

**McPhillamys Gold Project (SSD 9505) – Independent Planning Commission Public Hearing:
Aboriginal Cultural Heritage Assessment and Recommended Conditions of Consent –
Independent Expert Opinion –
Peter Kuskie, South East Archaeology**

11 February 2023

Background:

1. The following independent expert opinion is provided by myself in relation to Aboriginal cultural heritage matters associated with the proposed McPhillamys Gold Project ('the Project').
2. My opinion is provided at the request of EDO NSW acting on behalf of Wiradjuri Elder Ms Nyree Reynold in relation to an Independent Planning Commission (IPC) public hearing into the Project.
3. I have been asked to provide an expert opinion on the appropriateness and adequacy of the Aboriginal Cultural Heritage Assessment (ACHA) that addresses the following:
 - a) In your opinion, does the Department's Assessment Report and the Recommended Conditions of Consent for the Project adequately and accurately address the Project's impact on Aboriginal cultural heritage?; and
 - b) Any further observations or opinions which you consider to be relevant.
4. I confirm that I have read the *Uniform Civil Procedure Rules 2005* and the Expert Witness Code of Conduct and agree to be bound by this Code.
5. I confirm that the advice I am providing in relation to Aboriginal cultural heritage associated with the Project is as an independent expert and I am not aware of any potential or real conflict of interest that may exist or affect my ability to provide independent advice, notwithstanding that I have known and worked in a professional capacity with (as an external consultant to) the Regis Resources NSW HSE Manager Danielle Wallace during her previous employment at Resource Strategies and Evolution Mining.
6. In relation to my qualifications and experience, I confirm that I hold a Bachelor of Arts (BA) Honours degree in archaeology (Australian National University, 1989) with majors in Aboriginal archaeology/prehistory and anthropology, and that I am a Life Member of the Australian Association of Consulting Archaeologists Inc. (AACAI). As principal and Director of South East Archaeology I have had extensive experience over a period of 33 years conducting Aboriginal heritage assessments, primarily in south-eastern Australia and particularly in NSW, for a wide range of projects related to the mining, infrastructure, residential and tourism industries, including similar projects to that presently under review. I have previously undertaken heritage assessments in the Blayney locality, including for the Blayney Shire Council Timber Bridge Replacement Project (Kuskie and Carter 2016). My curriculum vitae is attached in Attachment 1 and the list of reports I am responsible for is attached in Attachment 2.
7. My advice is based upon a review of the key documents pertaining to the Project application as lodged by Regis Resources (the Proponent) and others with the NSW Department of Planning and Environment (DP&E), including:

- a) McPhillamys Gold Project Aboriginal and Historical Cultural Heritage Assessment (Landskape 2019);
 - b) Heritage NSW advice on Environmental Impact Statement (EIS) including Landskape (2019) heritage assessment report (Cheryl Brown, no date);
 - c) McPhillamys Gold Project Addendum to the Aboriginal and Historical Cultural Heritage Assessment (Landskape, August 2020);
 - d) Addendum Aboriginal Cultural Heritage and Historical Heritage Assessment Report McPhillamys Gold Project Mine Access Road and Pipeline Options (OzArk, August 2020);
 - e) McPhillamys Gold Project (first) Amendment Report (EMM, September 2020);
 - f) McPhillamys Gold Project Submissions Report (EMM, September 2020);
 - g) BCS (now Heritage NSW) advice (Michelle Howarth, 12 October 2020);
 - h) Heritage NSW advice on Response to Submissions and first amendment (Katrina Stankowski, 22 September 2020);
 - i) Addendum Aboriginal Cultural Heritage and Historical Heritage Assessment Report McPhillamys Gold Project Mine Access Road and Pipeline Options (OzArk, December 2020);
 - j) McPhillamys Gold Project (SSD 9505) – Aboriginal Cultural Heritage Consultation Update and Additional Information (Regis Resources, correspondence 15 April 2021);
 - k) McPhillamys Gold Project (second) Amendment Report (Regis Resources, May 2022);
 - l) Aboriginal Cultural Heritage Assessment Report Addendum 2 McPhillamys Gold Project Water Supply Pipeline (OzArk, May 2022);
 - m) Heritage NSW advice on second amendment (Nicole Davis, 9 June 2022);
 - n) McPhillamys Gold Project (third) Amendment Report (Regis Resources, October 2022);
 - o) Orange Local Aboriginal Land Council (LALC) submission (9 January 2023);
 - p) McPhillamys Gold Project State Significant Development Assessment SSD 9505 (NSW DP&E, November 2022); and
 - q) NSW DP&E Assessment Report and Recommended Conditions of Consent.
8. My advice is also based upon my extensive experience with Aboriginal heritage assessments in NSW over the past 33 years, including substantial experience with mining projects in the Central Tablelands and Hunter Valley regions, my undertaking of projects of comparable scope and my familiarity with the investigation area.

Opinion on Primary Heritage Assessment (Landskape 2019):

9. It is noted that the Landskape (2019) heritage assessment prepared by Dr Matthew Cupper is *the fundamental assessment supporting the EIS and subsequent DP&E (2022) Assessment Report and Recommended Conditions of Consent*¹.

¹ Other documents lodged by the proponent and listed in (7) primarily relate to relatively minor amendments to the Project and/or lower-scale ancillary impacts outside of the primary zone of impact.

10. It is noted that the Project will result in substantial direct impacts to an area of around 11 square kilometres for the mine site, along with linear impacts over a narrow corridor of around 90 kilometres for water infrastructure. It is this mine site area in particular where direct and irreversible impacts may occur to Aboriginal cultural heritage (including material evidence or 'objects' and intangible cultural values), for which the assessment of Project impacts on Aboriginal heritage is specifically required in the context of an EIS and ACHA.
11. It is noted that an Expert Opinion Report prepared by Doug Williams of Technical Heritage Studies (February 2022) in relation to a Section 10 Application under the *Aboriginal and Torres Strait Islander Heritage Protection Act* has been made available to me.
12. I am satisfied through three decades of direct and indirect personal and professional knowledge that Mr Williams is a sufficiently qualified and experienced archaeologist in Aboriginal heritage to provide a credible independent review of a matter such as the Section 10 application he reviewed.
13. Williams reviewed and expressed opinion on the merits and deficiencies of the Landskape (2019) heritage report (specifically points #24-37 of Williams 2022, reproduced here in Appendix 1).
14. After review of the Landskape (2019) heritage report and other documentation, I am of the opinion that the comments made by Williams (2022, specifically points #24-37 as reproduced here in Appendix 1) are valid and well substantiated and I am in virtual total concurrence with the findings of Williams.
15. The most significant deficiencies of the Landskape (2019) heritage report relate to identification and analysis of the Aboriginal heritage potentially subject to impacts, including the sub-surface heritage resource. These issues lie at the heart of the most basic question any Aboriginal Cultural Heritage Assessment seeks to address – “*what is present?*”
16. Only after knowing with sufficient confidence to address the *precautionary principle* (refer to comment #20 below) *what* Aboriginal heritage evidence is present (not merely obtrusive sites such as scarred trees, or less obtrusive but visible evidence such as stone artefacts in the occasional erosion scour or area of disturbed ground surface that was inspected during the heritage survey - the *identified evidence*, but the buried/obscured sub-surface deposits of artefacts that represent the vast majority of the heritage resource² - the *potential resource*, along with *cultural values*), can one proceed to assess the heritage significance of that resource, the potential impacts of the Project on it, and appropriate management strategies.
17. For reasons outlined by Williams (2022; see Appendix 1 here) and below, the Landskape (2019) heritage report fails to adequately establish *what* Aboriginal heritage evidence is present in the impact area.
18. I am in concurrence with Williams (2022; see Appendix 1 here - comments #30 and 36) about issues with the nature and level of the archaeological survey coverage, and subsequent lack of analysis of the results of the survey (Williams comments #31-36).

² Numerous substantive archaeological surveys and excavations in south-eastern Australia have demonstrated that artefacts occur in a widespread distribution (a virtual continuum) across the landscape, at varying densities (for example, Hall 1991, 1992, Hall and Lomax 1993, Kuskie 2000, 2009, Kuskie and Clarke 2004, Kuskie and Kamminga 2000, Kuskie and Norris 2020, Packard 1991, 1992). The spatial distribution of human activity and the resulting artefact evidence tends to exhibit strong correlations to certain environmental factors such as landform element, slope and proximity to water and resources, as demonstrated by empirical data obtained from these studies. Evidence can also vary in relation to cultural factors. The use of surface surveys as a sole method of identifying artefact scatter sites is clearly limited to the identification of evidence exposed by erosion or other ground disturbance (Dean-Jones and Mitchell 1993). As demonstrated by these and numerous other studies, a substantial predicted or 'potential' resource typically exists, the nature and extent of which can only be resolved through sub-surface excavation.

19. I am in concurrence with Williams (2022; see Appendix 1 here - comments #35h-r, t-z, aa, bb) about the absence of investigation and assessment of the sub-surface heritage resource and expand on this further below.
20. The *precautionary principle* is relevant to the consideration of potential impacts to Aboriginal cultural heritage where a proposal involves a risk of serious or irreversible damage to Aboriginal objects or places or to the value of those objects or places, and there is uncertainty about the Aboriginal cultural heritage values or scientific or archaeological values, including in relation to the integrity, rarity or representativeness of the Aboriginal objects or places proposed to be impacted (DECCW 2009:26). In my opinion, given the absence of systematic heritage investigation of sub-surface deposits across the extensive impact area, such uncertainty currently exists for the Project.
21. Where this is the case (risk of serious or irreversible damage, and uncertainty about the values), Heritage NSW instructs that a precautionary approach should be taken and all cost-effective measures implemented to prevent or reduce damage to the objects/place (DECCW 2009). Heritage NSW notes that lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation (DECCW 2009:26). In applying the precautionary principle, decisions should be guided by a careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and an assessment of the risk-weighted consequences of various options (DECCW 2009:26). In my opinion, this has not occurred for the Project.
22. It is noted that the above issues with the Landskape (2019) assessment have been identified and repeatedly voiced by Aboriginal stakeholders (for example, the Orange LALC³, see correspondence in Appendix 4 of Landskape 2019 and Appendix 1 of Landskape 2020).
23. I find the Landskape (2019:11-14) and (2020:6-9) and proponent's responses (EMM 2020:329-330, Regis correspondence 15 April 2021 and 17 March 2021) to these concerns expressed by Aboriginal stakeholders very inadequate on many levels, as they have either not directly addressed and/or not substantively responded to the concerns raised. I note that this is not consistent with the requirements of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
24. I find the subsequent obliviousness by Heritage NSW (Cheryl Brown, no date, and Michelle Howarth 12 October 2020) to the concerns raised by Aboriginal stakeholders problematic in view of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010b), the precautionary principle and the objects (Part 2A) of the *National Parks and Wildlife Act*.
25. In particular, I dispute the statement by Landskape (2020:8) that "the shallow soils of the project area, coupled with past disturbance from mining, pastoralism, agriculture, and dam, track and fence construction, means that significant in situ subsurface cultural deposits are highly improbable" for the same reasons as stated by Williams (2022; refer here to Appendix 1 - comment #35).
26. I also dispute the statement by Landskape (2020:8) that "the project area does not contain culturally sensitive landforms" (using one limited example of lunettes), when the presence of low gradient landform units in close proximity to higher order water sources occur within the Project area. These could host deposits of research value (scientific significance), as was apparently identified by Navin Officer archaeologists who were involved in the original survey (Landskape 2019:131).

³ Notwithstanding their recent adoption of a constrasting position (Orange LALC correspondence of 9 January 2023).

27. The dismissal of potential deposits on the basis of personal communication from geoarchaeologist Dr Tim Stone, who does not appear to have visited the Project area, is totally unsupported and highly unusual. Williams (2022; refer here to Appendix 1, point #35u-v) reached the same conclusion. The dismissal of potential deposits by Regis (15 April 2021, 17 March 2021) is rejected for the same reasons⁴. Images in Figures 6.10 and 6.23 of Landskape (2019:48 and 59) clearly show deeper A unit soil deposits. I am highly confident that a program of sub-surface excavation (see comment #51) would answer this key issue (and would establish the presence of sub-surface deposits of scientific significance within the Project area and allow for informed decisions about their management in consultation with the Aboriginal community).
28. In relation to potential sub-surface deposits, in a highly speculative manner, even at a very low assumed basis of one artefact per conflated square metre⁵, within the approximately 11 square kilometre mine site impact area there could be around 11 million artefacts that form the sub-surface resource impacted by the Project. If the results of Williams (2022; see Appendix 1 here - comment #35y) from test excavation of two Potential Archaeological Deposits (PADs) on a ridge at Molong, distant from any water, revealing 66 artefacts in a total 5.75 m² area (average of 11.5 artefacts per conflated square metre) are any guide, even at those relatively low densities it could be speculated that around 126 million artefacts could be impacted by the mine site alone. Of course, artefact density will vary substantially in relation to Aboriginal land use and environmental factors (refer to Footnote 2) and cultural factors and much higher densities are likely to be present in some contexts (such as low gradient landform units close to higher order water sources) and lower densities in other contexts (such as steep gradient simple slopes distant from higher order water). Unless an adequate program of sub-surface testing is undertaken within the context of a valid research design (refer to comment #51), the true extent of this potential resource that would be impacted by the Project will not even be known, never mind investigated/analysed/assessed and options for conservation or mitigation considered.
29. I dispute the statements by EMM (Submissions Report, September 2020) rebutting the Orange LALC concerns that consultation with the Aboriginal community was inadequate and not compliant with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*. Consultation is not merely a one-way process, where the proponent tells the community about its project. Consultation is a two-way street, where the community is afforded the opportunity to express their views, and the proponent responds by addressing those views (and demonstrating in their assessment how that input has been addressed, in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* requirements). Key concerns raised by the Orange LALC about the deficiencies in the assessment were not actually addressed in the assessment.

Ancillary/Amendment Assessments and Related Documentation:

30. It is noted that the documents lodged by the proponent and listed in (7) above, other than the Landskape (2019) report, primarily relate to relatively minor amendments to the Project and/or comparatively lower-scale ancillary infrastructure impacts outside of the primary zone of impact of the Project.

⁴ And it is noted that any opinion by the Orange LALC for sub-surface testing to occur *after* approval, as expressed on a single occasion, does not exonerate the proponent from discharging their obligations under the SEARS and Heritage NSW requirements, with respect to adequately understanding “what” Aboriginal heritage is present within the Project area as part of the ACHA *prior* to any approval.

⁵ *Conflated* artefact density refers to the number of artefacts located within a volume of excavated deposit, expressed as a mean of the surface area of the excavation (eg. number of artefacts per square metre). This measure is designed to reduce the impact of sediment volume on density comparisons (eg. geomorphological processes will result in lower slopes having a deeper A unit soil than upper slopes). A standard alternative for artefact density in excavations where the data is available is the average number of artefacts within a unit of volume of excavated deposit.

31. I am surprised by how little Aboriginal heritage evidence was identified along the pipeline route of around 90 kilometres length (with additional variations of at least 14 kilometres also surveyed). The reasons for this are unclear, although could relate to conditions of surface visibility/vegetation cover at the times of the surveys, burial of artefact evidence through geomorphological processes and lack of identification through any sub-surface excavation, the intensity/time applied to the surveys, the capability and attentativeness of the survey personnel, a genuine very low intensity of Aboriginal land use over the past thousands of years in those specific locations, and/or recent high level land use impacts having impacted evidence.

Heritage NSW and Department of Planning and Environment Reviews:

32. I find it difficult to understand the basis for Heritage NSW acceptance (Cheryl Brown, no date) of the Landskape (2019) heritage report, given the fundamental non-compliances with the SEARS and *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) and *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010b) requirements, as has been identified here above, and in much detail by the independent expert review of Williams (2022; see Appendix 1 here).
33. I note that Brown (no date) did not provide any details or justification for the Heritage NSW approval, or how the Aboriginal heritage assessment complied with the SEARS or Heritage NSW requirements.
34. I note the relative lengthy extent of comments provided by Brown (no date) on historic heritage, compared with the virtual absence of comments provided on Aboriginal heritage, and therefore question whether a qualified archaeologist in Aboriginal heritage even reviewed the Landskape (2019) report on behalf of Heritage NSW?
35. An internal review document should be available that would clarify the above issue, including the grounds on which Heritage NSW identify that the Landskape (2019) report satisfactorily addresses from their perspective the SEARS and *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) and *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010b) requirements.
36. Similarly, I note that the BCS (now Heritage NSW) advice of Michelle Howarth (12 October 2020) in relation to the first amendment report comprised only a very brief email in which the report is endorsed, the heritage findings are trivialised as ‘insignificant’ and the substantive issues raised by the Orange LALC are simply dismissed as “the same issues raised for the Mine project”. Again, this raises the question of whether a qualified archaeologist in Aboriginal heritage reviewed the report (OzArk, August 2020) on behalf of Heritage NSW.
37. I note that the Heritage NSW advice on Response to Submissions and first amendment (Katrina Stankowski, 22 September 2020) only relates to historical heritage.
38. There is no comment on Aboriginal heritage in this Heritage NSW advice (Katrina Stankowski, 22 September 2020) and I have not witnessed any other Heritage NSW advice on the Response to Submissions.
39. I note the difference between the opening sentence of Stankowski (22 September 2020) (“Thank you for your referral dated 8 September 2020 inviting comments from the *Heritage Council of NSW* on the above State Significant Development {SSD} Response to Submissions” and how it differs materially from the concluding sentences (“Based on the above, *Heritage NSW* considers...”) and sign-off (Katrina Stankowski, Senior Team Leader, *Regional Heritage Assessments North, Heritage NSW*, Department of Premier and Cabinet, *As Delegate of the Heritage Council of NSW*). In the absence of a specific Heritage NSW response to the Aboriginal issues in the Response to Submissions, it is unclear whether this represents the total Heritage NSW response, or a separate response on Aboriginal heritage was not provided, or has not been witnessed by myself.

40. I note that the Heritage NSW advice on the second amendment (Nicole Davis, 9 June 2022) relates solely to the OzArk (2022) assessment of minor amendments/ancillary infrastructure impacts.

Additional Relevant Observations/Opinions:

41. I note that the author of the Landskape (2019) report, Dr Matthew Cupper, currently holds a post-doctoral position in Luminescence Dating with the University of Melbourne's Geography, Earth and Atmospheric Sciences department, has degrees in 'archaeology and classical history, geology and botany' from the University of Melbourne, and substantial experience with scientific methods of investigation that can be of relevance to the study of Aboriginal heritage. It is unclear what exact academic training, academic qualifications and/or expertise Dr Cupper has specifically in relation to *Aboriginal archaeology* and *Aboriginal cultural heritage*.

42. I note below the specific requirements of Section 1.6 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) in relation to the skills and experience of a person suitable to prepare an Aboriginal archaeological assessment, and question whether Dr Cupper satisfies these requirements:

- a) A minimum of a Bachelor's degree with honours in archaeology or relevant experience in the field of Aboriginal cultural heritage management, and
- b) The equivalent of two years full-time experience in Aboriginal archaeological investigation, including involvement in a project of similar scope, and
- c) A demonstrated ability to conduct a project of the scope required through inclusion as an attributed author on a report of similar scope.

Opinion on Assessment Report and Recommended Conditions of Consent:

43. On the basis of the issues noted above, including the failure of the heritage assessment to adequately identify what Aboriginal heritage is present within the Project impact area, along with the various non-compliances with the SEARS and heritage requirements, I could not at this moment support the Department's Assessment Report conclusions that "the project's impacts on Aboriginal cultural heritage would be acceptable in accordance with NSW government policy". I do not see that there is sufficient information available about the Aboriginal heritage resource in the impact area (particularly sub-surface deposits) for that conclusion to be formed, with respect to the principles of *ecologically sustainable development*, especially the *precautionary principle*.

44. I have not found, on the basis of the evidence reviewed, support for the Department's statement #406 that the Landskape (2019) report was "prepared in accordance with applicable guidelines" (refer here to Appendix 1 – Williams comment #36).

45. I have not found, on the basis of the evidence reviewed, support for the statements made by Landskape (2019) and relied upon by the Department, in #418 that all sites have "low scientific significance", in #419 that although additional sites may exist "it is unlikely that these artefacts would be located *in-situ*" or that "there are no culturally sensitive landforms located in the project area" (noting again that I am in concurrence with Williams' comments on these matters as included here in Appendix 1).

46. As stated above, in relation to the Department's statement #410, I have not identified the reasoning that formed the basis of the Heritage NSW position that it "did not have significant concerns with these assessments".

47. I note the Department's omission in statement #421 of many of the serious concerns raised by the Orange LALC, and how these concerns have not been addressed elsewhere by the proponent.

48. I note the Department's concession in statement #423 in relation to the pipeline that it would traverse "elevated landforms near waterways which have archaeological sensitivity" which contrasts directly with statement #425 that "further sites may be uncovered during trenching works, however this is considered unlikely".
49. I note the apparent error in the Department's statement #428 that Regis have committed to an ACHMP that includes "an archaeological subsurface testing program", when the testing program relates only to non-indigenous heritage.
50. In my opinion, there is sufficient justification for the original assessment (Landskape 2019) to be set aside, and any decision on a Consent deferred, until detailed investigation of the sub-surface Aboriginal heritage resource within the impact area has been completed in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) and *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010b).
51. Any investigation of the sub-surface Aboriginal heritage resource within the impact area should occur in the context of a valid research design, comprising a detailed model of Aboriginal occupation of the locality, consideration of the specific environmental/cultural characteristics of the impact area, definition of the expected nature and distribution of evidence, formation of research questions and a methodology (including sampling strategy) to retrieve the required evidence in consideration of the expected nature and distribution of evidence, and analytical techniques for the evidence recovered that are appropriate to address the research questions and project objectives. A program with a sufficient sample could satisfactorily address the most basic question of "what" is present within the impact area, and thereby facilitate the subsequent assessment of impacts and heritage significance and formulation of appropriate management strategies, in consultation with the Aboriginal stakeholders, to enable informed consideration of the Project application by the Department consistent with the SEARS and the principles of *ecologically sustainable development*.

Prepared by:



Peter J. Kuskie,
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References:

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- Landskape 2019 *McPhillamys Gold Project Aboriginal and Historical Cultural Heritage Assessment*. Unpublished report to LFB Resources NL.
- Landskape 2020 *McPhillamys Gold Project Addendum to the Aboriginal and Historical Cultural Heritage Assessment*. Unpublished report to LFB Resources NL.
- OzArk 2020 *Addendum Aboriginal Cultural Heritage and Historical Heritage Assessment Report McPhillamys Gold Project Mine Access Road and Pipeline Options*. Unpublished report to EMM.

OzArk 2022 *Aboriginal Cultural Heritage Assessment Report Addendum 2 McPhillamys Gold Project Water Supply Pipeline*. Unpublished report to LFB Resources NL.

Packard, P. 1991 *Sites and Sampling in the South East Forests: Research Design, Sampling Methodologies and Sample Selection for a Proposed Site Survey Project*. Unpublished report to NPWS and NSW Forestry Commission.

Packard, P. 1992 *An Archaeological Assessment of State Forests in the Kempsey and Wauchope Forestry Management Areas*. Unpublished report to NSW Forestry Commission.

APPENDIX 1: WILLIAMS (2022) EXCERPTS

REVIEW OF McPHILLAMYS GOLD PROJECT: ABORIGINAL AND HISTORICAL CULTURAL HERITAGE ASSESSMENT (2019). PREPARED BY LANDSKAPE NATURAL AND CULTURAL HERITAGE MANAGEMENT FOR LFB RESOURCES NL (Landskape 2019)

24. The primary author of this report is Dr Matthew Cupper, an archaeologist and geoscientist. I do not personally know Dr Cupper, but have met him perhaps once some decades ago.
25. The data upon which the report is based was collected mainly by NOHC. I do not personally know the NOHC employees who undertook the survey and are named in the Landskape report⁶. The Directors of NOHC, Ms Kerry Navin and Dr Kelvin Officer are known to me as acquaintances, although I have not actually seen them for more than a decade, perhaps two. I worked for NOHC as a subconsultant for approximately one month in 1996 or 1997.
26. A key question of the brief is "Have the s 10 reports been prepared based on appropriate and adequate assessment of the Aboriginal Cultural Heritage of the Significant Area?"
27. The foundation of a response to this question lies in an assessment of the results and analysis of Landskape 2019.
28. This report records both Aboriginal and non-Aboriginal heritage resources in the Specified Area. I restrict my comments/review to their findings with regard to Aboriginal heritage.

¹ Landskape. 2019. McPhillamys Gold Project: Aboriginal and Historical Cultural Heritage Assessment. Prepared for LFB Resources NL. p.2.

² *Ibid.* Application SSD_18_9505.

³ Dept of Environment Climate Change and Water (DECCW). 2010a. *Aboriginal Community Consultation Requirements for Proponents*. NSW Dept of Environment Climate Change and Water, Sydney.

⁴ Landskape 2019, *op cit*, p36.

⁵ *Ibid.*

⁶ *Ibid.* p9





29. ABORIGINAL COMMUNITY CONSULTATION: Landscape 2019 is largely consistent with the requirements of the NSW *Aboriginal Community Consultation Requirements for Proponents*. The appendices relating to community consultation omit written copies of responses to notification, although they are noted in the summary table of Appendix 1. This is a significant omission as there is no way of verifying that all the groups and individuals of which NOHC was made aware were actually contacted. Responses to notifications should be included in these appendices.
30. ARCHAEOLOGICAL SURVEY COVERAGE:
- a. The development footprint identified in Landscape 2019 is approximately 1400 hectares, or 14 square kilometres.
 - b. The archaeological survey team (3 archaeologists and one representative of the OLALC) is described at section 6.2.1 (p.36) and survey method is described at section 6.2.2 (p.36). The report describes that survey team members “walked abreast...in a series of closely spaced transects. These were evenly distributed across the areas of proposed disturbance and approximately 10-50m apart. Due to the openness of the landscape it was usually possible to identify site locations and deviate from the transects to make closer inspections”.⁷
 - c. There is uncertainty in this description regarding the intensity or otherwise of the survey. For example, does this describe transects 10m apart that were surveyed by 4 people, or people walking 10m apart along a general survey trajectory? If the latter, how far apart were the transects? How was consistency achieved?
 - d. People walking 50m apart would not constitute ‘closely spaced transects’ in my opinion and while a mature tree or a large erosion scar may be observable from 50m distance, surface stone artefacts are not. In this manner the assertion that site locations were observable from this distance is inaccurate. SOME site locations MAY be visible, but many will not.
 - e. The issues identified at points b. and c. would be mostly addressed if the report contained a map showing survey transects/trajectories, but such a figure is absent from the report. Such a figure is noted as Requirement 5c and Requirement 8 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*⁸(the Code). Such a figure would assist in supporting the assertion that “all mature trees in the area of proposed disturbance were inspected for scarring or carving by Aboriginal people”⁹. As it stands the report is incomplete for the purposes of submission as part of the EIS based on the published requirements of Heritage NSW.
 - f. Coverage achieved by the field survey is documented at section 6.4, pages 37-39. The text references claim 14% effective coverage (p.37) supported by detail in tables 6.1 and 6.2 (p.38-39). Tables 6.1 and 6.2 each record a total of 10% effective coverage. This discrepancy is unexplained. The report claims 14% is a relatively high effective coverage for a surface survey. In my opinion this is true – most surface surveys achieve effective coverage of <10%. A 10% effective coverage would be towards the better end of average effective coverage results, but this inconsistency should be clarified.
31. SURVEY RESULTS.
- a. The archaeological survey recorded 37 Aboriginal archaeological sites, all small scatters of stone artefacts or isolated artefacts. These finds are summarised at Table 6.3 (p.40) and

⁷ *Ibid.*

⁸ Dept of Environment Climate Change and Water (DECCW). 2010b. *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. NSW Dept of Environment Climate Change and Water, Sydney.

⁹ Landscape 2019 *op cit.* p36.





Table 7.4 (p. 108) of Landskape (2019). The total assemblage of artefacts comprises 95 flaked stone artefacts, mostly made of tuff and quartz.

- b. 18 of the sites are isolated artefacts and 19 of the sites are 'small' scatters of stone artefacts. The scatters range from 2 spatially associated artefacts through to the largest site, 10 spatially associated artefacts.
- c. The sites are described as being mainly in the 'north east portion', with half of the sites clustered there.¹⁰
- d. An analysis of artefact density per square metre is a common way of comparing artefact occurrences across a landscape. Artefact density is (or should be) a measure of research potential and important to assessing scientific significance. While there are variables that can make such an assessment tentative, it remains a useful method of comparison – particularly in conjunction with an analysis of surface visibility at each site. For example if we were to compare 10 artefacts occurring in 1 square metre with 10 artefacts occurring over 1 hectare and both had similar surface visibility it would be reasonable that we could suggest that the former was considerably more dense, and that there was a likelihood of many more artefacts being present in a small area. Density comparisons can also be expressed as density per *visible* square metre. The sites are inconsistently described with regard to the area over which artefacts were found making analysis of artefact density difficult. For example site MGP-A1 is a scatter of three artefacts eroding from 'a cut' in a saddle. The photograph for the site shows three artefacts on bare ground close together¹¹. But there is no description of the area of visibility or the area of the 'site'. In comparison site MGP-A2 is recorded as having 6 artefacts over an area of 35m x 5m¹². In this instance a calculation of surface artefacts per square metre can be achieved. Sites MGP-4, MGP-5 and MGP-7 contain estimates of site area, Site MGP-9 (5 artefacts) and MGP-10 (3 artefacts) do not¹³, and similar inconsistency follows through the remainder of the site descriptions. If these figures were not available to Landskape from the NOHC data they should have re-surveyed the sites to establish this baseline data to contribute to significance assessment.

32. ANALYSIS:

- a. There is no meaningful analysis in Landskape 2019. After a field survey of 18 days with 5 additional days of inspection the 37 sites are 'analysed' in just under 400 words and a raw material table. Such analyses would normally include:
 - i. Artefact analysis – an analysis of the size, types, stone material and manufacturing techniques.
 - ii. Density Analysis – an analysis of the variation of artefact density between sites and/or across the landscape, the recorded site area, the density of 'sites' across the landscape.
 - iii. Topographic analysis – an analysis of sites against the topographic element in which they occur. There is a table that partially addresses this question (Table 6.2, p. 39) but this only includes a record of the number of sites across the landforms and does not analyse whether there is a pattern to the types of scatters found in the different landforms or whether there is variation in stone artefacts across the Specified Area.

¹⁰ Landskape 2019 op cit. p.108

¹¹ Landskape 2019 op cit. pp. 39-43

¹² Landskape 2019 op cit. p. 43

¹³ Landskape 2019 op cit. pp. 43-52





- iv. An analysis of whether there is potential for subsurface archaeology to occur at any of the sites.
 - v. Analysis of the results of this survey with the results of other surveys in the area.
33. Consideration of the variables described above are commonly used to build the assessment of scientific significance. Without them any assessment of scientific potential must be regarded as 'assumed' rather than demonstrated.
34. There are 37 photographs illustrating different aspects of the Aboriginal sites and artefacts recorded in the Specified Area. Of these 23 do not meet the requirements of the Code –specifically Requirement 7b. “All photographs must include an appropriate graded metric scale –mm or cm graded scales for macro artefact or feature photography, and tens of cm or m graded scales (such as a range pole, surveying staff or tape measure) for wider angle or context photography”¹⁴. This is a point where the Landskape report fails to meet minimum required standards.

35. SIGNIFICANCE ASSESSMENT:

- a. Landskape 2019 presents the significance assessment at section 7.1 (p. 110).
- b. Section 7.1.1 notes that criteria for determining scientific significance include “integrity of a site, its structure and contents”, also noting representativeness or rarity as being important considerations.¹⁵
- c. The archaeology of Aboriginal sites on open areas seeks to understand the past through examination of the material remains left behind or discarded by the people being researched. It looks for patterns in the landscape at broad scale and also more detailed levels. So cultural material may be clustered at places in the landscape used repeatedly because it was a favourable occupation site and sparse in areas less intensively used. A landscape displaying this pattern might be said to have 'high' or 'good' integrity.
- d. Site integrity is a concept applied in the assessment of significance, and it relates to the level of disturbance cultural material has undergone since its discard. It is posed that material that lies at or very close to its original point of discard (for example, artefacts discarded at the same time close to one another) is more informative than artefacts that have been dispersed or redeposited. The study of this dispersal is called TAPHONOMY and in reality there is NO archaeological site that is completely undisturbed. Agents of disturbance or dispersal might include European processes such as clearing, mining and cultivation (as noted in Landskape 2019¹⁶), and also more natural processes such as the actions of burrowing animals and insects and growth of trees. This natural movement of soils and particles is termed BIOTURBATION. Some European practices can exacerbate natural processes so soil erosion and soil deflation can also affect site integrity.
- e. There is a widely applied, though poorly supported, assumption in Australian archaeology that agricultural landscapes exhibit poor site integrity due to clearing, cultivation and disturbance from stock. This assumption pervades in survey assessments despite many detailed studies showing the persistence of clustered, dense archaeology in agricultural

¹⁴ DECCW 2010b *op cit.* p. 15

¹⁵ Landskape 2019 *op cit.* p.110

¹⁶ Landskape 2019 *op cit.* p.15





contexts across south eastern Australia despite the application of European land use. Examples in footnotes.^{17 18 19 20 21 22 23}

- f. At section 7.1.1 Landskape identifies three levels of site integrity – low (highly disturbed or poorly preserved with little research potential), medium (some disturbance but remaining cultural material allows for some research potential) and high (little or no disturbance to site, good preservation and good research potential).
- g. They go on to note that ALL of the sites recorded for this project have low integrity due to disturbance observed during fieldwork.²⁴ This included evidence of cultivation, graded roads and farm infrastructure.
- h. This conclusion of low integrity for all sites is, in my opinion, premature and unsupported by the data presented in the report. It is an assumption stemming from an assessment of landscape history with no actual testing of the soil profile or investigation of the potential for high density artefact clusters. Graded roads form a miniscule percentage of the 14 square kilometre Specified Area, as does 'farm infrastructure'.
- i. It could be predicted that a landscape with enough integrity to support research would include clusters of stone artefacts interspersed with areas of no archaeology to sparse background scatter. That such a pattern exists in the study area is arguable from the data presented. It includes sparse scatters (for example MGP-A7, 6 artefacts at 0.003/m²) through to more dense scatters MGP_A1, MGP_A24 at 3 artefacts/m². This pattern does not guarantee a high degree of clustering, nor numerous clusters, but it certainly indicates they exist and as a consequence, in my opinion and experience, site integrity is almost certainly higher than allowed by Landskape 2019.
- j. Test excavation at a scale and method suited to the Specified Area would assist in determining site integrity and move the assessment beyond assumption.
- k. At 7.1.2 Landskape discuss 'site structure' as a measure of scientific significance, identifying low structure (small surface scatters with no stratified deposit), medium structure (medium to large surface scatters with or without stratified deposit), and high structure (large in-situ surface scatters, any site with stratified deposit).²⁵
- l. Landskape 2019 presents no definition of what a 'small', 'medium', or 'large' scatter may comprise, nor whether such assessment is universal (applies across all their study areas), or is regionally relative (changes with geographical areas), or internally relative (applies on a scale determined by results of an individual study). Such definition should be expected.
- m. 'Stratified' deposit is very useful in much, although not all, archaeological research. If a soil deposit is stratified it means it exhibits 'strata' or layers, and the main principle of stratification is that the oldest layers are at the bottom, with progressively younger layers towards the surface. If it is a deep soil profile with cultural material like stone artefacts all the way through it can be illuminating to analyse the difference (or similarity) of artefacts in

¹⁷ Witter, D. 1981. Archaeological Salvage Excavations on the Dalton to Canberra Pipeline. Report to the Pipeline Authority.

¹⁸ McDonald, J. and B.Rich. 1994. 'The Discovery of a Heat Treatment Pit on the Cumberland Plain, Western Sydney'. In *Australian Archaeology* 38(1) pp.46-47.

¹⁹ McDonald, J. 2008. Salvage Excavation of Six Sites along Caddies, Seconds Ponds, Smalls and Cattai Creeks in the Rouse Hill Development Area, NSW.

²⁰ Williams, D. 2008. Stage 3 Archaeological Investigation at Headquarters Joint Operations Command, Between Queanbeyan and Bungendore, NSW: Salvage of Indigenous Archaeology. DEC Permit #2573. Volume 1 Main Report. Report to Leighton Contractors.

²¹ Williams, D. 2018. *Aboriginal Cultural Heritage Assessment: Proposed Limestone Mine, Molong, NSW*. Report to CWQ Pty Ltd.

²² McCardle, P. 2010. *Greta Rail Support Facility. Part 3A Indigenous Archaeological Test Excavation*. Report to Pacific National.

²³ Kelleher, M. 2019. *Aboriginal Cultural Heritage Assessment: "The Meadows" Lot 3 DP 24143, Calderwood Road, Calderwood*. Report to C & P Tate Pty Ltd.

²⁴ Landskape 2019 *op cit.* p.110

²⁵ Landskape 2019 *op cit.* p.





the older layers compared to the younger layers. If there is charcoal from campfires it can be carbon dated and we can then discuss the time period over which occupation of the site occurred. If the soil is suitable we can also use other dating techniques such as 'thermoluminescence' and 'optically stimulated luminescence'. There can be no doubt that stratified deposits add to research potential, and are most often found in closed in sites like rock shelters and caves, but also in open areas like sand dunes, creek terraces and banks.

- m. Landskape 2019 assesses all of the sites in the Specified Area as having low structure.
- n. This assessment is premature and unsupportable based on the information provided in the report. It is entirely possible that there may be 'large' scatters in the Specified Area. Also, stratification is not the only measure of 'structure' that can be applied, with multiple studies indicating value in the archaeology of sites with little or no stratigraphic patterning^{26,27,28,29,30}. The potential for stratified deposit in the study area has not been explored at all, and in any case, in my opinion, its absence does not equate to low research/scientific potential.
- o. At section 7.1.3 Landskape 2019 discuss 'site content' as a measure of scientific significance, identifying low (small amount and low diversity of cultural material), medium (medium amount and diversity of cultural material), and high (high amount and diversity of cultural material). The report goes on to assess the site content criterion as being 'low'.
- p. This assessment is premature and unsupportable based on the data presented. The report contains no explicit model of what indicators might be measured to assess this criterion. The divisions between 'small', 'medium' and 'large' amounts of artefacts are not defined. Nor is there any discussion of how the 'diversity' of cultural material is assessed. Taken solely at the results obtained and assuming those are the sum total of archaeology in the Specified Area, the assessment might be accurate. But as the development footprint is some 14 square kilometres, and the survey covered only 10% of the surface and included no exploration of what may be under the surface it is unreasonable to suggest the current recorded archaeology is representative of the total archaeological resource. Therefore, in my opinion, the extent and nature of artefact occurrences in the Specified Area has been insufficiently explored.
- q. At section 7.1.4 Landskape 2019 discuss site representativeness and rarity as a measure of scientific significance noting 'low' (many of the same type occurring in the same area or region), 'medium' (site type occurs elsewhere but not in great quantity or good preservation) and 'high' (site is rare or unique). The report goes on to conclude that the sites in the Specified Area have a 'low' rating.
- r. In my opinion, this conclusion is premature and unsupportable based on the data presented in Landskape 2019. This is because the extent and nature of artefact occurrences in the Specified Area has been insufficiently explored and therefore the assessment of their representativeness and/or rarity is based on incomplete information.
- s. I agree with the assessment of Aboriginal Value or Aesthetic Value.

26 Holdaway, S.J., Fanning, P.C. and Witter, D. 2000: Prehistoric Aboriginal occupation of the rangelands: interpreting the surface archaeological record of far western New South Wales, Australia. *The Rangelands Journal* 22, 58–71.

27 Holdaway, S.J., Fanning, P.C. and Shiner, J.I. 2006. *Geoarchaeological investigation of Aboriginal landscape occupation in Paroo- Darling National Park, Western NSW, Australia*. RAL-e No. 1, 82 pp. http://researchspace.itss.auckland.ac.nz/bitstream/2292/325/1/rale_no01.pdf

28 Fanning, P.C., Holdaway, S.J. and Rhodes, E. 2007: A geomorphic framework for understanding the surface archaeological record in arid environments. *Geodinamica Acta* 20, 275–86.

29 Holdaway, S.J., Fanning, P.C. and Rhodes, E.J. 2008: Assemblage accumulation as a time dependent process in the arid zone of Western New South Wales, Australia. In Holdaway, S.J. and Wandsnider, L., (eds), *Time in archaeology: time perspectivism revisited*. University of Utah Press.

30 Rich, B. 2021. The survival of artefacts from different historical phases in shallow open sites and the need for spit excavations: An overview from the Cumberland Plain, Western Sydney, Australia. *Australian Archaeology* DOI:10.1080/03122417.2021.1925415





- t. At section 8.4 Landskape 2019 discuss the potential for previously unidentified cultural heritage to occur in the study area.³¹
- u. Of interest is a statement to the effect that NOHC consultants considered Potential Archaeological Deposit (PAD) may occur in selected areas³². The approach to resolving this issue by Landskape 2019 is curious. The author of the Landskape 2019 report, Dr Cupper, is a professional geoscientist/geo-archaeologist with seemingly ample experience to deal with soils in the Specified Area. Nonetheless the NOHC assessments of PAD were subject to an undocumented 'detailed critique' – referenced only as "pers comm. 2018" – by Dr Tim Stone. Dr Stone apparently 'discounted the likelihood that [the NOHC PADs]... were differentiated from the surrounding archaeological landscape'. Dr Stone was not recorded as having visited the Specified Area. Landskape 2019 concludes that any undiscovered archaeology would *probably* be isolated artefacts and low density artefact scatters in the Specified Area.
- v. This conclusion is premature and unsupported based on the information presented in Landskape 2019. In the absence of a quantified and rigorous assessment of the subsurface archaeology of the area, in my opinion, such a conclusion cannot be drawn. Such a study would involve the excavation of test pits on a systematic grid in areas likely to contain cultural material. This is a standard investigation technique across NSW in areas where surface visibility is compromised by ground vegetation. The scale of such a program is beyond the scope of this report to determine, but by way of comparison I excavated 928 test pits at Bungendore in 2005 in a study area of 2.2 square kilometres³³.
- w. The management recommendations of Landskape 2019 note only collection being required to manage the Aboriginal cultural heritage of the Specified Area. In my opinion this approach leaves the archaeological potential and significance of the Specified Area inadequately assessed.
- x. The Specified Area consists of approximately 14 square kilometres of moderately to gently undulating terrain interspersed with ephemeral water courses and adjacent to permanent water courses. This terrain has consistently yielded wide spread archaeology which, despite cultivation, retains the ability to inform research questions.
- y. As an example I point to a project I undertook ~60km to the north west at Molong. On a high ridge several hundred metres from any water source, I undertook a test excavation program on 2 Potential Archaeological Deposits (PADs – areas with no surface archaeology but considered to have potential for archaeology under the surface, but definitely no deep stratification).³⁴ In 23 test excavation pits, each 50cm x 50cm in plan area I found 66 flaked stone artefacts, including 46 from a 1.75m² area (26.29 artefacts per square metre).
- z. A test excavation program of sufficient scale to cover higher potential areas in 14 square kilometres would provide detailed information on the intensity of occupation and activities undertaken in the Specified Area. Given the high impact that will occur in the Specified Area an intensive test phase is warranted.
- aa. There may be areas where higher densities of stone artefacts are discovered. These may be required to be the subject of salvage excavation. Information from such a process would augment data obtained from a test excavation phase.

³¹ Landskape 2019 *op cit.* p. 131.

³² *ibid*

³³ Williams, D. 2005. *Stage 2 Archaeological Investigation at Headquarters Joint Operations Command, between Queanbeyan and Bungendore, NSW: Sub Surface Probing. DEC Permit #2422.* Report to URS Australia and the Commonwealth Dept of Defence.

³⁴ Williams. 2018. *op cit.*





bb. In my opinion, until the results of test excavation DEMONSTRATE that the assumptions presented in Landscape 2019 are accurate, the significance assessment, impact assessment, assessment of archaeological potential and management recommendations should all be regarded as premature and speculative.

ADEQUACY IN RELATION TO THE CODE OF PRACTICE

36. In the following table I review the Landscape 2019 report for adequacy against the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales.

Table 1. Fulfilment of Requirements of The Code by Landscape 2019

REQUIREMENT	ADEQUATELY INCLUDED	NOTES
1. Review previous archaeological work		
1a. Previous archaeological work	Yes	
1b. AHIMS Searches	Yes	
2. Review the landscape context	Yes	
3. Summarise and discuss the local and regional character of Aboriginal land use and its material traces	Yes	
4. Predict the nature and distribution of evidence	Yes	
4a. Predictive Model	Yes	
5. Archaeological Survey		
5a Survey Sampling Strategy	No	The survey method does not explicitly reference a sampling strategy
5b Survey Requirements	No	There is no record of accurately defined and named survey units. Survey transects/trajectories are not accurately mapped or presented (at all).
5c. Survey Units	No	Beginning and end points of transects not provided, survey unit boundaries are not defined.
6. Site Definition	No	There is no definition presented on how 'sites' were defined.
7. Site Recording		
7a. Information to be recorded	No	No site plans were included in the report.
7b. Scales for photography	No	Photographic scales are inconsistently included
8. Location information and geographic recording		
8a. Geospatial information	Yes	
8b. Datum and grid coordinates	Yes	
9. Record Survey coverage data	Yes	
10. Analyse survey coverage	Yes	



11. Archaeological Report content and format	Yes	In terms of structure, the report complies
12. Record Keeping	Indeterminate	We assume records are legible and have been archived to survive the required 5 years
13. Notifying DECCW (HNSW) and reporting.		
13a. Notification of breaches	N/A	
13B. Provision of Information	N/A	
14. Test Excavation not excluded from definition of harm	N/A	
15. Preconditional to carrying out test excavation		
15a. Consultation	Yes	Although note incomplete appendices
15b Test Excavation sampling strategy	N/A	
15c. Notification	N/A	
16. Excavation that can be carried out in accordance with the code	N/A	
16a. Test Excavations	N/A	
16b. Objects recovered	N/A	
17. When to stop test excavations	N/A	
18. Artefact Recording		
18a. Visible artefacts on ground surface	Indeterminate	There are no photographs with stake flags or other visibility aid
18b. Artefacts in section	N/A	
18c. Partly buried artefacts	N/A	
19. Attribute Recording	No	
20. Photography and drawing	No	At least one photograph includes 7 artefacts collected to make a photo (maximum allowed is 6)
21. AHIMS records	Yes	AHIMS records done
22. Recording Rock Art	N/A	
23. Recording Culturally Modified Trees	N/A	
24. Recording Shell Middens	N/A	
25. Aboriginal Ancestral Remains	N/A	
26. Stone Artefact disposition and storage	N/A	None removed from Site

37. The report by Landskape 2019 has deficiencies in the *requirements* in order to be acceptable to Heritage NSW. The report should not be relied upon until these are rectified.