion	Native bushland
2	41	4/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	2,676	50	133,793	20%	70%	18731	14.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	20	Vegetation, foliage.	Erosion, clearing	Native bushland
2	42	4/11/2014	BSF	Pedestrian survey	Low Hills	Scarp	384	50	19,204	5%	80%	768	4.0	Soapy Flat Variant A	Hawkesbury sandstone	N/A	N/A	0	Vegetation, foliage.	Erosion, clearing	Pine forest
2	43	4/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	1,940	50	97,007	40%	70%	27162	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	20	Vegetation, foliage.	Erosion, clearing	Native bushland

Survey Stage	Transect	Date	Property	Method	Landform pattern	Landform element	Length (m)	Width (m)	Area (m²)	Exposure2	Visibility2	Effective coverage	Effective coverage %	Soil landscape (main)	Underlying geology	Rock outcrop material	Rock outcrop form	Extent of rock outcrop %	Ground cover types	Exposure types	Vegetation
2	44	4/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	892	50	44,600	40%	70%	12488	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	20	Vegetation, foliage,	Erosion, clearing	Pine forest, native bushland
2	45	5/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	3,417	50	170,837	40%	70%	47834	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	20	Vegetation, foliage,	Erosion, clearing	Pine forest, native bushland
2	46	6/11/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	823	50	41,156	40%	70%	11524	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	20	Vegetation, foliage,	Erosion	Open forest
2	47	6/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	666	50	33,310	40%	70%	9327	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	20	Vegetation, foliage,	Erosion	Open forest
2	48	6/11/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	2,363	50	118,163	40%	70%	33086	28.0	Hawkesbury	Hawkesbury sandstone	Sandstone	scarp, outcrop	30	Vegetation, foliage,	Erosion	Open forest
2	49	7/11/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	2,123	50	106,166	40%	70%	29726	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	70	Vegetation, foliage,	Erosion	Open forest
2	50	7/11/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	1,847	50	92,369	40%	70%	25863	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	70	Vegetation, foliage,	Erosion	Open forest
2	51	7/11/2014	BSF	Pedestrian survey	Escarpment	Scarp and stream channel	1,351	50	67,530	40%	70%	18908	28.0	Hawkesbury	Hawkesbury sandstone	Sandstone	scarp, outcrop	70	Vegetation, foliage,	Erosion	Open forest
2	52	13/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	1,118	50	55,878	40%	70%	15646	28.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	scarp, outcrop	10	Vegetation, foliage,	Erosion	Pine forest, open forest
2	53	13/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	1,731	50	86,555	40%	70%	24235	28.0	Hawkesbury	Hawkesbury sandstone	Sandstone	scarp, outcrop	70	Vegetation, foliage,	Erosion	Open forest
2	54	13/11/2014	BSF	Pedestrian survey	Hills	Scarp	595	50	29,764	20%	70%	4167	14.0	Soapy Flat	Hawkesbury sandstone	Sandstone	outcrop	2	Vegetation, foliage,	Erosion	Open forest
2	55	13/11/2014	BSF	Pedestrian survey	Escarpment	Scarp	205	50	10,239	40%	70%	2867	28.0	Hawkesbury	Hawkesbury sandstone	Sandstone	outcrop	70	Vegetation, foliage,	Erosion	Open forest
2	56	13/11/2014	BSF	Pedestrian survey	Hills	Scarp	689	50	34,455	20%	70%	4824	14.0	Soapy Flat	Hawkesbury sandstone	Sandstone	outcrop	2	Vegetation, foliage,	Erosion	Open forest
2	57	13/11/2014	BSF	Pedestrian survey	Low Hills/rises	Drainage depression	893	50	44,666	5%	70%	1563	3.5	Soapy Flat	Hawkesbury sandstone	Sandstone	outcrop	2	Vegetation, foliage,	Erosion	Pine forest
3	58	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Stream bank	84	50	4,202	10%	50%	210	5.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	10	Grass, foliage	Erosion, bedrock outcrop	Grassed paddock
3	59	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Scarp	234	50	11,677	10%	60%	701	6.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	10	Grass, foliage	Erosion, bedrock outcrop	Grassed paddock
3	60	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Undulating plain	1,127	50	56,365	2%	50%	564	1.0	Soapy Flat	OAS silt clay soil	N/A	N/A	0	Grass	Vehicle track, cattle track	Grassed paddock
3	61	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill slope	830	50	41,492	2%	50%	415	1.0	Moss Vale	Ashfield Shale	N/A	N/A	0	Grass	Vehicle track, cattle track	Grassed paddock
3	62	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Undulating plain	1,237	50	61,831	2%	50%	618	1.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass	Vehicle track, cattle track	Grassed paddock
3	63	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Undulating plain	1,084	50	54,201	5%	50%	1355	2.5	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass	Dam wall, erosion, cattle tracks, ploughing	Grassed paddock
3	64	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill slope	2,394	50	119,698	2%	50%	1197	1.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Cattle track, ploughed field, vehicle track	Grassed paddock, pine screens
3	65	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill crest	435	50	21,773	5%	20%	218	1.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Cattle track, ploughed field, vehicle track	Grassed paddock

Survey Stage	Transect	Date	Property	Method	Landform pattern	Landform element	Length (m)	Width (m)	Area (m <sup>2</sup> )	Exposure2	Visibility2	Effective coverage	Effective coverage %	Soil landscape (main)	Underlying geology	Rock outcrop material	Rock outcrop form	Extent of rock outcrop %	Ground cover types	Exposure types	Vegetation
3	66	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Scarp	552	50	27,596	30%	60%	4967	18.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone	outcrop, boulder	10	Vegetation, foliage, sandstone boulders	Erosion, bedrock outcrop	Native bushland
3	67	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Stream bank	259	50	12,930	30%	60%	2327	18.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone	outcrop, boulder	20	Vegetation, foliage, sandstone boulders	Erosion, bedrock outcrop	Native bushland
3	68	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill slope	804	50	40,223	20%	20%	1609	4.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone		20	Vegetation, foliage, sandstone boulders	Erosion, bedrock outcrop	Native bushland
3	69	9/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill crest	1,433	50	71,670	10%	50%	3583	5.0	Moss Vale	Hawkesbury sandstone	Sandstone	outcrop	1	Vegetation, foliage, grass	Erosion	Grassed paddock
3	70	10/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	697	50	34,862	50%	60%	10459	30.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Plough lines	Grass, shrubs
3	71	10/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Scarp	429	50	21,456	10%	50%	1073	5.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone	outcrop, boulder	20	Vegetation, foliage, sandstone boulders	Erosion, bedrock outcrop	Native bushland
3	72	10/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Stream bank	237	50	11,863	10%	50%	593	5.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone	outcrop, boulder	10	Vegetation, foliage, sandstone boulders	Erosion, bedrock outcrop	Native bushland, grassed paddock
3	73	10/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	684	50	34,195	10%	80%	2736	8.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone	outcrop, boulder	5	Vegetation, foliage, sandstone boulders	Ploughing, bedrock outcrop, erosion	Native bushland, grassed paddock
3	74	10/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	4,301	50	215,064	50%	60%	64519	30.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Vegetation, grass	Plough lines, erosion	Grassed paddock, native bushland
3	75	10/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	611	50	30,574	50%	60%	9172	30.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Vegetation, grass	Plough lines, erosion	Grassed paddock, native bushland
3	76	10/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Foot slope	1,297	50	64,842	30%	50%	9726	15.0	Moss Vale	Hawkesbury sandstone	Sandstone	outcrop	5	Grass, gravels	Vehicle track, cattle track, bedrock, fence line	Grassed paddock
3	77	11/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill slope	1,367	50	68,326	5%	20%	683	1.0	Lower Mittagong	Ashfield Shale	N/A	N/A	0	Grass	Cattle track, fence line, dam wall	Grassed paddock
3	78	11/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Stream bank	701	50	35,053	20%	70%	4907	14.0	Kangaloon	Ashfield Shale, Hawkesbury Sandstone	N/A	N/A	0	Grass, landfill	Stream channel, cattle tracks	Grassed paddock
3	79	11/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill crest	1,262	50	63,096	5%	50%	1577	2.5	Moss Vale	Ashfield Shale, Hawkesbury Sandstone	N/A	N/A	0	Grass, native trees	Plough lines	Grassed paddock
3	80	11/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Undulating plain	1,014	50	50,711	10%	50%	2536	5.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass, native trees	Cattle track, erosion	Grassed paddock
3	81	11/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Drainage depression	812	50	40,585	5%	50%	1015	2.5	Kangaloon	Hawkesbury sandstone	Sandstone	outcrop	2	Grass, native trees	Bedrock outcrop	Grassed paddock
3	82	11/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill crest	1,291	50	64,573	5%	50%	1614	2.5	Kangaloon	Hawkesbury sandstone	N/A	N/A	0	Grass, native trees	Erosion, bedrock outcrop	Grassed paddock
3	83	11/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill slope	1,548	50	77,393	10%	50%	3870	5.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass, native trees	Cattle tracks, vehicle tracks,	Grassed paddock
3	84	12/02/2015	Stonington	Pedestrian survey	Low Hills/rises	Hill crest	265	50	12,731	10%	80%	1019	8.0	Lower Mittagong	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle track	Grassed paddock
3	85	12/02/2015	Stonington	Pedestrian survey	Low Hills/rises	Undulating plain	1,673	50	83,669	5%	50%	2092	2.5	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle track	Grassed paddock
3	86	12/02/2015	Stonington	Pedestrian survey	Low Hills/rises	Hill crest	146	50	7,314	5%	50%	183	2.5	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle track	Grassed paddock

Survey Stage	Transect	Date	Property	Method	Landform pattern	Landform element	Length (m)	Width (m)	Area (m²)	Exposure2	Visibility2	Effective coverage	Effective coverage %	Soil landscape (main)	Underlying geology	Rock outcrop material	Rock outcrop form	Extent of rock outcrop %	Ground cover types	Exposure types	Vegetation
3	87	12/02/2015	Stonington	Pedestrian survey	Low Hills/rises	Hill slope	248	50	12,384	5%	50%	310	2.5	Moss Vale	Ashfield Shale	N/A	N/A	0	Grass	Cattle track	Grassed paddock
3	88	12/02/2015	Stonington	Pedestrian survey	Low Hills/rises	Hill crest	803	50	40,168	5%	50%	1004	2.5	Moss Vale	Ashfield Shale	N/A	N/A	0	Grass	Cattle track	Grassed paddock
3	89	12/02/2015	Stonington	Pedestrian survey	Low Hills/rises	Drainage depression	577	50	28,862	5%	50%	722	2.5	Moss Vale	Ashfield shale	N/A	N/A	0	Grass	Cattle track	Grassed paddock
3	90	12/02/2015	Stonington	Pedestrian survey	Low Hills/rises	Hill crest	245	50	12,253	5%	50%	306	2.5	Moss Vale	Bringingilly Shale, Ashfield shale	N/A	N/A	0	Grass	Cattle track	Grassed paddock
3	91	12/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill crest	950	50	47,483	5%	50%	1187	2.5	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle track	Grassed paddock
3	92	12/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Hill slope	1,434	50	71,690	10%	50%	3584	5.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Gravels, grass	Dam wall, embankment cutting, vehicle track	Grassed paddock
3	93	12/02/2015	Mereworth	Pedestrian survey	Low Hills/rises	Scarp	284	50	14,223	30%	70%	2987	21.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	10	Vegetation, grass, gravels	Bedrock outcrop, erosion	Grassed paddock, native bushland
OC	94	10/03/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	2,436	50	121,776	5%	50%	3044	2.5	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, trees, gravels	Vehicle track, dam wall, erosion	Grassed paddock
OC	95	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	339	50	16,936	10%	50%	847	5.0	Naitai Tablelands	Hawkesbury sandstone	Sandstone	outcrop	10	Grass	bedrock outcrop	Grassed paddock
OC	96	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Undulating plain	145	50	7,249	5%	50%	181	2.5	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle track	Grassed paddock
OC	97	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	679	50	33,970	90%	80%	24458	72.0	Naitai Tablelands	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Vehicle track	Grassed paddock
OC	98	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Undulating plain	221	50	11,046	90%	80%	7953	72.0	Naitai Tablelands	Hawkesbury sandstone	N/A	N/A	1	Grass, gravels	Vehicle track	Grassed paddock
OC	99	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	1,273	50	63,633	10%	20%	1273	2.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Erosion, cattle track	Grassed paddock
OC	100	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Foot slope	528	50	26,385	10%	20%	528	2.0	Avoca	Hawkesbury sandstone	Sandstone	outcrop, boulder	5	Grass, gravels	Erosion, cattle track	Grassed paddock
OC	101	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Stream bank	207	50	10,371	30%	60%	1867	18.0	Naitai Tablelands	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Erosion, cattle track	Grassed paddock
OC	102	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Undulating plain	92	50	4,596	10%	50%	230	5.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Erosion, cattle track	Grassed paddock
OC	103	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	398	50	19,915	10%	50%	996	5.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Erosion, cattle track	Grassed paddock
OC	104	12/02/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	799	50	39,932	10%	60%	2396	6.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass, gravels	Erosion, cattle track	Grassed paddock
4	105	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Hill crest	421	50	21,059	10%	60%	1264	6.0	Lower Mittagong	Need better mapping	N/A	N/A	0	Grass, gravels	Erosion, cattle track	Grassed paddock
4	106	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Hill slope	137	50	6,873	5%	50%	172	2.5	Lower Mittagong	Need better mapping	N/A	N/A	0	Grass	Erosion, cattle track	Grassed paddock
4	107	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Drainage depression	97	50	4,845	5%	50%	121	2.5	Moss Vale	Need better mapping	N/A	N/A	0	Grass	Cattle track	Grassed paddock
4	108	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Undulating plain	788	50	39,398	5%	50%	985	2.5	Moss Vale	Need better mapping	N/A	N/A	0	Grass	Cattle track, dam wall	Grassed paddock
4	109	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Hill slope	340	50	17,016	5%	50%	425	2.5	Moss Vale	Need better mapping	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock
4	110	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Hill crest	178	50	8,887	5%	50%	222	2.5	Lower Mittagong	Need better mapping	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock
4	111	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Hill slope	578	50	28,904	5%	50%	723	2.5	Moss Vale	Need better mapping	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock, native regrowth
4	112	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Hill crest	293	50	14,671	5%	50%	367	2.5	Kangaloon	Need better mapping	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock, native regrowth

Survey Stage	Transect	Date	Property	Method	Landform pattern	Landform element	Length (m)	Width (m)	Area (m <sup>2</sup> )	Exposure <sup>2</sup>	Visibility <sup>2</sup>	Effective coverage	Effective coverage %	Soil landscape (main)	Underlying geology	Rock outcrop material	Rock outcrop form	Extent of rock outcrop %	Ground cover types	Exposure types	Vegetation
4	113	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Drainage depression	218	50	10,925	5%	50%	273	2.5	Kangaloon	Need better mapping	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock
4	114	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Hill crest	563	50	28,129	5%	50%	703	2.5	Moss Vale	Need better mapping	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock
4	115	28/10/2015	Boral	Pedestrian survey	Low Hills/rises	Undulating plain	424	50	21,197	5%	50%	530	2.5	Kangaloon	Need better mapping	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock
4	116	28/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	132	50	6,591	10%	50%	330	5.0	Lower Mittagong	Hawkesbury sandstone	N/A	N/A	0	Grass	Water erosion, cattle track	Grassed paddock
4	117	28/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Undulating plain	622	50	31,077	10%	50%	1554	5.0	Lower Mittagong	Hawkesbury sandstone	Sandstone	Bedrock	10	Grass	Water erosion, cattle track	Grassed paddock
4	118	28/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Stream bank	844	50	42,219	30%	70%	8866	21.0	Nattai Tablelands	Hawkesbury sandstone	N/A	N/A	0	Grass, trees, gravels	Water erosion, cattle track	Grassed paddock
4	119	28/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	184	50	9,220	20%	50%	922	10.0	Nattai Tablelands	Hawkesbury sandstone	N/A	N/A	0	Grass, trees, gravels	Water erosion, cattle track	Grassed paddock
4	120	28/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	3,899	50	194,967	10%	50%	9748	5.0	Nattai Tablelands	Need better mapping	N/A	N/A	0	Grass, trees, gravels	Bedrock, water erosion, vehicle track, plough lines	Grassed paddock, native regrowth
4	121	28/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	345	50	17,262	10%	70%	1208	7.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, trees, gravels	Water erosion, cattle track	Grassed paddock
4	122	28/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Drainage depression	579	50	28,965	30%	70%	6083	21.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass, trees, gravels	Water erosion, cattle track	Grassed paddock
4	123	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	356	50	17,806	20%	70%	2493	14.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	0	Grass	Water erosion, cattle track, dam wall	Grassed paddock
4	124	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Undulating plain	644	50	32,224	5%	50%	806	2.5	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle track, plough lines	Grassed paddock
4	125	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	586	50	29,303	50%	30%	4395	15.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle tracks, plough lines	Grassed paddock
4	126	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	773	50	38,640	50%	70%	13524	35.0	Moss Vale	Need better mapping	N/A	N/A	0	Grass	Unsealed road, plough lines	Grassed paddock
4	127	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	451	50	22,534	70%	60%	9464	42.0	Kangaloon	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle tracks, plough lines	Grassed paddock
4	128	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	259	50	12,969	70%	70%	6355	49.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle tracks, plough lines	Grassed paddock
4	129	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Drainage depression	117	50	5,830	60%	70%	2449	42.0	Kangaloon	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle tracks, plough lines	Grassed paddock
4	130	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	666	50	33,279	60%	70%	13977	42.0	Moss Vale	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle tracks, plough lines, vehicle track	Grassed paddock



Survey Stage	Transect	Date	Property	Method	Landform pattern	Landform element	Length (m)	Width (m)	Area (m <sup>2</sup> )	Exposure2	Visibility2	Effective coverage	Effective coverage %	Soil landscape (main)	Underlying geology	Rock outcrop material	Rock outcrop form	Extent of rock outcrop %	Ground cover types	Exposure types	Vegetation
4	131	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	98	50	4,903	60%	70%	2059	42.0	Lower Mittagong	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle tracks, plough lines	Grassed paddock
4	132	29/10/2015	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	1,023	50	51,171	40%	60%	12281	24.0	Lower Mittagong	Hawkesbury sandstone	N/A	N/A	0	Grass	Cattle tracks, plough lines	Grassed paddock
Addition	133	19/04/2016	Canbie Downs	Pedestrian survey	Low Hills/rises	Undulating plain	234	20	4,684	0.2	0.7	656	14.0	Moss Vale	Ashfield shale	N/A	N/A	0	Grass	Cattle tracks, plough lines, heavy vehicle tracks	Grassed paddocks
Addition	134	19/04/2016	BSF	Pedestrian survey	Escarpment	Hill slope	543	20	10,863	0.05	0.6	326	3.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	Bedrock	2	Vegetation foliage	Sandstone bedrock	Pine forest
Addition	135	19/04/2016	BSF	Pedestrian survey	Escarpment	Hill crest	309	20	6,176	0.05	0.6	185	3.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	Bedrock	2	Vegetation foliage	Sandstone bedrock	Pine forest
Addition	136	19/04/2016	BSF	Pedestrian survey	Escarpment	Hill crest	207	20	4,148	0.05	0.6	124	3.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	Bedrock	2	Vegetation foliage	Sandstone bedrock	Native forest
Addition	137	19/04/2016	Mereworth	Pedestrian survey	Low Hills/rises	Hill crest	634	20	12,687	0.8	0.5	5075	40.0	Lower Mittagong	Undifferentiated	N/A	N/A	N/A	Grass	Plough lines	Cultivated paddock
Addition	138	20/05/2016	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	751	20	15,024	0.5	0.7	5258	35.0	Larkin	Undifferentiated	N/A	N/A	N/A	Grass	Plough lines	Cultivated paddock
Addition	139	20/05/2016	Evandale	Pedestrian survey	Low Hills/rises	Hill crest	493	20	9,852	0.5	0.7	3448	35.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	N/A	Grass	Plough lines	Cultivated paddock
Addition	140	20/05/2016	Evandale	Pedestrian survey	Low Hills/rises	Undulating plain	1,009	20	20,181	0.5	0.7	7063	35.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	N/A	Grass	Plough lines	Cultivated paddock
Addition	141	20/05/2016	Evandale	Pedestrian survey	Low Hills/rises	Drainage depression	597	20	11,938	0.5	0.8	4775	40.0	Nattai Tablelands	Hawkesbury sandstone	Sandstone	Bedrock	30	Grass	Sandstone bedrock, cattle tracks	Cultivated paddock
Addition	142	20/05/2016	Evandale	Pedestrian survey	Low Hills/rises	Hill slope	785	20	15,694	0.5	0.6	4708	30.0	Soapy Flat	Hawkesbury sandstone	N/A	N/A	N/A	Grass	Plough lines	Cultivated paddock



## Appendix D

### Aboriginal site results

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Site summaries

Site name	AHWS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artifact count	Subsurface artifacts	Landform element	Exposure type	Land use/Vegetation	Exposure visibility % or rock shelter floor visibility	Ground disturbance	Site length (m)	Site width or depth of floor in rock shelter (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>3</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition
HC_001		56 H	EWM	BSF	29/05/2014	Open stone artifact site with PAD	60		Hill spur crest	Vehicle track/cleared forest	Cleared	70	Moderate: extensive sheet wash erosion	40	32	1280	77	Open stone artifact site with PAD. Located on a spur crest overlooking the confluence of a creek and a drainage line. Over 60 flaked stone artifacts have been counted. However, time constraints prevented a detailed site recording as the survey was focused on underground mining impacts.	0				
HC_002		56 H	EWM	BSF	29/05/2014	Rock shelter with art, deposit and PAD	8		Scarp	Rock outcrop	Native vegetation	50	Low: superficial animal use	20	3	60	30	5	Rock shelter with art, deposit and PAD. Two sets of pictograms and one hand stencil. First pictogram is of adult (male) c.20 cm tall with two children c. 10 cm height drawn in brown pigment. Located northern end of shelter in a small roof concavity that may represent the broader Rock shelter. Second pictogram is located on roof panel at the centre of shelter. Pictogram is of two figures drawn in red ochre c.20 cm height. Hand stencil is located at the southern wall of shelter where only finger marks are present. Long and relatively narrow continuous shelter. Eight artifacts identified on drip line of shelter floor, which is on a ledge. Artifacts comprise: - 5 quartz flakes - 3 silcrete flakes	3.5	210	40	Stable: lateral cracks at wall and ceiling junction; minor rock fall
HC_003		56 H	EWM	BSF	29/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	10	Low: superficial animal use	2.5	1.5	3.75	4	14	Rock shelter with PAD. Boulder overhanging with soil build-up on southern side of shelter. Minimal habitation area.	3	11.25	-20	Stable: lateral cracks at wall and ceiling junction; minor rock fall
HC_004		56 H	EWM	BSF	29/05/2014	Rock shelter with deposit and PAD	1		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use	10	3	30	30	9	Rock shelter with PAD. Located approximately 10 m above a series of rock shelters. Roof is heavily exfoliated which is likely to have removed any evidence of art. Artifact comprising of: - 1 quartz flaked piece.	3	90	20	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_005		56 H	EWM	BSF	29/05/2014	Rock shelter with deposit and PAD	4		Scarp	Rock outcrop	Native vegetation	60	Low: superficial animal use	4	2.5	10	5	15	Rock shelter with deposit and PAD. Located approximately 5m above HC_004 and 10 m above HC_006 - a series of rock shelters distributed at three benches of the scarp. Black mould indicates continual water damage aiding roof collapse. Artifacts comprising of: - 1 coarse grained core - 1 red chert flaked piece - 1 black silcrete flake - 1 light grey silcrete flake with retouch.	1.5	15	20	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_006		56 H	EWM	BSF	29/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use	5	3	15	15	2	Rock shelter with PAD. Located almost directly below HC_004 and HC_006 at the bottom of a 3 level Rock shelter bench. Black mould indicates continual water damage aiding roof collapse.	2	30	>30	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; water/mould damage
HC_007		56 H	EWM	BSF	29/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	30	Moderate: obscured by rock fall	4	5	20	20	5	Rock shelter with PAD but numerous roof collapses. Black mould indicates continual water damage aiding roof collapse. Roof fall is frequent but in smaller laminating sheets that could be easily removed if floor excavation was required.	3	60	20	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_008		56 H	EWM	BSF	29/05/2014	Open stone artifact site	3		Hill spur crest	Vehicle track/cleared forest	Cleared	60	Moderate: extensive sheet wash erosion	5	5	25	54	Open stone artifact site. Artifacts comprising of: - 1 quartz flake - 2 silcrete flaked piece.	0				
HC_009		56 H	EWM	BSF	29/05/2014	Open stone artifact site	3		Hill spur crest	Vehicle track	Cleared	60	Moderate: extensive sheet wash erosion	8	6	48	146	Open stone artifact site. Artifacts comprising of: - 1 silcrete longitudinal split - 1 quartz flake - 1 silcrete proximal flake	0				
HC_010		56 H	EWM	BSF	29/05/2014	Rock shelter with deposit and PAD	2		Scarp	Rock outcrop	Native vegetation	70	Moderate: Wombat burrows	5	2	10	10	42	Rock shelter with deposit and PAD. Artifacts identified at the drip line of shelter, with artifacts comprising: - 2 quartz flakes Shelter is narrow and floor is sloping.	2	20	20	Stable: vertical cracking

Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % or rock shelter floor visibility	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) of shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> of PAD (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_011		56 H	EMM	BSF	29/05/2014	Rock shelter with deposit and PAD	1		Scarp	Rock outcrop	Native vegetation	30	Moderate: Wombat burrows; chicken wire cage panel; modern refuse	6	4	24	30	7	Rock shelter with deposit and PAD. Moderate base disturbance from animal burrows. European habitation (marked by chicken wire cage panel and bottle labelled 'Bowral Cordial Works' c. late 1920s). Artefact comprising of: - 1 quartz flake, located on shelter drip line.	1.8	43.2	20	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_012		56 H	EMM	BSF	29/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	20	Moderate: obscured by rock fall	6	2	12	5	16	Rock shelter with minimal PAD due to large shelter height. Minimal depth leaving it quite exposed to the elements if southerly winds occur along with rain.	6	72	20	Stable: minor water/mould damage
HC_013		56 H	EMM	BSF	29/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: obscured by rock fall	4	3	12	14	56	Rock shelter with PAD. Black mould indicates continual water damage aiding roof collapse and oxidation.	2	24	20	Stable: minor water/mould damage
HC_014		56 H	EMM	BSF	29/05/2014	Potential scar tree	0		Scarp	NA	Native vegetation		Low: erosion			0		43	Potential scar tree identified by Aboriginal site officers. However, tree is likely to be the result of trauma damage or a branch tear.	0	0		
HC_015		56 H	EMM	BSF	29/05/2014	Open stone artefact site	2		Hill spur crest	Vehicle tracks/cleared forest	Pine forest	50	Low: erosion	4	4	16		99	Open stone artefact site. Artefacts comprising of: - 1 silcrete flake - 1 silcrete distal flake	0	0		
HC_016		56 H	EMM	BSF	30/05/2014	Rock shelter with deposit and PAD	1		Scarp	Rock outcrop	Native vegetation	70	Low: minor animal burrows	10	2	20	20	16	Rock shelter with deposit and minor PAD. Located approximately 5 m above creek line. Black mould indicates continual water damage aiding roof collapse. Artefact comprising of: - 1 burnt flaked piece located at shelter	4	80	10	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_017		56 H	EMM	BSF	30/05/2014	Rock shelter with deposit and PAD	20		Scarp	Rock outcrop	Native vegetation	70	Low: minor animal burrows	30	5	150	150	8	Rock shelter with significant deposit and PAD area. Shelter floor is firm and appears directly onto creek line. Elevated approximately 5 m above the creek line. Artefacts located at the base of drip line. - 18 flakes of assorted raw materials, namely quartz (refer to photos) - 2 cores (1 quartz, 1 silcrete)	4	600	20	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_018		56 H	EMM	BSF	30/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	70	Low: superficial animal use	10	3	30	20	13	Rock shelter with minimal PAD as 80% of shelter base is bare sandstone. Water damage and mould stains visible.	2.5	75	5	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_019		56 H	EMM	BSF	30/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	80	Moderate: set into the water channel, high chance of erosion	5	2	10	10	7	Rock shelter with PAD. Located directly adjacent to the creek line, highly likely to have water flowing within shelter during rain. Contains a portion of dark soil deposit 2 m x 3 m which may be PAD.	2	20	20	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_020		56 H	EMM	BSF	30/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Pine forest	50	Moderate: obscured by rock fall	6	2	12	10	79	Rock shelter with PAD. Located approximately 10 m above creek line with good outlook. Roof collapse has covered much of the habitable floor area.	3	36	10	Unstable: recent, moderate rock fall
HC_021		56 H	EMM	BSF	30/05/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Pine forest	60	Low: slope erosion	5	2	10	10	43	Rock shelter with PAD. Over half of the shelter floor was a sandstone base with the easterly portion containing some PAD.	1.5	15	10	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; minor water/mould damage
HC_022		56 H	EMM	BSF	30/05/2014	Rock shelter with deposit and PAD	2		Scarp	Hawkesbury Sandstone	Native vegetation	70	Moderate: water seepage channels; animal habitation, evidence as a modern camp site, charcoal from recent camp fires	20	6	120	120	29	Rock shelter with deposit and PAD. Extensive flat area with the rear shelter wall being wet from water leakage. Evidence of recent campfires and two quartz flakes identified in the drip line of the shelter.	3	360	20	Stable: lateral cracks at wall and ceiling junction; moderate rock fall; major water/mould damage
HC_023		56 H	EMM	BSF	30/05/2014	Rock shelter with PAD	0		Scarp	Hawkesbury Sandstone	Native vegetation	40	Low: no noted disturbance	4	1.5	6	6	53	Potential scar tree identified by Aboriginal site officers. However, tree is likely to be the result of trauma damage or a branch tear.	2	12	10	Stable: minor mould/water damage
HC_024		56 H	EMM	BSF	17/07/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	50	Low: no noted disturbance	3	1	3	3	15	Rock shelter with minimal PAD. Minimal habitation area. Minimal floor disturbance.	3	9	20	Stable: lateral cracks in wall; minor mould/water damage
HC_025		56 H	EMM	BSF	17/07/2014	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	40	Moderate: animal burrowing	20	1	20	5	22	Rock shelter with minimal PAD. Minimal habitation area. Minimal floor disturbance, much of the overhang is quite low and has experienced burrowing.	1.5	30	30	Stable: piled boulders
HC_026		56 H	EMM	BSF	4.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	30	Low: erosion, animal burrowing	17	1	17	10	56	Rock shelter with minimal PAD. Minimal habitable floor area. Good outlook over creek.	2	34	20	Stable: moderate vegetation damage



Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artifact count	Sub-surface artefacts	Landform element	Exposure type	Land use/Vegetation	Exposure visibility % or rock shelter floor visibility	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m²) or shelter floor area	Likely area of PAD (m²)	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m³ (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_027		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	10	High: obscured by extensive roof fall	10	3	30	5	64	Rock shelter with PAD. Considerable recent wall and roof collapses covering most of PAD areas.	7	210	40	Unstable: major rock fall
HC_028		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: vegetation	10	2	20	6	23	Rock shelter with PAD. Located on lower slope. Minimal height at entry but ceiling height could accommodate crouching.	1	20	10	Stable: moderate vegetation damage
HC_029		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	20	Low: vegetation	5	2	10	10	22	Rock shelter with PAD. Located on ledge approximately 4 m above ground level. Some unstable elements and minor ceiling collapse.	2	20	20	Stable: lateral cracks at wall and ceiling junction: minor water/mould damage
HC_030		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: erosion	8	4	32	4	51	Rock shelter with PAD. Located on scarp ledge with exposed sandstone comprising most of the floor. Minor ceiling collapse.	2	64	20	Stable: lateral cracks at wall and ceiling junction: moderate rock fall: minor water/mould damage
HC_031		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	20	High: major rock fall	5	3	15	15	87	Rock shelter with PAD. Significant ceiling and wall collapse. Appears highly unstable. Rock fall covering most of the shelter floor.	15	225	30	Unstable: major rock fall
HC_032		56 H	EMM	BSF	4.11.14	Rock shelter with 1 deposit and PAD	1		Scarp	Rock outcrop	Native vegetation	50	Moderate: animal burrowing	4	3	12	10	87	Rock shelter with PAD. Minor roof collapse near shelter wall. Artifact comprising of: - 1 quartz. Unidentified at shelter entrance (drip line).	3	36	15	Stable: lateral cracks at wall and ceiling junction: minor rock fall
HC_033		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	40	Moderate: moderate rock fall	10	3	30	30	84	Rock shelter with PAD. Moderate ceiling collapse at drip line.	3	90	15	Stable: lateral cracks at wall and ceiling junction: moderate rock fall
HC_034		56 H	EMM	BSF	4.11.14	Grinding grooves	0		Stream bed	Rock outcrop	Native vegetation	70	None	1	1	N/A	N/A	1	Set of grinding grooves. Located on sandstone bedrock exposure within creek channel. Site is on a small ledge in the creek channel above the ground to the west. 24 grooves visible in direction of burrowing. Grooves are shallow and narrow surrounding the grooves is likely to feature more. Grooves are generally 15 cm wide by 20 cm length. Pooling water in nearby depressions provide an ideal spot to assist stoneware bead manufacture.	0			
HC_035		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	60	Moderate: moderate rock fall	8	2	16	4	147	Rock shelter with PAD. Approximately 80% of rock shelter base is a sandstone exposure. Evidence of recent roof falls and charcoal marks. Graffiti marks that state "Craig McDonald 1983 GM".	2	32	15	Stable: lateral cracks at wall and ceiling junction: moderate rock fall
HC_036		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	70	Moderate: moderate rock fall	9	2	18	4	178	Rock shelter with only small area of PAD as large portion of shelter is sandstone base. Minor ceiling collapse.	1.8	32.4	20	Stable: lateral cracks at wall and ceiling junction: minor rock fall
HC_037		56 H	EMM	BSF	4.11.14	Rock shelter with 0 art and PAD	0		Scarp	Rock outcrop	Native vegetation	40	Moderate: animal burrowing	8	4	32	32	151	Rock shelter with PAD and graffiti. Graffiti says 'John'. Minor rock falls. A number of hand stencils were also counted. Five stencils were identified on the north-east facing panel and one identified on the east panel. There was also a charcoal stick figure overlying the hand stencil on the east facing panel.	1.8	57.6	15	Stable: lateral cracks at wall and ceiling junction: minor rock fall: minor water/mould damage
HC_038		56 H	EMM	BSF	4.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	40	Moderate: animal burrowing and rock fall	4	3	12	12	133	Rock shelter with PAD. Located on a sandstone ledge approximately two metres above the base of the scarp.	1.7	20.4	20	Unstable: recent rock fall
HC_039		56 H	EMM	BSF	5.11.13	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	30	Minor: animal burrowing and recent camping	9	2	18	18	50	Rock shelter with PAD. Located on escarpment ledge approximately 5 m above HC_038. Shelter continues around a corner of the scarp to the east.	1.7	30.6	18	Stable: lateral cracks at wall and ceiling junction: minor rock fall: minor water/mould damage
HC_040		56 H	EMM	BSF	5.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	50	Moderate: animal burrowing	8	3	24	10	42	Rock shelter with PAD. Located on lower scarp slope below HC_039.	2	48	10	Stable: lateral cracks at wall and ceiling junction: minor rock fall: minor water/mould damage
HC_041		56 H	EMM	BSF	5.11.14	Rock shelter with 1 deposit and PAD	1		Scarp	Rock outcrop	Pine forest	40	Moderate: animal burrowing	7	2.5	17.5	10	21	Rock shelter with deposit and PAD. Artifact comprising of: - 1 quartz flake: found within a drip line exposure.	4	70	50	Stable: lateral cracks at wall and ceiling junction: minor water/mould damage
HC_042		56 H	EMM	BSF	5.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Pine forest	20	Low: animal burrowing	8	3.5	28	8	20	Rock shelter with PAD. Located within 5 m of HC_041. Most of overhang has a sloping sandstone base. Smaller PAD area has little visibility.	4.5	126	40	Stable: lateral cracks at wall and ceiling junction: minor water/mould damage
HC_043		56 H	EMM	BSF	5.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Pine forest	50	High: extensive animal burrowing	9	1	9	9	17	Rock shelter with PAD. Located 15 m from creek line. PAD has been extremely disturbed by wombat burrowing over half of the shelter.	4	36	50	Stable: lateral cracks at wall and ceiling junction: minor water/mould damage
HC_044		56 H	EMM	BSF	5.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Pine forest	50	Low: superficial animal use	5	2	10	5	54	Rock shelter with PAD. There is a limited habitable area but a long cavern 6x15m leading into the scarp wall (not included in site dimensions). Approximately half of shelter floor is exposed sandstone.	2.5	25	50	Stable: lateral cracks at wall and ceiling junction: minor water/mould damage

Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % (rock shelter floor visibility)	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)	
HC_045		56 H	EMM	BSF	6.11.14	Open stone artefact site with PAD	8		Hill spur crest	Vehicle track	Graded: vehicle track	80	High: graded track	50	15	750	2500	82	Open stone artefact site with PAD. Identified on a small spur adjacent to a creek line. Area has high subsurface potential and is likely associated with HC_001. Artefact comprising of: - 1 silcrete core - 4 quartz flakes - 3 silcrete flakes.	0				
HC_046		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: superficial animal use	5	1.5	7.5	3	22	Rock shelter with PAD. Rock shelter has a very low overhang. Located at the upper reaches of sandstone outcrop for the creek line. Stones covering most of the shelter floor hinder most visibility.	1.2	9	10	Stable: minor mould/water damage: minor rock fall	
HC_047		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use	9	2	18	10	15	Rock shelter with PAD. Rock shelter surrounded by ledges and located adjacent to small sandstone chasm.	1.3	23.4	10	Stable: lateral cracks at wall and ceiling junction: minor rock fall: minor water/mould damage	
HC_048		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	70	Low: superficial animal use	10	2	20	6	1	Rock shelter with PAD. Rock shelter has many horizontal faults and laminating surfaces. Shelter is located on a ledge directly above creek. 3m from creek and 2 m above creek. Large wombat burrow located at northern end of overhang (where entrance is less than 1 m high).	2	40	10	Stable: lateral cracks at wall and ceiling junction: minor rock fall: minor water/mould damage	
HC_049		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	70	Low: superficial animal use	6	2.3	13.8	3	14	Rock shelter with PAD. Located 1 m above creek line at the base of a steep escarpment.	1.7	23.46	20	Stable: lateral cracks at wall and ceiling junction: minor rock fall: minor water/mould damage	
HC_050		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	20	Low: superficial animal use	5	2.5	12.5	1	15	Rock shelter with PAD. Most of the shelter floor was a sandstone base with the westerly portion containing PAD.	2.5	31.25	10	Stable: lateral cracks at wall and ceiling junction: minor rock fall: minor water/mould damage	
HC_051		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: superficial animal use	2	3	6	2	36	Rock shelter with PAD. Located on steep upper slope of a sandstone gully. There are a large number of small boulders near the site.	3	18	30	Unstable: high vertical crack: moderate rock fall	
HC_052		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: superficial animal use	7	2	14	6	15	Rock shelter with PAD. Located on upper slope above steep gully. Shelter floor is stepped with sandstone exposures with only the front showing PAD.	2.8	39.2	15	Stable: lateral cracks at wall and ceiling junction: minor rock fall:	
HC_053		56 H	EMM	BSF	29/05/2014	Potential scar tree	0		Scarp	Rock outcrop								25	Site was identified by Aboriginal site officer. At present the site remains classed as a potential scar tree as it does not clearly show the necessary attributes based on the field manual (DEC 2005) For example, the remnants of a branch stub protrudes from the scar face.		0			
HC_054		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	50	High: extensive animal burrowing	3	2	6	3	29	Rock shelter with PAD. Shelter shows evidence of wombat burrowing disturbance.	1.6	9.6	10	Unstable: numerous vertical cracks	
HC_055		56 H	EMM	BSF	6.11.14	Potential scar tree	0		Scarp	Rock outcrop								27	Site was identified by Aboriginal site officer. At present the site remains classed as a potential scar tree as it does not clearly show the necessary attributes based on the field manual (DEC 2005) For example, Scar is in the fork of a tree and is highly likely to be the result of a branch tear or trauma damage.		0			
HC_056		56 H	EMM	BSF	6.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	50	Low: superficial animal use	4	2	8	1	8	Rock shelter with PAD. There is only a small area of potential deposit. Moderate sized tree growing from overhang.	1.5	1.2	20	Unstable: vertical cracks and vegetation damage	
HC_057		56 H	EMM	BSF	6.11.14	Potential scar tree	0		Scarp	Rock outcrop	Native vegetation							18	Site was identified by Aboriginal site officer. At present the site remains classed as a potential scar tree as it does not clearly show the necessary attributes based on the field manual (DEC 2005) For example, Scar extends to the base of the tree and has a cavity where branch is likely to have occurred.		0			
HC_058		56 H	EMM	BSF	6.11.14	Potential scar tree	0		Scarp	Rock outcrop	Native vegetation							31	Site was identified by Aboriginal site officer. At present the site remains classed as a potential scar tree as it does not clearly show the necessary attributes based on the field manual (DEC 2005) For example, Scar is likely to be the result of a major limb tear that had effectively split the tree in two.		0			
HC_059		56 H	EMM	BSF	6.11.14	Open stone artefact site	2		Hill spur crest	Vehicle track	Graded: vehicle track	70	High: graded track	3	3	9	3	60	Open stone artefact site. Ar reflects identified adjacent to vehicle track on an ant nest. Ar reflects comprising of: - 1 quartz flake - 1 silcrete flake.		0			

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HC_060		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	60	Low: superficial animal use	15	1.5	22.5	3	5	Rock shelter with PAD located on ledge overlooking the creek line. Area of PAD very narrow.	2.5	56.25	10	Unstable: vertical cracks and vegetation damage; moderate water/mould damage
HC_061		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	70	Low: superficial animal use	11	2	22	11	33	Rock shelter with PAD. Minor animal burrowing and minor ceiling collapse.	4	88	20	Stable: lateral cracks at wall and ceiling junction; minor rock fall.
HC_062		56 H	EWM	BSF	7.11.14	Potential scar tree	0		Scarp							0			Site was identified by Aboriginal site officer. At present the site remains classed as a potential scar tree as it does not clearly show the necessary attributes based on the field manual (DCC-2005) For example, scar is irregularly shaped and likely to be a branch leaf.		0		
HC_063		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use	14	3	42	36	12	Rock shelter with large floor area and PAD area. Unique and cavernous form of rock shelter.	3	126	40	Stable: cavernous laminating erosion
HC_064		56 H	EWM	BSF	7.11.14	Potential scar tree	0		Scarp							0		11	Site was identified by Aboriginal site officer. At present, the site remains classed as a potential scar tree as it does not clearly show the necessary attributes based on the field manual (DCC-2005) For example, scar is in the fork of a tree and is highly likely to be the result of a branch tear or trauma damage. Top of scar is irregularly shaped and resembles a branch leaf.		0		
HC_065		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	60	Low: superficial animal use	9	1	9	4	9	Rock shelter with PAD. Located 2 m away from nearby stream channel. Rock shelter is long and narrow in form.	1.6	14.4	20	Stable: lateral cracks at wall and ceiling junction; minor rock fall; minor vegetation damage
HC_066		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	30	High: extensive rock fall	7	1.5	10.5	1	37	Rock shelter with small exposed area of PAD due to extensive ceiling collapse.	2	21	10	Unstable: extensive water damage; moderate rock fall and imminent rock fall
HC_067		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	20	High: extensive rock fall	10	3	30	2	11	Rock shelter with small exposed area of PAD due to extensive ceiling collapse. Shelter floor is moderately inclined. Large vertical crack running through centre of the shelter.	4	120	10	Unstable: extensive water damage; moderate rock fall and imminent rock fall
HC_068		56 H	EWM	BSF	7.11.14	Rock pool	0		Scarp							0		1	Natural rock pool.		0		
HC_069		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	50	High: animal burrowing	5	1	5	1	28	Rock shelter with small area of PAD. Shelter is narrow and PAD is disturbed by wombat burrow.	2.5	12.5	30	Stable: lateral cracks at wall and ceiling junction; minor rock fall.
HC_070		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	60	Moderate: roof collapse; obscured by rock fall	4	2.5	10	4	30	Rock shelter with PAD. Considerable ceiling collapse covering about 40% of the shelter floor. Floor scattered with quartz pebbles that have eroded out of the conglomerate sandstone.	1.9	19	20	Unstable: extensive water cracks; large vertical cracks; moderate rock fall and imminent rock fall
HC_071		56 H	EWM	BSF	7.11.14	Rock shelter with 1 deposit and PAD	1		Scarp	Rock outcrop	Native vegetation	70	Low: modern camping	16	5	80	80	30	Rock shelter with deposit and PAD. Very large shelter dimensions with high potential for extensive subsurface deposit. Artefact comprising of: - 1 quartzite flake.	3.5	280	50	Stable: lateral cracks at wall and ceiling junction; major but very old rock fall.
HC_072		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: superficial animal use	2.5	1.5	3.75	3	5	Rock shelter with PAD. Located on ledge approximately 3 m overlooking the stream channel on a lower scarp.	2.5	9.375	30	Stable: lateral cracks at wall and ceiling junction; minor rock fall; recent rock fall noted
HC_073		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use	2	2	4	4	65	Rock shelter with PAD on upper slope of scarp. Exfoliating roof.	2	8	20	Stable: lateral cracks at wall and ceiling junction; minor rock fall; recent rock fall noted
HC_074		56 H	EWM	BSF	7.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use	2	4	4	4	44	Rock shelter with PAD on upper slope of scarp. Exfoliating roof.	2	8	20	Stable: lateral cracks at wall and ceiling junction; major adjacent rock fall.
HC_075		56 H	EWM	BSF	13.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: superficial animal use; slope erosion	5	2	10	4	40	Rock shelter with PAD on upper slope of scarp. Minor roof collapse.	1.6	16	20	Stable: lateral cracks at wall and ceiling junction; minor rock fall; recent rock fall noted
HC_076		56 H	EWM	BSF	13.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	80	Moderate: animal burrowing and rock fall	3	5	15	4	38	Rock shelter with PAD on upper slope of scarp. Moderate ceiling collapse covering large portion of shelter. Large wombat burrow at the shelter wall. Fine layer of soil dispersed over floor from burrow.	3	45	20	Unstable: extensive water damage; moderate rock fall and imminent rock fall
HC_077		56 H	EWM	BSF	13.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	60	Moderate: animal burrowing; obscured by rock fall	2.5	3	7.5	3	39	Rock shelter with PAD on upper slope of scarp. Rock shelter is cavernous with a long narrow section which is likely to have been uninhabitable.	1.2	9	20	Stable: lateral cracks throughout; moderate rock fall
HC_078		56 H	EWM	BSF	13.11.14	Rock shelter with 0 PAD	0		Scarp	Rock outcrop	Native vegetation	70	Low: superficial animal use; obscured by rock fall	4	1.5	6	1	17	Rock shelter with only minimal PAD on lower slope of scarp. Most of shelter floor is sandstone base.	2	12	10	Stable: lateral cracks at wall and ceiling junction; minor rock fall; minor water/mould damage

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HC_079		56 H	EMM	BSF	1.3.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use; obscured by rock fall	8	3	24	5	2	Rock shelter with minimal PAD over sandstone floor. A significant area is exposed sandstone and this does not contain PAD. Large amount of quartz pebbles eroding out of conglomerate. Erosion is cavernous.	2	48	5	Stable: lateral cracks at wall and ceiling junction; minor rock fall; moderate water/mould damage
HC_080		56 H	EMM	BSF	1.3.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	80	Low: superficial animal use; obscured by rock fall	8	5	40	40	63	Rock shelter with PAD. Minor roof fall. Roof has water damage and birds nesting in eroded hollows.	1.8	72	15	Stable: lateral cracks at wall and ceiling junction; minor rock fall; high water/mould damage
HC_081		56 H	EMM	BSF	1.3.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Native vegetation	40	Low: superficial animal use	4	2.5	10	1	30	Rock shelter with PAD. Exposed sandstone base and rock fall. Leaves minimal exposed PAD.	1	10	5	Stable
HC_082		56 H	EMM	BSF	1.3.11.14	Rock shelter with PAD	0		Scarp	Rock outcrop	Pine forest	60	Moderate: slope 2 erosion and animal burrowing	2	1.5	3	1	5	Rock shelter with minimal PAD. Small overhang in pine forest. Floor is largely eroded onto basal clay.	1.5	4.5	5	Stable
HC_083	52-40388	56 H	EMM	Evandale	28/05/2014	Open stone artefact site	7		Stream bank	Erosion/sandstone outcrop	Cleared and ploughed	40	Moderate: cleared and ploughed	200	20	4000	26	Open stone artefact site. Artefacts distributed along a 200 x 20 m area adjacent to the creek line found amongst sandstone outcrop near the confluence of two creeks. Found on sandstone outcrop; no substrate potential. Artefacts comprising of: - 2 broken silcrete flakes - 1 volcanic river pebble, possible hammer stone - 1 quartz flaked piece - 1 chert distal flake - 1 silcrete flake - 1 quartz flaked piece.	0	0			
HC_084	52-40389	56 H	EMM	Evandale	28/05/2014	Open stone artefact site	2		Hill spur crest	Vehicle track	Cleared and ploughed	80	Moderate: cleared and ploughed	5	3	15		58	Open stone artefact site. Artefacts comprising of: - 1 silcrete flake - 1 quartz flaked piece.	0	0		
HC_085	52-40390	56 H	EMM	Evandale	28/05/2014	Isolated find	1		Hill spur crest	Vehicle track	Cleared and ploughed	60	Moderate: cleared and ploughed	1	1	1		10	Isolated find. Artefact comprising of: - 1 silcrete flake.	0	0		
HC_086	52-40391	56 H	EMM	Evandale	28/05/2014	Open stone artefact site with PAD	25		Hill spur crest	Erosion scars	Cleared and ploughed	30	Moderate: cleared and ploughed	50	50	2500	300 x 150	40	Open stone artefact site with PAD. PAD identified within site area and beyond extending across the hill spur crest and connecting sites HC_094, HC_086 and HC_087 where ground surface visibility is lower and is unlikely to reveal artefacts. Site and PAD is disturbed by ploughing. Open artefact site surrounding rocky outcrop of sandstone boulders piled naturally at the spur crest. Artefacts comprising of: - 10 chert flakes - 5 quartz flakes - 5 silcrete flakes - 5 silcrete cores.	0	0		
HC_087	52-40392	56 H	EMM	Evandale	28/05/2014	Open stone artefact site with PAD	9		Hill spur crest	Erosion scars	Cleared and ploughed	50	Moderate: cleared and ploughed	15	10	150	300 x 150	36	Open stone artefact site with PAD. PAD identified within site area and beyond extending across the hill spur crest and connecting sites HC_094, HC_086 and HC_087 where ground surface visibility is lower and is unlikely to reveal artefacts. Site and PAD is disturbed by ploughing. Identified on erosion patch of a ploughed hill crest. Artefacts comprising of: - 1 grey broken silcrete flake - 2 quartz flaked pieces - 5 grey silcrete flakes - 1 grey silcrete flaked piece.	0	0		
HC_088	52-40393	56 H	EMM	Evandale	28/05/2014	Isolated find	1		Hill spur crest	Erosion scars	Cleared and ploughed	60	Moderate: cleared and ploughed	1	1	1		36	Isolated find. Artefact comprising of: - 1 silcrete core.	0	0		
HC_089	52-40394	56 H	EMM	Evandale	28/05/2014	Isolated find	1		Hill spur crest	Erosion scars	Cleared and ploughed	80	Moderate: cleared and ploughed	1	1	1		30	Isolated find. Identified on a narrow spur crest. Artefact comprising of: - 1 pink silcrete flake with retouch.	0	0		
HC_090	52-40395	56 H	EMM	Evandale	28/05/2014	Open stone artefact site	3		Hill spur crest	Erosion scars	Cleared and ploughed	60	Moderate: cleared and ploughed	10	10	100		20	Open stone artefact site. Artefacts comprising of: - 1 grey silcrete flake, found on eroded patch adjacent to vehicle track - 1 grey silcrete flaked piece - 1 quartz flake.	0	0		
HC_091	52-40396	56 H	EMM	Evandale	28/05/2014	Isolated find	1		Hill spur crest	Erosion scars	Cleared and ploughed	10	Moderate: cleared and ploughed	1	1	1		10	Isolated find. No similar material found in surrounding area. Artefact comprising of: - 1 potential hammer stone.	0	0		

Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % or rock shelter floor visibility	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_092	52-40-0397	56 H	EMM	Evandale	28/05/2014	Open stone artefact site with PAD	20		Hill crest	Ploughed paddock	Cleared and ploughed	70	Moderate: cleared and ploughed	100	70	7000	100 x 70	94	Open stone artefact site with PAD. PAD is unlikely to extend beyond site boundary as extensive ploughing is likely to have acted to expose the boundary of the subsurface extent Artefacts comprising: - 3 silcrete cores - 2 silcrete flakes - 1 TIMT flake - 8 quartz flakes - 3 quartz flaked pieces - 2 silcrete flaked piece - 1 silcrete proximal flake  Large artefact assemblage located on a flat hill crest overlooking a tributary. Although ploughing is clearly visible, the amount of artefacts indicate a subsurface deposit.	0			
HC_093	52-40-0398	56 H	EMM	Evandale	28/05/2014	Open stone artefact site	4		Hill spur crest	erosion/sandstone outcrop	Native vegetation	60	Low: erosion	10	10	100		40	Small open stone artefact site. Located at the confluence of parental creek and its tributary. Artefacts comprising of: - 2 silcrete flakes - 2 quartz flaked pieces.	0			
HC_094	52-40-0399	56 H	EMM	Evandale	28/05/2014	Open stone artefact site with PAD	75		Hill spur crest	Vehicle track/ploughed paddock	Cleared and ploughed	80	Moderate: cleared and ploughed	180	20	3600	300 x 150	20	Open stone artefact site with PAD. Located on a spur crest at the confluence of Wells Creek and an ephemeral tributary extending nearly 300 m up an access track leading up the hill. PAD identified within site area and beyond extending just as the hill area and beyond extending just as the hill area and beyond extending just as the hill area. Including sites HC_094, HC_086 and HC_091. The ground surface visibility is lower and is unlikely to reveal artefacts. Site and PAD is disturbed by ploughing. 75 artefacts were counted from track exposure and surface deposit. It is likely to extend across the lower portion of the spur crest, possibly connecting sites HC_086 and HC_087. Preliminary site count was made divided into detached flakes, cores and flakes (comprising flake fragments): - 2 retouched silcrete flakes - 66 flake fragments - 7 cores	0			
HC_095	52-40-0400	56 H	EMM	Evandale	28/05/2014	Open stone artefact site	2		Hill spur crest	Vehicle track/ploughed paddock	Cleared and ploughed	60	Moderate: cleared and ploughed	5	5	25	117	117	Open stone artefact site. Artefacts comprising of: - 2 quartz flaked pieces. Site is unlikely to contain PAD as it is over 200 m from Wells Creek and 160 m from ephemeral streams.	0			
HC_096	52-40-0401	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill crest	Vehicle track	Graded: vehicle track	70	High: graded track	1	1	1	120	120	Isolated find. Identified at the entrance to a grazing paddock. Artefact comprising of: - 1 quartz flake.	0			
HC_097	52-40-0402	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill slope	Vehicle track easement	Graded: vehicle track	90	High: graded track	1	1	1	57	57	Isolated find. Identified on eroded patch adjacent to vehicle track. Artefact comprising of: - 1 grey silcrete flake.	0			
HC_098	52-40-0421	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill slope	Vehicle track easement	Graded: vehicle track	90	High: graded track	1	1	1	39	39	Isolated find. Identified on eroded patch adjacent to vehicle track. Artefact comprising of: - 1 grey silcrete flake.	0			
HC_099	52-40-0403	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	6		Hill crest	Vehicle track easement	Graded: vehicle track	80	High: graded track	100	15	1500	240	240	Open stone artefact site. Artefacts comprising of: - 1 silcrete proximal blade flake - 1 small chert core - 1 silcrete core - 1 silcrete distal flake - 1 proximal white silcrete flake - 1 chert flake.	0			
HC_100	52-40-0404	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	3		Hill crest	Vehicle track easement	Graded: vehicle track	70	High: graded track	40	15	600	212	212	Open stone artefact site. Artefacts comprising of: - 1 silcrete core - 1 silcrete broken flake - 1 core from previous recording.	0			
HC_101	52-40-0405	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	7		Hill crest	Vehicle track easement	Graded: vehicle track	70	High: graded track	90	20	1800	206	206	Open stone artefact site. Artefacts comprising of: - 1 silcrete flaked piece - 4 silcrete flakes - 1 TIMT core - 1 silcrete core - Some may include the 41 stone artefacts identified in Therin's 2007 survey	0			

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HC_102	52-4-0406	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	2		Hill crest	Vehicle track easement	Graded: vehicle track	40	High: graded track	120	15	1800	154	Open stone artefact site. Artefacts comprising of: - 1 silcrete flake - 1 quartz flake - Some may include the 16 stone artefacts identified in Therin's 2007 survey	0	0			
HC_103	52-4-0407	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	2		Hill crest	Vehicle track easement	Graded: vehicle track	40	High: graded track	10	5	50	124	Open stone artefact site. Artefacts comprising of: - 1 broken silcrete flake - 1 quartz flaked piece.	0	0			
HC_104	52-4-0408	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill crest saddle	Vehicle track easement/cattle track	Graded: vehicle track	80	High: graded track	1	1	1	135	Isolated find. Artefact comprising of: - 1 white quartz flaked piece.	0	0			
HC_105	52-4-0409	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	2		Hill crest	Vehicle track easement/cattle track	Graded: vehicle track	70	High: graded track	60	10	600	176	Open stone artefact site. Artefacts comprising of: - 2 silcrete flakes - Some may include the 16 stone artefacts identified in Therin's 2007 survey	0	0			
HC_106	52-4-0410	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill crest	Vehicle track easement/cattle track	Graded: vehicle track	60	High: graded track	1	1	1	146	Isolated find. Artefact comprising of: - 1 silcrete flaked piece.	0	0			
HC_107	52-4-0411	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill crest	Vehicle track easement/cattle track	Graded: vehicle track	70	High: graded track	1	1	1	141	Isolated find. Artefact comprising of: - 1 grey silcrete flake.	0	0			
HC_108	52-4-0412	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill crest	Vehicle track easement/cattle track	Graded: vehicle track	50	High: graded track	1	1	1	117	Isolated find. Artefact comprising of: - 1 chert flake used as a core.	0	0			
HC_109	52-4-0413	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Hill crest	Vehicle track easement/cattle track	Graded: vehicle track	50	High: graded track	1	1	1	86	Isolated chert flake. Located on flat area of hillcrest with good outlook.	0	0			
HC_110	52-4-0418	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	4		Foot slope	Cattle track	Cleared and ploughed	80	Moderate: cleared and ploughed	5	1	5	98	Open stone artefact site located on a foot slope leading down slope. Just east of a spur crest adjacent Wells Creek on eastern side of fence. Although within 100 m of Wells Creek, no area of PAD identified as location is not distinguishable from surrounding archaeological landscape. Artefacts comprising of: - 3 quartz flaked pieces - 1 silcrete flake.	0	0			
HC_111	52-4-0414	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	7		Foot slope	Cattle track	Cleared and ploughed	60	Moderate: cleared and ploughed	10	2	20	55	Open stone artefact site. Located on a foot slope leading down slope. Just east of a spur crest adjacent to Wells Creek on eastern side of fence. Although within 100 m of Wells Creek, no area of PAD identified as location is not distinguishable from surrounding archaeological landscape. Artefacts comprising of: - 2 silcrete flakes - 4 quartz flaked pieces - 1 IMT flake	0	0			
HC_112	52-4-0415	56 H	EMM	Wongonbra	27/05/2014	Isolated find	1		Foot slope	Ploughed paddock	Cleared and ploughed	80	Moderate: cleared and ploughed	1	1	1	39	Isolated find. Identified on a heavily ploughed paddock. Artefact comprising of: - 1 quartz flake.	0	0			
HC_113	52-4-0416	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	18		Hill spur crest	Ploughed paddock	Cleared and ploughed	80	Moderate: cleared and ploughed	10	10	100	79	Isolated find. Artefacts comprising of: - 16 quartz flakes and flaked pieces - 1 silcrete blade flake - 1 chert core.	0	0			
HC_114	52-4-0417	56 H	EMM	Wongonbra	27/05/2014	Open stone artefact site	3		Hill crest	Ploughed paddock	Cleared and ploughed	80	Moderate: cleared and ploughed	3	1	3	143	Isolated find. Artefacts comprising of: - 2 quartz flaked pieces - 1 silcrete flake.	0	0			
HC_115	52-4-0419	56 H	EMM	Mereworth	9/02/2015	PAD	0		Hill spur crest	N/A	Native vegetation	N/A	Low: scattered ant nests, wombat burrows, ploughing			50 x 50 m	85	Area of PAD. Located on gently inclined to level elevated area overlooking Mereworth Rivulet. Area is approximately 50 x 50 m and is likely to continue within 100 m of either side of Mereworth Rivulet.	0	0			



Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % (rock shelter floor visibility)	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_116	52-40420	56 H	EMM	Mereworth	9/02/2015	Open stone artefact site with PAD	10		Hill crest	Ploughed paddock, sheet wash erosion	Cleared and ploughed	70	Moderate: cleared and ploughed	30	10	300	50 x 20 m	82	Open stone artefact site eroding out of area of PAD. Located on gently inclined to boundary of the hill crest lead sloping north towards Oldbury Creek. As adjacent exposures are consistent, there is no indication that the PAD extends beyond the site boundary. Artefacts comprising of: - 1 possible basal hammer stone - 3 white quartz flakes - 2 quartzite flakes - 1IMT core - 1IMT flake - 1IMT flaked piece - 1 chert flake.	0			
HC_117	52-40374	56 H	EMM	Mereworth	9/02/2015	Isolated find	1		Hill slope	Sheet wash erosion	Native vegetation	50	Low: erosion	1	1			20	Isolated find. Located on lower hill slope. Artefact comprising of: - 1 quartzite core. - 1 white quartz core.	0		N/A	
HC_118	52-40439	56 H	EMM	Mereworth	9/02/2015	Isolated find	1		Hill crest	Ploughed paddock	Cleared and ploughed	70	Moderate: cleared and ploughed	1	1		20 x 20 m	122	Isolated find on lower hill crest. - 1 white quartz core.	0			
HC_119	52-40375	56 H	EMM	Mereworth	9/02/2015	Open stone artefact site with PAD	12		Hill crest	Sheet wash erosion	Native vegetation and cleared and ploughed	80	Low: erosion	30	15	450	30 x 15 m	79	Open stone artefact site with PAD. As adjacent exposures are consistent, there is no indication that the PAD extends beyond the site boundary. Located on a flat hill crest leading north into Oldbury Creek. Artefacts comprising of: - 3 quartz flake pieces - 5 quartz flakes - 2 silcrete flakes - 1 IMT flaked piece - 1 grey chert flaked piece.	0			
HC_120	52-40422	56 H	EMM	Evandale	10/02/2015	Open stone artefact site	2		Hill crest	Ploughed paddock	Cleared and ploughed	80	Moderate: cleared and ploughed	10	5	50	N/A	62	Open stone artefact site. Located on flat area of a low hill crest. Artefact comprising of: - 1 distal IMT flake - 1 quartz flaked piece. No area of PAD identified as location is not distinguishable from surrounding archaeological landscape.	0		N/A	
HC_121	52-40423	56 H	EMM	Evandale	10/02/2015	Isolated find	1		Hill slope	Sheet wash erosion	Native vegetation	70	Low: erosion	1	1		N/A	41	Isolated find. Located on hill slope adjacent to gully leading into Oldbury Creek. Artefact is likely to have washed down slope from crest above. Artefact comprising of: - 1 quartz flake.	0			
HC_122	52-40424	56 H	EMM	Evandale	10/02/2015	Isolated find	1		Drainage depression	Sheet wash erosion	Cleared and ploughed	80	Moderate: cleared and ploughed	1	1		N/A	16	Isolated find. Located adjacent to gully. Artefact comprising of: - 1 IMT distal blade flake.	0		N/A	
HC_123	52-40425	56 H	EMM	Evandale	10/02/2015	Open stone artefact site with PAD	8		Hill crest	Ploughed paddock	Cleared and ploughed	80	Moderate: cleared and ploughed	40	20	800	40 x 20 m	49	Open stone artefact site with PAD. Site is located on the fringe of a heavily ploughed paddock and native forest. PAD located on a flat hill crest leading north into Oldbury Creek. As adjacent exposures are consistent, there is no indication that the PAD extends beyond the site boundary. Artefacts comprising of: - 1 quartz flake - 4 silcrete flakes - 3 quartzite flakes.	0			

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HC_124	52-40426	56 H	EMM	Evandale	10/02/2015	Open stone artefact site with PAD	27		Hill crest	Ploughed paddock	Cleared and ploughed	50	Moderate; cleared and ploughed	80	50	4000	80 x 50 m	104	Open stone artefact site with PAD, comprising of multiple concentrations: Concentration a) at 250867 6179001 is: - 1 isolated grey silcrete complete flake, located in a plough line exposure. Concentration b) at 250845 6179048 is: - 2 quartz flakes Concentration c) at 250878 6179089 is: - 1 quartz flake Concentration d) at 250847 6179109 is: - 1 grey silcrete core - 1 TIMT core - 3 silcrete flakes - 2 TIMT flaked piece - 1 TIMT flake - 2 quartz flakes - 2 quartz flaked pieces Concentration e) at 250822 6179081 is: - 1 TIMT flake - 4 quartz flakes - 2 grey silcrete cores Concentration f) at 250797 6179046 is: - 3 quartz flakes - 1 grey quartzite core. As adjacent exposures are consistent, there is no indication that the PAD extends beyond the site boundary.	0			
HC_125	52-40427	56 H	EMM	Evandale	10/02/2015	Isolated find	1		Hill spur crest	Sheet wash erosion, amt mests.	Cleared and ploughed	70	Moderate; cleared and ploughed	1	1	1	20 x 20 m	38	Isolated find adjacent to gully within an erosion exposure. Artefact comprising of: - 1 quartz flake.	0			
HC_126	52-40426	56 H	EMM	Evandale	10/02/2015	Open stone artefact site with PAD	21		Hill spur crest	Sheet wash erosion, amt mests.	Cleared and ploughed	50	Moderate; cleared and ploughed	30	20	600	30 x 20 m	64	Open stone artefact site with PAD. Located on a plain near the confluence of Oldbury creek and a small gully. Artefacts were identified as eroding out of subsurface deposit. As adjacent exposures are consistent, there is no indication that the PAD extends beyond the site boundary. Artefacts comprising of: - 13 quartz flakes - 3 quartzite flaked pieces - 1 TIMT core - 2 quartzite flake - 1 chert flake - 1 silcrete flake.	0			
HC_127	52-40428	56 H	EMM	Evandale	10/02/2015	Open stone artefact site	3		Hill crest	Ploughed paddock	Cleared and ploughed	50	Moderate; cleared and ploughed	5	5	25	N/A	123	Open stone artefact site. Located on flat areas of a low hill crest. Landform is further away from confluence with tributaries so archaeological deposit is unlikely. Artefacts comprising of: - 1 TIMT flake - 1 quartz flaked piece - 1 silcrete flake.	0			
HC_128	52-40429	56 H	EMM	Evandale	10/02/2015	Isolated find	1		Hill crest	Ploughed paddock	Cleared and ploughed	70	Moderate; cleared and ploughed	1	1	1	N/A	120	Isolated find. Located on flat area of a low hill crest in ploughed paddock. Artefact comprising of: - 1 quartz flake.	0			
HC_129	52-40430	56 H	EMM	Mereworth	10/02/2015	Isolated find	1		Modified	Culvert construction	Modified; excavated culvert	50	High; modified landform	1	1	1	N/A	385	Isolated find. Located in an excavated culvert exposure. The site is in a highly disturbed context amongst many imported graveyards associated with culvert construction. Artefact comprising of: - 1 pink silcrete flake.	0			

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HC_130	52-40431	56 H	EMM	Mereworth	10/02/2015	Open stone artefact site with subsurface deposit	31	8	Foot slope	Vehicle track, sandstone bedrock	Cleared and ploughed	80	Moderate; cleared and ploughed	170	50	8500	170 x 50 m	40	Open stone artefact site with PAD, comprising of multiple concentrations. As adjacent exposures are consistent, there is no indication that the PAD extends beyond the site boundaries. Concentration a) at 251969 6178749 is: - 8 silcrete flakes - 4 quartz flakes - 4 TIMT flakes - 1 TIMT distal flake Concentration b) is located on sandstone bedrock so there is no PAD in this area. Artefacts are likely to have washed down onto bedrock from the upper slope. Artefacts from concentration b) at 251968 6178850 comprise: - 1 red siltstone flake - 1 grey silcrete flaked piece Concentration c) is located on sandstone bedrock so there is no PAD in this area. Artefacts are likely to have washed down onto bedrock from the upper slope. Artefacts from concentration c) at 251983 6178820 comprise: - 1 grey quartzite flake Artefacts from concentration d) at 251985 6178763 comprise: - 1 grey quartzite flake	0			
HC_131	52-40432	56 H	EMM	Mereworth	10/02/2015	Open stone artefact site	3		Foot slope	Fence line	Cleared and ploughed	70	Moderate; cleared and ploughed	30	1	30	N/A	106	Open stone artefact site. Artefacts distributed along fence line starting at way point for a distance of 30 m along the fence line exposure. Artefacts comprising of: - 1 silcrete flake - 2 quartzite flaked pieces.	0			
HC_132	52-40433	56 H	EMM	Mereworth	11/02/2015	Isolated find	1		Hill crest	N/A	Cleared and ploughed	0	Moderate; cleared and ploughed	1	1	1	N/A	184	Isolated find. Located in grassed paddock on top of grass. Possible manuport. Artefact comprising of: - 1 potential hammer stone.	0		N/A	
HC_133	52-40434	56 H	EMM	Mereworth	11/02/2015	Isolated find	1		Modified wall	Modified: Dam wall	Modified: dam wall	70	High; modified landform	1	1	1	N/A	5	Isolated find. Located on dam bund wall, comprising of: - 1 grey TIMT proximal flake.	0		N/A	
HC_134	52-40435	56 H	EMM	Mereworth	11/02/2015	Subsurface artefact deposit	0	9	Hill spur crest	N/A	Cleared and ploughed	N/A	Moderate; cleared and ploughed	50	50	2500	50 x 50 m	68	Area of PAD. Located on a low hill spur crest, near the confluence of Oldbury Creek and its tributary. Area of PAD is distinguishable as starting at the curve of the elevated crest that adjoins the hill slope area and is unlikely to extend past 100 m distance from the ephemeral stream. PAD. Area is elevated and very gently sloped above the local landscape. Subsequent test excavation of the site revealed a sparse assemblage.	0		50 cm	
HC_135	52-40436	56 H	EMM	Mereworth	11/02/2015	Open stone artefact site with subsurface deposit	7	126	Foot slope	Vehicle track, sandstone bedrock	Cleared and ploughed	80	Moderate; cleared and ploughed	70	20	1400	70 x 20	34	Open stone artefact site with PAD. Located on vehicle track exposure and sandstone bedrock. PAD is predicted within site area but the extent of PAD outside the site area is difficult to demarcate as the site area is not clearly distinguishable from the surrounding landscape. Test excavation would assist with this demarcation. The site comprises two concentrations: Concentration a) at 252105 6178827 on vehicle track exposure comprises: - 3 quartz flaked pieces - 2 grey silcrete flaked pieces - 1 quartz flake Concentration b) at 252134 6178872 on sandstone bedrock exposure (1 x 3 m) comprises: - 1 grey silcrete flake. Nearby testing (Transect 6) revealed moderate to high frequency subsurface artefact deposits.	0			

Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % (rock shelter floor visibility)	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_136	52-40437	56 H	EMM	Mereworth	11/02/2015	Grinding grooves with open stone artefact site and PAD	7		Scarp	Cattle track, sandstone bedrock, sheet wash	Native vegetation	80	Low: native vegetation	70	20	1400	70 x 20	33	Grinding grooves site: with open stone artefact site and PAD. Located on sandstone outcrop. PAD is predicted within site area, but the extent of PAD outside the site area is difficult to demarcate as the site area is not clearly distinguishable from the surrounding landscape. Test excavation would assist with this demarcation. The site comprises multiple concentrations: Concentration a) at 252063 6178901 comprises: -1 quartz flaked piece. Concentration b) at 252051 6178963 comprises: -2 quartz flakes Concentration c) at 252042 6178861 comprises: -1 grey silcrete proximal flake -3 white quartz flake Concentration d) at 252026 6178853 is a set of grinding grooves on a singular bedrock exposure. Site comprises 10 grinding grooves.	0			
HC_137	52-40438	56 H	EMM	Mereworth	11/02/2015	Subsurface artefact deposit	0	8	Hill crest	N/A	Cleared and ploughed		Moderate: cleared and ploughed	120	50	6000	120 x 50	20	Area of PAD identified on a broad flat low hill crest and the gently inclined slope that leads into a tributary of Oldbury Creek. PAD has conservatively been demarcated on the edge of the crest as the site aspect faces east towards the ephemeral stream. Subsurface artefacts are sparse assemblage of common debitage. Broader area was tested through test pit Transect 8. Further excavation would be unfruitful.	0			
HC_138	52-40440	56 H	EMM	Mereworth	11/02/2015	Grinding grooves	0		Drainage depression	Sandstone bedrock	Cleared	100	Low: crack running through stone	2	5	10	N/A	4	Grinding grooves site: made up of three grinding grooves within a 30 cm by 40 cm depression adjacent to a vehicle track culvert. Grinding groove dimensions are: Grinding grooves 1) measures 25 x 10 cm Grinding grooves 2) measures 25 x 7 cm Grinding grooves 3) measures 7 x 15 cm.	0			
HC_139	52-40441	56 H	EMM	Mereworth	11/02/2015	Subsurface artefact deposit	0	15	Foot slope	N/A	Cleared and ploughed	N/A	Moderate: cleared and ploughed	80	50	4000	80 x 50 m	25	Area of PAD. Located on a broad, low but elevated portion of a foot slope adjacent to a tributary of Oldbury Creek. The extent of the PAD leading away from the tributary is difficult to demarcate as the landform becomes level in this direction. Subsurface site is a sparse assemblage of common debitage. Broader area was tested through test pit Transect 7. Further excavation would be unfruitful.	0			
HC_140	56 H	EMM	Mereworth	11/02/2015	PAD	0		Hill spur crest	N/A	Cleared and ploughed	N/A		Moderate: cleared and ploughed	60	40	2400	90 x 90 m	41	Site originally considered to be a PAD, however after test excavation was conducted on similar landforms next to higher order streams (more reliable water sources) and very low artefact frequencies were observed, this area is no longer considered to retain deposit.	0			
HC_141	52-40442	56 H	EMM	Mereworth	11/02/2015	Isolated find	1		Hill slope	Vehicle track	Cleared and ploughed	N/A	Moderate: cleared and ploughed	1	1	1	N/A	66	Isolated find. Located on a vehicle track exposure. -1 grey silcrete flake.	0			
HC_142	52-40443	56 H	EMM	Mereworth	11/02/2015	Open stone artefact site	3		Hill slope	Cattle track	Cleared and ploughed	60	Moderate: cleared and ploughed	5	5	25	N/A	128	Open stone artefact site. Located on a cattle track exposure beneath a tree in a ploughed paddock. Artefacts comprising of: -1 grey silcrete flake -1 red silcrete flake -1 quartz core.	0			
HC_143	52-40444	56 H	EMM	Mereworth	11/02/2015	Isolated find	1		Hill slope	Erosion	Cleared and ploughed	1	Moderate: cleared and ploughed	1	1	1	N/A	119	Isolated find. Located on an eroded hill slope exposure. Artefact comprising of: -1 red silcrete core.	0			
HC_144	52-40445	56 H	EMM	Mereworth	11/02/2015	Isolated find	1		Modified	Dam wall	Modified/ret. dam wall		High: modified landform	1	1	1	N/A	243	Isolated find. Located on a dam bund wall. Artefact comprising of: -1 quartz flaked piece.	0			
HC_145	52-40446	56 H	EMM	Mereworth	12/02/2015	Isolated find	1		Hill spur crest	Cattle track	Cleared and ploughed	70	Moderate: cleared and ploughed	1	1	1	N/A	331	Isolated find. Artefact comprising of: -1 x IMT flake, with unifacial retouch along left lateral margin.	0		N/A	

Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % or rock shelter floor visibility	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_146	52-40/447	56 H	EMM	Stonington	12/02/2015	PAD	0		Hill spur crest	N/A	Cleared and ploughed	N/A	Moderate: cleared and ploughed	50	40	2000	2000	272	Area of PAD. Located on a gently inclined simple hill slope overlooking an ephemeral tributary of Oldbury Creek which is now dammed at a number of locations. Grass coverage was knee-high and afforded no exposures for inspection. The predictive model indicates that Aboriginal objects are likely to occur as subsurface deposits in this area. The PAD has conservatively been demarcated on the elevated and rounded knoll portion of the landform which provides the best outlook over the landscape while being adjacent to an ephemeral stream. The extent of the PAD leading away from the tributary is unknown, and although marked as 50 m wide, can only be determined through test excavation.	0	30 cm		
HC_147	52-40/448	56 H	EMM	Stonington	12/02/2015	Subsurface artefact deposit	0	2	Hill spur crest	N/A	Cleared and ploughed	N/A	Moderate: cleared and ploughed	90	90	8100	23400	77	Area of PAD. Located on a gently inclined hill spur crest overlooking the confluence of Oldbury Creek and one of its minor tributaries. Grass coverage was knee-high and afforded no exposures for inspection. The width of the PAD aligns with the width of the spur crest. Subsurface site is a sparse assemblage of common debitage. Further excavation would be unfruitful. Area was tested through transect 10	0	30-50 cm		
HC_148	52-40/449	56 H	EMM	Stonington	12/02/2015	Subsurface artefact deposit	0	5	Hill spur crest	N/A	Cleared and ploughed	N/A	Moderate: cleared and ploughed	130	100	13000	62	Area of PAD. Located on a gently inclined hill spur crest overlooking the confluence of Oldbury Creek and one of its minor tributaries. Grass coverage was knee-high and afforded no exposures for inspection. The width of the PAD aligns with the width of the spur crest. Subsurface site is a sparse assemblage of common debitage. Further excavation would be unfruitful. Area was tested through transect 11	0				
HC_149	52-40/450	56 H	EMM	Evandale	10/03/2015	Isolated find	1		Hill spur crest	Plough line	Cleared and ploughed	50	Moderate: cleared and ploughed	1	1	N/A	N/A	78	Isolated find. Located in a ploughed field 60 m from drainage line and 10.5 m from Oldbury Creek. Disturbed context. Ploughing clearly visible. Artefact comprising of: - 1 white quartz core.	0	?		
HC_150	52-40/451	56 H	EMM	Mereworth	12/02/2015	Isolated find	1		Foot slope	Sheet wash erosion	Cleared and ploughed	30	Moderate: cleared and ploughed	1	1	N/A	N/A	79	Isolated find. Located in a field 80 m from drainage line and 10.5 m from Oldbury Creek. Ploughing is clearly visible. Artefact comprising of: - 1 white quartz core.	0			
HC_151	52-40/452	56 H	EMM	Mereworth	12/02/2015	PAD	0		Foot slope	N/A	Cleared and ploughed	N/A	Moderate: cleared and ploughed	100	90	9000	100 x 90	144	Area of PAD identified on an elevated portion of a foot slope which appears in the landscape as a gentle 'mound'. PAD is likely to extend up to 200 m from Oldbury Creek. Subsurface material may also occur between sites HC_151, HC_150 and HC_136 but such areas are not readily distinguishable from the surrounding landscape. Test excavation would be better suited to test the interconnectedness of these areas.	0			
HC_152	52-40/453	56 H	EMM	Mereworth	12/02/2015	Isolated find	1		Modified	Vehicle track	Modified dam wall	60	High: modified landform	1	1	1	N/A	26	Isolated find. Located on a built-up dam wall/vehicle track. Context is highly disturbed. Artefact comprising of: - 1 white/grey IMT flake.	0			
HC_153	52-40/454	56 H	EMM	Mereworth	12/02/2015	Isolated find	1		Scarp	Sheet wash erosion	Native vegetation	50	Low: erosion	1	1	1	N/A	17	Isolated find. Located on a moderately inclined lower hill slope. Artefact comprising of: - 1 white quartz flaked piece.	0			

Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % or rock shelter floor visibility	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_154	52-40-0455	56 H	EMM	Evandale	10.03.15	Open stone artefact site with subsurface deposit	21	45	Hill spur crest	Vehicle track	Cleared and ploughed	80	Moderate: cleared and ploughed	300	15	4500	300 x 120	79	Open stone artefact site with PAD. PAD Located on a vehicle track running on a north-south axis along a low hill spur crest. Open stone artefact site continues onto the valley flat below the crest and up to the banks of Medway rivulet. PAD extends along the hill spur crest and continues down slope onto the plain landform that adjoins Medway Rivulet. This area is on the elevated side of the stream and PAD is unlikely to occur to the north of the stream where the land is depressed and poorly drained. The site is of a common type with a moderate frequency of artefacts. Nearby testing (Transect 2) revealed a moderate frequency subsurface artefact deposits.	0			
HC_155	52-40-0456	56 H	EMM	Evandale	10.03.15	PAD	0		Foot slope	N/A	Cleared and ploughed	N/A	Moderate: cleared and ploughed	40	20	800	40 x 20	44	Area of PAD identified on an elevated foot slope on the inside of a bend adjacent to Medway Rivulet. Area has good outlook to the north and west of the area. PAD is unlikely to extend to the north as elevation becomes moderately to steeply inclined. Area to the south of PAD is low-lying and poorly drained.	0			
HC_156	52-40-0457	56 H	EMM	Evandale	10.03.15	Open stone artefact site with PAD	2		Hill spur crest	Cattle track	Cleared and ploughed	80	Moderate: cleared and ploughed	5	5	25	140 x 20	122	Open stone artefact site with PAD. Two artefacts identified on a low hill spur crest along a fence line running north-south. Artefacts include: - 2 silcrete flake. PAD is likely to extend east-west along natural/lea flat forms as a rounded natural/lea flat form. PAD was identified because it is a markedly distinguishable elevated platform with good outlook on an otherwise flat plain landform.	0			
HC_157	52-40-0458	56 H	Hume Coal	Wongonbra	2.07.2015	Isolated find	1		Foot slope		Cleared and ploughed	80	Moderate: cleared and ploughed		0	0	99	Isolated find. Found by Hume staff. Artefact comprising of: - 1 Ground Ave head, made of a grey/green volcanic material with clear evidence of ground edge.	0				
HC_158	52-40-0459	56 H	EMM	Stonington	12/02/2015	Potential scar tree	0		Hill slope			70	Moderate: cleared and ploughed		0	0	106	Site was identified by Aboriginal site officer. At present the site remains classed as a potential scar tree as it does not clearly show the necessary attributes based on the field manual (DEC 2005) for example, one scar appears to extend from far above the current scar, indicating a branch tear. Also no dry face of the scar is present. Second scar at the base of the tree also extends from far above the current scar, indicating a branch tear.	0				
HC_159	52-40-0460	56 H	EMM	Evandale	28/10/2015	Open stone artefact site	7		Stream bank	Stream bank	Native vegetation	80	Low: erosion	10	10	100		21	Open stone artefact site. Located on the stream bank of Medway Rivulet. Site is amongst regrowth vegetation. Artefacts comprising of: - 1 silcrete distal flake - 2 quartz flaked pieces - 1 quartz distal flake - 1 quartz core - 1 clear (crystal) quartz flake - 1 quartzite flake.	0			
HC_160	52-40-0461	56 H	EMM	Evandale	28/10/2015	Open stone artefact site with subsurface deposit	4	5	Hill crest	Vehicle track	Cleared and ploughed	80	Moderate: cleared and ploughed	90	2	180	-	25	Open stone artefact site. Located on a vehicle track on relatively level hill crest in a cleared paddock. Artefacts comprising of: - 1 silcrete flake - 1 quartz flake - 2 silcrete flakes. Subsurface site is a sparse assemblage of common debitage (test pit Transect 1). Further excavation would be fruitful.	0			
HC_161	52-40-0462	56 H	EMM	Evandale	28/10/2015	Isolated find	1		Hill crest	Fence line	Cleared and ploughed	50	Moderate: cleared and ploughed	1	1	1	-	120	Isolated find. Located on a fence line exposure on a relatively level hill crest in a cleared paddock. Artefact comprising of: - 1 quartz flake.	0			
HC_162	52-40-0463	56 H	EMM	Evandale	28/10/2015	Isolated find	1		Hill crest	Fence line	Cleared and ploughed	50	Moderate: cleared and ploughed	1	1	1	-	152	Isolated find. Located on a fence line exposure on a relatively level hill crest in a cleared paddock. Artefact comprising of: - 1 silcrete flake.	0			



Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % or rock shelter floor visibility	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
HC_163	52-40464	56 H	EMM	Evandale	28/10/2015	Open stone artefact site	2		Hill crest	Vehicle track	Cleared and ploughed	80	Moderate: cleared and ploughed	35	2	70	-	319	Open stone artefact site. Located on a vehicle track on relatively level hill crest in a cleared paddock. Artefacts comprising of: - 2 silcrete flakes.	0			
HC_164	52-40465	56 H	EMM	Evandale	28/10/2015	PAD	0		Hill crest	N/A	Cleared and ploughed	N/A	Moderate: cleared and ploughed	50	40	2000	50 x 40	24	Area of PAD. Located on a slightly elevated landform adjacent to an unnamed tributary of Medway Rivulet. The test excavation results related to nearby HC_160 indicate that the PAD is likely to contain very low artefact frequencies.	0			
HC_165	52-40466	56 H	EMM	Evandale	28/10/2015	Isolated find	1		Hill crest	Vehicle track	Cleared and ploughed	70	Moderate: cleared and ploughed	1	1	1	-	71	Isolated find. Located on a vehicle track exposure on a relatively level hill crest in a cleared paddock. Artefact comprising of: - 1 quartz flake.	0			
HC_166	52-40467	56 H	EMM	Evandale	28/10/2015	Isolated find	1		Hill crest	Vehicle track	Cleared and ploughed	70	Moderate: cleared and ploughed	1	1	1	-	175	Isolated silcrete flake identified on a vehicle track exposure on a relatively level hill crest in a cleared paddock.	0			
HC_167	52-40468	56 H	EMM	Evandale	28/10/2015	Open stone artefact site	3		Hill crest	Vehicle track	Cleared and ploughed	70	Moderate: cleared and ploughed	13	2	26	-	242	Open stone artefact site. Located on a vehicle track on relatively level hill crest in a cleared paddock. Artefacts comprising of: - 1 silcrete flake - 1 quartzite flake - 1 quartz flake.	0			
HC_168	52-40469	56 H	EMM	Mereworth	29/10/2015	Isolated find	1		Hill slope	Plough line	Cleared and ploughed	60	Moderate: cleared and ploughed	1	1	1	-	479	Isolated find. Located in a plough line on a hill slope. Within 100 m of an drainage line which isn't marked on the map. Artefact comprising of: - 1 silcrete scraper tool.	0			
HC_169	52-40470	56 H	EMM	Mereworth	29/10/2015	Open stone artefact site	3		Hill spur crest	Fence line	Cleared and ploughed	70	Moderate: cleared and ploughed	2	1	2	-	199	Open stone artefact site. Located on a fence line on a hill spur crest sloping towards Oldbur Creek, with an ephemeral drainage line to the west. Artefacts comprising of: - 1 grey silcrete flake - 1 quartz flake - 1 silcrete flake.	0			
HC_170	52-40471	56 H	EMM	Mereworth	29/10/2015	Isolated find	1		Hill spur crest	Plough line	Cleared and ploughed	70	Moderate: cleared and ploughed	1	1	1	-	99	Isolated find. Located in a ploughed paddock on the lower portion of a hill spur crest. Exposed by ploughing. Artefact comprising of: - 1 silcrete flake.	0			
HC_171	52-40472	56 H	EMM	Mereworth	29/10/2015	Open stone artefact site with subsurface deposit	9	6	Hill spur crest	Plough line	Cleared and ploughed	80	Moderate: cleared and ploughed	70	10	700	70 x 10	175	Open stone artefact site with PAD. Located on a relatively flat portion of a spur crest in a ploughed field. As adjacent exposures are consistent on a heavily ploughed paddock, there is no indication that the PAD extends beyond the site boundary. Although soils are likely to be skeletal. PAD was assigned as this area is a clearly distinguishable and flat spur crest that may retain some deposit. Artefacts comprising of: - 2 silcrete flakes - 1 banded chert flake - 1 quartz flake - 1 quartz flake - 2 silcrete cores - 2 silcrete distal flakes. Subsurface site is a sparse assemblage of common debitage (test pit Transect 17). Further excavation would be unfruitful.	0			
HC_172	52-40473	56 H	EMM	Mereworth	29/10/2015	Isolated find	1		Drainage depression	Plough line	Cleared and ploughed	80	Moderate: cleared and ploughed	1	1	1	-	22	Isolated find. Located in a ploughed and inundated drainage depression. Artefact comprising of: - 1 silcrete distal flake.	0			
HC_173	52-40474	56 H	EMM	Mereworth	29/10/2015	Open stone artefact site	11		Hill spur crest	Plough line	Cleared and ploughed	80	Moderate: cleared and ploughed	70	15	1050		96	Open stone artefact site. Located on the lower portion of a spur crest in a ploughed field. Artefacts comprising of: - 3 quartz flakes - 1 quartz distal flake - 2 quartz flaked pieces - 1 proximal flake - 1 silcrete flake - 2 quartz flakes - 1 quartz proximal flake - 1 quartz flaked piece. PAD is unlikely to exist in this location as soils are heavily ploughed and skeletal as they are on a crest landform no clearly distinguishable from the surrounding landscape.	0			



Site name	AHIMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % (rock shelter floor visibility)	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m²) of shelter floor area	Likely area of PAD (m²)	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m² (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition
WSF9	52-40484	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF10	52-40485	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF11	52-40486	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF12	52-40487	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF13	52-40488	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	4		Hill crest											0			
WSF14	52-40508	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	9		Hill crest											0			
WSF15	52-40489	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF16	52-40490	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	8		Hill crest											0			
WSF17	52-40491	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	2		Hill crest											0			
WSF18	52-40492	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	3		Hill crest											0			
WSF19	52-40493	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	29		Hill crest											0			
WSF20	52-40494	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	2		Hill crest											0			
WSF21	52-40496	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	2		Hill crest											0			
WSF22	52-40495	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	3		Hill crest											0			
WSF23	52-40497	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF24	52-40498	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	7		Hill crest											0			
WSF25	52-40499	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	4		Hill crest											0			
WSF26	52-40500	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	4		Hill crest											0			
WSF27	52-40501	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	2		Drainage depression											0			
WSF28	52-40502	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill slope											0			
WSF29	52-40503	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	7		Modified											0			
WSF30	52-40504	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF31	52-40505	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	12		Hill crest											0			
WSF32	52-40506	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF33	52-40507	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	3		Hill crest											0			
WSF34	52-40509	56 H	Therin	Wongonbra	18/12/2007	Open stone artefact site	10		Hill crest											0			
WSF35	52-40510	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF36	52-40516	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill crest											0			
WSF37	52-40511	56 H	Therin	Wongonbra	18/12/2007	Isolated find	1		Hill spur crest											0			
Compartment 157	52-40097	56 H	NPWS	BSF	30/05/2014	Rock shelter with art	0		Scarp	Rock outcrop	Pine forest	N/A	Low erosion	3	1	3	0	20	Rock shelter with art with 6 hand stencils counted using red ochre. Comprising of at least two people (one likely to be from an adult and other much smaller, possibly child or adolescent). Site located on the wall of a ledge 2 m above ground adjacent to a pine forest plantation. Shelter is a domed 'beehive' shape with a circular opening in roof. Compartment 157 was re-recorded during the ACHA. Although labelled as a rock shelter, the sandstone feature actually provides no overhang and shelter floor, but is rather a naturally occurring open-roofed, domed feature set into a ledge approximately 2 m above the ground surface. The AHIMS site card mentioned that the site also had axe grinding grooves and bowls cut into sandstone. However, none of these features were identified upon re-inspection.	N/A	0	N/A	Good

Site name	AHMS number	Zone	Recorder	Property	Date recorded	Site type (post excavation)	Artefact count	Sub-surface artefacts	Landform element	Exposure type	Land use/ Vegetation	Exposure visibility % of rock shelter floor visibility	Ground disturbance	Site length (m)	Site width (or depth of floor in rock shelter) (m)	Area (m <sup>2</sup> ) or shelter floor area	Likely area of PAD (m <sup>2</sup> )	Distance to water (general)	Description	Maximum height at entry (rock shelter) (m)	Shelter area m <sup>2</sup> (rock shelter)	Potential depth of PAD (cm) (rock shelter)	Shelter condition (rock shelter)
International House	52-4-0098	56 H	NPWS	BSF	29/02/2016	Grinding grooves with rock pools	0		Scarp	Rock outcrop	Native forest	N/A	Low; erosion					10	International House: comprises a series of grinding grooves spread across outcropping sandstone within an approximate 5 m x 5 m area. Sixteen grooves were recorded on one exposure and three at a smaller exposure on the stream bed of Belanglo Creek. Three rock pools were identified near the grooves and had engraved channels leading into them. These features, along with symmetrical circular shape and form of the pools suggest that they have been modified by Aboriginal people to divert and store water. It is likely that the collected water was used to aid grinding hatchet heads.		0		
																					0		

## Appendix E

### Test excavation artefact data

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ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1463	Transect 1	635E 694N	Spit 1	Retouched flake	Retouched (unspecified)	Silcrete	20	0.39	Red	17.59x10.97x3.39mm	Hill crest
1464	Transect 1	635E 694N	Spit 1	Distal Flake		Silcrete	11	0.21	Light Grey	10.98x8.34x2.59	Hill crest
1467	Transect 1	645E 694N	Spit 1	Flake		Silcrete	30	8.66	Grey	29.86x24.54.7.92mm	Hill crest
1466	Transect 1	645E 694N	Spit 1	Proximal flake		Silcrete	19	0.98	Light Grey	18.2x16.38.3.72	Hill crest
1465	Transect 1	645E 694N	Spit 1	Flake		Silcrete	25	4	Light Grey	24.14x20.16x8.49mm	Hill crest
1594	Transect 10	824E 784N	Spit 1	Flaked piece		Quartz	20	2.91	Smokey grey	20x9.28x10.32mm	Hill spur crest
1595	Transect 10	854E 784N	Spit 1	Flaked piece		Quartz	6	0.13	White	5.55x3.51x3.06mm	Hill spur crest
1600	Transect 11	064E 701N	Spit 1	Distal Flake		Quartz	5	0.08	White	4.52x5.81x1.81mm	Hill slope
1599	Transect 11	104E 701N	Spit 1	Proximal flake		IMT	7	0.1	Brown	6.63x3.98x2.17mm	Hill slope
1598	Transect 11	104E 701N	Spit 1	Flaked piece		IMT	7	0.27	Brown	6029x4.62x6.26mm	Hill slope
1596	Transect 11	144E 701N	Spit 1	Flake		Quartz	6	0.05	White	5.51x7.26x1.28mm	Hill spur crest
1597	Transect 11	144E 701N	Spit 1	Distal Flake		Quartz	7	0.23	White	6.62x11.48x2.95mm	Hill spur crest
1698	Transect 12	130E 822N	Spit 1	Flake		Silcrete	41	13.48	Red	40.87x28.41x11.82	Hill crest
1700	Transect 12	140E 822N	Spit 1	Flake		Quartz	7	0.11	Grey	6.96x11.33x1.75	Hill crest
1704	Transect 12	140E 822N	Spit 1	Distal Flake		Quartz	6	0.1	White	5.89x6.62x1.97	Hill crest
1703	Transect 12	140E 822N	Spit 1	Flaked piece		Quartz	20	1.75	White	19.51x11.95x7.24	Hill crest
1702	Transect 12	140E 822N	Spit 1	Medial Flake		Quartz	4	0.11	Grey	3.76x8.97x2.49	Hill crest
1699	Transect 12	140E 822N	Spit 1	Flake		Silcrete	15	0.2	Grey	14.59x11.55x1.87	Hill crest
1701	Transect 12	140E 822N	Spit 1	Longitudinal split		Silcrete	25	7.35	Grey	25x28.48x11.31	Hill crest
1731	Transect 12	150E 822N	Spit 1	Flake		Quartz	18	1.04	White	17.63x7.47x7.3	Hill crest
1730	Transect 12	150E 822N	Spit 1	Flake		Quartz	17	0.53	White	16.96x8.25x4.08	Hill crest
1729	Transect 12	150E 822N	Spit 1	Flaked piece		Silcrete	10	1.48	Light Grey	10x14.11x9.16	Hill crest
1728	Transect 12	150E 822N	Spit 1	Flake		Quartz	9	0.2	White	8.87x7.7x2.88	Hill crest
1727	Transect 12	150E 822N	Spit 1	Flake		Silcrete	13	0.29	Grey	12.23x7.56x3.03	Hill crest
1709	Transect 12	160E 822N	Spit 1	Distal Flake		Silcrete	18	0.81	Pink	17.13x9.53x3.82	Hill crest
1708	Transect 12	160E 822N	Spit 1	Medial Flake		Silcrete	11	0.15	Pink	10.84x4.51x1.7	Hill crest
1707	Transect 12	160E 822N	Spit 1	Proximal flake		Silcrete	11	0.6	Pink	10.62x7.3x2.75	Hill crest
1706	Transect 12	160E 822N	Spit 1	Flake		Silcrete	13	0.24	Pink	12.79x9.14x2.95	Hill crest
1705	Transect 12	160E 822N	Spit 1	Flake		Silcrete	24	1.85	Pink	23.79x17.67x5.23	Hill crest
1725	Transect 12	160E 822N	Spit 2	Retouched flake	Scraper	Quartz	10	0.61	Light Grey	9.81x10.74x1	Hill crest
1726	Transect 12	160E 822N	Spit 2	Flake		Silcrete	19	0.68	Pink	18.27x12.14x3.74	Hill crest

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1718	Transect 12	170E 822N	Spit 1	Core		Silcrete	12	1.97	Light Grey	11.19x12.84x11.63; conjoin with 1717	Hill crest
1724	Transect 12	170E 822N	Spit 1	Medial Flake		Silcrete	8	1.2	Light Grey	8.07x7.27x7.55	Hill crest
1734	Transect 12	170E 822N	Spit 1	Flaked piece		Silcrete	12	0.9	Light Grey	11.64x11.3x6.5	Hill crest
1716	Transect 12	170E 822N	Spit 1	Flake	Use Wear	Quartzite	21	3.22	Red	20.74x26.58x6.2	Hill crest
1732	Transect 12	170E 822N	Spit 1	Flaked piece		Silcrete	13	0.8	Light Grey	12.73x7.82x4.84	Hill crest
1717	Transect 12	170E 822N	Spit 1	Core		Silcrete	9	1.73	Light Grey	8.72x12.63x3.80; core fragment; conjoin with 1718	Hill crest
1723	Transect 12	170E 822N	Spit 1	Medial Flake		Silcrete	9	0.13	Light Grey	8.9x5.88x1.84	Hill crest
1722	Transect 12	170E 822N	Spit 1	Proximal flake		Silcrete	10	0.08	Light Grey	9.21x5.20x1.16	Hill crest
1721	Transect 12	170E 822N	Spit 1	Proximal flake		Silcrete	12	0.29	Light Grey	11.79x7.06x2.45	Hill crest
1719	Transect 12	170E 822N	Spit 1	Retouched flake	Bondi Point	Silcrete	20	0.43	Light Brown	9.63x6.59x3.42 (1719 - proximal); 10.31x2.90x4.2 (1720 - distal). Bondi point broken into 2	Hill crest
1733	Transect 12	170E 822N	Spit 1	Flaked piece		Silcrete	8	0.25	Light Grey	7.22x5.21x5.87	Hill crest
1735	Transect 12	180E 822N	Spit 1	Flake		Quartz	20	0.96	White	19.63x7.2x4.5	Hill crest
1697	Transect 12	190E 822N	Spit 1	Core		Silcrete	36	24.88	Light Grey	35.3x38.24x19.63; multidirectional core	Hill crest
1601	Transect 13	657E 868N	Spit 2	Core		Quartz	20	4.68	grey	19.09x19.93x11.55mm Multidirectional core	Hill spur crest
1602	Transect 13	667E 868N	Spit 1	Flaked piece		Quartz	9	0.28	White	8.09x8.69x4.02mm	Hill spur crest
1603	Transect 13	687E 868N	Spit 1	Flake		Silcrete	13	0.76	Grey	12.92x12.01x4.19mm	Hill spur crest
1604	Transect 13	687E 868N	Spit 2	Medial Flake		Silcrete	9	0.12	Brown	8.44x7.3x.95mm	Hill spur crest
1605	Transect 13	697E 868N	Spit 2	Flake		Silcrete	20	2.92	Light Brown	19.3 x 23.06 x 6.36	Hill spur crest
1606	Transect 13	707E 868N	Spit 1	Medial Flake		Silcrete	11	1.34	Light Brown	10.18x4.54x6.58	Hill spur crest
1607	Transect 13	717E 868N	Spit 1	Flaked piece		Quartz	7	0.66	White	6.27x15.01x6.78	Hill spur crest
1608	Transect 13	717E 868N	Spit 1	Flaked piece		Silcrete	5	0.06	Brown	4.33x4.46x1.26	Hill spur crest

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1609	Transect 13	717E 868N	Spit 2	Medial Flake		Quartz	7	0.14	White	6.45x5.66x1.88	Hill spur crest
1610	Transect 13	727E 868N	Spit 1	Flake		Silcrete	19	1.44	Light Brown	18.9x15.49x3.89	Hill spur crest
1611	Transect 13	757E 868N	Spit 1	Proximal flake		Quartz	14	1.31	White	13.11x17.65x5.37	Hill spur crest
1612	Transect 13	790E 584N	Spit 1	Proximal flake		Quartzite	10	0.2	Dark grey	9.64x9.17x2.44	Hill spur crest
1613	Transect 14	216E 979N	Spit 2	Core		Quartzite	16	3.3	Grey	15.2x13.7x1.1	Hill crest
1614	Transect 15	176E 999N	Spit 1	Flake		Silcrete	12	0.28	Light Brown	11.25x8.9x2.83	Hill crest
1619	Transect 15	196E 999N	Spit 1	Flaked piece		Quartz	8	0.01	White	7.5x3.86x8.08	Hill crest
1616	Transect 15	206E 999N	Spit 1	Flake		Quartz	10	0.36	White	9.99x9.93x3.82	Hill crest
1615	Transect 15	206E 999N	Spit 1	Flake		Quartz	10	0.1	White	9.95x5.58x1.85	Hill crest
1617	Transect 15	216E 999N	Spit 1	Proximal flake		Quartz	8	0.16	White	7.2x6.73x1.93	Hill crest
1618	Transect 15	226E 999N	Spit 1	Flake		Quartz	8	0.05	White	7.9x5.67x1.46	Hill crest
1620	Transect 17	790E 574N	Spit 1	Distal Flake		Silcrete	16	0.5	Pink	15.07x9.2x2.05	Hill spur crest
1621	Transect 17	790E 594N	Spit 1	Flake		Silcrete	16	1.13	Light Brown	15.66x12.73x5.58	Hill spur crest
1624	Transect 17	790E 604N	Spit 1	Flake		Quartzite	13	0.4	Pink	12.72x8.19x3.63	Hill spur crest
1623	Transect 17	790E 604N	Spit 1	Flake		Quartz	13	0.18	White	4.99x5.9x2.16	Hill spur crest
1622	Transect 17	790E 604N	Spit 1	Flake		Quartzite	11	0.23	Pink	10.86x7.22x2.34	Hill spur crest
1625	Transect 17	790E 624N	Spit 2	Flake		Quartz	20	1.06	Crystal	19.79x11.69x5.12	Hill spur crest
1469	Transect 2	745E 006N	Spit 1	Retouched flake	Pirri point	Silcrete	24	1.73	Grey	Possible pirri point 23.25x9.31x8.35mm	Undulating plain
1474	Transect 2	745E 006N	Spit 1	Flake		Silcrete	28	0.45	Grey	27.96x9.33x8.95mm	Undulating plain
1473	Transect 2	745E 006N	Spit 1	Distal Flake		Quartz	10	0.44	Grey	9.16x12.97x4.61mm	Undulating plain
1472	Transect 2	745E 006N	Spit 1	Flake		Quartz	27	1.9	White	Low grade quartz 26.9x12.05x7.4mm	Undulating plain
1470	Transect 2	745E 006N	Spit 1	Retouched flake	Bipolar flake	Silcrete	27	1.28	Red/grey	Bipolar flake 26.63x9.1x5.6mm	Undulating plain
1468	Transect 2	745E 006N	Spit 1	Core		Silcrete	20	3.1	Grey	Core frag 19.2x12.22x1.2.33mm	Undulating plain
1471	Transect 2	745E 006N	Spit 1	Flake		Quartz	6	0.9	Crystal	5.85x7.95x1.6mm	Undulating plain
1475	Transect 2	745E 016N	Spit 2	Proximal flake		Quartz	25	4.96	White	24.05x17.91x8.26mm	Undulating plain
1478	Transect 2	745E 026N	Spit 2	Core		Quartz	21	9.27	Crystal	20.19x30.58x15.08mm	Undulating plain
1479	Transect 2	745E 026N	Spit 2	Flake		Quartz	32	3.24	Crystal	31.86x17.15x4.77	Undulating plain

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1480	Transect 2	745E 026N	Spit 2	Flaked piece		Quartz	20	2.25	Crystal		Undulating plain
1481	Transect 2	745E 026N	Spit 3	Proximal flake		Quartz	7	0.11	Crystal	6.45x7.99x1 .94mm	Undulating plain
1477	Transect 2	745E 926N	Spit 1	Distal Flake		Silcrete	28	3.46	Yellow	27.34x20x4. 81mm needed	Undulating plain
1476	Transect 2	745E 926N	Spit 1	Distal Flake	Use Wear	IMT	15	1.29	Light Brown	15x20.81x3. 31mm Cortex Usewear needed	Undulating plain
1485	Transect 2	745E 946N	Spit 1	Distal Flake		IMT	14	0.95	Brown	14.0x10.79x 5.06mm	Undulating plain
1484	Transect 2	745E 946N	Spit 1	Proximal flake		Quartz	13	0.94	Crystal	12.55x12.6 3x4.32mm	Undulating plain
1483	Transect 2	745E 946N	Spit 1	Proximal flake		Quartz	25	2.46	White	24.17x19.7x 6.46mm	Undulating plain
1482	Transect 2	745E 946N	Spit 1	Flake		Quartz	7	0.06	Grey	6.71x4.49x1 .3mm	Undulating plain
1486	Transect 2	745E 966N	Spit 1	Retouched flake	Scraper	Silcrete	34	8.69	Light Brown	33.75x20.20x 9.6 Cortex needed	Undulating plain
1487	Transect 2	745E 966N	Spit 2	Flaked piece		Silcrete	5	0.07	Brown		Undulating plain
1489	Transect 2	745E 986N	Spit 1	Proximal flake		Silcrete	21	4.4	Light Grey	20.52x22.3 2x10.53	Undulating plain
1488	Transect 2	745E 986N	Spit 1	Proximal flake	Use Wear	Silcrete	18	2.44	Light Grey	17.54x24.4 8x5.98 Usewear needed	Undulating plain
1490	Transect 2	745E 996N	Spit 1	Flake		IMT	13	0.69	Dark Grey	12.07x13.0 6x3.95mm	Undulating plain
1492	Transect 2	745E 996N	Spit 1	Flaked piece		Silcrete	4	0.11	Grey	3.73x11.7x1 .52	Undulating plain
1491	Transect 2	745E 996N	Spit 1	Core fragment		Silcrete	40	7.26	Grey	39.57x14.2 9x13.57	Undulating plain
1494	Transect 2	745E 996N	Spit 2	Flake		Silcrete	11	0.77	Grey	10.47x19.3 6x3.39mm needed	Undulating plain
1495	Transect 2	745E 996N	Spit 2	Distal Flake		Silcrete	20	2.25	Grey	18.86x18.5 6x5.21mm	Undulating plain
1493	Transect 2	745E 996N	Spit 2	Flake	Use Wear	Quartzite	19	0.86	Brown	18.75x12.5 8x3.92mm Usewear needed	Undulating plain
1499	Transect 2	745E 996N	Spit 2	Flaked piece		Silcrete	8	0.12	Grey	7.96x3.82x2 .32mm	Undulating plain
1498	Transect 2	745E 996N	Spit 2	Flaked piece		Silcrete	10	0.29	Grey	10.00x11.1 3x4.34mm	Undulating plain
1497	Transect 2	745E 996N	Spit 2	Flaked piece		Quartz	15	2.42	White	14.3x18.39x 11.04mm	Undulating plain
1496	Transect 2	745E 996N	Spit 2	Distal Flake		Silcrete	13	0.28	Brown	12.62x8.5x4 .38mm	Undulating plain
1500	Transect 3	769E 072N	Spit 1	Distal Flake		IMT	17	2.29	Grey	16.93x15.8 1x5.96	Undulating plain
1509	Transect 4	288E 042N	Spit 1	Proximal flake		Quartz	8	0.7	White	8x12.72x2.2 mm	Hill spur crest

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1503	Transect 4	298E 042N	Spit 1	Proximal flake		Silcrete	17	0.52	Grey	16.6x10.22x 3.10mm	Hill spur crest
1506	Transect 4	318E 042N	Spit 1	Medial Flake		Silcrete	6	0.24	Grey	6.00x14.94x 2.63mm	Hill spur crest
1505	Transect 4	318E 042N	Spit 1	Proximal flake		Silcrete	18	1.44	Grey	17.32x19.3 8x2.53	Hill spur crest
1504	Transect 4	318E 042N	Spit 2	Proximal flake		Silcrete	18	1.1	Grey	18x15.24x2. 76mm	Hill spur crest
1502	Transect 4	358E 042N	Spit 1	Distal Flake		Quartz	10	0.52	White	9.75x5.45x3 .67	Hill spur crest
1501	Transect 4	358E 042N	Spit 1	Flaked piece		Chert	20	1.46	Red	20.00x11.x4 .76mm	Hill spur crest
1508	Transect 4	358E 042N	Spit 2	Flake		Silcrete	22	0.39	Light Grey	21.74x8.6x4 .05mm	Hill spur crest
1507	Transect 4	358E 042N	Spit 2	Proximal flake		Silcrete	12	0.24	Light Grey	11.34x12.3 7x2.7mm	Hill spur crest
1513	Transect 5	004E 647N	Spit 1	Flaked piece		Quartz	7	0.25	White	6.17x9.76x3 .88mm	Foot slope
1512	Transect 5	004E 647N	Spit 1	Flaked piece		Quartz	6	0.24	White	5.52x11.34x 4.25mm	Foot slope
1510	Transect 5	004E 647N	Spit 1	Flake		IMT	18	1.22	Red	18x13.86x4. 01mm	Foot slope
1511	Transect 5	004E 647N	Spit 1	Proximal flake		Silcrete	10	0.39	Grey	9.31x10.49x 2.90mm	Foot slope
1516	Transect 5	004E 657N	Spit 1	Proximal flake		Quartz	13	0.72	Grey	12.53x6.58x 3.27	Foot slope
1514	Transect 5	004E 667N	Spit 1	Core		Quartz	13	2.46	White	12.27x14.5x 12.12mm	Foot slope
1515	Transect 5	004E 667N	Spit 1	Distal Flake		Quartz	5	0.16	White	4.96x7.93x3 .27mm	Foot slope
1517	Transect 5	004E 687N	Spit 3	Longitudi nal split		Silcrete	21	2.51	Grey	21.02x14.6 6x6.83mm	Foot slope
1519	Transect 6	071E 761N	Spit 2	Flaked piece		Quartz	10	0.07	White	10x3.12x1.7	Foot slope
1518	Transect 6	071E 761N	Spit 2	Longitudi nal split		IMT	18	0.82	Grey	18x8.91x4.3 6	Foot slope
1524	Transect 6	071E 761N	Spit 3	Flake		Quartzite	19	1.21	Crystal	18.77x13.0 5x4.26mm	Foot slope
1672	Transect 6	071E 761N	Spit 3	Distal Flake		Quartz	11	0.52	White	10.57x14.1 1x4.29	Foot slope
1671	Transect 6	071E 761N	Spit 3	Flake		Quartz	13	0.38	White	13.08x12.0 7x5	Foot slope
1670	Transect 6	071E 761N	Spit 3	Flake		Quartzite	20	1.2	Grey	19.86x14.4 4x14.17	Foot slope
1523	Transect 6	071E 761N	Spit 3	Flaked piece		Quartz	10	0.36	White	10x9.01x4.3 2mm needed	Foot slope
1669	Transect 6	071E 761N	Spit 3	Core		Quartz	29	17.98	White	28.77x25.2 5x17.78	Foot slope
1522	Transect 6	071E 761N	Spit 3	Flaked piece		Quartz	13	0.35	White	13x6.06x5.4 mm needed	Foot slope
1521	Transect 6	071E 761N	Spit 3	Distal Flake		Quartz	10	0.54	White	10x13.17x3. 74mm needed	Foot slope

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1520	Transect 6	071E 761N	Spit 3	Core		Quartz	30	17.97	White	29.00x25.8x 12.97 Multidirectional core Poor raw material quality needed	Foot slope
1525	Transect 6	071E 761N	Spit 4	Distal Flake		Quartz	9	0.1	White	8.64x6.65x2 .01mm	Foot slope
1673	Transect 6	071E 761N	Spit 4	Distal Flake		Quartz	8	0.11	White	7.36x6.68x2 .09	Foot slope
1528	Transect 6	071E 771N	Spit 1	Proximal flake		Silcrete	11	0.43	Grey	10.73x11.5 7x2.08mm	Foot slope
1527	Transect 6	071E 771N	Spit 1	Longitudi nal split		Quartzite	11	0.22	Grey	10.66x4.93x 2.52mm	Foot slope
1526	Transect 6	071E 771N	Spit 1	Flake		Quartz	14	0.21	White	13.8x5.4x2. 4mm	Foot slope
1531	Transect 6	071E 771N	Spit 1	Medial Flake		Silcrete	7	0.14	Grey	6.94x7.12x1 .72mm	Foot slope
1529	Transect 6	071E 771N	Spit 1	Proximal flake		Chert	12	0.46	Dark grey	11.67x9.51x 3.51mm	Foot slope
1530	Transect 6	071E 771N	Spit 1	Medial Flake		Silcrete	11	0.32	Red	10.71x7.85x 3.38mm	Foot slope
1535	Transect 6	071E 771N	Spit 1	Flaked piece		Silcrete	8	0.34	Grey	7.53x8.86x3 .7mm	Foot slope
1534	Transect 6	071E 771N	Spit 1	Flaked piece		Quartz	7	0.27	White	6.83x9.92x3 .58mm	Foot slope
1533	Transect 6	071E 771N	Spit 1	Distal Flake		Quartz	8	0.61	White	8.10x14.96x 5.09mm	Foot slope
1532	Transect 6	071E 771N	Spit 1	Distal Flake		Quartzite	11	0.53	Light Brown	10.24x12.5 5x4.35mm	Foot slope
1538	Transect 6	071E 791N	Spit 1	Distal Flake		Quartz	9	0.81	White	8.9x17x3.4 mm	Foot slope
1537	Transect 6	071E 791N	Spit 1	Distal Flake		Silcrete	12	0.45	Grey	11.55x14.5 1x4.04mm	Foot slope
1536	Transect 6	071E 791N	Spit 1	Flake		Silcrete	22	0.71	Grey	21.78x8.97x 3.94mm	Foot slope
1540	Transect 6	071E 801N	Spit 1	Distal Flake		Quartzite	6	0.81	Grey	5.5x9.48x4. 63mm	Foot slope
1541	Transect 6	071E 801N	Spit 1	Distal Flake		Silcrete	17	0.45	Grey	16.32x8.02x 4.1mm	Foot slope
1539	Transect 6	071E 801N	Spit 1	Medial Flake		Quartz	8	0.51	White	7.95x14.18x 3.24mm	Foot slope
1544	Transect 6	071E 811N	Spit 1	Medial Flake		Silcrete	6	0.05	Light Grey	5.62x756x1. 01mm	Foot slope
1543	Transect 6	071E 811N	Spit 1	Medial Flake		Quartz	9	0.74	White	8.82x10.83x 6.85mm	Foot slope
1542	Transect 6	071E 811N	Spit 1	Distal Flake		Quartz	9	1.09	White	8.94x15.16 5.94mm	Foot slope
1549	Transect 6	071E 811N	Spit 2	Medial Flake		IMT	7	0.15	Red	6.57x7.8x3. 11mm	Foot slope
1548	Transect 6	071E 811N	Spit 2	Distal Flake		Quartz	10	0.34	White	9.1x14.26x2 .37mm	Foot slope
1547	Transect 6	071E 811N	Spit 2	Flake		Silcrete	13	0.75	Grey	12.8x14.26x 4.34mm	Foot slope
1546	Transect 6	071E 811N	Spit 2	Flake		Silcrete	9	0.2	Brown	8.6x11.25x2 .12mm	Foot slope



ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1545	Transect 6	071E 811N	Spit 2	Flake		Silcrete	10	0.36	Pink	9.76x10.31x 3.73mm	Foot slope
1551	Transect 6	071E 811N	Spit 3	Medial Flake		IMT	8	0.36	Grey	7.35x10.61x 3.17mm	Foot slope
1550	Transect 6	071E 811N	Spit 3	Longitudi nal split		Quartz	15	0.53	Crystal	14.61x9.11x 3.38mm	Foot slope
1556	Transect 6	071E 821N	Spit 1	Flake		Silcrete	19	0.66	Grey	18.82x10.5 1x4.02mm needed	Foot slope
1563	Transect 6	071E 821N	Spit 1	Flaked piece		Quartz	6	0.05	White	6.64x4.49x1 .78mm	Foot slope
1562	Transect 6	071E 821N	Spit 1	Proximal flake		Silcrete	10	0.15	Grey	9.36x6.26x2 .44mm needed.	Foot slope
1561	Transect 6	071E 821N	Spit 1	Longitudi nal split		Silcrete	9	0.32	Grey	9.00x10.39x 2.86mm needed	Foot slope
1560	Transect 6	071E 821N	Spit 1	Medial Flake		Silcrete	13	1.2	Grey	12.94x13.9 8x8.24mm needed	Foot slope
1559	Transect 6	071E 821N	Spit 1	Flake		Silcrete	10	0.86	Grey	10x16.33x3. 36mm needed	Foot slope
1557	Transect 6	071E 821N	Spit 1	Flake		Silcrete	13	0.3	Grey	12.52x8.57x 2.81mm needed	Foot slope
1555	Transect 6	071E 821N	Spit 1	Retouched flake	Retouched (unspecified)	Silcrete	21	1.41	Grey	20.32x15.53x 5.45mm Some retouch long right lateral margin. needed	Foot slope
1554	Transect 6	071E 821N	Spit 1	Core		Silcrete	16	4.07	Grey	15.97x13.0 2x14.12mm	Foot slope
1553	Transect 6	071E 821N	Spit 1	Core		Silcrete	25	5.25	Brown	24.98x18.6 7x7.85mm Unidirection al core needed	Foot slope
1552	Transect 6	071E 821N	Spit 1	Core		Silcrete	25	14.24	Grey	24.25x25.1 8x16.66mm Multidirection al core needed, 071E821N Sp1 good representat ive of silcretes.	Foot slope
1558	Transect 6	071E 821N	Spit 1	Flake		Silcrete	10	0.08	Grey	9.85x2.6x1. 98mm needed	Foot slope
1566	Transect 6	071E 821N	Spit 2	Distal Flake		Quartz	7	0.14	White	6.88x10.29x 4.07mm	Foot slope

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1564	Transect 6	071E 821N	Spit 2	Proximal flake		IMT	8	0.16	Grey	7.85x5.91x2.67mm	Foot slope
1565	Transect 6	071E 821N	Spit 2	Proximal flake		IMT	8	0.14	Grey	7.85x5.91x2.67mm	Foot slope
1567	Transect 6	071E 831N	Spit 1	Flake		Silcrete	25	5.41	Light Brown	24.75x25.93x11.35mm	Foot slope
1570	Transect 6	071E 841N	Spit 1	Flaked piece		Petrified wood	18	1.84	Black	17.19x14.36x6.76mm This has been termed a flaked piece as very weather worn, no distinguishing characteristics could be determined.	Foot slope
1569	Transect 6	071E 841N	Spit 1	Medial Flake		Silcrete	16	0.35	Pink	15.24x9.13x1.63mm	Foot slope
1568	Transect 6	071E 841N	Spit 1	Medial Flake		Quartz	12	1.09	Pink	1.55x14.61x4.46mm	Foot slope
1571	Transect 6	071E 841N	Spit 2	Retouched flake	Scraper	Silcrete	17	0.93	Grey	16.86x11.98x5.03mm Thumbnail scraper needed	Foot slope
1573	Transect 6	071E 851N	Spit 1	Flaked piece		Silcrete	15	1.95	Grey	14.20x10.61x8.98mm	Foot slope
1577	Transect 6	071E 851N	Spit 1	Flaked piece		Quartz	10	0.44	White	9.68x8.59x2.89mm	Foot slope
1576	Transect 6	071E 851N	Spit 1	Flake		Quartz	11	0.22	Crystal	10.41x9.09x2.47mm	Foot slope
1574	Transect 6	071E 851N	Spit 1	Flaked piece		Silcrete	15	1.86	Grey	14.56x11.65x12.4mm	Foot slope
1572	Transect 6	071E 851N	Spit 1	Core		Petrified wood	18	2.84	Dark red	17.74x15.28x7.17mm needed	Foot slope
1575	Transect 6	071E 851N	Spit 1	Flake		Silcrete	16	0.33	Grey	15.97x6.23x2.79mm Preform needed	Foot slope
1578	Transect 6	071E 851N	Spit 2	Longitudinal split		IMT	16	0.33	Dark grey	16x3.34x3.85mm	Foot slope
1715	Transect 6	071E 861N	Spit 1	Flake		Volcanic	15	0.39	Dark grey	14.25x10.24x2.8; (igneous)	Foot slope
1714	Transect 6	071E 861N	Spit 1	Proximal flake		Quartz	11	0.33	White	10.78x9.49x2.67	Foot slope
1713	Transect 6	071E 861N	Spit 1	Distal Flake		Quartz	5	0.06	White	4.11x8.51x1.12	Foot slope
1712	Transect 6	071E 861N	Spit 1	Distal Flake		Silcrete	12	1.18	Red	11.52x18.82x7.8	Foot slope

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1711	Transect 6	071E 861N	Spit 1	Medial Flake		IMT	7	0.26	White	6.38x8.7x2.9	Foot slope
1710	Transect 6	071E 861N	Spit 1	Proximal flake		IMT	11	1.08	Light Grey	10.89x10.24x6.42	Foot slope
1737	Transect 6	071E 861N	Spit 3	Flake		Quartz	11	0.18	White	10.7x7.14x2.11	Foot slope
1738	Transect 6	071E 861N	Spit 3	Flake		Quartz	15	0.51	Grey	14.88x6.6x5.32	Foot slope
1736	Transect 6	071E 861N	Spit 3	Flake		Silcrete	13	0.23	Red	13.04x6.18x3.02; preform	Foot slope
1680	Transect 6	071E 871N	Spit 1	Flaked piece		Quartzite	12	0.13	Brown		Foot slope
1678	Transect 6	071E 871N	Spit 1	Distal Flake		Quartz	9	0.28	White	8.83x8.1x2.37	Foot slope
1677	Transect 6	071E 871N	Spit 1	Proximal flake		Silcrete	10	4.5	Red	9.83x9.77x4.01	Foot slope
1676	Transect 6	071E 871N	Spit 1	Proximal flake		Chert	13	0.41	Red	12.16x12.58x2.6	Foot slope
1675	Transect 6	071E 871N	Spit 1	Longitudi nal split		Quartz	12	0.52	White	11.19x8.01x3.93	Foot slope
1674	Transect 6	071E 871N	Spit 1	Flake		Silcrete	18	0.87	Pink	17.65x7.63x3.02; bipolar	Foot slope
1681	Transect 6	071E 871N	Spit 1	Flaked piece		Quartz	8	0.22	White		Foot slope
1679	Transect 6	071E 871N	Spit 1	Flaked piece		Silcrete	7	0.08	Light Brown		Foot slope
1682	Transect 6	071E 871N	Spit 2	Flake		Silcrete	12	0.09	Light Brown	11.76x6.94x1.45	Foot slope
1683	Transect 6	071E 871N	Spit 3	Longitudi nal split		Quartzite	16	1.09	Pink	15.41x13.91x4.12	Foot slope
1655	Transect 6	071E 881N	Spit 1	Proximal flake		IMT	10	0.11	Grey	9.46x5.46x1.23	Foot slope
1654	Transect 6	071E 881N	Spit 1	Proximal flake		Silcrete	9	0.24	Red	8.15x9.51x2.8	Foot slope
1653	Transect 6	071E 881N	Spit 1	Proximal flake		Silcrete	13	0.51	Light Grey	12.54x15.04x2.61	Foot slope
1658	Transect 6	071E 881N	Spit 1	Distal Flake		Silcrete	22	1.33	dark grey	21.26x9.94x8.01	Foot slope
1656	Transect 6	071E 881N	Spit 1	Distal Flake		Silcrete	14	0.12	Red	13.39x5.11x1.36	Foot slope
1657	Transect 6	071E 881N	Spit 1	Proximal flake		Volcanic	9	0.18	Dark grey	8.86x9.93x1.74; (igneous)	Foot slope
1665	Transect 6	071E 891N	Spit 1	Distal Flake		Silcrete	10	0.29	Red	9.23x8.75x2.83	Foot slope
1668	Transect 6	071E 891N	Spit 1	Distal Flake		Quartz	11	0.21	Crystal	11x7.69x2.85	Foot slope
1666	Transect 6	071E 891N	Spit 1	Distal Flake		Quartz	8	0.57	White	7.11x17.47x5.42	Foot slope
1664	Transect 6	071E 891N	Spit 1	Medial Flake		Silcrete	12	0.47	Red	11.88x15.04x2.77	Foot slope
1663	Transect 6	071E 891N	Spit 1	Medial Flake		Silcrete	13	0.85	Grey	12.12x10.04x3.84	Foot slope
1662	Transect 6	071E 891N	Spit 1	Flake		Silcrete	20	0.54	Grey	20x11.5x2.56	Foot slope
1667	Transect 6	071E 891N	Spit 1	Distal Flake		Silcrete	7	0.14	Light Grey	7.06x10.91x1.33	Foot slope

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1659	Transect 6	071E 891N	Spit 1	Retouched flake	Scraper	Chert	49	4.13	Dark grey	19.32x14.02x4.31 (1659); 17.56x12.28x5.15 (1660); 10.48x8.46x2.80 (1661); Scraper broken into 3 pieces. required	Foot slope
1633	Transect 6	071E 901N	Spit 1	Flaked piece		Quartz	8	0.09	White	7.82x6.05x1.6	Foot slope
1632	Transect 6	071E 901N	Spit 1	Flaked piece		Quartz	11	0.42	White	10.46x8.81x2.02	Foot slope
1631	Transect 6	071E 901N	Spit 1	Distal Flake		Silcrete	17	1.36	Grey	16.49x9.83x5.17	Foot slope
1630	Transect 6	071E 901N	Spit 1	Distal Flake		Quartz	7	0.15	White	6.52x8.10x1.85	Foot slope
1629	Transect 6	071E 901N	Spit 1	Proximal flake		Quartz	9	0.32	White	8.2x10.87x2.96	Foot slope
1628	Transect 6	071E 901N	Spit 1	Medial Flake		Quartz	14	2.71	White	13.37x21.92x5.98	Foot slope
1627	Transect 6	071E 901N	Spit 1	Proximal flake		Silcrete	19	1.07	Red	18.08x13.26x3.46	Foot slope
1626	Transect 6	071E 901N	Spit 1	Flake	Backed	Silcrete	27	1.99	Red	26.21x12.9x5.5	Foot slope
1640	Transect 6	071E 911N	Spit 1	Flake		Quartz	11	0.48	White	11x11.94x3.19	Foot slope
1639	Transect 6	071E 911N	Spit 1	Core		Quartz	20	11.65	White	19.27x24.07x19.81	Foot slope
1643	Transect 6	071E 911N	Spit 1	Flake		Silcrete	11	0.31	Light Grey	10.92x10.2x10.17	Foot slope
1651	Transect 6	071E 911N	Spit 1	Longitudinal split		Quartz	7	0.07	White	6.96x5.06x1.74	Foot slope
1641	Transect 6	071E 911N	Spit 1	Flake		Silcrete	19	0.57	Light Grey	18.21x6.62x5.47	Foot slope
1652	Transect 6	071E 911N	Spit 1	Flake		Quartz	10	0.17	White	9.39x7.77x1.93	Foot slope
1642	Transect 6	071E 911N	Spit 1	Flake		Silcrete	11	0.2	Red	10.3x7.28x1.87	Foot slope
1650	Transect 6	071E 911N	Spit 1	Flake		Quartz	14	0.45	Grey	13.19x6.37x2.53; required	Foot slope
1649	Transect 6	071E 911N	Spit 1	Flake		Quartz	22	7.16	Pink	21.8x26.82x9.00	Foot slope
1648	Transect 6	071E 911N	Spit 1	Flake		Quartzite	25	6.22	Grey	24.49x2.96x8.54	Foot slope
1647	Transect 6	071E 911N	Spit 1	Proximal flake		Silcrete	10	0.42	Red	9.04x10.04x2.65	Foot slope
1644	Transect 6	071E 911N	Spit 1	Flaked piece		Quartz	9	0.51	White	8.45x6.08x7.18	Foot slope
1646	Transect 6	071E 911N	Spit 2	Distal Flake		Silcrete	14	0.35	Black	13.77x10.31x2.45	Foot slope
1645	Transect 6	071E 911N	Spit 2	Core		Silcrete	21	6.38	Red	2.3X2.79X12.31; cortex present	Foot slope
1638	Transect 6	071E 921N	Spit 1	Longitudinal split		Quartz	13	0.25	White	12.44x5x2.96	Foot slope
1637	Transect 6	071E 921N	Spit 1	Flaked piece		Quartzite	14	0.89	Grey	13.38x8.57x6.31	Foot slope
1636	Transect 6	071E 921N	Spit 1	Flake		Quartz	16	1	White	15.53x11.95x6.17	Foot slope
1635	Transect 6	071E 921N	Spit 2	Flaked piece		IMT	11	0.63	Grey		Foot slope
1634	Transect 6	071E 921N	Spit 2	Flake		Silcrete	16	0.52	Light Grey	15.33x14.85x2.43	Foot slope

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1744	Transect 7	198E 957N	Spit 2	Flake	Use Wear	Silcrete	14	0.44	Red		Foot slope
1743	Transect 7	208E 957N (NW)	Spit 1	Proximal flake		Quartz	13	0.91	Crystal		Foot slope
1742	Transect 7	208E 957N (NW)	Spit 1	Proximal flake		Silcrete	14	0.4	Red		Foot slope
1741	Transect 7	208E 957N (NW)	Spit 1	Distal Flake		Silcrete	18	2.63	Red		Foot slope
1739	Transect 7	208E 957N (SE)	Spit 1	Distal Flake		Silcrete	7	0.2	Light Grey		Foot slope
1746	Transect 7	208E 957N (SW)	Spit 1	Retouched flake	Bondi Point	Quartz	15	0.21	pink	14.33x7.3x1. 6mm needed	Foot slope
1745	Transect 7	208E 957N (SW)	Spit 2	Flaked piece		Quartz	7	0.21	White		Foot slope
1740	Transect 7	278E 957N	Spit 1	Flaked piece		Quartzite	12	0.48	Light Grey		Foot slope
1585	Transect 8	021E 003N	Spit 1	Distal Flake		Quartz	9	0.8	White	8.89x15.86x 5.3mm	Hill crest
1586	Transect 8	021E 003N	Spit 1	Longitudi nal split		Chert	13	0.5	grey	12.84x7.94x 1.78mm	Hill crest
1587	Transect 8	021E 003N	Spit 2	Flaked piece		Silcrete	10	0.1	Red	9.96x8.57x1 .16mm	Hill crest
1582	Transect 8	031E 003N	Spit 1	Proximal flake		Quartz	5	0.15	White	4.38x10.99x 3.26mm	Hill crest
1581	Transect 8	031E 003N	Spit 1	Proximal flake		Quartz	14	0.64	White	13.77x11.0 1xx4.63mm	Hill crest
1580	Transect 8	031E 003N	Spit 1	Flake		Quartz	22	3.71	White	21.09x19.2 2x5.94mm	Hill crest
1579	Transect 8	031E 003N	Spit 1	Flake		Other	58	46.83	Grey	58x52.7x12. 53mm Igneous - granite	Hill crest
1588	Transect 8	031E 003N	Spit 1	Flake		Silcrete	15	0.69	Red	14.95x9.12x 5.98	Hill crest
1583	Transect 8	031E 003N	Spit 1	Distal Flake		Quartz	8	0.55	Crystal	7.46x12.96 x4.89mm	Hill crest
1584	Transect 8	031E 003N	Spit 1	Proximal flake		Petrified wood	11	0.52	Red	10.96x9.16x 2.37mm	Hill crest
1589	Transect 8	031E 003N	Spit 2	Medial Flake		Quartz	8	0.23	White	7.8x6.65x2. 89mm	Hill crest
1591	Transect 8	041E 003N	Spit 2	Flaked piece		Quartz	10	0.12	White	9.94x5.54x2 .59mm	Hill crest
1590	Transect 8	041E 003N	Spit 2	Distal Flake		Silcrete	6	0.13	Light Brown	5.2x6.95x3. 28	Hill crest
1593	Transect 8	061E 003N	Spit 1	Proximal flake		Quartz	13	0.19	White	12.27x7.3x2 .09mm	Hill crest
1592	Transect 8	061E 003N	Spit 1	Flake	Use Wear	Quartz	10	0.57	White	9.94x2.54x2 .59mm Usewear	Hill crest
1689	Transect 9	037E 719N	Spit 1	Medial Flake		IMT	23	4.56	Brown	22.8x21.5x1 1.8	Hill crest
1696	Transect 9	037E 719N	Spit 1	Longitudi nal split		Silcrete	15	0.87	Light Grey	14.33x7.93x 5.79	Hill crest
1695	Transect 9	037E 719N	Spit 1	Longitudi nal split		Silcrete	17	1.11	Light Grey	16.07x10.7 2x5.05;	Hill crest
1694	Transect 9	037E 719N	Spit 1	core		Silcrete	19	1.53	Light Grey	18.38x10.1 9x10.39;	Hill crest

ARTEFACT ID	Transect	Square	Level	Type	Implement	Raw material	Length (mm)	Weight (g)	Colour	Comment	Landform
1693	Transect 9	037E 719N	Spit 1	Flaked piece		IMT	7	0.11	Light Grey	7x4.3x4.44; ; presence of patina; interior is brown	Hill crest
1692	Transect 9	037E 719N	Spit 1	Flaked piece		IMT	18	1.96	Light Grey	18x14.34x4. 24;	Hill crest
1690	Transect 9	037E 719N	Spit 1	Medial Flake		IMT	12	2.95	Light Grey	11.7x21.49x 11.6;	Hill crest
1688	Transect 9	037E 719N	Spit 1	Proximal flake		IMT	10	0.22	Light Grey	9.8x7.7x3.2;	Hill crest
1687	Transect 9	037E 719N	Spit 1	Proximal flake		IMT	18	1.84	Light Grey	17.04x16x8. 29;	Hill crest
1686	Transect 9	037E 719N	Spit 1	Proximal flake		IMT	19	2.14	Light Grey	18.54x16.4 2x6.9; phot required	Hill crest
1685	Transect 9	037E 719N	Spit 1	Flake		IMT	13	0.64	Light Grey	12.25x17.0 9x4.01;	Hill crest
1684	Transect 9	037E 719N	Spit 1	Core		IMT	23	5.97	Light Grey	22.75x13.9x 18.6; multidirecti onal core;	Hill crest
1691	Transect 9	037E 719N	Spit 1	Distal Flake		IMT	13	0.61	Light Grey	12.6x11.23x 3.63	Hill crest



## Appendix F

### Site significance details

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Site scientific significance summary								
Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_001	Moderate: The site is of a common type with a high frequency of artefacts. Its connectedness to rockshelter with art, deposit and PAD HC_002 may provide information linking the site types in the landscape	Moderate: The site comprises common material and artefact types, but is a site with above average artefact frequencies	Low: The site is moderately disturbed from clearing and moderately eroded as soils are sandy on weathering sandstone	Moderate: the site does not contribute to issues of chronology by may give information about tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is a common open stone artefact scatter on a typical landform in a moderately disturbed context. However, proximity to significant rock shelters may provide information on connectedness	Moderate: common type; PAD; moderately disturbed	Moderate
HC_002	High: The site has high complexity including, different art forms, artefact deposit and PAD. However, shelter floor is on a narrow ledge which may reduce PAD depth and potential utilised area.	High: Site is a rare type as it contains art, deposit and PAD. Is only example of these three features in the project area	High: No obvious animal burrowing, minor roof fall at either end of shelter. Stable condition	High: PAD could contribute to issues of chronology. Art styles could be compared locally and regionally	High: Easily accessible, good example of art, rockshelter, and stone artefacts	High: The site is a rare example of multiple Aboriginal site features with research potential	High: rare and complex site type; moderate PAD area; minor disturbance; moderate amenity	High
HC_003	Low: PAD present but portion of site is covered by hill slope aggradation. Small PAD area	Low: Common type locally with limited floor area and PAD	Moderate: Minor roof collapse, no obvious burrowing	Moderate: PAD could contribute to issues of chronology	Low: Small shelter with sediment accumulation encroaching floor space	Low: Aboriginal occupation not confirmed, small habitable floor area	Low: common type; small PAD area; low amenity	Low
HC_004	High: The site has confirmed deposit indicative of subsurface content; moderate level area of PAD	High: Rare site type as it is one of the few shelters with confirmed deposit	High: No obvious animal burrowing, minor roof fall at either end of shelter. Stable condition	High: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; however surface artefact is difficult to define and access is remote	High: Rare site type with deposit, PAD and moderate floor area	High: rare type; moderate PAD area; high amenity; higher integrity	High
HC_005	Moderate: The site has confirmed deposit but floor area and roof height is low indicating limited amenity for frequent occupation. However, proximity to HC_004 and HC_006 indicates connectedness for comparisons to be made with these sites.	High: One of the smaller rock shelters with confirmed deposit and PAD. Otherwise, shelter itself is common	Moderate: infrequent roof collapse, no obvious animal burrowing	Moderate: PAD is likely to contribute to issues of chronology but is limited by small shelter size	Low: Site is remote and difficult to access; small shelter with narrow opening	Moderate: Rare site type with deposit, small floor and PAD area	Moderate: rare type; small PAD area; low amenity	Moderate
HC_006	Moderate: Small PAD area but high amenity; PAD is likely to be relatively intact and deep	Moderate: Good example of a smaller shelter in shape with high amenity and PAD	High: No obvious animal burrowing, no roof fall present	Moderate: PAD is likely to contribute to issues of chronology but is limited by small shelter size	Moderate: Good example of a smaller shelter and ideal shape	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; high amenity	Moderate
HC_007	Moderate: Small PAD and floor area but high amenity; PAD is likely to be relatively intact and deep	Moderate: Good example of a smaller shelter in shape with high amenity and PAD	Moderate: No obvious animal burrowing, no roof fall present	Moderate: PAD is likely to contribute to issues of chronology but is limited by small shelter size	Moderate: Good example of a smaller shelter and ideal shape	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; high amenity	Moderate
HC_008	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and vehicle track	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_009	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and vehicle track	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_010	Low: Narrow shelter with moderate wombat burrowing which is likely to have disturbed much of the PAD present	Moderate: Rare site type as it is one of the few shelters with confirmed deposit but is moderately disturbed	Low: Wombat burrows identified along shelter floor at wall, only small PAD area remains	Low: PAD is unlikely to contribute well to issues of chronology as is largely disturbed	Low: Not a good example of shelter shape, artefact attributes are not easy to define	Moderate: Rare site type but is small floor and PAD area, and low amenity	Moderate: rare type; small PAD area; low amenity	Moderate
HC_011	Moderate: Moderate shelter floor and PAD area for research, but some disturbance	Moderate: Rare site type as it is one of the few shelters with confirmed deposit but is moderately disturbed	Moderate: Wombat burrow present on shelter floor but large portion likely to be intact	Moderate: PAD is likely to contribute to issues of chronology but is limited by small shelter size	Low: Not a good example of shelter shape	Moderate: Rare site type but is small floor and PAD area, and low amenity	Moderate: rare type; small PAD area; moderate amenity	Moderate
HC_012	Low: Very slight overhang will small PAD area obscured by rock fall.	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type; small PAD area; Low amenity	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_013	Moderate: Small PAD and floor area but high amenity; PAD is likely to be relatively intact and deep	Moderate: Good example of a smaller shelter in shape with high amenity and PAD	Moderate: No obvious animal burrowing, minor laminating floor fall present	Moderate: PAD is likely to contribute to issues of chronology but is limited by small shelter size	Moderate: Good example of a smaller shelter and ideal shape	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; high amenity	Moderate
HC_014	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to trauma damage or branch tear. Further investigation may change significance rating	Low: probable branch tear	Low
HC_015	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and vehicle track	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_016	Moderate: The site has confirmed deposit indicative of subsurface content; small level area for PAD, but sandstone base visible in patches indicates limited PAD depth	High: Rare site type as it is one of the few shelters with confirmed deposit	High: Minor and infrequent animal burrows, minor roof collapse at rear of shelter	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Rare site type with deposit, small floor and PAD	Moderate: rare type; small PAD area; high amenity	Moderate
HC_017	High: The site has confirmed deposit indicative of subsurface content; very large level area of PAD	High: Rare site type as it is one of the few shelters with confirmed deposit	High: Minor and infrequent animal burrows, minor roof collapse at rear of shelter	High: PAD is likely to contribute to issues of chronology; large area for multiple simultaneous occupants	High: Site is a good example of a rockshelter, ideal shape; large size; and with good assortment of artefacts; easy to access	High: Rare site type with deposit; very large floor and PAD area,	High: rare type; very large PAD area; high amenity	High
HC_018	Moderate: Small level area of PAD, but sandstone base visible in patches indicates limited PAD depth	Moderate: Good example of a smaller shelter in shape with high amenity and PAD	High: No obvious animal burrowing, minor roof fall at either end of shelter. Stable condition	Moderate: PAD is likely to contribute to issues of chronology; but limited by PAD area	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; high amenity	Moderate
HC_019	Low: Stream channel courses through shelter floor; soil deposit identified but likely to be continuously eroded by stream	Moderate: Good example of a smaller shelter in shape with high amenity and PAD	Low: PAD is likely eroded from stream channel flow	Low: PAD is problematic and may have been eroded by stream channel	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Low: Although likely to have been occupied, PAD is problematic and likely to have been eroded	Low: common type; shelter floor in stream channel; problematic PAD; high amenity	Low
HC_020	Low: Very slight overhang with small PAD area obscured by rock fall.	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type; small PAD area; Low amenity	Low
HC_021	Low: Very slight overhang with small PAD area obscured by rock fall.	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type; small PAD area; Low amenity; moderate rock fall	Low
HC_022	High: The site has confirmed deposit indicative of subsurface content; very large level area of PAD	High: Rare site type as it is one of the few shelters with confirmed deposit	Moderate: Minor and infrequent animal burrows, minor roof collapse at rear of shelter; evidence of recent camping is likely to be superficial	High: PAD is likely to contribute to issues of chronology; large area for multiple simultaneous occupants	High: Site is a good example of a rockshelter, ideal shape; large size; and with good assortment of artefacts; easy to access	High: Rare site type with deposit; very large floor and PAD area,	High: rare type; very large PAD area; high amenity	High
HC_023	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type; small PAD area; Low amenity	Low
HC_024	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type; small PAD area; Low amenity	Low
HC_025	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type; small PAD area; Low amenity	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_026	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_027	Low: Very slight overhang will small PAD area obscured by rock fall.	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_028	Low: Shelter floor area is approximately 1 m high making the PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very low roof height	Low: common type: small PAD area; Low amenity	Low
HC_029	Low: Site is on a ledge and difficult to access, minor accumulation of soil on sandstone enclave	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very difficult to access	Low: common type: small PAD area; Low amenity	Low
HC_030	Moderate: Most of the shelter floor area is sandstone with PAD present closer to drip line	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; moderate amenity	Low
HC_031	Low: Very slight overhang with small PAD area obscured by rock fall.	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity; major rock fall	Low
HC_032	Moderate: The site has confirmed deposit indicative of subsurface content; small level area for PAD, but sandstone base visible in patches indicates limited PAD depth	High: Rare site type as it is one of the few shelters with confirmed deposit	High: Minor and infrequent animal burrows, minor roof collapse at rear of shelter	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Rare site type with deposit, moderate floor area but limited PAD	Moderate: rare type: small PAD area; high amenity	Moderate
HC_033	Moderate: Moderate shelter floor and PAD area for research, but some disturbance	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	High: Minor and infrequent animal burrows, minor roof collapse at drip line	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type: moderate PAD area; high amenity	Moderate
HC_034	Moderate: Grinding groove site in a sandstone stream bed. Ground coverage may be obscuring more grooves.	High: Grinding grooves site are rare in the project area and this is one of the most extensive local examples.	High: Grooves are easily distinguishable and sandstone bedrock is intact.	Low: The site does not contribute to issues of chronology or tool manufacture.	High: Good example of grinding groove site in stream bed, good for demonstrating the procurement of grinding groove sites	High: Good example of extensive grinding groove site	High: rare site type; numerous grooves; on sandstone expanse	High
HC_035	Low: Very small portion (less than 10%) of floor is PAD which is sloping away from shelter, limited potential for excavation	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Modern graffiti affects aesthetic	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; Low amenity	Low
HC_036	Low: Very small portion (less than 10%) of floor is PAD which is sloping away from shelter, limited potential for excavation	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Modern graffiti affects aesthetic	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; Low amenity	Low
HC_037	High: The site has high complexity including art and moderate area of PAD	High: Site is a rare type as it contains art, and PAD.	High: Minor animal burrowing at rear of shelter, minor roof fall at either end of shelter. Stable condition	High: PAD could contribute to issues of chronology. Art styles could be compared locally and regionally	Moderate: Easily accessible, unclear remnants of art, and some graffiti which may reduce aesthetic appeal	High: The site is a rare example of multiple Aboriginal site features with research potential	High: rare and complex site type; moderate PAD area; minor disturbance; moderate amenity	High
HC_038	Moderate: Small shelter floor and PAD area for research, but some disturbance	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	High: Minor and infrequent animal burrows, moderate roof collapse at rear of shelter	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Low: common type: small PAD area; moderate amenity	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_039	Low: Small shelter floor and PAD area for research, moderate disturbance to deposit	Moderate: Rare site type as it is one of the few shelters with confirmed deposit but is moderately disturbed	Low: Large animal burrow on shelter floor, minor roof floor	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Low: Aboriginal occupation not confirmed	Low: common type: small PAD area; moderate amenity	Low
HC_040	Moderate: Moderate shelter floor and PAD area for research, but some disturbance	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	High: Minor and infrequent animal burrows, minor roof collapse at drip line	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type: moderate PAD area; high amenity	Moderate
HC_041	Moderate: The site has confirmed deposit indicative of subsurface content; small level area for PAD that may continue beyond the shelter drip line	High: Rare site type as it is one of the few shelters with confirmed deposit	Moderate: Moderate animal burrows, minor roof collapse at rear of shelter	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Rare site type with deposit, moderate floor but limited PAD	Moderate: rare type: small PAD area; high amenity	Moderate
HC_042	Moderate: Small shelter floor and PAD area for research, but some disturbance, sandstone bedrock comprising most of shelter floor	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: Minor and infrequent animal burrows, minor roof collapse at drip line	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; high amenity	Moderate
HC_043	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_044	Low: Very slight overhang with small PAD area; most of floor is sandstone base	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_045	Moderate: The site is of a common type with a high frequency of artefacts. Its connectedness to rockshelter with art, deposit and PAD HC_002 may provide information linking the site types in the landscape	Moderate: The site comprises common material and artefact types, but is a site with above average artefact frequencies	Low: The site is moderately disturbed from clearing and moderately eroded as soils are sandy on weathering sandstone	Moderate: The site does not contribute to issues of chronology by may give information about tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is a common open stone artefact scatter on a typical landform in a moderately disturbed context. However, proximity to significant rock shelters may provide information on connectedness	Moderate: common type: PAD; moderately disturbed	Moderate
HC_046	Low: Shelter floor area is approximately 1 m high making the PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, moderate roof collapse	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very low roof height	Low: common type: small PAD area; Low amenity	Low
HC_047	Low: Shelter floor area is approximately 1 m high making the PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, moderate roof collapse	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very low roof height	Low: common type: small PAD area; Low amenity	Low
HC_048	Low: PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, moderate roof collapse	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; low roof height	Low: common type: small PAD area; Low amenity	Low
HC_049	Moderate: Small shelter floor and PAD area for research, but some disturbance, sandstone bedrock comprising rear portion of shelter	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Aboriginal occupation not confirmed, but moderate area of PAD	Moderate: common type: small PAD area; moderate amenity; higher integrity	Moderate
HC_050	Low: Very small portion (less than 10%) of floor is PAD which is sloping away from shelter, limited potential for excavation	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Minimal area for PAD	Low: PAD is problematic; unlikely to answer issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; remote access	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; Low amenity	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_051	Low: PAD area is on a slope obscured by rock fall, limited subsurface potential	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, moderate roof collapse	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height and shelter shape	Low: common type: small PAD area; Low amenity	Low
HC_052	Moderate: Small shelter floor and PAD area for research, but some disturbance, sandstone bedrock comprising rear portion of shelter	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Site is a good example of a rockshelter, ideal shape; relatively easy access	Moderate: Aboriginal occupation not confirmed, but small area of PAD	Moderate: common type: small PAD area; moderate amenity; higher integrity	Moderate
HC_053	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to trauma damage or branch tear. Further investigation may change significance rating	Low: probable branch tear	Low
HC_054	Low: PAD area is on a slope obscured by rock fall, limited subsurface potential	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, moderate roof collapse	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height and shelter shape	Low: common type: small PAD area; Low amenity	Low
HC_055	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to trauma damage or branch tear. Further investigation may change significance rating	Low: probable branch tear	Low
HC_056	Low: PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Large animal burrow on shelter floor	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; low roof height	Low: common type: small PAD area; Low amenity	Low
HC_057	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to trauma damage or branch tear. Further investigation may change significance rating	Low: probable branch tear	Low
HC_058	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to trauma damage or branch tear. Further investigation may change significance rating	Low: probable branch tear	Low
HC_059	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is slightly disturbed by erosion.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a slightly disturbed context	Low: common type; sparse assemblage; slightly disturbed.	Low
HC_060	Moderate: Small shelter floor and PAD area for research, but some disturbance	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	High: Minor and infrequent animal burrows, moderate roof collapse at rear of shelter	Moderate: PAD is likely to contribute to issues of chronology	Low: Poor example of rockshelter	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; moderate amenity; higher integrity	Moderate
HC_061	Low: Very slight overhang with small PAD area; most of floor is sandstone base	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_062	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to trauma damage or branch tear. Further investigation may change significance rating	Low: probable branch tear	Low
HC_063	Moderate: Moderate shelter floor and PAD area, level and gently inclined, moderate PAD potential with minimal disturbance	High: Rare, domed and cavernous shape	Moderate: Animal occupation is likely to be superficial (5cm), with intact deposit beneath	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Good example of cavernous rockshelter, but no associated Aboriginal objects	Moderate: Aboriginal occupation not confirmed, but good example of moderate shelter area with high amenity and PAD	Moderate: common type; moderate PAD area; high amenity	Low
HC_064	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to trauma damage or branch tear. Further investigation may change significance rating	Low: probable branch tear	Low



Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_065	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating roof fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_066	Low: Very small portion (less than 10%) of floor is PAD which is sloping away from shelter, limited potential for excavation	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; low amenity	Low
HC_067	Low: Very small portion (less than 10%) of floor is PAD which is sloping away from shelter, limited potential for excavation	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; low amenity	Low
HC_068	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Low	Low: likely to be a natural rock pool	Low
HC_069	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating roof fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_070	Low: Less than half of the floor area has PAD which is likely to be shallow based on much of the floor has a sandstone base exposed	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; low amenity	Low
HC_071	High: The site has confirmed deposit indicative of subsurface content; very large level area of PAD	High: Rare site type as it is one of the few shelters with confirmed deposit	High: Minor and infrequent animal burrows, minor roof collapse at rear of shelter	High: PAD is likely to contribute to issues of chronology; large area for multiple simultaneous occupants	High: Site is a good example of a rockshelter, ideal shape; large size; and with good assortment of artefacts; easy to access	High: Rare site type with deposit; very large floor and PAD area,	High: rare type: large PAD area; high amenity	High
HC_072	Low: Very slight overhang with small PAD area	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating roof fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height	Low: common type: small PAD area; Low amenity	Low
HC_073	Moderate: Small shelter floor and PAD area for research, but some disturbance	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	High: Minor and infrequent animal burrows,	Moderate: PAD is likely to contribute to issues of chronology	Low: Remote example of rockshelter better demonstrated in more easily accessible areas	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; moderate amenity; higher integrity	Moderate
HC_074	Moderate: Small shelter floor and PAD area for research, but some disturbance	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	High: Minor and infrequent animal burrows	Moderate: PAD is likely to contribute to issues of chronology	Low: Remote example of rockshelter better demonstrated in more easily accessible areas	Moderate: Aboriginal occupation not confirmed, but good example of small shelter with high amenity and PAD	Moderate: common type; small PAD area; moderate amenity; higher integrity	Moderate
HC_075	Low: Most of shelter floor area is approximately 1 m or less high making the PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very low roof height	Low: common type: small PAD area; Low amenity	Low
HC_076	Low: Moderate roof collapse covering most of PAD, skeletal PAD onto sandstone bedrock	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with high roof collapse, limited PAD area	Low: common type: small PAD area; moderate amenity	Low
HC_077	Low: Most of shelter floor area is approximately 1 m or less high making the PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very low roof height	Low: common type: small PAD area; Low amenity	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_078	Low: Less than half of the floor area has PAD which is likely to be shallow based on much of the floor has a sandstone base exposed	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Low: Moderate roof collapse; PAD highly obstructed by large boulders	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space as largely sandstone	Low: common type: small PAD area; moderate amenity	Low
HC_079	Low: Although moderate floor area, the site has skeletal PAD onto sandstone bedrock	High: Rare, domed and cavernous shape	Moderate: Animal occupation is likely to be superficial (5cm), with intact deposit beneath	Moderate: PAD is unlikely to answer issues of chronology	Moderate: Good example of cavernous rockshelter, but no associated Aboriginal objects	Moderate: Aboriginal occupation not confirmed, but good example of moderate shelter area with high amenity and PAD	Moderate: common type; moderate PAD area; moderate amenity	Low
HC_080	Moderate: Moderate shelter floor and PAD area, level and gently inclined, moderate PAD potential with minimal disturbance	Moderate: Good example of a smaller shelter in shape with high amenity and PAD	Moderate: Animal occupation is likely to be superficial (5cm), with intact deposit beneath; moderate laminated roof fall	Moderate: PAD is likely to contribute to issues of chronology	Moderate: Good example of cavernous rockshelter, but no associated Aboriginal objects	Moderate: Aboriginal occupation not confirmed, but good example of moderate shelter area with high amenity and PAD	Moderate: common type; moderate PAD area; high amenity	Low
HC_081	Low: Most of shelter floor area is approximately 1 m or less high making the PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very low roof height	Low: common type: small PAD area; Low amenity	Low
HC_082	Low: Most of shelter floor area is approximately 1 m or less high making the PAD largely unsuitable for activities to leave significant deposit	Low: Common landscape feature and PAD is problematic; far better examples of rock shelters available in landscape	Moderate: No obvious animal burrowing, minor laminating floor fall present	Low: PAD is problematic; unlikely to answer issues of chronology	Low: Poor example of rockshelter	Low: Problematic shelter with limited floor space; very low roof height	Low: common type: small PAD area; Low amenity	Low
HC_083	Low: The site is a common type with a sparse assemblage of common debitage.	Moderate: The site comprises common material and artefact types but also a hammer stone which is a rarer artefact type.	Low: The site is moderately disturbed and includes exposed bedrock and a ploughed paddock.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts except for a hammer stone.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_084	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_085	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing, ploughing and erosion from a vehicle track	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site comprises only one small artefact.	Low: The site is a single artefact in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_086	Moderate: The site is of a common type with a moderate frequency of artefacts but lacking intact contextual value.	Moderate: The site comprises higher proportions of the rarer material type, chert, and high proportion of cores.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is an extensive artefact scatter likely to be part of a broader site covering the whole spur crest, including sites HC_087, 94 and 95. Subsurface material is likely to extend over the crest. However, it lacks archaeological integrity because of repeated ploughing and erosion of the crest.	Moderate: common type; PAD; moderately disturbed	Moderate
HC_087	Moderate: The site is of a common type with a moderate frequency of artefacts but lacking intact contextual value.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is an extensive artefact scatter likely to be part of a broader site covering the whole spur crest, including sites HC_086, 94 and 95. Subsurface material is likely to extend over the crest. However, it lacks archaeological integrity because of repeated ploughing and erosion of the crest.	Moderate: extensive site; PAD; moderately disturbed	Moderate
HC_088	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common isolated find on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_089	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts except for a hammer stone.	Low: The site is a single artefact in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_090	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts except for a hammer stone.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_091	Low: The site is an isolated artefact of common material and type	Moderate: The site comprises a hammer stone which is a rarer artefact type.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains a hammer stone which has educational use to demonstrate stone tool manufacture.	Low: The site is a single artefact in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_092	Moderate: The site is of a common type with a moderate frequency of artefacts but lacking intact contextual value.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Low: The site is a common open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed	Low
HC_093	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is slightly disturbed by erosion.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a slightly disturbed context	Low: common type; sparse assemblage; slightly disturbed.	Low
HC_094	Moderate: The site is of a common type with a high frequency of artefacts but lacking intact contextual value.	Moderate: The site comprises good examples of all main artefact types including flakes, tools and cores.	Low: The site is moderately disturbed from clearing and ploughing and a vehicle track.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is an extensive artefact scatter likely to be part of a broader site covering the whole spur crest, including sites HC_086, 87 and 95. Subsurface material is likely to extend over the crest. However, it lacks archaeological integrity because of repeated ploughing and erosion of the crest.	Moderate: extensive site; PAD; moderately disturbed	Moderate
HC_095	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing and a vehicle track.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context. However, it is likely to be part of a broader site covering the whole spur crest, including sites HC_086, 87 and 94.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_096	Low: The site is an isolated artefact of common material and type in a highly disturbed context.	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed on a graded vehicle track.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site comprises only one small artefact.	Low: The site is a common isolated find on a typical landform in a highly disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_097	Low: The site is an isolated artefact of common material and type in a highly disturbed context.	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed on a graded vehicle track.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site comprises only one small artefact.	Low: The site is a common isolated find on a typical landform in a highly disturbed context.	Low: common type; sparse assemblage; highly disturbed.	Low
HC_098	Low: The site is an isolated artefact of common material and type in a highly disturbed context.	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed on a graded vehicle track.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site comprises only one small artefact.	Low: The site is a common isolated find on a typical landform in a highly disturbed context.	Low: common type; sparse assemblage; highly disturbed.	Low
HC_099	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed on a graded vehicle track.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a highly disturbed context.	Low: common type; sparse assemblage; highly disturbed.	Low
HC_100	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed on a graded vehicle track.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable examples of stone artefacts.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a highly disturbed context.	Low: common type; sparse assemblage; highly disturbed.	Low



Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_116	Low: The site is a common type with a sparse assemblage of common debitage. Nearby testing revealed sparse subsurface deposit (test pit transects 14 and 15).	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed	Low
HC_117	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing, ploughing and erosion from a vehicle track	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site comprises only one small artefact.	Low: The site is a single artefact in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_118	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing, ploughing and erosion from a vehicle track	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site comprises only one small artefact.	Low: The site is a single artefact in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_119	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing revealed moderate subsurface deposits.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is a common open stone artefact scatter on a typical landform in a moderately disturbed context. However, proximity to Oldbury Creeks indicates moderate archaeological potential.	Moderate: common type; PAD; moderately disturbed	Moderate
HC_120	Low: The site is a common type with a sparse assemblage of common debitage. Nearby testing revealed sparse subsurface deposit.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_121	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is slightly disturbed by erosion.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a slightly disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_122	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_123	Low: The site is a common type with a sparse assemblage of common debitage. Nearby testing of similar context revealed sparse subsurface deposit.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed	Low
HC_124	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing revealed moderate subsurface deposits.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is a common open stone artefact scatter on a typical landform in a moderately disturbed context. However, proximity to Oldbury Creeks indicates moderate archaeological potential.	Moderate: extensive site; PAD; moderately disturbed	Moderate
HC_125	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_126	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing revealed moderate subsurface deposits.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is a common open stone artefact scatter on a typical landform in a moderately disturbed context. However, proximity to Oldbury Creeks indicates moderate archaeological potential.	Moderate: extensive site; PAD; moderately disturbed	Moderate

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_127	Low: The site is a common type with a sparse assemblage of common debitage. Nearby testing of similar context revealed sparse subsurface deposit.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_128	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_129	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed in a culvert.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a highly disturbed context.	Low: common type; sparse assemblage; highly disturbed.	Low
HC_130	Moderate: The site is of a common type with a moderate frequency of artefacts. Subsurface testing of a portion of this sight (test pit transect 5) retrieved a sparse assemblage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains easily identifiable artefact types of good quality raw materials	Moderate: The site is a common open stone artefact scatter of moderate frequency on a typical landform in a moderately disturbed context. Site is best represented by surface evidence as testing revealed a sparse subsurface deposit.	Moderate: extensive site; sparse associated deposit; moderately disturbed	Moderate
HC_131	Low: The site is a common type with a sparse assemblage of common debitage. Nearby testing of similar context revealed sparse subsurface deposit.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_132	Low: The site is an isolated hammerstone.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains a hammer stone which has educational use to demonstrate stone tool manufacture.	Low: The site is a single artefact in moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_133	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed from dam wall construction.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site comprises only one small artefact.	Low: The site is a single artefact in moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_134	Low: Subsurface site is a sparse assemblage of common debitage. Further excavation would be unfruitful.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: sparse subsurface deposit; moderately disturbed	Low
HC_135	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing (Transect 6) revealed moderate to high frequency subsurface artefact deposits.	Moderate: Associated deposit is has relatively high artefact frequencies for the local area.	Low: The site is moderately disturbed from clearing and ploughing.	Moderate: Associated deposit has an assemblage that could further characterise the archaeology of the area.	Low: The site is primarily significant for its subsurface contents.	Higher moderate: Subsurface deposit is high for the local area and represents a good sample of the local archaeology.	Higher moderate: extensive subsurface deposit; moderately disturbed.	Higher moderate
HC_136	Moderate: The site contains a combination of types, comprising grinding grooves, nearby stone artefacts and potential subsurface deposit. Excavation of this site may recover a high frequency of artefacts as indicated by nearby testing (Transect 6) which recovered moderate to high frequency subsurface artefact deposits.	High: Grinding grooves are rare site type. This site has a relatively high number of grooves for the local area. Rarity is also increased by associated stone artefact deposit.	Moderate: Area of remnant or regrowth vegetation subject to less extensive disturbance. The PAD is likely to have higher integrity than surrounding sites in obviously ploughed paddocks.	Moderate: Associated deposit has an assemblage that could further characterise the archaeology of the area.	High: Good example of grinding groove site and nearby stone artefacts. Good example of demonstrating Aboriginal occupation.	High: Grinding groove site with associated stone artefacts and PAD. Best example in the project area with less extensive disturbance on a highly sensitive landform at the confluence of two streams.	High: rare site type; large number of grooves (10); associated PAD	High
HC_137	Low: Subsurface site is a sparse assemblage of common debitage. Broader area was tested through test pit Transect 8. Further excavation would be unfruitful.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: sparse subsurface deposit; moderately disturbed	Low
HC_138	Low: Grinding groove site in drainage depression has minimal opportunity to investigated further.	Moderate: Grinding grooves site are rare in the project area but expected because of the underlying geology.	Moderate: Grooves are easily distinguishable but there are a number cracks in the sandstone exposure.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: Easily identifiable example of a small grinding groove site.	Moderate: A reasonable example of a rarer site type.	Moderate: rare site type; few grooves on small outcrop	Moderate

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_139	Low: Subsurface site is a sparse assemblage of common debitage. Broader area was tested through test pit Transect 7. Further excavation would be unfruitful.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: sparse subsurface deposit; moderately disturbed	Low
HC_140	Low: Area of PAD was re-vaunted based on nearby test excavations. Near 1st order stream and unlikely to contain deposit	Undetermined	Undetermined	Undetermined	Undetermined	Low: Site is unlikely to contain subsurface deposits based on nearby excavations.	Low: unlikely to be PAD	Low
HC_141	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_142	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_143	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_144	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed context.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a highly disturbed context.	Low: common type; sparse assemblage; highly disturbed.	Low
HC_145	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: The site contains a tool, possible educational value for demonstrating manufacture techniques.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_146	Low: Area of PAD was re-vaunted based on nearby test excavations. Near 1st order stream and unlikely to contain deposit	Undetermined	Low: The site is moderately disturbed from clearing and ploughing.	Undetermined	Undetermined	Low: Site is unlikely to contain subsurface deposits based on nearby excavations.	Low: unlikely to be PAD	Low
HC_147	Low: Subsurface site is a sparse assemblage of common debitage. Further excavation would be unfruitful. Area was tested through transect 10.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: sparse subsurface deposit; moderately disturbed	Low
HC_148	Low: Subsurface site is a sparse assemblage of common debitage. Further excavation would be unfruitful. Area was tested through transect 10	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: sparse subsurface deposit; moderately disturbed	Low
HC_149	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_150	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_151	Moderate: Area of PAD is likely to be a continuation of subsurface site confirmed for HC_135. Nearby testing (Transect 6) revealed moderate to high frequency subsurface artefact deposits.	Undetermined	Low: Site is in a moderately disturbed cleared and ploughed paddock.	Undetermined	Undetermined	Higher moderate: Subsurface deposit is likely to be an extension of subsurface site HC_135.	Higher moderate: continuation of HC_135; extensive PAD	Higher moderate
HC_152	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is highly disturbed context.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a highly disturbed context.	Low: common type; sparse assemblage; highly disturbed.	Low



Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_153	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is slightly disturbed by erosion.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a slightly disturbed context.	Low: common type; sparse assemblage; slightly disturbed.	Low
HC_154	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing (Transect 2) revealed a moderate to frequency subsurface artefact deposits.	Moderate: Associated deposit is has relatively high artefact frequencies for the local area.	Low: The site is moderately disturbed from clearing and ploughing.	Moderate: Associated deposit has an assemblage that could further characterise the archaeology of the area.	Low: The site is primarily significant for its subsurface contents.	Moderate: Subsurface deposit is likely to have moderate artefact frequency for the local area and represents a good sample of the local archaeology.	Moderate: common type; moderate associated deposit; moderately disturbed	Moderate
HC_155	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing (Transect 2) revealed a moderate to frequency subsurface artefact deposits.	Undetermined	Low: The site is moderately disturbed from clearing and ploughing.	Undetermined	Undetermined	Moderate: Subsurface deposit is likely to have moderate artefact frequency for the local area and represents a good sample of the local archaeology.	Moderate: PAD; moderately disturbed	Moderate
HC_156	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing (Transect 2) revealed a moderate to frequency subsurface artefact deposits.	Moderate: Associated deposit is has moderate artefact frequencies for the local area.	Low: The site is moderately disturbed from clearing and ploughing.	Moderate: Associated deposit has an assemblage that could further characterise the archaeology of the area.	Low: The site is primarily significant for its subsurface contents.	Moderate: Subsurface deposit is likely to have moderate artefact frequency for the local area and represents a good sample of the local archaeology.	Moderate: common type; moderate associated deposit; moderately disturbed	Moderate
HC_157	Low: The site is an isolated artefact with minimal contextual value.	Moderate: Ground edge hatchets are rare identified in the local area	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	High: Very good example of ground edge hatchet	Moderate: The site has very minimal contextual value but is a rare site type and a very good example of its type.	Moderate: rare site type	Moderate
HC_158	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Site is unlikely to be a scarred tree	Low: Likely to be a natural damage scar	Low: probable branch tear	Low
HC_159	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is slightly disturbed by erosion.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a slightly disturbed context	Low: common type; sparse assemblage; slightly disturbed.	Low
HC_160	Low: The site is a common type with a sparse assemblage of common debitage. Subsurface site is a sparse assemblage of common debitage (test pit Transect 1). Further excavation would be unfruitful.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Artefact site and subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: common type; sparse subsurface deposit; moderately disturbed	Low
HC_161	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_162	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_163	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing, vehicle track and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_164	Low: Area of PAD was re-valued based on nearby test excavations (test pit transect 1). Near 1st order stream and unlikely to contain deposit	Undetermined	Low: The site is moderately disturbed from clearing and ploughing.	Undetermined	Undetermined	Low: Site is unlikely to contain subsurface deposits based on nearby excavations.	Low: unlikely to be PAD	Low
HC_165	Low: The site is a common type with a sparse assemblage of common debitage. Subsurface site is a sparse assemblage of common debitage (test pit Transect 1). Further excavation would be unfruitful.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Artefact site and subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: common type; sparse subsurface deposit; moderately disturbed	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_166	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_167	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_168	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Moderate: Easily identifiable example of a small scraper tool.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_169	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_170	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_171	Low: The site is a common type with a sparse assemblage of common debitage. Subsurface site is a sparse assemblage of common debitage (test pit Transect 17). Further excavation would be unfruitful.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Artefact site and subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: common type; sparse subsurface deposit; moderately disturbed	Low
HC_172	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_173	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a slightly disturbed context	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_174	Low: The site is an isolated artefact of common material and type	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a single artefact in a moderately disturbed context.	Low: common type; sparse assemblage; moderately disturbed.	Low
HC_175	Low: Grinding groove site in drainage depression has minimal opportunity to investigated further.	Moderate: Grinding grooves site are rare in the project area but expected because of the underlying geology.	High: Grooves are easily distinguishable and sandstone bedrock is intact.	Low: The site does not contribute to issues of chronology or tool manufacture.	Moderate: Easily identifiable example of a small grinding groove site.	Moderate: A reasonable example of a rarer site type.	Moderate: rare site type; few grooves on small outcrop	Moderate
HC_176	Moderate: The site is of a common type with a moderate frequency of artefacts. Nearby testing (Transect 9 and 12) revealed moderate to high frequency subsurface artefact deposits.	Moderate: Associated deposit is has relatively high artefact frequencies for the local area.	Low: The site is moderately disturbed from clearing and ploughing.	Moderate: Associated deposit has an assemblage that could further characterise the archaeology of the area.	Low: The site is primarily significant for its subsurface contents.	Higher moderate: Subsurface deposit is high for the local area and represents a good sample of the local archaeology.	Higher moderate: extensive subsurface deposit; moderately disturbed.	Higher moderate
HC_177	Moderate: Area of PAD is likely to be a similar to the subsurface of subsurface site confirmed for HC_176. Nearby testing (Transect 9 and 12) revealed moderate to high frequency subsurface artefact deposits.	Undetermined	Low: Site is in a moderately disturbed cleared and ploughed paddock.	Undetermined	Undetermined	Higher moderate: Subsurface deposit is likely to be similar to HC_176	Higher moderate: similar to HC_176	Higher moderate
HC_178	Low: Subsurface site is a sparse assemblage of common debitage. Further excavation would be unfruitful.	Low: The site comprises common material and artefact types.	Low: The site is moderately disturbed from clearing and ploughing.	Low: the site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: Subsurface deposit is sparse on a typical landform in a moderately disturbed context.	Low: sparse subsurface deposit; moderately disturbed	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
HC_179	Moderate: The site is a potential deposit associated with Medway Rivulet	Undetermined	Low: The site is moderately disturbed from clearing and ploughing.	Undetermined	Undetermined	Moderate: PAD on slightly disturbed context.	Moderate: PAD: slightly disturbed	Moderate
HC_180	Low: The site is a common type with a sparse assemblage of common debitage.	Low: The site comprises common material and artefact types.	Low: The site is slightly disturbed by erosion.	Low: The site does not contribute to issues of chronology or tool manufacture.	Low: The site is sparse and its contents are not easily identifiable.	Low: The site is a common sparse open stone artefact scatter on a typical landform in a slightly disturbed context	Low: common type; sparse assemblage; slightly disturbed.	Low
WSF_1	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF_2	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF_3	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF_4	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF5	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF6	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF7	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF8	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF9	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF10	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF11	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF12	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF13	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF14	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF15	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF16	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF17	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF18	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF19	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF20	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF21	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF22	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF23	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF24	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF25	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low

Site name	Research potential	Rarity and representativeness	Integrity	Research themes	Educational value	Overall significance	Significance type	Significance rating
WSF26	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF27	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF28	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF29	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF30	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF31	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF32	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF33	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF34	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; highly disturbed.	Low
WSF35	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF36	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
WSF37	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Refer to Therin 2007	Low: common type; sparse assemblage; moderately disturbed.	Low
Compartment 157	Moderate: Art and pigment may be used for research purposes. However, site is unlikely to have PAD	High: Rare site type as it is a unique aesthetic and not a typical shelter type. May have been spiritual or ceremonial rather than utilitarian site	High: Although had faded pigment, the site is in good condition	Moderate: Art style and pigment could be compared locally and regionally	High: Unique site type with aesthetic qualities. Good local example of art site.	High: Art site has numerous hand stencils on a unique rock feature. Site may relate to spiritual or ceremonial site.	High: potential spiritual or ceremonial site	High
International House	Moderate: Methods of collecting water in rock pools may be compared locally and regionally. Grinding grooves however are typical of the area.	High: Grinding groove and rock pools together are a rare site type locally.	High: Site features are clear and in good condition.	Moderate: Site may contribute to understanding of rock pools used closely with grinding groove sites.	High: Good example of various types of grinding methods to create different site features. Easily accessible and identifiable.	High: The site is an exceptional, easily accessible site with features that are rare for the local area and easily identifiable.	High: rare site type; numerous grooves; on sandstone expanse	High

## Appendix G

Key correspondence with OEH

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Hi Rose,

As discussed I have prepared a letter summarising the archaeological investigation for the Hume Coal Project. I have also attached the proposed test excavation method (which has been issued to registered Aboriginal parties) for your review and comment. We have allowed an month review period for the RAPs which commenced on 27 August 2015. We anticipate to undertake the excavation some time in October. Please do not hesitate to contact me on my details provided below.

Regards,  
Ryan Desic  
Senior Archaeologist

Sydney, Newcastle and Brisbane.



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3 September 2015

Rose O'Sullivan  
Office of Environment and Heritage  
Illawarra Office  
via email

Re: Hume Coal Project Aboriginal cultural heritage assessment update to OEH

Dear Rose,

## 1 Introduction

As discussed over the phone on 1 September 2015, I have prepared a letter which provides an overview of the results of the archaeological investigation for the Hume Coal Project (the project) to date. This information is intended to provide OEH with context for the archaeological investigation and to supplement the proposed test excavation method that has been attached to this letter for your comment and feedback. This letter should also be read in conjunction with the SEARs application supporting document if general information on the assessment approach and an overview of Aboriginal consultation is desired. I would also welcome any feedback on our survey method outlined in this letter.

## 2 Archaeological background

### 2.1 Summary from previous investigations

From the results of the AHIMS register and previous archaeological investigations, the following trends in Aboriginal site type and location have been noted:

- artefact scatters and isolated finds have most commonly been identified within close proximity to watercourses including:
  - creek and river banks;
  - alluvial floodplains and terraces;
  - low elevated areas near the confluence of watercourses;
  - low ridge crests, saddles and spurs and to a lesser extent, hill slopes;
- clusters of stone artefact scatters representing campsites along both minor and major tributaries and selectively spaced campsites occur along major rivers;
- rock shelters and grinding grooves have been recorded in areas of sandstone geology adjacent to watercourses;
- most sites contained low densities of artefacts, commonly being less than 10 artefacts;

- quartz and silcrete were the most common raw materials used for artefact manufacture. Chert, quartzite and indurated mudstone have been commonly found but made up smaller proportions of assemblages;
- bipolar reduction was commonly used to reduce quartz and to a lesser extent silcrete and chert;
- backed blades have been found but in low densities;
- modified trees commonly occur adjacent to watercourses, however there may be a bias in this sample because areas adjoining water courses have not been previously cleared of mature trees; and
- burial sites are rare but may occur in conjunction with carved trees.

Note: the AHIMS register identified only two sites in the project area: one grinding groove site and one rock shelter with art.

## 2.2 Predictive model of site location

Based on the landscape factors, AHIMS search and previous archaeological investigations the following predictions can be made about Aboriginal sites in this area:

- due to the sandstone geology in parts of the project area, rock shelters and art sites are likely to be present in areas of cliffs and escarpment, particularly adjacent to watercourses which have acted to erode and expose the sandstone bedrock;
- art sites and grinding grooves may be present along large expanses of sandstone, typically in proximity to watercourses;
- stone artefacts may be present as part of open camp sites or as individual items;
- stone artefact sites are most likely to occur within 200 m of watercourses on well-drained, elevated landforms;
- stone artefact sites may also occur on ridges, saddles and hill crests more than 200 m from watercourses;
- Stone artefacts may occur as subsurface deposits on well-drained elevated landforms regardless of the presence of surface artefacts; and
- scarred trees are rare, but may be present where mature native trees remain in the study area.

Some of the project area has been disturbed by agricultural practices and clearing of natural vegetation. Thus artefacts discovered here are likely to be in disturbed contexts. Other portions of the project area including ridgelines, creeks and forested areas have remained undisturbed by European activities. Artefacts discovered in these contexts are likely to be in undisturbed contexts and therefore likely to have higher archaeological integrity. Aboriginal objects identified on the ground surface may indicate the presence of subsurface archaeological deposits depending on landform type and level of post-depositional ground disturbance.

## 3 Archaeological survey

### 3.1 Overview

EMM archaeologists accompanied by project registered Aboriginal parties (RAPs) have surveyed the

the project area and its surrounds in three stages so far (Stage 1 to Stage 3) between May 2014 and February 2015. Stages 1 and 2 sampled the underground mining areas and Stages 3 sampled the surface infrastructure areas. EMM propose to undertake another stage of the survey in the surface infrastructure area to complete the survey effort.

## 3.2 Survey strategy

### 3.2.1 Rationale

The survey strategy has been designed to address the different types of potential project impacts resulting from surface infrastructure and underground mining areas. Therefore, the project area has been divided into two survey investigation areas:

- *The surface investigation area* – which considered the whole surface infrastructure area in which the primary impacts will occur from ground disturbance related to the construction of surface infrastructure.
- *The underground investigation area* – which considered the whole underground mining area in which the primary impacts will potentially occur from underground mining related subsidence (however, at this stage, mine subsidence is not anticipated to occur).

#### 1.1.1 Surface investigation area

Survey of the surface investigation area targeted the proposed disturbance footprint in its various layouts during the assessment period. The survey concentrated on land near watercourses considered to have high archaeological sensitivity, but because the survey generally followed the disturbance footprint, areas away from land which might be otherwise considered of low sensitivity was also covered.

Survey of the surface investigation area targeted all Aboriginal site types as they theoretically have the potential to be directly impacted. This included inspection for obtrusive sites types (eg rock shelters) and sites identified through ground surface visibility (eg stone artefact scatters).

#### 1.1.2 Underground investigation area

Survey of the underground investigation area targeted all land where outcropping sandstone was predicted to occur. This aimed to identify obtrusive site types, particularly those that are potentially susceptible to subsidence impacts, ie rock shelters, grinding groove sites and rock pools.

To target the obtrusive site types in the underground survey area, topographic, soil landscapes and geological maps were reviewed against maps demarcating:

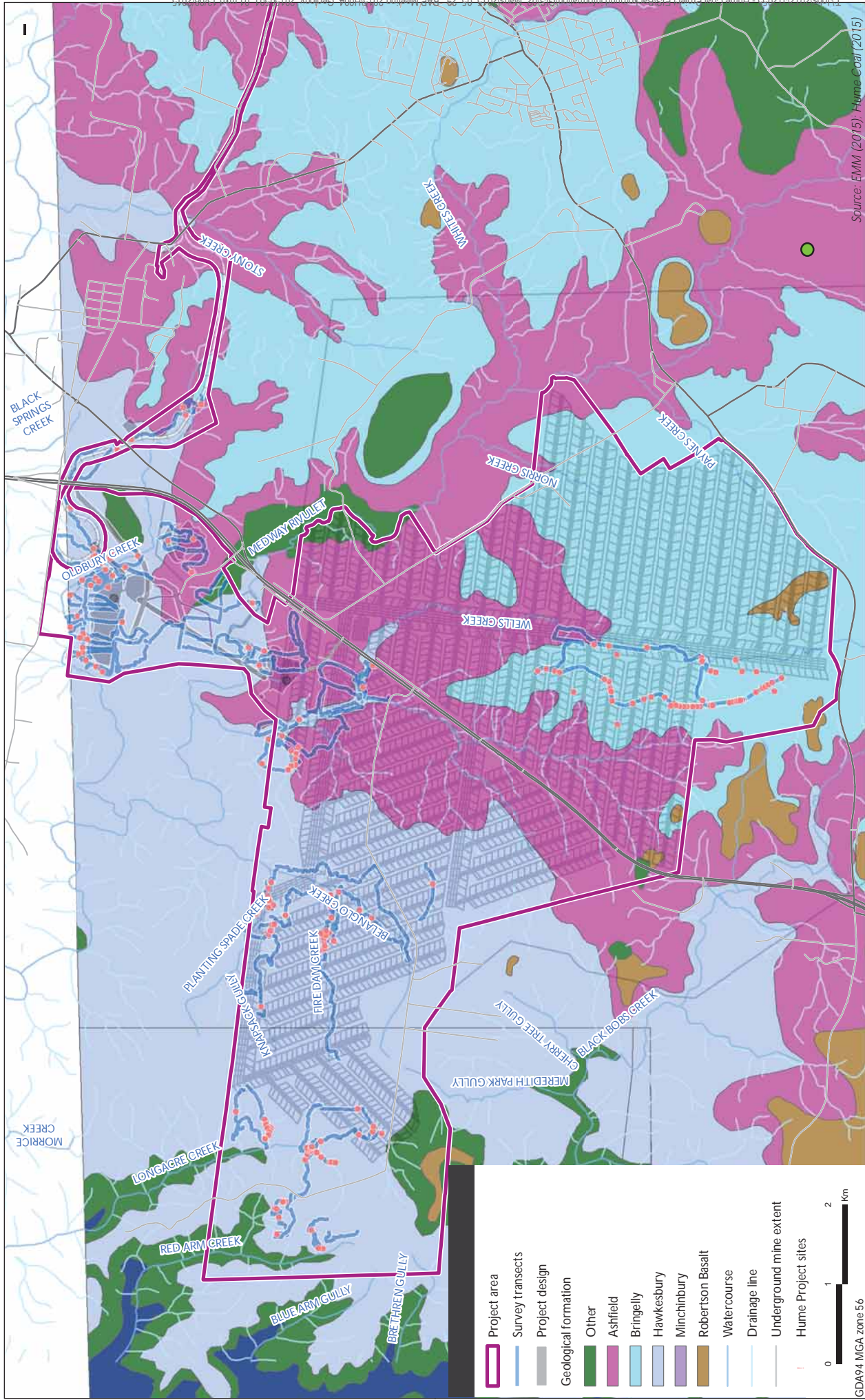
- The underlying geology – where areas predicted to feature obtrusive sites were firstly narrowed to areas of Hawkesbury Sandstone; and
- Soil landscapes – where the areas above Hawkesbury Sandstone were further refined according to the soil landscape types which feature outcropping sandstone bedrock (DECCW 2008). These were the Hawkesbury (rock outcrop over 50%) and Nattai Tables (rock outcrop 10–20%) soil landscapes, and to a much lesser extent, the Soapy Flat Soil Landscape (less than 2%).
- Contours – where areas of high local relief were likely to indicate areas of scarp and cliff landforms where rock shelters and grinding grooves may be exposed on outcropping sandstone.

This information narrowed the area predicted to feature obtrusive site types to the western side of the Hume Highway in the Belanglo State Forest and to the west, primarily on scarp landforms and outcropping sandstone bedrock associated with watercourses.

The figures below show the underlying geology and soil landscapes of the project area. The area in green on the soil landscapes figure shows areas likely to have outcropping sandstone. The figure also shows the areas surveyed and sites identified during survey.

Survey has been completed for the underground investigation area as all areas of predicted to contain outcropping sandstone have been surveyed. No other areas of rock outcrop have been identified in the underground investigation area.





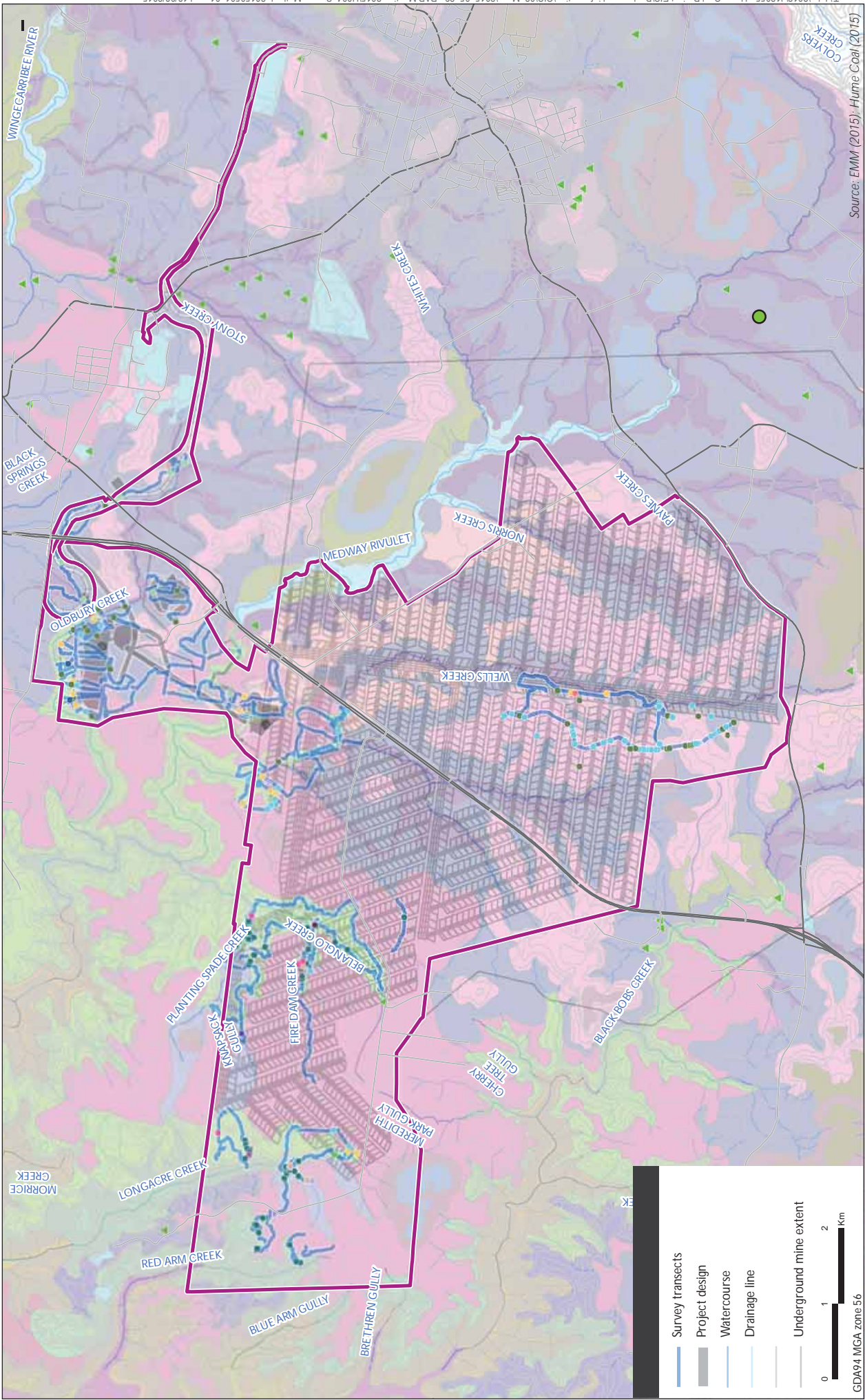
# Geology underlying mine plan

## Hume Coal Aboriginal Cultural Heritage Assessment



GDA94 MGA zone 56





Source: EMM (2015), Hume Coal (2015)

### Soil landscapes indicating extent of rock outcrop

Hume Coal Aboriginal Cultural Heritage Assessment



GDA94 MGA zone 56

T:\Jobs\2012\12055 - Hume Coal Project EIS\Background information\GIS\02\_Maps\2015\_05\_29\_RAP\_Meeting 2015\H004\_Survey Method\_20150501\_01.mxd 13/08/2015

## 4 Preliminary results

Table 1 summarises the Aboriginal sites identified during the survey area to date. Of note:

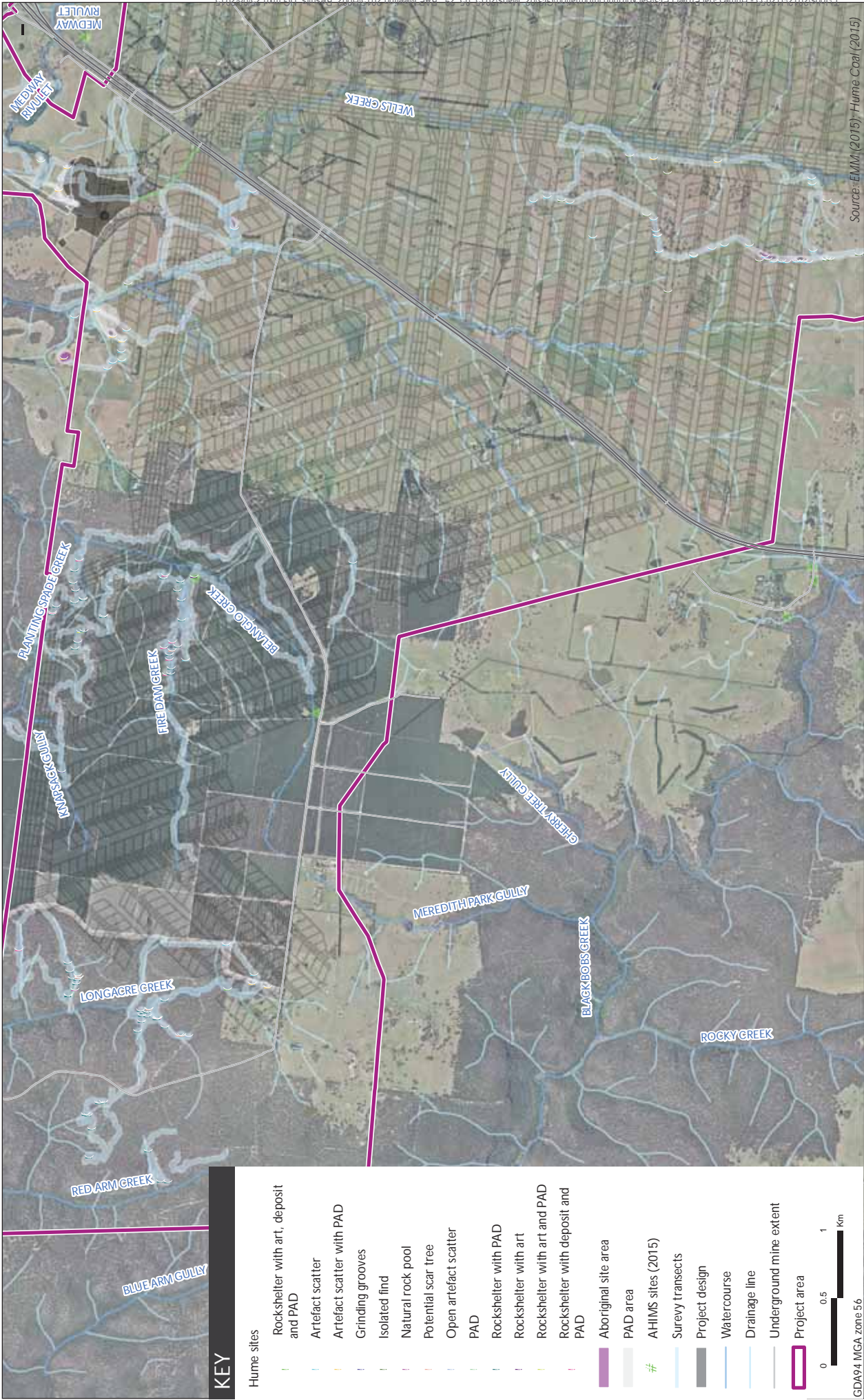
- rock shelter site types have only been identified in the underground mining area;
- only stone artefact sites and two grinding groove sites have been identified in the surface infrastructure area; and
- a number of potential archaeological deposits (PADs) have been identified in the surface infrastructure area where grass coverage hindered ground surface visibility.

**Table 1** Survey results to date

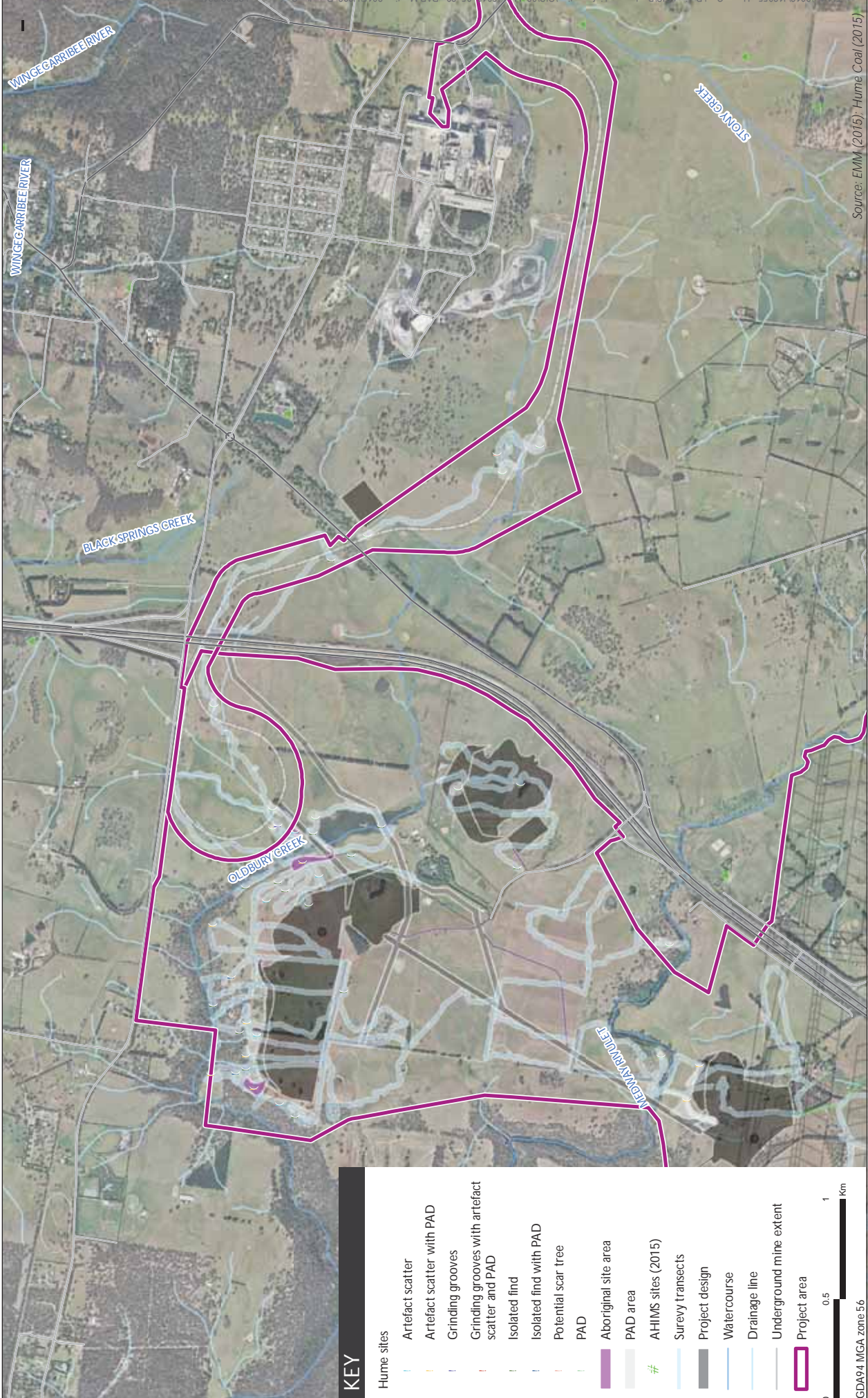
Site type	Count
Rock shelter with PAD	55
Artefact scatter	33
Isolated find	16
Artefact scatter with PAD	16
PAD	10
Rock shelter with deposit and PAD	10
Potential scar tree	8
Isolated find with PAD	2
Grinding grooves	3
Rock shelter with art and PAD	1
Isolated find (axe head)	1
Rock shelter with art, deposit and PAD	1
Grinding grooves with artefact scatter and PAD	1
Rock shelter with art	1
Open artefact scatter	1
<b>Total</b>	<b>159</b>

The figures below show the survey tracks and Aboriginal sites identified by EMM.









Source: EMM (2015); Hume Coal (2015)

**KEY**

- Hume sites
  - Artefact scatter
  - Artefact scatter with PAD
  - Grinding grooves
  - Grinding grooves with artefact scatter and PAD
  - Isolated find
  - Isolated find with PAD
  - Potential scar tree
  - PAD
  - Aboriginal site area
  - PAD area
  - # AHIMS sites (2015)
  - Survey transects
  - Project design
  - Watercourse
  - Drainage line
  - Underground mine extent
  - Project area
- 0 0.5 1 Km

GDA94 MGA zone 56



## 5 Closing

I hope this overview provides some context for your consideration of the proposed test excavation method. I welcome your feedback and comments. Please do not hesitate to contact me on my details listed below.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Ryan Desic', with a long horizontal flourish extending to the right.

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## Ryan Desic

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**From:** Rose O'Sullivan  
**Sent:** Tuesday, 15 September 2015 5:04 PM  
**To:** Ryan Desic  
**Subject:** RE: Hume Coal Project Aboriginal Cultural Heritage Assessment: Archaeological background and proposed test excavation method

Hi Ryan

Thanks again for sending through the methodology for the test excavations and apologies for the delay in getting back to you with my comments.

I have the following comments:

- Typo on page 3 – 'one 20cm spit' needs clarification, but I am pleased that you will be excavating to and documenting culturally sterile levels
- I know that deep soils are unexpected, but do you have a contingency plan if archaeological deposits extend below 80cm depth?
- I suggest having the capacity to conduct wet sieving if required. Some of the clay soils are likely to be very difficult to dry sieve with any degree of reliability
- The methodology should include submitting AHIMS site cards for new sites (including reburial locations for excavated material) and updating site cards for any previously recorded sites. I note that the AHIMS register currently does not seem to include all the sites shown on your maps
- I suggest that one of your aims should be to identify areas that warrant conservation and where the project design footprint can be modified to avoid sites, or to conduct salvage excavations as mitigation where warranted
- Have you considered older water course alignments in your predictive modelling and when surveying?
- Is there capacity for you to do additional testing in areas that may be identified during the survey work you are still to carry out? (as mentioned in your letter to me, page 3)
- Have you considered whether you have capacity to also test 'non-PADs'? This can be useful in large area projects because it allows you to test your predictive model and improve the reliability of your results
- Have you considered how subsidence may affect subsurface archaeological deposits? Through vertical movement and compaction? I have seen subsided areas at underground mines where the level of soil movement would have a big impact on any archaeological deposits. This may be something to consider in your long-term monitoring across the mine area
- I also recommend addressing any comments you get from the Registered Aboriginal Parties to the methodology, although I'm sure you already intend doing so.

I hope these comments are useful for you. Please feel free to contact me if you would like to discuss further.

Regards

Rose



17 September 2015

Rose O'Sullivan  
 Office of Environment and Heritage  
 Illawarra Office  
 via email

Re: Hume Coal Project Aboriginal Cultural Heritage Assessment: Archaeological background and proposed test excavation method

Dear Rose,

Attached is our response to your email dated 15 September 2015 with regard to the Hume Coal Project (the project) Aboriginal cultural heritage assessment (ACHA). It specifically concerns the draft test excavation method that was issued to you on 4 September 2015.

I would like to thank you for taking the time to respond to the method. You have identified some points that would benefit from further clarity which are addressed in Table 1 below with our responses.

Additionally, as discussed on the telephone on 16 September 2015, there have been requests by registered Aboriginal parties (RAPs) to increase the number of test pits and their distance across the landscape. The only way to achieve this in our current scope will be to reduce the size of the test pits to 50 cm by 50 cm and place them at 10 metres intervals over a greater distance. I believe that this method will also fulfil our aims to characterise the archaeological landscape and answer the research questions.

The test excavation method letter will be amended with the changes and redistributed to RAPs once the review period has ended.

**Table 1 Response to OEH**

Comment (OEH)	Response (EMM)
<i>Typo on page 3 – 'one 20cm spit' needs clarification, but I am pleased that you will be excavating to and documenting culturally sterile levels.</i>	This means that if artefacts are identified in one spit, then excavation must continue at least one spit deeper (unless clay is reached). If no artefacts are identified in this spit, then excavation does not need to continue.
<i>I know that deep soils are unexpected, but do you have a contingency plan if archaeological deposits extend below 80cm depth?</i>	Hume do not currently have permission from Council to excavate soil past 80 cm. To my understanding, to dig past 80 cm would require a development application approval which would cause extensive delays and further costs to the project. If artefact bearing deposits continued past 80 cm it would be documented and incorporated into the management recommendations to be completed post-approval. This could be addressed by additional testing or salvage excavation.
<i>I suggest having the capacity to conduct wet sieving if required. Some of the clay soils are likely to be very difficult to dry sieve with any degree of reliability</i>	Soil landscape information indicates that we will predominantly encounter Yellow and Red Podzolic soils and Yellow, Red and Brown Earths.  Podzolic soils are generally sand textured to depth and are coarse to medium textured which also may have gravelly A2 horizons. The Red, Yellow and Brown earths are predominantly

	<p>sandy-textured soils. As shown, the sandy make-up of most of these soils is typically easy to sieve.</p> <p>However, we acknowledge your concern. Land-use disturbance may create mixed soils that can distribute and compact basal clay into the A soil horizon. In this instance, wet-sieving would make the process easier and more reliable. It has been a specific request from one Registered Aboriginal Party (RAP) to use the wet-sieving method. We will hold further discussions about our capacity for wet-sieving.</p>
<p><i>The methodology should include submitting AHIMS site cards for new sites (including reburial locations for excavated material) and updating site cards for any previously recorded sites. I note that the AHIMS register currently does not seem to include all the sites shown on your maps</i></p>	<p>The AHIMS records are currently in draft and will be submitted to AHIMS shortly. Accordingly, Aboriginal site impact record forms will be completed for any AHIMS site impacted by the test excavation.</p>
<p><i>I suggest that one of your aims should be to identify areas that warrant conservation and where the project design footprint can be modified to avoid sites, or to conduct salvage excavations as mitigation where warranted</i></p>	<p>This is an ongoing aim for the project to minimise impacts to Aboriginal objects. The surface infrastructure footprint has been reduced and relocated a number of times to avoid Aboriginal sites as a result of ongoing survey results. This will be documented in the Aboriginal cultural heritage assessment (ACHA) report.</p> <p>The results of the test excavation will play a large part in identify areas to be avoided or where salvage excavation would be warranted. This will be incorporated into the management recommendations of the ACHA.</p>
<p><i>Have you considered older water course alignments in your predictive modelling and when surveying?</i></p>	<p>Landscape analysis has not indicated that older stream channel alignments would have deviated significantly from those existing today. Stream channel development of the project area is erosional which is typical for a landform pattern of hills and rises.</p> <p>Stream channel migration most resembles a 'fixed' migration system where drainage is restricted by hills and the eroded sandstone bedrock.</p> <p>This information will be presented in the landscape context section of the ACHA.</p>
<p><i>Is there capacity for you to do additional testing in areas that may be identified during the survey work you are still to carry out? (as mentioned in your letter to me, page 3.</i></p>	<p>Yes, we have included testing in areas inspected by archaeologists which have yet to undergo detailed survey with RAP participation. Any areas not previously identified will be incorporated into the test excavation if warranted.</p>
<p><i>Have you considered whether you have capacity to also test 'non-PADs'? This can be useful in large area projects because it allows you to test your predictive model and improve the reliability of your results</i></p>	<p>Some of the test transects are placed in areas that could be considered 'non-PAD'. For example Transects 13 and 14 are outside known site areas and the area of sensitivity (beyond 200 m of a watercourse) but have been included to determine if the project will impact subsurface archaeological deposit. Overall, the excavation aims to test all the impacted landform types to further build on the predictive model. This will be explained in more detail in the ACHA.</p>
<p><i>Have you considered how subsidence may affect subsurface archaeological deposits? Through vertical movement and compaction? I have seen subsided areas at underground mines where the level of soil movement would have a big impact on any archaeological deposits. This may be something to consider in your long-term monitoring across the mine area.</i></p>	<p>The mining method is not predicted to result in subsidence impacts, but we are waiting to the subsidence specialist report to inform our impact assessment.</p>
<p><i>I also recommend addressing any comments you get from the Registered Aboriginal Parties to the methodology, although I'm sure you already intend doing so.</i></p>	<p>We are currently in the review period for the test excavation method. We intend on reissuing the method with any updated outcomes based on RAP consultation and consultation with you.</p>

I hope that this letter addresses your comments and questions. I welcome any further discussion you may wish to have about the project.

Yours sincerely  
Ryan Desic

A handwritten signature in black ink, appearing to read 'Ryan Desic', with a stylized flourish at the end.

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## Ryan Desic

**From:** Ryan Desic  
**Sent:** Thursday, 15 October 2015 3:22 PM  
**To:** 'Rose O'Sullivan'  
**Cc:** Luke Edminson; Pamela Kottaras; Jarred Kramer  
**Subject:** Hume Coal Project: Revised Test Excavation Method  
**Attachments:** J12055\_Test\_excavation\_method\_revision\_V04.pdf

Dear Rose,

Attached is the revised test excavation method for the Hume Coal Project. The letter summarises the outcomes of consultation regarding the test excavation method which is proposed for the 19 October to 4 November 2015. Please do not hesitate to contact me if you have any further questions about the test excavation program or any matters regarding the Aboriginal cultural heritage assessment being prepared.

We would also like to extend an invitation for you to make a site visit during the test excavation program if you wish to familiarise yourself with the project in more detail. If so, I would happily make arrangements for you to attend – just contact me on my details provided below.

Regards,  
Ryan Desic  
Senior Archaeologist

Sydney, Newcastle and Brisbane.



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