Submission by Dr Jim Smith B Sc., Dip. Ed., M.A., Ph.D.

Note: this submission has been developed in association with the RAP Kazan Brown, representing the Riley family, who has endorsed the its contents.

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Application. Warragamba Dam Raising number SS1-8441.

I strongly object to the proposal. The reasons are detailed in the following pages.

Political donations. I have not made reportable political donations in the last two years.

Biographical details for Jim Smith.

I have been exploring the Burragorang Valley for over 40 years, mostly on foot, but also including about 10 days of car journeys and three days of boat travels with Burragorang Valley Aboriginal descendents, escorted by Lake Burragorang catchment management staff. My first book on the Aboriginal people of the Burragorang Valley was published in 1991 (*Aborigines of the Burragorang Valley 1830- 1960*). This became part of a series of eight books on the history and culture of Gundungurra people, including detailed studies of their creation beliefs. I completed a Ph.D. thesis entitled 'Gundungurra Country' in 2008 which received a "Vice-Chancellors Commendation" for outstanding research. My published books most relevant to the Burragorang Valley Aboriginal people are: *Gungarlook. The Story of the Aboriginal Riley family of the Burragorang Valley*, (written in association with former Burragorang Valley Aboriginal resident Ivy Brookman nee Riley) published in 2010, and *The Aboriginal people of the Burragorang Valley. "If we left our Valley our hearts would break"*, first edition 2016, second revised edition, 2017. I have published 37 articles on Aboriginal history and culture, nearly all of them relating to Gundungurra people, including 'Aboriginal voters in the Burragorang Valley, New South Wales, 1869-1953', published in *The Journal of the Royal Australian Historical Society* in December 2012. My most recent published article on the Burragorang Valley is 'Rock Art of the Burragorang Valley' published in Kelvin Knox and Eugene Stockton (eds), *Aboriginal Heritage of the Blue Mountains. Recent Research and Reflections*, Blue Mountain Education and Research Trust, 2019.

A general statement on the inadequacy of the environmental impact statement dealing with Aboriginal cultural heritage.

The environmental impact statement sections relating to Aboriginal cultural heritage are most inadequate, misleading and disrespectful to the Aboriginal descendants of the Burragorang Valley community. I feel that it is hypocritical for the environmental impact statement to contain the wording:

"We acknowledge the Traditional Owners of the many lands on which we live and work. We pay respect to the First Nations Elders past and present and thank them for their continuing care of Country, culture and community."

In my view the environmental impact statement is an attempt to minimise the Aboriginal cultural significance of places in the Burragorang Valley which will be affected by the raising of Warragamba dam. It in no way reflects the idealistic sentiments of the above statement. I have been informed by several Aboriginal families that the "continuing care of Country, culture and community" by the

descendants of the Burragorang Valley Aboriginal community is behind their strong objection to making any of their cultural sites appear to be of "low significance" and expendable. It makes me very angry that places associated with Aboriginal cultural stories and nearly all of the art sites are consistently given "low" scientific significance.

The table in annex five: Scientific Significance of Aboriginal Cultural Heritage Sites" is totally demoralising for Aboriginal people to read. It comprises 122 pages of tables which list nearly all of their cultural places as of "low significance" under the five categories used. Although table 54 in appendix 1 has an additional column for social or cultural significance, which is recognised as being high in all instances, this aspect is minimised throughout the report in general. Another table which would be very depressing for Gundungurra descendants is table 59 in appendix 1 which lists some 225 sites for which the "consequences of harm" caused by raising of Warragamba dam is the "total loss of value".

The general layout of the various components of the environmental impact statement, as they relate to Aboriginal cultural heritage, is very user-unfriendly, with its confusing cross-referencing of appendixes and 'annexes', sometimes with conflicting information.

A Federal government inquiry into the destruction by Rio Tinto of the Juukan Gorge rock shelters in Western Australia has "identified "serious deficiencies" in all states and territories indigenous cultural heritage protections and last week called on the Federal government to legislate a national framework of new minimum standards. The proposed new laws would give the Commonwealth the power to override decisions made under State frameworks, and empower traditional owners to enforce the Commonwealth protections through specific legal action." ('Bid to save Indigenous artefacts at Adani site', *Sydney Morning Herald*, 25 October 2021).

The environmental impact statement for the raising of the Warragamba Dam wall exemplifies the "serious deficiencies" in the way the State of New South Wales has handled the proposed damage and loss of Aboriginal cultural sites in the Burragorang Valley.

An example of the disrespect shown by the consultants in assessing Aboriginal cultural heritage is the description of sites with "Warragamba" numbers. This is very misleading. Very few sites are along the former Warragamba River, now the Warragamba Gorge section of Lake Burragorang. All sites should have been given a Burragorang number, acknowledging their locations and their association with Gundungurra people.

Another example of disrespect of Gundungurra people is the use of the generic word 'Dreaming' for their creation stories. This English word, presented in the 19th century as a translation of the word for Central Australian stories, is no longer accepted by Aboriginal communities. Gundungurra people have their own word for this creation time: Gunyunggalung. The creation ancestors active during this period were called Burringilling. This terminology should be used throughout the environmental impact statement.

An example of the tokenistic recognition of Gundungurra cultural heritage in the Burragorang Valley is the inclusion of a table of Aboriginal food plants and animals without any commentary or analysis whatsoever. Why were not these lists compared with the flora and fauna surveys of the EIS? There is no attempt to assess whether any of the plant or animal species important to Gundungurra people, and featuring in their cultural stories, will be affected by raising of the dam wall.

Lack of acknowledgement of cultural loss caused by initial flooding of the Burragorang Valley.

Throughout the environmental impact statement the terminology used has the effect of consistently diminishing the potential loss of Aboriginal cultural sites.

Gundungurra descendants suffered the devastating permanent loss of the great majority of their cultural sites in the Burragorang Valley in the late 1950s, after the completion of Warragamba Dam. This led not only to dispossession of the remaining Aboriginal people of the Valley but inundated culturally significant waterholes associated with the Gurangatch and Mirragan creation story, the Nulla Nulla story and the Giant Kangaroo story. It is understandable that, after losing eleven of the waterholes associated with the Gurangatch and Mirragan story, the descendants of the Valley people are determined not to lose the remaining ambience of Gungarlook and Birrigooroo (Reedy Creek) waterholes by flooding, however infrequent.

The waterhole near the junction of Byrnes Creek and the Wollondilly River, where the Giant Kangaroo tried to escape the Bullan gods, was called by the Gundungurra-speaking people 'Burragorang'. Originally applying just to a single waterhole, this name was later used by non-Aboriginal people to refer to the whole valley.

The 'Black Hole', just upstream of the Nattai River junction, was associated with the creation story of 'Nulla Nulla' and was adjacent to the biggest concentration of Aboriginal burial sites in the Valley. It was also near the major ceremonial ground at the junction of the Nattai and Wollondilly Rivers.

Petroglyphs were an extremely rare art form in the Burragorang Valley. The best known of these, the Bustard carving on Byrnes Creek, is now lost under silt and water.

Post-contact sites important to the Burragorang Valley people that went under Lake Burragorang included St Joseph's Farm and Saint Paulinus church, where Gundungurra people were baptised, confirmed, married and had their burial services. Also lost was the cemetery near the junction of Greenwattle Creek and Cox River where many Burragorang Aboriginal people were buried. Living places lost included two of the Valley's Aboriginal Reserves, as well as many farm properties where Aboriginal people lived and worked. All of the school sites attended by Aboriginal children in the Valley were lost.

This partial list of culturally significant places of the Burragorang Valley that were inundated by the original Burragorang dam gives some indication of the magnitude of the loss sustained by the Gundungurra speaking people. In view of the devastating destruction of cultural sites already suffered by Gundungurra people, it is quite unacceptable for the consultants to claim, on the basis of the effects of only a one in 20 year flood, that only a small number of additional sites are threatened.

My main objection to the environmental impact statement is its limiting of the assessment of impacts to one in 20 year flood.

The draft versions of the environmental impact statement were more honest in assessing the impact of water rising to the probable maximum flood level. The version currently on exhibition is dishonest and deceptive in only evaluating the impact of a water rise to an estimate of the likely flood level over a period of 20 years, an estimated additional 7.47 m, bringing the supposed highest level during a 20 year period of 126.97 m. A one in 20 year flood has a very high likelihood of occurring over the next 20 years. A flood of this magnitude, or much greater could occur next week or next year.

Irreplaceable Aboriginal cultural heritage places need to be assured of survival for as long as possible, much longer than a 20 year period, as do the culturally significant Camden White Gum trees in the Kedumba Valley, which have lives measured in hundreds of years rather than decades. Also, the vulnerable population of Regent Honeyeaters in the Burragorang Valley is dependent on a vegetation complex which needs to be stable over much longer periods than 20 years.

Where is the statistical modelling that led to the figure of 7.47 m? Is absurd to claim that weather patterns over a 20 year, 100 year or 500 year period can be predicted to 2 decimal points! Every statistical estimate has a range of variability. What is the range of variability in the estimates of future rainfall and dam height levels? For example, instead of 7.47 m, a more realistic estimate might have been stated as 7 m+/-1 m, that is between 6 and 8 m. For the longer time periods, the range of variability would be much greater.

It is blatantly obvious that the assessment of impacts over only a 20 year period, and the figure of 126.97 m rise in dam level during that time, is a cynical trick by WaterNSW in order to be able to claim that there will be no impact on the Aboriginal sacred sites of the Valley, several of which are a little over 130 m. (I have been given permission by Kazan Brown to publicly identify the sacred sites referred to later in this submission) I believe that the figure of 126.97 m has been chosen to create the illusion that Aboriginal sacred sites, the Camden White Gum stands, the vegetation complex needed by the Regent Honeyeaters and the other habitat losses which would require payment of the environmental offsets, will not be affected.

In several places in the environmental impact statement it is claimed that the likelihood of a probable maximum flood is “negligible” or “extremely low”. Why then is it proposed to spend over $1 billion to raise the dam wall to a level to cope with a probable maximum flood? This is an admission that, at some time during the life of the dam, a probable maximum flood is likely to occur. Why then are the environmental impacts being assessed only for a much lower water level, one that will occur allegedly within a 20 year period?

A major omission from the report is that individual heights for each Aboriginal site are not stated, only whether they are below, within or above the arbitrarily defined PUIA zone. It is not only the maximum height of water in the dam that needs to be considered, and the possibility of art panels being submerged, but the effect on fragile art of waves and spray coming off the water surface from lower flood levels.

The division of sites into those within the EUIA zone (those already affected by the present dam levels), those within the arbitrarily defined PUIA zone (those that will be submerged by a one in 20 year flood if the dam is raised) and “other” (sites above the PUIA which will be affected by higher floods, up to the level of the “probable maximum flood”), is extremely misleading, considering that only 27% of the possible area of the Burragorang Valley was surveyed. The 43 known sites within the PUIA and the 108 known sites above this, totalling 151 sites, should have been multiplied by a factor of about four, to account for the likelihood of a similar distribution of sites within the unsurveyed areas. This gives a potential number of sites affected by future flood levels, up to the probable maximum flood level, of about 600 sites that could eventually be affected by the raising of the dam wall.

Failure to assess alternative options.

The consultants have stated that damage to Aboriginal sites is “unavoidable” and claimed that there is “no feasible alternative” to damaging the sites if the dam wall is raised by between 14 to 17 m.

This ignores the possibility, for example, of recommending that the dam wall be raised to a lesser height, or abandoning the project altogether.

Potential lack of future access.

Little consideration has been given in the report to the effect of raising the water level in Warragamba Dam on future cultural access by Gundungurra descendants. Existing roads within the current 3 km zone around Lake Burragorang, which are currently available for escorted access by Aboriginal people on cultural visits, could be severely damaged and no longer accessible after future flooding. No commitment is made regarding alteration to the exclusion area boundaries, which may similarly impact Gundungurra access rights and opportunities.

Errors, inconsistencies and careless editing.

There is a lack of consistency of information between sections of the report, for example between chapter 18, appendix K and the Waters report. In chapter 18 page 47 it is claimed that the Gurangatch and Mirragan cultural story is of "very high significance" but that the Kangaroo story is only of "high significance". In the Waters report these are acknowledged as of equal importance. Table 51 in appendix 1 has no definition of historic value.

In chapter 18, appendix K and annex 5 it is claimed that the carving at Byrnes Creek was "has never been seen" and its record was based only on oral history, whereas Waters reproduces the published historic image as seen by Mathews. In Appendix 1 page 133 (table 57) Kamilaroi Point is referred to only as an artefact site, without any reference to its art.

In a letter to WaterNSW (June 2018) and the consultants (June 2018) I pointed out that there is no such reference as "Williams, R. 1914". It is still printed as such in several places throughout the documents, disrespectfully ignoring that Gundungurra man William Russell was the author. (It is correctly listed in the Waters bibliography)

It is important that Aboriginal place names are spelled as in the primary source documents, and as recognised by Gundungurra people. It is disrespectful to use variant names. A number of the waterhole names in table 8-10, and elsewhere in the environmental impact statement, are obviously typographic errors, for example Billagoola is spelled as 'Illagoola'. Gusabang and Boonbat are among several other examples of misspelt Gundungurra place names.

Chapter 18 has the wrong meaning of the placename Burragorang from an inaccurate 1958 source. The true meaning has now been established and is recognised in the Waters report. Despite being warned by Kazan Brown that Mary Gilmore is a totally discredited source of Gundungurra cultural information, the absurd quote, easily refuted by any professional anthropologist, from this author is still reproduced in the Waters report, page 33.

Examples of inadequate assessment of Aboriginal sites in the environmental impact statement, all likely to be irreversibly damaged by floods estimated as likely to occur within 100 to 500 years, and partially damaged by lower levels of floods. All of these sites are likely to satisfy the criteria for State Heritage Significance under the Heritage Act.

Art sites. **Introduction.**

I object strongly to the categorisation of archaeological significance in chapter 18 page 50: "Isolated artefacts, individual or low numbers of axe grinding grooves and instances where art was charcoal

indeterminate and where the artefacts, features or art had no distinctiveness or uniqueness. These were given a low scientific (archaeological) significance rating due to the limitation of further scientific information being gleaned from the sites." This statement is offensive to Aboriginal people, who are able to see "distinctiveness" and "uniqueness", as well as cultural significance, in art which has clearly not been apparent to the consultants. Aboriginal people are able to discern the relationships between individual art sites and the overall cultural landscape. They have little interest in the amount of "further scientific information being gleaned from the sites." For them the cultural significance to the Aboriginal community is of infinitely greater value than the information that professional archaeologists may be able to "glean" from the sites.

It is disturbing that the consultants have rated the scientific significance of nearly all the art sites as "low", usually because the art has faded, is in poor condition or is alleged to be "simple". The consultants must be aware that, with specialised photography and x-ray techniques, faded and damaged images can be enhanced, giving them a high research potential. Some images, which are completely invisible to the naked eye can be revealed through these methods. Pigment samples from these sites can also be analysed to reveal the sources of the colours used. Aboriginal communities particularly value the locally distinctive aspects of their culture. Whereas stone tools and other artefacts, grinding grooves, scarred trees and shelters are similar throughout Australia, art styles, stone arrangements and places connected with traditional Aboriginal stories and ceremony have locally distinctive features. Virtually all of these locally distinctive cultural sites are dismissed by the consultants as of "low (archaeological) significance". It is an insult to Aboriginal people to assert that sites associated with the foundations of their culture, their stories, ceremonies and law, are of low significance and to summarise their concerns in a single sentence: "The Registered Aboriginal Parties (RAPs) have advised that all sites have cultural significance."

Only low resolution reproductions of art are reproduced in the environmental impact statement, possibly with the intention of giving the impression that the art is not worth saving.

Use of the term "indeterminate" (appendix 1 page 102) to describe art is offensive to Aboriginal people. It is racist to assume that Aboriginal people are not able to determine the meaning of their art. Use of the term "indeterminate" only means that the non-Aboriginal consultant has failed to determine the meaning of the art.

I object to the assertion in appendix 1, page 102 that "the complex figurative style is mainly located in northern Australia, therefore it is not found in the region." Curiously, an example given of complex figurative style is in the northern part of the Blue Mountains world heritage area, at 'Eagles Reach'. I have argued in my published paper on the Kerswell Hill art site (Warragamba 116) that the art there is also an example of "complex figurative style".

The Aboriginal cultural heritage assessment fails to acknowledge potential damage to art sites caused by raising of water levels that stop short of full inundation. The Maximum Upstream Flood Level height is not the only relevant figure to be considered when assessing the impact of flooding on sites. Art sites which may be above the Maximum Upstream Flood Level can be damaged by spray and wave action. Sites that remain above the Maximum Upstream Flood Level will also be affected by diffusion of water through the soil and into the porous sandstone rock of art sites. Art which has stabilised in the dry soil conditions above the current level of lake Burragorang could deteriorate rapidly with the rising of the water table, increased humidity and increased soil moisture. These important factors are not referred to in the report.

Sacred art.

In the late 19th and early 20th century, Gundungurra people told visitors that the images of hands in two Burragorang Valley art sites, the 'Kamilaroi Point' shelter they called Murro-lung-gulung and the Hands on the Rock shelter, were not made by people but by their Creation ancestors, the Burringilling, in the far distant past, the Gunyunggalung. Warragamba 116 (previously referred to as the Kerswell Hill art site) has a likely image of one of these Burringilling. The Hands on the Rock shelter was submerged in the 1950s and now it is proposed to threaten Murro-lung-gulung.

Kamilaroi Point .51 – 1 – 1042. Gundungurra name Murro-lung-gulung. (131.8 ASL)

According to WaterNSW modelling, this site will be submerged during a one in hundred year flood, and the artwork is likely to be affected by flooding during a one in 20 year flood when spray and humidity from the maximum upstream flood level is estimated to be at 126.8 m.

Gundungurra man Billy Russell, in his memoirs (1914, p.20), described this site:

"Luke Gorman, who was John Gorman's father lived at Upper Burragorang at a place called "Murro-lung-gulung," which means that a Hand was stamped on a rock cave at this place. I never knew what was the meaning of the hands on the rocks, but old natives said that they were very, very old indeed, they were in some way connected with the Bulan-Aboriginal God."

Land title research by myself established that the site referred to as Kamilaroi Point was on land owned by Luke Gorman. The Gundungurra believed that Aboriginal people were created by two brothers they called Bulans. Mathews (2003, p.29-32) gives accounts of some of the adventures of the Bulans, during which they created landscape features, and some of the Burringilling were transformed into the present-day animals of Gundungurra country.

The association of the art at this site with the Bulans is a strong indication that this was a sacred site and this has been confirmed by custodians of the site, the Riley family. Billy Russell himself does not have living descendants, however he was a cousin of George Riley, an ancestor of the Riley clan.

The Aboriginal cultural heritage assessment is most deficient in its evaluation of this site. In none of the documentation by the consultants is this site given the dignity of being referred to by its Gundungurra name. It is an insult for it to be given a name relating to the distant Kamilaroi tribe. The name and cultural significance of this site, verified by traditional owners, was published in my paper 'Rock Art of the Burragorang Valley' published in Kelvin Knox and Eugene Stockton (eds), *Aboriginal Heritage of the Blue Mountains, Recent Research and Reflections*, Blue Mountain Education and Research Trust, Lawson, 2019. This reference is not referred to at all by any of the consultants.

It is significant that Russell used the word "stamped" to describe the single hand at this site, indicating that it was a hand print rather than a stencil. This hand print can still be seen. There is also a foot stencil just above ground level in the shelter. This foot stencil was missed or dismissed by all the recent consultants who visited the site.

Murro-lung-gulung is one of the few art sites in south-east Australia which have a known Creation story associated with it. This was recorded by Charles Peck (1925, p.103-106). Peck's description of the location of this cave makes it clear that it is the same one referred to by Russell. When Peck visited the cave, at some time between 1918 and 1925, he claimed that there was another image in this cave, "a faint drawing of a Waratah flower". The 'legend' published by Peck explains the origin of both the hand print and the Waratah drawing. It also details how one of the Burringilling prepared

the surface for the image by scraping it with a basalt rock and how the rock shelter, originally on the clifftop, was dislodged by an earthquake and rolled into its present position. About half the people who have been taken to this shelter in the company of the Rileys claim that they can see remnants of the Waratah image. As far as I know, this is the only known rock art image of a Waratah in the Sydney region.

It can be argued that the versions of the Aboriginal stories recorded by Peck contain extraneous elements and do not reflect accurately the full cultural significance of the locations referred to. However, the Waters consultant, brought into assess the intangible cultural heritage values of Burragorang Valley Aboriginal sites, has accepted the authenticity of Peck's version of the kangaroo (Buru) story. It is disturbing that this consultant's report does not refer to art at Murro-lung-gulung at all, even though it is acknowledged in the table 'annex five'.

It is of interest that both Peck's story of the origin of the artwork at Murro-lung-gulung and Cuneo's description of the 'Hands on the Rock' art describe a process of pre-preparation of the rock surface before the artwork was applied. Physical alteration of a rock surface prior to the application of pigment was very rarely observed in southeast Australia. Kimberley artist Hector Jandary described how his grandfather "would smooth the surface of a rock face with a stone before painting on it". (Buckley, 2006, p.20.)

The Murro-lung-gulung shelter was the only art site referred to by Billy Russell in his memoirs. Its association with the Bulan gods, and the survival of a recorded Creation story about the origin of the art, make this site unique in Gundungurra country and a place of great significance to surviving Gundungurra descendants.

The other site where Gundungurra people claimed the art was created by their 'gods' was the 'Hands on the Rock' site in upper Burragorang.

The 'Hands on the Rock'.

This site is referred to as 'Red Hand Cave' in the Waters report, page 95. (This consultant has confused the Hands on the Rock site in lower Burragorang with another red hand Cave in central Burragorang shown on a map by Myles Dunphy). The artwork in the Hands on the Rock Cave was described by Etheridge in 1893. He counted up to 15 red hand prints and remarked: "the hand marks in this shelter differ, however, from any I have seen before by an unquestionably previous preparation of the rock surface for their reception by incising the surface to the shape of each hand, thus leaving a slightly raised margin around each." Examination of photos of the cave show that the red hand prints were surrounded by sprayed pigment.

In addition, he recorded "four white curved bands, resembling boomerangs or ribs." Examination of photos of the cave show that these were stencilled boomerangs.

If the rock surface had been literally "incised", or cut into, prior to the hand prints being made, the artwork at this site would be very rare examples in Australia of intaglio, or low relief, petroglyphs of hands which have been infilled with red pigment and highlighted by white stencilling around the hands.

William Cuneo, who accompanied Etheridge on his trip to this cave, published his own description of the site in 1910, which included this detail: "on close examination, I am led to believe that the face

of the rock, which is of a dull grey colour, was prepared to receive the impression of the pigmented hands that were then placed upon it."

Etheridge was informed by Maurice Hayes, who had lived near the site since the 1850s, that the local Aboriginal people "gave him to understand that the "hands were the imprints of those of their Deity, when on earth." This very important information has not been referred to in the environmental impact statement, as has any other references which might indicate that there are sacred sites in the Burragorang Valley.

It is uncommon in southeast Australia to have Aboriginal testimony that artwork in their country was not produced by people but by their Creation ancestors, in this case by the Burringilling active during the Gunyunggalung. Moore (1977, p. 323) classified such images as "hand prints left by the totemic ancestors of the Dreaming and obviously especially sacred."

This shelter was adjacent to the Mullindi waterhole which was important in the Gundungurra revenge ritual *(gure).* Mathews' Aboriginal informant described a physical connection "a little creek" connecting Mullindi waterhole with this 'Hands on the Rock' shelter. It is possible that there was a spiritual connection between the sites as well, with local rituals involving both places. This area is not recognised as a ceremonial place in the environmental impact statement. The hand images in the shelter may have been in the category described by Moore: "hand prints made in sacred places to derive spiritual strength from the ancestors."

This likely connection between the art shelter and a sacred waterhole, in an area that was recorded as being a gathering place for clans from as far away as the Shoalhaven River and Goulburn, indicates that the significance of art sites cannot be understood without knowing the context of the nearby landscape features which were an integral part of the site. This 'curtilage' around an art site has only rarely been described in southeast Australia and has been very understated in the Aboriginal cultural heritage assessment process for the environmental impact statement.

Murro-lung-gulung and the 'Hands on the Rock' art sites are the only two places in the Burragorang Valley which can be identified from 19th-century Aboriginal informants as 'sacred sites' and this has been verified by current custodians in the Riley family. The 'Hands on the Rock' was submerged in the late 1950s, and represented an incalculable loss for Gundungurra people. It is unacceptable that it is now proposed to risk the damage or inundation of the other sacred art site, Murro-lung-gulung.

'Warragamba 116'. Also referred to as Kerswell Hill art site, 132.7 m above ASL.

The Aboriginal cultural heritage assessment acknowledges that this site would be submerged in a one in hundred year flood, but does not acknowledge that it is likely to experience significant deterioration from lower floods which increase the ambient humidity, raise the water table, and create wave and spray impacts on the art.

The environmental impact statement fails to recognise the uniqueness of the Kerswell Hill art complex. It has by far the greatest diversity of images, including an image that is likely to be of a creation ancestor, of any art site in Gundungurra country. It would almost certainly satisfy the criteria for listing as of state heritage significance. There is no acknowledgement of the unusual diversity of art images or comparisons with other regional Aboriginal art. In the Burragorang Valley, ochre figures are rare. The art in this shelter is described in the environmental impact statement as "covering its walls and ceilings, with between 70 and 100 motifs including anthropomorphic figures,

hand stencils, and lines." This brief description in no way conveys the remarkable diversity of art at this site.

The consultants failed to refer to the very detailed documentation and interpretation of this site contained in my paper 'Rock Art of the Burragorang Valley' published in Kelvin Knox and Eugene Stockton (eds), *Aboriginal Heritage of the Blue Mountains, Recent Research and Reflections*, Blue Mountain Education and Research Trust, Lawson, 2019. In contrast with the low-resolution rock art images reproduced in the report, this paper uses 'D-stretch' technology, a standard tool in rock art analysis, to show the full complexity of the images. These enhanced images have been publicly available on the website created for the New South Wales Upper House enquiry into the raising of Warragamba Dam wall for several years. Why were they not referenced at all? It appears that the environmental impact statement wanted to avoid any information which would indicate that any Aboriginal sites were of state heritage significance. For this submission, I am enclosing a summary of the images and artefacts at this site. This list can be compared with the cursory summary provided by the consultants:

Starting from the western end the figures are:

(a) a row of hand prints and stencils. Some show clear evidence that a hand stencil or print has been carefully placed over the top of another stencil. One of the superimposed prints has a strong resemblance to a frog's foot. The placing of a hand over an existing hand stencil may have been part of a ritual involving totemic identification.
(b) A red ochre figure strongly resembling a frog of the genus *Pseudophyne* lying on its back, exposing the colouration pattern on its abdomen which warns predators that it is poisonous. It does not attempt to escape. The position of the limbs in the drawing is consistent with the way frogs that adopt this defensive position expose their undersides. The bands of white ochre on either side of the central dark stripe indicate that this figure is meant to represent the Red-crowned Toadlet (*P. australis*). This is a common species along the creeks coming down the escarpment on the other side of the Cox River. These creek lines were used as pathways by Aboriginal people travelling from Kings Tableland down to Burragorang Valley.
(c) The largest figure in the group is an anthropomorphic figure in a 'dancing' pose, about 36 cm high. The head is relatively large in comparison with the body size and appears to have more of a hexagonal shape than a round one. This anthropomorphic figure has many features that distinguish it from the typical 'dancing' figures seen at such places as Kanangra Walls.
(d) Below images a, b and c, and around one of the stencilled hands, are indeterminate red ochre lines and a pair of graffitied initials.
(e) A red ochre handprint.
(f) Below this, and to the east, near the floor of the cave, is a horizontal anthropomorphic figure. The muscular thighs and curved feet suggest the possibility that this figure has frog-like features.
(g) To the east of (e) is a tiny red ochre anthropomorphic figure, about 8 to 10 cm tall.
(h) Above, and to the right of (f) is a small white ochre hand stencil. This hand is about half the size of the other hand stencils, suggesting it was made by a child.
(i) On the other side of the large opening at the rear of the cave is a pair of red ochre figures clearly representing Leaf-tailed Geckos, although spalling has resulted in the loss of their tails. The relative positions of the two figures suggests that it is portraying the behaviour of a male following a female who is about to lay eggs, which they do in the autumn.

(j) On the other side of the rock pillar on which the geckos are painted there are charcoal lines, four of which suggest the legs of a quadruped such as a wombat.
(k) On the roof of the cave there are a large number of white hand stencils, some of which are clearly superimposed on a soot layer from campfire smoke.
(l) On a narrow band of rock above the opening in the cave there is a small charcoal anthropomorphic figure, about 10 cm tall.

Other features of the shelter are:

(m) to the east of the gecko drawings are unusually broad grinding surfaces which have been worn to a shiny mirror-like polished finish, perhaps suggesting a ritual rubbing site.
(n) Below this is an array of hatchet heads and hammer stones, which were placed there by a Sydney Catchment Authority officer who had asked fellow staff members who had previously taken axes from the Valley to return them to him. This assemblage also includes an early steel wedge.
(o) Below the shelf on which these hatchet heads rest Jim Smith found a collection of about 12 pigment balls on his first visit to the cave. (A photograph of these is in the paper 'Rock art of the Burragorang Valley', page 135) They were of three types: red ochre with a granular texture and yellow and white pipe clay. These varied in size from 1 to 4 cm in diameter. As they were all together in a group, it was surmised that they represented the palette of an Aboriginal artist who had carried them to the cave in a fibre bag which had long since rotted way. On my last visit they were not able to be located. They could have been easily crushed by a careless visitor. As all of the drawings in the cave were done with a hard ochre 'crayon', and there are no images, other than the hand stencils on the roof, created with wet pigment, the ochre balls carried into this cave may have been intended for the decoration of bodies for ceremonial purposes and for artefacts.
(p) Dozens of grinding grooves on detached boulders in front of, and at the rear of, the cave.
(q) The floor of the cave contains a very dense assemblage of artefacts.
(r) Between the front of the cave floor and the slope leading towards the former Cox River are scattered artefacts including about six ground-edge hatchet heads and a rare stone 'chisel'. One of the hatchets was moved from this slope up onto the ledge (see (n) above) with the translocated artefacts by the Gundungurra elder Jean Murphy.

The association between shelter art and grinding grooves is rare in the Sydney region. McDonald (2008, p.56) wrote that, for one sample of shelter art sites, only 5% also contained grinding grooves. This factor alone highlights the rarity of cultural material at this site.

When the 'fallen boulder' which has formed this shelter is viewed from the south it has a resemblance to a squatting frog. On the south-eastern corner of the shelter is a 'V' shaped opening that could be interpreted as the 'jaws' of the 'frog'. The mirror-smooth grinding surfaces (m) are on the lower 'jaw'. The small passageway from the front to the rear of the cave could have been interpreted as the result of an incident (for example spearing) when the rock was a Burringilling. Images of frogs are relatively uncommon in Australian rock art. Frogs represented a relatively minor part of at the Aboriginal diet. McDonald (2008, p.57) does not include frogs in her list of Hawkesbury Sandstone rock art motifs. They may have been included in her small (3.3%) category "other land animal".

The cultural landscape around the Kerswell Hill shelter included:

(1) a deposit of pipe clay, with bands coloured in shades from pure white to yellow, about one km to the east of the shelter. This is now under water and may have been the source of the white and yellow clay balls in the shelter.
(2) A deposit of ochre, believed by Gundungurra people to have originated with the blood of the Burringilling Gurangatch during his pursuit by Mirragan. This is about 18 km to the north-west of the shelter. This may have been a source of the red ochre balls in the shelter.
(3) There used to be a large flat area directly below the cave, on the south bank of the Cox River, called by the settlers Hunt's Flat. (Personal communication from Burragorang resident Lionel Kill to Jim Smith. Kill was employed planting vegetables on this flat for the Hunt family). This possible ceremonial area is now under water. Mathews noted an association between rock art with sacred images and ceremonial sites. As an example, Mathews (1894, p.355) described a cave at Singleton, which included a depiction of "Baiamai or the Great Spirit", was near a large level area "well suited for a *Bora* ground, and I think it more than probable that *Boras* were held here and that the figures in the cave are connected with the ceremonies which took place on such occasions." In the Burragorang Valley, the 'Hands on the Rock' site had a similar association between cave art images which Gundungurra people believed were created by their 'gods' and a documented ceremonial area beside the Wollondilly River.

Conclusion. The Kerswell Hill shelter has the most diverse range of artwork and associated cultural features of any site in Gundungurra country and its combination of artwork and grinding grooves is rare in the Sydney region.

The Lacey's Creek shelter. (Bimlow PAD)

The consultants failed to locate the historical references that referred to the art originally within this cave, described as being on the property of George Blattman (location verified by land title research). In the Sydney *Mail* (18 March 1931) it is referred to as a "ceremonial rock" and it is noted that most of the art had been destroyed by vandals. The photo accompanying this article clearly identifies the rock as the Bimlow PAD site.

A visitor (E.P. Davidson, *Sydney Morning Herald*, 17 November 1932) described this fallen boulder as looking like "the head of a prehistoric dinosaur." Jennifer Isaacs (1990, p.155) made the observation: "At many sites, rocks have uncanny physical resemblances to the creation ancestors they represent and to which the paintings refer." The art in the shelter may have been inspired by the shape of the rock shelter. Frederick McCarthy recorded "human hand stencils" on the Blattman property in records held at the Australian Museum.

Waterholes

Cultural background of Burragorang Valley waterholes.

Gurangatch, when being chased by Mirragan, tried to hide from his pursuer in 15 waterholes along the Wollondilly and Cox Rivers, Reedy Creek in Kedumba Valley and Joolundoo on the upper Fish River. Their names were listed in the creation story recorded in the notebooks of RH Mathews and partially published in 1908.

The cultural story of Gurangatch and Mirragan makes it clear that it is the entire course of the Wollondilly and Cox Rivers in the Burragorang Valley, and their relevant tributaries, and associated sites that were created during their journey, that is significant, not just the waterholes where

Gurangatch rested. It is unclear why 'Warragamba-226' has been selected from all of the river sections along the Gurangatch and Mirragan story as a separate site, but not all of the other parts of the journey. The Riley family and myself are not aware of any archival information or family stories that would associate this particular section of the Cox River with "Aboriginal ceremony". The consultants give no source for this categorisation.

Flooding of the Burragorang Valley led to the loss of 11 these waterholes, some of which now lie some 60 m below the surface of 'Lake Burragorang'. Waterholes associated with the Gurangatch and Mirragan story which will never be seen again are: Woonggaree, Goorit, Kweeoogang, Mullindi, Boonbal, Gurrabulla, Junba, Gaung Gaung, Billagoola and Goodoomba. Karrangatta waterhole briefly re-emerged during the drought between the late 1990s and early 2000s but the 'Black Dog Rock' in the waterhole, which served as a 'signpost' for travelling Gundungurra people, had been completely buried in silt.

The strategically located Karrangatta waterhole was a 'signpost' showing the way to the Megalong Valley, as well as the place where Gurangatch tunnelled away from the Cox River, leaving behind the ochre derived from his blood at Meeoowun.

The only waterholes which escaped complete immersion were (in addition to the Murraural waterhole where Gurangatch originally lived): Doogalool, Gungarlook, Birrigooroo (on Reedy Creek) and Joolundoo on the upper Fish River.

Raising the wall of Warragamba Dam will eventually cause 'temporary' inundation of Gungarlook and Birrigooroo, leaving only two waterholes (Murraural and Dooogalool) from this Creation story surviving in their original form in the Wollondilly-Cox River catchment.

Gungarlook waterhole-Warragamba 63 (about 111.7 to 111.8 m ASL)

in chapter 18 page 38 this important waterhole is wrongly described as a "submerged waterhole site" At present the full supply level of Warragamba dam is 116.7 m. On the rare occasions when the water is at this level the Gungarlook waterhole is covered with water above its historic level. However, most of this flood water spreads out onto the level land to the south of the waterhole. These rare events have had a minimal effect on this waterhole, for example not causing silting up of the waterhole. The Riley family descendants and myself strongly object to the assertion that this waterhole is permanently "submerged". I have made five visits to this site over several years and, on only one occasion was the original waterhole's shape and extent obscured by high water levels in the dam. WaterNSW modelling for the proposed raising of the dam wall states that the maximum upstream flood level will be 120.3 m for floods likely to occur once every five years. More frequent flooding, predicted to occur once every 20 years, raises the maximum upstream flood level to 126.8 m, an additional 10 m over and above the current full supply level.

These more frequent and higher levels of inundation proposed by the raising of the dam wall are likely to be much more damaging than the occasional minor inundation when the dam is at full supply level. At present, the original beginning and end of this waterhole is obvious more than 90% of the time, allowing Gundungurra descendants to experience the ambience of a waterhole originally inhabited by Gurangatch. The surrounding landscape is in close to its original condition, and includes a traditional and post-contact camping site on Murphy's Flat, two Aboriginal reserves associated with land claims made by the Sherritt and Riley families, a kangaroo hunting site and the location of the 'Jumping Woman' story.

The Riley family and myself also object to the gratuitous comment in the Aboriginal cultural heritage assessment by Waters (page 31) that the Gungarlook waterhole may be elsewhere, "just upstream or just downstream of Coleman's Bend" and not in the position accepted by the family. We have had the privilege of visiting Gungarlook with Ivy Brookman née Riley (1934-2020), who grew up on the Gungarlook farm and who indicated to us the correct location of the waterhole, as accepted by the previous generations of her family. (See the book by Ivy Brookman and Jim Smith, *Gungarlook*, published in 2010) It is quite offensive to the Riley family to suggest that they have got the location of this waterhole wrong. The Rileys also object to changing the spelling of the waterhole's name, as accepted by the family, to another version which appears throughout the assessment.

Reedy Creek (Birrigooroo) waterhole. (About 133 to 134 m ASL).

The modelling by WaterNSW predicts that this waterhole will experience inundation during floods predicted to occur between 100 and 200 years. At present Gundungurra people can follow the Dreamtime route of Gurangatch and Mirragan up Reedy Creek from near its junction with the Kedumba River to the Birrigooroo waterhole. Even if this waterhole was only rarely flooded, lower levels of flooding would affect the access for walkers beside Reedy Creek up to it, as the creek bed and banks will become choked with weeds and silt. The reeds may not survive higher levels of inundation.

Scarred trees at Joorilands.

In annex five the two scarred tree sites are wrongly described as being on Joorilands farm. The reason that this group has survived for so long is that they were on a government reserve, "Crown Reserve 30" on which the removal of timber was prohibited, adjacent to the farm. The cultural heritage assessment of the group of scarred trees at this reserve adjacent to Joorilands station has grossly underestimated the number of trees at the site, and their significance. According to the consultants there are only four scarred trees at 52-1-0170 and 52-1-0168. This contrasts with three independent estimates. During a 15 minute visit about four years ago Jim Smith counted 10 scarred trees. During a longer visit by ecologist Peter Ridgeway, accompanied by a government Aboriginal community officer, over 20 scarred trees were recorded. An independent count by Kazan Brown identified 20 scarred trees. The group is unusual in that nearly all of the trees are still growing and healthy, not dead or in senescence as is the case with most trees scarred by Aboriginal people. It is quite possible that Gundungurra people were still using these trees to manufacture utensils well into the contact period. I object strongly to the statement in chapter 18 page 68 which considers all of the scarred tree sites located in the Burragorang Valley as of "low scientific significance". This is in contrast with the statement from a report by Andrew Long *Aboriginal Scarred Trees in New South Wales,* quoted by the Waters consultant, that the cultural significance of scarred trees makes them "a record of human activity of potential world importance." (Page 110) I also object to the statement in appendix 1 page 94 that "the subject area contains no trees that have been assessed as culturally modified trees." It is outrageous for the consultants to claim that these trees "should be assessed by a qualified arborist to determine whether the wounding observed at each tree is the result of traditional Aboriginal activities." It should be immediately obvious to any experienced archaeologist that the trees, which are all located within a reserve in which non-Aboriginal people were not allowed to take timber or fell the trees, have had bark and timber removed to create utensils. All of the Gundungurra descendants who have been to the site have no doubt whatsoever that these are culturally scarred trees.

Taking 20 scarred trees as the minimum that have survived in the reserve adjacent to Joorilands makes it quite likely to be the greatest concentration of scarred trees in New South Wales, and

worthy of state heritage listing in its own right, particularly as it is associated with a major concentration of open campsites. In chapter 18 page 37, the consultants claim that the scarred tree sites "were not associated with another feature." This error conflicts with the reference to the sites in annex five which acknowledges their association with open campsites. The cultural heritage assessment contains no comparative figures on the incidence of carved trees in other parts of the State.

The lowest trees, closest to the Wollondilly River have been measured at between 131.4 and 132.2 ASL. According to WaterNSW modelling these lowest trees will be affected by flooding predicted to occur at least once in a 100 year period. However, it is possible that the survival of the trees will be adversely affected by a rise in the water table occurring in periods of lower flood levels. The highest trees in this grouping are at about 144.5 ASL, meaning that a majority of this group will be affected by the 'probable maximum flood'.

'Policeman's Point' cultural landscape. 45- 4- 0186 (117.5 ASL)

This site complex is one of the most vulnerable to any raising of the Warragamba dam wall. WaterNSW modelling shows that it is likely to be flooded at least once every five years. At present this site is always above the full supply level and has regularly been visited by Gundungurra descendants.

The Aboriginal cultural heritage assessment of this site is most inadequate. Only a few items of Aboriginal cultural heritage: shelter caves, grinding grooves and artefact scatters, are acknowledged. The consultants have failed to recognise that this small selection of items is part of a much larger Aboriginal cultural landscape, part of which is shown on a map published in 2009 in the article by Jim Smith, 'Seeing Gundungurra Country' in Eugene Stockton and John Merriman (eds), *Blue Mountains Dreaming*, Blue Mountain Education and Research Trust, second edition, 2009, p.161.

This map shows the so-called Policeman's Point site complex as being situated within the locality known to Gundungurra people as Katoomba or Kedumba (as distinct from the current township of Katoomba and the area now known as the Kedumba Valley) surrounding the "Goodoomba" waterhole once inhabited by Gurangatch. (This waterhole is not listed in the abbreviated version of the Gurangatch and Mirragan story published by Mathews in 1908 but is recorded as Goodoomba in his original notes in the National Library of Australia) This locality is at an intersection of Aboriginal travel routes and was a major resource area for fern root processing. (A more detailed discussion of this is in the article by Jim Smith, 'New insights into Gundungurra placenaming' in *Aboriginal Placenames*, edited by Harold Koch and Luise Hercus, ANU E Press, 2009, pp.91-95). I recommend that Gundungurra descendants be consulted as to whether this site complex should be given the original Gundungurra name of Goodoomba, and not be associated with the non-Aboriginal name of Policeman's Point.

A significant element of this cultural landscape is the 'face rock' monolith shown by Billy Russell to A. L. Bennett. This rock, likely to be a sacred site, is often exposed during periods of low water levels in Lake Burragorang. A picture of it is in Jim Smith's book *The Aboriginal People of the Burragorang Valley*, second edition.

The so-called Policeman's Point site complex is just upstream of another major site complex which includes the remarkable morle boc spring and many archaeological and art sites. (Some described as Warragamba 288 and 289, in the Moody's Hill area). It is likely that Gundungurra people saw the

Katoomba waterhole, Policeman's Point, mineral springs and the downstream art sites as a major complex of spiritual significance, and possibly one of the most important localities along the Cox River. It is regrettable that so much of this cultural landscape was submerged during the initial flooding following the construction of Warragamba dam. I find it very sad that it is proposed to submerge many of the last surviving remnants of this complex.

Heritage legislation

The consultants have not attempted to identify places with potential state heritage significance, as defined in the State's Heritage Act. Instead, they have used arbitrary measures of significance, such as "high", and "low", without trying to assess whether any sites meet the criteria under the Heritage Act for listing on the State Heritage Register.

During my professional heritage consultancy career I completed over 500 State Heritage Inventory forms, including for many items which satisfied the criteria for listing on the State Heritage Register. There are seven criteria against which the heritage significance of items are evaluated. An item only has to have state heritage significance for one of the seven criteria to be listed as of being of State Heritage Significance. In particular, the environmental impact statement has failed to consider places which are likely to have state heritage significance under criteria a and b. Under 'criterion a' are listed items "important in the course or pattern of New South Wales cultural or natural history." Places are listed under 'Criterion b' because they have "strong or special association with the life or works of a person, or group of persons, of importance in New South Wales' cultural or natural history."

A number of sites in the Burragorang Valley have a significant post-contact history, illustrating the development of relations between black and white communities. The Catholic Church played a major role in in reconciliation between Aboriginal and non-Aboriginal people with the creation of St Joseph's Farm, an event unprecedented in the State's history.

Post-contact Aboriginal communities often chose to work on and live near culturally significant sites, and made land claims for some of these areas. There is no recognition in the report that the Burragorang Valley has one of the highest concentrations of Aboriginal Reserves in New South Wales. Important first, and early, contact sites with non-Aboriginal people are not referred to in the environmental impact statement, nor are the places where Gundungurra people met with anthropologists and other recorders of their culture and stories.

It can be argued that the Burragorang Aboriginal community satisfies criterion b as a group of persons of importance in New South Wales cultural history. Similarly, it could be argued that John Joseph Riley, with his strong association with early land rights claims, is an individual of high importance in the state's history. It is usual when assessing the cultural heritage significance of places to come to a conclusion as to whether the site is of local or State Heritage Significance. Places of State Heritage Significance, when entered on the State Heritage Register, are given a high level of protection in state law. A full examination of the sites listed in the Burragorang Valley within the environmental impact statement would almost certainly find that some sites are of State Heritage Significance. State legislation also mandates the preparation of Heritage Impact Statements in a prescribed format for the damage, loss or alteration of heritage sites, whether Aboriginal or non-Aboriginal.

Aboriginal reserves.

Aboriginal reserves 26 and 27 were gazetted as a result of land claims applied for by four members of the Burragorang Valley community in 1872 and are among the very earliest Aboriginal land claims in New South Wales. Gundungurra descendants are proud of the initiative of their ancestors in making these land claims and it is offensive that Waters Consultancy has cast doubt on this by saying that these reserves "may (my underlining) have been created by as a result of an 1872 petition…" (Page 50) and the assertion in footnote 119 that "it has not been possible to locate any archival records showing these applications in the holdings of State Archives and Records (NSW)". There are references to the 1872 petition, and its association with the four named Aboriginal elders, in the Crown survey plans for each of the four portions which became these reserves. These survey plans are accessible from any computer for a fee, or can be accessed without charge at the State Archives office. There are also several references to this petition in the Lands Department correspondence files. Also, on page 54, the consultant has attempted to cast doubt on the fact that Aboriginal Reserve 27 resulted from an application by William Russell and on the fact that he was supplied with wire by the Aborigines Protection Board to fence this reserve. The consultant has relied on only one minute of the APB in making this claim. Other minutes of the Board make it clear that the wire was supplied because of encroachment by a neighbouring settler onto Aboriginal Reserve 27. Further details about these land claims are in Jim Smith's Ph.D. thesis.

Aboriginal Reserves 26 and 27 (referred to by the local people as the 'Nulla Nulla' camp because of its association with a cultural story) were one of the most important places of cultural interchange in New South Wales, as it was from this community that R H Mathews and A L Bennett were able to record one of the most complete records of an Aboriginal language and cultural stories in New South Wales. This factor alone would give these reserves State Heritage Significance. They have additional significance because of their associations with early land claims and persons of importance in the history of New South Wales: Billy Russell, George Riley, Charles Sherritt and Sammy Hassall.

The two reserves comprising Gungarlook farm are also likely to have state heritage significance because of their association with John Joseph Riley, who is the third most mentioned person in the minutes of the Aborigines Protection Board because of the persistency of his land claims. Gungarlook also has historic significance as the living place of the last Gundungurra family of the Burragorang Valley before it was flooded.

Lack of comparisons within the environmental impact statement when assessing cultural and scientific values.

The report contains virtually no reference to comparisons with other sites and site assemblages within Gundungurra country or within in the Sydney Region or other parts of Australia. For example, data within the report relating to the overall density of sites and percentages of site types could have been compared with other areas in the Sydney region to indicate whether the Burragorang Valley has an exceptionally high density or percentage of, for example, art sites. There is also no comparison of the major art site at Kerswell Hill with other art sites within Gundungurra country. The number of open camp sites located is very high considering that they were found well above the prime riverside habitat of Gundungurra people. To find so many cultural sites 50 or 60 m above the original river level in the Valley is remarkable, and indicates what an important environment for Aboriginal people the Burragorang Valley was.

Lack of recognition of Aboriginal cultural landscapes and assessment of the impact on the overall cultural landscape of destruction of individual elements of these landscapes.

It is unacceptable that each site has only been evaluated individually. It is important to evaluate groups of sites rather than just individual ones. The significance of an apparently simple artwork, artefact scatter or group of grinding grooves may well be greater due to its location within a larger Aboriginal cultural landscape. The tables within the environmental impact statement list sites in a random order rather than in geographical groupings, making it very difficult to consider the relationships between sites.

Useful maps showing the relationships between sites (Figures 11, 12, 17, 18, 20, 21, 23, 24, dated 29 May 2019) which were in earlier drafts of the environmental impact statement have not included in the draft on exhibition., These are very useful for evaluating the clustering of sites and indicate the likely locations of major Aboriginal cultural landscapes. The claim that some maps were omitted from the EIS at the request of RAPS is refuted by Kazan Brown who expressly asked that they be included at the RAP meeting.

These maps show many clusters of sites which should have been recognised as Aboriginal cultural landscapes, where the significance of the whole group of sites is greater than that of the individual items. This breakup of cultural landscapes into individual sites creates the danger that apparently 'simple', 'typical' or 'minor' sites can be deemed expendable.

Two major concentrations of sites, at Gungarlook, and around the Goodoomba-Commodore Hill area, are exceptional for their diversity of cultural content and should have been evaluated as cultural landscapes, rather than as individual items.

Aboriginal communities take a holistic view of their cultural sites rather than looking at them in isolation as the consultants have done. The whole of the Burragorang Valley is one cultural landscape and, in recognition of this, it has been nominated by one of the parties to the Indigenous Land Use Agreement covering the Valley as an Aboriginal Place under the National Parks and Wildlife Act.

The independent archaeologist Annie Ross commented on a draft of the Aboriginal heritage assessment component of the environmental impact statement that the methodology of the surveys was based on "a very old-fashioned approach to archaeological and cultural heritage site survey and heritage place identification. It certainly does not make any provisions for cultural landscapes". (Waters report, comments by Annie Ross, page 3). In my view the current version of the environmental impact shows little improvement in this area.

Camden White Gum.

There is no reference to the cultural significance for Gundungurra people of the Camden White Gum. This was a culturally significant tree to the Gundungurra people. Billy Russell (c.1835-1914), in his memoirs published in 1914, remembered the population on the Victoria Park property which was cut down in his time. It is the only tree species he refers to in his memoirs, and he gave the Gundungurra name for it as *Durrum-by-ang.* This tree has a very restricted distribution. Over 95% of the known former distribution was within Gundungurra territory. Stands of *Durrum-by-ang* were distinctive landmarks within their country. Many were lost during the early years of settlement and Gundungurra descendants are concerned that more will be killed when the major population in Kedumba Valley is inundated. I do not accept that the simplistic short-term experiment described in

the environmental impact statement, involving minor flooding of a stand of these trees outside its natural distribution, gives any indication of the likely survival of the Camden White Gum if the Kedumba Valley is flooded. One of the major criteria for listing of the Blue Mountains as a World Heritage Site was the diversity of eucalypt species. It is extraordinary that one of the rarest species within the World Heritage area is being threatened by raising of the dam wall.

Incorrect identification of artefacts.

Most of the stone hatchet heads found by the consultants are referred to as being made from basalt. In my experience basalt axes are very rare in Gundungurra country, with nearly all of the ones I have seen, and most of those illustrated in the report's appendixes, being made from hornfels (metamorphosed sedimentary rock).

Low scientific – research significance of artefact scatters and open campsites.

The finding of only a few artefacts on the ground surface is dismissed by the consultants as being of only low scientific significance. It is not acknowledged that a surface scatter could well be an indication of a much larger buried artefact and midden deposit, including charcoal remains of hearths which can be dated. Even temporary inundation of these artefacts could affect the research potential of the dating of associated deposits and mineral composition of artefacts. This alleged low significance of individual open campsites can be contrasted with the statement in chapter 18 page 47 that "The Archaeological Sites that reflect the traditional occupation and use of the area by Aboriginal people are as a whole considered to be of High Significance."

There is no acknowledgement within the report of the extraordinary variety of artefact rock types identified during the surveys. Many of the rocks from which these artefacts were made are not found in the Burragorang Valley and indicate a high level of trading from other areas.

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