

Memorandum

13 April 2026

To: David Hannah, Tweed Shire Council

From: Dr Alan Williams

Subject: Clarrie Hall Dam Raising Project - Heritage NSW response - updated mapping and guiding principles

Dear David,

Heritage NSW has recently provided a response (HMS ID 12873) identifying issues and clarifications with EMM's Aboriginal cultural heritage assessment (ACHA) addendum for the proposed Clarrie Hall Dam Raising project, which was recently submitted to the Department of Planning, Housing and Infrastructure (DPHI). While the comments were detailed, subsequent discussions with DPHI, Heritage NSW, Tweed Shire Council (TSC), and EMM on 18 March 2026 have refined the outstanding concerns to two main potential legacy issues for the Proposal:

- the de-amalgamation of a large number of Aboriginal objects, sites and places within a broader background scatter covering the Proposal area, and for them to each be managed discretely. A further issue is to ensure all cultural materials are suitably mitigated, rather than simply destroyed
- revisiting the proposed artefact threshold (23/m²) used in determining the extent of buried cultural deposits to a more conservative value, and thereby ensuring archaeological test pits with lesser artefact numbers become encompassed within formally documented sites.¹

We address both these issues through a series of modifications to the ACHA addendum's figures and guiding principles that are included in Appendix A and B below. Specifically, we have now removed the artefact background scatter and present each Aboriginal object, site and place that it formally encompassed. With one exception, all of these cultural materials were previously documented in the AHIMS system by the Proposal (Navin Officer Heritage Consultants, 2018; Eco Logical Australia, 2021), and their significance and potential impacts remained aligned with the background scatter as presented in the ACHA addendum. The only site not currently documented in AHIMS is CHD24 AS1, which was a recent discovery as part of the latest round of field survey and has now been documented as #04-4-0359. Further, the guiding principles now propose some form of active mitigation (typically surface collection) for all cultural materials that may be adversely affected by the Proposal.

¹ The artefact threshold was also a critical component in the formation of the background scatter formation. However, since the background scatter has now been removed and *all* cultural materials from it treated individually, the only outstanding issue associated with the artefact thresholds relate to the buried cultural deposits.

In relation to the artefact thresholds, we have similarly modified the presentation of the cultural deposits presented in the ACHA and ACHA addendum. Here, we have opted to broadly maintain the original potential archaeological deposit (PAD) curtilages as presented in earlier studies to ensure all test pits within them are encompassed in their descriptions. There are minor modifications to these curtilages where test pits revealed no cultural materials on their periphery, but largely they are unchanged from Eco Logical Australia (2021). We also continue to highlight areas within these broader PAD curtilages that have the highest concentration of cultural materials as previously presented in the ACHA addendum. Both the PAD curtilages – re-classified to ‘cultural deposits’ – and the areas of higher concentration are proposed for specific mitigation measures in the revised guiding principles below.

In addition, we understand that there has been discussion around implementation of engineering solutions on the upper rock overhang (#04-1-0286 [CHD-RS1]). These may not be achievable due to very difficult site access, as there is no longer any road access to the area following 2022 floods. In addition, depending on the engineering solution, there is potential for additional heritage and biodiversity impacts.

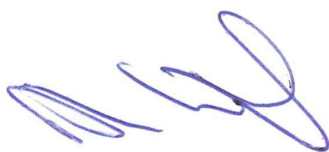
Consequently, only high-level engineering solutions are proposed at this stage, and these would require further discussion with RAPs and be developed during detailed design. These could include a range of coffer dam arrangements such as:

- geotextile barriers
- PVC type water filled flood barriers
- other types of tube barriers
- low earth berm.

In relation to the floor area of the upper rock overhang, these engineering solutions may be implemented in addition to other mitigation measures or protective measures proposed such as archival recording and/or temporary collection of any surface objects prior to flooding of the dam in accordance with updated guiding principles outlined in Appendix A of this letter.

If you have any questions or queries, please contact me on 0438 104 740.

Yours sincerely



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References

Eco Logical Australia, 2021. Clarrie Hall Dam Raising EIS – Aboriginal Heritage Assessment and Management Plan. Report prepared for Tweed Shire Council.

EMM Consulting, 2024. Clarrie Hall Dam Raising EIS – Aboriginal Cultural Heritage Assessment. Report prepared for Tweed Shire Council.

Navin Officer Heritage Consultants Pty Ltd, 2018. Proposed Raising of Clarrie Hall Dam, Murwillumbah NSW: Archaeological Assessment and Aboriginal Cultural Assessment. Report prepared for Tweed Shire Council.

Appendix A

Updated guiding principles

A.1 Guiding principles

The following section has been updated from Appendix H of EMM (2024) and should replace this previous version. It should be read in conjunction with Section 9 of EMM (2024) providing further context and information for proposed mitigation measures.

The key recommendation of the ACHA is the development of an Aboriginal Cultural Heritage Management Plan (ACHMP) to guide the management and mitigation of cultural materials within the Proposal. While specific approaches and methodology would be developed as part of the ACHMP, the below section provides over-arching guiding principles for the management of key content requirements and each site type that may be adversely affected by the project.

A.2 Avoidance and management plans

A.2.1 Avoidance and/or impact minimisation approaches

The specific methods for avoiding or minimising impacts to identified Aboriginal sites and places would typically be highly specific to the cultural materials in question and the development activities occurring nearby. Currently, two sites are proposed for avoidance or partial avoidance, including CHD-RS1 (#04-1-0285) and CHD-ST1 (#04-1-0285). Guiding principles for these sites as well as some general approaches that can be applied with site specific options developed and applied as part of the ACHMP include:

- incorporation of the sites, cultural deposits, curtilages, and obligations for their protection into cultural inductions for site personnel
- where available, incorporation of the sites and curtilage into 'no-go' and/or constraint layers within the development document packages and their inclusion into ground disturbance permit/approval requirements for the Proposal
- establishment of fencing and/or signage during works in and around identified sites and cultural deposits. These should be developed in conjunction with an Aboriginal heritage specialist and/or RAPs
- where necessary, establishment of surface protection such as heavy duty ground protection mats, or equivalent. These should be developed in conjunction with an Aboriginal heritage specialist and/or RAPs
- establishment of permanent (non-intrusive) signage to indicate cultural deposits and to contact an Aboriginal heritage specialist prior to development activity.

In relation to CHD-RS1 (#04-1-0286), the following guiding principles should be considered:

- development of suitable engineering interventions where required and in discussion with the registered Aboriginal parties to ensure the upper overhang is unaffected by inundation. This may include the need for some form of minor earthworks, such as berm or levee immediately below the site to ensure initial filling of the reservoir does not enter the site
- the implementation of cultural monitoring of the upper overhang during the initial filling of the reservoir to ensure it remains unaffected and processes and procedures in place to stop flooding in the event it is observed.

In relation to CHD-ST1 [#04-1-0285], the following guiding principles should be considered:

- establishment of fencing and/or signage during works should be developed in conjunction with an Aboriginal heritage specialist and/or RAPs

- the implementation of cultural monitoring of spillway works when working within 50 metres of the site.

A.3 Cultural materials management and mitigation measures

In terms of each site type, the following provides a number of guiding principles that should be adopted in the ACHMP and other relevant documents where sites and/or cultural deposits would be adversely affected (direct and indirect).

All specific activities and methods outlined below would be developed in consultation with the RAPs as part of the ACHMP proposed in the mitigation measures for the Proposal.

A.3.1 Management of high and moderate density artefact scatters

- This includes the following sites: CHD-A1 (#04-1-0280), CHD PAD1 (#04-1-0296), CHD PAD 2 (#04-1-0295), CHD PAD 6 (#04-1-0291), CHD PAD 9 (#04-1-0288), CHD-AS17 (#04-1-0264), CHD-AS27 (#04-1-0254), CHD-AS36 (#04-1-0238), CHD-AS48 (#04-1-0249), CHD-AS55 (#04-1-0281)
- Methods should consider:
 - Detailed field survey should be undertaken to identify the curtilage of the site and all observable surface cultural materials. Once identified, cultural materials should be spatially documented, collected and subject to detailed lithic analysis.
 - Where subsurface potential is identified, it should be subjected to archaeological excavations as outlined below.

A.3.2 Management of grinding grooves

- This includes the following sites: CHD-A20 (#04-1-0261)
- Methods should consider:
 - Suitable field survey to ensure all individual grooves are identified. This may include additional surveys at dawn or dusk to ensure appropriate lighting to further identify such features. This should be followed by detailed spatial documentation and archival recording of each individual groove.
 - Residue analysis should be undertaken of each groove by a specialist to determine whether any past dietary information can be obtained from the feature. Other specialist techniques that explore geological make up, formation history of the feature, age, and other relevant information may also be considered.
 - Where required, methods for protection in situ and/or relocation of the grooves (and associated sandstone outcrop) should be included.

A.3.3 Management of culturally modified trees

- This includes the following sites: CHD-ST2 (#04-1-0303), CHD-RS1 (#04-1-0286)
- Methods should consider:

- Archival recording, including the use of 3D scanning, of the tree both in its landscape context and the specific features of the modifications prior to disturbance.
- Methods for protection in situ and/or suitable relocation of the tree, either in its entirety and/or via the removal of the 'scar' portion of the tree. It should be dictated that these approaches should be overseen by a qualified arboriculturist.
- Where left in situ, the processes and methods for long term monitoring of the culturally modified tree to ensure its ongoing preservation.
- Where relocated, methods for the long-term curation and conservation of the removed tree or tree fragment, including suitable conditions and preservation agents as required.

A.3.4 Management of rockshelters

- This includes the following sites: CHD-RS1 (#04-1-0286), CHD BMP 05-0036 (#04-1-0090)
- Methods should consider:
 - Archival recording, including the use of 3D scanning, of the site both in its landscape context and the specific features of the modifications prior to disturbance, including a focus on any rock art if present.
 - Archaeological excavation of any cultural deposits to inform the significance of the site and provide information on the past use by Aboriginal people. Excavations should include an investigative phase and if needed a salvage phase:
 - Investigative phase –Where cultural deposits are to be adversely affected, additional investigation in the form of high-resolution systematic grids of test pits should be undertaken. These should be suitably spaced based on the confines and extent of the rockshelter and deposits, but typically ≤ 5 m apart. The talus slope where present should also be encompassed in these investigations. Excavations should be undertaken manually in discrete test pits (1 m²), use 5 cm spits for recovery, sieve all sediment through a 3 mm mesh, recover suitable palaeo environmental and chronological sampling, and undertake appropriate recording.
 - Salvage phase – once the extent and nature of the cultural deposits are known, additional salvage excavation (conservation *ex situ*) of the area/s should be undertaken. Excavation should focus on contiguous open area excavations using the same approaches as the test excavation phase, with the aim being to recover a substantive portion of the cultural deposit.
 - Where relevant, development methods for the long-term stabilisation and protection of the rockshelters, as well as future monitoring activities.
 - Where relevant and feasible, methods for protection in situ and/or relocation of any rock art panels (and associated sandstone outcrop) should be included.

A.3.5 Management of subsurface cultural deposits

- This includes the following sites: CHD-1 (#04-1-0302), CHD PAD 1 (#04-1-0296), CHD PAD2 (#04-1-0295), CHD PAD 5 (#04-1-0292), CHD PAD 6 (#04-1-0291), CHD PAD 8 (#04-1-0289), CHD PAD 9 (#04-1-0288), CHD-A30 (#04-1-0235), CHD-A35 (#04-1-0237), CHD-AS36 (#04-1-0238), CHD A37 (#04-1-0239), CHD-A38 (#04-1-0240), CHD-AS17 (#04-1-0264), CHD-AS27 (#04-1-0254), CHD-AS48 (#04-1-0249), CHD-A55 (#04-1-0281)
- Methods should consider:
 - investigative phase – where cultural deposits with stone artefact densities of 16/m² or more are encountered, they would be subject to further test excavations to determine whether significant cultural deposits are present, but not encountered as part of the assessment phase. These may include high densities of stone artefacts, potentially deep and/or old cultural deposits, and/or rare stone artefactual material, etc. Additional investigation in the form of high-resolution systematic grids of test pits spaced ~10 to 20 metres across targeted areas should be implemented. Excavations should be undertaken manually in discrete test pits (1 square metre), use 10-centimetre spits for recovery, sieve all sediment through a 5-millimetre mesh, recover suitable paleo-environmental and chronological sampling, and undertake appropriate recording. Expansion of test pits to enable shoring system implementation should be undertaken where depths of greater than 1.5 metres are required
 - salvage phase – where test pit/s containing the highest significance are identified, which may include previously identified areas of high artefact densities as presented in Figure 1 or additional/other locations based on additional investigation, archaeological salvage excavation (conservation *ex situ*) of the area/s should be undertaken. Depending on the number of high value locales across the project and the nature of the impacts, salvage excavation may focus on some or all of these test pits. In accordance with current best practice, all salvage works should consist of initially 25 m² of contiguous open area excavation centred on the test pit/s of interest and expanding up to 100 m² where suitable thresholds are met (e.g. continuing high density of artefact numbers, unique characteristics, etc). Excavations should be undertaken manually in discrete test pits (0.25–1 m²), use 5 cm spits for recovery, sieve all sediment through a 3 mm mesh, recover suitable palaeo environmental and chronological sampling, and undertake appropriate recording.

A.3.6 Management of low-density artefact scatters and isolated stone artefacts

- This includes the following sites: CHD-A2 (#04-1-0279), CHD-A3 (#04-1-0278), CHD-A4 (#04-1-0277), CHD-A5 (#04-1-0276), CHD-A6 (#04-1-0275), CHD-A7 (#04-1-0274), CHD-A8 (#04-1-0273), CHD-A9 (#04-1-0272), CHD-A10 (#04-1-0271), CHD-A11 (#04-1-0270), CHD-A12 (#04-1-0269), CHD-A13 (#04-1-0268), CHD-A14 (#04-1-0267), CHD-A15 (#04-1-0266), CHD-A16 (#04-1-0265), CHD-A18 (#04-1-0263), CHD-A19 (#04-1-0262), CHD-A21 (#04-1-0260), CHD-A22 (#04-1-0259), CHD-A23 (#04-1-0258), CHD-A24 (#04-1-0257), CHD-A25 (#04-1-0256), CHD-A26 (#04-1-0255), CHD-A28 (#04-1-0253), CHD-A29 (#04-1-0252), CHD-A31 (#04-1-0232), CHD-A32 (#04-1-0233), CHD-A33 (#04-1-0234), CHD-A34 (#04-1-0236), CHD-A39 (#04-1-0241), CHD-A40 (#04-1-0242), CHD-A41 (#04-1-0243), CHD-A42 (#04-1-0244), CHD-A43 (#04-1-0245), CHD-A44 (#04-1-0246), CHD-A45 (#04-1-0250), CHD-A46 (#04-1-0247), CHD-A47 (#04-1-0248), CHD-A49 (#04-1-0297), CHD-A50 (#04-1-0229), CHD A51 (#04-1-0231), CHD-A52 (#04-1-0230), CHD-A53 (#04-1-0251), CHD-A54 (#04-1-0282), CHD-AS1 (#04-1-0301), CHD PAD 4 (#04-1-0294), CHD PAD 5 (#04-1-0292), CHD PAD 7 (#04-1-0290), CH PAD 3 (#04-1-0293), Midginbill DD1 BMP-05-0029 (#04-1-0009), Midginbill DD2 BMP-05-0030 (#04-1-0010), Midginbill DD3 BMP-050031 (#04-1-0011), Midginbill DD4 (#04-1-0012), Byill Range DD7 BMP-05-0037 (#04-1-0015), Mt Misery Byrrill, BMP-05-0070 (#04-1-0025), Mt Misery Byrrill BMP-05-0072 (#04-1-0027), Byrrill Ridge 4 Tweed ACH Artefacts (#04-1-0194), Clarrie

HaIII Dam 2 BMP-05-0112 (#04-1-0130), CH6, CH7, CH8 (incorporated into #04-1-0288), CHD24 AS1 (#04-4-0359)

- Methods should consider:
 - detailed field survey should be undertaken to identify the curtilage of the site and all observable surface cultural materials. Once identified, cultural materials should be spatially documented, collected and subject to detailed lithic analysis.

A.3.7 Analysis and reporting

Methods should consider:

- in the case of excavations, post- excavation analysis should be undertaken for all recovered sedimentological and cultural materials. Analysis should include processing of chronological samples (e.g. optically stimulated luminescence, radiocarbon), palaeo environmental samples (e.g. particle size, geochemistry, pollen analysis, etc), and stone tool analysis
- identification of short and long-term repositories for recovered cultural materials and other collected samples
- all additional investigation, mitigation and monitoring activities should ensure suitable reporting and lodgement with relevant repositories, such as the Heritage NSW AHIMS database.

A.4 Heritage interpretation strategy, plan and implementation

The following points provide some guiding principles for consideration in the development of heritage interpretation of the Proposal:

- initially an interpretation strategy should be developed to identify key and over-arching themes. Subsequently, a plan would refine the strategy with content (visual and textual) and design details to inform the implementation stage
- the documents should be co-designed and closely developed with local Bundjalung traditional owners, specifically Tweed Byron LALC and descendants of apical ancestors from the immediate area of the Proposal. This includes identification of initial aims and ideas, content and structure
- given the nature of the Proposal, these documents may consider off-site public outreach opportunities at nearby townships such as Uki, Murwillumbah, etc
- the content should include, but not be limited to:
 - the ethnographic and historical record, which includes post-Contact and contemporary associations with the site and immediate environs
 - consultation and input from the Bundjalung traditional owners
 - information obtained from the archaeological excavations and findings undertaken for the project on the cultural and environmental landscape within which past Aboriginal people interacted with in the past.

Appendix B

Updated mapping and figures

B.1 Mapping and figures

Figures 1 and 2 below provide updated versions of the archaeological resource and cultural deposits as previously presented in Figure 6.1 of the ACHA and Figures 3 and 4 of the Response to Submissions.

Key changes include the removal of the artefact background scatter and the presentation of all cultural materials within the Proposal (previously presented variously in Figures 5.1, 5.3 and 5.6 of the ACHA), and the representation of previous PADs to 'cultural deposits'.

Subsequent pages have been removed from public facing versions of this document due to sensitive cultural information. If you would like to request a copy, please contact EMM Consulting Pty Ltd and/or Tweed Shire Council who may review your request.