

Narrabri Gas Project - Aboriginal Cultural Heritage Assessment

Expert Review

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1. The following review of issues relating to Aboriginal cultural heritage associated with the proposed Santos Narrabri Gas Project ('the Project') is provided at the request of EDO NSW acting on behalf of the North West Alliance.
2. I confirm that I have read the *Uniform Civil Procedure Rules 2005* Expert Witness Code of Conduct and agree to be bound by this Code.
3. I confirm that the advice I am providing in relation to Aboriginal cultural heritage associated with the proposed Narrabri Gas 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.
4. 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 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 26 years conducting Aboriginal heritage assessments, primarily in south-eastern Australia and particularly in New South Wales, for a wide range of projects related to the mining, infrastructure, residential and tourism industries, including similar projects to that presently under review.
5. My advice is based upon a review of the key documents pertaining to the Project application as lodged by Santos NSW (Eastern) Pty Ltd (the Proponent, 'Santos') with the NSW Department of Planning and Environment (DP&E) under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), including:
 - a) Appendix N1 Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared by Central Queensland Cultural Heritage Management Pty Ltd (CQCHM) and herein referred to as the ACHAR;
 - b) Appendix N2 Cultural Heritage Management Plan (CHMP) herein referred to as the CHMP;
 - c) Briefly, other Project application (Environmental Impact Statement {EIS}) documentation including the Table of contents, Executive summary, Chapter 6 Project description, Chapter 9 Community and stakeholder consultation, Chapter 29 Cumulative impact, Appendix C Field Development Protocol, Appendix D Stakeholder and community consultation report and Appendix V Rehabilitation strategy.
6. My advice is also based upon my extensive experience with Aboriginal heritage assessments in NSW over the past 26 years, including my undertaking of projects of comparable (and broader) scope, and some local familiarity with the investigation area through travel via the Newell Highway and visual inspection from the Salt Caves Forestry Tower as recently as December 2016.

7. The ACHAR is a relatively thorough document, largely consistent with the Secretary's Environmental Assessment Requirements (SEARs) and its stated aim of complying with the Office of Environment and Heritage (OEH) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011), which effectively involves an assessment following the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) and Aboriginal community consultation in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* policy (DECCW 2010b). However, several inadequacies are noted that warrant consideration by the authors and presentation of additional information to address these matters (refer to comments #7-24 below).
8. It is noted that the Project will result in direct ground surface impacts to an area totalling approximately 950 hectares (9.5 square kilometres) and representing 1% of the overall Project area of 95,000 hectares. It is this area, where direct and irreversible impacts may occur to Aboriginal cultural heritage (including material evidence or 'objects' and intangible cultural values, including those associated with landscape features, flora and fauna), for which the assessment of Project impacts on Aboriginal heritage is specifically required in the context of an EIS. It is noted that while 'partial rehabilitation' of impacted ground will occur, Aboriginal heritage is a non-renewable resource that is not amenable to 'rehabilitation'. It is noted that the exact location of many gas wells and other infrastructure has not as yet been determined (with the location of up to 425 pads of approximately one hectare each to be determined post-approval in accordance with the 'Field Development Protocol' in Appendix C).

The proponent has attempted to address this issue through 'cultural sensitivity mapping' and protocols incorporated in the CHMP to investigate and manage these impact areas once detailed design is finalised, with an emphasis on the avoidance of impacts to Aboriginal heritage. Such an approach, in the context of impact areas that are not defined at the time of EIS preparation, if it incorporated quality baseline data, robust modelling, detailed management strategies and adequate rigour, could represent a suitable strategy for such an EIS and heritage management post-approval.

However, as outlined in comment #14 below, I find that the 'de facto' predictive modelling and 'cultural sensitivity mapping' is fundamentally flawed, and consequently a number of the proposed management strategies which are based on these assumptions/predictions are inadequate.

Nevertheless, it is noted that the proponent has been proactive in seeking to identify and manage potential impacts, including development of the CHMP at this EIS stage (as required by the OEH), whereas on many projects this is a task left to the 'post-approval' phase, with consequent uncertainty for all stakeholders over the finer details of heritage management. The proponent should be commended for this approach, notwithstanding that the much preferred approach (and indeed, standard expectation within the context of an EIS for a development application) would have been that the impact areas were defined and therefore impacts were assessed as part of the EIS prior to any determination of Project approval.

9. The authorship of the ACHAR and personnel involved in the field investigation are not specified. The *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) contains detailed requirements for heritage assessments, including that investigations must be undertaken by people with appropriate skills and experience, specified in Section 1.6 as:
 - 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.

In the interests of transparency and confirmation that this important element of the Code of Practice has been complied with, the proponent's provision of the above information is warranted.

10. The ACHAR (Section 4.3) review of previous archaeological research in the locality is relatively comprehensive and encompasses an area much larger than the Project area, but would benefit from appropriate citing of background sources for a number of Aboriginal sites/investigations/comments in which citations are absent. Likewise Table 4.4 would benefit from appropriate citing of the base data.
11. An inadequacy of the ACHAR is the absence of correspondence provided by the Registered Aboriginal Parties (RAPs) and the absence of a detailed consultation database outlining all consultation with RAPs and other relevant organisations. Typically in an ACHAR, a detailed database or log of consultation is included, and apart from where requests are made to withhold culturally sensitive information, such correspondence is included within the report and provides evidence of the consultation process and data to allow third parties to assess what comments were made and how those comments have been addressed (in accordance with the procedures of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* policy).

While the issues raised and proponents responses are included in Appendix 3 of the ACHAR, verification is problematic in the absence of the RAPs original correspondence. In the interests of transparency and confirmation that this important element of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* policy has been complied with, the proponent's provision of the above information is warranted.

12. An extensive number of issues raised by the RAPs are listed in Appendix 3, along with responses from the proponent. However, information is generally not presented about the identity of the person(s) raising the issue, and provision of an updated version of this table incorporating this information is warranted (as is the inclusion of the relevant correspondence as noted above).

Numerous issues were raised, as to be expected with the large number and diverse range of RAPs and the complex nature of the Project, and many of the proponent's responses appear logical and reasonable, albeit it is unclear specifically how and where amendments have been made to the draft ACHAR and/or draft CHMP to address specific comments and issues. The provision of specific details on how RAPs comments have been addressed within the final ACHAR and CHMP is warranted.

However, several responses/strategies are noted which in my opinion are inadequate in the context of the EIS and relevant OEH policies (*Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* {OEH 2011}, *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}):

- a) Santos commits to "working with all RAPs until Project determination, and following determination until the CHMP is finalised". This response (and the CHMP) indicates that Santos does not propose ongoing consultation or provision of information to RAPs once the Project is approved. Given that these stakeholders have actively sought involvement and expressed an interest in the Project, in my opinion it is not acceptable that all are excluded from future involvement in the Project and are not provided information of relevance to them about the ongoing heritage related Project activities. While the proposed "Aboriginal Cultural Heritage Working Group" (ACHWG) may be a logical and cost-effective way for Santos to manage ongoing interactions with the Aboriginal community, the proposed membership of this Group is very limited, and it would exclude many RAPs, many of whom may have a legitimate stake in the cultural heritage values of the Project area. As such, at an absolute minimum, procedures are warranted in the CHMP for ongoing communication with all RAPs and provision or making available of relevant information relating to ongoing cultural heritage management activities (such as all heritage reports that are generated out of the CHMP and consultation about any proposed material changes to the CHMP). A web-based portal may offer a cost-effective solution for making this information available on an ongoing basis to all RAPs, not merely the ACHWG.

- b) The 'Other NTSCORP letter 1' outlines that a key stakeholder, the Gomeri Traditional Owners, are unsatisfied that the draft CHMP addressed their earlier submissions and that there has been insufficient consultation with the Gomeri Applicants. It is regrettable that the Proponent could not have extended more time for appropriate consultation to occur, particularly given the length of time since finalisation of the CHMP (September 2016) to Public Notification of the Project. It is inadequate in the context of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* policy that information on all issues raised by the Gomeri Applicants (along with other RAPs) are not included within the EIS ("Attachments 1 and 2" are mentioned, but not presented).
 - c) Stakeholder Dolly Talbot requested detailed mapping of waterways and ethnobotanical resources. It is regrettable that these were not included within the ACHAR as they are of strong relevance to predictive modelling about Aboriginal site/value location (refer to comment #14 below).
13. The proposed assessment methodology, an integral part of the ACHAR, was forwarded to all RAPs. However, this methodology is not included within the ACHAR and therefore it cannot be assessed as to whether the assessment was conducted in accordance with this methodology and/or how RAP comments on the draft methodology were addressed within the final methodology.
14. Despite a substantial 'Data Audit Area', only 268 Aboriginal sites are reported (reflecting at least in part, the limited extent of systematic archaeological survey coverage to date within the Data Audit Area). Although of some relevance in relation to the development of and testing of both a regional occupation model and a predictive model of site location, for such a sizeable Project area (95,000 hectares), in all reality this is a very small dataset (only one known site for every 354 hectares, an exceedingly low figure compared to virtually any other location subject to systematic archaeological survey). In my opinion, this data forms an inadequate basis for the establishment of a predictive model in the manner relied upon by the authors, and significantly constrains any predictive statements that can be made.
15. The ACHAR launches into the development of a Cultural Heritage Zone Scheme (CHZS)¹ for the Data Audit Area with:
- a) no development of a model of Aboriginal occupation for the locality (how Aboriginal people used the landscape, including in relation to different environmental and cultural variables),
 - b) inadequate consideration of the environment of the Project area, and following from this,
 - c) inadequate definition of the expected nature and distribution of Aboriginal heritage evidence (a "predictive model of site location", for example, statements about where a specific site type may be located, such as grinding grooves may occur where sandstone bedrock is exposed, which occurs in ... locations within the Project area).

Development of a methodology (for example, survey strategy and test excavations) to test the predictive model and relevant research questions, in consideration of the expected nature and distribution of evidence, along with appropriate analytical techniques for the evidence recovered to address the research questions and project objectives, are also inadequately stated or not stated at all.

¹ The CHZS is a zoning scheme devised to subdivide the Data Audit Area into different zones on the basis of known Aboriginal sites, areas previously surveyed or subject to development, and "Aboriginal Cultural Heritage Sensitivity", the latter essentially a 'de facto' model to make predictions on Aboriginal site location in a 'bottom-up' approach, using only two variables, rather than a 'top-down' approach based from the outset on a model of Aboriginal occupation and characterisation of the specific environmental and cultural characteristics of the project area.

It is these essential elements of a research design that underpin the 'why, what and how' of archaeological investigation².

The classification of areas into 'zones of sensitivity' (a 'de facto' predictive model), particularly Zones 3a-3f, is in my opinion fundamentally flawed. There is no causal or logical link between the previously outlined environmental and cultural data in the ACHAR, and the predictive mapping. There is no model of occupation, that for example elucidates the relationship of occupation (including different forms of occupation such as encampments by small parties during hunting/gathering, nuclear/extended family base camps or encampments by larger groups, or including different time durations of occupation such as very short term through to longer term, or including the effects of repeated occupation caused by return visits during the seasonal or annual round) with relevant environmental variables (such as proximity to and nature of water source, landform unit, gradient, vegetation and geology).

Proximity to water (and generally only streams, not billabongs, lakes or Gilgai) and broad landform systems are the only environmental variables relied upon by the authors for development of the 'zones of sensitivity', with minimal rationale for the manner in which they are used, and a very sparse and inadequate baseline dataset (only one known site for every 354 hectares) from which inferences are extrapolated.

The use of stream-order numbering opposite to conventional geographical numbering is problematic, as is the refusal to use high-quality LIDAR data available for the Project area, that would have enabled much finer resolution of landform units, water sources (including billabongs and lakes) and even the location of rock formations.

The use of broad landform systems (incorrectly labelled landform units in places), is inadequate, in that finer resolution landform units (ridge crests, spur crests, terraces, etc) for which significant relationships with types and distributions of Aboriginal heritage evidence (eg. densities of open artefact evidence and nature of occupation types) have been demonstrated through extensive systematic surveys and excavations elsewhere (for instance Hall 1991, 1992, Hall and Lomax 1993, Kuskie 2000, 2005a, 2005b and 2009, Packard 1991, 1992, Kuskie and Clarke 2004, to name but a few examples) have been ignored.

Gradient, another key factor identified by studies such as those mentioned above (as showing a strong relationship with the nature and distribution of heritage evidence) has also been ignored. As has geological mapping (a highly relevant variable for the location of certain site types such as rock shelters, open grinding grooves and lithic quarries) and vegetation mapping (a highly relevant variable for the location of certain site types such as scarred trees and carved trees).

Stemming from the absence of a model of Aboriginal occupation and inadequate characterisation of the environmental variables of the investigation area (including the mapping of water sources, and the lack of mapping or consideration of the spatial distribution of other important variables such as geological units, gradient, landform units and vegetation), along with the minimal field survey and absence of test excavation to test and refine any predictive statements, Section 4.8.4 of the ACHAR on the 'Management of Expected Site Types' fails as a 'de facto predictive model' to adequately characterise the nature of Aboriginal heritage evidence that may be present within the Project area, where that evidence may be spatially located within the landscape, and what estimated probability there is in various parts of the landscape for such evidence to occur.

² The essential elements of a research design can be expressed as follows (after Boismier 1991): A) Construction of a model of Aboriginal occupation for the locality; B) Identification of the specific environmental and cultural characteristics of the project area; C) Definition of the expected nature and distribution of evidence; D) Formation of a methodology to test the predictive model and relevant research questions, in consideration of the expected nature and distribution of evidence; and E) Analytical techniques for the evidence recovered that are appropriate to address the research questions and project objectives (Boismier 1991).

CQCHM themselves acknowledge this in Section 4.7.2 of the ACHAR with the statement that "the differential sensitivity attributes which constitute Zone 3 should not be viewed as being an accurate reflection of the probable or even possible cultural landscape of either the Data Audit or Project areas".

On the basis of this admission by CQCHM and the inadequacies outlined above, the predictive modelling and CHZS should be set aside.

Essentially, the use of this very scant base data to make inferences on Aboriginal site location in a 'bottom-up' approach, using only two variables, is a flawed process. The alternative 'top-down' approach as outlined above could have provided a more rigorous predictive model for subsequent testing through survey and excavation.

Separate mapping 'zones' are strongly warranted for each of the Aboriginal site types with potential to occur in the Project area, and with consideration of the spatial distribution of environmental and cultural variables relevant to those site types (eg. the potential for rock shelter sites could be mapped with respect to the distribution of rock formations derived from underlying geological mapping and LIDAR data, and the potential for scarred trees could be mapped with respect to the distribution of mature native vegetation).

16. Although a 'site verification program' was undertaken to inspect a number of previously reported sites within the Project area, only 45 sites out of a reported 90 in the direct Project area were the subject of this program. The rationale for not inspecting all sites is not clear, particularly given the strong reliance placed on this scant site data to create a de facto predictive model of site location and classify the Project area into CHZS, and the stated intention (Section 4.10.1) to use future collected data to refine the CHZS and management strategies.
17. The 'enhanced survey methods' documented in Section 4.11 involved in the first instance such a small area (4.3 hectares), and in the second instance such widely spaced transects (100 metre transect width, with only several personnel and only a two-metre width per person acceptable in terms of visual identification of surface artefact evidence) to be generally inconsequential to any rigorous testing of the predictive modelling or CHZS modelling.

If future surveys of proposed impact areas (as proposed in the 'enhanced survey processes' outlined in Section 5.3.10) involve such low intensity sampling (100 metre transect widths, with very few personnel), the potential to detect any Aboriginal heritage evidence will be consequently diminished.

The authors conclusions (page 123) that "these studies confirmed that a comprehensive process that directly involved representatives of the local Aboriginal community, with systematic survey of the areas in question, and that saw the application both of the Avoidance and Precautionary Principles as standard management tools was feasible in the context of this Project" are disputed. The second survey, while 'systematic' was not 'comprehensive', and the potential for any sub-surface deposits of artefacts (noting that identified open artefact evidence tends to only represent a small fraction of the entire artefact resource that is present, because the vast majority of evidence is currently obscured by vegetation and soil) has not been considered at all.

18. Two management principles guide the strategy for future investigation and management, the 'Precautionary Principle' and the 'Avoidance Principle'. Implementation of these principles is to be commended. However, the ACHAR definition and proposed implementation of the Precautionary Principle (Section 5.3.1; refer also to CHMP Section 4.1), falls short of the OEH (DECCW 2009) standards.

The ACHAR definition of the Precautionary Principle is "the implementation of actions that are reasonable and practicable to minimise causing harm to known Aboriginal objects; and/or identifying Aboriginal objects so they can be managed in accordance with the provisions of relevant legislation and regulations, and by implementing reasonable and practicable management measures for these Aboriginal objects".

The OEH view is that 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 lack of definition of much of the present Project's impact areas and consequent absence of systematic heritage investigation of those areas, such uncertainty currently exists. Where this is the case, the OEH 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). The OEH 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 relation to the precautionary principle, it is the absence of an occupation model, inadequately detailed characterisation of the environmental variables of the Project area, inadequate predictive modelling, minimal systematic field survey and absence of sub-surface investigation to test any modelling, that characterise the ACHAR as being inadequate. The nature and significance of Aboriginal heritage evidence within the potential impact areas are not presently known. In fact, many of the impact areas themselves are not presently known.

19. The location of the Leewood and Bibblewindi infrastructure areas and pipeline between them are currently known, and these comprise a significant proportion of the overall Project impact area. However, despite an Aboriginal heritage survey seemingly being undertaken within these areas as part of the ACHAR (Section 4.11), minimal data is presented about the survey transects or effective survey coverage (and as such, is not consistent with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*).

There is correspondingly minimal discussion about the nature of the results (including what both the identified heritage evidence means and what potential exists for heritage evidence in areas that were not subject to direct sampling or in which were sampled but heritage evidence was not identified on the surface).

This section would benefit from more explicit discussion of these issues, mapping of survey transects for all three areas and the presentation of data and discussion of effective survey coverage, and clarification of the extent to which the known Project impact areas were surveyed (as required under the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*).

At this stage, it is not possible to conclude that the Leewood and Bibblewindi infrastructure areas and pipeline between them have been subject to heritage survey in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* and *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* policy. If not, this is a significant deficiency in the ACHAR. Such known impact areas should have been fully assessed prior to lodgement of the EIS, an imperative made stronger by the proportion of the Project impact area that won't be defined until detailed design has occurred post-EIS/post-approval.

20. The *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) specifies that archaeological test excavation will be necessary when (regardless of whether or not there are objects present on the ground surface) it can be demonstrated through Requirements 1, 2, 3, 4, and 5 of the Code that sub-surface Aboriginal objects with potential conservation value have a high probability of being present in an area, and the area cannot be substantially avoided by the proposed activity. This has not been addressed within the ACHAR, either in respect of the known impact areas or the future planned impact areas.

21. The key management approach is that post-EIS approval and after further detailed design (to clarify impact area locations), heritage surveys of defined impact areas will occur, followed by management of any heritage evidence found in accordance with the prescriptions for individual site types in the ACHAR Table 5.1.

The focus on avoidance of impacts to many site types (such as burials, stone arrangements, scarred trees, rock shelters and grinding grooves) is highly commendable, and warranted in consideration of the generally flexible nature of the proposed impacts and the lack of current knowledge of many of those impact areas.

However, it is noted that "stone artefact concentrations", shell middens, "sub-surface cultural material" and isolated stone artefacts may all be subject to impacts. Further discussion of this issue in relation to the CHMP strategies is presented in comment #34.

Of greater concern, there appears to be no role for an appropriately qualified and experienced archaeologist in these proposed heritage surveys (refer to comment #31).

22. The strong reliance in Section 5.3.6 of the ACHAR on the "sensitivity modelling, buffering and CHZS" is fragile and cannot be supported, given the inadequacies identified above in relation to this modelling and CHZS, and the authors own admissions in Section 4.7.2 of the ACHAR (refer to comment #14). More robust modelling (refer above) could potentially address this deficiency and is strongly warranted.
23. The additional research program involving cultural values outlined in Section 5.3.8 of the ACHAR, along with the respect of confidentiality of certain cultural information in Section 5.3.9, is commended.
24. Section 5.5 of the ACHAR on the management of Aboriginal cultural values is rational and well-considered.
25. The ACHAR and CHMP rely strongly on the avoidance of impacts to (currently) known Aboriginal sites. In view of these sites comprising just 0.01% of the Project area, and the minimal systematic archaeological survey or test excavation having been undertaken within the Project area (only one known site for every 354 hectares, an exceedingly low figure compared to anywhere subject to systematic archaeological survey), the over-emphasis on this argument and repeated statements to this effect are somewhat misleading.
26. The CHMP is generally well set-out and inclusive of the typical mitigation and management strategies required to manage a State Significant Development post-approval, *in lieu* of a Section 90 Aboriginal Heritage Impact Permit (AHIP) under the *National Parks and Wildlife Act 1974* (NP&W Act). However, stemming from the inadequacies identified in comments #7-24, particularly in relation to the predictive modelling and CHZS, in my opinion a number of elements of the CHMP are inadequate and/or cannot be supported (refer to comments #26-36 and to #7, 11, 17, 20 and 24).
27. Section 2.4 of the CHMP states that "the comments and views of the RAPs have been considered and reflected in the development of this CHMP". It would be appropriate to document in the CHMP evidence of input from the RAPs (including copies of relevant correspondence, particularly in response to draft versions of the CHMP) and specifically how and where in the document the proponent has considered and addressed any input.
28. The strong reliance of the CHMP on the cultural sensitivity mapping and CHZS is fragile and cannot be supported, given the inadequacies identified above in relation to this modelling and CHZS, and the authors own admissions in Section 4.7.2 of the ACHAR (refer to comment #14).
29. The 'Additional Research Program' outlined in Section 4.7 of the CHMP includes minimal details. In the interests of transparency and adequate heritage management, the inclusion of additional information about the objectives, scope, methodology and participation of appropriate heritage experts and stakeholders in the Additional Research Program, more along the lines of that outlined in Section 5.3.8 of the ACHAR, is warranted.

30. Section 4.8(b) of the CHMP includes determining the "methodology and logistics for the Pre-Clearance survey of the work area" and in the event that agreement is not reached between the "Santos Senior Cultural Heritage Field Supervisor" (a Santos employee whose qualifications and experience in Aboriginal heritage are not specified) and the "Cultural Heritage Coordinator" (whose qualifications and experience in Aboriginal heritage are also not specified) are unable to reach agreement "Santos may independently determine these items".

In my opinion this is unacceptable in terms of the methodology for a heritage survey. Such a methodology should be determined in advance of approval of the CHMP, by a qualified and experienced archaeologist in consultation with the RAPs and with consideration of the requirements of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) and should be specified as a Schedule in the CHMP.

Santos, as proponent, is not 'independent' in the context of resolution of the heritage survey methodology. If the heritage survey methodology was specified in advance in the CHMP there would be no need for such an internal dispute resolution process.

31. Section 4.8(d) of the CHMP specifies that no pre-clearance surveys will necessarily be required in areas "subject to Significant Ground Disturbance" (defined as A: disturbance by machinery of the topsoil or surface rock layer, excluding consolidated rock or solid sheet rock, of the ground, such as by grading, bulldozing, trenching, drilling or dredging, and B: the removal of vegetation by disturbance of root systems and exposing underlying soil) or in areas which have previously been subject to heritage survey (including those marked 'Zone 2' on the CHZS and those subject to previous 'Due Diligence' surveys).

Neither in my opinion are acceptable in the context of the Precautionary Principle, or the Avoidance Principle, or an EIS that has been significantly constrained in its actual investigation and assessment of specific Project impacts.

The inclusion of ground in part B of the definition of 'Significant Ground Disturbance', if it is to the exclusion of part A of the definition (that is, ground in which only the vegetation has been removed, but disturbance by machinery etc hasn't occurred), may result in the avoidance of heritage survey and further assessment and management of areas in which significant heritage evidence (potential artefact deposits) may exist. This is because the practice of vegetation removal does not necessarily cause widespread impacts to the horizontal and vertical integrity of sub-surface artefact deposits. Neither does it necessarily adversely affect other site types, such as grinding grooves.

Any surveys undertaken previously with reference to the OEH *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010c) should not be relied upon as sufficient for the purposes of this EIS or CHMP. No data is presented in the EIS about the adequacy of those surveys, the nature and extent of survey coverage, any consideration of the potential heritage resource and cultural values, the qualifications and experience of the survey personnel, or any consultation with the RAPs for this Project. Such surveys would not have been undertaken in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a).

32. Section 4.8(e) of the CHMP specifies that the 'pre-clearance survey' will be undertaken by a 'Survey Team', defined as the "team of Cultural Heritage Officers employed or contracted to conduct a Pre-Clearance Survey". The "Cultural Heritage Officers" are defined as "an Aboriginal person nominated by the ACHWG...who meets all Santos OHS requirements".

In the context of an EIS that has been significantly constrained in its actual investigation and assessment of specific Project impacts, the conduct of heritage surveys that are effectively investigating for (*in lieu* of the investigation that should have been undertaken as a component of the EIS) Aboriginal heritage (including all forms of material evidence and cultural values) it is essential in my opinion that an appropriately qualified and experienced archaeologist forms an integral component of the "Survey Team".

The exclusion of such archaeological expertise from the survey would effectively substantially lessen the capability of the "Survey Team" to identify potential artefact deposits (and potentially other less common Aboriginal site types) and assess their value (including their scientific significance within both local and regional contexts).

The appropriately qualified and experienced archaeologist should be defined in accordance with Section 1.6 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a), as would have been the case for any surveys conducted as part of the EIS.

33. Section 4.8(h) of the CHMP specifies that a cultural heritage report will be prepared at the completion of the survey "by Santos".

As per comment #31, in my opinion there is strong justification for such a report to be prepared by an appropriately qualified and experienced archaeologist acting independently and objectively with reference to the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a) and a relevant professional Code of Ethics (such as the AACAI Code of Ethics).

34. Section 4.8(i) of the CHMP specifies procedures in which a cultural heritage report prepared at the completion of the survey will become a 'Cultural Heritage Compliance Plan', effectively involving endorsement of the report by the Survey Team and if the Survey Team does not endorse the report, endorsement by the Cultural Heritage Coordinator.

Effectively, this proposed system of pre-clearance surveys of development impact areas that have not been assessed as a component of this EIS, represents a system devoid of involvement from a qualified and experienced archaeologist, in which Santos (the Proponent) defines the heritage survey methodology, the inspection (and presumably concurrent determination of all aspects of heritage significance and management strategies) is conducted by Aboriginal representatives engaged and paid for by Santos who are of no specified qualifications or experience in heritage or cultural connection to the investigation area, with a report prepared by Santos (the Proponent) with no reference to any relevant heritage guidelines or professional Code of Ethics, and a report 'signed-off' by the paid Aboriginal participants in the Survey Team. This process lacks transparency, professionalism, independence and scientific validity.

35. Section 4.9 of the CHMP briefly specifies procedures for the management of "new finds".

A "new find" is defined as Aboriginal heritage "that has not been identified by the Project EIS, the Pre-Clearance Survey and is discovered during Project Activities". "Project Activities" are defined as "the physical carrying out of the Project within the Project Area". In these definitions, it is unclear if "Project Activities" includes the "Pre-Clearance Surveys" or any other heritage investigations which may occur within the Project Area (either related to the Project, or in relation to other activities). Furthermore, the "new find" definition appears to exclude evidence identified during the "Project EIS, (sic) the Pre-Clearance Survey". On this basis, the CHMP contains no procedures for the management of currently unidentified heritage evidence that may be identified within the Project area either during the course of the Pre-Clearance Surveys or by other unrelated parties. This is a significant deficiency in the CHMP.

Specific management strategies are required to address management of the range of Aboriginal site types that may be identified within the Project area post-EIS (either by the Project, or by unrelated parties/activities), including in relation to the nature of potential impacts, the assessed level of heritage significance of the item, and commitments made in the EIS about the general management strategies for certain site types (Table 5.1 of the ACHAR, and Schedules 3 and 4 of the CHMP, which in another significant omission, are not referenced at all in Section 4.9 "new finds").

Section 4.2 of the CHMP ("Site protection of *known* Aboriginal cultural heritage sites") contains two paragraphs stating that "should the pre-clearance survey identify an Aboriginal cultural heritage site of the type in the table in Schedule 3, then Santos will not locate the infrastructure in that area" and "should the pre-clearance survey identify an Aboriginal cultural heritage site of the type in the table in Schedule 4, then Santos will, where practicable, not locate the infrastructure in that area...if it is not practicable to re-site the infrastructure, then Santos will adopt the management measures identified in the third column of the table". It is noted that the above definitions and Section 4.9 of the CHMP are contradictory, and that these sections appropriately belong in Section 4.9, not Section 4.2. The significant deficiencies of the pre-clearance survey process (refer to comments #29-33) are also noted, including the apparent absence of a role for an appropriately qualified and experienced archaeologist in these surveys.

In terms of the management strategies outlined in Schedule 3 of the CHMP, to ensure complete avoidance of certain site types, I find these strategies highly commendable and warranted in consideration of the generally flexible nature of the proposed impacts and the lack of current knowledge of many of those impact areas.

In terms of the management strategies outlined in the third column of Schedule 4 of the CHMP, I find the level of detail (either absence of, or very limited information) about the process and methodology inadequate. Significant issues that should be addressed are noted below.

Who defines, and by what methodological process and criteria, whether a "stone artefact concentration" is "complex", when it requires technical expertise to identify specific stone artefact types and features, associations with other site types, and whether there is any sub-surface material that may be *in situ* (as specified in Schedule 4) and there is no specified role for an appropriately qualified and experienced archaeologist in these surveys/assessments?

Who defines, and by what methodological process and criteria, whether "there is any sub-surface material that may be *in situ*"? There are no procedures or methodology specified for sub-surface test excavation.

If the "stone artefact concentration" is somehow defined as complex, what does the statement mean that "avoidance efforts will be increased further"? This seemingly does not guarantee avoidance for "stone artefact concentrations" that may be "complex" and therefore of potential heritage significance.

If the "complex" "stone artefact concentration" then cannot be avoided, what procedures and methodology will be implemented in relation to salvage of that evidence? Nothing is specified.

What are the procedures/methodology for "relocation" of artefact evidence? Who undertakes it? What reporting occurs? Where is the material "relocated" to?

Similarly for shell middens, there are no specific details about who and by what methodological process the assessment of what is a "complex" midden occurs. I find this lack of detail in a CHMP, that effectively manages Aboriginal heritage over the life of a project *in lieu* of a Section 90 AHIP, very inadequate.

In relation to "sub-surface cultural material", again there are no specific details about who and by what methodological process the assessment of what is a "Potential Archaeological Deposit" will occur. I find the strategy that if "confirmed to exist, all Sub-surface Cultural material, other than stone artefacts, will be avoided" unacceptable in the absence of an assessment of significance by an appropriately qualified and experienced archaeologist followed by strategies of avoidance where practical or mitigation where avoidance is not practical.

While it is stated that "Potential Archaeological Deposits will be subject of testing in line with OEH specifications for same" I find it inadequate that the relevant OEH specifications are not mentioned and the details not provided within the CHMP.

There are numerous variables relating to sub-surface testing that should be addressed within the CHMP, including in what circumstances it would occur, who would undertake it, the testing sampling strategy, scope and methodology, what occurs to the salvaged material, what further investigation relevant to understanding the nature of the deposit and assessing site significance (such as dating and use-wear/residue analysis) would occur and in what circumstances, who would decide on further management strategies (such as mitigation, ie. salvage excavation) and what criteria, scope and methodology would be applied for salvage excavations if required.

In relation to "isolated stone artefacts", there are no details of the process of "relocation".

In relation to Section 4.9(b) of the "management of new finds", I find it inadequate that the management of "new finds" is a process of reaching agreement between the "Cultural Heritage Coordinator and the Santos Senior Cultural Heritage Field Supervisor" for reasons of the deficiencies noted above, and the availability to include in this CHMP detailed prescriptions for a range of evidence agreed in advance by relevant stakeholders (such as the RAPs and the OEH).

Statements to the effect that "New Find Measures employed by Santos must be consistent with any directions received from OEH" are meaningless in view of the process outlined, which does not involve any consultation with the OEH with a view to seeking their direction.

36. Section 5.1 of the CHMP specifies that an annual report will be prepared and provided to the OEH.

Provisions are warranted in the CHMP for the distribution in a timely manner of *all* heritage reports prepared under the CHMP to the OEH (as the regulator, for the purposes of review and verification of adequacy, and as a repository by which that information is available to other bona fide researchers and Aboriginal community members interested in the Aboriginal heritage of the locality, and the general public and future generations of Australians) consistent with standard heritage practice in NSW.

37. The provisions of confidentiality in Section 6 of the CHMP are onerous and highly restrictive.

In my opinion, these restrictions are not consistent with acceptable heritage management practices or principles of recognition and respect for Aboriginal people in relation to their cultural heritage (for example, as outlined in the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* {OEH 2011}, *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}).

Provisions are warranted in the CHMP for the distribution in a timely manner of all heritage reports prepared under the CHMP to the OEH (refer to comment #35).

Provisions are warranted in the CHMP for the provision or making available of relevant information relating to ongoing cultural heritage management activities (such as all heritage reports that are generated out of the CHMP and consultation about any proposed material changes to the CHMP) to all RAPs.



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