APPENDIX E ABORIGINAL CULTURAL HERITAGE ASSESSMENT

Aboriginal Cultural Heritage Assessment

BERYL SOLAR FARM

MARCH 2017

ngh environmental

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CONTENTS

TABLES

FIGURES

PLATES

EXECUTIVE SUMMARY

INTRODUCTION

NGH Environmental has been contracted by First Solar Pty Ltd (First Solar) to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the proposed Beryl Solar Farm, located at Beryl approximately 6 kilometres west of the township of Gulgong, NSW.

The solar farm proposal would involve ground disturbance that has the potential to impact on Aboriginal heritage sites and objects which are protected under the NSW *National Parks and Wildlife Act 1974* (NPW Act). The purpose of the Aboriginal Cultural Heritage Assessment (ACHA) is therefore to investigate the presence of any Aboriginal sites and to assess the impacts and management strategies that may mitigate any impact.

The Secretary of the DPE Environmental Assessment Requirements (SEARs) relating to Aboriginal heritage were as follows:

> Include an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including adequate consultation with the local Aboriginal community (SEARS for Beryl Solar Farm 25/01/17).

This ACHA Report was prepared in line with the following:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011);
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010a), and
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (ACHCRP) (OEH 2010b) produced by the NSW Office of Environment and Heritage (OEH)

The proposal area is within the Mid-Western Regional Council Local Government Area.

PROJECT PROPOSAL

The Beryl Solar Farm proposal would comprise the installation of a solar plant with a capacity up to 100 MW. The power generated will be fed into the National Electricity Market (NEM) at the transmission level from the adjacent Beryl Substation. First Solar proposes to develop approximately 206 ha of the 332 ha proposal site.

The proposal would include the following elements:

- PV modules mounted on either a horizontal tracking structure (likely) or fixed structure.
- Internal inverter stations to allow conversion of DC module output to AC electricity, with associated transformers.
- Onsite solar farm substation (smaller than the existing Beryl Substation).
- Overhead electricity transmission for grid connection to the adjacent existing substation. (66kV).
- Underground electrical conduits and cabling to connect the inverters to the onsite substation.
- Underground and aboveground (mounted to module structure) DC cabling to connect the modules to the inverter stations.
- An access road off Beryl Road.
- Site office and maintenance building.

- Internal access tracks to allow for site maintenance.
- Perimeter security fencing.
- Native vegetation screening, where required to break up views of infrastructure to specific receivers.

ABORIGINAL CONSULTATION

The consultation with Aboriginal stakeholders was undertaken in accordance with clause *80C of the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010* following the consultation steps outlined in the (ACHCRP) guide provided by OEH.

The full list of consultation steps, including those groups and individuals that were contacted and a consultation log is provided in Appendix A.

As a result of this process, four groups contacted the consultant to register their interest in the proposal. The groups who registered interest were Buudang, Murong Gialinga Aboriginal & Torres Strait Islander Corporation, Warrabinga Native Tittle Claimants Aboriginal Corporation and the Wellington Valley Wiradjuri Aboriginal Corporation. No other party registered their interest, including the entities and individuals recommended by OEH.

The fieldwork was organised and all registered parties were asked to participate in one of the two days of fieldwork. The fieldwork was carried out in late February 2017 with a representative from all four of the registered parties participating for a day of survey

A copy of the draft report was provided to all the registered parties for comment.

ARCHAEOLOGICAL CONTEXT

The assessment included a review of relevant information relating to the existing landscape of the proposal area. Included in this was a search of the OEH AHIMS database. No Aboriginal sites had previously been recorded within and adjacent to the proposal area. The closest AHIMS site to the project area was recorded as an open artefact site (AHIMS # 36-2-0016) located approximately 500m north of the assessment area.

Assessment of Aboriginal site models for the region suggest that there appears to be a pattern of site location that relates to the presence of potential resources for Aboriginal use. The most archaeologically sensitive areas are noted to occur within 100-400 m of water. Nonetheless, given that Aboriginal people have lived in the region for tens of thousands of years, there is some potential for archaeological evidence to occur across the proposal area. This would most likely be in the form of stone artefacts and scarred trees.

SURVEY RESULTS

The intention for the heritage survey was to cover as much of the ground surface as possible, given that the project was going to disturb approximately 206 hectares, within the 332 hectare proposal site. Survey transects were undertaken on foot across the project area to achieve maximum coverage. All mature trees within or adjacent to the development footprint were also inspected for evidence of Aboriginal scarring. Visibility within the project area was variable with visibility ranging from 80% in exposures to less the 5%. The average effective visibility was 15% but overall was quite good

Between the survey participants, over the course of the field survey, approximately, 100 km of transects were walked across the proposed solar farm development area. Allowing for an effective view width of 5m

each person, this equates to a surface area examined of 46ha. However, allowing for the visibility restrictions, the effective survey coverage was reduced to 6.9 ha, or 3.3% of the project area. The effective survey coverage for the area outside the development plan was lower at 1.9 ha or 1.5%.

Despite the variable visibility encountered during the survey, there were six stone artefacts found across the proposal area that were recorded as five site occurrences. The archaeological features have been recorded as an artefact scatter (Beryl Solar Farm AS1) and four isolated finds (Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3 and Beryl Solar Farm IF 4).

In terms of the current proposal therefore, extrapolating from the results of this survey, it is possible that additional stone artefacts could occur within the proposed development footprint. Based on the land use history of the proposal area, and an appraisal of the results from the field survey, there is negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the solar farm and powerline easement areas.

The models of site location for the area have been shown to be accurate, with the current survey confirming the predicted distribution and nature of archaeological material with the sites located within 100-400m to a water source, even in areas highly disturbed by farming activities.

The cultural significance of the sites is only determined by the local Aboriginal community.

POTENTIAL IMPACTS

The proposal involves the construction of a solar farm and includes connection to the nearby substation with an above ground powerline on Lot 21/DP 1173059 that will extend to the existing Beryl substation on Lot 1/ DP 523876. The development will result in disturbance of almost 206 hectares of the 332-hectare property within Lot 20/DP 1173059 and Lot 1/DP 1012926. The impact is likely to be most extensive where earthworks occur and would involve the removal, breakage or displacement of artefacts. This is considered a direct impact on the Aboriginal objects by the development in its present form.

Site name	Site integrity	Type of harm	Degree of harm	Consequence of harm	Recommendation
Beryl Solar Farm IF 1	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm IF 2	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm IF 3	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm IF 4	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm AS1	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage objects prior to development of project.

The impact to the scientific values if the sites Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS 1 were to be impacted by the current proposal is considered low. The stone artefacts have little research value apart from what has already been gained from the information obtained during the present assessment. This information relates more to the

presence of the artefacts and in the development of Aboriginal site modelling, which has largely now been realised by the recording.

The Beryl Solar Farm proposal is classified as State Significant Development under the EP&A Act which have a different assessment regime. As part of this process, Section 90 harm provisions under the NPW Act are not required, that is, an AHIP is not required to impact Aboriginal objects as the Department of Planning and Environment provides development approval.

RECOMMENDATIONS

It is recommended that:

1. If complete avoidance of the five recorded sites within the proposal area (Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS 1) is not possible, the artefacts must be salvaged prior to the proposed work commencing and moved to a safe area within the property that will not be subject to any ground disturbance.
2. The collection and relocation of the artefacts should be undertaken by an archaeologist with representatives of the registered Aboriginal parties. A new site card/s will need to be completed once the sites are moved to record their new location on the AHIMS database.
3. Once the sites Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS 1 are salvaged, the proposed work can proceed with caution within the development footprint.
4. The development proposal should now be able to proceed without any additional archaeological investigation.
5. First Solar should prepare an Unexpected Finds Protocol (UFP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm. The UFP will outline the procedure to deal with construction activity. Preparation of the UFP should be undertaken in consultation with the registered Aboriginal parties.
6. In the unlikely event that human remains are discovered during the construction, all work must cease in the immediate vicinity. OEH, the local police and the registered Aboriginal parties should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
7. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field survey.

1 INTRODUCTION

First Solar Pty Ltd (First Solar) proposes to develop a commercial scale solar farm at Beryl, approximately 6 kilometres west of the township of Gulgong, NSW (Figure 1 and 2). The proposal site is approximately 332 hectares in size with 206 hectares proposed for development (Figure 3). The Beryl solar farm would have a capacity of around 100 Mega Watt (MW). NGH Environmental has been contracted by First Solar to prepare an Aboriginal Cultural Heritage Assessment (ACHA) to investigate and examine the presence, extent and nature of any Aboriginal heritage for the proposal area as part of an Environmental Impact Assessment (EIS).

The solar farm proposal would involve ground disturbance that has the potential to impact on Aboriginal heritage sites and objects which are protected under the NSW *National Parks and Wildlife Act 1974* (NPW Act). The purpose of the Aboriginal Cultural Heritage Assessment (ACHA) is therefore to investigate the presence of any Aboriginal sites and to assess the impacts and management strategies that may mitigate any impact.

1.1 DEVELOPMENT CONTEXT

The development of renewable energy projects is one of the most effective ways to achieve the commitments of Australia and many other nations under the Kyoto Protocol to reduce greenhouse gas emissions. The Beryl Solar Farm would provide the following benefits:

- Reduction in greenhouse gas emissions.
- Provision of embedded electricity generation to supply into the Australian grid close to a main consumption centre.
- Provision of social and economic benefits through the provision of direct employment opportunities.

The establishment of a Solar Farm would therefore have both local, National and International benefits.

As part of the development impact assessment process, the proposed development application will be assessed under part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed solar farm at Beryl is classified as “state significant development” (SSD) under Part 4 of the EP&A Act. SSDs are major projects which require approval from the Minister for Planning and Environment. The EIS has been prepared in accordance with the requirements of the Secretary of the Department of Planning and Environment (DPE).

The Secretary of the DPE Environmental Assessment Requirements (SEARs) relating to Aboriginal heritage were as follows:

> Include an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including adequate consultation with the local Aboriginal community (SEARS for Beryl Solar Farm 25/01/17).

The assessment area of the proposed solar farm comprises of Lot 20/DP 1173059 and Lot 1/DP 1012926 with a transmission line on Lot 21/DP 1173059 that will extend to the existing Beryl substation on Lot 1/ DP 523876.

The Beryl Solar Farm proposal site is located between 4.5 and 7km west of the township of Gulgong, within the Mid-Western Regional Council Local Government Area (LGA).

1.2 PROJECT PROPOSAL

The Beryl Solar Farm proposal (Figures 1-3) would comprise of the installation of a solar plant with a capacity up to 100 MW. The power generated will be fed into the National Electricity Market (NEM) at the transmission level from the adjacent Beryl Substation.

Frist Solar proposes to develop approximately 206 ha of the 332 ha proposal site. The solar farm site would be accessed via Beryl Road, Spring Ridge Road and Perseverance Lane.

The proposal would include the following elements:

- PV modules mounted on either a horizontal tracking structure (likely) or fixed structure.
- Internal inverter stations to allow conversion of DC module output to AC electricity, with associated transformers.
- Onsite solar farm substation (smaller than the existing Beryl Substation).
- Overhead electricity transmission for grid connection to the adjacent existing substation. (66kV).
- Underground electrical conduits and cabling to connect the inverters to the onsite substation.
- Underground and aboveground (mounted to module structure) DC cabling to connect the modules to the inverter stations.
- An access road off Beryl Road.
- Site office and maintenance building.
- Internal access tracks to allow for site maintenance.
- Perimeter security fencing.
- Native vegetation screening, where required to break up views of infrastructure to specific receivers.

The Beryl Solar Farm is expected to operate for around 30 years. The construction phase of the proposal is expected to take twelve months. After the initial operating period the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or repowered with new PV equipment.

Three existing electricity transmission lines pass through the proposal site, mostly in a north-south direction and in alignment with the existing Beryl substation. The existing Beryl Substation is directly adjacent to the proposal site within the north-western section. In the centre of the site, a raised embankment indicates the location of the former railway line which passes through the proposal site in an east-west direction. Most of the railway line infrastructure has been removed though some concrete culverts are present.

1.3 PROJECT PERSONNEL

The assessment was undertaken by the archaeologists Matthew Barber and Kirsten Bradley of NGH Environmental, including research, Aboriginal community consultation, field survey and report preparation.

Consultation with the Aboriginal community was undertaken following the process outlined in OEH's *Aboriginal cultural heritage consultation requirements for proponents 2010.* Four Aboriginal groups registered their interest in the proposal. These groups were Buudang, Murong Gialinga Aboriginal & Torres Strait Islander Corporation, Warrabinga Native Tittle Claimants Aboriginal Corporation and the Wellington Valley Wiradjuri Aboriginal Corporation

Further detail and an outline of the consultation process is provided in Section 2.

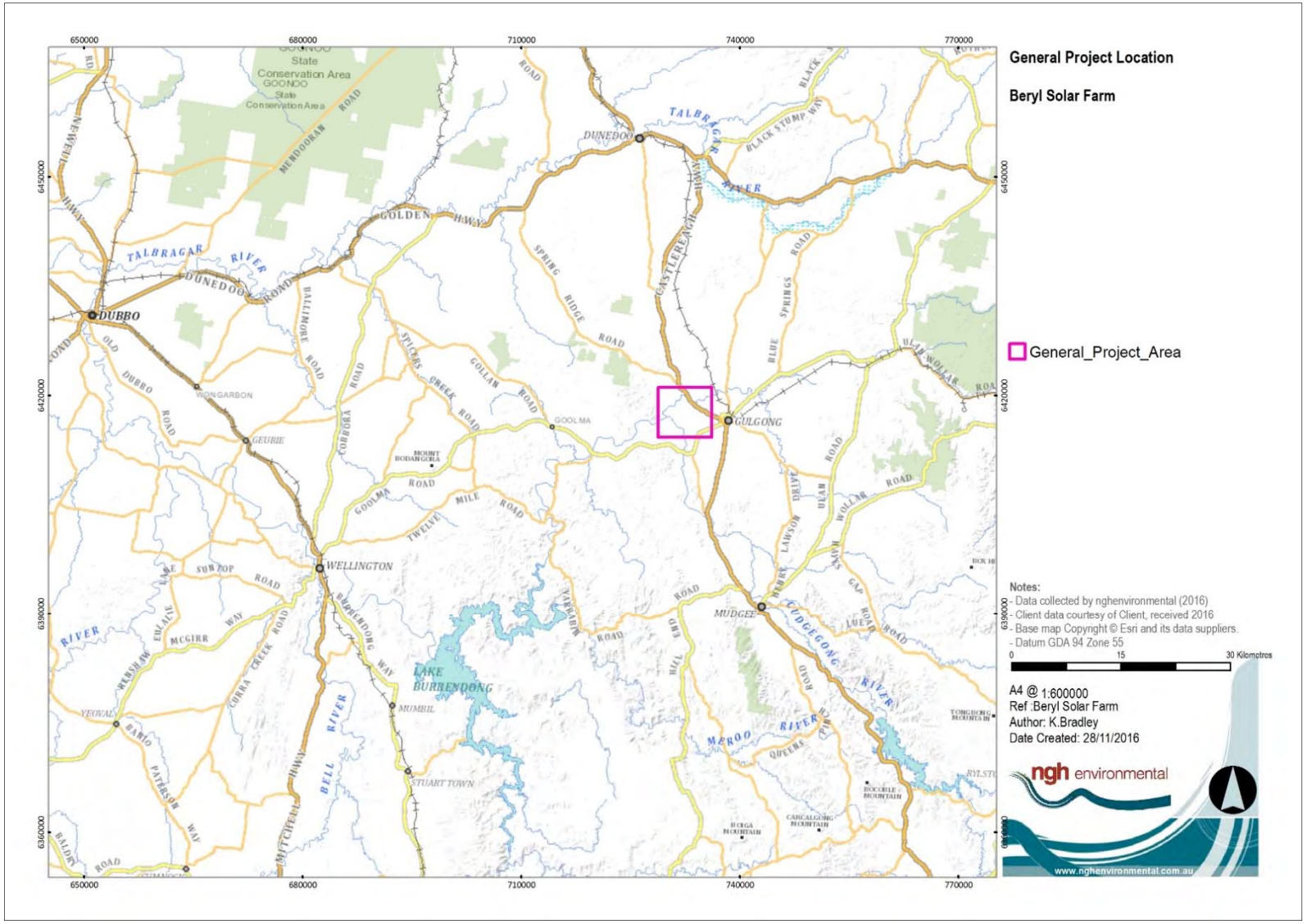


Figure 1. General project area.

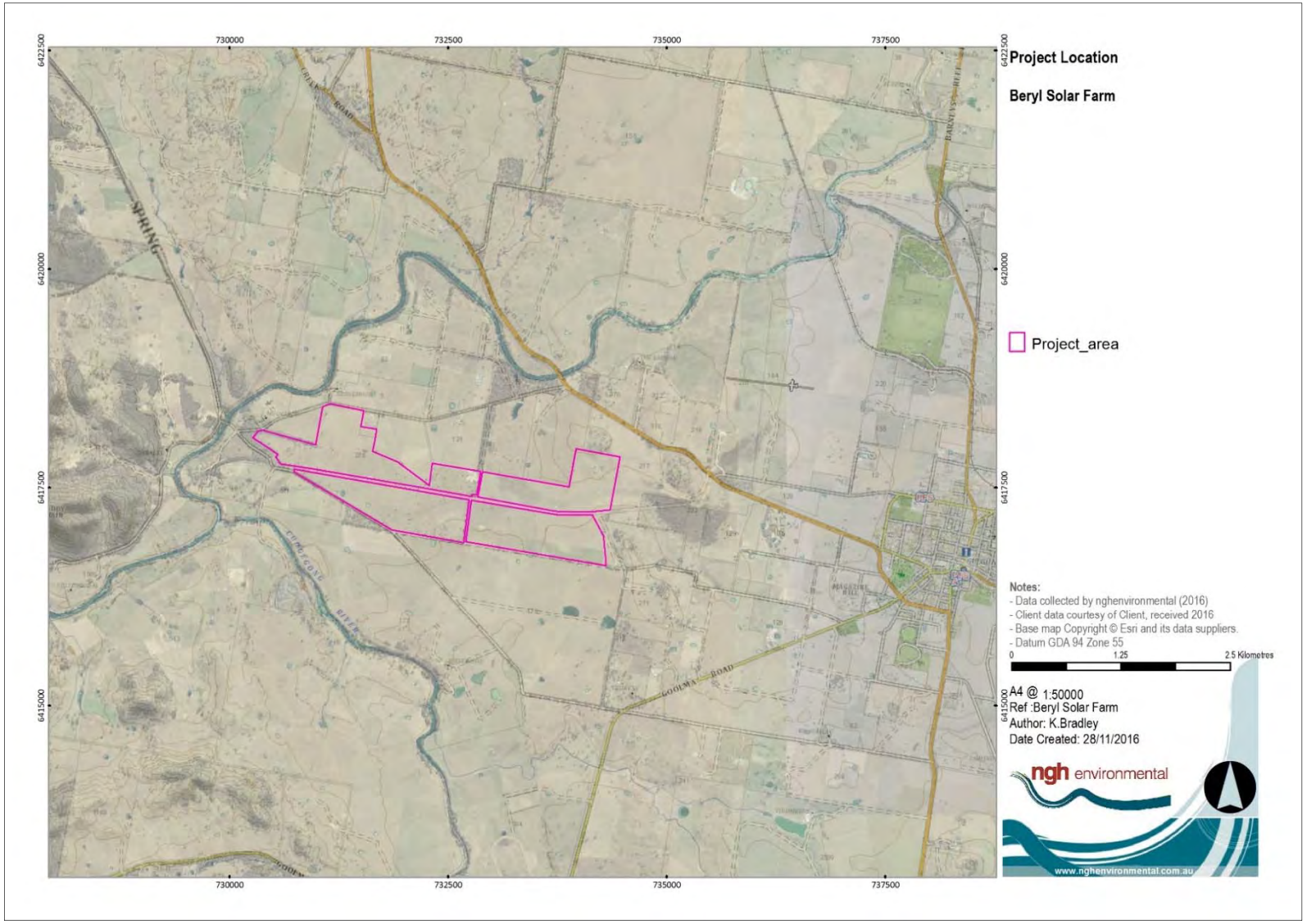


Figure 2. Project area.

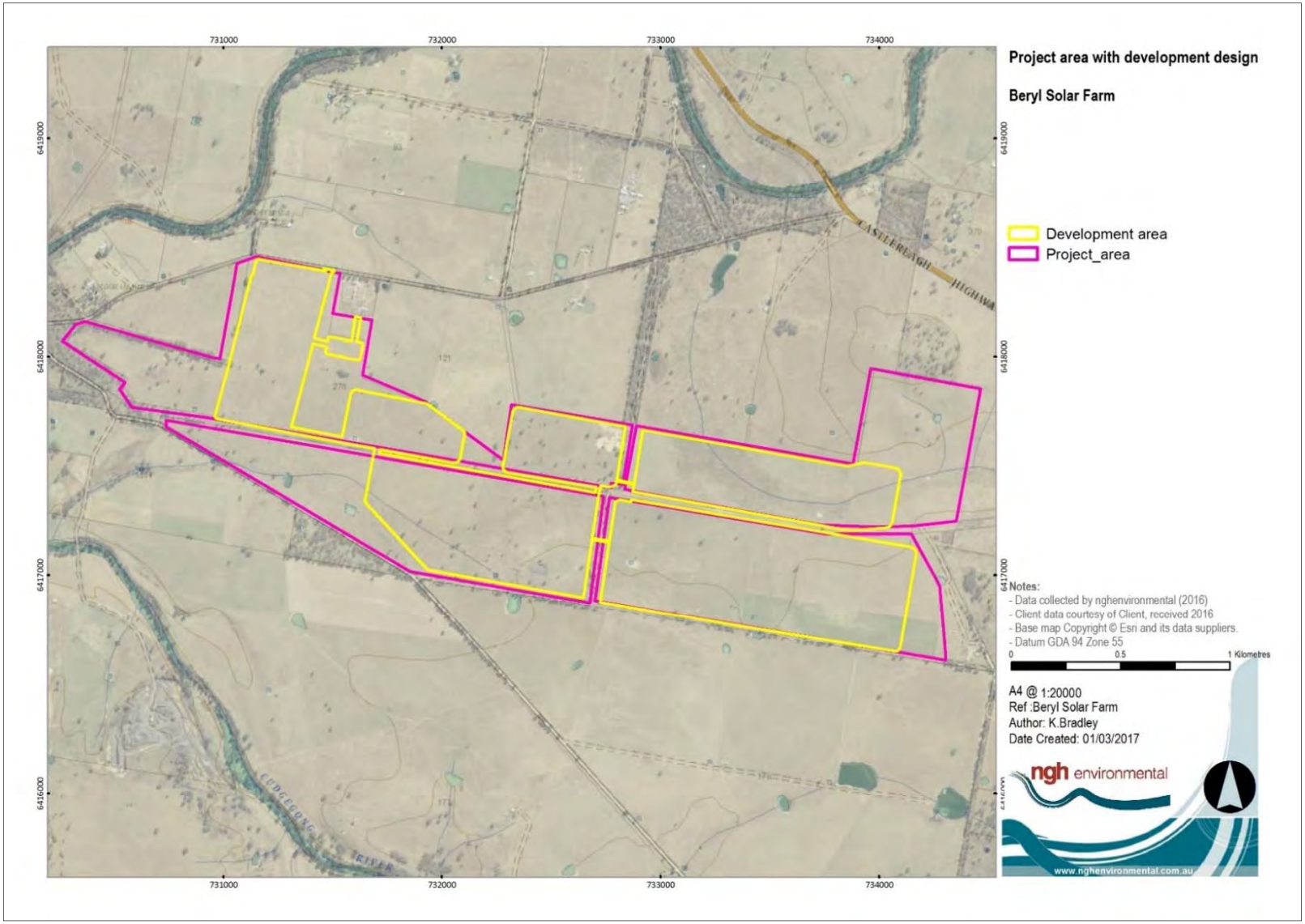


Figure 3. Project area with development design.

1.4 REPORT FORMAT

For the purposes of this assessment of the Beryl Solar Farm, we have prepared the report in line with the following:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011);
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010a), and
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (ACHCRP) (OEH 2010b) produced by the NSW OEH.

The purpose of this ACHA Report is to provide an assessment of the Aboriginal cultural values associated with the study area and to assess the cultural and scientific significance of any Aboriginal heritage sites. This conforms to the intention of the SEARs.

The objectives of the assessment were to:

- Conduct Aboriginal consultation as specified in clause 80c of the *National Parks and Wildlife Regulation 2009*, using the consultation process outlined in the ACHCRP*;*
- Undertake an assessment of the archaeological and cultural values of the study area and any Aboriginal sites therein;
- Assess the cultural and scientific significance of any archaeological material:
- Assess the impacts of the development proposal on cultural sites, and
- Provide management recommendations for any objects found.

2 ABORIGINAL CONSULTATION PROCESS

The consultation with Aboriginal stakeholders was undertaken in accordance with clause *80C of the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010* following the consultation steps outlined in the ACHCRP guide provided by OEH. The guide outlines a four-stage process of consultation as follows:

- Stage 1 – Notification of project proposal and registration of interest.
- Stage 2 – Presentation of information about the proposed project.
- Stage 3 – Gathering information about cultural significance.
- Stage 4 – Review of draft cultural heritage assessment report.

The full list of consultation steps, including those groups and individuals that were contacted and a consultation log is provided in Appendix A. A summary of actions carried out in following these stages are as follows.

Stage 1. Letters outlining the development proposal and the need to carry out an ACHA were sent to the Mudgee LALC and various statutory authorities including OEH, as identified under the ACHCRP. An advertisement was placed in the local newspaper, the Mudgee Guardian on the 18th of November 2016 seeking registrations of interest from Aboriginal people and organisations. A further series of letters was sent to other organisations identified by OEH in correspondence to NGH Environmental. In each instance, the closing date for submission was 14 days from receipt of the letter.

As a result of this process, four groups contacted the consultant to register their interest in the proposal. The groups who registered interest were Buudang, Murong Gialinga Aboriginal & Torres Strait Islander

Corporation, Warrabinga Native Tittle Claimants Aboriginal Corporation and the Wellington Valley Wiradjuri Aboriginal Corporation.

No other party registered their interest, including the entities and individuals recommended by OEH.

Stage 2. On the 19th of December 2016, an Assessment Methodology document for the Beryl Solar Farm was sent to the four registered parties as noted above and the Mudgee LALC as required by OEH. This document provided details of the background to the proposal, a summary of previous archaeological surveys and the proposed heritage assessment methodology for the proposal. The document invited comments regarding the proposed methodology and sought any information regarding known Aboriginal cultural significance values associated with the subject area and/or any Aboriginal objects contained therein. A minimum of 28 days was allowed for a response to the document. Comments were received from Warrabinga Native Tittle Claimants Aboriginal Corporation and the Wellington Valley Wiradjuri Aboriginal Corporation.

The main points raised in the comments received from the Wellington Valley Wiradjuri Aboriginal Corporation on the methodology were in relation to:

- Survey spacing; and
- Recording techniques for sites, specifically photography and GPS co-ordinates.

The main points raised in the comments received from the Warrabinga Native Tittle Claimants Aboriginal Corporation on the methodology were requests for further information on:

- The proposal, specifically the proposed earthworks;
- Landforms;
- The closest site to the project area; and
- Previous surveys.

These comments were addressed by NGH in reply letters sent to the Wellington Valley Wiradjuri Aboriginal Corporation on the 30th of January 2017 and the Warrabinga Native Tittle Claimants Aboriginal Corporation on the 9th of February 2017. No further correspondence was received regarding the letters from NGH Environmental that addressed the comments on the methodology from either group. No response or registration of interest in the project was received from the Mudgee LALC.

The Wellington Valley Wiradjuri Aboriginal Corporation has requested that any information they provided in regards to the project area was not shared. Therefore, the letters received as noted above have not been included in this report or appendix. As a similar courtesy, we have not included the response received from the Warrabinga Native Tittle Claimants Aboriginal Corporation.

Stage 3. The *Assessment Methodology* outlined in Stage 2 included a written request to provide any information that may be relevant to the cultural heritage assessment of the study area. It was noted that sensitive information would be treated as confidential.

Cultural information about to the project area was received from the Wellington Valley Wiradjuri Aboriginal Corporation however they have requested that the information provided is not shared. Therefore, the cultural information received has not been included in this report.

No other response regarding cultural information was received.

At this stage, the fieldwork was organised and all four registered parties were asked to participate in one of the two days of fieldwork. The fieldwork was carried out in late February 2017 with a representative from all four of the registered parties participating for a day of the survey.

Stage 4 In March 2017 a draft version of this *Aboriginal Cultural Heritage Assessment Report* for the proposal (this document) was forwarded to Buudang, Murong Gialinga Aboriginal & Torres Strait Islander Corporation, Warrabinga Native Tittle Claimants Aboriginal Corporation and the Wellington Valley Wiradjuri Aboriginal Corporation inviting comment on the results, the significance assessment and the recommendations. A minimum of 28 days was allowed for responses to the document.

2.1 ABORIGINAL COMMUNITY FEEDBACK

ADD

3 BACKGROUND INFORMATION

3.1 REVIEW OF LANDSCAPE CONTEXT

3.1.1 Geology and Topography

The landscape context assessment is based on several classifications that have been made at national and regional level for Australia. The national IBRA system identifies the proposal area as located within the South-Western Slopes Bioregion and the Inland Slopes Subregion (IBRA v.7 2012). The dominant IBRA subregion affected by the project is the Inland Slopes Subregion.

The bioregion lies wholly in the eastern part of the Lachlan Fold Belt which consists of a complex series of north to north-westerly trending folded bodies of Cambrian to Early Carboniferous sedimentary and volcanic rocks. Granites are common and mostly located in large scale up-folded bodies of rock. Granite landscapes occur either as central basins surrounded by steep hills formed on contact metamorphic rocks, or as high blocky plateau features with rock outcrops and tors (NSW National Parks and Wildlife Services 2003).

The Dubbo Geological map (1:250,000 SI/55-4) indicates that geology underlying the project area consists of the Quaternary and Tertiary Cainozoic geological sequences as shown in Figure 4 and detailed below (Colqugoun et al 1997). The two large seams of basalt identified within the project area are indicted by the orange Tb layer in Figure 4.

- **Qa** Alluvium, gravel, sand, silt and clay.
- **Tb** Tholeiite, alkali basalts and alkali ultramafic.
- **Cza** High level alluvium, gravel, sand, silt and clay.

Figure 4. Dubbo Geological map of project area (extracted from Colqugoun et al 1997).

The proposal area is encompassed by three Mitchell Landscape, The Talbragar – Upper Macquarie Terrace Sand, Dubbo Basalts and Cope Hills Granite. Two other Mitchell Landscapes, the Gulgong Ranges and the Macquarie – Turon Gorges, are also located near the project area. The Mitchell Landscape descriptions are provided in Table 1 below and shown in Figure 5.

Table 1 Description of the Mitchell Landscape relevant to the proposal (DECC 2002)

Mitchell Landscape
Talbragar – Upper Macquarie Terrace Sand
Sandy Quaternary alluvial sediments on the floodplains and terraces of the Talbragar River, general elevation 350 to 500m, local relief 30 to 40m. Red-brown and red-yellow earthy sands with some yellow texture-contrast soils on the valley margins.River red gum (*Eucalyptus camaldulensis*) along the channels, yellow box (*Eucalyptus melliodora*) and rough-barked apple (*Angophora floribunda*) with white cypress pine (*Callitris glaucophylla*) on the plain.
Dubbo Basalts
Slightly elevated plains and low hills on flat lying Tertiary basalt and trachyte flows, roughly parallel to the present course of the Talbragar and Macquarie Rivers. General elevation 300 to 330m, local relief 10m. Shallow stony red-brown clay loam and clay, self-mulching and with moderate fertility. Open white box *(Eucalyptus albens*), yellow box *(Eucalyptus melliodora*) and rough-barked apple (*Angophora floribunda*) with diverse grasses.
Gulgong Ranges
Strike ridges with steep slopes and long debris aprons on complexly folded steep dipping Silurian lithic sandstone, quartzite and phyllite, Devonian sandstone, siltstone, shale, rhyolite and dacite. General elevation 550 to 980m, local relief 350m. Shallow stony red and yellow texture-contrast soils with stony uniform loams on steep slopes. Large areas of dense black cypress pine (*Callitris endlicheri*) on slopes, red stringybark (*Eucalyptus macrorhyncha*) and white gum (*Eucalyptus rossii*) on ridges. Blakely's red gum (*Eucalyptus blakelyii*), narrowleaved peppermint (*Eucalyptus radiata*) and white box (*Eucalyptus albens*) on lower slopes grading to yellow box (*Eucalyptus melliodora*).
Cope Hills Granite
Undulating and rolling hills on Carboniferous granite and granodiorite, general elevation 500 to 740m, local relief 150m. Gritty gradational red earth and red texture-contrast soils. Forest of yellow box (*Eucalyptus melliodora*), Blakely's red gum (*Eucalyptus blakelyii*), red stringybark (*Eucalyptus macrorhyncha*), apple box (*Eucalyptus bridgesiana*), mountain gum (*Eucalyptus dalrympleana*) and black cypress pine (*Callitris endlicheri*).
Macquarie – Turon Gorges
Steep sided, deep gorge tract with incised meanders of the Macquarie and Turon Rivers below extensive tablelands of the Ophir-Hargraves Plateau landscape. Incised across the structural grain of north-south trending tightly folded Devonian dacite, crystal tuff, quartzite and slates. General elevation 500 to 700m, local relief to 150m. Shallow stony soils on semi-stable scree slopes and yellow texture-contrast soils on lower angle slopes. Open woodland of yellow box *(Eucalyptus melliodora*), red box *(Eucalyptus polyanthemos*) and Blakely's red gum *(Eucalyptus blakelyi*) on lower areas, red stringybark *(Eucalyptus macrorhyncha*), broadleaved peppermint *(Eucalyptus dives*) and candlebark (*Eucalyptus rubida*), on higher slopes. River oak (*Casuarina cunninghamiana*) dominates the channel.

Cudgegong River lies approximately 750m to the south of the site, and Wialdra Creek is situated approximately 150m to the north. No rivers or permanent steams are present within the site. Two small ephemeral drainage lines are located within the north-eastern and south-western portions of the site. The former is predominantly a second order stream draining north into Wialdra Creek (approx. 1.35 km north of the site boundary), and the latter is a first order stream draining west into Cudgegong River (approx. 900 m

west of the site boundary). Both these drainage lines are predominantly dry. There are several man made dams occurring within the project area.

The project area has two areas of naturally occurring bedrock outcrops which may have provided a source of stone material for Aboriginal people. However, both outcrops have been subjected to various degrees of intensive quarrying since European arrival in the area. A section in the central portion of the project area was also noted to be subjected to some form of sand mining with no outcrops of bedrock observed in this section.

Soils within the proposal area are typically a reddish brown sandy loam. The 1:250,000 Dubbo Soils Landscape series sheet indicates that four soil landscapes occur within the proposal site as shown in Figure 6 and detailed below in Table 2. These include Craigmore, Home Rule, Mebul and Nanima. All these soil types have a moderate to very high erosion hazard when disturbed (Murphy and Lawrie 1998).

Table 2 Description of the soil landscapes of the Dubbo 1:250 000 sheet relevant to the proposal (Murphy and Lawrie 1998)

Soil landscapes of the Dubbo 1:250 000 sheet
Craigmore
• These soils are found on high terrace ranging in elevation between 460 and 475m above sea level. • The landscape consists of non-calcic soils and red earths. • Erosion hazard is low unless in areas with minimal ground cover.
Home Rule
• These soils are found on undulating low rises ranging in elevation between 420 and 500m above sea level. • Slopes are gently inclined 4 – 8%. • The landscape consists of siliceous sands, bleached sands and earthy sands overlying yellow sodic soils. • Erosion hazard is high especially in areas with minimal ground cover and drainage depressions are susceptible to gully erosion.
Mebul
• These soils are found on undulating low hills ranging in elevation between 400 and 540m above sea level. • Slopes range from 2 –15%. • The landscape consists of chocolate soils and euchozerms. • Erosion hazard is high especially in areas with minimal ground cover.
Nanima
• These soils are found on rolling low hills ranging in elevation between 300 and 550m above sea level. • Slopes are gently inclined 5 – 20%. • The landscape consists of non-calcic brown soils, red-brown earths, euchrozems and Terra Rossa soils. • Erosion hazard is low to moderate especially in areas with minimal ground cover.

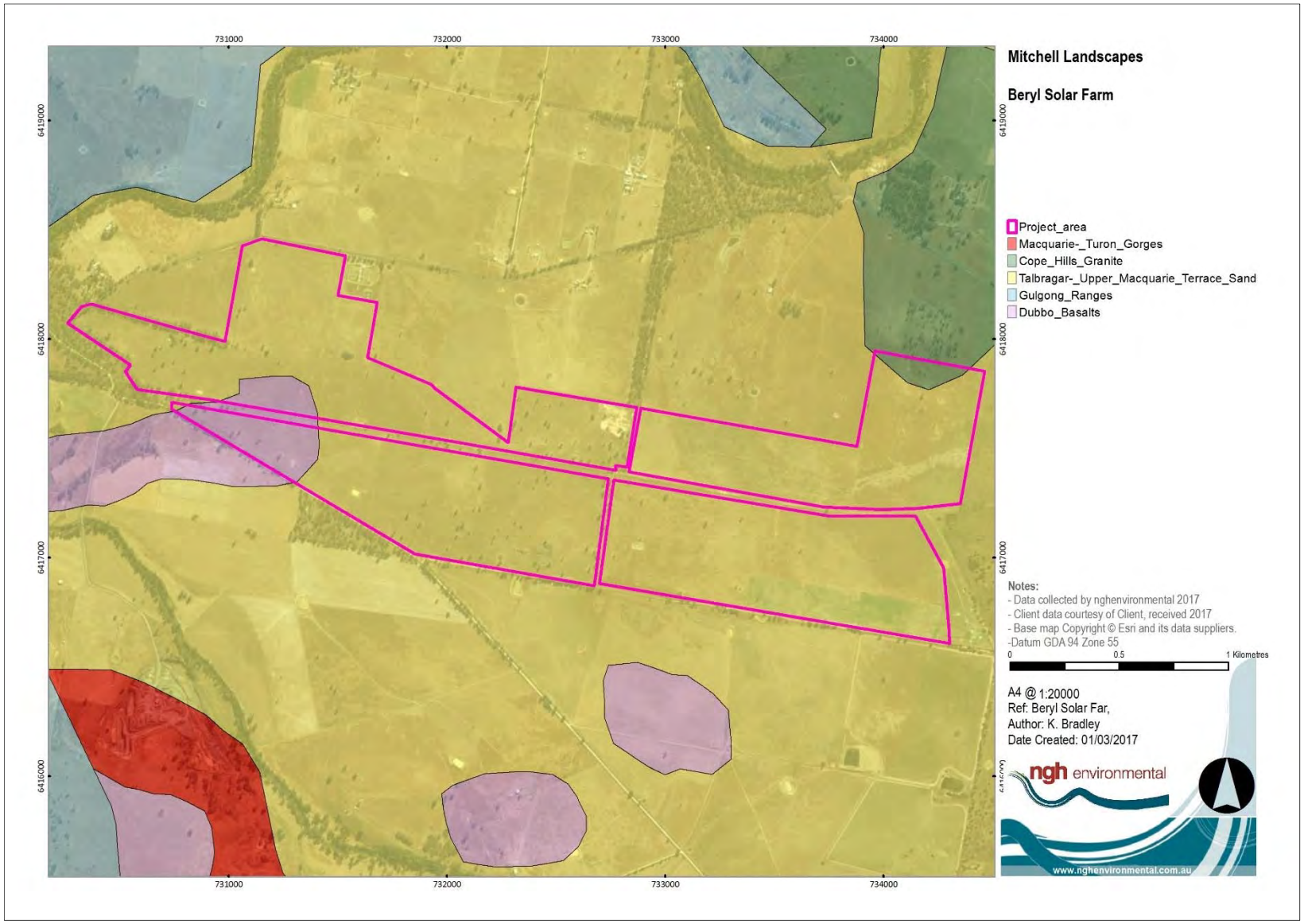


Figure 5. Location of Mitchell landscapes.

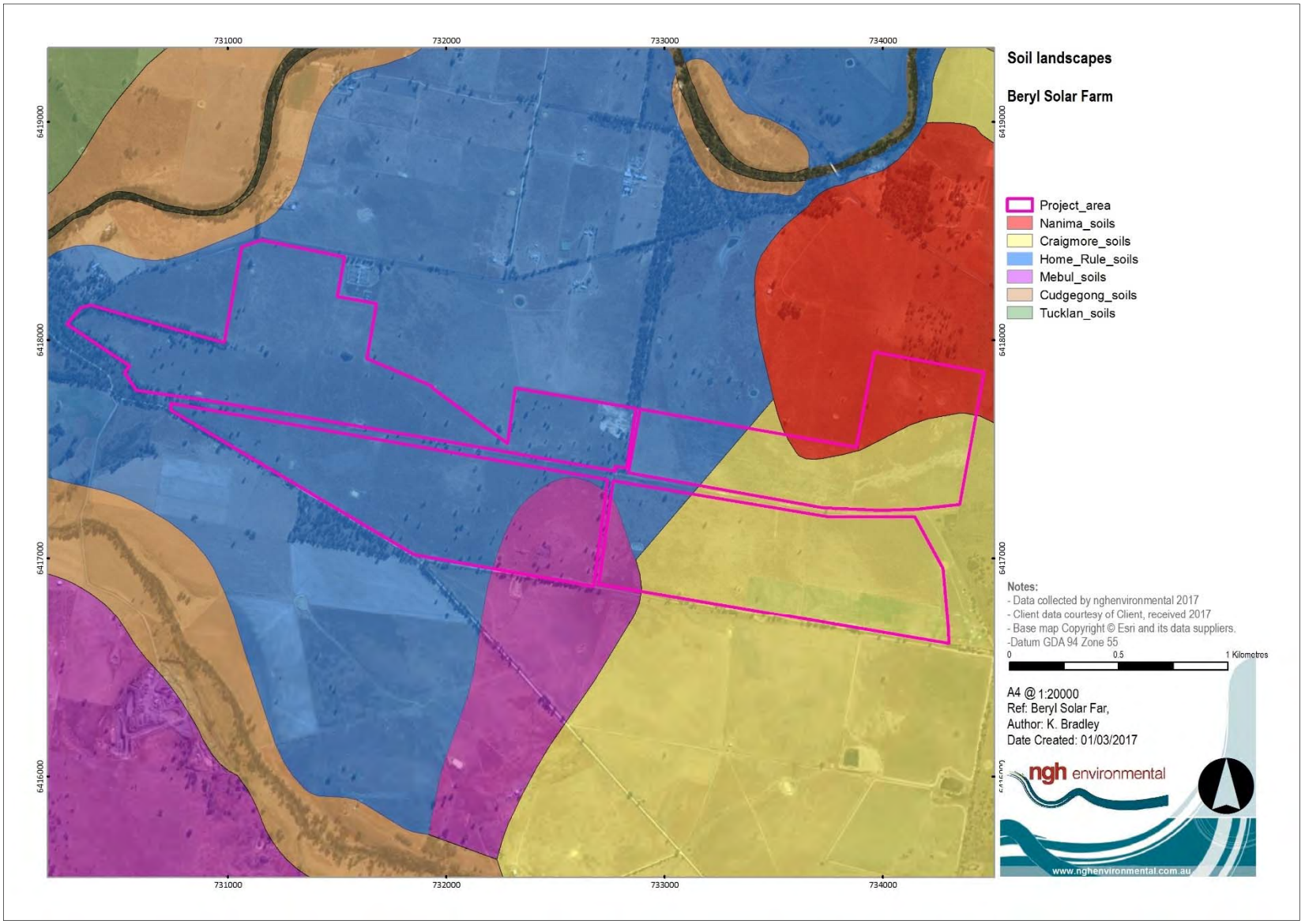


Figure 6. Location of soil landscapes from the Dubbo 1:250 000 sheet

3.1.2 Flora and Fauna

The biodiversity assessment carried out by NGH Environmental (2017) identified two distinct plant community types within the proposal area. These included:

1. White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland
2. Cleared areas (exotic dominated pasture)

The dominant tree species within the development area consisted of the Rough-barked Apple (*Angophora floribunda*), although this species is mixed/co-dominant with Yellow Box (*Eucalyptus melliodora*) and Blakely's Red Gum *(E. blakelyi*) in woodland patches immediately surrounding the site. This suggests the Yellow Box and Blakely's Red Gum have historically been selectively removed (for the timber/firewood) from the whole property, including the north-south laneways. The understorey vegetation included a relatively sparse midstorey vegetation layer comprised primarily of younger/regrowth Rough-barked Apple, Yellow Box and Blakely's Red Gum, with very few native shrubs observed across the site. The groundcover vegetation characteristics included patches of native perennial grasses, particularly across the western half of the site, whilst most the eastern half of the site was dominated by exotic pastures.

The vegetation in the eastern half of the project area was dominated by exotic pastures or planted non-local flora species that are typically grazed on a regular basis. The groundcover in this area is mainly exotic with common grazing species including (but not limited to) Barley Grass (*Hordeum leporinum*), Ryegrass species (*Lolium sp*), Brome species (*Bromus sp*), numerous Clover species (*Trifolium sp*), Paspalum (*Paspalum dilatatum*), Sheep Sorrel (*Acetosella vulgaris*), Delicate Hairgrass (*Aira elegantissima*), and numerous Fescue species (*Vulpia sp*). Numerous weed species are also present in these areas including (but not limited to) Capeweed (*Arctotheca calendula*), Smooth Catsear (*Hypochaeris glabra*), Flatweed (*Hypochaeris radicata*), and Stagger Weed (*Stachys arvensis*).

The wood and grass land vegetation community provides numerous habitat types for fauna. Canopy trees provide foraging and nesting/resting for birds and arboreal fauna. The mid-storey (if present) provides foraging and nesting for smaller birds, as well as refuge for small-medium sized mammals and reptiles. Ground cover plants, logs and fallen leaves provide shelter and foraging for terrestrial fauna as well. Where hollow-bearing trees are present, it may provide daytime resting habitat for bats and mammals, and roosting habitat for birds

3.1.3 Historic Landuse

The proposal area has a history of intensive agricultural and pastoral use. Most the area has been utilised for grazing and crop production since European settlement in the 1820's. The location of the proposed Beryl Solar Farm is predominately within paddocks currently used to graze livestock (sheep and cattle). Areas within the proposed Beryl Solar Farm have also been subject to a range of quarrying activates by the land owners. According to the landowner, the far western portion along a basalt ridge has been subject to prospecting for diamonds following the commencement of mining by the Australia Diamond Mines Company of Melbourne close to the junction of Wyaldra Creek and the Cudgegong River. The basalt outcrop to the south has also been subject to intensive hard rock quarrying. There is also evidence of surface sand and gravel extraction in a small area in the central part of the proposal area. The exact dates of the quarry activity within the property is currently unknown. The impacts from farming and quarry activities over many decades has meant that any cultural material within the proposal area has been extensively disturbed and potentially destroyed.

The construction of the existing powerlines through the project area has also caused disturbance to the project area. There are also several man-made dams within the project area that have modified the ground. The ground has also been modified for the construction of the raised embankment of the former railway line which passes through the centre of the proposal site in an east-west direction.

Overall, the proposal area would be categorised as disturbed through consistent farming practices, quarrying practices, land clearing and development.

3.1.4 Landscape Context

Most archaeological surveys are conducted in a situation where there is topographic variation and this can lead to differences in the assessment of archaeological potential and site modelling for the location of Aboriginal archaeological sites. However, as already noted, the terrain is generally undulating within the Talbragar – Upper Macquarie Terrace Sand Mitchell Landscape, with a low hill in the north-eastern corner. The project area has also been significantly disturbed in three areas by quarrying activities. Electricity transmission lines and a raised east-west embankment of the former railway line have also disturbed the area.

The only other differences observed within the landscape were two drainage channels that cross the project area and the two large rock outcrops that have been subject to European quarrying activities. Areas in close proximity to a water source are likely to have been a major focus for Aboriginal people. However, prior to European land modifications, this area as a whole may have provided resources, shelter, water and food for Aboriginal people.

The different Dubbo Sheet soils and the Mitchell landscapes were not readily identifiable within the survey area and were not used as means of landscape differentiation. The landforms for the survey was therefore determined to be two units, undulating plains and the slopes of low rolling hills. This landform division is based on topographic maps of the project area and visual inspection during field survey.

3.2 REVIEW OF ABORIGINAL ARCHAEOLOGICAL CONTEXT

3.2.1 Ethnohistoric Setting

Cultural areas are difficult to define and "must encompass an area in which the inhabitants have cultural ties, that is, closely related ways of life as reflected in shared meanings, social practices and interactions" (Egloff *et al*. 2005:8). Depending on the culture defining criteria chosen - i.e. which cultural traits and the temporal context (historical or contemporary) - the definition of the spatial boundary may vary. In Australia, Aboriginal "marriage networks, ceremonial interaction and language have been central to the constitution of regional cultural groupings" with the distribution of language speakers being the main determinate of groupings larger than a foraging band (Egloff *et al*. 2005:8 & 16).

The Beryl area is within an area identified as part of the Wiradjuri language group. This is an assemblage of many small clans and bands speaking a number of similar dialects (Howitt 1996, Tindale 1974, MacDonald 1983, Horton 1994).

The Wiradjuri language group was the largest in NSW prior to European settlement. The borders were however, not static, they were most likely fluid, expanding and contracting over time to the movements of smaller family or clan groups. Boundaries ebbed and flowed through contact with neighbours, the seasons and periods of drought and abundance.

It was the small family group that was at the core of Aboriginal society and the basis for their hunting and gathering life. The immediate family camped, sourced food, made shelter and performed daily rituals together. The archaeological manifestations of these activities are likely to be small campsites, characterised by small artefact scatters and hearths across the landscape. Places that were visited more frequently would develop into larger site complexes with higher numbers of artefacts and possibly more diverse archaeological evidence.

These small family units were part of a larger band which comprised a number of families. They moved within an area defined by their particular religious sites (MacDonald 1983). Such groups might come together on special occasions such as pre-ordained times for ceremonies, rituals or simply if their paths happened to cross. They may also have joined together at particular times of the year and at certain places where resources were known to be abundant. The archaeological legacy of these gatherings would be larger sites rather than small family camps. They may include large hearth or oven complexes, contain a number of grinding implements and a larger range of stone tools and raw materials.

Identification and differentiation of such sites are difficult in the field. A family group and their antecedents and descendants occupying a particular campsite repeatedly over a long period of time may leave a similar pattern of archaeological signatures as a large group camped over a shorter period of time.

European settlers started arriving in the district in the 1820s. At this point the Aboriginal population was in decline, due to disease such as small pox and influenza as well as dispossession from traditional lands and acts of violence against the Aboriginal people meant there was great social upheaval and partial disintegration of the traditional way of life. This meant that access to traditional resource gathering and hunting areas, religious life and marriage links and access to sacred ceremonial sites were disrupted or destroyed.

However, despite these disruptions, Aboriginal people continued to maintain their connections to sites and the land in the early days of European settlement. Where Aboriginal people were moved to places like missions, people could maintain at least some form of association with country and maintain traditional stories.

Early settlers and others who wrote about the Wiradjuri people and customs differentiated between the origin of some groups, referring to people as the Lachlan or Murrumbidgee tribes, or the Levels tribe for those between the two major rivers (Woolrych 1890). The extent of the Wiradjuri group means that there were many different environments that were exploited for natural resources and food. Like everywhere in Australia, Wiradjuri people were adept at identifying and utilising resources either on a seasonal basis or all year round.

Terrestrial animals such as the possum was noted by many early observers as a prime food source and the skins were made into fine cloaks that evidently were very warm (Evans 1815, Oxley 1820, Mitchell 1839). Kangaroos were also eaten and their skins made into cloaks as well. A range of reptiles and other mammals were food sources. Fish and mussels would have been prevalent from the rivers and creeks and insects were also a common food type, in particular grubs and ants and ant eggs (Pearson 1981, Fraser 1892). Birds including emus were common as a food source, often being caught in nets made from fibres of various plants such as flax, rushes and kurrajong trees. Bird hunts were also often undertaken as group activities, with emus, ducks and other birds targeted through groups of people flushing them out and driving them into pre-arranged nets (Ramson 1983).

Plant foods were equally as important and mostly consisted of roots and tubers, such as *Typha* or Cumbungi whose tubers were eaten in late summer and the shoots in early spring. Other edible plants from the

Wiradjuri region include the Yam Daisy or *Murnong*, eaten in summer and autumn, the Kurrajong seeds and roots, Acacia seeds and other rushes (Gott 1982).

Some of the early settlers and pastoralists, surveyors, explorers, administrators and others observed traditional Aboriginal activities, including ceremonies, burial practices and general way of living, and recorded these in letters, journals and books. These early records of Aboriginal lifestyle and society within the region assist in understanding parts of the traditional Aboriginal way of life, albeit already heavily disrupted at the time of the observations and through the eyes of largely ignorant and uninformed observers.

The early observations also note that some weapons and tools were carried, some made from wood such as spears, spear throwers, clubs, shields, boomerangs, digging sticks, bark vessels and canoes. Other materials were observed in use such as stone axes, shell and stone scrapers and bone needles.

In an archaeological context, few of these items would survive, particularly in an open site context. Anything made from bark and timber and animal skins would decay quickly in an open environment. However, other items, in particular those made of stone would survive where they were made, placed or dropped. Shell material may also survive in an archaeological context. Sources of raw materials, such as the extraction of wood or bark would leave scars on the trees that are archaeologically visible, although few trees of sufficient age survive in the modern context. Outcropping stone sources also provide clues to their utilisation through flaking, although pebble beds may also provide sources of stone which leave no archaeological trace.

3.2.2 AHIMS Search

The Aboriginal Heritage Information Management System (AHIMS) is maintained by OEH and provides a database of previously recorded Aboriginal heritage sites. A search provides basic information about any sites previously identified within a search area. However, a register search is not conclusive evidence of the presence or absence of Aboriginal heritage sites, as it requires that an area has been inspected and details of any sites located have been provided to OEH to add to the register. As a starting point, the search will indicate whether any sites are known within or adjacent to the investigation area.

A search of the AHIMS database was conducted over an area approximately 22km east-west x 22km north-south centred on the proposal area, was undertaken on the 15th of November 2016. The AHIMS Client Service Number was: 254143. There were 79 Aboriginal sites and no declared Aboriginal Places recorded in the search area. Figure 7 shows the locations of the AHIMS sites in relation to the assessment area and Table 3 shows a breakdown the of the site types.

Table 3 Breakdown of previously recorded Aboriginal sites in the region.

Site Type	Number
Artefact (1 or more)	58
Artefact (1 or more) and PAD	8
Modified tree	6
Stone Quarry and artefact	3
PAD	2
Grinding Groove	1
Art and PAD	1
TOTAL	**79**

None of the sites are located within the current proposal area. The closest sites to the project area was recorded as an open artefact site (AHIMS # 36-2-0016) located approximately 500m north of the assessment area. The information provided on the site card was poor and information relating to the landform of the site and size is not detailed. However, the site was noted at the time of its recording to be a campsite and said to still be frequented. Bondi point artefacts were also noted to be present. The site card lists R. Hawkins as the informant for the site. No other information pertaining to this site is currently available.

3.2.3 Regional Archaeological Models

Aboriginal people have occupied what we now know as the Australian continent for at least 40,000 years and perhaps 60,000 years and beyond (Hiscock 2007, Mulvaney and Kamminga 1999). While no regional synthesis of the archaeology has been completed for the Beryl area research studies have been undertaken in the Upper Macquarie River region by Pearson (1981) and Koettig (1985). The following is a summary of the finding from these studies.

Pearson (1981) analysed a series of sites which tended to be biased towards larger and more noticeable sites identified by local residents. During this study, he excavated three rockshelters (Botobolar 5, Granites 1 and Granites 2) which provided a record of regional Aboriginal occupation in the area to 5,000 years before present. Based on his finding Pearson categorised these sites as either occupation sites or non-occupation sites (sites that are generally for a single purpose ie. scarred trees, grinding grooves and burial sites) and built an archaeological model based on location. The model developed by Pearson is summarised below.

- Distance to water from sites varied from 10 to 500m, with larger sites found closer to a water source.
- Good soil drainage and an outlook over a water source were important to location.
- Ceremonial and stone arrangement sites were located away from campsites.
- Quarry sites were located in areas with desirable stone source qualities and reasonably accessible.

Koettig (1985) continued to build on the archaeological understanding of this region by conducting a comprehensive and systematic study of the Dubbo region, which although over 70km to the west, is relevant as one of only a few side-ranging archaeological studies. Koettig investigated all topographic landform units and creek orders through sample survey to clarify locations and site types. The study arrived at the following conclusions:

- Aboriginal sites may be expected throughout all landscapes.
- Artefact scatters, scar trees and grinding grooves are the most frequently occurring site types.
- The location and size of sites were determined by various factors; predominately environmental and social factors around the proximity to water, geological formations and the availability of food resources.

Koettig suggested that larger and constantly occupied sites are likely to occur along permanent watercourses, while more sporadic occupation would have occurred along ridge tops or temporary water courses.

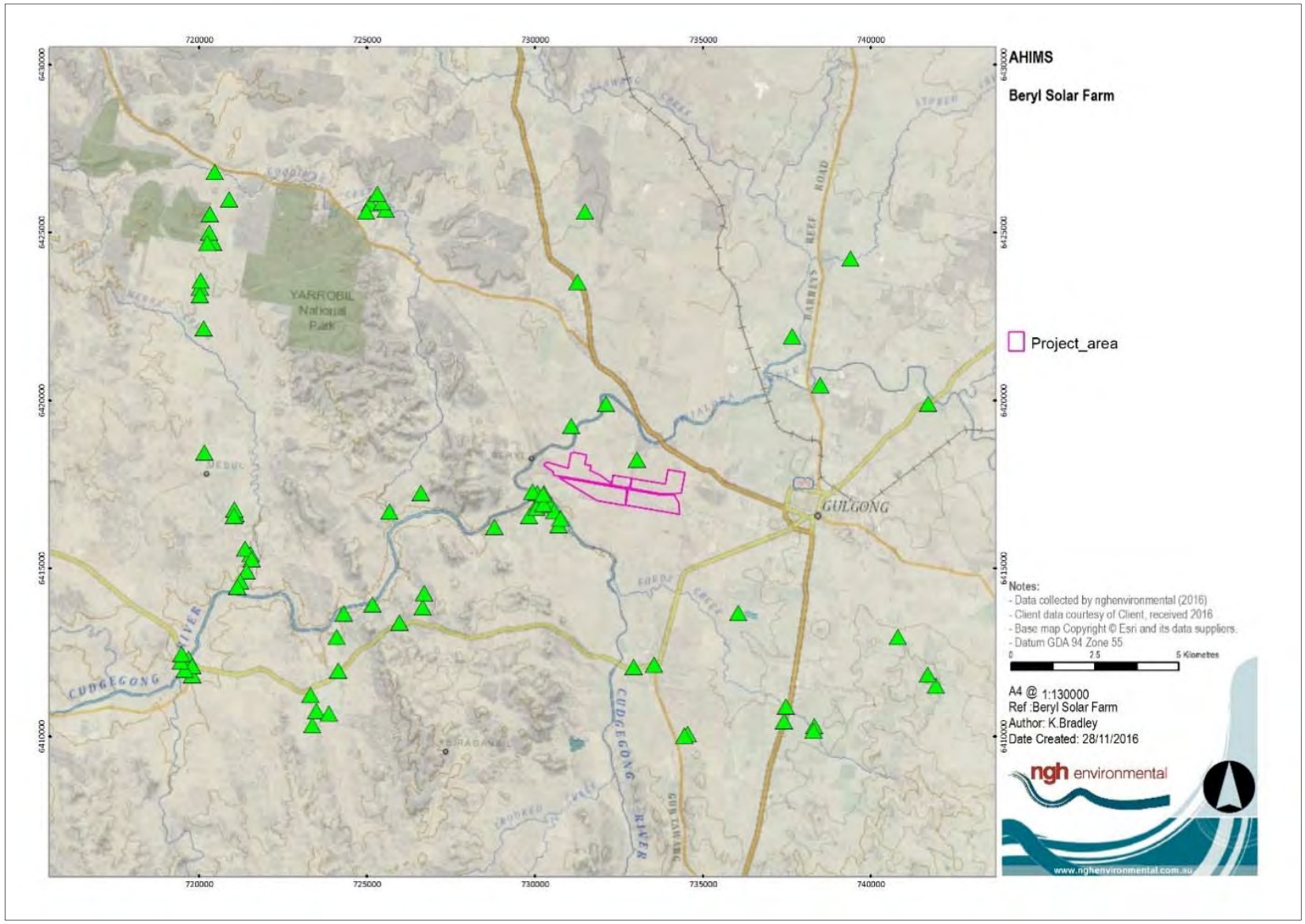


Figure 7. Location of AHIMS sites

3.2.4 Previous archaeological studies

The following are summaries of those archaeological survey reports that have been completed in the Beryl area and in relative proximity to the current assessment area.

Cubis (1981) surveyed a 35km proposed route for a 132 kV transmission line between the Beryl and Ulan substations. A total of ten site were recorded during the survey. The site types included isolated finds and artefact scatters.

Brayshaw (1987) surveyed the land for a haul road and a 125mx 125m area for proposed hard rock basalt quarry on the bank of the Cudgegong River at Beryl, 9km west of Gulgong. Six open sites (CR1-CR6) and an isolated find were recorded. The dominate lithology was quartz with lesser amounts of chert, mudstone and basalt. Brayshaw noted that the minimal use of basalt at the sites was unusual given the presence of basalt outcrops within the project area. Two of the sites were located on ridge tops while the others were all located on the river flats and adjacent slopes. Sites were located up to 240m away from the river.

Smith (1987) surveyed additional land near the proposed hard rock basalt quarry on the southern bank of the Cudgegong River at Beryl, 9km west of Gulgong. Six open sites and quartz quarry site (CR7-13) were recorded. The sites recorded by Smith were all located within 5 to 500m of the Cudgegong River. While three of the sites were located amongst basalt outcrops the outcrops did not appear to be utilised. However, the two sites recorded in association with quartz outcrops appeared to be utilised. The dominant lithology recorded at the sites was quartz. Smith noted an average site density of three sites per square kilometre in the area by combining her results with Brayshaw's. The areas surveyed by Smith and Brayshaw are shown in relation to the current assessment area in Figure 8 below.

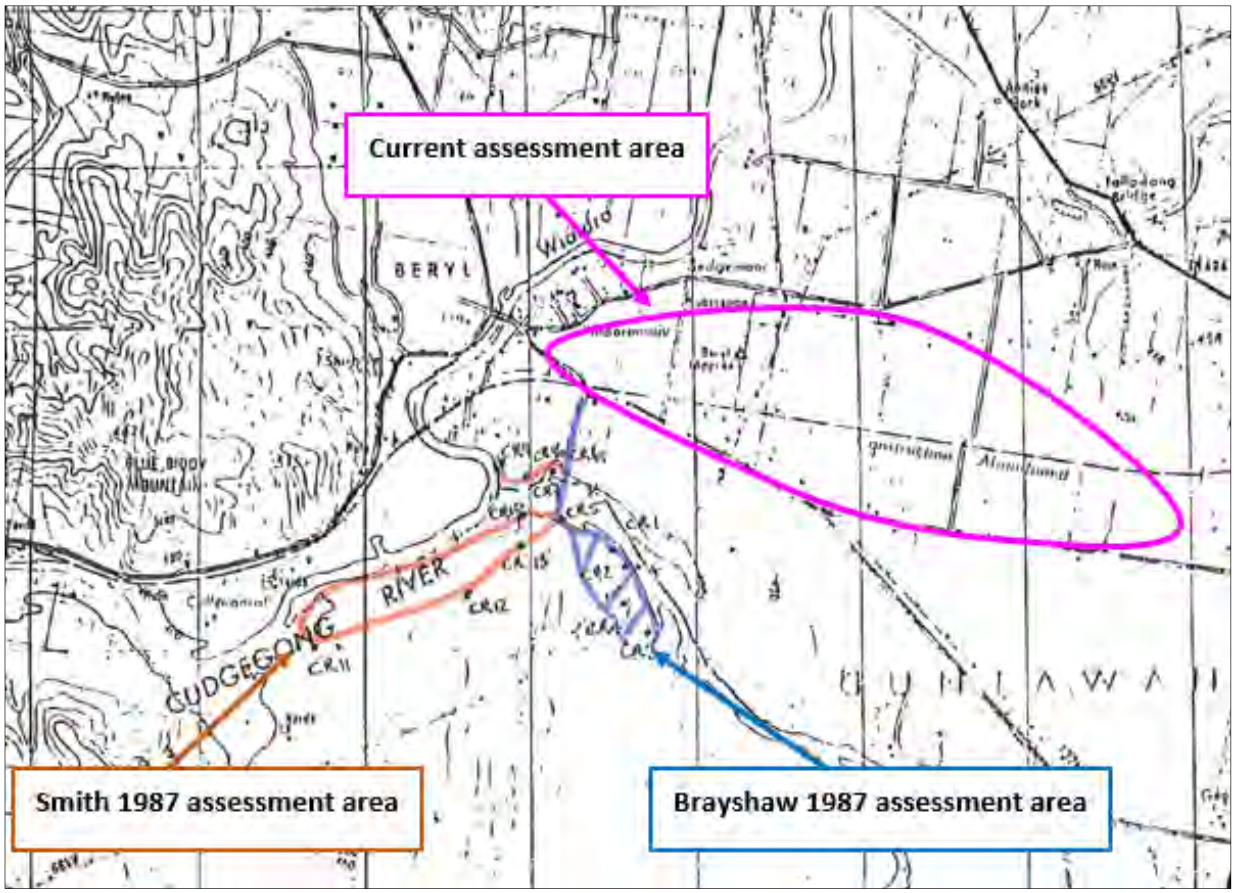


Figure 8. Overlay of Brayshaw (1987) and Smith (1987) survey areas in relation to the current assessment area (image modified from Smith 1987: Figure 2).

Purcell (2002) conducted a broad regional cultural heritage study of the Brigalow Belt South Bioregion in NSW. This bioregion extends from Dubbo north to Moree but its southern boundary is approximately 15km north of the current project area. Over the course of the study Purcell recorded 110 oral history interviews, located 1,110 Aboriginal sites, documented 60 traditionally used plant species and mapped landforms that have Aboriginal cultural heritage values. Of the 1,110 Aboriginal sites recorded during this assessment 893 existed on the site register prior to the study.

The field survey portion of Purcell's study primarily targeted government owned land such as state forests and a landform mapping project was undertaken to assist with the development of a predictive model for Aboriginal site distribution across the bioregion. Water localities were noted to be the major contributing element influencing the distribution of sites among landforms with sites expected to be concentrated near water localities. The landform types were classified into four key groups as shown in Table 4 below. The study indicated that Aboriginal sites have been recorded more frequently on high contour and alluvial landforms. The majority of the sites recorded were within 100-400 m of water.

In 2012 OzArk conducted a survey for the proposed duplication of the existing 66kv powerline from Beryl Substation to the Dunedoo Substation. Due to an administration error in uploading the report only the ecological assessment for this project is available via AHIMS rather than the Heritage Assessment report. Unfortunately, due to this error the Oz Ark report is not publicly available and was unable to be reviewed as part of this assessment. NGH has informed OEH of this error in the AHIMS database.

Table 4 Breakdown of landforms mapped by Purcell in the Brigalow Belt South Bioregion.

Landforms	Description	Likelihood of Aboriginal sites
Alluvial	Low lying areas associated with a variety of water features including rivers, creeks, channels, billabongs, swamps and lakes. Landforms include alluvial fans, alluvial terrace, alluvium, channel, floodplain, flood channel, gilgai, wetland/swamp and palaeo channels.	Aboriginal sites occur frequently
Deep stable sand	Landform types include yellow sand sheets and sand monkey. Water is scare.	Aboriginal sites occur less frequently
Terrace group	Landform types consist of terrace with scalds, terrace with overland flow, terrace and clay pans. Each variety of terrace adjoins a landform associated with an alluvium landform.	Areas where terrace and floodplains overlap will have a high potential for sites
Higher contour	Landforms that are elevated and consist of rocky ground, rocky ravines, colluvial slope, soil mantled slope, bench and talus.	High frequency of sites when associated with alluvial landforms or creek lines

Since the 1980's a number of surveys have been conducted for the Moorlarbeen, Wilpingjong and Ulan coal mines near Ulan, approximately 25km east of the current assessment area. The following are summaries of those archaeological survey reports that have been completed.

The Moorlarbeen coal mine is located 25km east of Gulgong and is adjacent to the Wilpingjong and Ulan mines. A number of surveys for the project have been conducted by from 2006 till 2013 (Hamm 2008, 2009, Kuskie 2013 and Niche 2015). Hamm's 2006 assessment of the proposed mine area noted that concentrations of Aboriginal sites occurred on the alluvial flats associated with water courses. A number of sites have been recorded in the subsequent surveys including isolated artefacts, artefact scatters, rock

shelters, rock shelters with art, modified trees, grinding grooves and PADs. Quartz generally dominates the artefact assemblages with lesser numbers of tuff, silcrete, quartzite, chert, mudstone, chalcedony and volcanics. Flakes and flaked pieces dominated the assemblage with cores, hammer stones and backed artefacts also recorded (Kuskie 2015).

A series of test excavations and salvage programs have also been undertaken for the Moorlarbeen coal mine Stage 1 Main infrastructure area and Open Cut 1 area with approximately 13,700m^2 subject to controlled mechanical exposure and 271 m^2 excavated by hand. The salvage and excavation programs for the Stage 1 Main infrastructure area and Open Cut 1 area resulted in the recovery of 2,643 artefacts and the identification of 35 new artefact sites (Hamm and Foley 2010).

A number of surveys for the Ulan Coal Mine have been conducted from 1980 till 2015 (as summaried in Kuskie 2013 and Niche 2015). The surveys resulted in the identification of a number of sites including isolated finds, artefact scatters, rock shelters, PADs, quarry, grinding grooves, rock shelters with art and modified trees being recorded. Quartz is the dominate lithology recorded. Kuskie (2009) noted that the archaeological evidence collected in the Ulan Coal Mine area indicates that the Aboriginal utilisation of the study area was generally of a low intensity and most likely relates to the limited presence of higher order watercourse within the analysis area.

A series of test excavations and salvage programs have been undertaken over the course of the Ulan Coal Mine project including Haglund's salvage excavation of the rock shelter site AHIMS# 36-3-177 that resulted in the recovery of 765 artefacts from 20m^2 of excavated deposit. The artefact density of the objects recovered was very high at 139 artefacts/m^3. The rock shelter site Spring Gully 5 has also been subject to extensive salvage excavation and has returned a radiocarbon date of 4,147 ±60 years before present. A total of 10,002 artefacts were recovered from 37m^3 of excavated deposit. Kuskie also conducted the test excavation of three rock shelters (IS# 104, 105 and 1420) recovering a total of 2,896 artefacts from 3m^3 of excavated deposit. An Aboriginal fire place was also identified within the rock shelter #105 that has been radiocarbon dated to 3,200 to 3,500 year ago (Kuskie 2015:34-35).

The Wilpingjong coal mine was surveyed from 2005 to 2015. A number of Aboriginal sites have been recorded including artefact scatters, isolated finds, rock shelter with artefacts, PADs, art and modified trees. Quartz was the dominate lithology in the area followed by tuff with lesser numbers of chert, volcanic, jasper, rhyolite and quartzite artefacts. Complete and broken flakes were the dominate artefacts recorded (Kuskie 2015; Niche 2015). A number of salvage programs and excavations have occurred, including the baseline recording and monitoring of rock art sites (Kuskie 2015).

Surface collections, controlled mechanical exposure (surface scrapes) and mechanically excavated test pits have been conducted at a number of sites within the Wilpingjong coal mine project area. The test excavation of site WCP33 the southern portion pf Pit 5 excavated ten 0.5x 0.5m test pits by shovel. A total of 20 artefacts were recorded with quartz the dominate lithology. The test excavation of site WCP2016 recovered 97 artefacts and the site was noted to have a low artefact density of artefacts with 8.1 artefacts per m^2. Test excavation was also conducted at site WCP92 in Pit 7 with only two artefacts recovered from eleven 1m x 1m pits. However, mechanical surface scrapes of approximately 7,950m^2 and the hand excavation of the site WCP1 has been noted to have recovered a number of artefacts with the report still in preparation (Kuskie 2015:26-29)

3.2.5 Summary of Aboriginal land use

The results of previous archaeological surveys in the Beryl region show that there are sites and artefacts present throughout the landscape. There is a dominance of artefacts either as isolated finds or in clusters as artefact scatters.

There appears to be a pattern of site location that relates to the presence of potential resources for Aboriginal use. The Aboriginal site modelling for the region to date suggests that while Aboriginal sites may be expected throughout all landscapes the most archaeologically sensitive areas occur in proximity to water. The most likely site type to be encountered within the Beryl Solar Farm project area would be stone artefacts and scarred trees where old growth trees remain.

A detailed understanding of the Aboriginal land use of the region is in reality lacking, as few in depth studies have been completed and no sites have been dated. It is possible however, to ascertain that proximity to water sources and raw materials was a key factor in the location of Aboriginal sites. It is also reasonable to expect that Aboriginal people ventured away from these resources to utilise the broader landscape but the current archaeological record of that activity is currently limited.

3.2.6 Archaeological Site Location Model

Based on the results of the previous archaeological investigations in the local Beryl area, and through extrapolation of Wiradjuri sites from the region it is possible to provide the following model of site location in relation to the proposed Beryl Solar Farm area.

Stone artefact scatters – representing camp sites can occur across the landscape, usually in association with some form of resource or landscape unit. Within the project area, there are no high order, permanent drainage channels, although the close proximity of the junction of the Wyaldra Creek and Cudgegong River is noted. However, due to the lack of permanent water in the project area large campsites are unlikely to occur.

Burials – are generally found in elevated sandy contexts or in association with rivers and major creeks. No such features exist with the project area and therefore such sites are unlikely to occur.

Scarred Trees – these require the presence of mature trees and are likely to be concentrated along major waterways and around swamps areas. There are patches of remnant vegetation across the project area. Therefore, this feature could occur.

Hearths/Ovens – are identified by burnt clay and stone used for heat retainers. None are recorded in the district but they could occur either independently or in association with other Aboriginal cultural features such as campsites, often in association with resource locations. Such places are not obvious within the project area and this feature is therefore unlikely to occur.

Stone resources – are areas where people used natural stone outcrops as a source material for flaking. This requires geologically suitable material outcropping so as to be accessible. The project area contains natural outcropping basalt therefore such sites could occur although, it has been noted that the outcropping stone in the project area has been quarried since European arrival in the area which may have destroyed or disturbed any evidence of Aboriginal quarrying.

Shell Middens – are the agglomeration of shell material disposed of after consumption. Such places are found along the edges of significant waterways, swamps and billabongs. The proposal area contains no significant waterways, swamps and billabongs and this feature is therefore unlikely to occur

Isolated Artefacts – are present across the entire landscape, in varying densities. As Aboriginal people traversed the entire landscape for thousands of years, such finds can occur anywhere and indicate the presence of isolated activity, dropped or discarded artefacts from hunting or gathering expeditions or the ephemeral presence of short term camps.

In summary, the topography and landscape features within the proposed Beryl Solar Farm project area indicate that this area would likely have been part of the Wiradjuri landscape, particularly with the junction of Wyaldra Creek and Cudgegong River so close to the project area. Therefore, the project area could potentially be attractive to Aboriginal people to concentrate activity and therefore has a higher possibility of providing an archaeological signature. Subsequently, given that Aboriginal people have lived in the region for tens of thousands of years, there is potential for archaeological evidence to occur throughout the area, this is most likely to be in the form of stone artefacts.

3.2.7 Comment on Existing Information

The AHIMS database is a record of those places that have been identified and had site cards submitted to OEH. It is not a comprehensive list of all places in NSW as site identification relies on an area being surveyed and on the submission of site forms to AHIMS. There are likely to be many areas within NSW that have yet to be surveyed and therefore have no sites recorded. However, this does not mean that sites are not present.

Within the Beryl district there have only been a few archaeological investigations. The information relating to site patterns, their age and geomorphic context is little understood.

The robustness of the AHIMS survey results are therefore considered to be only moderate for the present investigation. There are likely to be sites that exist that have yet to be identified although the scale of farming and quarrying development has altered the natural landscape in some places. This activity has also greatly disturbed the archaeological record and there are unlikely to be many places that retain *in situ* archaeological material due to the scale of the quarrying activities and agricultural and pastoral development. The current study is the most comprehensive assessment of this locality and therefore the results outlined in this report are the most thorough and up to date available.

With regard to the limitations of the information available, archaeologists rely on Aboriginal parties to divulge information about places with cultural or spiritual significance in situations where non-archaeological sites may be threatened by development. To date, no such places have been identified within the archaeological reports carried out within the broader Beryl area. No such places have been identified through the consultation process for the Beryl Solar Farm proposal area.

4 ARCHAEOLOGICAL INVESTIGATION RESULTS

4.1 SURVEY STRATEGY

The intention for the heritage survey was to cover as much of the ground surface as possible, given that the project was going to disturb approximately 206 hectares, within the 332 hectare proposal site. Although the actual ground impact from the construction method was likely to be low, the placement of solar arrays across the landscape has the potential to cover any cultural heritage sites.

The strategy therefore was to walk a series of transects across the landscape to achieve maximum coverage. Because landform was generally a cleared undulating plain with exotic dominated pasture used for grazing livestock, transects were spaced evenly with the survey team spread apart at 20m intervals, walking in

parallel lines. The cleared nature of the paddocks made this an ideal survey strategy. The team were able to walk in parallel lines, at a similar pace, allowing for maximum survey coverage and maximum opportunity to identify any heritage features. The size of the survey team was a maximum of four people which allowed an 80m tract of the project area to be surveyed with each transect. At the end of each transect, the team would reposition along a new transect line at the same spacing and walk back on the same compass bearing.

We believe that the survey strategy was comprehensive and the most effective way to identify the presence of Aboriginal heritage sites. Discussion were held in the field during each day between the archaeologists and Aboriginal community representatives to ensure all were satisfied and agreed with the spacing and methodology.

The proposal area was divided into two sections as shown in Figure 9 and detailed below:

- The solar farm development proposal area (undulating plain) -comprising of 206 hectares which would be developed.
- Area not proposed for development within the project area –approximately 80 hectares comprising of low slopes and undulating plain.

The survey was undertaken by the team on the 21st and 22nd of February 2017. Notes were made about visibility, photos taken and any possible Aboriginal features identified were inspected, assessed and recorded if deemed to be Aboriginal in origin.

All mature trees within or adjacent to the development footprint were also inspected for evidence of Aboriginal scarring (c.f Long 2005).

4.2 SURVEY COVERAGE

The solar farm area comprised primarily of a cleared undulating plain with little topographic variation except towards to the slope of the low hill in the north-eastern corner of the project. The two drainage lines across the project area formed minor depressions and the ground near the agricultural dams and quarrying sites had been modified. The entire project area had been subject to clearing and ploughing activities. The landforms were therefore dived into two units based on the solar farm proposal; the solar farm development areas and the area outside the development plan within the project area.

Survey transects were undertaken on foot and traversed all the project area including the proposed powerline easement to the substation. Visibility within the project area was variable however the project area as a whole generally had a low grass cover. The effective visibility in the paddocks ranged from 80% in exposures to less the 5% in areas of dense thistles near the hard rock quarry to the south of the project area (Plate 4). The average effective visibility was 15% but overall was quite good.

It was noted that the stones in several the paddocks had been mechanically collected and placed in piles (Plate 10). These piles of stone were inspected for any evidence of Aboriginal objects.

Table 5 below shows the calculations of effective survey coverage and plates 1-10 show examples of the transects and disturbed area within the proposal area.

Between the survey participants, over the course of the field survey, approximately, 100 km of transects were walked across the proposed solar farm development area. Allowing for an effective view width of 5m each person, this equates to a surface area examined of 46ha. However, allowing for the visibility restrictions, the effective survey coverage is reduced to 6.9 ha, or 3.3% of the project area.

The survey coverage for the area outside the development footprint within the project area was 12.9 ha of the 126 ha area, but allowing for visibility restrictions, the effective survey coverage was 1.9 ha or 1.5% .

Overall, it is considered that the surface survey of the Beryl Solar Farm project area had sufficient and effective survey coverage. The results identified are considered a true reflection of the nature of the Aboriginal archaeological record present within the proposal area.

	
Plate 1 View north towards low hill in north-eastern corner of project area.	Plate 2 View west along northern boundary towards location of Beryl Solar IF 1.
	
Plate 3 View north towards substation with powerlines in frame.	Plate 4 View south towards hard rock quarry, note poor visibility due to dense thistle vegetation.
	
Plate 5 View west towards far western portion of project area.	Plate 6 View south of area quarried for diamonds in far west of project area, note prospecting depressions and mounds.

	
Plate 7 View north of hard rock quarry pit showing piles of quarried rock.	Plate 8 View north-east of area subject to sand quarrying, note spoil mound deposits in background.
	
Plate 9 View east along abandoned rail corridor, noting area for rail raised above natural ground level.	Plate 10 View south of pile of rocks collected mechanically from field in far east of project area with L. Foley inspecting for Aboriginal objects.
	
Plate 11 View west of farm dam, note ground visibility.	Plate 12 View of animal tracks, note ground visibility.

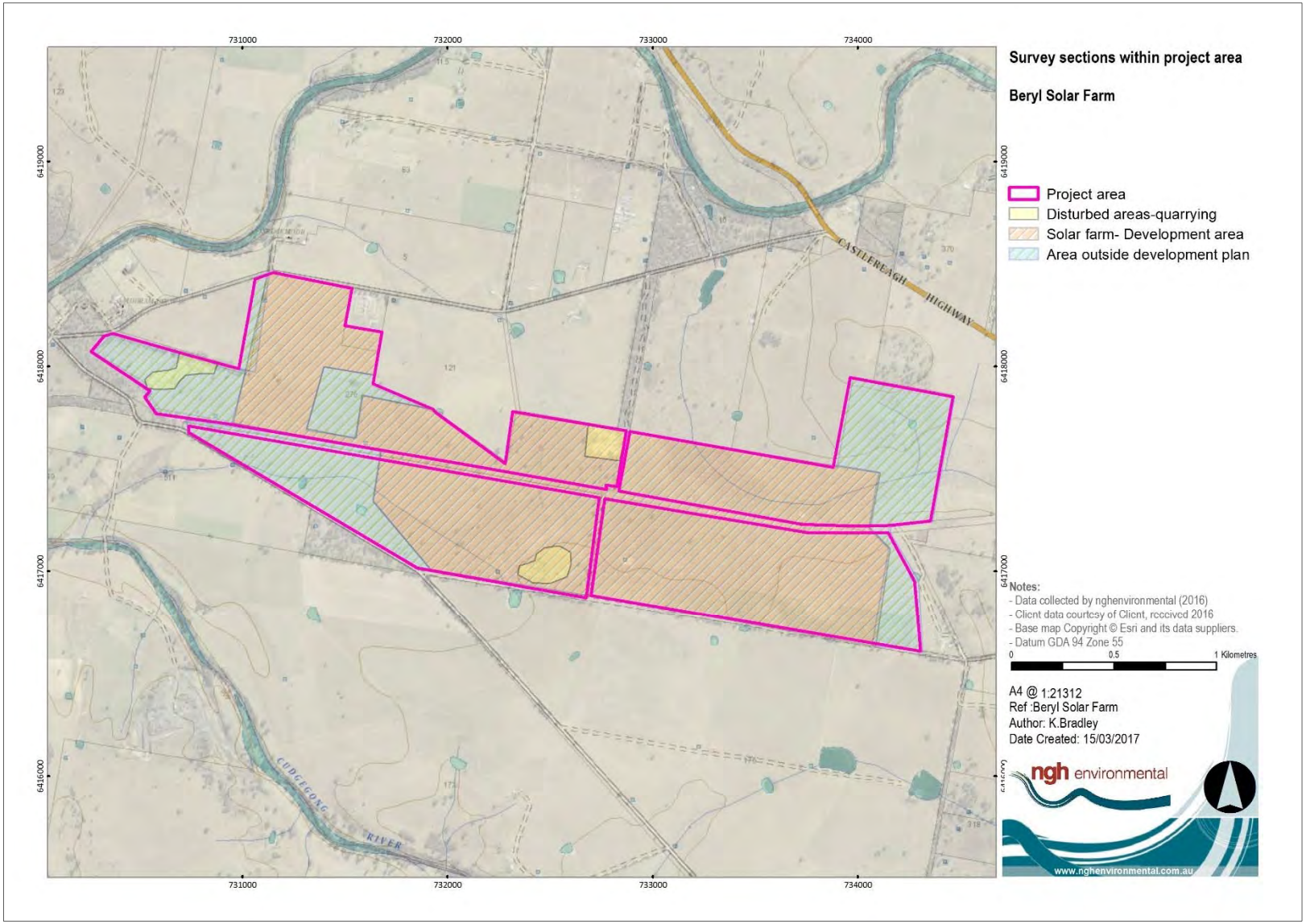


Figure 9. Survey sections within project area.

Table 5. Transect information.

Survey Section	Number of Survey Transects	Topography	Exposure type	Project Area ha	Surveyed area (length m x width m)	Survey Area m2	Visibility	Effective coverage (area x visibility) m2	Project Area surveyed (ha)	Percentage of Project area effectively surveyed	Archaeological result
Solar farm development area	36	Undulating plain	Vehicle tracks, animal tracks, eroded and disturbed ground soil mounds, quarried areas.	206	23,000 x 20	460,000	15% average	69,000	6.9	3.3	4 isolated finds 1 artefact scatter
Area outside development plan within project area	16	Undulating plain and slopes of rolling hills	Vehicle tracks, animal tracks, eroded and disturbed ground soil mounds.	126	5,550x20 1,800x 10	129,000	15% average	19,350	1.9	1.5	Nil

4.3 SURVEY RESULTS

Despite the variable visibility encountered during the survey, there were six stone artefacts found across the proposal area that were recorded as five site occurrences. The archaeological features have been recorded as an artefact scatter and four isolated finds. The details of the sites are outlined below; their location is shown in Figure 10 with the artefact characteristics provided in Table 6

Beryl Solar Farm IF1

This site consisted of a single artefact on a minor slope in a cleared paddock. The artefact was a bifacial flaked hand axe manufactured from tuff. The deposits consisted of a yellowish brown sandy silt and visibility within the area was 15%. The area has been subject to disturbance from ploughing in the past and the site was on the edge of a concentration of river pebbles associated with a first order drainage depression. The axe was noted by the Aboriginal representatives onsite to be relatively large for the area as it measured 135mm in length.

Plate 13. View south, pole shows artefact location.

Plate 14. Close up of Beryl Solar Farm IF 1.

Beryl Solar Farm IF2

This site consisted of a single artefact on the flat in a cleared paddock. The artefact was a multi-platform core of tuff. A total of four platforms and nine negative scars were recoded with step terminations noted. The artefact had been partially bifacial flaked at one end and was noted by the Aboriginal representatives onsite to be axe like in shape. The artefact had 20% terrestrial cortex and was located on a yellowish brown sandy silt deposits. Visibility within the paddock was approximately 15%.

Plate 15. View south, pole shows artefact location.

Plate 16. Close up of Beryl Solar Farm IF 2.

Beryl Solar Farm IF3

This site consisted of a single artefact on the gentle basal slope of a ploughed cleared paddock. The artefact was a multi-platform core of quartz. Two platforms and four negative scars were recoded with the artefact noted to have 60% pebble cortex. The artefact was located on reddish brown silty soil approximately 150m west of the Beryl substation.

Plate 17. View south, pole shows artefact location.

Plate 18. Close up of Beryl Solar Farm IF 3.

Beryl Solar Farm IF4

This site consisted of a single artefact on the lower basal slope of a ploughed and cleared paddock. The artefact was an edge-ground axe manufactured from a volcanic material with some anvil damage. The axe had split in half; it is unclear if this damage was the result of ploughing activities. The artefact was located on reddish brown sandy loam deposits and visibility within the area was 15%. The site was located approximately 30m south of Beryl Road.

Plate 19. View east, pole shows artefact location.

Plate 20. Close up of Beryl Solar Farm IF 4.

Beryl Solar Farm AS1

This site consisted of two artefacts approximately 5m apart from each other on the lower basal slope of a ploughed and cleared paddock. The area was noted to be disturbed with broken pieces of house bricks scattered nearby. The artefacts were a flake and broken flake of quartz. The artefacts were located on a reddish brown sandy loam deposits and visibility within the area was approximately 20%. The site was located approximately 30m south of Beryl Road and 40 m west of the site Beryl Solar Farm IF 4.

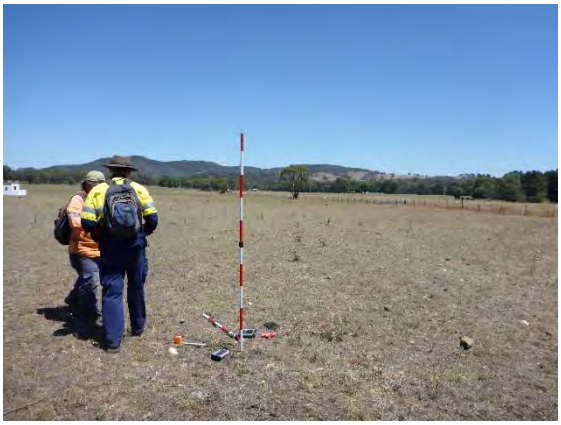
<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Plate 21. View east, poles show artefact locations.</td><td>Plate 22. Close up of quartz broken flake from Beryl Solar Farm AS1.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Plate 23. View north-west, pole shows artefact location.</td><td>Plate 24. Close up of quartz flake from Beryl Solar Farm AS1.</td></tr>
</table>

Table 6. Artefact characteristics

AHIMS #	Site Name	Easting/Northing (Zone 55)	Artefact Type	Raw Material	Dimensions (mm)	Comments
36-2-0473	Beryl Solar Farm IF 1	733453/ 6417569	Axe	Tuff	135x 90 x 32	Bifacial flaked axe.
36-2-0472	Beryl Solar Farm IF 2	733005/ 6417165	Core	Tuff	118 x 46 x 55	Four platforms and nine negative scars with step fractures, 20% rough terrestrial cortex, partially bifacial flaked at one end.
36-2-0471	Beryl Solar Farm IF 3	731385/ 6418330	Core	Quartz	35 x 91 x 60	Two platforms and four negative scar, 60% water worn riverine cortex.
36-2-0470	Beryl Solar Farm IF 4	731214/ 6418411	Axe	Volcanic	80 x 59 x 18	Edge-ground axe with some anvil damage, artefact has split.
36-2-0469	Beryl Solar Farm AS1	731174/ 6418420	Flake	Quartz	20 x 12 x 5	Broad platform with feather termination and tertiary stage of reduction.
		731172/ 6418417	Broken flake	Quartz	20 x 12 x 5	Feather termination.

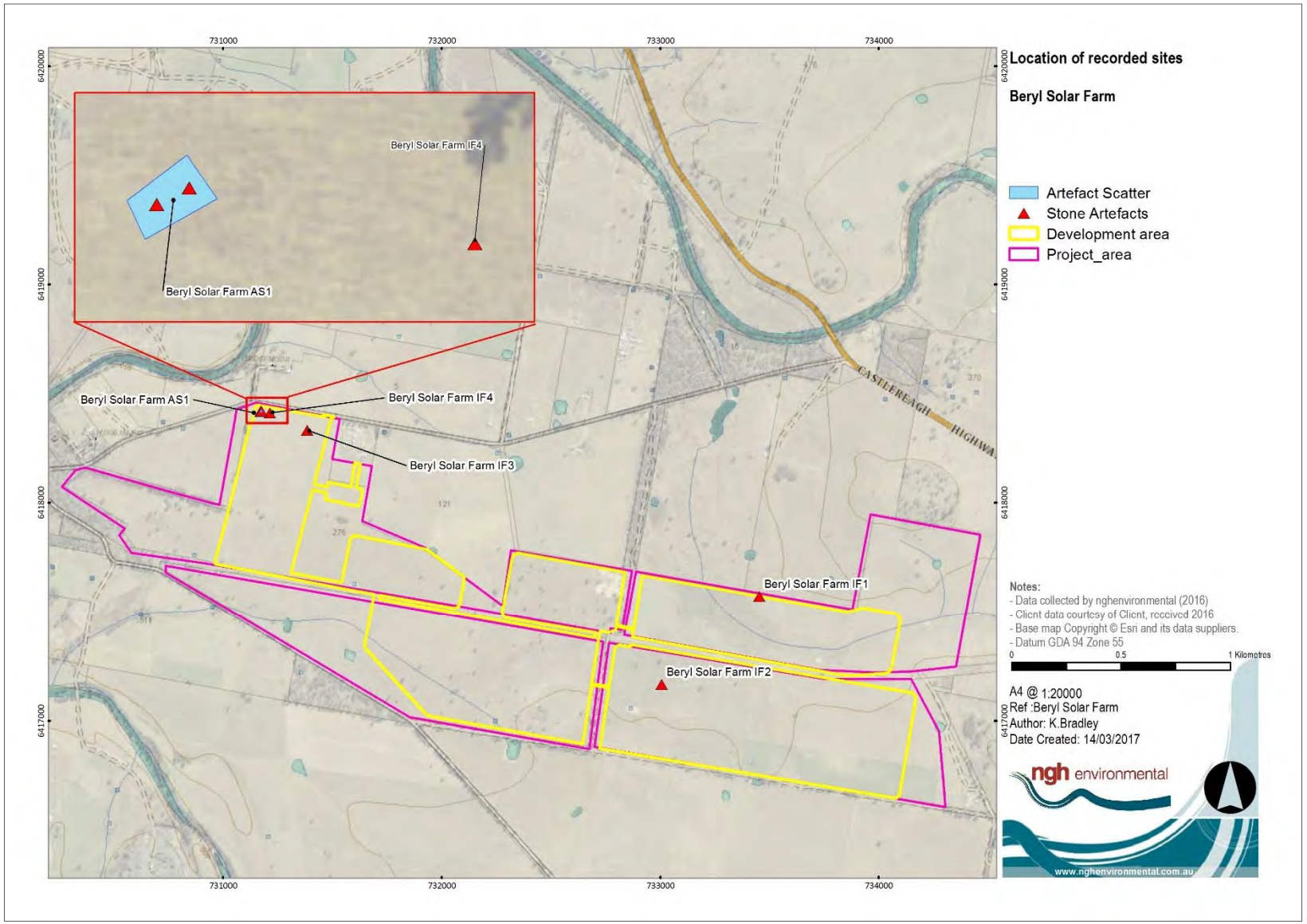


Figure 10. Location of recorded sites.

4.4 DISCUSSION

The predictions based on the modelling for the proposal area were that stone artefacts and scarred trees were the most likely manifestation of Aboriginal occupation of the area. It was noted that the areas closest to a water source were likely to contain sites given the modelling for the region. The survey results have confirmed this prediction with stone artefacts recorded. The absence of scarred trees within the project area is likely the result of clearing activities with few mature trees remaining within the assessment area.

The sites are all located within 450m of a watercourse with a noticeable cluster of artefacts (Beryl Solar Farm AS1 and Beryl Solar Farm IF 4) recorded in the north-western corner of the project area approximately 250m south-east of Wialdra Creek. These results indicate that while sites can occur throughout the landscape, even in areas highly disturbed by farming activities, there is a dominance of Aboriginal cultural material recorded near a water source

The sites identified in this assessment are in close proximity to either permanent or ephemeral water sources and are representative of the opportunistic use and movement of people through the landscape. They are most likely representative of the use of major water course and the associated back country. The area was likely used intermittently over a period of time for camping, hunting and gathering resources. This is evident by the presence of stone artefacts in low densities. Based on this assumption, there is every chance that there are similar stone artefacts across similar landscapes in the Beryl area.

While the sites themselves and the distribution of cultural material provide an indication that the area was used more than once, artefacts manufactured from quartz, tuff and volcanic material is common for the general region. The presence of cores and flakes indicates that tool manufacture probably occurred onsite, although the presence of the bifacial axe and the edge ground axe may imply some tools were brought to the site. The presence of a large bifacial hand axe (Beryl Solar Farm IF 1) suggested a multi-staged approach to manufacturing artefacts, including the sourcing of material and then shaping and manufacture of the desired product.

The use of a volcanic material for the manufacture of the edge-grounded axe is common for the region however it should be noted that no grinding grooves have been recorded on AHIMS within the Beryl area. This suggests that edge-grounded axes in the Beryl area may have been shaped and sharpened elsewhere or that simply that this site type is yet to be identified and recorded in the area. Exposed sandstone bedrock near Ulan, approximately 25 km north-east of the current assessment area, has sites with grinding grooves used for the shaping and maintenance of ground- edge axes (Kuskie 2009:143; Kuskie 2015:80).

While two large basalt outcrops were located within the project area, neither showed any evidence of Aboriginal quarrying although it is possible that European quarrying activities have since destroyed or removed any evidence of the Aboriginal utilisation of these outcrops. Nevertheless, these results do support the observations previously made by Brayshaw (1987) and Smith (1987) that while sites could be located amongst the basalt outcrops, the outcrops themselves did not appear to be utilised.

In terms of the current proposal therefore, extrapolating from the results of this survey, it is possible that additional stone artefacts could occur within the proposed development footprint. However, they are likely to be small scatters or isolated artefacts and consideration must also be given to the level of disturbance of any such sites. Based on the land use history of the proposal area, and an appraisal of the results from the field survey, there is negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the solar farm and powerline easement areas.

5 CULTURAL HERITAGE VALUES AND STATEMENT OF SIGNIFICANCE

The assessment of the significance of Aboriginal archaeological sites is currently undertaken largely with reference to criteria outlined in the ICOMOS Burra Charter (Marquis-Kyle & Walker 1994). Criteria used for assessment are:

- *Social or Cultural Value*: In the context of an Aboriginal heritage assessment, this value refers to the significance placed on a site or place by the local Aboriginal community – either in a contemporary or traditional setting.
- *Scientific Value*: Scientific value is the term employed to describe the potential of a site or place to answer research questions. In making an assessment of Scientific Value issues such as representativeness, rarity and integrity are addressed. All archaeological places possess a degree of scientific value in that they contribute to understanding the distribution of evidence of past activities of people in the landscape. In the case of flaked stone artefact scatters, larger sites or those with more complex assemblages are more likely to be able to address questions about past economy and technology, giving them greater significance than smaller, less complex sites. Sites with stratified and potentially in situ sub-surface deposits, such as those found within rock shelters or depositional open environments, could address questions about the sequence and timing of past Aboriginal activity, and will be more significant than disturbed or deflated sites. Groups or complexes of sites that can be related to each other spatially or through time are generally of higher value than single sites.
- *Aesthetic Value*: Aesthetic values include those related to sensory perception, and are not commonly identified as a principal value contributing to management priorities for Aboriginal archaeological sites, except for art sites.
- *Historic Value*: Historic value refers to a site or place's ability to contribute information on an important historic event, phase or person.
- *Other Values*: The Burra Charter makes allowance for the incorporation of other values into an assessment where such values are not covered by those listed above. Such values might include Educational Value.

All sites or places have some degree of value, but of course, some have more than others. In addition, where a site is deemed to be significant, it may be so on different levels or contexts ranging from local to regional to national, or in very rare cases, international. Further, sites may either be assessed individually, or where they occur in association with other sites the value of the complex as a whole should be considered.

Social or cultural value

While the true cultural and social value of Aboriginal sites can only be determined by local Aboriginal people, as a general concept, all sites hold cultural value to the local Aboriginal community. An opportunity to identify cultural and social value was provided to the Aboriginal representatives for this proposal through the fieldwork and draft reporting process.

Feedback about the cultural value of the sites from Larry Foley who represented both Buudang and Murong Gialinga Aboriginal & Torres Strait Islander Corporation over the course of the fieldwork indicated that all sites hold cultural value to the local Aboriginal community.

The cultural significance of the sites is only determined by the local Aboriginal community.

Scientific (archaeological) value.

The research potential of the sites located during this assessment is considered to be low. While the presence of the sites can be used to assist in the development of site modelling for the local landscape, their scientific value for further research is limited.

While the artefacts themselves are intrinsically interesting in terms of their base technical information their current lack of temporal context and the absence of information about local resources makes further conclusions about land use difficult. Their scientific value for further research is also limited due to the sparse distribution of the artefacts, disturbed nature of the landscape and the subsequent movement of objects by clearing and ploughing activities. The stone axes are generally considered of higher value due to their relative rarity compared to typical flaking material of cores and flakes. Axes are an indicator of a different tool use and activity, being mostly for the removal of wood from trees that could have been used for a variety of purposes such as carrying dishes, shields, spears and shelter as well as extraction of food such as possums and honey form hollows. The presence of at least two definite axes in the one locality would indicate that such woodworking activities was a high priority in the area.

The only other potential area of research would be to analyse the edge-ground axe (Beryl Solar Farm IF4) and bifacial hand axe (Beryl Solar Farm IF1) to see if there are any residues present that could indicate what materials were ground or cut. However, this is likely to be difficult as the items would have been moved around by pastoral and agricultural activity and may have been compromised through contact with cereal crops and livestock. They may be useful in analyses of artefact distribution if the quarry source was ever identified.

Aesthetic value.

There are no aesthetic values associated with the archaeological site per se, apart from the presence of Aboriginal artefacts in the landscape. The modified and heavily disturbed landscape within the solar farm development area however detracts from this aesthetic setting.

Other Values

There are no other known heritage values are associated with the project area. The area may have some educational value (not related to archaeological research) through educational material provided to the public about the Aboriginal occupation and use of the area, although the archaeological material is within private property and there is little for the public to see.

6 PROPOSED ACTIVITY

6.1 HISTORY AND LANDUSE

It has been noted above in Section 3.1.3 that historically the solar farm proposal area has been impacted through land use practices specifically quarrying, clearing, ploughing and grazing.

The implications for this activity is that the archaeological record has been compromised in terms of the potential for scarred trees to remain. The implication for stone artefacts is that they may have been damaged or moved but they are likely to be present and remain in the general area they were discarded by Aboriginal people.

Despite these impacts, Aboriginal artefacts remain in the area, indicating the presence of past Aboriginal people and providing indications of their use of this landscape.

6.2 PROPOSED DEVELOPMENT ACTIVITY

As noted above in section 1.2, the proposal involves the construction of a solar farm and includes a transmission line on Lot 21/DP 1173059 that will extend to the existing Beryl substation on Lot 1/ DP 523876. The development will result in disturbance of approximately 206 ha of the 332ha proposal site within Lot 20/DP 1173059 and Lot 1/DP 1012926.

Disturbances will largely be in the preparation of the ground for the solar farm. Piles would be driven or screwed into the ground to support the solar array's mounting system, which reduces the potential overall level of ground disturbance.

PV modules would be installed on single axis tracking or fixed mounting structures across the site

Trenches would be dug for the installation of a series of underground cables linking the arrays across the proposal site.

Some internal access tracks would also be required, and typically these would comprise a compacted layer of gravel laid on stripped bare natural ground.

Some ancillary facilities would also be required including parking facilities, staff amenities and offices.

A perimeter fence and a vegetation buffer would also be constructed around the solar farm.

An overhead power line would be installed to connect the solar farm to the existing Beryl substation.

The proposed construction timetable is 12 months duration and the operational life of the solar farm is estimated to be 30 years. After the initial operating period the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or repowered with new PV equipment.

The development activity will therefore involve disturbance of the ground during the construction of the solar farm and the transmission line to the adjacent substation. Once established however, there would be minimal ongoing disturbance of the ground surface.

The final details and timing of the proposed construction activity have yet to be finalised but it is anticipated that construction could commence in 2017.

6.3 ASSESSMENT OF HARM

As described in this report, five archaeological sites were located within the project area. The following table provides a summary of the degree of harm and the consequence of that harm upon the heritage value of each site resulting from the proposed works for the solar farm and transmission line to the Beryl substation.

There is Aboriginal archaeological material present within the solar farm and the assessment is that there are likely to be other artefacts and cultural material present as well, although in similar low densities. The proposed level of disturbance for the construction of the solar farm could impact the stone artefacts recorded during the field survey and others that may be present within other areas of the development site.

The impact is likely to be most extensive where earthworks occur such as the installation of cabling and the transmission line poles, which may involve the removal, breakage or displacement of artefacts and cultural material. This is considered a direct impact on the sites and the Aboriginal objects by the development in its present form.

The proposed construction methodology for the project will however results in only small areas of disturbance. The construction of access and maintenance tracks may involve some grading but given the relatively flat nature of the terrain, this is likely to be minimal. The installation of the solar arrays involves drilling or screwing the piles into the ground and no widespread ground disturbance work such as grading or excavation is required to accomplish this.

The assessment of harm overall for the project is therefore assessed as low.

Table 7 Identified risk to known sites

Site name	Site integrity	Type of harm	Degree of harm	Consequence of harm	Recommendation
Beryl Solar Farm IF 1	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm IF 2	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm IF 3	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm IF 4	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage object prior to development of project.
Beryl Solar Farm AS1	Poor – 100+ year history of agricultural and pastoral use	Direct	Complete	Minimal loss of value	Salvage objects prior to development of project.

6.4 IMPACTS TO VALUES

The values potentially impacted by the development are any social and cultural values attributed to the artefacts and the sites by the local Aboriginal community. The extent to which the loss of the sites or parts of the sites would impact on the community is only something the Aboriginal community can articulate.

The impact to values for this development are summarised in Table 7 above

The impact to the scientific values if the sites Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS1 were to be impacted by the current proposal is considered low. However, the intrinsic values of the artefacts themselves may be affected by the development of the site. Any removal of the artefacts, or their breakage would reduce the low scientific value they retain.

No other values have been identified that would be affected by the development proposal.

7 AVOIDING OR MITIGATING HARM

7.1 CONSIDERATION OF ESD PRINCIPLES

Consideration of the principles of Ecologically Sustainable Development (ESD) and the use of the precautionary principle was undertaken when assessing the harm to the sites and the potential for mitigating impacts to the sites recorded within the Beryl Solar Farm proposal area. The main consideration was the cumulative effect of the proposed impact to the sites and the wider archaeological record. The precautionary principle in relation to Aboriginal heritage implies that development proposals should be carefully evaluated to identify possible impacts and assess the risk of potential consequences.

In broad terms, the archaeological material located during this investigation is similar to what has been found previously within the Beryl region. Currently there is no clear regional synthesis of the nature, number, extent and content for archaeological sites within the Mid-Western Regional Council LGA. Nevertheless, given the size of the geographical area, it is certain that there would be similar artefacts present within the region.

The result of this Aboriginal heritage assessment has confirmed the proposed model of site location and site distribution, whereby sites could be expected to occur across the landscape and in particular in proximity to a water source, even in ploughed areas.

The implications for ESD principles is that other artefacts are likely to be present in the district.

As noted above, the archaeological values of the sites, considering the scientific, representative and rarity values was deemed to be low. It is believed therefore that the proposed impacts to the sites through the development would not adversely affect the broader archaeological record for the local area or the region.

The principle of inter-generational equity requires the present generation to ensure that the sites and diversity of the archaeological record is maintained or enhanced for the benefit of future generations. We believe that the diversity of the archaeological record is not compromised by development of this particular solar farm proposal.

We therefore consider, that while the current development proposals will impact five sites, all with stone artefacts, the overall cumulative impact on the archaeological record for the region is likely to be minimal.

It is argued that the cumulative impacts of the proposal are not enough to reject outright the development proposal.

7.2 CONSIDERATION OF HARM

Avoiding harm to the five sites is technically possible through avoidance. However, their position, scattered across the landscape would pose serious design constraints on the solar farm proposal.

Based on the assessment of the artefacts, and in consideration of discussions with the Aboriginal representatives during the field survey, it is not considered necessary to prevent all development at this location. The sites have been shown to be highly disturbed with little remaining scientific value. Aboriginal cultural value has been determined by the local Aboriginal community to be generally low enough to not prevent the development proposal proceeding.

The sites Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS1 are situated within the development footprint area of the proposed solar arrays, tracks,

cables and office parking. The most likely cause of harm to the artefacts will be through ground preparation activities such as vegetation clearance, installation of the posts and solar arrays.

The question remains about possible occurrence of artefacts and cultural material within the balance of the solar farm site. It is possible, and considered likely that additional artefacts will be present. Without knowing their exact locations, it is difficult to manage the impacts. We do not consider that the risk of such disturbances means the development should be abandoned. The archaeological material identified in the survey, and potentially present in the balance of the development site is not of sufficient value to reject the development proposal.

Mitigation of harm to cultural heritage sites generally involves some level of detailed recording to preserve the information contained within the site. Mitigation can be in the form of minimising harm, through slight changes in the development plan or through direct management measures of the sites and Aboriginal objects.

It is argued here that mitigation in the form of alteration is not feasible or warranted within the solar farm development area in this situation for the sites Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS 1. However, the five sites are conducive to salvage as a mitigation strategy as requested by the Aboriginal community representative Larry Foley during the field survey.

As identified above, it is recommended that the five sites recorded within the proposed Beryl Solar Farm development area (Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS1) are salvaged by an archaeologist with representatives of the registered Aboriginal parties prior to the proposed development commencing. The artefacts should be collected and moved to a safe area within the property that will not be subject to any ground disturbance.

The Aboriginal community representative Larry Foley noted during the field survey his preference for the artefacts to be relocated to another surface location rather than to be buried.

8 LEGISLATIVE CONTEXT

Aboriginal heritage is primarily protected under the NPW Act and as subsequently amended in 2010 with the introduction of the *National Parks and Wildlife Amendment (Aboriginal Objects and Places) Regulation 2010*. The aim of the NPW Act includes:

> The conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including but not limited to: places, objects and features of significance to Aboriginal people.

An Aboriginal object is defined as:

> Any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with the occupation of that area by persons on non-Aboriginal extraction and includes Aboriginal remains.

Part 6 of the NPW Act concerns Aboriginal objects and places and various sections describe the offences, defences and requirements to harm an Aboriginal object or place. The main offences under section 86 of the NPW Act are:

- A person must not harm or desecrate an object that the person knows is an Aboriginal object.

- A person must not harm an Aboriginal object.
- For the purposes of this section, "circumstances of aggravation" are:
    - that the offence was committed in the course of carrying out a commercial activity, or
    - that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.
- A person must not harm or desecrate an Aboriginal place.

Under section 87 of the NPW Act, there are specified defences to prosecution including authorisation through an Aboriginal Heritage Impact Permit (AHIP) or through exercising due diligence or compliance through the regulation.

Section 89A of the Act also requires that a person who is aware of an Aboriginal object, must notify the Director-General in a prescribed manner. In effect this section requires the completion of OEH AHIMS site cards for all sites located during heritage surveys.

Section 90 of the NPW Act deal with the issuing of an AHIP, including that the permit may be subject to certain conditions.

The EP&A Act is legislation for the management of development in NSW. It sets up a planning structure that requires developers (individuals or companies) to consider the environmental impacts of new projects. Under this Act, cultural heritage is considered to be a part of the environment. This Act requires that Aboriginal cultural heritage and the possible impacts to Aboriginal heritage that development may have are formally considered in land-use planning and development approval processes.

Proposals classified as State Significant Development or State Significant Infrastructure under the EP&A Act have a different assessment regime. As part of this process, Section 90 harm provisions under the NPW Act are not required, that is, an AHIP is not required to impact Aboriginal objects. However, the Department of Planning and Environment is required to ensure that Aboriginal heritage is considered in the environmental impact assessment process. The Department of Planning and Environment will consult with other departments, including OEH prior to development consent being approved.

The Beryl Solar Farm proposal is a State Significant Development and will therefore be assessed via this pathway, which does not negate the need to carry out an appropriate level of Aboriginal heritage assessment or the need to conduct Aboriginal consultation in line with the requirements outlined by the OEH *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010b).

9 RECOMMENDATIONS

The recommendations are based on the following information and considerations:

- Results of the archaeological survey;
- Consideration of results from other local archaeological studies;
- Results of consultation with the registered Aboriginal parties;
- The assessed significance of the sites;
- Appraisal of the proposed development, and
- Legislative context for the development proposal.

It is recommended that:

1. If complete avoidance of the five recorded sites within the proposal area (Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS1) is not possible, the artefacts must be salvaged prior to the proposed work commencing and moved to a safe area within the property that will not be subject to any ground disturbance.
2. The collection and relocation of the artefacts should be undertaken by an archaeologist with representatives of the registered Aboriginal parties. A new site card/s will need to be completed once the artefacts are moved to record their new location on the AHIMS database.
3. Once the sites Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS1 are salvaged, the proposed work can proceed with caution within the development footprint.
4. The development proposal should now be able to proceed without any additional archaeological investigation.
5. First Solar should prepare an Unexpected Finds Protocol (UFP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm. The UFP will outline the procedure to deal with construction activity. Preparation of the UFP should be undertaken in consultation with the registered Aboriginal parties.
6. In the unlikely event that human remains are discovered during the construction, all work must cease in the immediate vicinity. OEH, the local police and the registered Aboriginal parties should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
7. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field survey.

10 REFERENCES

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APPENDIX A ABORIGINAL COMMUNITY CONSULTATION

Consultation Log of Beryl Solar Farm project.

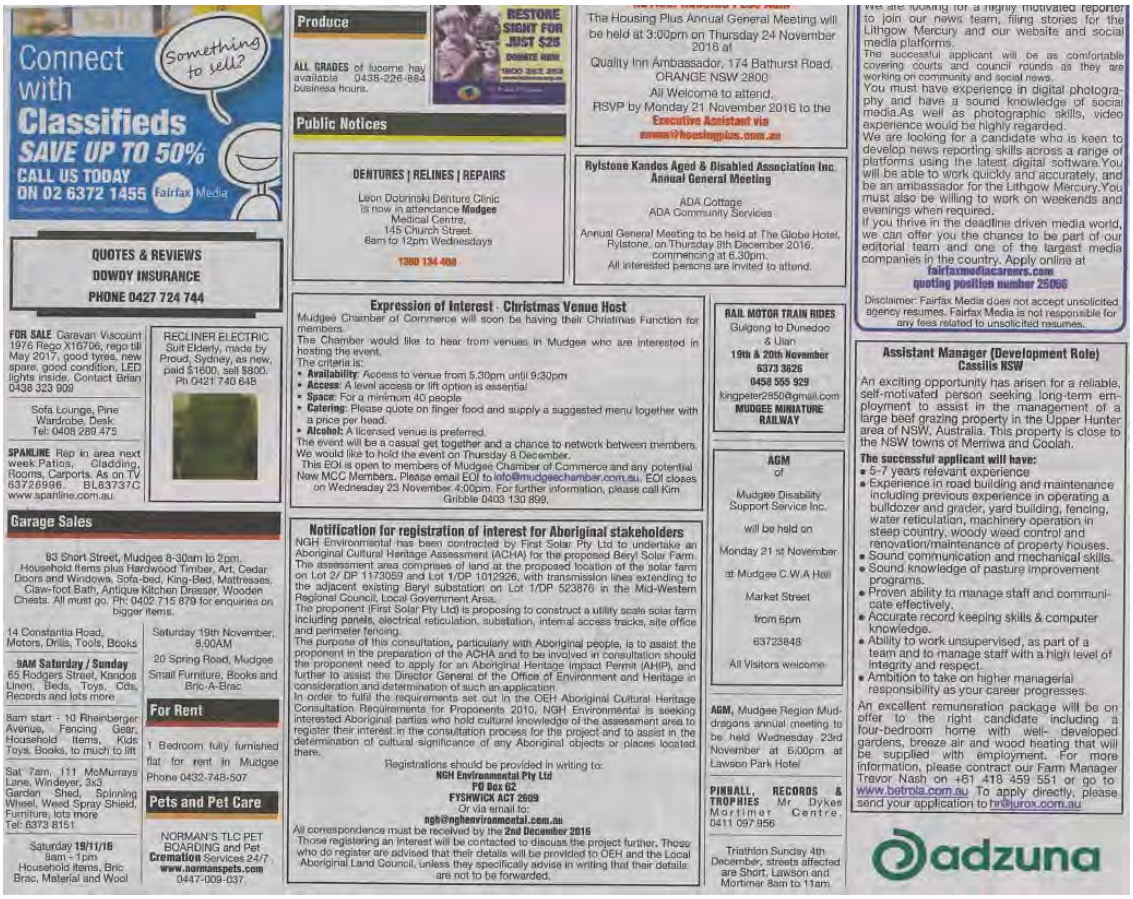
Organisation	Contact	Action	Date Sent	Reply Date	Replied by	Response
OEH	Phil Purcell	Letter sent via email	15/11/2016	16/11/2016	letter via email	Phil provided list of additional possible Aboriginal stakeholder to contact regarding the project.
NTScorp	information@ntscorp.com.au	Letter sent via email	15/11/2016			
National Native Title Tribunal		online seach- no claim or determination over area	15/11/2016			
Office of Registrar *Aboriginal Land Rights Act*	adminofficer@oralra.nsw.gov.au	Letter sent via email	15/11/2016	18/11/2016	letter via email	Register of Aboriginal Owners and the project area described does not appear to have Registered Aboriginal Owners pursuant to Division 3 of the Aboriginal Land Rights Act 1983 (NSW). Suggest that you contact LALC. Originally noted Broken Hill LALC in error but corrected to Mudgee LALC
Central Tablelands	admin.ct@lls.nsw.gov.au	Letter sent via email	15/11/2016	16/11/2016	via email	Informed that key contact in area is the Mudgee LALC email: mudgeelalc@bigpond.com
Mid-western shire council	council@midwestern.nsw.gov.au	Letter sent via email	15/11/2016			
Mudgee LALC	mudgeelalc@bigpond.com	Letter sent via email	15/11/2016			
Local Newspaper		The Mudgee Guardian	18/11/2016			closing date 2nd December 2016
OEH list of potential stakeholders						
Bill Allen		Letter sent via post	17/11/2016			
Binjang Wellington Wiradjuri heritage Survey	Dorothy Stewart	Letter sent via post	17/11/2016			
Darlina Verrills		Letter sent via post	17/11/2016			
David Maynard		Letter sent via post	17/11/2016			

Organisation	Contact	Action	Date Sent	Reply Date	Replied by	Response
Buudang	Larry Foley	Letter sent via post	17/11/2016	20/11/2016	Letter via post	registered for project.
Dhuuluu-Yala Aboriginal Corporation	Chairperson	Letter sent via post	17/11/2016			return to sender
Jean Thornton		Letter sent via post	17/11/2016			
Jodie Mckinnon		Letter sent via post	17/11/2016			
Katrina Mckinnon		Letter sent via post	17/11/2016			
Lyn Syme	North-East Wiraduri	Letter sent via post	17/11/2016			
Mingaan Aboriginal Corporation	Helen Riley	Letter sent via post	17/11/2016			
Mooka	Neville Williams	Letter sent via post	17/11/2016			
Murong Gialinga Aboriginal & Torres Strait Islander Corporation	Debbie Foley	Letter sent via post	17/11/2016	20/11/2016	Letter via post	Registered for project
North- Eastern Wiradjuri		Letter sent via post	17/11/2016			
Paul Brydon		Letter sent via post	17/11/2016			
Trevor Robinson		Letter sent via post	17/11/2016			letter returned to sender no longer at this address
Wamarr Cutural Consultants	Craig Riley	Letter sent via post	17/11/2016			
Warrabinga Native Tittle Claimants Aboriginal Corporation	The Board of Directors	Letter sent via post	17/11/2016	25/11/2016	letter via email	Registered for project Requests map of project location. KB sent map of general project area on 28/11/2016
Wellington Valley Wiradjuri Aboriginal Corporation	Chairperson	Letter sent via post	17/11/2016	22/11/2016	letter via email	registered for project
Wiradjuri Council of Elders	Robert Clegg	Letter sent via post	17/11/2016			
Wiradjuri Interim Working Party		Letter sent via post	17/11/2016			letter returned to sender no longer at this address

Organisation	Contact	Action	Date Sent	Reply Date	Replied by	Response
Wiradjuri traditional Owners Central West Aboriginal Corporation	Chairperson	Letter sent via post	17/11/2016			
Methodology						
Mudgee LALC		letter via email	19/12/2016			methodology sent though yet to register for project
Buudang		letter via email	19/12/2016	27/12/2016	via email	supplied insurances and rates, no comment on the methodology received
Murong Gialinga Aboriginal & Torres Strait Islander Corporation		letter via email	19/12/2016	27/12/2016	via email	supplied insurances and rates, no comment on the methodology received
Warrabinga Native Tittle Claimants Aboriginal Corporation		letter via email	19/12/2016	27/01/2017	via email	supplied rates and insurances and comments on the methodology. Comments to be addressed by NGH
Warrabinga Native Tittle Claimants Aboriginal Corporation		phone call	23/01/2017			KB called to ensure received methodology over Christmas period, Kristen informed that email server crashed over Christmas period and unable to recover all emails, asked KB to resend methodology for comment. KB forwarded original methodology email and noted closing date for comments 27th Jan
Wellington Valley Wiradjuri Aboriginal Corporation		letter via email	19/12/2016	5/01/2017	via email	supplied rates and insurances and comments on the methodology. Comments to be addressed by NGH
Warrabinga Native Tittle Claimants Aboriginal Corporation		letter via email	27/01/2017		email	had a number of questions regarding the methodology and the project. NGH to respond.
Wellington Valley Wiradjuri Aboriginal Corporation	Brad Bliss	MB sent letter via email	30/01/2017			NGH sent letter in response to queries and providing clarification on methodology.
Warrabinga Native Tittle Claimants Aboriginal Corporation		email	31/01/2017			provided new insurance details
Murong Gialinga		email	31/01/207			provided revised rates

Organisation	Contact	Action	Date Sent	Reply Date	Replied by	Response
Warrabinga Native Tittle Claimants Aboriginal Corporation		KB sent letter via email	9/02/2017			NGH sent letter in response to queries and providing clarification on methodology.
OEH informed of registered parties	Phil Purcell	via email	30/01/2017			4 x registered parties and 3 x return to sender letters
Fieldwork 21-22 Feb 2017						
Buudang	Larry Foley	On site 21/02/2017				
Murong Gialinga Aboriginal & Torres Strait Islander Corporation	Larry Foley	On site 22/02/2017				
Warrabinga Native Tittle Claimants Aboriginal Corporation	Tayle Pennell	On site 21/02/2017				
Wellington Valley Wiradjuri Aboriginal Corporation	Shanae Martin	On site 22/02/2017				

Public Notice placed in The Mudgee Guardian on 18 November 2016.



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Fairfax Media

QUOTES & REVIEWS
DOWDY INSURANCE
PHONE 0427 724 744

FOR SALE Caravan Viscount 1976 Rego X16706, rego till May 2017, good tyres, new spare, good condition, LED lights inside. Contact Brian 0438 323 909

Sofa Lounge, Pine Wardrobe, Desk Tel: 0408 288 475

SPANLINE Rep in area next week.Patios, Cladding, Rooms, Carports. As on TV 6372 6996. BL837370 www.spanline.com.au

RECLINER ELECTRIC Suit Elderly, made by Proud, Sydney, as new, paid $1600, sell $800. Ph 0421 740 648

Garage Sales

83 Short Street, Mudgee 8-30am to 2pm. Household items plus Hardwood Timber, Art, Cedar Doors and Windows, Sofa-bed, King-Bed, Mattresses, Claw-foot Bath, Antique Kitchen Dresser, Wooden Chests. All must go. Ph: 0402 715 879 for enquiries on bigger items.

14 Constantia Road, Motors, Drills, Tools, Books

Saturday 19th November, 8.00AM
20 Spring Road, Mudgee
Small Furniture, Books and Bric-A-Brac

9AM Saturday / Sunday
65 Rodgers Street, Kandos
Linen, Beds, Toys, Cds, Records and lots more

8am start - 10 Rheinberger Avenue, Fencing Gear, Household Items, Kids Toys, Books, to much to list

Sat 7am, 111 McMurrays Lane, Windeyer, 3x3 Garden Shed, Spinning Wheel, Weed Spray Shield, Furniture, lots more Tel: 6373 8151

Saturday 19/11/16 8am - 1pm Household items, Bric Brac, Material and Wool

For Rent

1 Bedroom fully furnished flat for rent in Mudgee Phone 0432-748-507

Pets and Pet Care

NORMAN'S TLC PET BOARDING and Pet Cremation Services 24/7 www.normanspets.com 0447-009-037.

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ALL GRADES of lucerne hay available 0438-226-884 business hours.

RESTORE SIGHT FOR JUST $25
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Public Notices

DENTURES | RELINES | REPAIRS

Leon Dobrinski Denture Clinic is now in attendance Mudgee Medical Centre, 145 Church Street. 8am to 12pm Wednesdays

1300 134 400

Expression of Interest - Christmas Venue Host

Mudgee Chamber of Commerce will soon be having their Christmas Function for members.
The Chamber would like to hear from venues in Mudgee who are interested in hosting the event.
The criteria is:
- **Availability**: Access to venue from 5.30pm until 9:30pm
- **Access**: A level access or lift option is essential
- **Space**: For a minimum 40 people
- **Catering**: Please quote on finger food and supply a suggested menu together with a price per head.
- **Alcohol**: A licensed venue is preferred.

The event will be a casual get together and a chance to network between members. We would like to hold the event on Thursday 8 December.
This EOI is open to members of Mudgee Chamber of Commerce and any potential New MCC Members. Please email EOI to info@mudgeechamber.com.au. EOI closes on Wednesday 23 November 4.00pm. For further information, please call Kim Gribble 0403 130 899.

Notification for registration of interest for Aboriginal stakeholders

NGH Environmental has been contracted by First Solar Pty Ltd to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for the proposed Beryl Solar Farm. The assessment area comprises of land at the proposed location of the solar farm on Lot 2/ DP 1173059 and Lot 1/DP 1012926, with transmission lines extending to the adjacent existing Beryl substation on Lot 1/DP 523876 in the Mid-Western Regional Council, Local Government Area.
The proponent (First Solar Pty Ltd) is proposing to construct a utility scale solar farm including panels, electrical reticulation, substation, internal access tracks, site office and perimeter fencing.
The purpose of this consultation, particularly with Aboriginal people, is to assist the proponent in the preparation of the ACHA and to be involved in consultation should the proponent need to apply for an Aboriginal Heritage Impact Permit (AHIP), and further to assist the Director General of the Office of Environment and Heritage in consideration and determination of such an application.
In order to fulfil the requirements set out in the OEH Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, NGH Environmental is seeking interested Aboriginal parties who hold cultural knowledge of the assessment area to register their interest in the consultation process for the project and to assist in the determination of cultural significance of any Aboriginal objects or places located there.

Registrations should be provided in writing to:
NGH Environmental Pty Ltd
PO Box 62
FYSHWICK ACT 2609
Or via email to:
ngh@nghenvironmental.com.au

All correspondence must be received by the **2nd December 2016**
Those registering an interest will be contacted to discuss the project further. Those who do register are advised that their details will be provided to OEH and the Local Aboriginal Land Council, unless they specifically advise in writing that their details are not to be forwarded.

The Housing Plus Annual General Meeting will be held at 3:00pm on Thursday 24 November 2016 at
Quality Inn Ambassador, 174 Bathurst Road, ORANGE NSW 2800
All Welcome to attend.
RSVP by Monday 21 November 2016 to the
Executive Assistant via
anna@housingplus.com.au

Rylstone Kandos Aged & Disabled Association Inc. Annual General Meeting

ADA Cottage
ADA Community Services

Annual General Meeting to be held at The Globe Hotel, Rylstone, on Thursday 8th December 2016, commencing at 6.30pm.
All interested persons are invited to attend.

RAIL MOTOR TRAIN RIDES
Gulgong to Dunedoo & Ulan
19th & 20th November
6373 3626
0458 555 929
kingpeter2850@gmail.com
MUDGEE MINIATURE RAILWAY

AGM
of
Mudgee Disability Support Service Inc.
will be held on
Monday 21 st November
at Mudgee C.W.A Hall
Market Street
from 6pm
63723848
All Visitors welcome

AGM, Mudgee Region Mud-dragons annual meeting to be held Wednesday 23rd November at 6:00pm at Lawson Park Hotel

PINBALL, RECORDS & TROPHIES Mr Dykes Mortimer Centre. 0411 097 956

Triathlon Sunday 4th December, streets affected are Short, Lawson and Mortimer 8am to 11am.

We are looking for a highly motivated reporter to join our news team, filing stories for the Lithgow Mercury and our website and social media platforms.
The successful applicant will be as comfortable covering courts and council rounds as they are working on community and social news.
You must have experience in digital photography and have a sound knowledge of social media.As well as photographic skills, video experience would be highly regarded.
We are looking for a candidate who is keen to develop news reporting skills across a range of platforms using the latest digital software.You will be able to work quickly and accurately, and be an ambassador for the Lithgow Mercury.You must also be willing to work on weekends and evenings when required.
If you thrive in the deadline driven media world, we can offer you the chance to be part of our editorial team and one of the largest media companies in the country. Apply online at
fairfaxmediacareers.com
quoting position number 25066

Disclaimer: Fairfax Media does not accept unsolicited agency resumes. Fairfax Media is not responsible for any fees related to unsolicited resumes.

Assistant Manager (Development Role) Cassilis NSW

An exciting opportunity has arisen for a reliable, self-motivated person seeking long-term employment to assist in the management of a large beef grazing property in the Upper Hunter area of NSW, Australia. This property is close to the NSW towns of Merriwa and Coolah.

The successful applicant will have:
- 5-7 years relevant experience
- Experience in road building and maintenance including previous experience in operating a bulldozer and grader, yard building, fencing, water reticulation, machinery operation in steep country, woody weed control and renovation/maintenance of property houses.
- Sound communication and mechanical skills.
- Sound knowledge of pasture improvement programs.
- Proven ability to manage staff and communicate effectively.
- Accurate record keeping skills & computer knowledge.
- Ability to work unsupervised, as part of a team and to manage staff with a high level of integrity and respect.
- Ambition to take on higher managerial responsibility as your career progresses.

An excellent remuneration package will be on offer to the right candidate including a four-bedroom home with well- developed gardens, breeze air and wood heating that will be supplied with employment. For more information, please contract our Farm Manager Trevor Nash on +61 418 459 551 or go to www.betrola.com.au To apply directly, please send your application to hr@jurox.com.au

adzuna

APPENDIX B AHIMS SEARCH

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Beryl Solar Farm
Client Service ID : 254143

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-2-0075	Gooree Vneyards GV1	AGD	55	734420	6409890	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	4434
	Contact	Recorders	Mr.David Maynard					Permits		
36-2-0040	DM/OC1 - "Puggoon"	AGD	55	731150	6423350	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Stephanie Garling					Permits		
36-3-0135	CR10;	AGD	55	729950	6416750	Open site	Valid	Artefact : -	Open Camp Site	1236
	Contact	Recorders	Laura-Jane Smith					Permits		
36-3-0136	CR11;	AGD	55	728670	6416050	Open site	Valid	Artefact : -	Open Camp Site	1236
	Contact	Recorders	Laura-Jane Smith					Permits		
36-3-0137	CR12;	AGD	55	729700	6416370	Open site	Valid	Stone Quarry : -, Artefact : -	Quarry	1236
	Contact	Recorders	Laura-Jane Smith					Permits		
36-3-0138	CR13;	AGD	55	729920	6416610	Open site	Valid	Artefact : -	Open Camp Site	1236
	Contact	Recorders	Laura-Jane Smith					Permits		
36-3-0139	CR8;	AGD	55	729950	6417050	Open site	Valid	Artefact : -	Open Camp Site	1236
	Contact	Recorders	Laura-Jane Smith					Permits		
36-3-0028	Gulgong;	AGD	55	741820	6411318	Open site	Valid	Stone Quarry : -, Artefact : -	Quarry	1299
	Contact	Recorders	Isabel McBryde					Permits		
36-3-0047	Stubbo Creek 3;	AGD	55	739276	6424042	Open site	Valid	Artefact : -	Open Camp Site	234
	Contact	Recorders	L Cubis					Permits		
36-3-0048	Slapdash Creek 1;	AGD	55	737542	6421727	Open site	Valid	Artefact : -	Open Camp Site	234
	Contact	Recorders	L Cubis					Permits		
36-3-0140	CR9;	AGD	55	729800	6417100	Open site	Valid	Artefact : -	Open Camp Site	1236
	Contact	Recorders	Laura-Jane Smith					Permits		
36-3-0141	CR7;	AGD	55	730150	6417050	Open site	Valid	Artefact : -	Open Camp Site	1236
	Contact	Recorders	Laura-Jane Smith					Permits	53	
36-2-0013	Spring Ridge;	AGD	55	724971	6425674	Open site	Valid	Artefact : -	Open Camp Site	1299
	Contact	Recorders	R Hawkins,Hawkins					Permits		
36-2-0014	Two Mile Flat;	AGD	55	725544	6416502	Open site	Valid	Artefact : -	Open Camp Site	1299
	Contact	Recorders	Moore,R Hawkins,Hawkins					Permits		
36-2-0015	Puggoon;	AGD	55	731367	6425435	Open site	Valid	Artefact : -	Open Camp Site	1299
	Contact	Recorders	R Hawkins,Hawkins					Permits		
36-2-0016	Beryl;	AGD	55	732922	6418057	Open site	Valid	Artefact : -	Open Camp Site	1299
	Contact	Recorders	R Hawkins,Hawkins					Permits		

Report generated by AHIMS Web Service on 15/11/2016 for Kirsten Bradley for the following area at Lat, Long From : -32.422, 149.3336 - Lat, Long To : -32.2713, 149.5725 with a Buffer of 50 meters. Additional Info : Background for assessment. Number of Aboriginal sites and Aboriginal objects found is 79

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 6

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Beryl Solar Farm

Client Service ID : 254143

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-3-0090	CR 1	AGD	55	730350	6416693	Open site	Valid	Artefact : -	Open Camp Site	1125,1504,102800
	Contact	Recorders	Helen Brayshaw					Permits		
36-3-0091	CR 2	AGD	55	730458	6416531	Open site	Valid	Artefact : -	Open Camp Site	1125,1504,102800
	Contact	Recorders	Helen Brayshaw					Permits		
36-3-0092	CR 3;	AGD	55	730586	6416108	Open site	Valid	Artefact : -	Open Camp Site	1125,102800
	Contact	Recorders	Helen Brayshaw					Permits	72	
36-3-0093	CR 4;	AGD	55	730637	6416306	Open site	Valid	Artefact : -	Open Camp Site	1125,1504,102800
	Contact	Recorders	Helen Brayshaw					Permits		
36-3-0094	CR 5;	AGD	55	730133	6416731	Open site	Valid	Artefact : -	Open Camp Site	1125,1504,102800
	Contact	Recorders	Helen Brayshaw					Permits		
36-3-0095	CR 6;	AGD	55	730128	6417026	Open site	Valid	Artefact : -	Open Camp Site	1125
	Contact	Recorders	Helen Brayshaw					Permits		
36-3-0145	Potts Hill site;	AGD	55	741570	6411650	Open site	Valid	Stone Quarry : -, Artefact : -	Quarry	
	Contact	Recorders	Malcolm Drummond,L Long					Permits		
36-3-0155	JOS DAVIS BRIDGE;	AGD	55	741590	6419720	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1333
	Contact	Recorders	Warren Bluff					Permits		
36-3-0233	WILINDA 1 W1	AGD	55	740680	6412780	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	Mr.David Maynard					Permits		
36-2-0097	Stony Creek 5 SC5	AGD	55	726540	6413650	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.David Maynard					Permits		
36-2-0098	Stony Creek 4 SC4	AGD	55	726580	6414080	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.David Maynard					Permits	1845	
36-2-0099	Stony Creek 3 SC3	AGD	55	726480	6417070	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.David Maynard					Permits	1845	
36-2-0101	Wialdra Creek 1. WC1	AGD	55	731990	6419720	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.David Maynard					Permits		
36-2-0104	YBCR-ST1	AGD	55	719670	6411642	Open site	Valid	Modified Tree (Carved or Scarred) : 2		98915

Report generated by AHIMS Web Service on 15/11/2016 for Kirsten Bradley for the following area at Lat, Long From : -32.422, 149.3336 - Lat, Long To : -32.2713, 149.5725 with a Buffer of 50 meters. Additional Info : Background for assessment. Number of Aboriginal sites and Aboriginal objects found is 79

Page 2 of 6

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Beryl Solar Farm
Client Service ID : 254143

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact: Murong Gialinga Aboriginal an	Recorders: Doctor.Jodie Benton						Permits:		
36-2-0105	YBCR-PAD1	AGD	55	719560	6412130	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		98915,99037,9 9042,102443
	Contact: Murong Gialinga Aboriginal an	Recorders: Doctor.Jodie Benton						Permits:	1920,2060,2061	
36-2-0106	YBCR-OS2 with PAD	AGD	55	719669	6411920	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		98915,99037,9 9042,102443
	Contact: Murong Gialinga Aboriginal an	Recorders: Doctor.Jodie Benton						Permits:	1920,2060,2061	
36-2-0107	YBCR-OS1 with Pad	AGD	55	719449	6411791	Open site	Valid	Potential Archaeological Deposit (PAD) : -, Artefact : 1		98915
	Contact: Murong Gialinga Aboriginal an	Recorders: Doctor.Jodie Benton						Permits:		
36-2-0102	Stoney Creek 1	AGD	55	725840	6413200	Open site	Valid	Artefact : -		
	Contact:	Recorders: Mr.David Maynard						Permits:	1845	
36-2-0103	Stoney Creek 2	AGD	55	725840	6413200	Open site	Valid	Artefact : -		
	Contact:	Recorders: Mr.David Maynard						Permits:		
36-2-0108	YBCR-OS3	AGD	55	719329	6412034	Open site	Valid	Artefact : 2		99038
	Contact:	Recorders: Doctor.Jodie Benton						Permits:	2060,2061	
36-2-0109	YBCR-OS4	AGD	55	719355	6412267	Open site	Valid	Artefact : 4		99038
	Contact:	Recorders: Doctor.Jodie Benton						Permits:	2060,2061	
36-2-0119	BBS; Dubbo LALC; "Makuba Shukran"	AGD	55	725433	6425487	Open site	Valid	Artefact : 30		99169
	Contact:	Recorders: Phil Purcell,Dubbo LALC						Permits:		
36-2-0112	BBS; Dubbo LALC; property	AGD	55	724850	6425437	Open site	Valid	Artefact : 30		99169
	Contact:	Recorders: Leila McAdam,Dubbo LALC						Permits:		
36-2-0116	BBS; Dubbo LALC; property 1	AGD	55	725331	6425711	Open site	Valid	Artefact : 20		99169
	Contact:	Recorders: Phil Purcell,Dubbo LALC						Permits:		
36-2-0111	BBS; Dubbo LALC; " Makuba Shuka"	AGD	55	725180	6425960	Open site	Valid	Artefact : 22		99169
	Contact:	Recorders: Phil Purcell,Dubbo LALC						Permits:		
36-2-0137	Pig and Wistle Creek 3 (PWC3)	AGD	55	733420	6411946	Open site	Valid	Artefact : 2		
	Contact: T Russell	Recorders: Mr.David Maynard						Permits:	3546	
36-2-0138	Pig and Wistle Creek 2 (PWC2)	AGD	55	732820	6411883	Open site	Valid	Artefact : -		
	Contact: T Russell	Recorders: Mr.David Maynard						Permits:	3546	
36-3-0676	Thornbury AS1	AGD	55	735930	6413490	Open site	Valid	Artefact : 2500		
	Contact:	Recorders: Mr.John Appleton						Permits:		

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Page 3 of 6

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Beryl Solar Farm

Client Service ID : 254143

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
36-2-0140	WC IF 1	AGD	55	730960	6419061	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.David Maynard,Murong Gialinga Aboriginal and Torres Strait Islander Corporat					Permits		
36-3-0674	Magpie AS1	AGD	55	738200	6410120	Open site	Valid	Artefact : 50		
	Contact	Recorders	Mr.John Appleton					Permits		
36-3-0675	Magpie AS2	AGD	55	738180	6409980	Open site	Valid	Artefact : 20		
	Contact	Recorders	Fred Appleton					Permits		
36-2-0076	Goore Vineyards GV2	AGD	55	734330	6409840	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	4434
	Contact	Recorders	Mr.David Maynard					Permits		
36-2-0288	SAC 48	GDA	55	721529	6415418	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0272	Grinding Groove 16	GDA	55	721073	6416624	Open site	Valid	Grinding Groove : 1		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0274	IF 14	GDA	55	720886	6425987	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0275	IF 15	GDA	55	720319	6425539	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0276	IF 16	GDA	55	720412	6424701	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0277	IF 17	GDA	55	720013	6423366	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0278	IF 18	GDA	55	720129	6422149	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0279	SAC 39	GDA	55	720289	6424996	Open site	Valid	Art (Pigment or Engraved) : 1, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0280	SAC 40	GDA	55	720242	6424682	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0281	SAC 41	GDA	55	720045	6423564	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		

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Page 4 of 6

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Beryl Solar Farm
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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0282	SAC 42	GDA	55	720023	6423137	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0284	SAC 44	GDA	55	720151	6418448	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0285	SAC 45	GDA	55	721039	6416749	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0286	SAC 46	GDA	55	721034	6416565	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0287	SAC 47	GDA	55	721362	6415584	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Tim Owen					Permits		
36-2-0312	Lower Piambong Rd (LP39)	GDA	55	723357	6410334	Open site	Valid	Artefact : 27		
	Contact	Recorders	Mr.David Maynard,Miss.Christine Maynard					Permits	3336	
36-2-0313	Lower Piambong Rd (LP40)	GDA	55	723482	6410757	Open site	Valid	Artefact : 77		
	Contact	Recorders	Mr.David Maynard					Permits	3336	
36-2-0314	Lower Piambong Rd (LP41)	GDA	55	723304	6411232	Open site	Valid	Artefact : 11		
	Contact	Recorders	Mr.David Maynard,Miss.Christine Maynard					Permits	3336	
36-2-0320	Hughes Road Lower Piambong Road IA	AGD	55	723738	6410500	Open site	Valid	Artefact : 2		102331
	Contact	Recorders	Miss.Christine Maynard,Metropolitan Local Aboriginal Land Council					Permits	3500	
36-3-2582	Castlereagh Hwy Scarred Tree 1	GDA	55	737405	6410456	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	OzArk Environmental and Heritage Management,Mr.Toivo Kim Tuovinen					Permits		
36-3-2595	Magpie Lane IFML1	GDA	55	737462	6410892	Open site	Valid	Artefact : 1		102441
	Contact	Recorders	Mr.David Maynard					Permits		
36-2-0370	CBR - OS - 32	GDA	55	720461	6426794	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Neville Baker					Permits		
36-2-0389	CBR - OS - 25	GDA	55	721554	6415264	Open site	Valid	Artefact : 1		

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Page 5 of 6

Office of Environment & Heritage

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Mr.Neville Baker					Permits		
36-2-0390	CBR - OS - 24	GDA	55	721400	6414920	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Neville Baker					Permits		
36-2-0391	CBR - OS - 23	GDA	55	721220	6414610	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Neville Baker					Permits		
36-2-0392	CBR - OS - 22	GDA	55	721134	6414455	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Neville Baker					Permits		
36-2-0331	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			102448
	Contact	Recorders	Miss.Christine Maynard					Permits	3478	
36-2-0332	GRG-2	GDA	55	724088	6412963	Open site	Valid	Artefact : -		102448
	Contact	Recorders	Miss.Christine Maynard					Permits	3478	
36-2-0333	GRG-3	GDA	55	724296	6413664	Open site	Valid	Artefact : -		102448
	Contact	Recorders	Miss.Christine Maynard					Permits	3478	
36-2-0334	GRG-4	GDA	55	725154	6413927	Open site	Valid	Artefact : 1		102448
	Contact	Recorders	Miss.Christine Maynard					Permits	3478	
36-3-3091	Old Barneys AFT 1	GDA	55	738486	6420460	Open site	Valid	Artefact : -		
	Contact	Recorders	Niche Environment and Heritage,Ms.Clare Anderson					Permits		

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